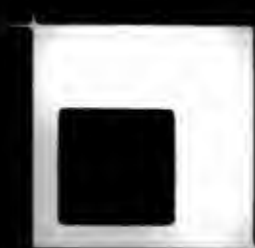


U. S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE
VOL. 925
AUGUST
1974

MICRO PHOTO DIVISION



BELL & HOWELL

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A UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION



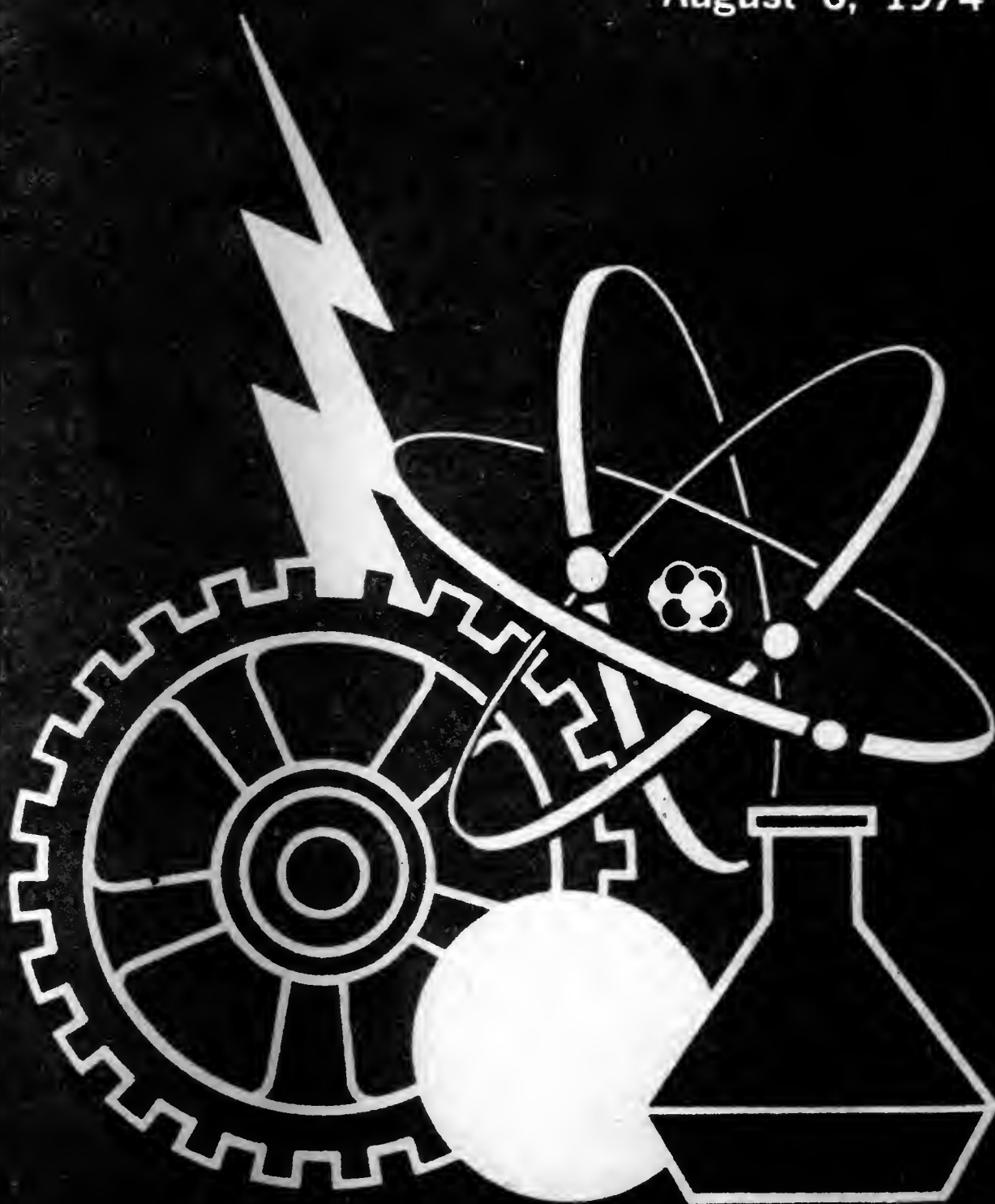
Vol. 925 Number 1

OFFICIAL GAZETTE

of the
UNITED STATES PATENT OFFICE

PATENTS

August 6, 1974



U. S.
DEPARTMENT
OF COMMERCE

Patent
Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

August 6, 1974

Volume 925

Number 1

CONTENTS

	Page
Patent and Trademark Notices	
Interference Record	2
Use of Metric System of Measurement in Patent Application	2
Patent Notices	
Certificates of Correction for the Week of August 6, 1974	3
Patents Available for Licensing or Sale	3
National Technical Information Service	5
Disclaimers	6
Condition of Patent Applications	7
Defensive Publications (T925,001)	8
Reissue Patents Granted (28,096)	11
Plant Patents Granted (3,581)	15
Patents Granted	
General and Mechanical (3,827,084)	16
Chemical (3,827,857)	215
Electrical (3,828,107)	261
Design Patents Granted (232,276)	330
Index of Patentees	PI 1
Indices of Applicants of Defensive Publications, Reissues, Plants and Designs	PI 39
Classification of	
Patents (Including Reissues)	PI 41
Designs, Plants and Defensive Publications	PI 43
Geographical Index of Residence of Inventors	
Patents (Including Reissues)	PI 44
Designs, Plants and Applicants of Defensive Publications	PI 46

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PATENT OFFICE NOTICES

Interference Record

It has come to the attention of the Patent Office that some practitioners have misinterpreted Rule 253 as requiring that a set of copies of documentary exhibits be submitted as a part of each copy of the record (a total of four sets). To clarify the intent of the rule in this respect, it should be noted that paragraph (c) of Rule 253 requires only that each copy of the record contain the following:

- The testimony presented by the party concerned;
- A copy of the counts of the interference;
- A copy of the preliminary statement of the party concerned; and
- An index of exhibits.

Only one set of exhibits need be submitted.

GEORGE W. BOYS,
July 11, 1974. *Chairman, Board of Patent Interferences.*

Use of Metric System of Measurements in Patent Applications

In order to minimize the necessity in the future for converting dimensions given in the English system of measure-

ments to the metric system of measurements when using printed patents as research prior art search documents, all patent applications are strongly encouraged to use *either* (1) only metric (S.I.) units, or (2) English units together with their metric system equivalents, when describing their inventions in the specifications of patent applications. This practice, however, is not being made mandatory at this time.

The initials S.I. stand for "Système International d'Unités," the French name for the International System of Units, a modernized metric system adopted in 1960 by the International General Conference of Weights and Measures based on precise unit measurements made possible by modern technology.

This request is made as part of the long-range program for conversion to metric units currently being conducted by the Federal Government.

Publications dealing with the metric system are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 and the American National Standards Institute, 1430 Broadway, New York, N.Y. 10018.

July 1, 1974.

C. MARSHALL DANN,
Commissioner of Patents.

AUGUST 6, 1974

U. S. PATENT OFFICE

3

Certificates of Correction for the Week of Aug. 6, 1974

Re. 27,790	3,741,580	3,769,255	3,784,442
Re. 27,909	3,741,580	3,770,019	3,784,579
Re. 27,923	3,742,277	3,770,140	3,784,598
Re. 27,947	3,742,340	3,770,345	3,784,617
Re. 27,960	3,742,369	3,770,363	3,784,619
D. 226,446	3,742,372	3,770,581	3,784,622
D. 228,437	3,744,037	3,770,648	3,784,737
D. 228,479	3,744,146	3,771,487	3,784,863
D. 229,029	3,744,183	3,771,490	3,784,979
D. 230,571	3,744,235	3,771,901	3,785,097
3,456,209	3,744,312	3,771,938	3,785,102
3,489,411	3,744,494	3,772,046	3,785,291
3,537,342	3,744,515	3,772,178	3,785,464
3,540,884	3,744,908	3,772,330	3,785,481
3,557,058	3,744,948	3,772,390	3,785,666
3,586,711	3,745,071	3,772,517	3,785,757
3,593,077	3,745,269	3,772,595	3,786,737
3,616,840	3,745,418	3,773,351	3,787,141
3,628,601	3,745,505	3,773,604	3,787,189
3,632,441	3,745,569	3,773,613	3,787,283
3,634,588	3,746,333	3,773,663	3,787,363
3,649,493	3,746,700	3,773,896	3,787,453
3,651,082	3,747,075	3,774,078	3,787,504
3,662,083	3,747,645	3,774,116	3,787,715
3,662,672	3,747,703	3,774,160	3,788,089
3,663,062	3,747,730	3,774,180	3,788,330
3,672,002	3,748,467	3,774,407	3,788,407
3,674,794	3,748,986	3,774,815	3,788,425
3,682,953	3,750,251	3,774,868	3,788,771
3,683,092	3,750,703	3,775,112	3,789,414
3,684,626	3,750,887	3,775,517	3,789,494
3,686,162	3,751,058	3,775,562	3,790,375
3,686,294	3,751,554	3,775,612	3,790,690
3,687,929	3,752,619	3,776,473	3,790,765
3,689,265	3,753,007	3,776,481	3,791,065
3,689,401	3,753,380	3,776,682	3,791,134
3,689,571	3,753,974	3,776,792	3,791,382
3,689,649	3,755,727	3,776,961	3,791,653
3,691,531	3,755,914	3,776,999	3,791,918
3,694,270	3,756,099	3,777,020	3,792,135
3,698,618	3,756,514	3,777,087	3,792,652
3,698,918	3,758,295	3,777,360	3,792,836
3,699,109	3,758,424	3,777,379	3,792,954
3,707,395	3,758,692	3,777,385	3,793,239
3,707,908	3,759,815	3,777,593	3,793,292
3,708,662	3,760,584	3,777,778	3,793,379
3,708,987	3,761,013	3,778,504	3,793,413
3,709,112	3,761,458	3,778,527	3,793,517
3,711,472	3,761,810	3,778,612	3,793,745
3,711,738	3,762,312	3,778,816	3,793,752
3,714,768	3,762,677	3,778,852	3,793,964
3,720,558	3,763,227	3,778,939	3,794,815
3,723,348	3,763,409	3,779,351	3,794,981
3,725,017	3,763,683	3,779,474	3,795,138
3,725,479	3,763,686	3,779,525	3,795,785
3,725,843	3,764,259	3,780,136	3,795,889
3,726,870	3,764,576	3,780,173	3,796,014
3,727,153	3,764,602	3,780,251	3,797,623
3,730,439	3,765,331	3,780,387	3,798,531
3,733,359	3,765,845	3,780,783	3,798,957
3,734,426	3,766,245	3,780,827	3,799,049
3,735,024	3,766,332	3,780,958	3,799,497
3,736,351	3,766,427	3,781,452	3,800,017
3,736,829	3,766,534	3,781,527	3,800,262
3,737,417	3,766,553	3,781,610	3,800,277
3,738,003	3,766,567	3,781,627	3,800,794
3,738,652	3,766,981	3,781,792	3,800,916
3,738,814	3,767,418	3,781,872	3,800,992
3,739,082	3,767,633	3,783,005	3,801,205
3,739,829	3,768,024	3,783,027	3,802,286
3,740,893	3,768,490	3,783,165	3,802,604
3,740,909	3,768,611	3,783,210	3,805,235
3,741,139	3,768,993	3,783,239	3,805,470
3,741,295	3,769,033	3,783,469	3,806,073
3,741,495	3,769,076	3,783,501	
3,741,533	3,769,208	3,784,354	

Patents Available for Licensing or Sale

- D.228,559. DOLL. Joyce Cervantes, Box 21, Compass Lake, Fla., 32448.
D.230,783. BELT. Jean Walton Lang, Swanton, Vt., 05488.

2,970,783. COMPOSITE WEARING PARTS FOR CRUSHERS AND THE LIKE. A. H. Plyer, 55 E. Monroe, Chicago, Ill., 60603.

3,237,885. SPACE CRAFT. Jack L. Mohar, 41 W. Arbor St., Long Beach, Calif., 90805.

3,238,289. MULTIPLE INFORMATION CONDUIT APPARATUS. Dale C. Rowe, 23 S. Bereman St., Aurora, Ill., 60538.

3,352,158. PRESSURE GAUGE FOR PUMPS. Clarence Goebel, Rte. 1, Haskell, Tex., 79521.

3,578,840. REVOLVING REFLECTOR. John O. Richards, 980 Mill Circle, Apt. No. 99, Alliance, Ohio, 44601.

3,602,389. CONTAINER OPENER AND HANDLE ASSEMBLY. David E. Russell, 110 Riverside Ave., Jacksonville, Fla., 32202.

3,631,388. ENGINE OIL AND WATER TEMPERATURE AUDIO WARNING SYSTEM. Raymond K. Strong, 11711 S.W. 170th St., Miami, Fla., 33157.

3,709,671. METHOD FOR PROCESSING SLAG. Fritz Forscheplepe, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,727,118. CONTACTLESS REVERSIBLE DEVICE IN AN ELECTRIC CAR. Nippon Gijutsu Boeki Co., Ltd., 32F Kasumigaseki Bldg., 2-5 Kasumigaseki, 3-chome, Chiyoda-ku, Tokyo 100, Japan.

3,752,524. GRIPPING DEVICE. Otto Reick, Jr. 119 Phelps St., Decatur, Mich., 49045.

3,764,059. STUD LOCK. Stewart R. Knowles, 214 Orchard St., Strasburg, Va. 22657.

3,765,860. ARRANGEMENT FOR PROCESSING SLAG. Fritz Forscheplepe, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y. 10017.

3,777,418. LUNCH BOX. Leah H. Cooper, 1653 Sheepshead Bay Road, Brooklyn, N.Y. 11235.

3,788,170. MECHANISM FOR RADIAL ADJUSTMENT OF TOOLS IN ROTARY TUBULAR TOOL HOLDERS OF SHAVING MACHINES OR THE LIKE. Th. Kleserling & Albrecht, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y. 10017.

3,791,734. MICROFILM CAMERA AND LIGHT SOURCE THEREFOR. George F. Dvorak, 53 W. Jackson Blvd., Chicago, Ill. 60604.

3,795,254. SALT REMOVAL SPRAY DEVICE. Nelson K. Blosser, General Delivery P.O. Box 327, Gergholz, Ohio. 43908.

3,781,408. AIR POLLUTION CONTROL. Ping-Wah Lin, 506 S. Darling, Angola, Ind. 46703.

3,782,009. BEHAVIOR MODIFICATION POINT BOARD. Eula K. Darnell, 307 Baldwin, West Helena, Ark., 72380.

3,771,811. CHILD'S COASTER. A. C. De Campos Bueno, Sao Paulo, Brazil. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,786,832. SOLAR EVAPORATION CONTROLLED SYSTEM. Dale Marean, 1626 First St., Manhattan Beach, Calif., 90266.

3,796,453. DOGGIE MAID. Lillian P. Grimes, 264 S. Main Road, Vineland, N.J. 08360.

3,796,458. BOWL SHAPED AUTOMOBILE. Katherine A. Minial, 445 S. 3rd St., #11, San Jose, Calif., 95112.

3,800,726. TELESCOPIC TRAILERABLE HOUSEBOAT. Reuel A. Murphy, Rte. A, Box 137, Space 7, Westland Mobile Park, Lower Lake, Calif., 95457.

3,802,102. MOVIE TITLEING AND SPECIAL EFFECTS EQUIPMENT. Robert P. Liccardi, 1149 Ridge Road E., Rochester, N.Y., 14621.

3,803,743. MINNOW DIPPER. Walter Nalepka, 33648 Michelo St., Livonia, Mich., 48150.

3,805,390. TARGET MAKER. Henry A. Craig, 4310 South Elm, Rapid City, S. Dak., 57701.

3,807,592. CAR TRUNK LOADER. Dwane Simmons, 7465 Olive Tree Lane, Highland, Calif., 92346.

3,808,692. TAPE MEASURE COUNTER. Morton Gartner, 60 E. 8th St., New York, N.Y., 10003.

3,811,461. DUAL ACTION TRIGGERING VALVE DEVICE FOR INFLATABLE EQUIPMENT. Joseph F. Novak, 609 State St., Calumet City, Ill., 60409.

3,820,182. SWIMMING POOL CLEANER. William J. Vockroth, 1149 Pleasant Road, Harrisburg, Pa., 17111.

Eastman Kodak Company announces that nonexclusive licenses are available to responsible applicants under the following 11 patents.

Applications for licenses may be addressed to the Director, Patent Department, Eastman Kodak Company, 343 State St., Rochester, N.Y., 14650.

3,431,111. CYANINE DYES.

3,520,588. AUTOSTEREO PICTURE.

- 3,617,282. NUCLEATING AGENTS FOR PHOTOGRAPHIC REVERSAL PROCESSES.
- 3,632,808. CYANINE DYES CONTAINING AN IMIDAZO [4,5-b]QUINOXALINE NUCLEUS.
- 3,642,223. SPOOL.
- 3,658,525. REVERSAL COLOR PHOTOGRAPHIC PROCESSES.
- 3,695,878. METHOD OF PRODUCING AUTOSTEREO PICTURES.
- 3,732,058. APPARATUS FOR IGNITING PERCUSSIVELY OR ELECTRICALLY FIREABLE FLASH UNITS.
- 3,758,300. COLOR SOUND MOTION PICTURE FILM PRINTS WITH MINIMAL FOGGED GRAIN RELATED NOISE IN SOUND TRACK.
- 3,770,437. PHOTOGRAPHIC BLEACH COMPOSITIONS.
- 3,840,214. FLASH EXTENDER.
- 3,808,769. LIQUID CRYSTAL DEVICE CLOSURE METHOD.
- 3,809,458. LIQUID CRYSTAL DISPLAY.
- 3,809,574. ALUMINUM OXIDE FILMS FOR ELECTRONIC DEVICES.
- 3,809,926. WINDOW DETECTOR CIRCUIT.
- 3,809,974. CORONA DISCHARGE DEVICE.
- 3,810,023. AUTOMATIC SQUELCH TAIL ELIMINATOR FOR TONE CODED SQUELCH SYSTEMS.
- 3,811,055. CHARGE TRANSFER FAN-IN CIRCUITRY.
- 3,811,754. CORRECTING LENS.
- 3,811,855. METHOD OF TREATING A GLASS BODY TO PROVIDE AN ION-DEPLETED REGION THEREIN.
- 3,811,926. METHOD FOR COATING ONLY THE CONVEX MAJOR SURFACE OF AN APERTURED MASK FOR A CATHODE-RAY TUBE.
- 3,811,963. METHOD OF EPITAXIALLY DEPOSITING GALLIUM NITRIDE FROM THE LIQUID PHASE.
- 3,812,289. TELEVISION RECEIVER USING SYNCHRONOUS VIDEO DETECTION.
- 3,812,383. HIGH SPEED SIGNAL FOLLOWING CIRCUIT.
- 3,812,384. SET-RESET FLIP-FLOP.
- 3,812,397. INDEPENDENT ELECTRON GUN BIAS CONTROL.
- 3,812,437. IMPEDANCE CONTROL USING TRANSFERRED ELECTRON DEVICES.
- 3,812,528. TWO COLOR MEDIUM FOR FULL COLOR TV FILM SYSTEM.
- 3,812,537. TAPE CARTRIDGE PLAYER CARTRIDGE MAGAZINE.
- 3,813,488. VIDEO STRIPPER.
- 3,813,576. SERIES REGULATED POWER SUPPLY FOR ARC DISCHARGE LAMPS UTILIZING INCANDESCENT LAMPS.
- 3,813,580. HIGH VOLTAGE PROTECTION CIRCUIT.
- 3,813,595. CURRENT SOURCE.
- 3,813,596. MAGNETIC REED SENSOR SUITABLE FOR USE IN IGNITION TIMING SYSTEMS.
- 3,813,678. HINGED DRUM SYSTEM.
- 3,800,378. METHOD OF MAKING A DIRECTLY-HEATED CATHODE.
- 3,801,033. APPARATUS FOR EASILY ENGAGING, DIS-ENGAGING AND LOCKING LOAD TO ROTATABLE DRIVING ELEMENT.
- 3,801,378. NIOBIUM-GALLIUM SUPERCONDUCTOR.
- 3,801,477. METHOD OF DEPOSITING ELECTRODE LEADS.
- 3,801,856. INSTANT-ON CIRCUIT FOR A TELEVISION RECEIVER.
- 3,801,857. TELEVISION DEFLECTOR CIRCUIT WITH TRANSFORMERLESS COUPLING BETWEEN THE DRIVER AND OUTPUT STAGE.
- 3,801,892. HEATER-CATHODE INSULATION LEAKAGE TEST METHOD AND APPARATUS.
- 3,801,949. THERMAL DETECTOR AND METHOD OF MAKING THE SAME.
- 3,802,967. 111-V COMPOUND ON INSULATING SUBSTRATE AND ITS PREPARATION AND USE.
- 3,803,436. SHADOW MASK MOUNTING ASSEMBLIES.
- 3,803,438. ELECTROLUMINESCENT FILM AND METHOD FOR PREPARING SAME.
- 3,803,510. ELECTRON-BEAM PUMPED LASER WITH EXTENDED LIFE.
- 3,803,602. DIGITAL RANGE RATE COMPUTER.
- 3,803,604. DIGITAL TRACKER.
- 3,803,605. TRACK GATE MOVEMENT LIMITER.
- 3,804,766. LOW BIREFRINGENT ORTHOFERRITES.
- 3,804,981. BRIGHTNESS CONTROL.
- 3,805,117. HYBRID ELECTRON DEVICE CONTAINING SEMICONDUCTOR CHIPS.
- 3,805,125. SEMICONDUCTOR MEMORY ELEMENT.
- 3,805,184. GATED ASTABLE MULTIVIBRATOR.
- 3,805,195. ADAPTIVE SURFACE WAVE DEVICES.
- 3,806,372. METHOD FOR MAKING A NEGATIVE EFFECTIVE ELECTRON-AFFINITY SILICON ELECTRON EMITTER.
- 3,806,668. INFORMATION PLAYBACK SYSTEM.
- 3,806,883. LEAST RECENTLY USED LOCATION INDICATOR.
- 3,807,006. METHOD OF INSTALLING A MOUNT ASSEMBLY IN A MULTIBEAM CATHODE-RAY TUBE.
- 3,807,039. METHOD FOR MAKING A RADIO FREQUENCY TRANSISTOR STRUCTURE.
- 3,807,127. METHOD OF CLOSING A LIQUID CRYSTAL DEVICE.
- 3,807,657. DUAL THRUST LEVEL MONOPROPELLANT SPACECRAFT PROPULSION SYSTEM.
- 3,808,043. METHOD OF FABRICATING A DARK HEATER.
- 3,808,065. METHOD OF POLISHING SAPPHIRE AND SPINEL.
- 3,808,466. CAPACITIVE-DISCHARGE TIMING CIRCUIT USING COMPARATOR TRANSISTOR BASE CURRENT TO DETERMINE DISCHARGE RATE.
- 3,808,570. STATIC CONVERGENCE DEVICE FOR ELECTRON BEAMS.
- General Electric Company prepares to grant non-exclusive licenses under the following 37 patents upon reasonable terms to domestic manufacturers. Applications for licenses under the following patent should be addressed to: Division Patent Counsel, Space Division, General Electric Co., P.O. Box 8555, Philadelphia, Pa., 19101.
- 3,800,631. FE AL CR Y CO ALLOY.
- 3,806,626. MEANS FOR REDUCING AUDIBLE NOISE DEVELOPED BY AN EXTRA HIGH VOLTAGE TRANSMISSION LINE.
- Applications for licenses under the following 3 patents may be addressed to: General Electric Co. Division Patent Counsel, Housewares Business Div., 1285 Boston Ave., Bridgeport, Conn., 06602.
- 3,806,691. STEAM-POWERED SPRAY IRON.
- 3,654,715. ADJUSTABLE SPRAYER IRON WITH TEMPERATURE INTERLOCK.
- 3,465,423. PROCESS OF MAKING ALUMINUM BONDED STAINLESS STEEL ARTICLE.
- Application for licenses under the following patents may be addressed to: General Electric Co. Appliance Components Business Division, 1635 Broadway, Fort Wayne, Ind., 46804, Attention: Patent Counsel.
- 3,182,282. ELECTRICAL CONNECTION.
- 3,482,127. MOTOR VIBRATION ISOLATION MOUNTING.
- 3,495,101. THERMAL MOTOR.
- 3,552,115. INTERVAL TIMER FOR PROVIDING A FIXED AND LOCKED TIMED CYCLE.
- 3,633,057. STATOR HAVING IMPROVED WINDING DISTRIBUTION.
- Applications for licenses under the following 6 patents may be addressed to: Patent Counsel, STG PRODS Division, General Electric Company, 1 River Road, Bldg. No. 43, Schenectady, N.Y., 12305.
- 3,760,869. METHOD OF THERMAL EXHAUST AND SYSTEM THEREFOR.

- 3,800,861. AIR COOLED VAPOR CONDENSER MODULE.
- 3,803,001. COMBINATION CONDENSER-DEGASSER-DEAERATOR FOR A DESALINATION PLANT.
- 3,805,217. CONNECTION BAR COUPLING.
- 3,807,218. SAMPLING DEVICE FOR DYNAMOELECTRIC DEVICE.
- 3,812,377. SYSTEM FOR INDEPENDENT OR COMMON CONTROL OF PRIME MOVERS.
- Applications for licenses under the following 11 patents may be addressed to: General Electric Company, Transportation Systems Business Division, 2901 E. Lake Road, Erie, Pa., 16501, Attention: Patent Counsel.
- 3,529,698. SELF-OPERATING LUBRICATION SYSTEM FOR GEAR DRIVE UNITS.
- 3,621,370. GENERATOR LOAD CONTROL SYSTEM.
- 3,679,894. ACCELERATION CONTROL SYSTEM FOR VEHICLES.
- 3,713,709. RESILIENT AXLE LINING DUST GUARD.
- 3,731,121. COMMUTATOR AIR-DEFLECTOR.
- 3,740,600. SELF-SUPPORTING COIL BRACE.
- 3,756,665. CONTROL APPARATUS FOR APPLICATION OF AUTOMATIC AIR BRAKE SYSTEMS.
- 3,791,203. METHOD FOR MEASURING TORSIONAL VIBRATION.
- 3,759,540. VEHICLE CHASSIS.
- 3,771,821. ELECTRONIC POWER CONTROL AND LOAD RATE CIRCUIT.
- 3,791,657. DYNAMIC LIP SEAL.
- Applications for licenses under the following 10 patents may be addressed to: Group Patent Counsel, Major Appliance Business Group, General Electric Company, Appliance Park, Louisville, Ky., 40225.
- 3,292,884. HERMETIC COMPRESSOR MOUNTING SYSTEM.
- 3,628,845. REFRIGERATOR CABINET WITH SELF-CLOSING DOOR.
- 3,635,043. HOUSEHOLD REFRIGERATOR INCLUDING AUTOMATIC ICEMAKER AND DOOR MOUNTED ICE STORAGE RECEPTACLE.
- 3,793,942. SPRAY ACTUATOR FOR REFUSE COMPACTOR.
- 3,794,396. REFRIGERATOR CABINET CONSTRUCTION.
- 3,794,400. RACK MECHANISM FOR TOPLOADING DISHWASHER.
- 3,794,571. REGENERATION OF FERRIC CHLORIDE COPPER ETCHING SOLUTIONS.
- 3,796,064. SUCTION ACCUMULATOR.
- 3,797,764. SELF-LATCHING WASTE FOOD DISPOSER MOUNTING ASSEMBLY.
- 3,798,465. CONTROL ARRANGEMENT FOR A WASHING MACHINE.
- Patent application 274,030. Mechanical Rotary Tilt Stage. Filed July 21, 1972, PC \$4/MF \$1.45.
- Patent application 275,018. Method and Means for Passivation and Isolation in Semiconductor Devices. Filed July 25, 1972, PC \$4/MF \$1.45.
- Patent application 275,022. Portable Hand Held Dosimeter. Filed July 25, 1972, PC \$4/MF \$1.45.
- Patent application 288,816. Ramjet With Integrated Rocket Boost Motor. Filed Sept. 13, 1972, PC \$4/MF \$1.45.
- Patent application 298,209. Portable Repair Apparatus. Filed Oct. 17, 1972, PC \$4/MF \$1.45.
- Patent application 300,934. Direction Finding Interferometer For a Linear FM Signal. Filed Oct. 26, 1972, PC \$4/MF \$1.45.
- Patent application 304,582. Columbium-Base Alloy. Filed Nov. 7, 1972, PC \$4/MF \$1.45.
- Patent application 310,036. Flys-Eye Mirror Laser Apparatus. Filed Nov. 28, 1972, PC \$4/MF \$1.45.
- Patent application 317,554. Air-to-Air Fire Control Disturbed Line Method and System. Filed Dec. 22, 1972, PC \$4/MF \$1.45.
- Patent application 320,796. A Compatible Scanning System. Filed Jan. 3, 1973, PC \$4/MF \$1.45.
- Patent application 322,571. Tow Plate. Filed Jan. 10, 1973, PC \$4/MF \$1.45.
- Patent application 326,207. Laser Window Materials. Filed Jan. 24, 1973, PC \$4/MF \$1.45.
- Patent application 327,360. Burst Phase Shift Keyed Receiver. Filed Jan. 29, 1973, PC \$4/MF \$1.45.
- Patent application 328,157. Truncated Modified Sequential Hypothesis Test Target Detector. Filed Jan. 31, 1973, PC \$4/MF \$1.45.
- Patent application 334,793. Method of Connecting Substantial Similar Metal Parts. Filed Feb. 22, 1973, PC \$4/MF \$1.45.
- Patent application 336,583. Thermal Stabilization of Polyamide Fibers. Filed Feb. 28, 1973, PC \$4/MF \$1.45.
- Patent application 340,516. Atomic Resonance Optical Filter-Detector. Filed Mar. 12, 1973, PC \$4/MF \$1.45.
- Patent application 349,902. Cargo Handling Traller. Filed Apr. 9, 1973, PC \$4/MF \$1.45.
- Patent application 349,903. Boost-Surge Power Supply. Filed Apr. 9, 1973, PC \$4/MF \$1.45.
- Patent application 350,257. Temperature Compensated Latching Ferrite Phase Shifter. Filed Apr. 11, 1973, PC \$4/MF \$1.45.
- Patent application 350,258. Ultra Broad Band RF Phase Shifter. Filed Apr. 11, 1973, PC \$4/MF \$1.45.
- Patent application 350,259. Atmospheric Sampling Probe for a Mass Spectrometer. Filed Apr. 11, 1973, PC \$4/MF \$1.45.
- Patent application 350,855. Compton Back-Scattered Radiation Source. Filed Apr. 13, 1973, PC \$4/MF \$1.45.
- Patent application 351,670. Four-Horn Radiometric Tracking RF System. Filed Apr. 16, 1973, PC \$4/MF \$1.45.
- Patent application 352,385. High Modulus Graphite Fiber Reinforced Tubes. Filed Apr. 18, 1973, PC \$4/MF \$1.45.
- Patent application 352,389. Treatment of Aluminum Alloys. Filed Apr. 18, 1973, PC \$4/MF \$1.45.
- Patent application 366,390. Cassette-Type Tube Welder. Filed June 8, 1973, PC \$4/MF \$1.45.
- Patent application 369,385. Self Normalizing Spectrum Analyzer and Signal Detector. Filed June 12, 1973, PC \$4/MF \$1.45.
- Patent application 379,026. High Resolution, Very Short Pulse, Ionosounder. Filed Aug. 13, 1973, PC \$4/MF \$1.45.
- Patent application 379,028. Anti-Frost Apparatus. Filed July 13, 1973, PC \$4/MF \$1.45.
- Patent application 381,443. Electrolytic Igniter. Filed June 19, 1973, PC \$4/MF \$1.45.
- Patent application 386,924. Dielectric Directional Antenna. Filed Aug. 9, 1973, PC \$4/MF \$1.45.
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- Patent application 392,380. Aft Inlet Ramjet Powered Missile. Filed Aug. 28, 1973, PC \$4/MF \$1.45.
- Patent application 407,378. Method for Converting Chrysotile Asbestos. Filed Oct. 17, 1973, PC \$4/MF \$1.45.
- Patent application 407,380. Surface Treatment of Titanium and Titanium Alloys. Filed Oct. 17, 1973, PC \$4/MF \$1.45.

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the licensing policy of each agency-sponsor.

Copies of Patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent-application number and the title.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at \$0.50 each. Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

DEPARTMENT OF THE AIR FORCE
AF/JACP, Washington, D.C. 20314

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Patent application 271,945. Digital Bit Synchronizer. Filed July 14, 1972, PC \$4/MF \$1.45.

DEPARTMENT OF TRANSPORTATION
Patent Counsel, 400 7th St. SW.,
Washington, D.C. 20590

Patent application 472,166. Visual Divided Attention Alcohol Safety Interlock System. Filed May 22, 1974, PC \$4/MF \$1.45.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
National Institutes of Health, Chief, Patent Branch
Westwood Building, Bethesda, Md. 20014

Patent application 423,303. Human Parathyroid Hormone. Filed Dec. 10, 1973, PC \$4.50/MF \$1.45.

Patent application 441,445. Cell Culture on Semi-Permeable Tubular Membranes. Filed Feb. 11, 1974, PC \$4.25/MF \$1.45.

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Patent application 451,300. Isolation of Glucocerebrosidase From Human Placental Tissue. Filed Mar. 14, 1974. PC \$4/MF \$1.45.

Patent 3,654,477. Obstacle Detection System for Use by Blind Comprising Plural Ranging Channels Mounted on Spectacle Frames. Filed June 2, 1970. Patented Apr. 4, 1972. Not available NTIS.

Patent 3,790,552. Method of Removing Hepatitis-Associated Antigen From a Protein Fraction Using Polyethylene Glycol. Filed Mar. 16, 1972. Patented Feb. 5, 1974. Not available NTIS.

Patent 3,790,663. Preparation of Dry Antiserum Coated Solid-Phase for Radioimmunoassay of Antigens. Filed July 7, 1970. Patented Feb. 5, 1974. Not available NTIS.

Patent 3,791,374. Programmer for Segmented-Balloon Pump. Filed Aug. 9, 1971. Patented Feb. 12, 1974. Not available NTIS.

Patent 3,799,159. Hydraulic Flexion Control Device. Filed Oct. 28, 1971. Patented Mar. 26, 1974. Not available NTIS.

Patent 3,799,844. Instrumental Method for Plating and Counting Aerobic Bacteria. Filed June 2, 1971. Patented Mar. 26, 1974. Not available NTIS.

Patent 3,807,401. Anticoagulating Blood Suction Device. Filed June 21, 1972. Patented Apr. 30, 1974. Not available NTIS.

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DEPARTMENT OF THE INTERIOR
Branch of Patents, 18th and C Sts., N.W.
Washington, D.C. 20240

Patent application 412,222. Method for the Preparation of Highly Pure Titanium Tetrachloride From Calcium-Containing Titanium Materials. Filed Nov. 2, 1973. PC \$4/MF \$1.45.

Patent application 422,802. MHD Generator With Uniform Current Distribution. Filed Feb. 15, 1974. PC \$4/MF \$1.45.

Patent application 438,906. Method of Desorbing Gold From Activated Carbon. Filed Feb. 1, 1974. PC \$4/MF \$1.45.

Patent application 442,800. MHD Generator with Uniform Voltage Distribution. Filed Feb. 15, 1974. PC \$4/MF \$1.45.

Patent application 456,509. Long Shield Mining Method. Filed Apr. 1, 1974. PC \$4/MF \$1.45.

Patent application 457,667. Ultrahigh Vacuum Mounting Fixture. Filed Apr. 3, 1974. PC \$4/MF \$1.45.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters, NASA
Code GP-2, Washington, D.C. 20546

Patent 3,797,098. Totally Confined Explosive Welding. Patented Mar. 19, 1974. Not available NTIS.

Patent 3,797,919. High Speed Shutter. Patented Mar. 19, 1974. Not available NTIS.

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Patent 3,798,748. Diffusion Welding. Patented Mar. 26, 1974. Not available NTIS.

Patent 3,798,778. Orbital and Entry Tracking Accessory for Globes. Patented Mar. 26, 1974. Not available NTIS.

Patent 3,798,896. Optically Actuated Two Position Mechanical Mover. Patented Mar. 26, 1974. Not available NTIS.

Patent 3,800,082. Auditory Display for the Blind. Patented Mar. 26, 1974. Not available NTIS.

Patent 3,800,253. Digital Controller for a Baum Folding Machine. Patented Mar. 26, 1974. Not available NTIS.

Patent 3,801,617. Thiophenyl Ether Disiloxanes and Trisiloxanes Useful as Lubricant Fluids. Patented Apr. 2, 1974. Not available NTIS.

Patent 3,802,249. Method and Apparatus for Checking Fire Detectors. Patented Apr. 9, 1974. Not available NTIS.

Patent 3,802,253. Ultrasonic Biomedical Measuring and Recording Apparatus. Patented Apr. 9, 1974. Not available NTIS.

Patent 3,802,262. Electromagnetic Flow Rate Meter. Patented Apr. 9, 1974. Not available NTIS.

Patent 3,802,660. Flow Control Valve. Patented Apr. 9, 1974. Not available NTIS.

Patent 3,802,753. Hollow Rolling Element Bearings. Patented Apr. 9, 1973. Not available NTIS.

Patent 3,803,090. Ultraviolet and Thermally Stable Polymer Compositions. Patented Apr. 9, 1974. Not available NTIS.

Patent 3,803,617. High Efficiency Multifrequency Feed. Patented Apr. 9, 1974. Not available NTIS.

Patent 3,804,506. Rotary Solenoid Shutter Drive Assembly and Rotary Inertia Damper and Stop Plate Assembly. Patented Apr. 16, 1974. Not available NTIS.

Patent 3,804,525. Long Range Laser Traversing System. Patented Apr. 16, 1974. Not available NTIS.

Patent 3,804,703. Glass-to-Metal Seals Comprising Relatively High Expansion Metals. Patented Apr. 16, 1974. Not available NTIS.

Patent 3,805,622. Depolyable Pressurized Cell Structure for a Micrometeoroid Detector. Patented Apr. 28, 1974. Not available NTIS.

Patent 3,806,802. Automatic Quadrature Control and Measuring System. Patented Apr. 23, 1974. Not available NTIS.

Patent 3,806,831. Ultra-Stable Oscillator with Complementary Transistors. Patented Apr. 23, 1974. Not available NTIS.

Patent 3,806,835. Rapidly Pulsed, High Intensity, Incoherent Light Source. Patented Apr. 23, 1974. Not available NTIS.

Patent 3,806,932. Amplitude Steered Array. Patented Apr. 23, 1974. Not available NTIS.

[FR Doc. 74-16304; Filed 7-16-74; 8:45 am]

Disclaimers

Design No. 231,871.—*Jeannette L. Webb*, Madison, N.J.
FRAME FOR MAKING FRINGE. Patent dated June 25, 1974. Disclaimer filed July 1, 1974, by the inventor.

Hereby disclaims the portion of the term of the patent subsequent to June 11, 1988.

3,731,208.—*Richard G. Laatt*, Longmont, and *Juan A. Rodriguez*, Boulder, Colo. APPARATUS FOR AND METHOD OF INTEGRATION DETECTION. Patent dated May 1, 1973. Disclaimer filed June 28, 1974, by the assignee, *Storage Technology Corporation*.

Hereby enters this disclaimer to claims 1-4 and 8 of said patent.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JULY 20, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	9-7-73
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director.....	8-1-73
Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director.....	11-16-73
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director.....	9-4-73
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director..	7-3-73
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director.....	11-29-73
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director.....	3-1-73
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	11-1-73
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director.....	4-11-73
Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director.....	12-10-73
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGNS, GROUP 290—C. D. QUARFORTH, Director.....	1-29-73
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director.....	1-2-74
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	10-23-73
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director.....	11-2-73
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B. R. GAY, Director.....	9-24-73
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director.....	11-1-73
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	

Expiration of patents: The patents within the range of numbers indicated below expire during August 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 3, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,501,414 to 2,504,619, inclusive
Plant Patents..... Numbers 1,626 to 1,637, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED AUGUST 6, 1974

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent Office makes no assertion as to the novelty of the disclosed subject matter.

T925,001

DYNAMOELECTRIC MACHINE WITH A SUPERCONDUCTIVE FIELD WINDING FOR OPERATION IN EITHER A SYNCHRONOUS OR AN ASYNCHRONOUS MODE

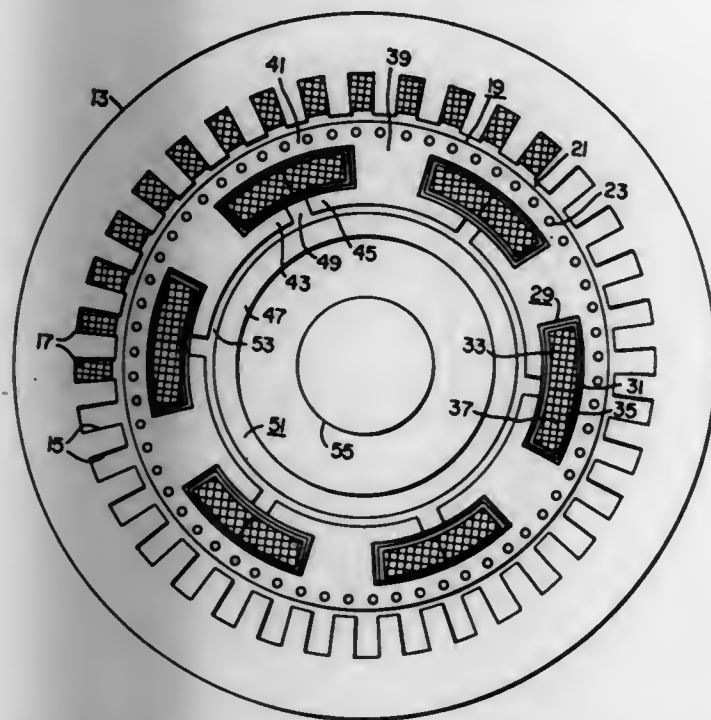
Cecil J. Mole, Monroeville, and Henry E. Haller III, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 29, 1973, Ser. No. 327,520

Int. Cl. H02k 9/00

U.S. Cl. 310-52.

1 Sheet Drawing, 16 Pages Specification



Two parallel magnetic flux paths are provided in a dynamoelectric machine having a superconductive field winding. A first, or main, magnetic flux path includes at least one area of nonferromagnetic or diamagnetic material. A second, or shunt, magnetic flux path prevents the relatively low frequency AC flux present during starting or asynchronous operation of the machine, when used as an AC motor, from penetrating the superconductive winding.

T925,002

FILM CARTRIDGE OPENING DEVICE

Robert S. Rosborough and Harold C. Pierce, both of 1669 Lake Ave., Rochester, N.Y. 14650

Filed Apr. 2, 1973, Ser. No. 347,271

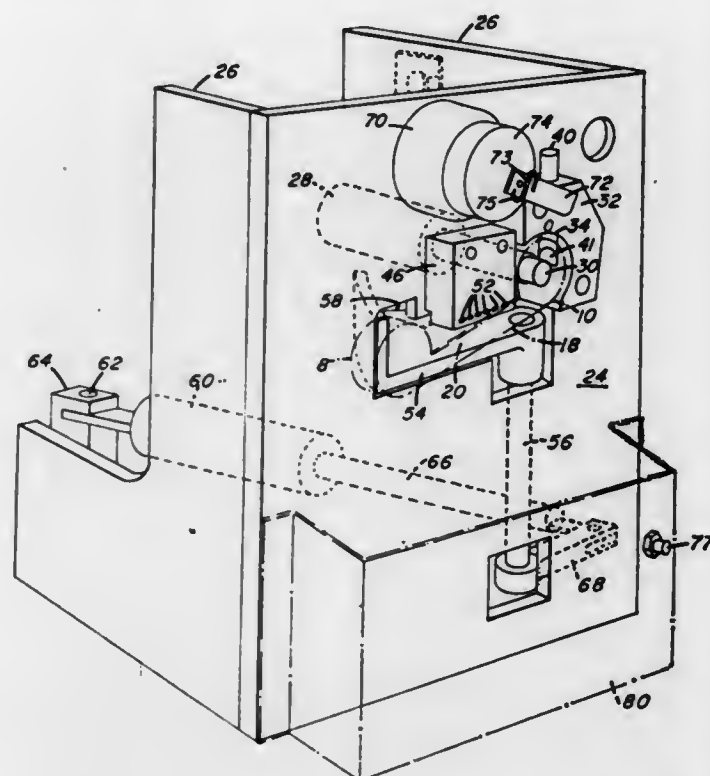
Int. Cl. B26f 3/00

U.S. Cl. 225-103

2 Sheets Drawing, 16 Pages Specification

A film cartridge opening device for film cartridges of the type having a supply chamber, a take-up chamber, and a box-like exposure platform rigidly interconnecting the chambers. The take-up chamber of a cartridge is mounted on a spindle, and the cartridge rotated on the spindle until the exposure platform is moved onto a fixed

detector head. The detector head has fluidic ports for sensing notches in the exposure platform indicating the type of film contained in the cartridge. The detecting system is preset to sense a predetermined type of cartridge and film, and if such cartridge is sensed, the cartridge breaking mechanism will operate, when actuated, to break the cartridge and permit removal of the film therefrom. If a cartridge containing a different type of film is sensed by the detecting system, the cartridge breaking mechanism



will not operate, if actuated, and a signal device will be actuated. The breaking of the cartridge is achieved by a breaking ram which engages and urges the supply chamber of the cartridge in a direction substantially parallel to the spindle axis for breaking the supply chamber, most of the exposure platform, and the take-up chamber cap away from the take-up chamber and film spool, which remains on the spindle. Accordingly, substantially the entire lower and outer sides of the take-up chamber are open for the withdrawal of film from the spool.

T925,003

ECG MONITORING METHOD

Raymond E. Bonner, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 51,236, July 30, 1970. This application June 29, 1973, Ser. No. 375,284

Int. Cl. A61b 5/04

U.S. Cl. 444-1

6 Sheets Drawing, 32 Pages Specification

Methods of monitoring and analyzing electrocardiographic signal data, to identify arrhythmias and the like,

AUGUST 6, 1974

U. S. PATENT OFFICE

9

require selection of real QRS complexes and rejection of artifacts that look like real QRS complexes. To achieve this end, two tables of QRS complex shapes are employed in a digital computer, with the first table containing the shapes of different versions of real QRS complexes and the second table containing the shapes of QRS-type complexes which have not yet been determined real but are candidates for being considered real. As shown in FIG. 3, a located QRS-type complex is first compared to the various shapes on the "real shapes" table, as represented by the steps of blocks 33 and 35. If it compares with none, it is then compared to the shapes on the "candidate

polyurethane foam. It has been discovered that this composition is particularly effective in catalyzing the reaction between the polyol and the diisocyanate and in crosslinking the polymer in a unique manner to provide an unexpected increase in physical properties such as tensile strength, tear resistance and compression set, as well as provide a desirable rise time. According to the present invention, the composition includes an N,N'-dialkyltoluenediamine and a tertiary amine. Conventional catalysts for polyurethane include various tertiary amines, but tertiary amines do not crosslink the polymer. Certain toluenediamines have also been used in the past as combination crosslinkers and catalysts, but the reaction rates are slower than when using typical commercial catalysts which do not crosslink the foam. It is believed that these toluenediamines are consumed in crosslinking the polymer before the complete use of it as a catalyst has been completed, thereby slowing the reaction time.

T925,005

COPOLYESTER HOT MELT ADHESIVE TEXTILE FIBERS

Shen S. Chen, 840 Teasel Drive, C7-1 37660, and Fred F. Chen, 3919 Bond St., 37664, both of Kingsport, Tenn.

Filed Oct. 1, 1973, Ser. No. 402,246

Int. Cl. C08g 17/06; A41h 27/00

U.S. Cl. 260-75 R

No Drawing, 9 Pages Specification

This invention relates to textile fibers of a composition comprising a copolyester of terephthalic acid, adipic acid, ethylene glycol, and 1,4-butanediol. These fibers can be processed into threads, fabrics or webs for use in hemming, seaming or interlining fabrics.

T925,006

FLUID JET INJECTOR DEVICE FOR A YARN BULKING APPARATUS

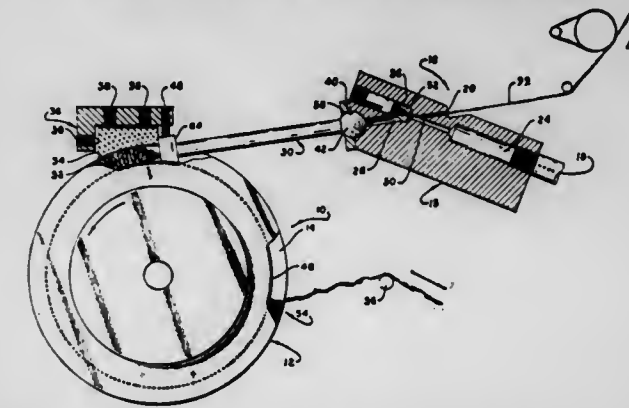
Robert B. Moore, Jr., 504 Woodmere Drive, Kingsport, Tenn. 37663

Continuation of abandoned application Ser. No. 289,929, Sept. 18, 1972. This application Nov. 5, 1973, Ser. No. 413,068

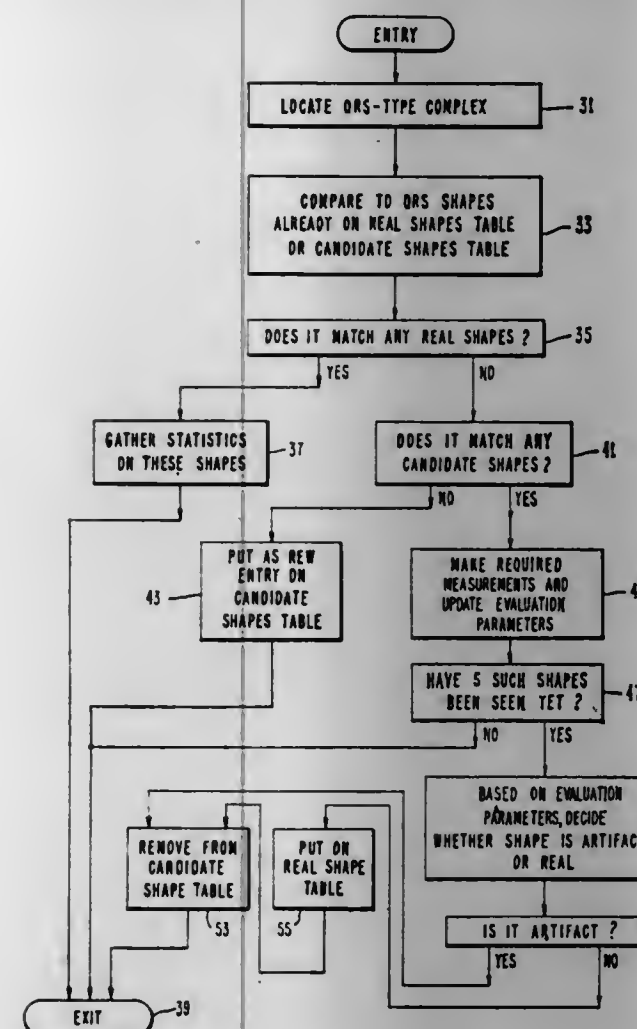
Int. Cl. D02g 1/20, 1/16, 1/12

U.S. Cl. 28-1.3

1 Sheet Drawing, 7 Pages Specification



A fluid jet injector device for use with yarn bulking apparatus and adapted to separate the filaments of a yarn bundle and to increase drag tension on the yarn so as to assure constant self-feeding of the yarn from its source to and through the device; to raise the temperature of the yarn to a crimp receptive condition; and to convey the yarn to the bulking apparatus. The housing of the injector device has a passageway through which compressible fluid, preferably heated, and the yarn travel, an anvil against which the compressible fluid and yarn collide and rebound causing increased filament separation and hence increased drag tension, and an outlet into which the compressible fluid and yarn are rebounded from the anvil.



shapes" table, as represented by the steps of blocks 33-41. If it compares with none of the shapes on the "candidate shapes" table, it is added thereto as a new candidate, as shown at step 43. If it compares with one of the shapes on the "candidate shapes" table, that fact is noted at step 45 and more credence is given that shape as being a possible new version of a real QRS complex. Measurements are also made at step 45 for evaluating candidate shapes and decision logic is employed at step 49 to ultimately decide whether or not a candidate shape, after having been seen several times, is a new version of a real QRS complex.

T925,004

FLEXIBLE POLYURETHANE FOAM

John E. Besser, 4422 Harbor Drive; and Arthur P. Werts III, 1362 Lafayette Circle, both of Kingsport, Tenn. 37664; and James C. Martin, 601 N. Mountain View Circle, Johnson City, Tenn. 37601

Continuation of abandoned application Ser. No. 275,124, July 26, 1972. This application Aug 21, 1973, Ser. No. 390,291

Int. Cl. C08g 22/46

U.S. Cl. 260-2.5 AC

No Drawing, 13 Pages Specification

The present invention provides a composition which is especially applicable to the one-shot process of making

T925,007

BUBBLE MAGNETICS

Anthony Graham Marshall Last, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

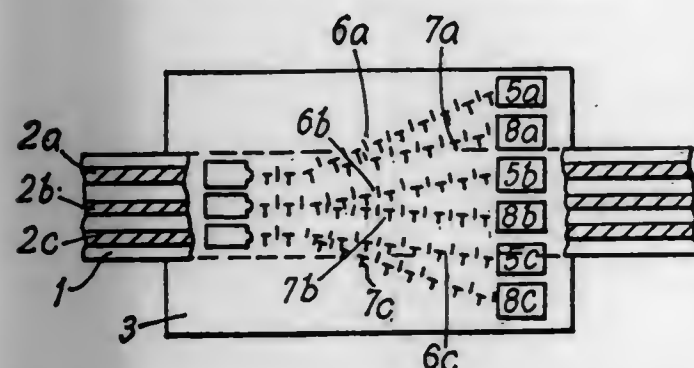
Filed Nov. 12, 1973, Ser. No. 415,125

Claims priority, application Great Britain, Nov. 23, 1972, 54,196/72

Int. Cl. G11b 5/30

U.S. Cl. 360-115

1 Sheet Drawing, 12 Pages Specification



A tape reading head consists of guide paths of discrete particles of low coercivity magnetic material on an ortho ferrite layer connecting bubble generators to collectors. The tracks may diverge to allow adequate space for the collectors for closely packed guide paths. The information on the tape is read by arranging that the intensity of the magnetic field of the bits of information on the tape is sufficient to cause a fresh bubble to be detached from a generator and/or a rotating magnetic field is applied so that each bit of stored information causes a bubble to be diverted from one track to another.

T925,008

POLYESTER-CELLULOSE ESTER POWDER COATING COMPOSITIONS

Robert C. Harrington, Jr., 2024 Canterbury Road, Kingsport, Tenn. 37660; James D. Hood, Rte. 2, Carroll Court, Blountville, Tenn. 37617; and Peter M. Grant, Rte. 12, Hemlock Park, Kingsport, Tenn. 37663

Continuation of abandoned application Ser. No. 296,711, Oct. 11, 1972. This application Jan. 9, 1974, Ser. No. 432,018

Int. Cl. C08b 21/08; C08g 39/10

U.S. Cl. 260-16

No Drawing, 6 Pages Specification

A powder coating composition which may be coated by techniques such as fluidized bed, electrostatic fluidized bed or electrostatic spray, comprising a mixture of a polyester material selected from poly(neopentyl terephthal-

ate), certain alkylene copolymers of isophthalic and terephthalic acid, and aliphatic diacid modifications of these copolymers, blended with a wide weight percentage range of cellulose acetate butyrate or cellulose acetate propionate. Fused coatings of these materials have a reduced gloss and controllable texture.

T925,009

METHOD AND APPARATUS FOR FORMING THREE-DIMENSIONAL CRIMP IN YARN OF CONTINUOUS LENGTH FILMENTARY THERMOPLASTIC MATERIAL

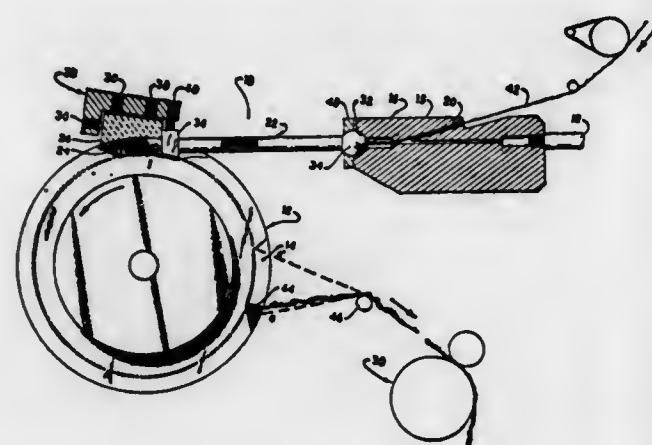
Wendell G. Faw, 4515 Timberlake Lane 37664, and Robert B. Moore, Jr., 504 Woodmere Drive 37663, both of Kingsport, Tenn.

Continuation of abandoned application Ser. No. 288,827, Sept. 13, 1972. This application Feb. 12, 1974, Ser. No. 441,916

Int. Cl. D02g 1/12

U.S. Cl. 28-1.6

3 Sheets Drawing, 18 Pages Specification



Method and an apparatus for forming three-dimensional crimp of random configuration in a yarn of continuous filaments of man-made material with substantially no S and Z twist or twist reversals in the individual crimped filaments by heating the yarn to a crimp receptive condition by a heated compressible fluid and using the fluid to convey the yarn at high speed into a crimping zone at an angle of about six (6) to twelve (12) degrees above the centerline of the crimping zone; forming a plug of yarn in the crimping zone with the upstream face of the plug being in substantially flat relationship at substantially right angles to the path of linear movement of the plug as it moves through and from the crimping zone; and cooling the yarn plug below the heated crimp receptive condition before removing the yarn from the plug.

REISSUES

AUGUST 6, 1974

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

28,096

OSCILLATING MECHANISM FOR TENNIS BALL THROWING MACHINE

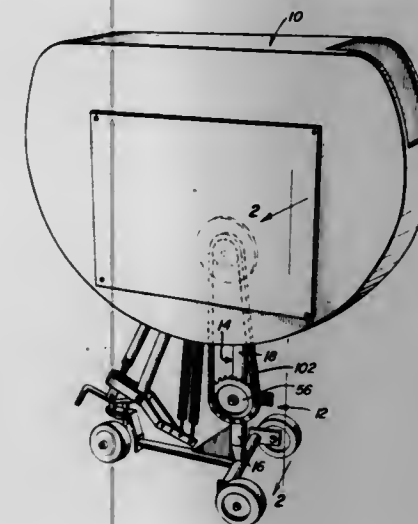
Fred A. Earle, Jr., 5001 E. Apache Trail, % 455 Merlin, Mesa, Ariz. 85205, and Carl S. Pound, deceased, late of Modesto, Calif., by Edith L. Pound, executrix, 2900 E. Hatch Road, Modesto, Calif. 95351

Original No. 3,568,653, dated Mar. 9, 1971, Ser. No. 757,671, Sept. 5, 1968. Application for reissue Mar. 9, 1973, Ser. No. 339,650

Int. Cl. F41b 3/04

U.S. Cl. 124-1

20 Claims



A ball throwing machine having a two-section support including a fixed lower section and a movable upper section which carries the ball throwing mechanism. A motor-driven cam follower assembly is provided on the upper movable section and cooperates with a cam assembly on the fixed lower section so as to bias the rotatable upper section with respect to the fixed section and cause the ball throwing mechanism to move angularly. The cam follower assembly is spring biased into engagement with the cam assembly. A limit stop is provided to limit the degree of return of the cam follower assembly.

28,097

TIME DIVISION SWITCHING SYSTEM EMPLOYING COMMON TRANSMISSION HIGHWAYS

Walter Reinhold Nordquist, Naperville, and Wing Noon Toy, Glen Ellyn, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Original No. 3,617,643, dated Nov. 2, 1971, Ser. No. 844,945, July 25, 1969. Application for reissue June 11, 1973, Ser. No. 369,094

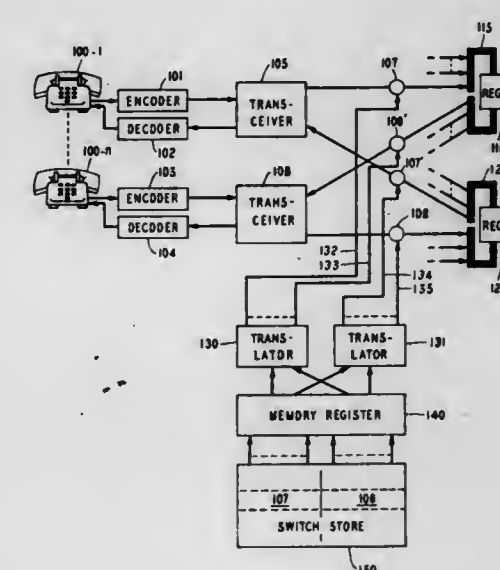
Int. Cl. H04j 3/00

U.S. Cl. 179-15 AQ

6 Claims

In a time division switching system, speech samples from a subscriber station are first encoded and then stored, in digital coded form in a register in a transceiver. The output of this register is gated to a second register in the common talking bus or highway during a first portion of a time slot; the sample from this register in the common highway is gated in a later portion of the same

time slot to a similar transceiver connected to the called subscriber. It is then subsequently decoded and applied



to the called subscriber. Two-wire, four-wire, and conferencing arrangements are disclosed.

28,098

GRASS CUTTING MACHINES

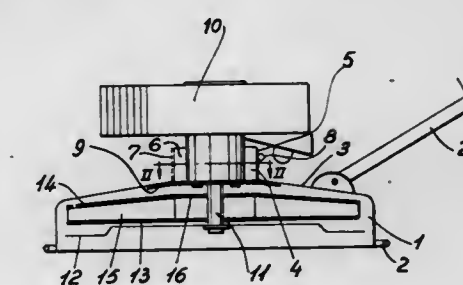
Karl R. Dahlman, Malmö, Sweden, by Flymo Societe Anonyme, Malmö, Sweden, assignee

Original No. 3,110,996, dated Nov. 19, 1963, Ser. No. 178,883, Mar. 12, 1962. Application for reissue Feb. 22, 1973, Ser. No. 334,562

Int. Cl. A01d 73/00

U.S. Cl. 56-12.8

23 Claims



A power mower with a rotary cutter blade rides by ground effect on a cushion of air by means of a radial air impeller rotated with the blade to bring air in at the top of a hood and expel it at the outer edges of the hood around the ends of the cutter blade.

28,099

9-OXO-5-HYDROXYDECANOIC ACID LACTONE

Michael Rosenberger, Caldwell, and Gabriel Saucy, Essex Fells, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original No. 3,544,600, dated Dec. 1, 1970, Ser. No. 824,319, May 13, 1969. Application for reissue Nov. 1, 1973, Ser. No. 411,959

Int. Cl. C07d 7/06

U.S. Cl. 260-343.5

1 Claim

The intermediates and processes of this disclosure provide a new stereo-specific total synthesis of steroidal

materials having known valuable pharmacological properties. A fundamental feature of this disclosure is the utilization of aryl ketals, preferably phenylenedioxy ketals derived from catechol as protective groups for oxo moieties in the polycyclic intermediates used in the afore-said total synthesis.

28,100

TRAFFIC SIGNAL REMOTE CONTROL SYSTEM

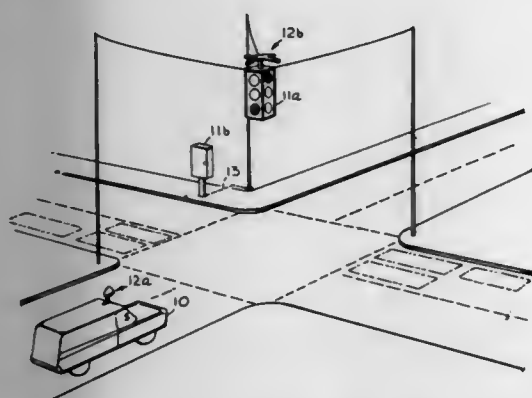
William H. Long, P.O. Box 33427, Woodbury, St. Paul, Minn. 55133

Original No. 3,550,078, dated Dec. 22, 1970, Ser. No. 623,765, Mar. 16, 1967. Application for reissue July 13, 1973, Ser. No. 379,070

Int. Cl. G08g 1/07

U.S. Cl. 340—34

16 Claims



A system for remotely controlling traffic signals wherein a signal transmitted from an emergency vehicle causes a traffic light signal controller mounted at an intersection to operate in a remotely controlled mode to control a traffic light signaling operation in a selected phase of operation in response to the detected direction of approach of the emergency vehicle and the sensed phase of the traffic light at the time the approach of the emergency vehicle is detected. The detector preferably includes a light sensitive communications receiver which is capable of distinguishing a predetermined light communication signal having pulses of relatively sharp rise time and of a predetermined frequency, from steady state ambient light. This preferred receiver combines a photovoltaic detector having a fast response time in parallel with an inductance coil. The inductance value of the coil is chosen in relation to the photovoltaic detector capacitance to provide a resonant circuit response to a said predetermined light communication signal and, in the absence of a sharply varying light pulse, to cause the coil to act as a DC short circuit. A transmitter for providing such a light communications signal preferably includes a chamber having a light-transmissive wall, an electronic flash lamp mounted in the chamber having electrical conductors adapted to be connected to be energized, and a light-transmissive electrically-insulating fluid in the chamber to contact the electrical conductors of the electronic flash lamp.

28,101

AIR CUSHION VEHICLE

Gordon Dayton Knorr, Westlake Village, Calif., assignor to Global Marine Inc., Los Angeles, Calif.

Original No. 3,688,850, dated Sept. 5, 1972, Ser. No. 66,162, Aug. 31, 1970. Application for reissue Dec. 29, 1972, Ser. No. 319,515

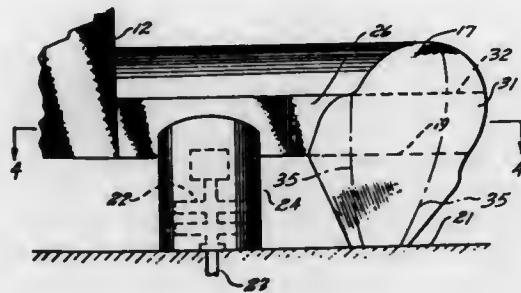
Int. Cl. E21b 33/035

U.S. Cl. 175—5

15 Claims

An air cushion vehicle in the form of a body having a flexible skirt therearound and means for pressurizing

the region within the skirt is employed for transporting a well drilling rig or the like. A vertically extending slot is provided in the flexible skirt, comprising first and second flexible sheets on opposite sides of the slot in face to face abutment for sealing together. One side of each of the sheets is in fluid communication with the inside of the



skirt and the two sheets are free to move relative to each other over a principal portion of their extent for passing an object therebetween. An oil well Christmas tree or the like having a streamlined sheath can be passed through the slot in order to move the air cushion vehicle off of or onto a wellhead.

28,102

FILTRATION MASK

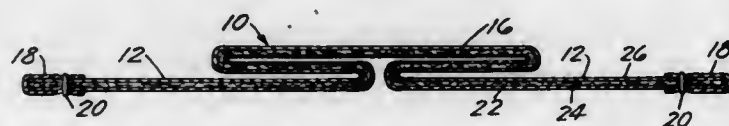
Delbert J. Mayhew, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Original No. 3,613,678, dated Oct. 19, 1971, Ser. No. 14,210, Feb. 24, 1970, which is a continuation-in-part of application Ser. No. 623,369, Mar. 15, 1967. Application for reissue June 21, 1973, Ser. No. 372,152

Int. Cl. A62b 23/06

U.S. Cl. 128—146.2

10 Claims



A face mask having high and prolonged filtering efficiency specially adapted for surgical use formed from a filtering web composed entirely of synthetic organic fibers including filtering fibers 0.5 to 6 microns in diameter and a non-fuzzy face contacting layer formed from a porous smooth-surfaced thermoplastic film.

28,103

INVALID MOBILITY DEVICE

Arthur Schwartz, 14 Willelinor Drive, Edgewater, Md. 21037, and Frederick L. Day, Washington, D.C.; said Day assignor to said Schwartz

Original No. 3,463,146, dated Aug. 26, 1969, Ser. No. 610,627, Jan. 20, 1967. Application for reissue Oct. 6, 1972, Ser. No. 295,520

Int. Cl. A61h 1/02

U.S. Cl. 128—25 R

19 Claims

A device for raising and lowering a partially paralyzed person from a seated to a substantially standing position

and moving the person in a standing position along a substantially transverse direction. Motive means for raising

responsive motor control is provided with a liquid pressure sensing tube extending through the chamber in communication with a depending pipe secured to the pump head and housing.

28,105

SEALING ASSEMBLY

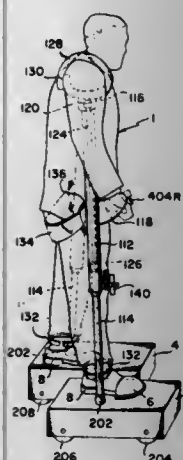
Henry A. Tranb, Palsades, Calif., assignor to W. S. Shamban & Co., Los Angeles, Calif.

Original No. 3,663,024, dated May 16, 1972, Ser. No. 51,950, July 2, 1970. Application for reissue Sept. 22, 1972, Ser. No. 291,198

Int. Cl. F16j 15/24

U.S. Cl. 277—165

9 Claims



the person and additional motor means for moving the person in a plurality of directions along the surface.

28,104

PUMP STORAGE GRINDER

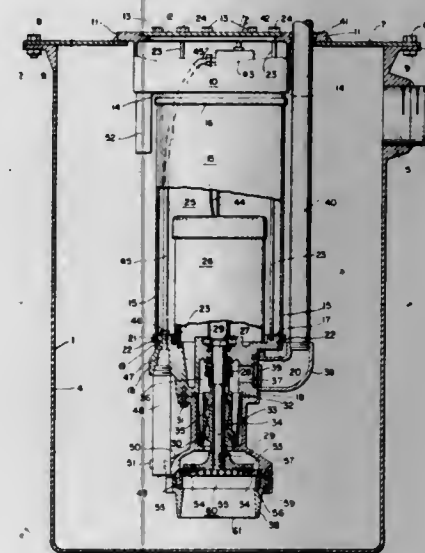
Richard C. Grace, Carlisle, N.Y., assignor to Environment/One Corporation, Latham, N.Y.

Original No. 3,667,692, dated June 6, 1972, Ser. No. 26,925, Apr. 9, 1970. Application for reissue Mar. 7, 1973, Ser. No. 338,952

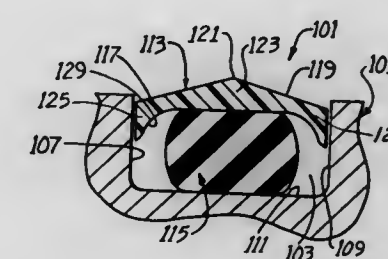
Int. Cl. B02c 13/18

U.S. Cl. 241—36

35 Claims



The pump storage grinder employs a tank having a sewage inlet and a removable top cover supporting a depending sealed housing having a motor and motor controls for driving a grinder or comminutor and pump externally of the chamber by means of a common motor shaft. The chamber is formed by a control housing integral with the cover, a tube and pump head, all held together by means of tension bolts secured between the pump head and cover. The motor shaft extends through the pump head to drive a resilient helical pump and a comminutor impeller disc with depending blades that cooperate with a comminutor ring held between a comminutor inlet shroud and a pump housing secured to the pump head. A pump discharge chamber is provided in the head with a one-way valved passage leading to a discharge conduit extending through the cover. The level



A sealing assembly including a slipper seal and an elastomeric seal with one of the seals circumscribing the other of the seals. The slipper seal includes first and second end portions separated by a central portion with the central portion having a circumferential surface adapted to slidably and sealingly engage a member. The circumferential surface is generally flat in axial cross section and the first and second end portions taper radially away from such member so that they do not engage such member.

28,106

FOOD PATTY PRESS

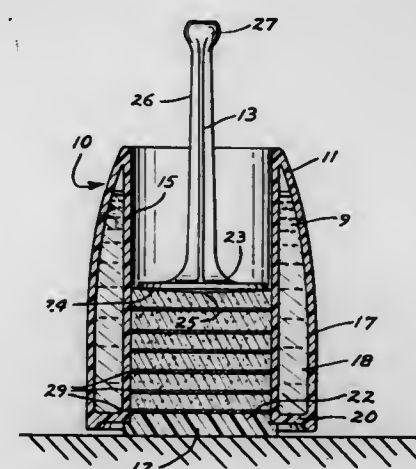
Richard D. Lee, St. Paul, Minn., assignor to Le Mark Industries, Inc., St. Paul, Minn.

Original No. 3,609,799, dated Oct. 5, 1971, Ser. No. 820,978, May 1, 1969. Application for reissue June 7, 1973, Ser. No. 368,208

Int. Cl. A22c 7/00

U.S. Cl. 17—32

10 Claims



The body of a press for hamburger or the like is provided with a vertical cylindrical opening extending through it. A bottom closure plate completely closes the lower end of the cylindrical opening. Relatively thin nylon discs are dropped into the press alternately with measured portions of hamburgers to be pressed, and a nylon plunger is forced down upon the top of each meat portion as it is put into

the press to form a layer of meat patties separated by the nylon discs. A cover is provided to enclose the top of the cylindrical opening, either when the plunger is stored in the body or when meat patties are therein.

28,107

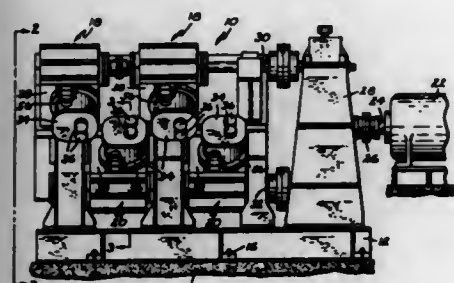
ROLLING MILL

Norman A. Wilson, Westboro, and Robert D. Wykes, Worcester, Mass., assignors to Morgan Construction Company, Worcester, Mass.
Original No. 3,336,781, dated Aug. 22, 1967, Ser. No. 391,491, Aug. 24, 1964. Application for reissue Oct. 26, 1973, Ser. No. 409,811

Int. Cl. B21b 13/12

U.S. Cl. 72-235

15 Claims



A rolling mill having a pass line defined by work rolls mounted in cantilever fashion on the ends of parallel pairs of roll shafts, with successive pairs of the roll shafts being disposed angularly to each other, and with each pair of roll shafts having roll parting adjustment means associated therewith for symmetrically adjusting the work rolls in relation to the pass line.

28,108

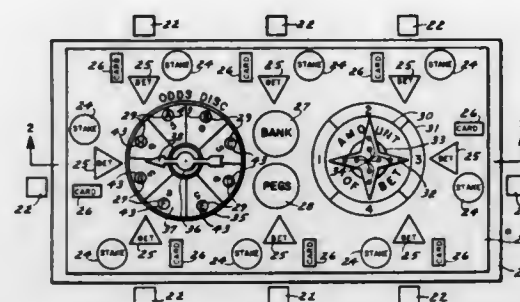
GAME OF CHANCE

Henry E. Lippert, 130 SW. 12th, Miami, Fla. 33130
Original No. 3,633,915, dated Jan. 11, 1972, Ser. No. 868,782, Oct. 23, 1969. Application for reissue Aug. 3, 1973, Ser. No. 385,259

Int. Cl. A63f 3/00

U.S. Cl. 273-130 H

1 Claim



A table-type betting game that simulates gambling on races at a horse or dog track. The game includes an Amount of Bet circle, a number of Odds Discs, and a Bank. An indicator, rotated over the bet circle, determines the amount of a player's wager. The Bank is always the eventual winner, due to specially designed Odds Discs. Each disc is divided into segments of varying sizes, and each segment carries a betting odd, the reciprocal of each of the betting odds being greater than the corresponding segment's proportional share of the periphery of the disc. The discs are interchangeable, and each disc represents one game or "race." An arrow rotated over an odds disc determines the winning player and the odds he receives.

PLANT PATENTS

GRANTED AUGUST 6, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,581

NECTARINE TREE

Grant Merrill, 416 N. Anderson Road,
Exeter, Calif. 93221
Filed Sept. 24, 1971, Ser. No. 183,717
Int. Cl. A01h 5/03

U.S. Cl. Plt.—41

1 Claim

1. A new and distinct variety of nectarine tree as illustrated and described, most nearly resembling Scarlet Queen (U.S. Plant Pat. No. 3,064) but differing therefrom by leafing and blooming earlier so it has lower chilling requirements, ripening its fruit five days to a week earlier, and with a darker red skin color, and characterized by a vigorous, productive tree regularly bearing fruit which is very early ripening and having a light to dark red color covering from 50% to nearly 100% of its surface, a firm flesh for long distance shipment, and with leaves and blossoms that are very early with low chilling requirements so it may be grown in earlier areas of warmer winters.

3,582

PEACH TREE

Grant Merrill, 416 N. Anderson Road,
Exeter, Calif. 93221
Filed Mar. 30, 1972, Ser. No. 239,829
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach tree substantially as illustrated and described and being particularly characterized by a moderately vigorous tree of medium size, bearing heavily and regularly a large and firm fruit that ripens very late and has a bright red blush and mottled and striped skin, a comparatively long stem which remains firmly attached to the fruit and twig and results in but little stem crease and natural drop as the fruit matures, and which most resembles and ripens about the same time as Merrill Halloween I (U.S. P.P. 1,473) but is an improvement thereon in being a smaller tree, more highly colored fruit and with a longer stem which remains firmly attached to the fruit and stem.

3,583

PEACH TREE

Grant Merrill, 416 N. Anderson Road,
Exeter, Calif. 93221
Filed Mar. 30, 1972, Ser. No. 239,830
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach substantially as described and illustrated which is characterized by its

firm flesh and uniform texture, a very bright yellow undercolor of its skin with a bright red blush over 50% to 100% of its surface on mature trees, and short pubescence on the skin, which most closely resembles O'Henry peach plant (P.P. 2,964), its parent, but is an improvement thereon in ripening about three weeks earlier.

3,584

ROSE PLANT

David L. Armstrong, Orange, Calif., assignor to
Armstrong Nurseries, Inc., Ontario, Calif.
Filed Feb. 16, 1973, Ser. No. 333,137
Int. Cl. A01h 5/00

U.S. Cl. Plt.—20

1 Claim

A rose plant of the hybrid tea class grown as an outdoor seedling, primarily for garden decoration. The plant is bushy, upright-spreading, heavily branched, and with an abundance of medium size, semi-glossy foliage, the leaflets having irregularly serrated margins. From opening bud to final petal fall the blooms maintain a strong red color, with very little change in shade.

The flowers are usually borne singly, but may come as many as five on a stem, the blooms opening to from 3 3/4 to 5 inches, and being cupped to high-centered, with double pentagonal and moderate sweetbriar fragrance.

3,585

ROSE PLANT

Theodore H. Johnson, Hadley, Mass., and William A. Warriner, Tustin, Calif., assignors to Jackson & Perkins Company, Medford, Oreg.
Filed Feb. 20, 1973, Ser. No. 333,747
Int. Cl. A01h 5/00

U.S. Cl. Plt.—26

1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its excellent year around production of cut flowers, Venetian pink bud and open flower, vigorous plant with large, dark Parsley green foliage.

3,586

JUNIPER SHRUB

Clayton V. Berg, Box 845, Helena, Mont. 59601
Filed Mar. 22, 1973, Ser. No. 343,893
Int. Cl. A01h 7/00

U.S. Cl. Plt.—50

1 Claim

A new variety of juniper shrub believed to be a hybrid cross of *Juniperus scopulorum* and possibly *Juniperus horizontalis*, but in any event characterized by definite intense blue color in winter, and winter hardiness.

PATENTS

GRANTED AUGUST 6, 1974

GENERAL AND MECHANICAL

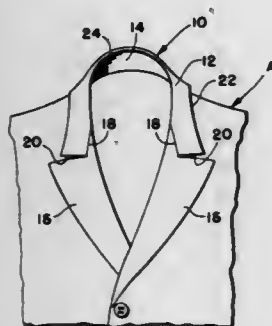
3,827,084 UNDERCOLLAR CONSTRUCTION AND METHOD FOR MAKING SAME

Carlo N. Seta, 27457 Edgepark Dr., North Olmsted, Ohio 44070

Filed July 9, 1973, Ser. No. 377,546
Int. Cl. A41d 1/00

U.S. Cl. 2—98

9 Claims



Undercollar for a garment is drafted in such a manner as to provide a built-in crease line giving the desired length on the outer edge of the collar without requiring a plurality of pressing operations to stretch and shrink the fabric.

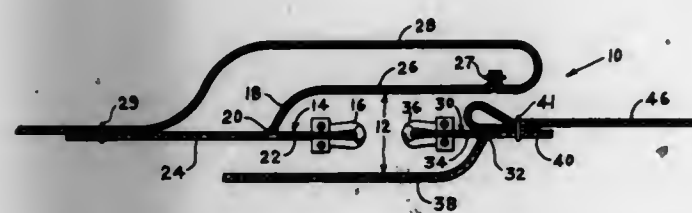
3,827,085 ZIPPER STRINGER FOR FLY SYSTEMS AND SYSTEM EMPLOYING SAME

Walter Thomas Ackermann, Watertown, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed Apr. 6, 1972, Ser. No. 241,741
Int. Cl. A41d 1/06; A44b 19/34

U.S. Cl. 2—234

4 Claims



Trouser fly system includes a zipper chain, the stringers of which have a bifurcated tape, each having a primary web carrying a line of fastener elements, and secondary webs attached to the apparel panels or guarding the lines of fasteners.

3,827,086 BATHTUB AND WALL ENCLOSURE

Merrit W. Seymour, Sylvania, and Jeri O. Clark, Granville, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

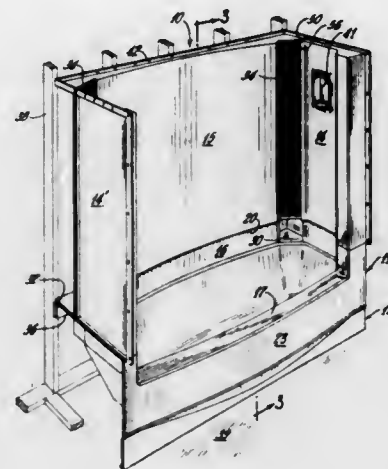
Filed Jan. 26, 1972, Ser. No. 220,766
Int. Cl. A47k 3/08

U.S. Cl. 4—175

2 Claims

A multi-piece glass fiber reinforced plastic bathtub and wall enclosure. The pieces being made to conform to manufactur-

ing requirements of matched-metal die compression molding equipment. The pieces having special joint details so they in-



terlock and overlap to form a rigid and watertight integral unit.

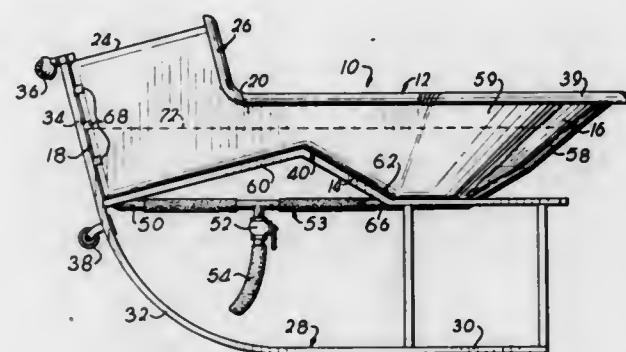
3,827,087 TILTABLE TUB ASSEMBLY FOR BATHING INVALIDS

William C. Cuthbertson, 108 W. Buffalo, Girard, Kans. 66743

Filed Mar. 12, 1973, Ser. No. 340,450
Int. Cl. A47k 3/06

U.S. Cl. 4—178

5 Claims



A tub assembly for bathing invalids or the like is provided which is tiltable between a generally horizontal bathing position and a generally upright patient ingress and egress position. A reservoir compartment is presented at one end of the elongated tub in order that the same may be tilted from one position to the other without first draining the water therefrom when the tub is to be placed in an upright position. The normally bottom wall of the tub is contoured in a manner to support the invalid as well as to reduce the volume of water required to properly bathe the individual; the reservoir and the tub, when in its horizontal position, holding approximately the same volume of water. The tub end wall opposite the reservoir compartment supports the invalid in a semi-reclined or supine position and is provided with a spine-receiving channel therein in order that the back of the patient may be properly supported during bathing.

AUGUST 6, 1974

GENERAL AND MECHANICAL

17

3,827,088 BATHTUB FILLER AND SHOWER APPLIANCE

Don C. Arnold, Palatine, and Richard L. Ritzenthaler, Crystal Lake, both of Ill., assignors to Cranda Corp., Alden, Ill.

Filed Oct. 24, 1972, Ser. No. 299,716
Int. Cl. E03c 1/042

U.S. Cl. 4—192

5 Claims U.S. Cl. 5—354



A bathtub filler and shower appliance adapted to be mounted vertically on a wall adjacent a bathtub, the appliance having a tub filler spout on the lower portion, a shower head on the upper portion and a faucet means and a diverter valve between the spout and shower head. The appliance also has concealed ducts for connection to hot and cold water lines, and concealed ducts within the appliance interconnecting the faucet means, the diverter valve, the spout and the shower head.

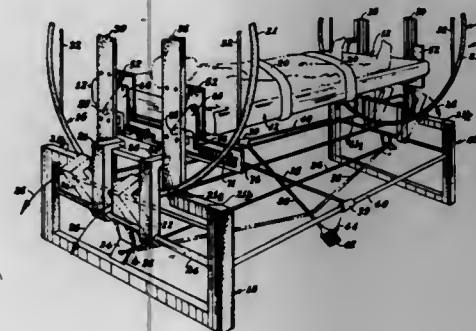
3,827,089 TURNOVER BED ASSEMBLY

William C. Grow, P.O. Box 2733, Texas City, Tex. 77590

Filed Sept. 16, 1971, Ser. No. 181,092
Int. Cl. A47c 3/32; A61g 7/10

U.S. Cl. 5—61

9 Claims



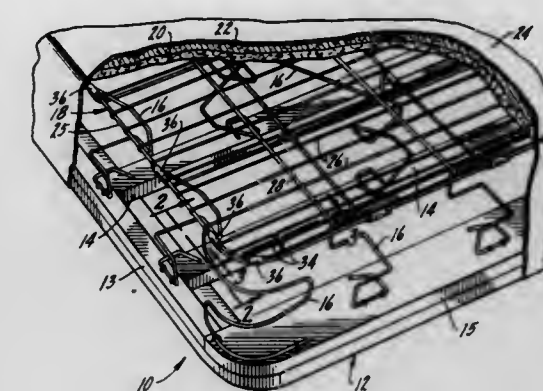
A turnover bed assembly, having two parallel but relatively movable mattresses movably supported on a rotationally movable carrier frame. An invalid who is lying on the lower mattress, and who wishes to change position from face-down to face-up to the other position, is strapped to that mattress; then the assembly is rotated a quarter-revolution, and his mattress is supported for movement towards the other mattress. Then a succeeding quarter-turn positions him in his desired position-changed position on the other mattress.

3,827,090 WIRE MESH PAD FOR MATTRESS BOX SPRINGS

Richard C. Roe, Palatine, Ill., assignor to Sealy, Incorporated, Chicago, Ill.

Filed Dec. 27, 1971, Ser. No. 212,385
Int. Cl. A47c 23/00

8 Claims



A wire mesh pad for a mattress box spring utilizing torsion bar springs to prevent layers of sisal, cotton, wool, latex or other suitable materials placed on top of the springs from moving downwardly into the springs and detracting from a smooth, attractive appearance on the upper surface of the box spring. The wire mesh pad comprises two side border members of wire elements extending transversely between the border members. The wire elements are made of high strength steel or oil-tempered spring steel, are spaced from one another in the range of about 1/4 to 1 1/4 inches and have a tensile strength greater than 200,000 lbs. per square inch. The border members are plastic- or paper-coated metal rods that are attached to the torsion bar springs of the box spring unit. Paper cords extending parallel to the side border members are attached to the wire elements to maintain the position of the wire elements relative to one another.

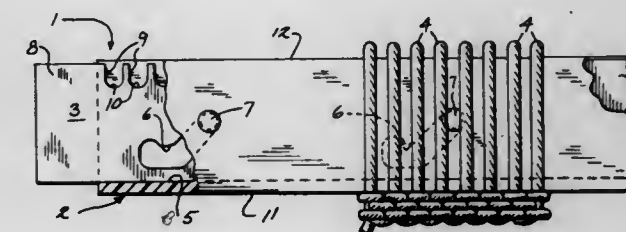
3,827,091 CROCHET LOOP GAUGE

Lorraine E. Hovevar, 116 S. Rd., Kohler, Wis. 53044

Filed June 11, 1973, Ser. No. 368,694
Int. Cl. D04b 3/00

U.S. Cl. 66—1 A

11 Claims



The gauge of the invention comprises an elongated generally planar body having a longitudinal slot therein for receiving a notch plate which is slideable within the body. The plate is movable between a raised position for receiving yarn wound thereover and a lower or collapsed position for removal or repositioning of the yarn. The exposed notch plate edge is provided with notch means and at least in some instances the bottom of the notch means is disposed above the gauge body edge when the plate is raised. The notch plate is held in raised position by any suitable means, such as friction.

3,827,092

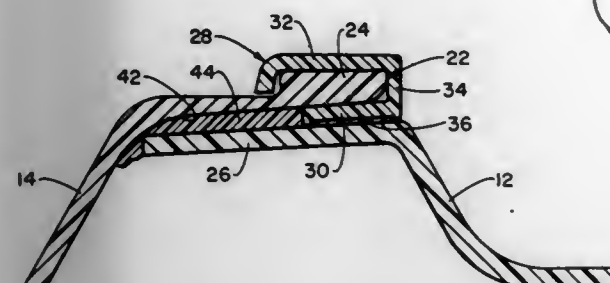
BOAT TRIM CONSTRUCTION

Frank W. Butler, 3807 Weatherly Cir., Westlake Village, Calif. 91324

Filed Apr. 23, 1973, Ser. No. 353,443

Int. Cl. B63b 3/00

U.S. Cl. 9-6



A boat construction to secure the sheet material deck to the sheet configuration of the gunwales of the hull wherein an elongated U-shaped trim strip is employed, the edge of the deck to be positioned between the inner and outer legs of the strip, the inner leg being in direct contact with the gunwales, an adhesive in viscous liquid form to be located between the deck and the gunwales and in contact with the inner leg, the strip and the edge of the deck to be forcibly moved outwardly to permit insertion of the adhesive.

3,827,093

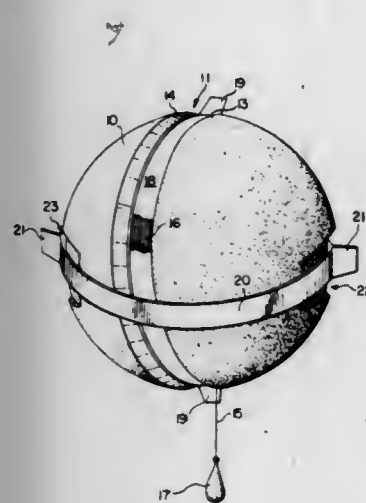
MARKING FLOAT

Thomas S. Davis, 636 Woodley Rd., Maitland, Fla. 32751

Filed Aug. 23, 1972, Ser. No. 282,931

Int. Cl. B63b 21/52

U.S. Cl. 9-8 R



A rigid foamed synthetic plastic in a generally spherical shape is provided with a groove around its entire periphery fixedly receiving one end of a line having its intermediate portion generally uniformly wound within the groove. The wound line is covered and securely held within the groove by means of one or more encircling resilient bands, with the opposite end of the line extending between the bands or from underneath one band to its connection with a weight. When marking a spot in the water, the weight will pull the line from beneath the rubber band or bands, which act as an unwinding brake, until the weight strikes the bottom of the body of water with the foamed plastic sphere floating on top of the water; thereafter, the band will resist or prevent further unwinding of the line. To prevent unwinding of the line, a second resilient band may be provided in a plane perpendicular to and encircling the first band. Tabs on the bands will facilitate their removal, when desired.

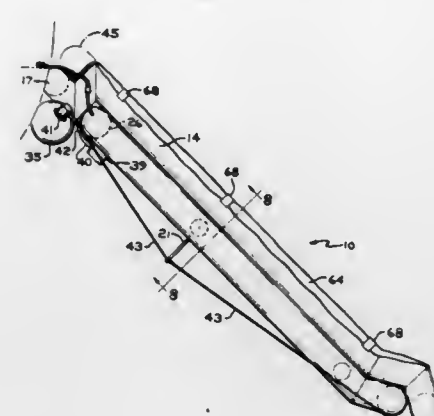
INFLATABLE LIFE RAFT ESCAPE SLIDE

John M. Fisher, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed June 25, 1973, Ser. No. 373,120

Int. Cl. B63c 9/04; B64d 25/14

U.S. Cl. 9-11 A



An improved inflatable life raft escape slide having a plurality of inflatable tube members which, upon inflation, define an escape slide that is also usable as a life raft. A plurality of inflatable auxiliary tube members are cooperative with the escape slide which, upon inflation, deploys a canopy that protects the occupants of the slide raft when used as a raft.

3,827,095

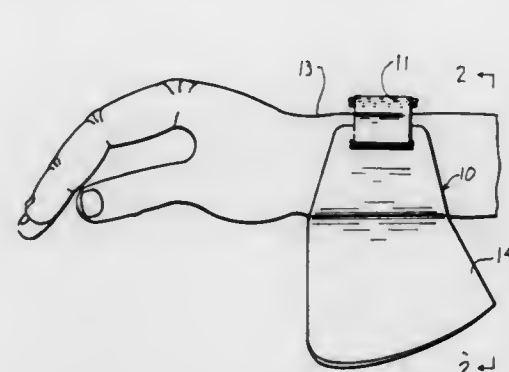
SWIM FIN

Alec Feather, 1701 Sunrise Ln., Fullerton, Calif. 92633

Filed Mar. 12, 1973, Ser. No. 340,223

Int. Cl. A63b 31/00

U.S. Cl. 9-307



A swim fin having a support strap attachable to the forearm of a user with a lower portion of the strap extending transversely of the under surface of the forearm. Laterally spaced fin members depend from lower portion of the strap and extend rearwardly and outwardly away from each other and move inwardly and outwardly in response to a forward return stroke and a rearward thrust stroke, respectively. Resilient means restrains outward movement of the fin members in proportion to the force applied to produce resistance to the water in proportion to the force applied.

3,827,096

WATER SKI CONSTRUCTION

Ivan Frank Brownson, 16425 Otsego, Encino, Calif. 91316

Continuation-in-part of Ser. No. 180,612, Sept. 15, 1971, abandoned. This application Dec. 4, 1972, Ser. No. 311,889

Int. Cl. A63c 15/00

U.S. Cl. 9-310 A

A water ski construction wherein the lower surface of the ski is smoothly contoured in the forward zone, the ski contains a double channel in the mid zone with the channels being

3 Claims

6 Claims

3 Claims

separated by a longitudinal convex ridge, the height of the ridge in the mid zone being less than the height of the edges of the handle. The handle is hollow and serves as a storage area for a sweepstick when the sweepstick is not in use. The handle bottom



the ski, the aft zone of the ski being tapered and also being smoothly contoured, a fin may be provided in the aft zone for lateral stability.

3,827,097

DEVICE FOR WASHING AND COILING HOSES

Raymond J. Hamann, Rt. No. 3, Box, La Grande, Island City, Oreg. 97202

Filed Feb. 26, 1973, Ser. No. 335,664

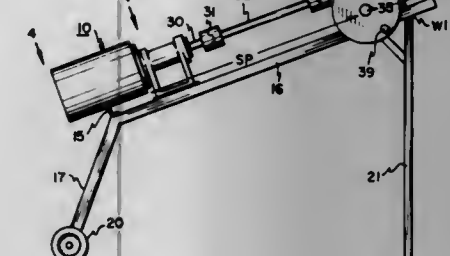
Int. Cl. B65h 75/34; D06g 1/00

U.S. Cl. 15-40

Filed Nov. 24, 1972, Ser. No. 308,969

Int. Cl. A01k 29/00; A471 13/52

U.S. Cl. 15-104.8



Hose washer and spindle structure wherein a hose, such as a fire hose or an agricultural irrigation hose, may be simultaneously washed and also wound in coil form upon a spindle.

The subject structure includes a washer and guide chamber having provision for inwardly directed water sprays. The guide chamber is aligned with but positioned remote from a spindle that revolves and hence wraps or winds the hose as the same proceeds through the guide chamber. The structure is designed for a maximum stability during the washing and wrapping operation.

3,827,098

PORTABLE SANITARY PUTRESCIBLE MATERIAL COLLECTOR ASSEMBLY

Edward Sanderson, 135 Terrace Ave., Upper Darby, Pa. 19082

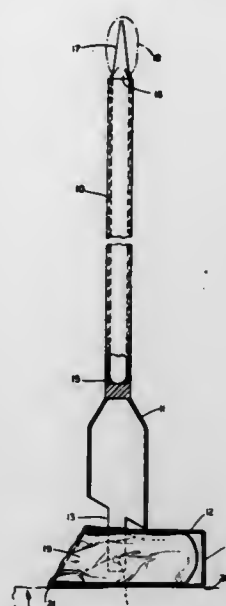
Filed Nov. 24, 1972, Ser. No. 308,969

Int. Cl. A01k 29/00; A471 13/52

U.S. Cl. 15-104.8

A receptacle is pivoted to a handle so that it may assume both a horizontal position for accepting putrescible material from the surface on which it is lying, and a vertical position for compact storage and when removing the putrescible material.

forms a tight fitting cover for the receptacle when vertical. Both the working end of the sweepstick and the interior of the receptacle are equipped with disposable sanitary coverings.



3,827,099

DISPOSABLE MOP HEAD

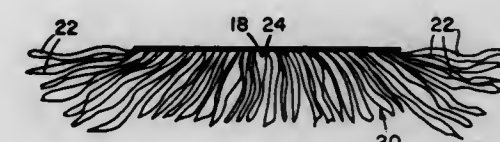
Eugene Joseph Allaire, 5525 Trent Ave. Apt. 207, Montreal 267 P. Que., and Eugene Paradis, 4933 Coolbrook, Montreal 248 P. Que., both of Canada

Filed Nov. 29, 1972, Ser. No. 310,606

Int. Cl. A471 13/20

U.S. Cl. 15-229 R

3 Claims



A disposable mop head made up of a support having a backing face over which are secured a number of elongated flexible sheets made of a material capable of collecting dust and light dirt. The sheets, which are distributed over substantially all of the backing face, are secured to it along one of their longitudinal edges and extend away from the backing face. They are also formed with slits that run from their other longitudinal edge and that terminate short of their edge secured to the backing face to create a mass of flexible mopping strips. The material capable of collecting dust and light dirt is a fibrous material such as paper, sisal, hemp, cotton, wool, flax, jute, crepe paper or the like natural fibrous material. It may also be a synthetic fibrous material.

3,827,100

Dana K. Griffin, 24714 Madison Ct. Apt. 296, Farmington, Mich. 48024, and John R. Wilson, 3203 E. Bradford Dr., Birmingham, Mich. 48010

Filed Mar. 28, 1973, Ser. No. 345,519

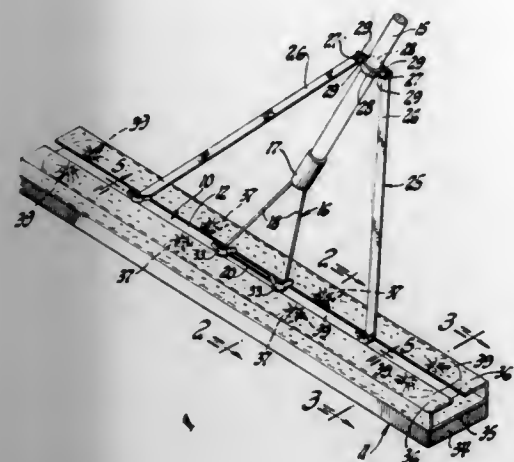
Int. Cl. A471 13/255, 13/46

U.S. Cl. 15-229 A

10 Claims

A wax applicator provided with a throw-away wax applicator head. The wax applicator includes an elongated carrier member to which is rigidly secured an elongated pulling handle. The carrier member includes an upper rigid portion and a lower cushion portion. The disposable wax applicator head is mounted against the lower cushion portion and it includes a

wax applicator element made from an absorbent material and which is centrally attached to a sheet of non-woven, non-ab-



sorbent backing material that is folded upward and over the carrier member upper rigid portion and secured thereto by releasable retainer means.

3,827,101

ARM MOUNTED WINDSHIELD WASHER JET

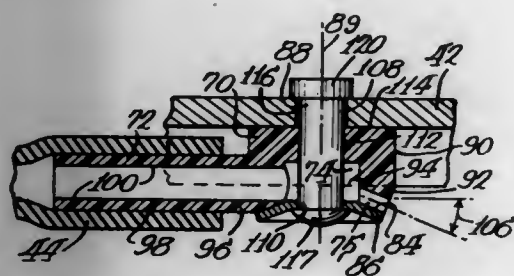
Leo J. Wubbe, Beverly Shores, Ind., assignor to The Anderson Company, Gary, Ind.

Filed Mar. 8, 1973, Ser. No. 339,394

Int. Cl. B60s 1/46, 1/52

U.S. Cl. 15—250.04

12 Claims



A windshield washer jet mountable to the arm of a windshield wiper assembly has a distribution chamber connectable with a fluid reservoir by means of a hose running along the length of the arm and pairs of jet outlet passageways extending outwardly from the distribution chamber for directing a stream of fluid from the distribution chamber onto the windshield on either side of the wiper blade and toward both ends thereof respectively. The distribution chamber and passageways are formed when the openings of a distribution cavity and jet outlet grooves in the bottom surface of a molded plastic washer body are closed by a cover plate. A rivet or the like extending through the cover, the center of the distribution cavity and a rivet hole in the top of the arm secures the cover to the bottom of the washer body to form the distribution chamber and jet outlet passageways and secures the washer jet body to the arm.

3,827,102

SOOT BLOWER WITH GAS TEMPERATURE OR HEAT FLOW DETECTING MEANS

Eugene F. Adiutori, Cincinnati, Ohio, assignor to Diamond Power Specialty Corporation, Lancaster, Ohio

Continuation of Ser. No. 226,083, Feb. 14, 1972, abandoned.

This application May 14, 1973, Ser. No. 360,362

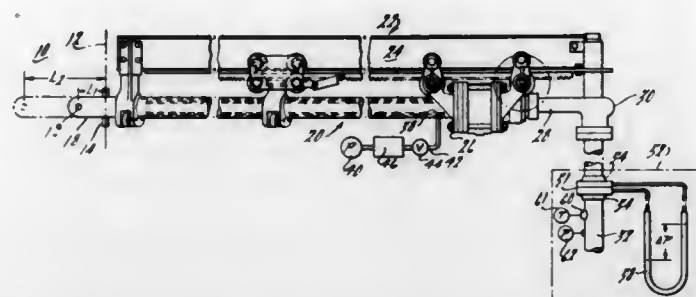
Int. Cl. A47i 5/38

U.S. Cl. 15—317

7 Claims

A retractable soot blower is used as a temperature detector or a heat flow detector. The lance tube of the blower acts as a temperature or a total heat sensing probe in addition to performing its normal boiler cleaning function, and when inserted

in the combustion chamber of a steam generator, boiler, or the like, the temperature of the pressurized blowing medium, or the total heat flow into the blowing medium, is determinable as a function of the pneumatic resistance of the discharging orifice of the lance tube. The detector is adapted to provide



the heat flux profile of the chamber during movements of the lance tube, and can be utilized in conjunction with various control apparatus to selectively meter unvaporized water to the blowing medium during cleaning operations in response to changes in heat flow into the blowing medium.

3,827,103

VACUUM CLEANER

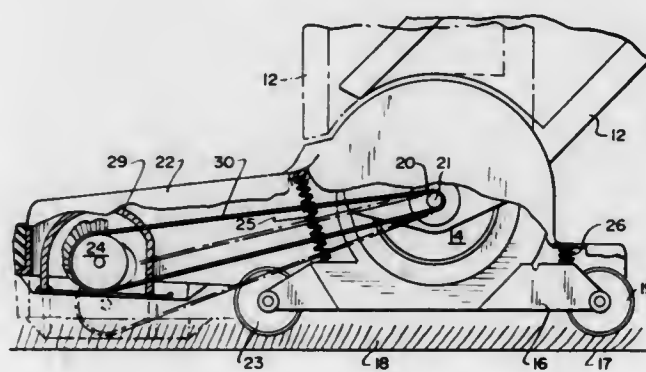
Erwin E. Nordeen, St. Paul, and Milton J. Johnson, Rosemount, both of Minn., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed May 19, 1970, Ser. No. 38,805

Int. Cl. A47i 5/34

U.S. Cl. 15—359

4 Claims



3,827,104

PATIO DOOR ROLLER

Martin R. Lambertz, New Hamburg, Ontario, Canada, assignor to Hahn Brass Limited, New Hamburg, Ontario, Canada

Filed Aug. 13, 1973, Ser. No. 388,002

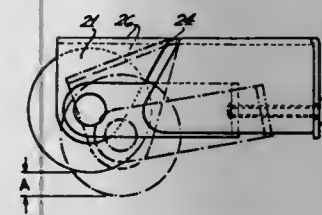
Int. Cl. B60b 33/00

U.S. Cl. 16—18

7 Claims

An adjustable, inexpensive patio door roller in which the roller is rotatably mounted at a dependent end of a housing which is provided with a weakened section about which section the dependent end may be bent so as to adjust the relative

position of the roller with respect to the housing. A stirrup and adjusting screw are provided to facilitate the adjustment. The



roller may be screwed to a patio door or secured thereto by a combination of screws and retaining prongs which are inserted into correspondingly placed slots.

3,827,105

DOOR CLOSING DEVICE

Jean Marie Branchaud, 3655 Papineau St., Apt. 403, Montreal, Quebec, Canada

Filed Oct. 30, 1972, Ser. No. 302,051

Int. Cl. E05f 1/12

U.S. Cl. 16—190

2 Claims



A door closing device is constituted by a hinge, whose plates are perforated. A tube is welded to each plate around the perforations and a coil spring extends through both tubes. One end of the coil spring is fixed to the end of one tube and the other end of the spring is free to slide in the other tube. When the two plates pivot one about the other, the spring forms a curve between the plates and its flexion urges the two plates together.

3,827,106

APPARATUS FOR CONTROLLING THE COUNT OF A SLIVER FED FROM A CARDING MACHINE

John Maximilian Jules Varga, Halifax, England, assignor to Carding Specialists (Canada) Limited, Toronto, Canada

Division of Ser. No. 854,170, Aug. 29, 1969, Pat. No.

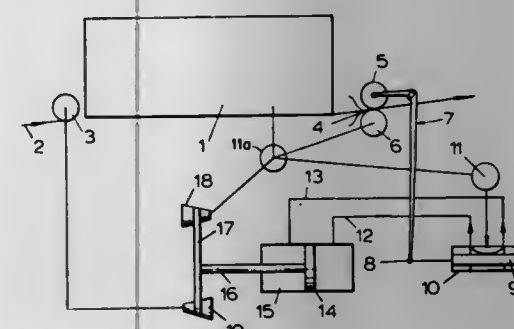
3,644,964. This application Nov. 29, 1971, Ser. No. 202,927

Claims priority, application Great Britain, Sept. 3, 1968, 41750/68

Int. Cl. D01h 5/38

U.S. Cl. 19—240

4 Claims



The invention comprises apparatus for controlling the count of a sliver whilst being fed from a carding machine to ensure a substantially uniform sliver, the sectional size of the sliver being related to a valve setting and passed through sensing means so that any slight variation in the sliver size is sensed

and magnified to operate the valve which operates a fluid motor which in turn operates variator control means capable of causing correction of the sliver size.

3,827,107

ADJUSTABLE STRAP ASSEMBLY

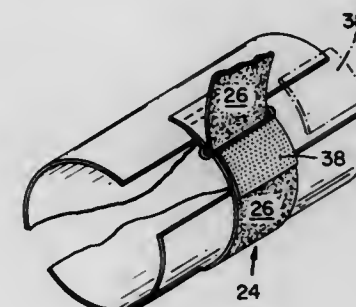
Robert R. Moore, 5401 San Leandro St., Oakland, Calif. 94601

Filed Jan. 10, 1973, Ser. No. 322,507

Int. Cl. A44b 21/00; B65d 63/00

U.S. Cl. 24—16 R

12 Claims



A strap or belt assembly in which a strap is attached to one portion of a garment, orthopedic brace or the like. Another portion of such garment is provided with a ring or buckle through which the strap end may be passed and pulled upon to variably tighten the garment portions. One surface of the strap is provided with the loop portion of a pile fabric of the type shown in U.S. Pat. No. 3,009,235. A piece of material having locking hook elements is fixedly or removably secured to the strap in such manner that the strap can be releasably locked adjacent the buckle irrespective of the respective positions of the two garment portions.

3,827,108

NECKTIE HOLDING METHOD AND COMBINATION

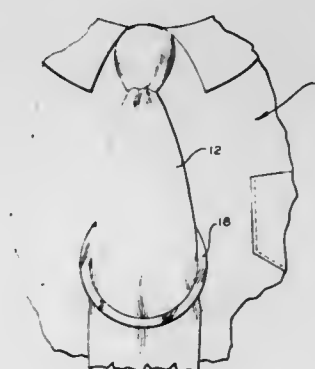
Vernon L. Jewett, 15 Tennyson Rd., Wellesley Hills, Mass. 02181

Filed Apr. 20, 1973, Ser. No. 352,936

Int. Cl. A41d 25/06

U.S. Cl. 24—49 CF

6 Claims



A device comprising a continuous strip of material formed in two superimposed loops biased together in the axial direction is used in holding a four-in-hand necktie laterally in place. That is, two substantially complete, 360° loops are formed in superposition to one another, the nature and formation of the material being such that the two loops are resiliently biased together. One end of the device is inserted through a shirt buttonhole and the device rotated one full turn or so, whereby the necktie may be placed through the loops with the device secured to the wearer's shirt. The device is preferably formed of metal or plastic, the loops having an inside diameter approximately as large as the width of the tie at the nominal position intended to pass through the loops.

3,827,109

CLAMP DEVICE FOR RELEASABLY SECURING A STACK OF SHEETS TOGETHER WHILE ENABLING THE SHEETS TO BE SUCCESSIVELY TORN AWAY

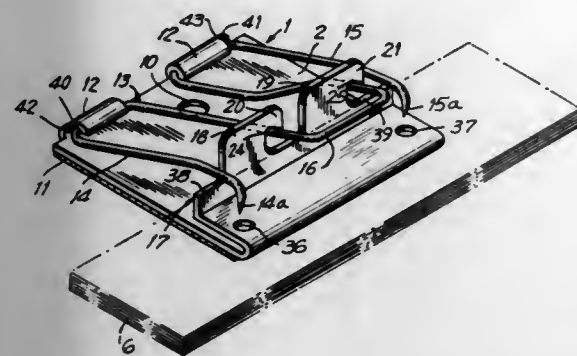
John D. Langwell, 28 Branch Ave., Freeport, N.Y. 11520

Filed Jan. 29, 1973, Ser. No. 327,297

Int. Cl. B42f 1/00

U.S. Cl. 24—67.5

16 Claims



A clamp device comprising a base member on which the edges of a stack of sheets of material can rest. A continuous length of wire is formed with opposite arms having pointed ends, and the wire is hingeably supported from the base member for movement between a raised inoperative position and a lowered operative position. In the operative position the topmost sheets of material are pierced by the pointed ends of the wire and the stack is securely clamped against the base member. In the inoperative position the pointed ends are raised above the stack. An operating handle is formed in the wire and the handle serves to move the arms between the operative and inoperative positions. A support is formed on the base member at a position to engage the operating handle when the pointed ends approach the operative position to force the pointed ends into the topmost sheets of material of the stack and to lock the handle to prevent return of the arms to the inoperative position. As the sheets are successively removed, the pointed ends progressively penetrate into the stack under the force imposed by the engagement of the operating handle with the support.

3,827,110

RIGID FASTENER

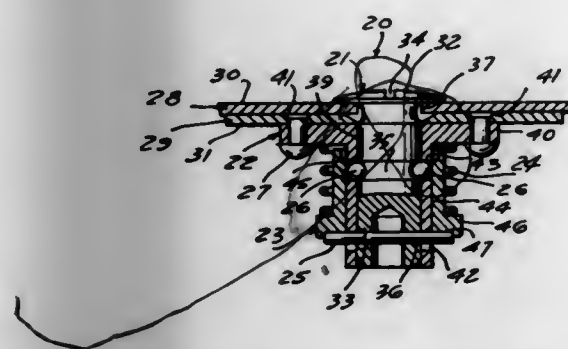
Theodore Dzus, Sr., West Islip, and Julius Frank Dzus, Islip, both of N.Y., assignors to Dzus Fastener Co., Inc., West Islip, N.Y.

Filed Sept. 18, 1972, Ser. No. 289,984

Int. Cl. A44b 17/00

U.S. Cl. 24—221 A

6 Claims



A fastener adapted to rigidly fasten two plates having aligned openings. The fastener includes a stud, a sleeve surrounding a portion of the stud and a hollow cap surrounding a portion of the sleeve. A resilient member is on the sleeve and the cap. Locking surfaces are provided including cooperating surfaces on the body of the stud, the sleeve and the cap and at least one bearing member which is shiftable between the locked and unlocked position. One of the stud and the sleeve has a spiral cam slot and the other of the stud and the sleeve has a diametrically extending pin mounted thereon so that

when the sleeve is mounted to one of the plates and the stud is extended through the openings in the plates the cam slot will engage with the pin. Rotation of the stud in one direction with respect to the sleeve causes the pin to follow the cam slot, the resilient member to compress and the locking means to be activated to rigidly fasten the plates together. When the stud is rotated in a second direction, the pin will follow the cam slot, the bias on the resilient member will be relieved and the locking means will be deactivated until the cam slot is disengaged from the pin which permits disassembly of the fastener and the plates.

3,827,111

FASTENING MEANS FOR DETACHABLY SECURING TOGETHER MATING ENDS OF A BINDER RING CONSTRUCTION AND THE LIKE

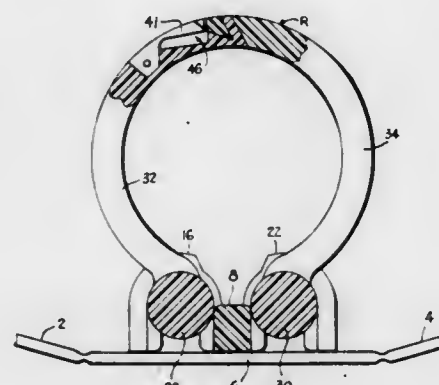
James P. O'Connell, Three Rosemont St., Malden, Mass. 02148

Filed Dec. 28, 1971, Ser. No. 212,903

Int. Cl. B42f 3/04

U.S. Cl. 24—230 CF

1 Claim



Interlocking ring sections detachably secured together and releasable by a simple thumb pressure movement are formed at opposite ends of a binder ring construction to provide for conveniently joining the ends together and loosely holding sheets, cards, notebook paper and similar articles. The interlocking sections include a receiver section and a complementary keying ring section. A flexing tongue yieldably supported in the receiver section prevents accidental disengagement and yet may be moved from a positive locking position into a released position by a simple thumb pressure. When combined with a pair of rotatable ring shafts in fixed and centrally located positions thereon, the interlocking ring sections are operable to open and close other pairs of mating ring sections supported on the rotatable ring shafts at outer ends thereof. Torsion forces of significant magnitude generated in each of the rotatable ring shafts in opposed relationship to one another when the centrally disposed interlocking ring sections are closed operate to hold mating ends of outer pairs of conventional ring sections against one another in tightly compressed relationship without requiring hand manipulation.

3,827,112

METHOD FOR THE CONTINUOUS PRODUCTION OF NEEDED MULTI-PLY MATERIALS

Antonio Betere, Madrid, Spain, assignor to Fabricas Lucia Antonia Betere, S.A., Madrid, Spain

Division of Ser. No. 112,319, Feb. 3, 1971, Pat. No. 3,755,863.

This application July 19, 1973, Ser. No. 380,813

Int. Cl. D04h 18/00

U.S. Cl. 28—72.2 R

1 Claim

A method for the continuous production of composite multi-ply material intended for use in mattress making, for

upholstery and the like. The method includes combining a sheet of foamed material with a sheet of textile material to form the multi-ply web, needling the multi-ply web to cause securement of the individual sheets together and cutting of the needled, multi-ply web into predetermined lengths. The needling is effected by initially penetrating both the center

stable, hydrophobic fatty acid ester lubricant a heat stable, hydrophilic antistat of an alkoxylated polyhydric alcohol-fatty acid ester or an alkoxylated alcohol ester; and a heat stable, hydrophilic emulsifier comprising alkylene oxide condensate of polyhydric alcohols and/or long chain fatty acid esters or alkylene oxide condensates of an alkaryl hydroxy-terminated compound.

3,827,115

METHOD OF MANUFACTURING A CATHETER

Nicolaas Bom, Berkenwoude, Netherlands, assignor to Erasmus Universiteit Rotterdam, Rotterdam, Netherlands

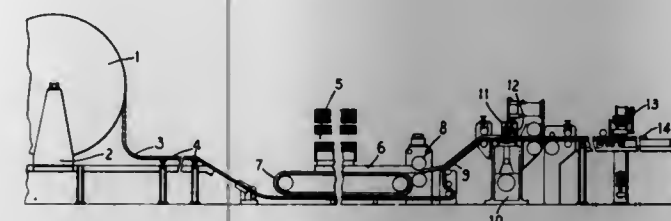
Filed Feb. 21, 1973, Ser. No. 334,300

Claims priority, application Netherlands, Feb. 22, 1972, 7202282; Mar. 10, 1972, 7203176

Int. Cl. B01j 17/00

U.S. Cl. 29—25.35

14 Claims



and edge portions of the web and subsequently by penetrating, at selected intervals, strips extending transversely across the web with the needle penetrating density at the edge portions and transverse strips being higher than the penetration density in the center portion of the web. The cutting is effected by transversely cutting the web along the needed strips.

3,827,113

PROCESS FOR SIMULTANEOUSLY TEXTURIZING A PLURALITY OF YARNS

Roger Vidal, Champagne, and Raymond Gourmandy, Lyon, both of France, assignors to Societe Rhodiacta, Paris, France

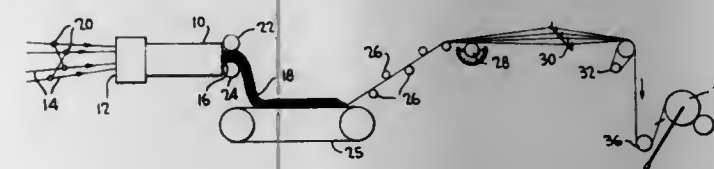
Filed Oct. 13, 1971, Ser. No. 188,775

Claims priority, application France, Oct. 15, 1970, 70.38079; Oct. 15, 1970, 70.38080; June 22, 1971, 71.22959

Int. Cl. D02g 1/12

U.S. Cl. 28—72.14

8 Claims



A process for simultaneously texturizing a plurality of yarns including feeding a plurality of yarns separately through the inlet of a texturizing device to a cylindrical chamber, supplying a hot compressed fluid to the cylindrical chamber to advance the yarns therein, the hot compressed fluid escaping into an outer closed chamber, and maintaining the outer chamber at a pressure less than the feed pressure of the hot compressed fluid and greater than atmospheric pressure.

A device for examining the heart is provided with a catheter adapted to be placed within the heart and including at one end thereof, circumferentially arranged, equidistantly distributed elements, serving for the transmission and reception of ultrasonic waves. The catheter has an axis and the elements have no directivity in a plane perpendicular to this axis. The elements are so dimensioned in axial direction that in a plane through the axis they do show directivity. An excitation device is provided which successively excites groups of adjacently arranged elements and time delays are provided for delaying the transmitted and received pulses for the elements of a group that the differences in travel times are compensated. An adder is provided for the summation of echo pulses and a device is provided for visually displaying the part of the examined heart surrounding the catheter. A method is provided whereby the elements are provided on the catheter by positioning a piezoelectric cylinder on a core and thereafter sawing through the cylinder along a plurality of radial planes interspaced at equal angular distances. The catheter which is derived from the method is also part of the invention.

3,827,116

ROTARY MATERIAL WORKING APPARATUS

William M. Carroll, 1111 E. Dean Rd., Milwaukee, Wis. 53217

Continuation-in-part of Ser. No. 161,183, July 9, 1971, abandoned. This application July 11, 1973, Ser. No. 378,205

Int. Cl. B23p 23/00

U.S. Cl. 29—38 C

19 Claims

An apparatus for performing multiple forming and material working operations on a plurality of identical workpieces. The disclosure includes a plurality of coaxing die units or work stations carried by vertically reciprocal die shoes. Also carried by one of the die shoes is a work-holding turntable adapted to receive and automatically index workpieces to succeeding work stations located around one-half of the periphery of said

3,827,114

PROCESS FOR STEAM JET TEXTURING A COATED YARN

Roger John Crossfield, Charlotte, N.C., assignor to Fiber Industries, Inc., Charlotte, N.C.

Filed Sept. 7, 1971, Ser. No. 178,437

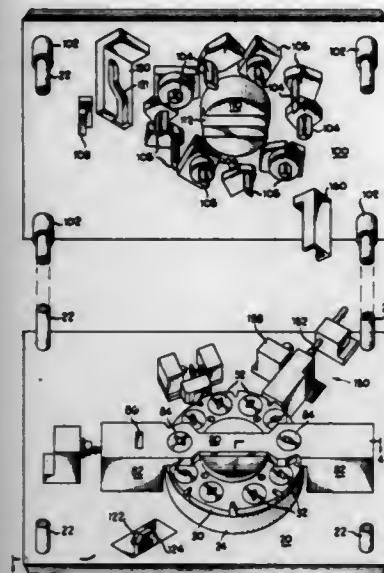
Int. Cl. D02g 1/16, 3/36

U.S. Cl. 28—75 WT

2 Claims

A synthetic fiber finish which provides improved processing performance, heat stability, and the like, and comprises a heat

turntable while simultaneously advancing other workpieces to similar work stations located around the opposite half of said



turntable. At the last station on each half of the turntable, the finished workpieces are ejected, said apparatus producing finished parts at a high rate with a minimum of scrap.

3,827,117

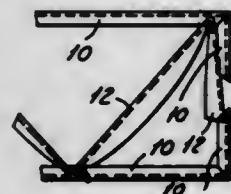
METHOD FOR MAKING TRUSS MEMBERS

Melvin L. Ollman, Detroit, Mich., assignor to C-O, Inc., Detroit, Mich.

Continuation-in-part of Ser. No. 129,040, March 29, 1971, abandoned. This application Apr. 11, 1973, Ser. No. 350,158 Int. Cl. B23p 17/00

U.S. Cl. 29—155 R

7 Claims



A method and apparatus for forming truss members which comprise oppositely disposed channel members and struts interconnected to one another by alternately extending apices wherein the apices are welded to the channel members. The method and apparatus provides for simultaneously forming channel members from a pair of endless strips and the strut members from an endless third strip, guiding the channels in a predetermined relation to one another with the third strip therebetween and thereafter welding the apices to the channel members.

3,827,118

AIRFOIL AND METHOD OF FORMING THE SAME

Gerhard H. Appel, Redondo Beach, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 93,095, Nov. 27, 1970, abandoned. This application July 17, 1972, Ser. No. 272,502

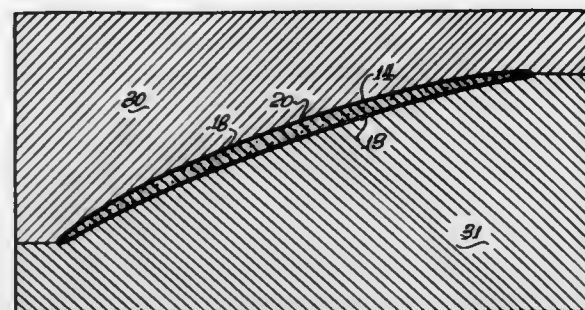
Int. Cl. B21k 3/04; B23p 15/04

U.S. Cl. 29—156.8 B

9 Claims

An airfoil and method for its forming, the airfoil having a foreign object damage and erosion resistant outer skin or shell

and an inner body composed of resin-impregnated fiber with high fiber to resin content, the resin being cured during the ap-



plication of the skin to the inner body to provide an integrally bonded unit.

3,827,119

TOOL HOLDER WITH PROVISIONS FOR ACCURATELY POSITIONING CUTTING INSERTS AND AN IMPROVED CHIP BREAKING INDEXIBLE INSERT

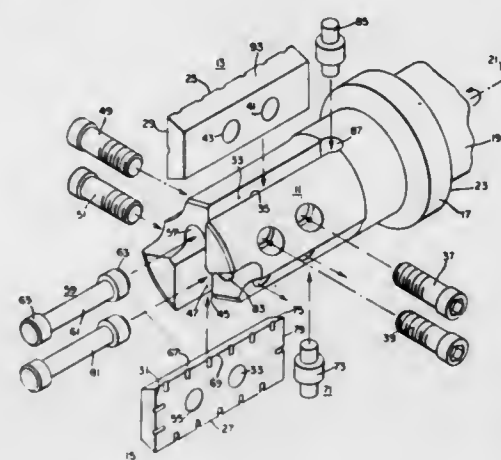
John T. Bennett, 47 Paper Mill Ln., Newtown Square, Pa. 15078

Division of Ser. No. 285,121, Aug. 31, 1972, which is a division of Ser. No. 19,023, March 12, 1970, Pat. No. 3,688,367. This application Sept. 7, 1973, Ser. No. 395,226

Int. Cl. B26d 1/12

U.S. Cl. 29—105 R

5 Claims



A tool holder having at least one cutting insert (blade) receiving slot that is formed in part by a pair of spools at adjacent small side areas of the slot. The spools are held at a finite angle with each other which matches the angle between adjacent edges of a blade to be inserted in the slot. The spools provide a ridge to contact blade edge surfaces for only a small portion of their width. An application of this blade positioning technique is a multiple indexible blade rotary tool holder. Indexible blades for use in a wide variety of tool holders have improved chip breaking grooves adjacent to its cutting edges in surfaces thereof which lead into the work piece.

3,827,120

COVERING FOR ROLLS OF TEXTILE MACHINES

Fritz Mayer, Weinheim, Bergstrasse, Germany, assignor to Carl Freudenberg, Weinheim/Bergstrasse, Germany

Continuation-in-part of Ser. No. 191,467, Oct. 21, 1971, abandoned. This application June 4, 1973, Ser. No. 366,951 Claims priority, application Germany, Oct. 24, 1970, 2052249

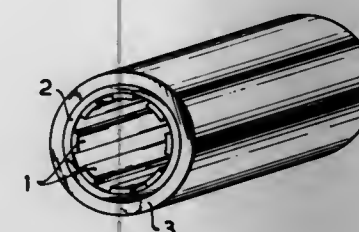
Int. Cl. B21b 31/08

U.S. Cl. 29—129

6 Claims

A roll cylinder having a smooth surface and a full-length axle and being free of surface indentations covered with a roll covering comprising a tubular core, a layer of elastomeric material externally mounted on said core and at least one

elastomeric rib element internally connected to said core facing and abutting the smooth unindented surface of said roll cylinder; a roll covering adapted to engage the smooth unindented surface of a roll cylinder having a full length axis com-



prising a tubular core, a layer of elastomeric material externally mounted on said core and a plurality of elastomeric rib elements internally connected to said core and adapted to abut and engage a smooth surface full length roll cylinder on the surface thereof.

3,827,121

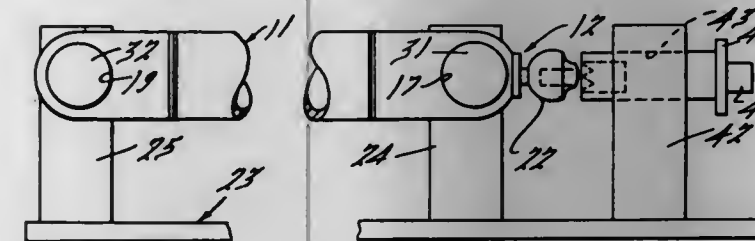
METHOD OF AND APPARATUS FOR REPAIRING CARDAN TYPE UNIVERSAL JOINTS AND PROTECTIVE BOOT

Ralph M. Frederick, 2124 Lakeview Dr., Ypsilanti, Mich. 48197

Filed Mar. 14, 1973, Ser. No. 341,240 Int. Cl. B23p 11/00, 7/00, 19/04

U.S. Cl. 29—149.5 B

3 Claims



A method of and apparatus for repairing the worn balls of the ball and socket connections for double Cardan type universal joints. The apparatus includes a fixture that cooperates with the yokes of the drive shaft for accurately locating the drive shaft. The worn ball is then machined off to leave a pilot portion having an accurately formed locating surface. A new ball having an opening complementary to the pilot portion is press fit onto the pilot portion to complete the repair. In addition, a protective boot is disclosed for protecting the ball and socket connection of the repaired joint to prevent dirt and other abrasives from impinging on the sliding surface of the joint.

3,827,122

CHECK VALVE CAGE APPARATUS AND METHOD OF MAKING SAME

Bobby L. Douglas, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jan. 19, 1973, Ser. No. 324,919

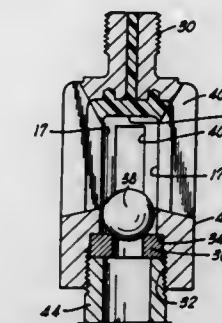
Int. Cl. B21d 53/00

U.S. Cl. 29—157.1 R

5 Claims

A check valve cage is fabricated by injecting a reinforced thermal setting plastic through a channel extending along the central longitudinal axis of a cylindrical body. A form pin is inserted through a coaxial longitudinal bore at the other end of said cylindrical body, said bore having an increased diameter central portion for receiving the injected thermoplastic

material. After the plastic material has set, lateral flow passages are formed in the wall of the cylindrical body. Shal-



low drilled holes within the central cavity of the body, upon being filled with the injected plastic material, prevent rotation of the plastic lining of the cage assembly.

3,827,123

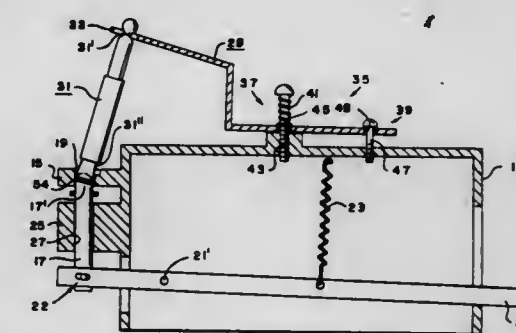
TAPE CUTTING AND ATTACHING DEVICE

Jacob Hoffman, 670 Waring Rd., Memphis, Tenn. 38122 Filed Feb. 12, 1973, Ser. No. 331,966

Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29—200 B

10 Claims



A device for cutting circular blanks out of double-sided pressure-sensitive tape and for attaching the blanks to an arbor of a contact lens adjusting, modifying or finishing machine whereby a contact lens may be affixed to the arbor by means of the double-sided pressure-sensitive tape. The device includes a die and a punch for coacting together to cut out the circular blank and includes a means for holding the arbor in a position so that the punch will force the blank into engagement with the arbor.

3,827,124

MACHINE FOR CONVEYING EXPANDING AND APPLYING ENDLESS SEALING MEMBERS

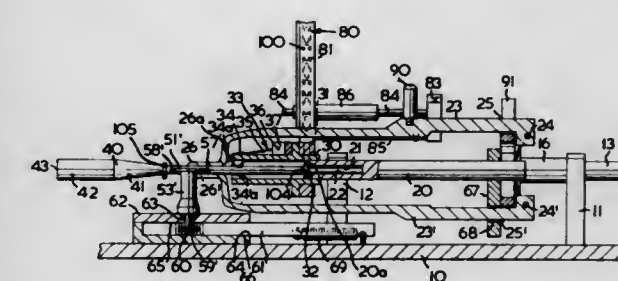
Harvey Joseph Hervieux, deceased, late of Algoma Mills, District of Algoma, Ontario, Canada (by Bernice Hervieux, administratrix)

Filed May 11, 1973, Ser. No. 359,338

Int. Cl. B23p 19/00; B23q 7/10; B23p 19/02

U.S. Cl. 29—200 A

11 Claims



The invention provides an apparatus for deforming deformable endless sealing members and applying them in stretched condition to a workpiece. The apparatus has a guide

member, and the endless sealing members are fitted over one end and passed along it by a push mechanism. Supporting means are adapted to support the guide member while permitting the passage of the endless sealing members along it. The guide member terminates in an expansion mandrel which abuts the workpiece onto which the sealing members are to be placed.

The guide member and its supporting means can also be used without an expansion mandrel as a conveyor for endless members.

3,827,125

THREADLESS FASTENER SYSTEM

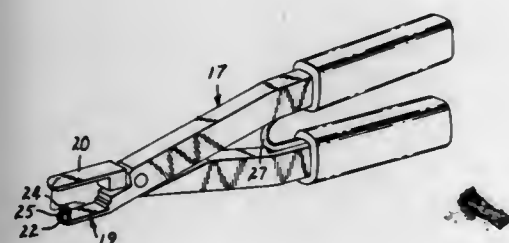
Gary B. Matthews, Maplewood, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 16, 1973, Ser. No. 332,796

Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29—200 D

14 Claims



A threadless fastener system in which the leaves of a leaf spring fastener radiate from an aperture and are inclined to securely engage a locking shaft inserted into the aperture to prevent manual removal of the shaft. Unlocking of the fastener to permit reuse thereof is provided by an unlocking tongue having an axially slotted hollow cylinder which fits around the locking shaft of the fastener and is moved axially to engage and radially deflect the locking leaves of the fastener to disengage the same from the locking shaft.

3,827,126

BENT PIPE ASSEMBLING APPARATUS

Kaoru Shiozawa, Tsugio Shirato, and Kiyoshi Hirose, all of Chiba, Japan, assignors to Mitsui Shipbuilding and Engineering Co., Ltd., Tokyo, Japan

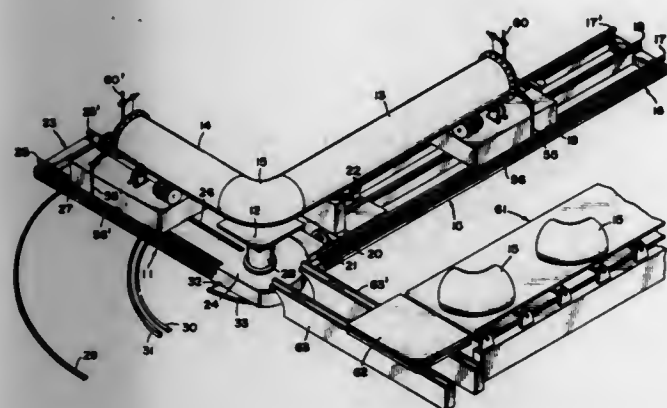
Filed Mar. 28, 1973, Ser. No. 345,676

Claims priority, application Japan, Apr. 7, 1972, 47-35588

Int. Cl. B23k 37/04

U.S. Cl. 29—200 P

6 Claims



The bent pipe assembling apparatus of the present invention comprises two straight pipe positioning means and one elbow supporting table disposed between said two means, one of said two means being capable of rotating about said elbow supporting table, so that the bent pipe having accurate dimensions in the length and the angle of bending may be easily produced.

3,827,127

TIRE VALVE CORE MOUNTING APPARATUS

Akio Tanihata, and Norio Abe, both of Tokyo, Japan, assignors to Bridgestone Tire Company Limited, Tokyo, Japan

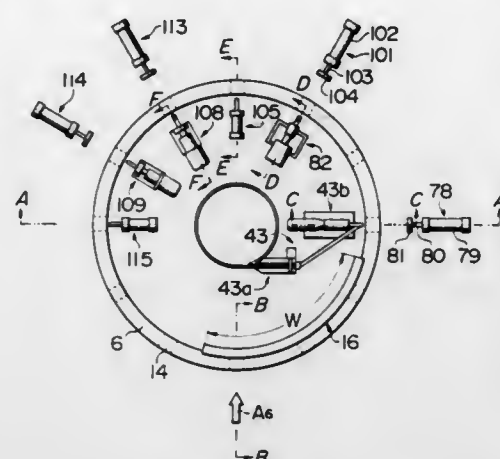
Filed Oct. 30, 1973, Ser. No. 411,072

Claims priority, application Japan, Nov. 8, 1972, 47-111949

Int. Cl. B23p 19/04

U.S. Cl. 29—240

10 Claims



Herein disclosed is a tire valve core mounting apparatus for mounting one or more valve cores into one or more valve stems. The tire valve core mounting apparatus comprises an annular member adapted to be intermittently rotated through a constant angle and having therein a plurality of valve stem holding bores being in circumferentially equidistant relation with respect to one another, each valve stem holding bore extending radially of the annular member, and a plurality of locking mechanisms mounted on the annular member for locking the valve stem in the valve stem holding bores, a valve core supplying and screwing arrangement fixed with respect to the annular member for supplying a valve core to a valve stem held in one of the valve stem holding bores per an angle of rotation of the annular member and for screwing the valve core into the valve stem, and disengaging means fixed with respect to the annular member and spaced in the rotation direction of the annular member from the valve core supplying and screwing arrangement for disengaging the valve stem from the valve stem holding bore.

3,827,128

METHOD FOR PRODUCING CONTAINERS WITH COMPOSITE WALLS

Jean R. Nasica, Paris, France, assignor to Intercan S.A., c/o Fiduciaire Wanner S.A., Fribourg, Switzerland

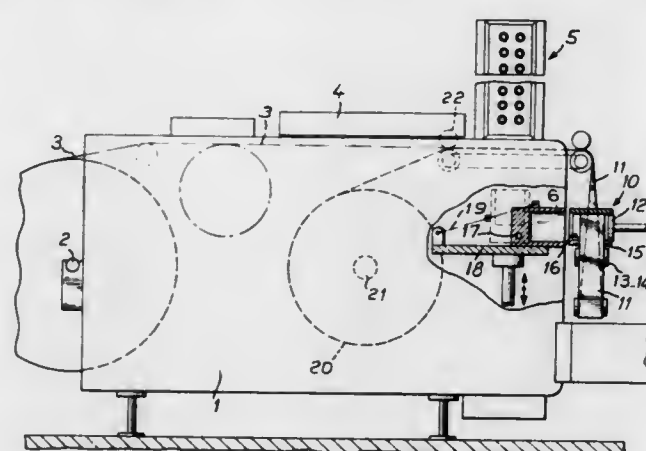
Division of Ser. No. 161,872, July 12, 1971, Pat. No.

3,709,643, which is a continuation of Ser. No. 18,123, March 10, 1970, abandoned. This application Oct. 10, 1972, Ser. No. 295,824

Int. Cl. B23p 17/00; B29c 17/04, 27/16, 27/30

U.S. Cl. 29—421

5 Claims



A method for producing in moulds plastic containers having at least one part of the lateral walls in the form of a reinforcing sheet.

This method is particular in that in association with each female mould a sheet of thermoplastic material is advanced in a pre-determined path adjacent the open end of the female mould held in a shaping position. A loop is prepared from a sheet of reinforcing material at a location spaced from the path of the thermoplastic material. The mould is moved from the shaping position into alignment with the reinforcing loop, the reinforcing loop is introduced into the mould. The mould is moved into the shaping position with the reinforcing loop retained therein. The sheet of thermoplastic material within the reinforcing loop is expanded to conform with the interior surface thereof.

3,827,129

METHODS OF PRODUCING A METAL AND CARBON FIBRE COMPOSITE

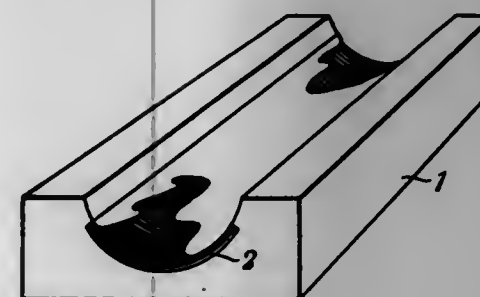
Albert W. Denham, and Brian A. W. Redfern, both of Derby, England, assignors to British Railways Board, London, England

Filed Jan. 6, 1972, Ser. No. 215,785

Int. Cl. B23p 17/04

U.S. Cl. 29—419

12 Claims



A process of producing a metal and carbon fibre composite in which carbon fibres are treated to produce a very thin coating on the surface and the treated fibres are then wetted by metal melts to which a particular alloying metal has been added. The fibres are treated with a metal carbide and the alloying metal is preferably of the same metal as that of the carbide. The carbon fibres are infiltrated into the matrix metal while the latter is in a molten state and the invention is particularly concerned with the production of a wetting interface between the metal alloys and the carbon fibres. The method enables shaped bodies such as shaft bearings to be made in a convenient manner. The composite may have other forms such as continuous tapes for subsequent assembly into more complex shapes.

3,827,130

METHOD OF MAKING THERMOPLASTIC LINED METAL BODIES

Bernard Baumann, Paris, France, assignor to CEGEDUR Societe de Transformation de l'Aluminium PECHINEY, Paris, France

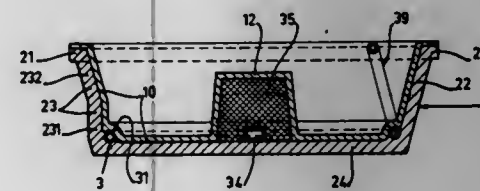
Division of Ser. No. 73,446, Sept. 18, 1970, Pat. No.

3,794,203. This application June 25, 1973, Ser. No. 372,961

Int. Cl. B23p 17/00

U.S. Cl. 29—421

5 Claims



Fuel tank and other hollow metal bodies internally lined with a thermoplastic material wherein a heated sheet of the thermoplastic material is laid over the previously formed hol-

low metal body with the plastic sheet in engagement with the edge of said body and the sheet is deformed to correspond to the internal shape of said body by drawing a vacuum through a foramenous vacuum tubing which remains entrapped between said sheet and body to become a part thereof and which includes the addition of porous and permeable bodies connected to the vacuum system for formation of said sheet liner with sections which extend from the metal body, and fuel tanks formed by the joinder of such lined body portions in sealed relation along the meeting edges of the plastic lining.

3,827,131

METHOD OF SWAGE NAIL FASTENING

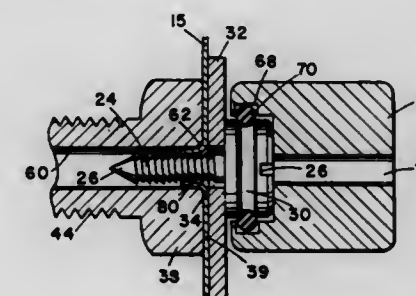
Robert Peyton Coltrin, 678 Skyview Dr., El Cajon, Calif. 92020

Filed Feb. 5, 1973, Ser. No. 329,641

Int. Cl. B23p 11/00

U.S. Cl. 29—432.1

2 Claims



A fastening system including a tool adapted for use in conjunction with a specialized fastener together with the method for fastening operations. The specialized fastener has a threaded shank portion with a piercing tip. The shank is connected to an enlarged head portion which is in the form of a cylindrical slotted head. The sides of the cylinder are utilized in aligning the fastener in the clamping tool. A circumferential groove is provided to cooperate with an O-ring retention device. The fastener is received in the head portion of a clamping device and retained by an O-ring to align and retain the shank portion with the bore of an anvil. The anvil is positioned on the opposite side of the sheet material to which the fastener is applied. Pressure from the clamp forces the piercing tip through the sheet material and a portion of the sheet material is swaged into the threaded portion of the fastener by the anvil. The threads may be utilized to withdraw the fastener by the use of a screwdriver with the slotted head.

3,827,132

PRESTRESSED ROD LAYING MEANS AND METHOD

Robert Lyndon Bratchell, Ottoway, South Australia, assignor to Concrete Industries (Monier) Limited, Ottoway, South Australia

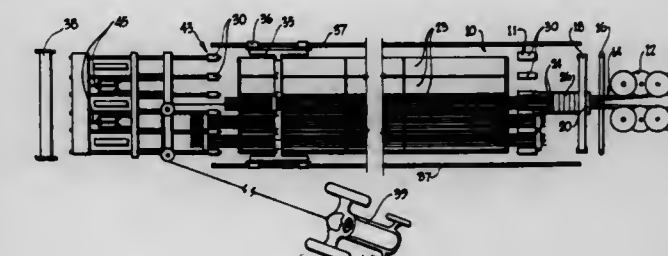
Filed Oct. 10, 1972, Ser. No. 295,921

Claims priority, application Australia, Nov. 11, 1971, 6968/71

Int. Cl. B23p 19/04

U.S. Cl. 29—433

10 Claims



Means for laying a series of wires in parallel array within a series of aligned moulds in a bay wherein concrete is to be poured while the wires are retained in a strained condition

comprising bolster means at each end of the bay, a series of reels at one end having the wires thereon, a series of blocks each containing apertures arranged in the pattern of the wires to be laid, abutment members for supporting blocks on each bolster, a trolley straddling the moulds and movable along the bay over the moulds, and collets on the wires arranged to frictionally engage respective wires when the collets are driven into respective apertures in a block.

3,827,133

METHOD OF FORMING A LOCKING RING FOR PRESSURE VESSEL

Jacques H. Mercier, 49 Rue de Naples, Paris, France
Division of Ser. Nos. 613,660, Feb. 2, 1967, Pat. No. 3,537,481, and Ser. No. 822,445, May 7, 1969, Pat. No. 3,640,172, Ser. No. 188,955, Oct. 13, 1971, Pat. No. 3,733,682.
This application Feb. 28, 1973, Ser. No. 336,840

Int. Cl. B23p 9/00

U.S. Cl. 29-445

1 Claim



This invention relates to a method of forming a locking ring for the closure plug of a pressure vessel for storing fluid under pressure and particularly of the type having a deformable partition such as a bladder therein. The closure plug has a flanged inner end of diameter slightly less than the diameter of the port of the pressure vessel into which it is to be inserted and the locking ring normally is of greater diameter than said port and is foldable for insertion through said port so that it may then be restored to its original shape to encompass the closure plug and restrain outward movement thereof from such port.

3,827,134

APPARATUS FOR SHRINKING COLLARS ON A SHAFT

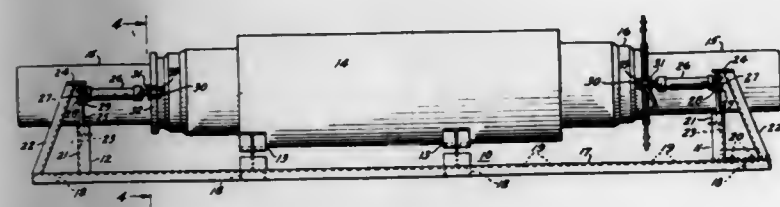
Richard L. Wechsler, Bethlehem, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.
Division of Ser. No. 61,531, Aug. 6, 1970, Pat. No. 3,725,994.

This application Nov. 13, 1972, Ser. No. 305,745

Int. Cl. B23p 19/04

U.S. Cl. 29-252

10 Claims



Method and apparatus for shrinking a metallic collar onto a shaft, with means provided for applying a coolant to the circumference of the collar while maintaining pressure thereon.

3,827,135

METHOD OF CONSTRUCTING A LOW TEMPERATURE LIQUEFIED GAS TANK OF A MEMBRANE TYPE

Katsuro Yamamoto, Tokyo, Japan, assignor to Bridgestone Liquefied Gas Company, Ltd., Tokyo, Japan
Filed Mar. 7, 1973, Ser. No. 338,760

Claims priority, application Japan, Mar. 13, 1972, 47-24666

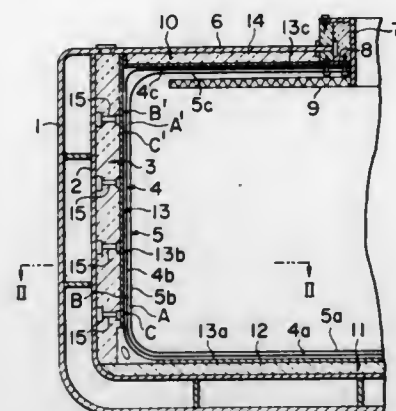
Int. Cl. B21d 39/00; B23p 19/04

U.S. Cl. 29-455

7 Claims

A method of constructing a low temperature liquefied gas tank of a membrane type comprising an inner membranous

vessel provided at the inside of a rigid outer vessel with interposition of a heat insulating layer, characterized by the steps of constructing said inner membranous vessel in said outer vessel, urging flat side wall portions of said inner membranous vessel, after the completion thereof, toward the inside of said inner membranous vessel as much as to form a marginal slack corresponding to the contraction of said inner membranous



vessel in a low temperature operating condition, and filling up the space left between said outer vessel and said inner membranous vessel with a compression resistant heat insulating material while keeping said inwardly urged condition of said inner membranous vessel, whereby said inner membranous vessel is constructed so as to favorably fit the space defined by the inner surface of said heat insulating layer when it has contracted in a low temperature operating condition.

3,827,136

METHOD OF CONSTRUCTING A LOW TEMPERATURE LIQUEFIED GAS TANK OF A MEMBRANE TYPE

Katsuro Yamamoto, Tokyo, Japan, assignor to Bridgestone Liquefied Gas Company, Ltd., Tokyo, Japan

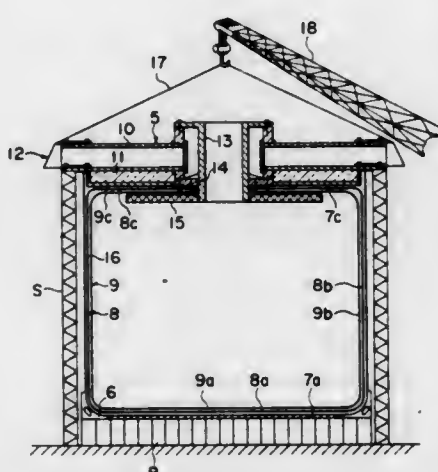
Filed Mar. 15, 1973, Ser. No. 341,724

Claims priority, application Japan, Mar. 25, 1972, 47-29417

Int. Cl. B21d 39/00; B23p 19/04

U.S. Cl. 29-455

6 Claims



A method of constructing a low temperature liquefied gas tank of a membrane type comprising an inner membranous vessel provided at the inside of a rigid outer vessel with interposition of a heat insulating layer, characterized by constructing an assembly including said inner membranous vessel and a carrying structure composed of a roof portion of said heat insulating layer, a roof portion of said outer vessel and a saddle frame for supporting bottom edge portions of said inner membranous vessel separately from said outer vessel having a hold space, mounting said assembly into said hold space, urging flat side wall portions of said inner membranous vessel toward the inside of the tank as much as to form a marginal slack corresponding to the contraction of said inner membranous vessel in a low temperature operating condition, and filling up the space left between said outer vessel and said inner mem-

branous vessel with a compression resistant heat insulating material while keeping said inwardly urged condition of said inner membranous vessel, whereby the construction period of the tank is shortened and said inner membranous vessel is constructed so as to favorably fit the space defined by the inner surface of said heat insulating layer when it has contracted in a low temperature operating condition.

3,827,137

METHOD OF ASSEMBLING A VEHICLE ROOF AND SIDEWALL ON A COMPLETED BASE BY EXTERNAL JOINT STRUCTURES

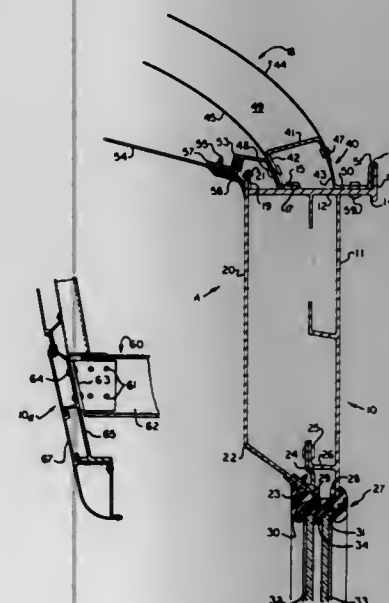
Theodor C. Schubach, Bonita, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Mar. 1, 1972, Ser. No. 230,689

Int. Cl. B23p 21/00

U.S. Cl. 29-469

2 Claims



The roof structure of a ground transportation vehicle is manufactured as a unit, complete with all components, accessories, finish and trim, as are also each of the vehicle sidewalls, including the seats, which preferably are cantilever or semi-cantilever type. The completed roof structure and walls are then assembled and secured, by externally applied fastenings, in permanently interconnected relation on a base structure which has a finished floor covering laid thereon, so that the interior of the vehicle is then complete, or virtually complete.

3,827,138

FRICITION WELDING METHOD

James Christopher Needham, Saffron Walden; Colin Ronald George Ellis, Newton, and Rodger Hedley Lilly, Comberton, all of England, assignors to The Welding Institute, Abington, Cambridge, England

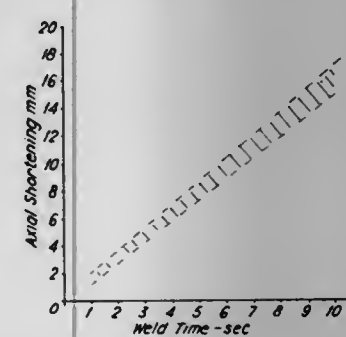
Filed July 8, 1971, Ser. No. 160,713

Claims priority, application Great Britain, July 9, 1970, 33447/70

Int. Cl. B23k 27/00

U.S. Cl. 29-470.3

3 Claims



To join two workpieces by friction welding, in the period of axial shortening (due to burn-off) during relative rotation of

the workpieces, the workpieces are compelled to approach one another at a rate dictated by an axial driving means, the rate of generation of frictional heat being automatically adjusted to give the required burnoff rate. The rate of axial approaching movement may be imposed by a screw feed or a cam or by a hydraulic cylinder supplied by a high delivery source through a controlling orifice.

3,827,139

MANUFACTURE OF ELECTRICAL METALLIC TUBING

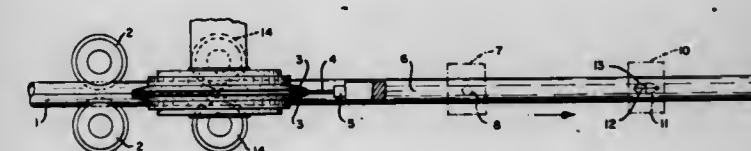
Samuel L. Norteman, Wheeling, W. Va., assignor to Wheeling-Pittsburgh Steel Corporation, Pittsburgh, Pa.

Filed June 23, 1972, Ser. No. 265,607

Int. Cl. B23k 31/02

U.S. Cl. 29-477.7

7 Claims



Electrical metallic tubing is manufactured from galvanized steel strip by forming the strip into tubular shape, welding the edges together and replacing the zinc lost in welding by gas or arc metalizing the weld zone first with aluminum and then with zinc.

3,827,140

METHOD OF SURFACE TREATING STEEL PRODUCTS WITH METAL POWDER

Hidehisa Yamagishi; Fumitoshi Yokoi, and Tsuyoshi Kutino, all of Kawasaki, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Chiyoda-ku, Tokyo, Japan

Continuation of Ser. No. 865,885, Oct. 13, 1969, abandoned.

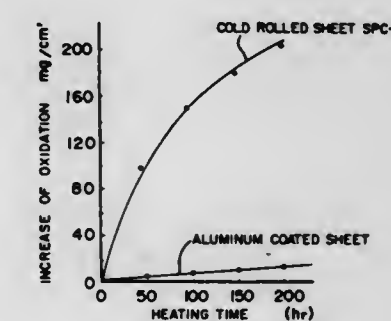
This application Oct. 4, 1972, Ser. No. 294,898

Claims priority, application Japan, Oct. 17, 1968, 43-75468; June 23, 1969, 44-49207

Int. Cl. B23k 31/02

U.S. Cl. 29-487

13 Claims



An aqueous suspension containing a metal powder having a particle size of less than 325 mesh is applied to the surface of a steel product. The coated steel product is then preheated, rolled and post-heated to form a protective coating of said metal.

3,827,141

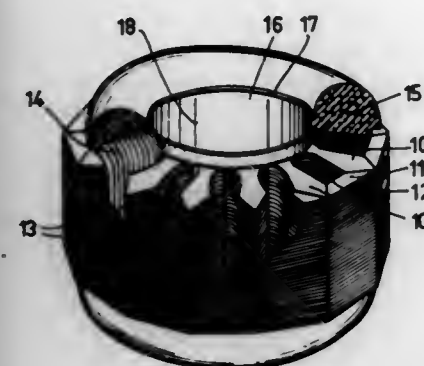
METHOD OF MANUFACTURING AN ELECTRIC ROTARY MACHINE

Stig Lennart Hallerback, Vastra Frolunda, Sweden, assignor to SKF Industrial Trading and Development Company N.V., Amsterdam, Netherlands

Division of Ser. No. 254,302, May 17, 1972, Pat. No. 3,792,299. This application Apr. 19, 1973, Ser. No. 352,736
Int. Cl. H02k 15/02

U.S. Cl. 29—596

6 Claims



The invention relates to electric rotary machines. It provides an electric rotary machine with a stator structure the stator teeth of which are shaped as separate elements and are bonded to the stator ring and the stator windings into a rigid assembly.

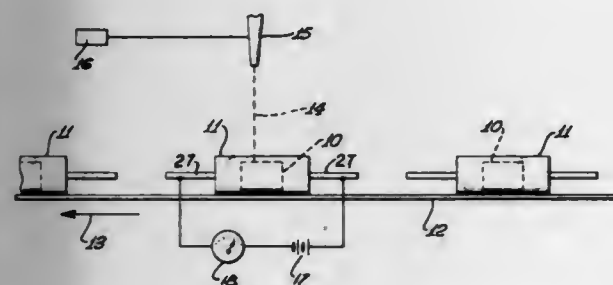
3,827,142

TUNING OF ENCAPSULATED PRECISION RESISTOR
Kenneth R. Bennett, San Diego, and Joseph W. Crownover, La Jolla, both of Calif., assignors to GTI Corporation, Pittsburgh, Pa.

Filed Dec. 11, 1972, Ser. No. 314,010
Int. Cl. H01c 7/00, 17/00

U.S. Cl. 29—620

5 Claims



A long wave laser beam is controllably passed through a glassy envelope encapsulating an electrical resistor, to alter its resistance to a precision value.

3,827,143

OIL CABLE INSTALLATION METHOD

John Normann Johnsen, Oslo; Tor Vraistad, Elksmarka, and Gunnar Wettre, Asker, all of Norway, assignors to International Standard Electric Corporation, New York, N.Y.

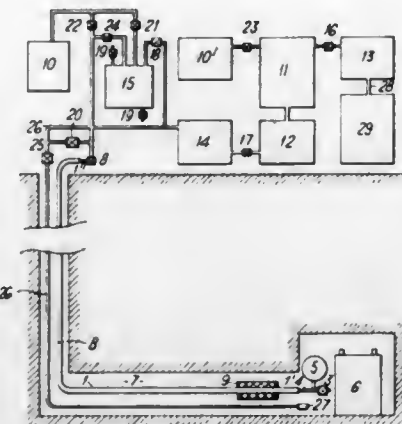
Filed Apr. 12, 1973, Ser. No. 350,677
Int. Cl. H01r 43/00; H05k

U.S. Cl. 29—628

4 Claims

A system and method are provided for working on oil filled cables where there are substantial height differences between levels of the cable ends. Oil is drained from the lower level to a

predetermined low pressure while the upper portion is maintained under a vacuum. Oil at the lower level may be frozen to



permit conventional terminating work to be done. Various valve and degasifying arrangements are employed. The cable is then refilled with degasified oil.

3,827,144

SHAVER CUTTER HEAD

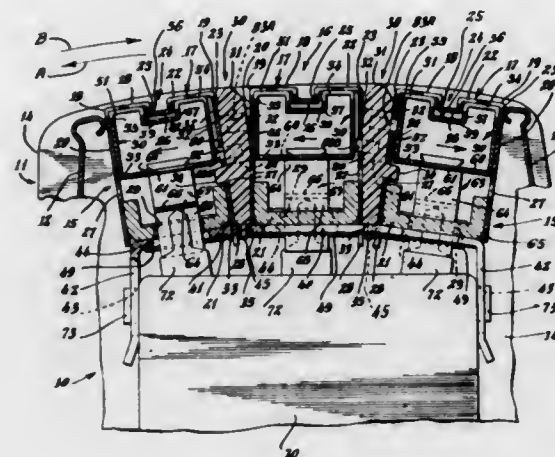
Ronald G. Arpino, Branford, Conn., assignor to Sperry Rand Corporation, Bridgeport, Conn.

Filed May 24, 1973, Ser. No. 363,475

Int. Cl. B26b 19/02, 19/04

U.S. Cl. 30—43.92

8 Claims



An improved shaver cutter head, including an outer cutter, an inner cutter mounted within the outer cutter, and means for moving the inner cutter within the outer cutter in a predetermined path of travel. Each of the cutters has a hair-shearing first wall portion, the first wall portion of the mounted inner cutter being urged into engagement with the first wall portion of the outer cutter for shearing hair as the inner cutter is moved in said predetermined path of travel within the outer cutter. The outer cutter also has opposed, non-hair-shearing, second and third wall portions, respectively depending from the first wall portion of the outer cutter. The second wall portion is provided with an aperture, and the third wall portion is oriented to extend in the direction of movement of the inner cutter within the outer cutter. A resilient member disposed adjacent to the outer cutter's second wall portion, extends through the aperture therein and urges the moving inner cutter into sliding engagement with the third wall portion of the outer cutter. As a result, the moving inner cutter is directly guided by the third wall portion in the aforesaid predetermined path of travel.

3,827,145

ARTIFICIAL TOOTH STRUCTURE

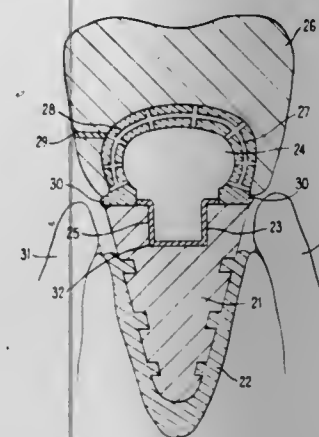
Wilfred Arthur Richards, Much Hadham, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland
Filed Sept. 29, 1972, Ser. No. 293,745

Claims priority, application Great Britain, Sept. 30, 1971, 45468/71

U.S. Cl. 32—10 A

Int. Cl. A61c 13/00

1 Claim



An artificial tooth comprising a crown section; a root section adapted to be inserted into an alveolus in the jaw of a vertebrate, the root section being formed by a member of a carbon material which is microcrystalline in structure and substantially impermeable and having at least one substantially cone-shaped projection adapted to fit approximately within the inner surface of the alveolus; and means resiliently securing the crown section to the root section. The resilient securing means are arranged such that they are capable of absorbing sudden shocks which might be applied to the artificial tooth structure such as by biting upon something unexpectedly hard.

3,827,146

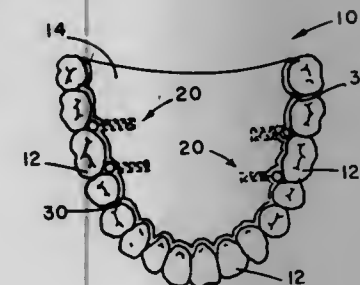
ORTHODONTIC COIL AND RETAINING DEVICE UTILIZING THE SAME

Melvin Wallsheln, 8645 Bay Parkway, Brooklyn, N.Y. 11230
Filed Nov. 29, 1972, Ser. No. 310,402

Int. Cl. A61c 7/00

U.S. Cl. 32—14 E

18 Claims



An orthodontic retaining device in the form of a removable partial denture or active orthodontic appliance that cooperates with teeth includes an acrylic member having an external peripheral portion configured in the general arch-shape of a normal dentition of the teeth. A plurality of coils in the form of springs are at least partially embedded in the acrylic and positioned adjacent to the peripheral portion of the acrylic member. A portion of the spring, which may be of the same or a different pitch than the embedded portion, extends exteriorly of the acrylic member and is provided at its free end with a clasp or rest. The clasp is preferably in the form of a ball clasp or a bar clasp which engages the teeth when the partial denture or appliance is fully positioned interiorly of the arch of the teeth. The rest is so configured so that it abuts the crown of a tooth and is securely lodged in a groove thereof when the partial denture is positioned lingually or palatally of the arch of the teeth. In each case, the exposed portion of the

coil has limited freedom of movement. Turning of the coil about its axis within the acrylic member is limited by an extension at the free end of the embedded portion which defines a pitch other than the pitch of the embedded portion of the coil.

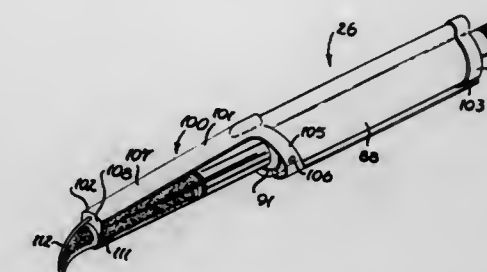
3,827,147

DENTAL TOOL

John J. Condon, 5901 N. Ledgewood, Spokane, Wash. 99207
Continuation-in-part of Ser. No. 135,595, April 30, 1971, abandoned. This application May 22, 1972, Ser. No. 255,861
Int. Cl. A61c 9/00

U.S. Cl. 32—17

7 Claims



A dental tool is described for use in the impression process of dental prosthesis. The hand-held dental tool includes an impression material cartridge releasably connected to a cylindrical tool housing. A controlled amount of air pressure is directed from a source through a hose and into a bore of the cylindrical housing to force a freely movable piston against the rear end of an elongated plunger which has its forward end slidably mounted in the cartridge. The plunger, in turn, forces a flowable impression material along the interior of the cartridge to flow from a reduced opening.

3,827,148

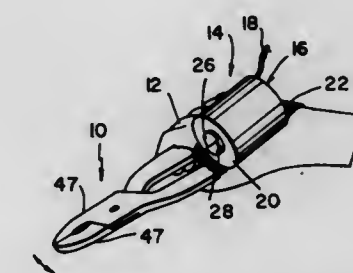
TOOTH EXTRACTION VIBRATOR

Joseph F. Diliberto, 41 Hill Top Cir., Worcester, Mass. 01609
Filed Nov. 6, 1972, Ser. No. 303,697

Int. Cl. A61c 3/10

U.S. Cl. 32—61

1 Claim



A vibration device is provided for use with a tooth-extracting instrument. In one embodiment, the device comprises an integral power-driven unit adapted to be strapped to the hand holding the instrument. In another embodiment, both the instrument and the vibrating device are carried by an arm of a dental machine. The vibrations imparted to the instrument facilitate removal of the tooth.

3,827,149

DENTAL HANDPIECE

Thomas J. Brennan, Portage, Mich., assignor to Stryker Corporation, Kalamazoo, Mich.

Filed Sept. 15, 1972, Ser. No. 289,209

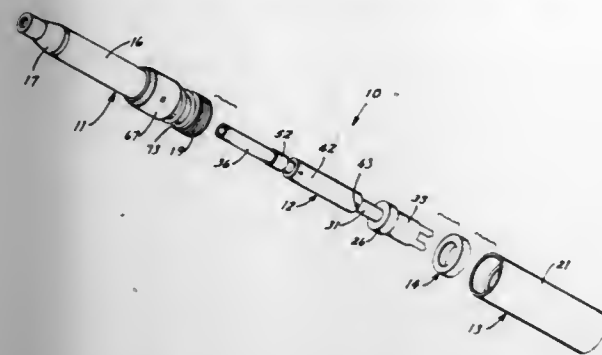
Int. Cl. A61c 1/08

U.S. Cl. 32—26

13 Claims

A handpiece assembly, particularly for a dental tool or the like, having a drive shaft assembly rotatably supported within a housing which is adapted to be manually held. The tool, such as a drill, is releasably connected to the drive shaft assembly

by means of a releasable coupling device which is non-rotatably supported on and axially movable relative to the drive shaft assembly, which rotates the drill. The coupling device and tool shank are provided with cooperating surfaces which prohibit relative rotation therebetween. The coupling



device can be manually moved axially of the shaft to disengage the tool, whereupon the tool can then be manually rotated to disengage it from the drive shaft so that the tool can then be axially withdrawn from the handpiece assembly. The coupling device includes brake means for resisting rotation of the drive shaft assembly during the insertion or removal of the tool.

3,827,150

DODGING COURSE CALCULATING DEVICE

Hiroshi Kubota, Takarazuka, Japan, assignor to Furuno Electric Company, Limited, Minamitakaki-gun, Nagasaki-ken, Japan

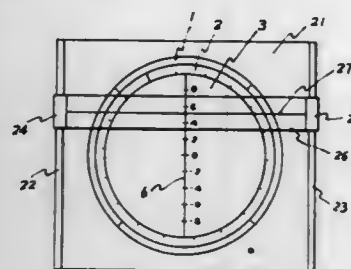
Filed Jan. 6, 1972, Ser. No. 215,871

Claims priority, application Japan, Jan. 21, 1971, 46-26379

Int. Cl. G01c 21/20

U.S. Cl. 33-1 SD

1 Claim



A dodging course calculator having a pair of circular plates coaxially mounted for relative rotation with one plate having an azimuth scale and the other plate having a diametral line with means for providing a second line perpendicular to the diametral line and movable relative thereto.

3,827,151

DECODING INSTRUMENT FOR A PIN-TYPE TUMBLER LOCK

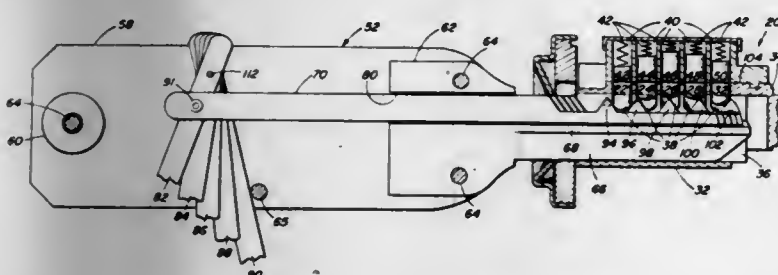
David W. Nail, 1498 Meadow Dr., El Cajon, Calif. 92021

Filed May 12, 1971, Ser. No. 142,483

Int. Cl. G01b 5/20

U.S. Cl. 33-174 F

5 Claims



A decoding instrument for a pin-type tumbler lock, the instrument including a frame having a decoder support for a plurality of shim-like, toothed decoders, the combined thickness of the support and decoders being less than the width of the key-receiving slot in the barrel of a lock. These decoders are

shiftable independently of one another and longitudinally of the support to detect the individual movement of the pins.

3,827,152

MEANS FOR ATTACHING PENCILS TO TEMPLATES

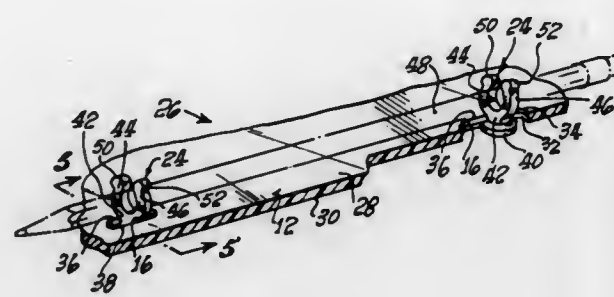
Clifford P. Dailey, 6275 Halstead, Alta Loma, Calif. 91701

Filed June 11, 1973, Ser. No. 368,600

Int. Cl. B43k 31/00

U.S. Cl. 33-174 B

4 Claims



A plastic clip of generally lyrate configuration has a pair of arms upstanding from a neck portion which overlies the base of the clip. An instrument to receive the clip has a T-shaped cutout void for the clip base on the instrument underside, with the clip neck snugged between inwardly directed shoulder flanges of said instrument overlying the cutout. The resulting T-shaped void is somewhat elongate with the span between the shoulder flanges being substantially equal to the thickness of the arms for inserting the clip arms there through from the bottom side of the instrument.

3,827,153

BRAKE SHOE GAGE

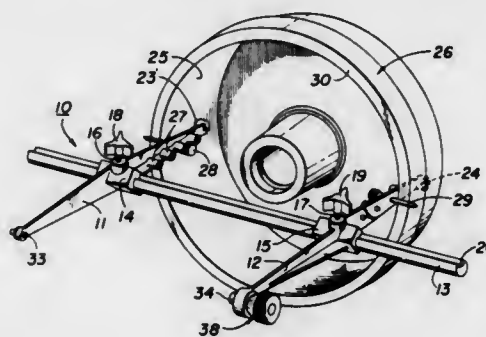
Wallace F. Mitchell, Arlington Heights, Ill., assignor to Ammco Tools, Inc., North Chicago, Ill.

Filed Sept. 15, 1972, Ser. No. 289,401

Int. Cl. E21b 47/08

U.S. Cl. 33-178 R

4 Claims



A gage and method for presetting brake shoe assemblies to provide an adjustable, precise clearance between the brake shoes and brake drum upon assembly thereof.

3,827,154

THREAD INSERTS AND GAGE UTILIZING SAME

Cass Kaifesh, 9947 Corella, Whittier, Calif. 90603

Filed Dec. 9, 1971, Ser. No. 206,472

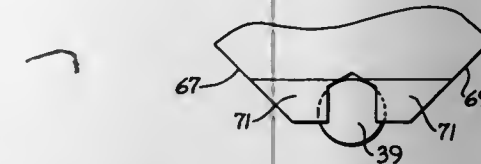
Int. Cl. G01b 5/12, 5/16

U.S. Cl. 33-199 R

5 Claims

An attachment for a gage which allows the gage to accurately measure the pitch diameter of threads comprising first, second and third thread contacting elements attached to the gage. The three elements are spaced from each other and define a plane. The gage is positionable relative to the threads

so that the plane extends generally axially of the threads. At least two of the elements are mounted for limited movement



generally parallel to the axis of the threads and each of the elements is sized to be positionable in a groove between adjacent threads and in contact with such threads.

3,827,155

METHOD AND APPARATUS FOR LAYING A PIPELINE

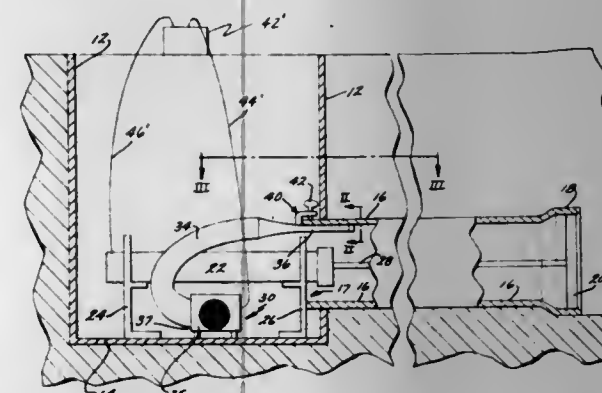
Ramon Menzel, Stow, Mass., assignor to Laser Alignment, Inc., Grand Rapids, Mich.

Filed July 27, 1972, Ser. No. 275,687

Int. Cl. G01b 11/27

U.S. Cl. 33-228

14 Claims



This disclosure describes a method and apparatus for laying a pipeline in which the pipes are aligned along a preselected path with a collimated light beam, preferably according to the methods of U.S. Pat. Nos. 3,116,557 and 3,279,070. Air is forced through the pipeline in a helical spiral to prevent gases from building up within the pipeline as the pipes are being laid. A blower unit coupled to an outlet nozzle having a clamp for clamping the nozzle to the pipe at an angle to the longitudinal axis of the pipe is provided for this purpose.

3,827,156

METHOD AND APPARATUS FOR LAYING A PIPELINE

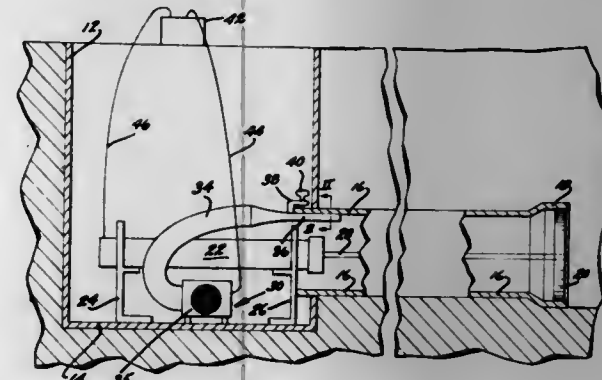
Roger J. Roodvoets, and Merlin J. Applegate, both of Grand Rapids, Mich., assignors to Laser Alignment, Inc., by said Roodvoets and Alignment Systems, Inc., both of Grand Rapids, Mich., by said Applegate

Filed Sept. 30, 1968, Ser. No. 763,786

Int. Cl. G01b 11/27

U.S. Cl. 33-228

11 Claims



This disclosure relates to a method and apparatus for laying a pipeline in which the pipes are aligned along a preselected

path with a collimated light beam, preferably according to the method of U.S. Pat. No. 3,116,557. Air is blown through the pipeline to prevent gases from building up within the pipeline as the pipes are being laid. A blower unit with a flexible conduit is provided for this purpose.

3,827,157

ARTIFICIAL-HORIZON GYROSCOPE

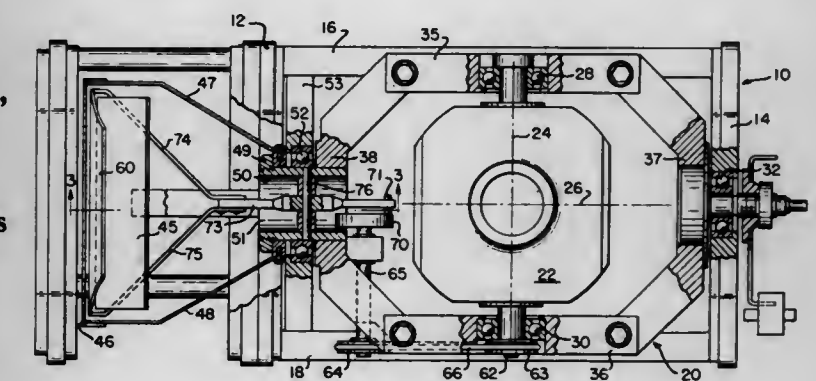
Frederick J. Owens, Hopatcong, N.J., assignor to Aerosonic Corporation, Clearwater, Fla.

Filed June 16, 1972, Ser. No. 263,696

Int. Cl. G01c 19/44

U.S. Cl. 33-329

3 Claims



In an artificial horizon gyroscope, pitch information is transmitted from the gyro rotor pitch axis by means of a belt-and-pulley arrangement and a pin-and-slot connection to the display or indicating dial. A drive wheel carries the pin which engageably rides in the slot in a pitch arm extending through a pivot axis member to the indicating dial.

3,827,158

SYSTEM FOR TREATING SOLID MATERIAL

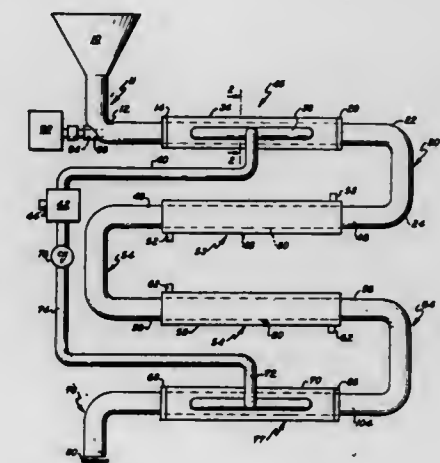
Roy C. Bradshaw, Louisville, Ky., and Gus H. Hicks, P.O. Box 16161, Louisville, Ky. 40216, assignors to said Hicks, by said Bradshaw

Filed Aug. 29, 1972, Ser. No. 284,480

Int. Cl. F26b 11/12

U.S. Cl. 34-182

9 Claims



A system for treating solid material by applying gas to and extracting the gas from the solid material while the solid material is being conveyed. The system includes a gas entrance conduit to which the gas is conveyed and a gas exit conduit from which the gas is drawn while the solid material is being conveyed through the conduits and through piping located on the entrance end of the gas entrance conduit, the exit end of the gas exit conduit and intermediate piping extending between the conduits.

3,827,159

PARTICULATE MATERIAL CONVEYOR

Michele Venanzetti, Milan, Italy, assignor to Venanzetti Vibrazioni S.p.A., Milan, Italy

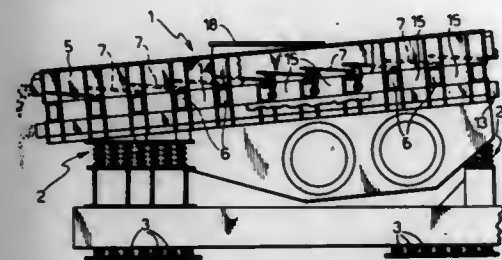
Filed Feb. 26, 1973, Ser. No. 335,806

Claims priority, application Italy, Aug. 4, 1972, 69559/72

Int. Cl. F26b 11/18

U.S. Cl. 34-164

1 Claim



A conveyor device which is particularly suitable for conveying hot particulate material such as agglomerate for feeding blast furnaces is disclosed. The conveyor is formed with a construction using only bolted connections which nevertheless permits all the necessary degrees of freedom for thermal expansion and contraction without being subject to excessive stresses which might cause fractures. The conveyor comprises a shaker frame having a trough in which the bottom is formed of a plurality of plates in a stepwise array, one end of the shaker frame being higher than the other. The transverse edge of each plate is secured to a respective supporting cross piece and the opposite edge is carried by at least one cranked bracket mounted on the next lower cross piece to which one edge of the adjacent plate is mounted. This arrangement forms a number of openings in the bottom of the trough, and through these openings air can be passed from below to cool the material being conveyed and the plates of the conveyor.

3,827,160

EDUCATIONAL DEVICE

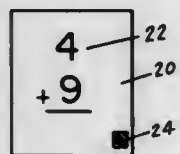
William Carl Talbot, 65 Washington Ave., Bernardsville, N.J. 07924, and Cornelius Lindsey, 6041 Capri Dr., Cincinnati, Ohio 45224

Filed May 14, 1973, Ser. No. 359,715

Int. Cl. G09b 1/30

U.S. Cl. 35-9 R

8 Claims



A device which helps slow learners to become informed and improve manual dexterity. A student indicates answers to a series of questions by placing blocks at the proper place on a board, the blocks being decorated so that when all of the questions have been properly answered an image will be completed.

3,827,161

EDUCATIONAL MATHEMATICAL DEVICE

Edwin G. Nelson, West Palm Beach, Fla., assignor to John Madison Harris and Jack N. McCarthy, a part interest to each

Filed June 20, 1973, Ser. No. 371,891

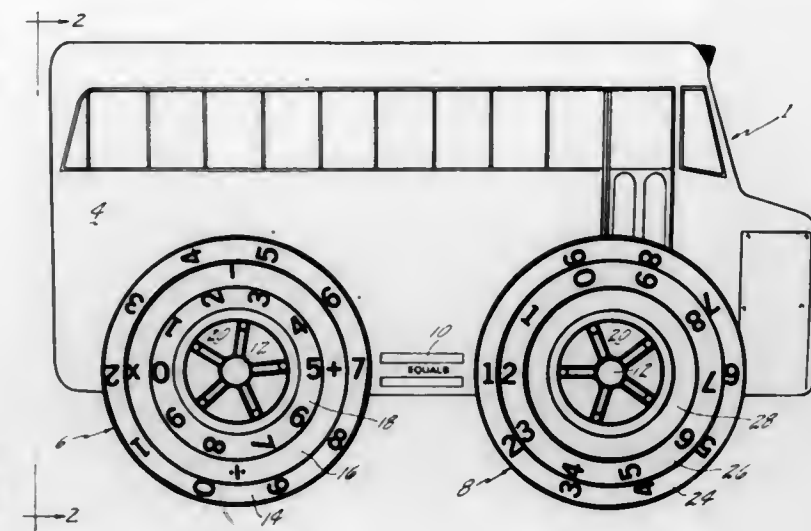
Int. Cl. G09b 1/22, 19/02

U.S. Cl. 35-31 A

8 Claims

A mathematical device for teaching a person the fundamentals of arithmetic is shown having a body shaped as a vehicle

with two wheel assemblies representing the front and back wheels of the vehicle with an equals sign therebetween. The rear or left wheel assembly provides the "problem" side and the front or right wheel assembly provides the "answer" side.



A modification is shown wherein the numbers and signs on the wheel assemblies can be lighted to provide a clearer contrast in viewing the device and also to provide a means for the instructor to notify the student whether or not he has arrived at the right answer for the problem set forth.

3,827,162

COUNTING CUBE

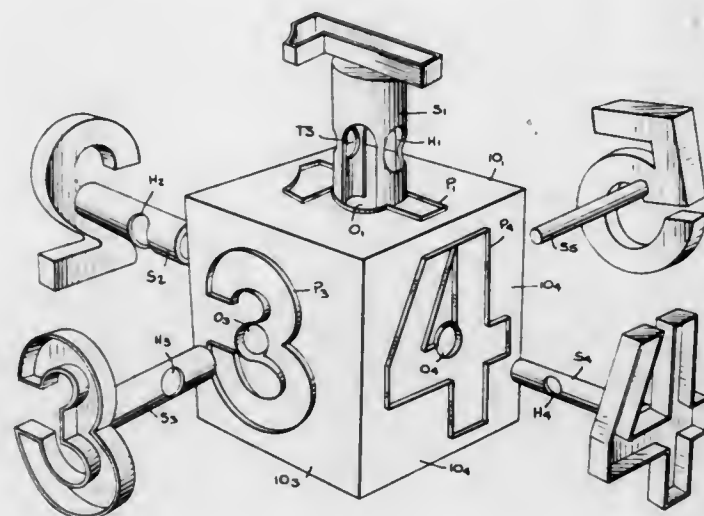
Alan Moeser, 4 Homestead Ln., Roosevelt, N.J. 08555

Filed July 2, 1973, Ser. No. 375,365

Int. Cl. G09b 1/10, 19/02

U.S. Cl. 35-32

6 Claims



A counting cube for teaching pre-schoolers how to recognize and count numbers. The cube is hollow and is provided with six faces, the bottom face serving as a base and the top and side faces having openings therein lying within sockets each having the shape of a respective numeral in a sequential set thereof. Also, provided are five pieces each having the shape of one of the numbers in the set and dimensioned to be received in a correspondingly-shaped socket. Projecting from the rear of each piece is a hollow stem which is insertable into the cube through the related opening, the stems all having the same length and extending along axes which intersect at a common point. Transverse holes are formed in the first four stems in the sequence to define cross-through passages for the intersecting stems whereby only when the pieces are socketed in direct sequence is it possible to mount all pieces on the cube.

3,827,163

TRIGONOMETRY TEACHING DEVICE

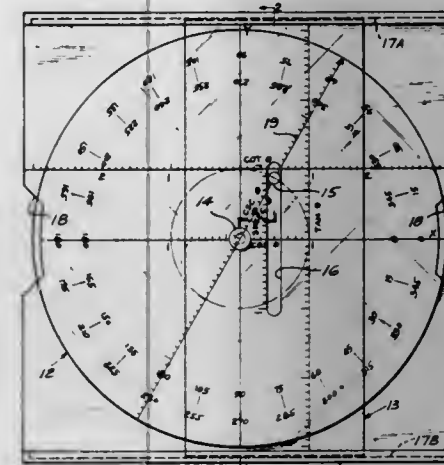
Alton C. Grimes, Mississippi State, State College, Miss. 39762

Filed May 24, 1973, Ser. No. 363,556

Int. Cl. G09b 23/04

U.S. Cl. 35-34

5 Claims U.S. Cl. 35-48 A



A device for visualizing functions and their variations, the value of each function and the demonstration of fundamental identities and equations of condition comprises a platform, a rotatable transparent disc and a transparent slide member. The slide member moves linearly in response to disc rotation. Circular and linear scales imprinted on the three parts cooperate in the teaching method.

3,827,164

AN EDUCATIONAL DEVICE

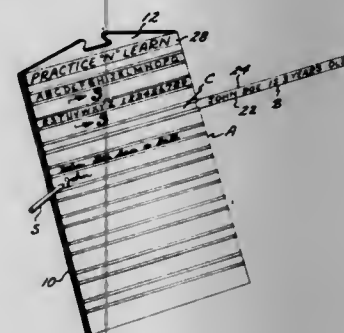
Gloria M. Hale, 16282 Main St. Apt. 3, Tustin, Calif. 92680

Filed Feb. 9, 1973, Ser. No. 331,229

Int. Cl. G09b 1/10; B431 1/12

U.S. Cl. 35-37

4 Claims



An educational device that includes first, second and third sheets connected at the edges thereof, and which is particularly adapted for use by a small child. The first sheet supports a layer of colored wax that is overlaid by the second sheet. The second sheet is adapted to have portions thereof forced into adhering contact with the wax layer when a stylus is moved thereover. The second sheet is preferably translucent, and the third sheet transparent.

Insignia-defining means are preferably removably mounted on the third sheet, and define areas therebetween on which a user may move a stylus in an attempt to reproduce the insignia. However, if desired, the insignia may be made a permanent part of either the second or third sheets.

As an alternate structure, a fourth transparent sheet may be interposed between the second and third sheets, with the fourth sheet providing an area on which the user may draw with the stylus when the third sheet is peeled back. The wax layer and second sheet cooperate to visually record the path of the stylus, irrespective of whether the latter is moved in pressure contact with the third or fourth sheet. The reproduced insignia on the second sheet is easily removed therefrom by peeling it away from the wax layer.

3,827,165

TEST SCORING APPARATUS

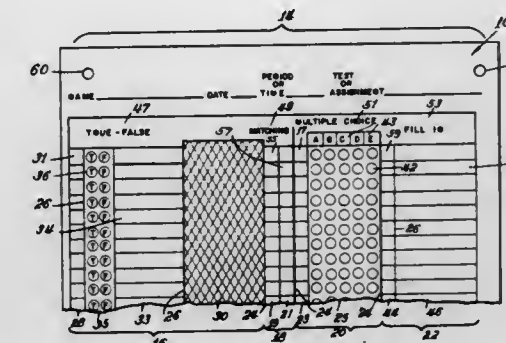
Robert Jacobson, 725 W. Brompton, Chicago, Ill. 60657

Filed June 21, 1973, Ser. No. 372,009

Int. Cl. G09b 3/00

5 Claims U.S. Cl. 35-48 A

5 Claims



A test scoring apparatus embodying a printed student's answer sheet and a printed teacher's template forming blank. The answer sheet, when properly pencil-marked by the student in response to a questionnaire, and the template blank, when similarly pencil-marked by the teacher and provided with sight holes and sight windows in response to the same questionnaire, constitute counterpart members which, when superimposed, enable the teacher to make both side-by-side comparisons for grading fill-in type questions, and sight hole disclosures for grading true-false and multiple choice type questions.

3,827,166

DETACHABLE SPIKED SHOE PROTECTIVE COVER

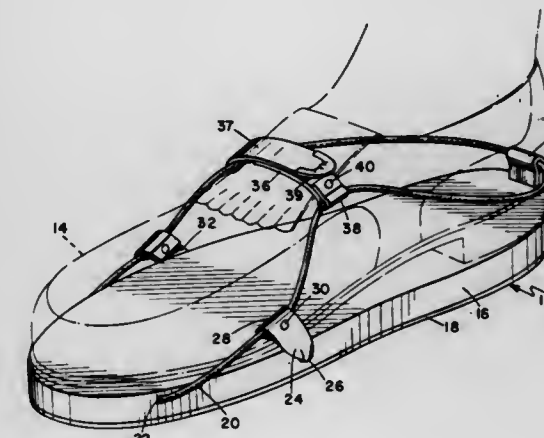
Mallard S. Goodman, 401 E. 17th Ave., Escondido, Calif. 92025

Filed Dec. 26, 1973, Ser. No. 427,557

Int. Cl. A43b

U.S. Cl. 36-2.5 AN

9 Claims



A spiked shoe protective cover having a pad of deformable material shaped to conform to the sole and heel of a spiked shoe and having a resilient strap, extending from each side of the front of the pad rearwardly in a continuous loop around the heel of the shoe with central and rear flexible straps connecting the resilient strap to the pad with a space therebetween, and a central connecting strap that quickly and easily interconnects the sides of the resilient strap to resiliently hold the pad against the shoe sole with the deformable material absorbing the spike or cleat projections from the bottom of the shoe with the pad abutting against a substantial portion of the bottom surface of the shoe providing maximum support.

3,827,167

SAFETY BOOT

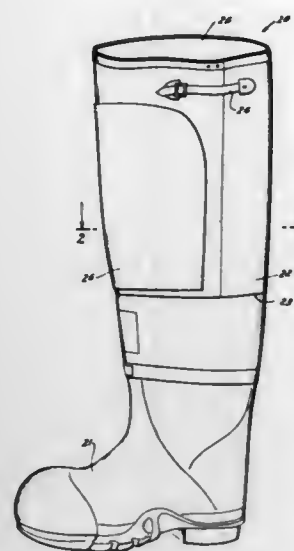
James P. Jones, Binghamton, N.Y., assignor to Endicott Johnson Corporation, Endicott, N.Y.

Filed June 1, 1973, Ser. No. 366,048

Int. Cl. A43b 1/10

U.S. Cl. 36-4

9 Claims



A safety boot for the protection of the wearer from fire and the like. The boot includes a foot portion and a leg cover portion extending upwardly therefrom. The boot has an inner lining surface and an outer exposed surface. A safety shield is on the leg cover portion of the boot and is positioned so as to provide additional fire protection to a specific predetermined portion of the leg of the wearer.

3,827,168

PERPETUAL CALENDAR, OPERATED BY A MAGNET

Gian Luigi Mori, Via Maria Cristina 56, Pino Torinese (Turin), Italy

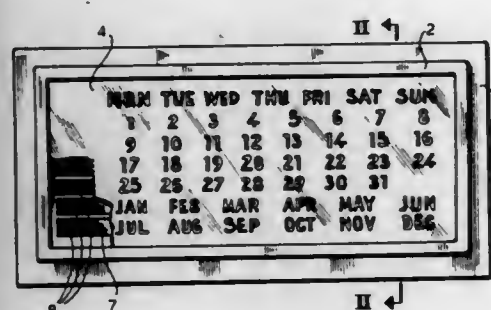
Filed Apr. 9, 1973, Ser. No. 349,439

Claims priority, application Italy, Apr. 7, 1972, 68062/72

Int. Cl. G09d 3/00

U.S. Cl. 40-110

5 Claims



A perpetual calendar operated by a magnet comprises at least a rectangular plane support member, provided on one face with ribs parallel with its edges and defining a seat for an opaque sheet which bears, in transparent characters and on several horizontal rows, the indications relating to the names of the days of the week, the days of the months, and the names of the months. The portion of the said support member covered by the opaque sheet has as many grooves as the rows of indications, and in every groove is placed a magnetized plate the surface of the magnetized plate facing the sheet is coloured and the magnetized plate may be moved along the groove by means of a magnet for displaying by means of the coloured face the elements constituting a date.

3,827,169

STATIONARY BACKLIGHTED BILLBOARD, BILLBOARD DISPLAY PANEL AND METHOD OF MAKING A BILLBOARD DISPLAY PANEL

Bernard S. Chase, 17 Kane St. Lindenhurst, Babylon, L. I., N.Y. 41703; Raymond H. Frederick, 17 North Ave., Montvale, 07645, and Victor T. Gorglione, 40 Louis St., Old Bridge, N.J. 08857

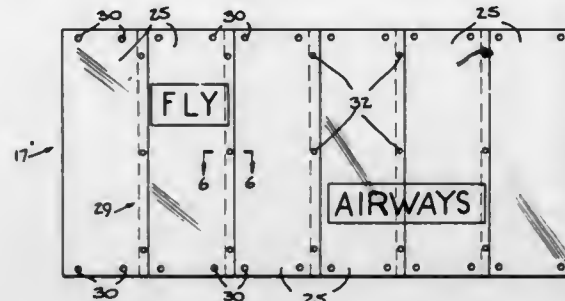
Division of Ser. No. 172,618, Aug. 8, 1971, Pat. No. 3,768,186.

This application Mar. 30, 1973, Ser. No. 346,699

Int. Cl. G09f 7/00

U.S. Cl. 40-125 K

7 Claims



A backlighted stationary billboard is disclosed which includes a lamp chamber closed at its front by a novel display panel so that lamps within the lamp chamber may illuminate the display panel from behind. The novel billboard display panel includes a unitary fiber glass and polyester resin panel having a display sheet embedded therein with the display indicia applied to the display sheet. A novel process of making the novel display panel is disclosed in which paper is printed with the desired billboard indicia, the printed paper is arranged adjacent layers of fiber glass, and the fiber glass and paper are impregnated with the polyester resin and embedded therein, after which the resin is cured to produce a unitary semi-rigid billboard panel.

3,827,170

MOSAIC COMPOSITE SHEET COMPOSED OF A NEW TYPE OF GREETING CARDS

Dickson T. W. Lau, 450 17th Ave., San Francisco, Calif. 94121

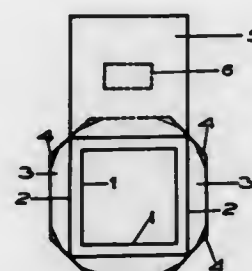
Continuation of Ser. No. 885,893, Dec. 17, 1969. This

application Jan. 22, 1973, Ser. No. 325,821

Int. Cl. G09f 1/00

U.S. Cl. 40-158 R

1 Claim



Mosaic composite sheet composed of a new type of greeting cards which are manufactured from tough, pliable fabric and have flaps thereon coated with adhesive on the inward faces. The mosaic composite sheet which is created by interconnecting type of greeting cards by means of the flaps can be used as table-cloth, drapery, bedspread, item of clothing or the like.

3,827,171

LOCK FOR TRAP TYPE SHOT GUNS

Carl G. Smith, 23777 Hiway 49, Auburn, Calif. 95630

Filed Feb. 5, 1973, Ser. No. 329,850

Int. Cl. F41c 19/00, 17/00

U.S. Cl. 42-69 B

5 Claims

Inserted into the receiving chamber of the lock (i.e., trigger, sear and hammer) of a trap type shotgun is an elongated U-

shape housing having on the forward end a spring supported loading platform adapted to receive and temporarily carry a shotgun shell inserted through the uncovered ejection port when the breech bolt is retracted rearwardly into open position. Rearward movement of the bolt is simultaneously effective to engage and depress a spring-biased hammer pivotally mounted on the housing, the hammer including a notch for engagement with the latch hook of a sear rockably mounted on

foot. The rear of the base contains a longitudinal threaded aperture through which a threaded forward projection of a hand grip is turned to extend over and secure the rear of the reel foot. A tubular shield attached to the base extends rearwardly over the front of the hand grip to cover any clearance between the front of the hand grip and the rear of the base.

3,827,174

FISH-RELEASING FISH HOOK

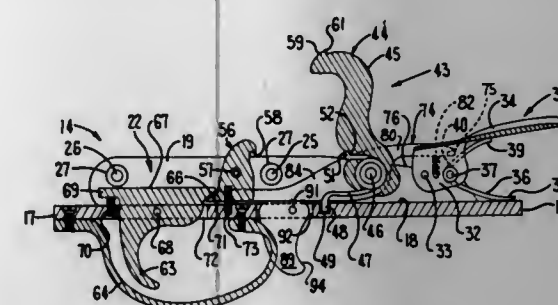
Louis C. Banker, 186 First St., Britt, Iowa 50423

Filed Apr. 9, 1973, Ser. No. 349,266

Int. Cl. A01k 83/00

U.S. Cl. 43-43.16

6 Claims



the housing. A spring-urged trigger has a portion overlying a flange on the sear so that actuation of the trigger moves the sear latch hook out of engagement with the hammer, thereby allowing the hammer to spring forwardly and strike the firing pin. A safety lever positively immobilizes the trigger in open bolt position and, for automatic shotguns, a bolt detent structure holds the bolt open after each shot until a shell is inserted and a separate trip lever is actuated so as to allow the bolt to close.

3,827,172

BENCH REST DEVICE FOR FIREARMS

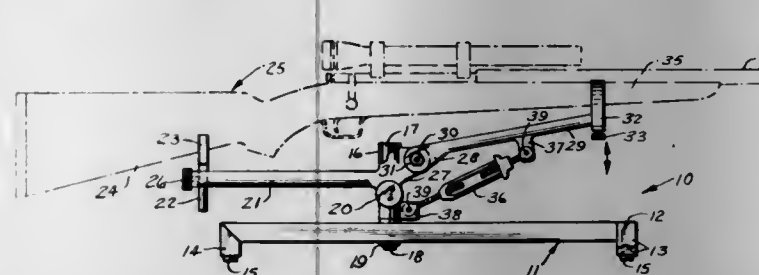
Everett Howe, Rt. 2, Box 42, Holmen, Wis. 54636

Filed Nov. 28, 1972, Ser. No. 309,983

Int. Cl. F41c 29/00

U.S. Cl. 42-94

4 Claims



An adjustable support device for firearms, which includes primarily, a three point base with shaft within a sleeve which carries the main body of the device, the device having turn-buckle means for adjusting the forward member.

A fish-releasing fish hook assembly comprising a fishing line, a hook shank having an eye at one end to which the line is attached, and an arcuate member pivotally secured to a curved portion at the other end of the shank. The pivoted member has a point at one end of its sides and a holding portion on the other of its sides. A spring-biased sleeve is mounted on the shank to engage the holding portion and movement of the sleeve by separate line means releases the pivoted member so that it can tip into a position for releasing a fish after it has been caught.

3,827,175

FISHING BOBBER

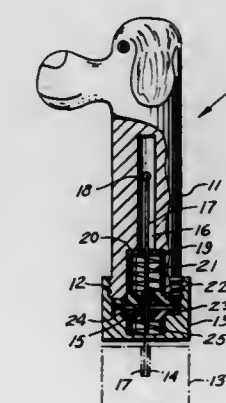
William E. Howard, 850 Stadelman Ave., Akron, Ohio 44320

Filed Aug. 11, 1972, Ser. No. 280,076

Int. Cl. A01k 91/00

U.S. Cl. 43-44.95

3 Claims



3,827,173

FISHING ROD HANDLE

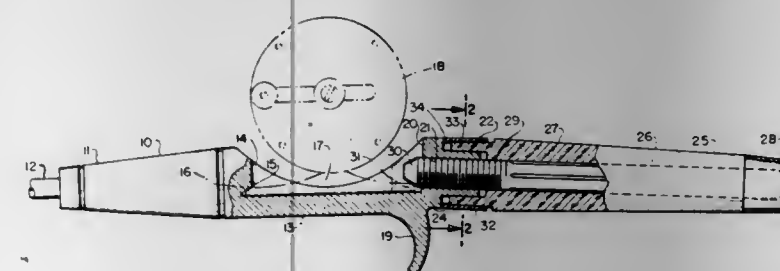
Richard D. Barnes, Costa Mesa, Calif., assignor to The Conolon Corporation, Santa Ana, Calif.

Filed Mar. 20, 1973, Ser. No. 343,161

Int. Cl. A01k 87/00

U.S. Cl. 43-23

7 Claims



A fishing rod handle to which is attached a reel with a foot has a base with a forward lip to receive the front of the reel

A fishing float device for attachment to a fishing line. This device consists primarily of an animated body having spring means, wire means, rubber plug means and a cap member frictionally securing the device to a fishing line.

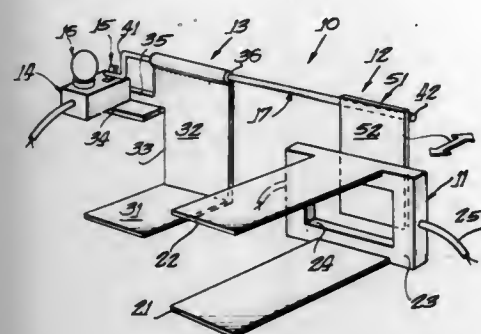
3,827,176

ELECTRONIC EXECUTING DEVICE FOR MOLES, GOPHERS AND THE LIKE

Homer A. Stirewalt, 1016 Maple Dr., Windsor, Calif. 95492
 Filed Oct. 23, 1973, Ser. No. 408,385
 Int. Cl. A01m 19/00

U.S. Cl. 43-98

8 Claims



An electronic executing device intended for the electrical execution of moles, gophers and the like including a pair of high voltage grids spaced on opposite sides of a windowed aperture having a swinging door associated therewith and operatively connected to an electrical switch, the door adapted to activate the switch upon swinging movement of the door upon activation by the mole, gopher, or the like to electrically energize the grids for a timed cycle of operation to electrocute the mole contacting the grids. A modified alternative provides for a reciprocally slidable door rather than a swinging door to activate the electrical switch to energize the grids.

3,827,177

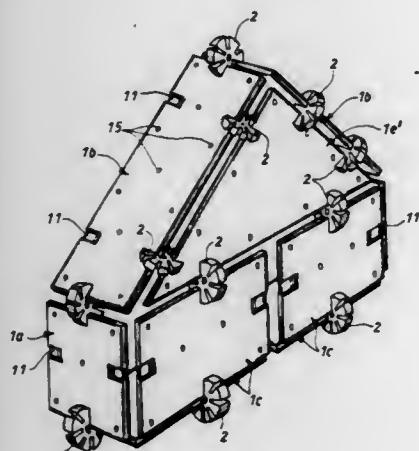
CONSTRUCTION GAME

Gunter Wengel, Altbach, Germany, assignor to Memory-Plastic Gunter Wengel, Altbach, Germany
 Filed Jan. 22, 1973, Ser. No. 325,827
 Claims priority, application Germany, Jan. 24, 1972, 2203152

Int. Cl. A63h 33/10

U.S. Cl. 46-31

7 Claims



A set of toy construction elements consisting of flat triangular and rectangular plates and circular connectors. Multiple radial slots in the somewhat resilient connectors are dimensioned to receive and retain reduced web sections in the edges of the plates so that doll houses and other structures can quickly be assembled.

3,827,178

DEVICE FOR ATTACHMENT TO THE WHEEL OF A BICYCLE

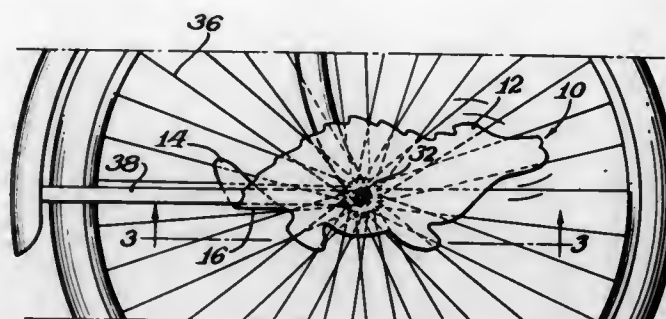
Richard J. Warneke, 915 W. Miner St., Arlington Heights, Ill. 60005

Filed Nov. 21, 1973, Ser. No. 417,952

Int. Cl. A63h 5/00

U.S. Cl. 46-191

5 Claims



A device for attachment to the end of the shaft which extends through the axle of a bicycle wheel. The device has a spoke-engaging portion which successively makes contact with the spokes of the bicycle wheel as it revolves thereby creating a noise while at the same time imparting an animated-like action to the device.

3,827,179

WHEELED TOY VEHICLE WITH CAM OPERATED OSCILLATING CHAIR AND STEERING WHEEL

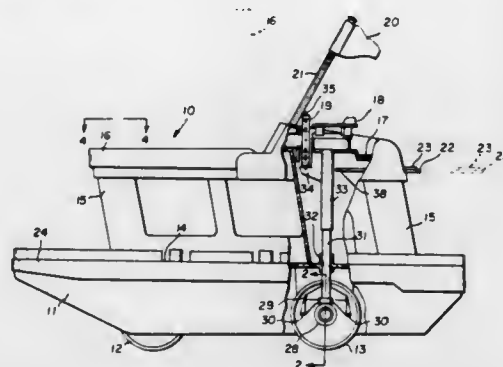
Victor C. Relling, Jr., East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.

Filed Dec. 6, 1972, Ser. No. 312,683

Int. Cl. A63h 17/25

U.S. Cl. 46-204

12 Claims



A toy boat has a hull with wheels, a simulated steering wheel and a simulated operator's chair. One of the wheels has a cam surface that moves reciprocally as the wheel rotates, and a cam follower engages the cam surface so as to oscillate an upright stem around its axis in response to wheel rotation. The operator's chair is mounted on the upright stem to oscillate therewith, and the steering wheel is preferably engaged by a projection from the chair for oscillating the steering wheel with the chair. The boat has an upper deck piece which is apertured and can be pivoted up to serve as a carrying handle. A retractable diving board and a pennant mounted on a tight coil spring may be mounted on the boat. Accessory figures and furnishings for use with the boat may be provided.

3,827,180

HOOP PROPELLING DEVICE

James T. Phillips, Jr., 4336 W. 59th Pl., Los Angeles, Calif. 90043

Continuation of Ser. No. 218,777, Jan. 18, 1972, abandoned.

This application Dec. 10, 1973, Ser. No. 423,463

Int. Cl. A63h 33/02

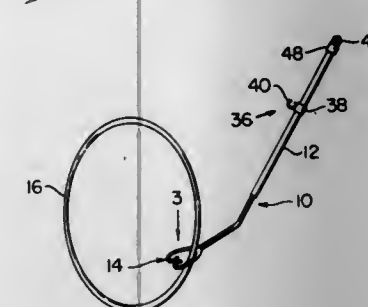
U.S. Cl. 46-220

4 Claims

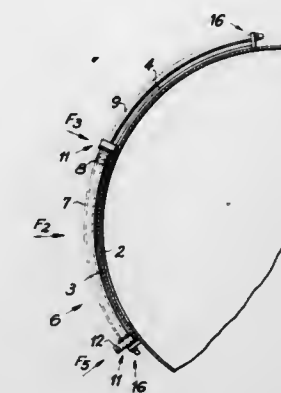
Hoop propelling trundle comprising a handle with a normally closed loop on one end thereof having relatively

spreadable resilient legs for forming an opening through which a hoop may be passed to secure it to or detach it from the loop. A bight is provided for engaging the hoop for propelling it and another bight or hook is provided for arresting its rolling

cylinder is fitted between said sliding door and said fixed curved section, the cylinder itself and its piston rod being con-



motion. In one species, the two bights lie in the same plane and in another species they lie in angularly related planes. A slidable clip on the handle secures the hoop thereto with the handle disposed substantially in the plane of the hoop.



centrally disposed, both with regard to said sliding door and with regard to said fixed section.

3,827,181

ELECTRICALLY DRIVEN MODEL AIRPLANE

Kenichi Mabuchi, Tokyo, Japan, assignor to Mabuchi Motor Co., Ltd., Tokyo, Japan

Filed Mar. 19, 1973, Ser. No. 342,748

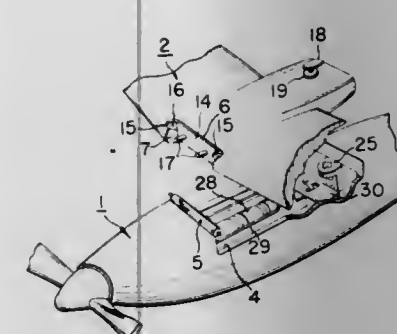
Claims priority, application Japan, Mar. 23, 1972, 47-28567; Mar. 24, 1972, 47-34019[U]

Int. Cl. A63h 33/26

U.S. Cl. 46-243 AV

11 Claims

U.S. Cl. 49-383



An electrically driven model airplane is disclosed in which a battery cassette holder is provided in an opening formed in the fuselage of the model airplane, and a battery cassette is removably held in said cassette holder by means of movable terminals attached to said cassette holder.

3,827,182

DEVICE FOR AUTOMATIC OPENING, RESPECTIVELY CLOSING OF A CURVED SLIDING DOOR OR SIMILAR WITH REGARD TO A CONCENTRIC OPENING

Roger Joseph Victor Van Helleputte, Gentbrugge, Belgium, assignor to Em. D'Hooge N.V., naamloze vennootschap, Ledeborg, Belgium

Filed Sept. 5, 1972, Ser. No. 286,054

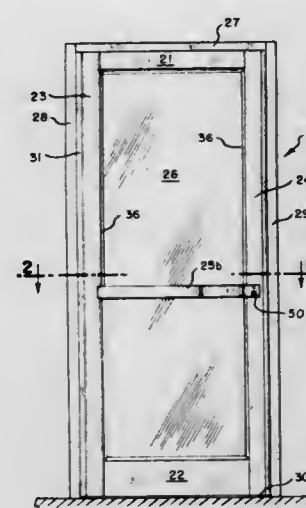
Int. Cl. E04b 3/34

U.S. Cl. 49-40

2 Claims

The invention pertains to a device for automatically opening and closing a curved sliding door with respect to a concentric opening in a fixed curved section, for instance a drum of a machine for washing linen, wherein at least one pressure

An improved center-hung pivot door assembly comprises a door pivotally mounted within a door frame having a narrow jamb projection member attached to the pivot jamb of the door frame along substantially the entire length thereof and projecting outwardly from said pivot jamb into the door frame opening, an arcuate-shaped pivot stile mounted in closely spaced relation with said jamb projection, and resilient weather seal means attached either to said pivot stile or jamb projection and spanning the space between said pivot jamb and said pivot stile at least when the door is in a closed position. Preferably the surface of said jamb projection facing the pivot stile has a generally concave shape concentric with the arcuate-shaped pivot stile. The space between said projection and the pivot stile is always less than the thickness of human fingers, and the projection is sufficiently narrow so that such close spacing does not prevent mounting the door in or dismounting it from the pivot means while the projection remains attached to the pivot jamb.



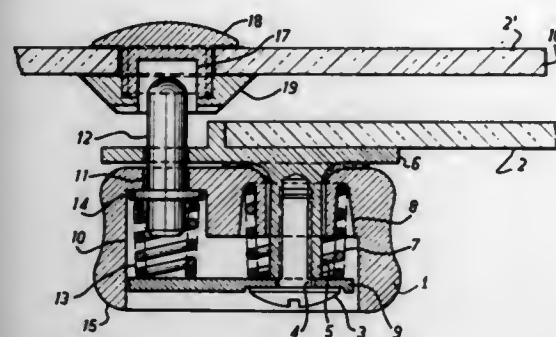
3,827,184 SLIDING GLASS LOCKS

Jean-Claude Pennec, and Michel Marcel Valacon, both of Billancourt, France, assignors to Regie Nationale Des Usines Renault, Billancourt and Automobiles Peugeot, Paris, France
Filed Oct. 12, 1972, Ser. No. 296,850

Claims priority, application France, Nov. 8, 1971, 71.39954
Int. Cl. E05d 13/04

U.S. Cl. 49-449

3 Claims



Device for locking and operating sliding glasses; notably in automotive automotive and adapted to lock the glasses in their closed position.

This device comprises a support secured to the inner glass and provided with an integral projection on which the lock body is adapted to slide, resilient means constantly urging said lock body against the glass, said lock body further comprising a recess adapted to receive a lock bolt constantly urged by a coil spring towards the outside of said recess so as to project from the inner glass, said lock bolt being adapted to engage a blind hole formed in the vicinity of the inner edge of the outer glass.

3,827,185 ICE SKATE SHARPENING APPARATUS

Jack Smith, Ontario, Canada, assignor to Eddy Match Company, Limited, Toronto, Ontario, Canada

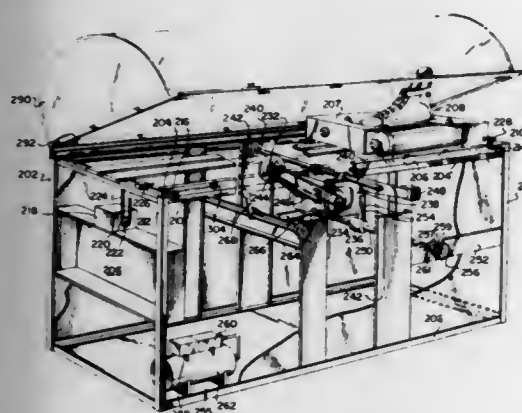
Filed July 26, 1972, Ser. No. 275,195

Claims priority, application Canada, July 29, 1971, 119430; July 7, 1972, 146623

Int. Cl. B24b 19/00

U.S. Cl. 51-5

2 Claims



Apparatus for the sharpening of ice skates is disclosed. The apparatus consists of a carriage assembly having clamping means thereon for clamping a pair of skates to be sharpened. The carriage assembly is mounted for reciprocal longitudinal movement on a track carried by suitable framing and during forward and rearward movement of the carriage it passes over rotating grindstones which sharpen the skate blades. Each sharpening grindstone is independently pivotally mounted whereby the grindstones are lowered upon contact by the skate blades to follow the profile of the skate blade during forward movement of the carriage. The grindstones or grinding wheels may contact and further sharpen the skate blades dur-

ing rearward movement of the carriage, or the grindstones may be lowered out of contact with the blades during rearward movement. Preferably the unit is provided with a cover to completely enclose the operating mechanism during operation for safety. The apparatus may be provided with a suitable microswitch which will not permit operation of the apparatus until the cover is completely closed. Uniform sharpening of skate blades is obtained as the blades travel over the sharpening grindstones at a uniform rate of speed and the pressure applied by the grindstone against the blades are constant throughout the sharpening operation.

3,827,186 DEFLASHING APPARATUS

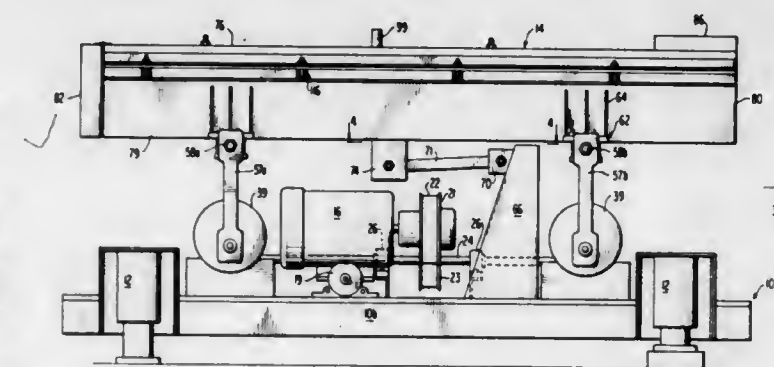
Donald J. Ehnott, Coopersburg, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed May 30, 1972, Ser. No. 257,682

Int. Cl. B24b 1/00, 31/06

U.S. Cl. 51-7

24 Claims



Apparatus includes connecting rods which each pivot about a connection on a disc which is eccentric with respect to the axis of the shaft driving the disc to supply vertical reciprocatory motion. Particular ranges of amplitude, frequency and loading are utilized to cause impacting of articles against at least one surface and abrading against each other in the cryogenic deflashing of the articles.

3,827,187 ABRASIVE APPARATUS

Akira Yamamoto; Dan Yoshida, and Tatsumi Onaka, all of Minoru Shiraishi, Osaka, Japan, assignors to Hitachi Shipbuilding and Engineering Company, Ltd., Osaka, Japan

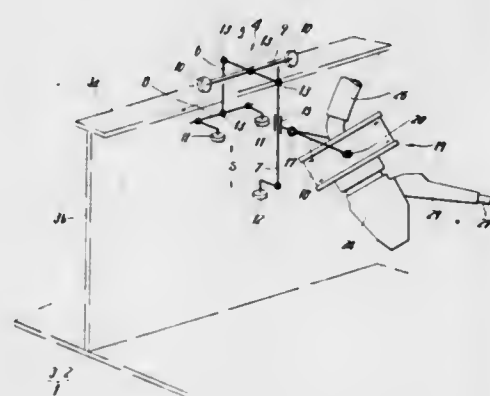
Filed Sept. 5, 1972, Ser. No. 286,042

Claims priority, application Japan, Sept. 6, 1971, 46-68765

Int. Cl. B24c 3/06

U.S. Cl. 51-9

7 Claims



Apparatus for abrasively cleaning surfaces, such as of a ship's hull block, including the surface of at least one member which serves as a rail on which a carriage is mounted, the carriage having supporting rollers engaging the upper surface of the rail and stabilizing rollers engaging opposite sides of the rail. An abrasive-slinging device is adjustably supported on the

carriage and is movable manually to direct abrasive as desired over the surfaces to be cleaned. Optionally, the carriage, or the abrasive-slinging device, or both of them may be power driven, and the carriage may be mounted on a pair of parallel members of a ship's hull block which serve as rails.

3,827,188 PORTABLE BLASTING DEVICE

Toyozumi Fuma; Hideo Takeuchi, and Susumu Ikeda, all of Toyokawa, Japan, assignors to Sintokogio, Ltd., Nakamura-ku, Nagoya, Aichi-ken, Japan

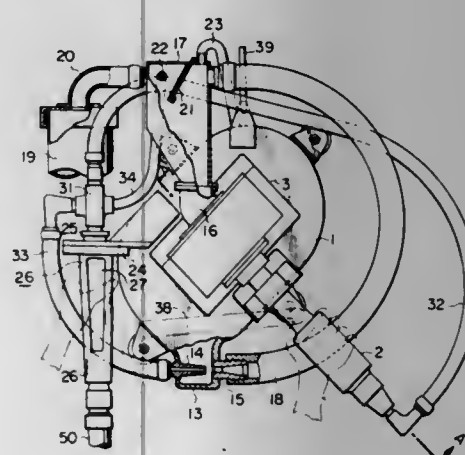
Filed May 8, 1973, Ser. No. 358,281

Claims priority, application Japan, May 11, 1972, 47-55295[U]; May 11, 1972, 47-55296[U]; July 27, 1972, 47-87947[U]; Mar. 2, 1973, 48-26544[U]

Int. Cl. B24c 3/06

U.S. Cl. 51-9

6 Claims



A small-sized, light-weight and portable blasting device for centrifugally blasting abrasive materials such as shot or grit for grinding and cleaning the surface of large-sized workpieces such as pre-fabricated structures to be assembled into the hull of a ship.

3,827,189 SHEET GLASS SEAMING MACHINE

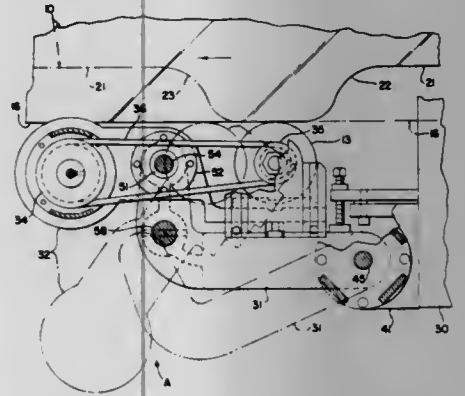
Carle W. Highberg, Sylvania, and George R. Roesch, Sylvania Twp., both of Ohio, assignors to Engelhard Minerals & Chemicals Corporation, Murray Hill, N.J.

Filed Apr. 10, 1973, Ser. No. 349,741

Int. Cl. B24b 9/10

U.S. Cl. 51-33 R

10 Claims



A machine for grinding edges of cut-to-size sheets of glass and the like with an abrasive wheel, especially where the edge has an irregular contour such as with convex or concave curved portions. The wheel supporting mechanism and glass sheet are translated relative to one another in the plane of the sheet and the abrasive wheel is supported with its axis perpendicular to the sheet and in a manner to permit its movement toward and away from the edge of the sheet while continuously grinding so as to follow the edge contour. The abrasive

wheel is urged selectively in an upstream direction when contacting a downstream facing edge portion (incurve) and in a downstream direction when contacting an upstream facing edge portion (outcurve), to prevent skipping and assure a uniform grinding pressure generally normal to the edge portion engaged by the wheel.

3,827,190 PIPE CUTTING MACHINE WITH SPARK ACTUATED FEED CONTROL

Shigeru Moriguchi; Mitsuo Tamura, both of Chiba, and Yuzi Saito, Kanagawa, all of Japan, assignors to Mitsui Shipbuilding and Engineering Co., Ltd., Tokyo, Japan

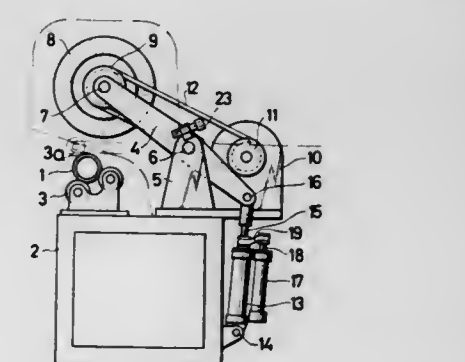
Claims priority, application Japan, May 30, 1972, 47-54204

Filed May 24, 1973, Ser. No. 363,503

Int. Cl. B24b 27/06

U.S. Cl. 51-98 R

1 Claim



Pipe cutting machine comprising a grinding wheel for cutting a pipe, means for detecting sparks from the grinding wheel or the pipe in cutting operation, and means for reducing the feeding speed of the grinding wheel, when said means is operated by sparks.

3,827,191 CAM CONTROLLED SURFACE FORMING MACHINE

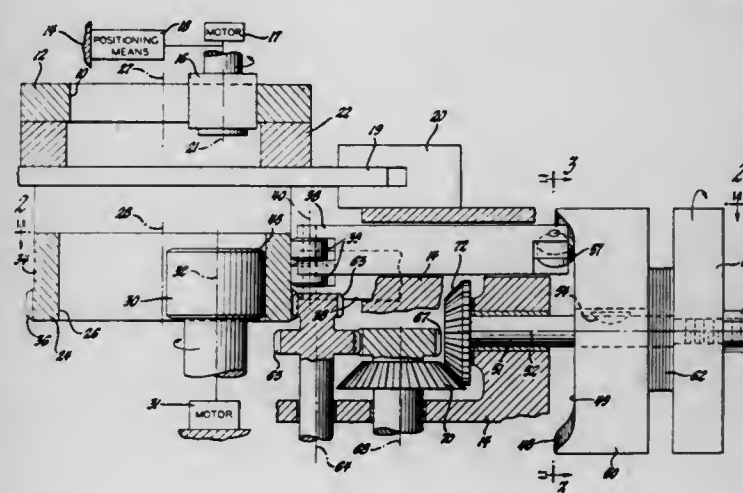
Wilbur B. Crawford, Ann Arbor; Earl W. Young, Detroit, and Raymond Happy, Wayne, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed June 19, 1973, Ser. No. 371,496

Int. Cl. B24b 17/02, 7/00, 9/00

U.S. Cl. 51-101 R

3 Claims



A surface forming machine has a master cam having a first cam surface which corresponds to the contour to be formed and is frictionally engaged by a driver wheel and also having both a second cam surface and a gear track which are parallel to the first cam surface with the gear track geared to drive a rotary control cam arrangement that controls a pair of cam guides that operate against the second cam surface to orient the cam relative to the driver wheel and thereby maintain a rotary tool axis in the plane normal to the tangent to the surface to be formed at the contact of the tool with the workpiece.

3,827,192

LENS GUIDE ARRANGEMENT AND APPARATUS FOR GRINDING AND POLISHING TORIC LENSES

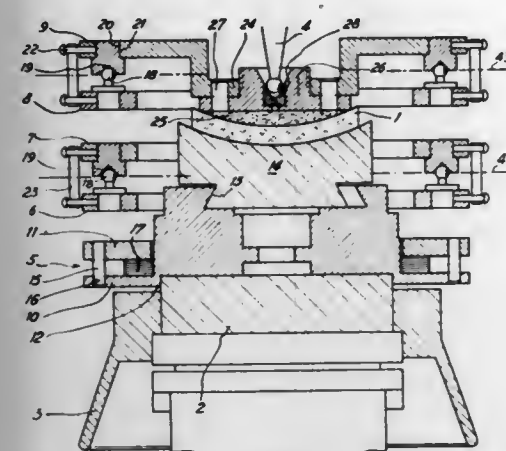
Jan Ferrand, Puteaux, France, assignor to Societe C.M.V., Puteaux, France

Filed June 20, 1972, Ser. No. 264,647

Claims priority, application France, June 21, 1971, 71.22417

Int. Cl. B24b 13/02

U.S. Cl. 51—124 L



The invention relates to a guide arrangement for an apparatus for grinding and polishing of a toric lens. A tool is used which is guided in an arrangement comprising a stack of elements including intermediate and end elements each element being articulated on the adjacent element or elements, the articulation or joint axes of an element with the element above or the element below being perpendicular. The joints are of a type of which the wear only causes the elements to be brought closer together in the axis of the stack. The invention is applicable both to machines having a rotating turntable and to machines having a fixed plate.

3,827,193

SYSTEM FOR BALANCING ROTARY BODIES

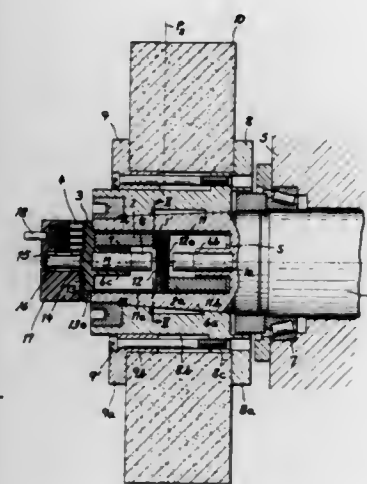
Werner Liebmann, Dortmund-Appelerbeck, and Lothar Kuhrau, Troisdorf-Friedrich-Wilhelms-Hutte, both of Germany, assignors to Schneider Maschinenbau GmbH, Siegburg, Rheinland, Germany

Filed Sept. 15, 1972, Ser. No. 289,290

Claims priority, application Germany, Sept. 30, 1971, 2148832

Int. Cl. B24b 45/00

U.S. Cl. 51—169



A system for balancing rotary bodies, such as a grinding wheel, comprises a pair of semi-cylindrical segmental balancing weights of segmental configuration individually rotatable about the axis of the rotatable body to be balanced by a

respective electric motor. A brush and slipping arrangement is provided for enabling the individual reduction-gear motors to be operated while the body is rotated.

3,827,194

PIERCING OF SUCTION HOLES IN SANDING DISCS

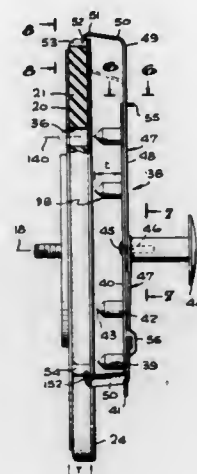
Alma A. Hutchins, 49 N. Lotus, Pasadena, Calif.

Filed Aug. 21, 1972, Ser. No. 282,348 The portion of the term of this patent subsequent to Jan. 29, 1990, has been disclaimed.

Int. Cl. B24b 23/00

U.S. Cl. 51—170 MT

12 Claims



A sanding tool having a power driven circular backing structure or carrier for driving a circular sanding disc, with the backing structure containing openings through which air and abraded particles can be drawn by suction from a work surface to a collection location, and with a piercing tool being provided and adapted to be positioned opposite the backing structure in a predetermined located relation with respect thereto and to pierce apertures in the sanding disc communicating with the openings in the backing structure.

3,827,195

FIXTURE FOR SHARPENING THREAD CHASERS

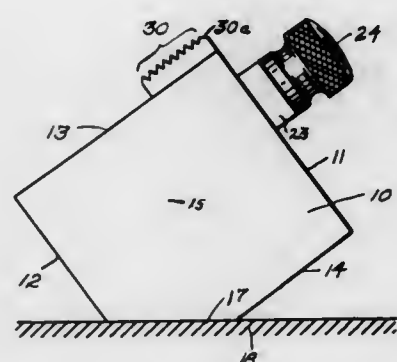
Samuel Kirzner, Brookline, Mass., assignor to W. H. Byron, Inc., Woburn, Mass.

Filed Aug. 7, 1972, Ser. No. 278,441

Int. Cl. B24b 19/00

U.S. Cl. 51—220

3 Claims



A fixture for sharpening thread chasers consisting of a block of seven-sided configuration and a latch secured by a thumb-screw. The block has a base surface which rests on the table of a grinder, and an inclined front surface. There are slanting grooves in the front surface, and locating pins in the grooves. The latch can be swung clear of the grooves to allow a chaser

3,827,198

A FOLDABLE AND EXPANDABLE MODULAR SHELTER UNIT

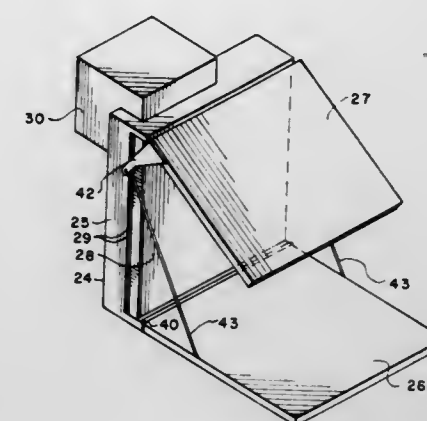
Jerry L. Geihl, Dallas, Tex., assignor to M. J. Watson, Dallas, Tex.

Filed Aug. 25, 1972, Ser. No. 283,829

Int. Cl. E04b 1/344

U.S. Cl. 52—69

6 Claims



There are disclosed two forms of foldable and expandable portable shelter modules having back or fixed wall units to which floor, roof and wall sections are hinged or slidably attached to provide compact traveling packages and commodious shelters. The modules may be combined with each other and/or with trailers or automotive vehicles for use in a variety of applications.

3,827,199

PARTLY REVERSIBLE AUDITORIUM

Hans Tax, Potsdamer strasse 3, Munich, Germany

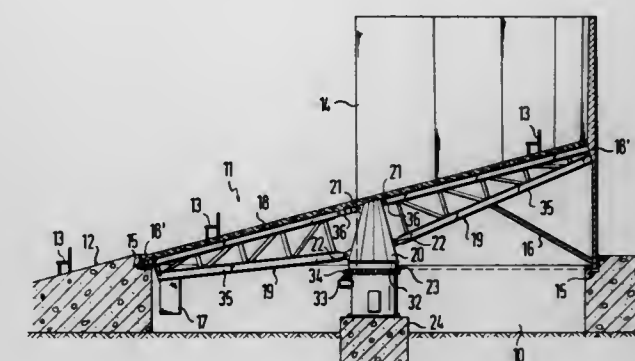
Filed Nov. 28, 1972, Ser. No. 310,139

Claims priority, application Germany, Jan. 10, 1972, 2200963

Int. Cl. E04h 3/12

U.S. Cl. 52—10

3 Claims



A large auditorium is partly formed by a floor plate obliquely inclined relative to the horizontal and centrally mounted for rotation about a vertical axis on a base by means of a hub from which lattice girders radiate toward the periphery of the floor plate. Rows of seats on the floor plate face toward the lowermost part of the periphery while a wall approximately semicylindrical about the axis of rotation rises from the uppermost part of the floor plate periphery. The floor plate may be turned 180° into a position in which it is separated from the stationary remainder of the large auditorium by the semicylindrical wall and constitutes a smaller auditorium of its own.

3,827,196

MOBILE ROOM DIVIDING STRUCTURE

Ernst Voegeli, Zurich, Switzerland, assignor to Faltag AG, Althausen (Thurgau), Switzerland

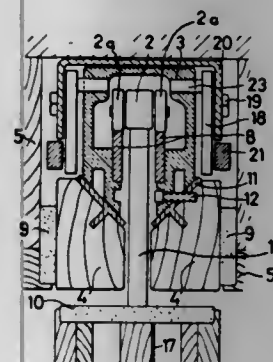
Filed Oct. 24, 1972, Ser. No. 300,380

Claims priority, application Switzerland, Oct. 23, 1971, 16679/71

Int. Cl. E04b 1/343

U.S. Cl. 52—64

20 Claims



A room dividing structure wherein the lower end of a shiftable vertical partition has a projection extending into a guide groove of the floor and the upper end of the partition is connected with a runner movable along horizontal guide rails mounted on a vertically movable beam which is received in a groove of the ceiling. The beam carries two sealing strips and is movable by a motor or by a manually operated device, with and relative to the partition, between an uppermost position in which the bottom end face of the partition is lifted off the floor, an intermediate position in which the bottom end face of the partition rests on the floor, and a lowermost position in which it urges the sealing strips against the upper end face of the partition as well as against two panels which flank the groove in the ceiling.

3,827,197

MASTS FOR SUPPORTING PROJECTORS

Marie Henri Hubert Adam, Bayon, France, assignor to Societe Anonyme L'Eclairage Technique, Nancy, France

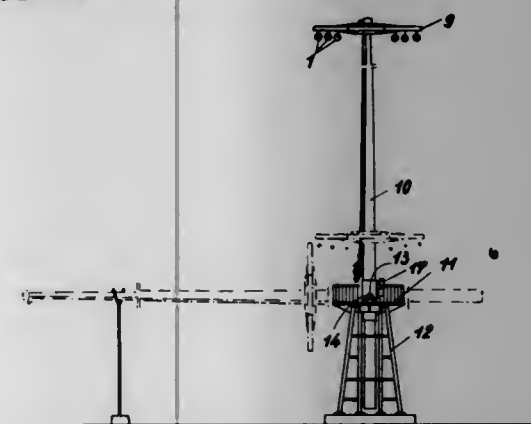
Filed Oct. 13, 1972, Ser. No. 297,427

Claims priority, application France, Oct. 15, 1971, 71.37067

Int. Cl. E04h 12/18

U.S. Cl. 52—29

4 Claims



A mast for supporting light or sound projectors, which can be retracted into a position of non-use by tilting the whole device and the projectors are mounted on a ring which can slide along the mast prior to the tilting of the latter.

3,827,200

POLYGONAL BUILDING STRUCTURE

Detvel Preissler, 915 26th St. N.W., Washington, D.C. 20037
Continuation-in-part of Ser. No. 107,055, Jan. 18, 1971,
abandoned. This application Jan. 27, 1973, Ser. No. 325,132

Int. Cl. E04b 7/02

U.S. Cl. 52—82

1 Claim



An improved building structure having a substantially polygonal shape which may be speedily assembled without the use of special tools is disclosed. The polygonal building has three basic structural components which are the floor panels, the wall panels and roof panels. The floor panels are triangular sections radially placed in a circle to form a disc. The wall panels are rectangular sections placed around the circumference to form a ring. The roof panels are triangular sections radially placed over the walls to form a cone. The panels interlock with one another by way of a novel tongue and groove arrangement and are banded together by way of unique rigid plates to form a strong integral structural unit. The building components may be prefabricated and the building may be speedily assembled at the preselected building site.

3,827,201

SKIRTING FOR BELOW DWELLING

Francis L. Struben, Whitehall, Md., assignor to Silver Top Manufacturing Company, Inc., White Marsh, Md.
Continuation of Ser. No. 60,326, Aug. 3, 1970, abandoned.

This application Aug. 11, 1972, Ser. No. 270,814

Int. Cl. E04d 2/38

U.S. Cl. 52—169

5 Claims



An upper, generally U-shaped channel is formed from preshaped sections which are attached to the lower edge of vertical walls of a dwelling, such as a mobile home. A lower, generally U-shaped channel is secured to a surface, such as ground level, and is aligned with the upper channel so that the openings of the channels face each other. A plurality of preformed skirting panels are positioned between the spaced upper and lower channels with edge portions of the skirting panels located in the channels. The panels are fastened to the channels to provide a supported skirting for below a dwelling.

3,827,202

JOINT FOR ENCLOSURE, AND MOUNTING THEREFOR

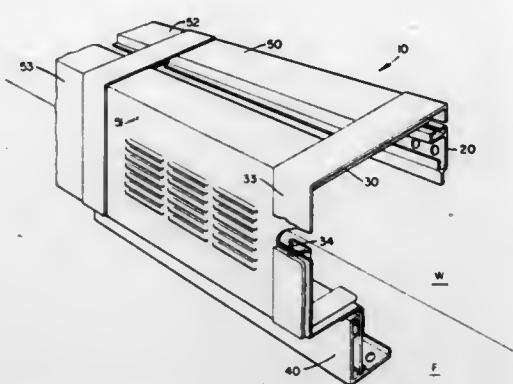
Leonard R. Phillips, Westfield, Mass., assignor to Sterling Radiator Co., Inc., Westfield, Mass.

Filed Nov. 7, 1972, Ser. No. 304,495

Int. Cl. E04b 5/48; E04f 17/04

U.S. Cl. 52—220

12 Claims



A sheet metal enclosure for heating and ventilating equipment includes a plurality of panels, and means for joining them to one another, and for mounting these panels to a floor, ceiling or wall. The panel joining means comprises structural mullions located at the panel joints and these mullions also help to support the enclosure from a floor, ceiling or wall. Cover battens give the joint a finished appearance, and are releasably fastened to the mullions by spring clips. Thus, panels may be cut to any desired length and neatly installed on the job site.

The enclosure mounting means includes wall and floor, or ceiling support brackets to which the structural mullions are attached. The mullions are bolted to the floor support bracket by means of mounting plates incorporating vertical and oblique bolt slots respectively which slots are used in combination to anchor the structure at the desired height above the floor or below the ceiling.

3,827,203

PREFABRICATED BUILDING CONSTRUCTION

Robert W. Berrie, Yorba Linda, Calif., assignor to Omnicco Systems International, Inc., Downey, Calif.

Continuation-in-part of Ser. No. 874,514, Nov. 6, 1969, Pat.

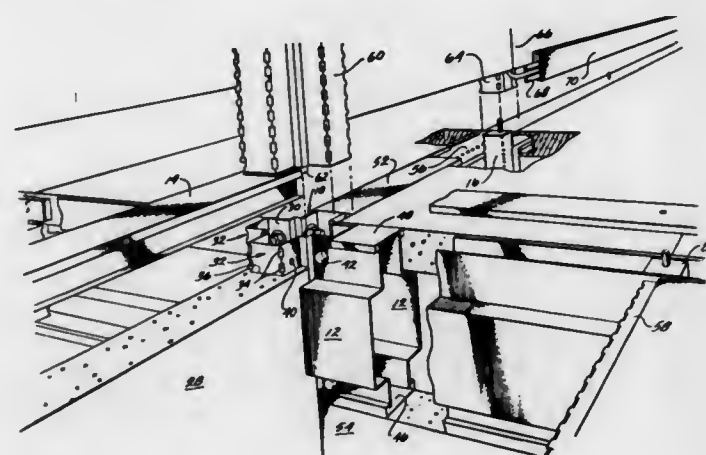
No. 3,641,720. This application Feb. 15, 1972, Ser. No.

226,610

Int. Cl. E04c 2/48, 3/20

U.S. Cl. 52—236

11 Claims



A building construction system employing prefabricated components for high rise construction. The principal components of the system include edge socketed horizontal and vertical panels, two-way horizontal and vertical splines, and four-way vertical column splines. The panels interlock with the splines and column splines by means of complementary protrusions and recesses located in the sockets and spline cor-

3,827,206

THREE DIMENSIONAL CONSTRUCTION

Pierre Nierle, 19 Ave. Eugene Lanse, 1212 Grand/Lancy Geneve, Switzerland

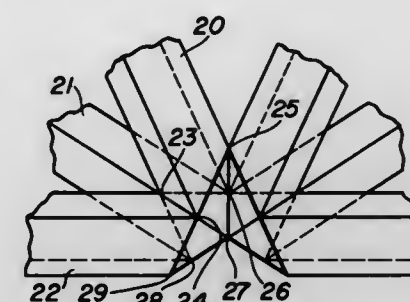
Filed Mar. 19, 1971, Ser. No. 125,996

Claims priority, application Switzerland, Mar. 20, 1970, 4224/70

Int. Cl. E04h 12/10

U.S. Cl. 52—648

6 Claims

**SEALED JOINT FOR SECTIONALIZED FLOORING AND METHOD OF MAKING THE SAME**

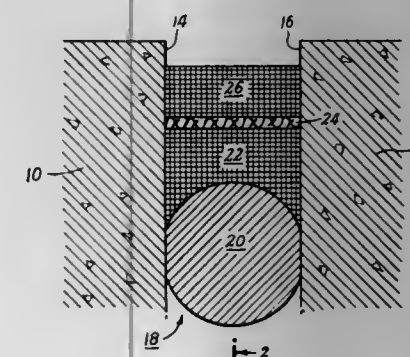
Fred L. Walters, Levittown, Pa., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed Mar. 14, 1972, Ser. No. 234,537

Int. Cl. E04f 15/14

U.S. Cl. 52—396

1 Claim



A method of sealing a joint between adjacent structural elements of a sectionalized floor to provide a seal having improved penetration resistance. The seal is formed of a sealant based on a cured liquid polymer, preferably a liquid polysulfide polymer and has a layer of glass cloth embedded therein parallel to and somewhat below the upper surface of the seal. Both the method and the sealed joint are claimed.

3,827,205

BUILDING WALL CONSTRUCTION

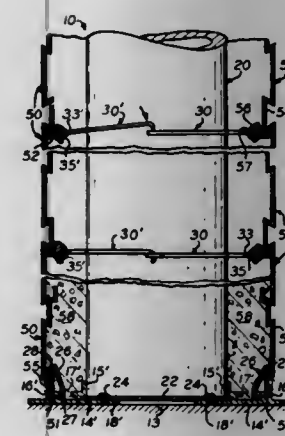
Edmund C. Barbera, 55 Hillandale Rd., Port Chester, N.Y. 10573

Filed Dec. 29, 1972, Ser. No. 319,295

Int. Cl. E04b 2/28, 2/30, 2/40

U.S. Cl. 52—426

8 Claims



A building wall construction that includes a plurality of pairs of opposed panel elements mounted on opposed surfaces of a supporting structure. Connecting members are pivotally mounted on opposed panel elements that interengage upon pivoted movement toward each other, and wherein the interengaged connecting members are in gripping relation to surface portions of the supporting structure.

3,827,207

COMPOSITE FRAME MEMBER WITH BUSHED APERTURE

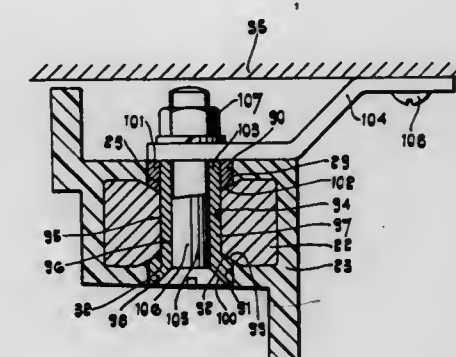
Herbert John Sharp, Greenford, and Victor William Stanley Humphrey, Radlett, both of England, assignors to ARO Plastics Development Limited, London, England

Filed Nov. 30, 1972, Ser. No. 310,843

Int. Cl. E04c 3/30, 5/00

U.S. Cl. 52—727

4 Claims



The specification discloses an aperture-defining frame member, e.g., a window frame, comprising a rigid, frame-shaped reinforcement embedded in a covering of synthetic resinous material. An aperture is provided through the reinforcement in alignment with bores in the covering and a bushing extends through said bores and said aperture, the bushing being in sealing engagement with said bores. The bushing may be used to receive a fastener to secure the frame member to another member and the bushing may be in two parts, a first part having a hollow shank with a collar at one end thereof and a second part arranged to engage the end of the shank remote from the collar.

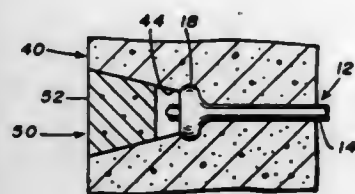
3,827,208

FINISHING METHOD

James Madison Elliott, 3509 Matador, Garland, Tex. 75042
Filed June 19, 1972, Ser. No. 264,013
Int. Cl. E04g 23/02

U.S. Cl. 52-741

10 Claims



A finishing plug is pre-cast from a mixture of Portland cement, sand, and water and is shaped similarly to plastic cones of the type used to position wall forms during the construction of concrete walls. The finishing plug has a flat end surface and is mounted in a hole remaining in a concrete wall following the removal of a plastic cone from the wall with the end surface of the plug flush with the wall surface. This is preferably accomplished by first coating the finishing plug with a liquid cementitious material and then inserting the plug into the hole. The finishing plug is shorter than the plastic cone so as to accommodate a tie rod portion which may project into the hole.

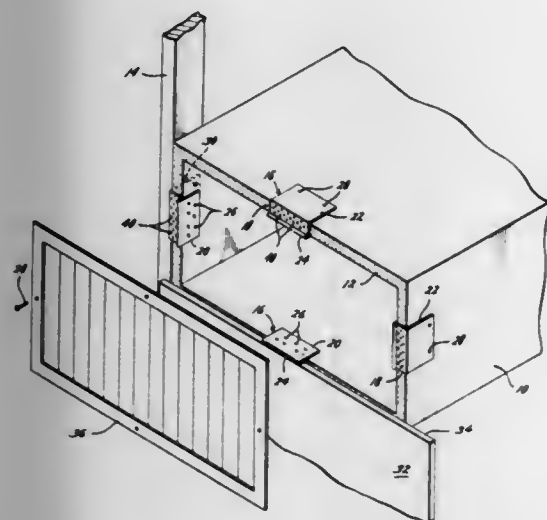
3,827,209

DUCT-GRILLE CONNECTION CLIP

James R. Hobbs, 5303 Glenmont, Houston, Tex. 77036
Filed May 19, 1971, Ser. No. 144,848
Int. Cl. A44b 21/00

U.S. Cl. 52-760

1 Claim



A clip for attachment to a fiberglass, or similar ventilation duct, which provides a means for securing the duct to structural studs or plates, a ledge for use as a sheetrock or other wall covering abutment, and a perforated face for attachment of the grille to the duct.

3,827,210

METHOD AND APPARATUS FOR PACKAGING FLEXIBLE DUCT

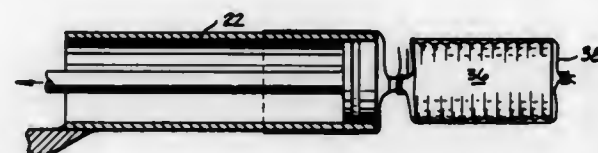
Rodney Roger Smalley, Maumee; John Vendel Staudinger, Curtice, both of Ohio; Harvell Morton Smith, Aurora, Colo., and Brian Lee Meeker, Toledo, Ohio, assignors to Johns-Manville Corporation, Arapahoe, Colo.
Filed Jan. 2, 1973, Ser. No. 320,396
Int. Cl. B65b 63/02

U.S. Cl. 53-24

8 Claims

An axially collapsible duct is packaged by inserting the duct into an open end of a tube, placing an open end of a bag over a tube so that the bag encloses the open end of the tube, com-

pressing the duct, ejecting the duct from the tube into the bag while the duct is compressed, closing the open end of the bag about the duct while the duct is compressed, and fastening the open end while it is closed to retain the duct within the bag in



a compressed state. A negative pressure can be created within the tube as the duct is being collapsed and ejected into the bag to hold the bag about the open end of the tube and to prevent the duct from expanding within the bag.

3,827,211

PACKAGING MACHINE

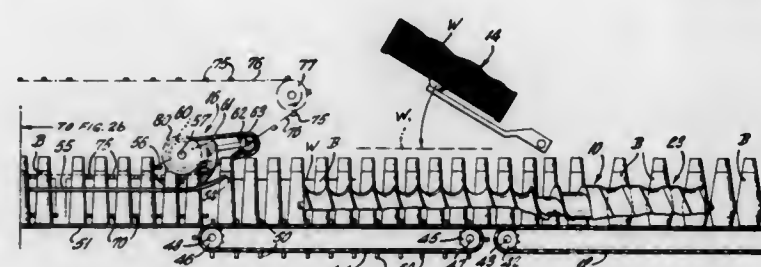
James Zavatore, Englewood, and John H. Myers, Bergenfield, both of N.J., assignors to Federal Paper Board Company, Inc., Montvale, N.J.

Filed Jan. 2, 1973, Ser. No. 320,312

Int. Cl. B65b 21/24

U.S. Cl. 53-48

16 Claims



A packaging machine for enclosing in a cut and scored wraparound-type blank of foldable sheet material a group of bottles in single line arrangement, which bottles are characterized by a body configuration having a larger cross sectional dimension in one direction than in the direction transverse thereto, the machine comprising an infeed conveyor with associated, parallel screw members which orient the bottles so that the longer body dimension extends transversely of the path of advance of the bottles and spaces the bottles uniformly for advance beneath an overhead blank feeding mechanism to a mechanism for folding the blanks about the bottles and finally to a group forwarding conveyor which advances the bottle and folded blank assemblies through a mechanism for securing the ends of the blanks in tight engagement about the bottles.

3,827,212

TOOL FOR SEALING A PRESSURE-OPERATED DISPENSING CONTAINER

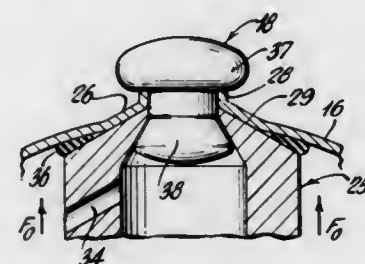
Robert S. Schultz, Old Greenwich, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn.

Filed Nov. 10, 1972, Ser. No. 305,304

Int. Cl. B65b 31/04

U.S. Cl. 53-88

4 Claims



The invention contemplates a pressurized container, as for the containment of viscous product to be selectively

dispensed, and relying on an internal piston as the means of constantly loading the product for displacement in the direction of dispensing nozzle. The base of the container is closed by a resilient plug, jammed into a converging concave formation that is so configured, in relation to a pressure-charging and plug-inserting tool, as to assure unerring closure without charge leakage, and at the same time to have the tool universally effective in performing its function for a wide range of container sizes.

3,827,213

APPARATUS FOR PACKAGING SYNTHETIC-RESIN SCRAPS

August Matzinger, Flums, Switzerland, assignor to Maschinenfabrik Flums AG, Flums, Switzerland

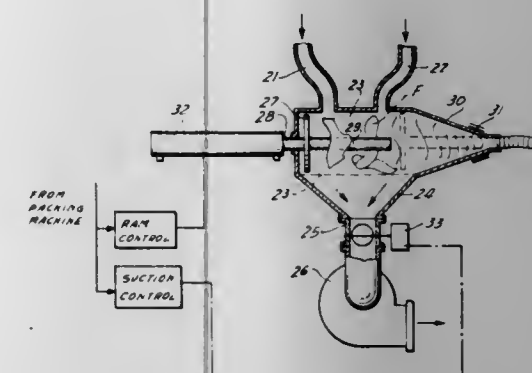
Filed Dec. 26, 1972, Ser. No. 318,162

Claims priority, application Sweden, Dec. 27, 1971, 19009/71; Oct. 31, 1972, 15834/72

Int. Cl. B65b 63/08

U.S. Cl. 53-124 E

4 Claims



The synthetic-resin scraps produced by a packaging apparatus are fed into a compressing chamber having a funnel-shaped outlet end whose walls are heated to a temperature sufficient to fuse together those scraps coming into contact with this end. A ram reciprocal in this chamber is advanced toward this end when the input feed is stopped to compress a charge of the scraps against the outlet end, thereby forming a continuous sausage-like strand having an outer skin formed directly from the scraps and enclosing a compacted mass of the scraps.

3,827,214

BLOWING- AND FILLING THORN

Wilhelm Naumann, Baden, Germany, assignor to Firma PMD Entwicklungswerk für Kunststoff-Maschinen GmbH & Co. K.G., Ettlingen/Baden, Germany

Filed Feb. 26, 1973, Ser. No. 335,740

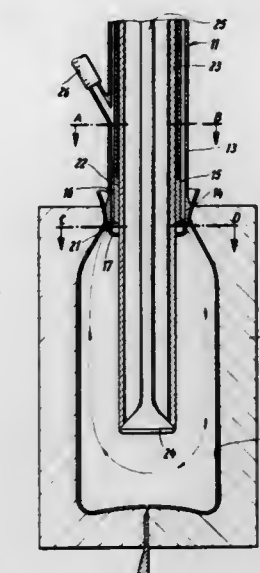
Claims priority, application Germany, Feb. 25, 1972, 2208909

Int. Cl. B65d 47/08

U.S. Cl. 53-191

4 Claims

A blowing- and filling-thorn for production of hollow bodies, in particular bottles, of thermoplastic synthetic material in a blowing process and for filling this hollow body, which comprises as a blowing tube mounted axially displaceable and having at least one blowing air channel. A filling tube is coaxially slidably mounted in the blowing tube, and has a filling valve in front of the mouth of its filling channel. At least one airing channel, is provided and the mouth of the blowing air channel and of the airing channel, in case the filling tube is moved into the blowing tube, is disposed diametrically opposite each other on a circular line comparatively narrowly surrounding a plate of a filling valve. The blowing tube is



is bent at a distance thereto inwardly in the direction toward the filling tube up to its outer circular line, and has air passage openings.

3,827,215

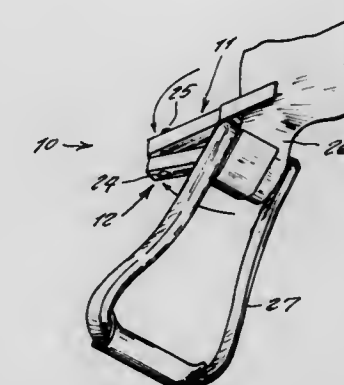
HORSE SADDLE STIRRUP SETTER

Neal M. Edenfield, Rt. 1 Box 139, Grand Ridge, Fla. 32442
Filed Jan. 15, 1973, Ser. No. 323,708

Int. Cl. B68b 05/00

U.S. Cl. 54-1

1 Claim



An accessory for assisting a rider in getting his foot into a stirrup when mounting a horse, the device consisting of a pair of straight handles positioned adjacent each other, one end of each handle having an opening therethrough for receiving a bolt fitted with a winged nut so that the handles can be forcibly brought toward each other, the opposite end of one of the handles having a pair of extending prongs and the other handle having at its opposite end a U-shaped collar, the prongs and the collar being adaptable to seize a portion of the harness so that the stirrup is maintained in a suitable position for receiving the rider's foot.

3,827,216

SCRUBBING APPARATUS AND METHOD

Ernest Mare, c/o Mr. D. D. Melin, Krebs Engineers, 1205 Chrysler Dr., Menlo Park, Calif. 94025

Filed May 7, 1973, Ser. No. 357,673

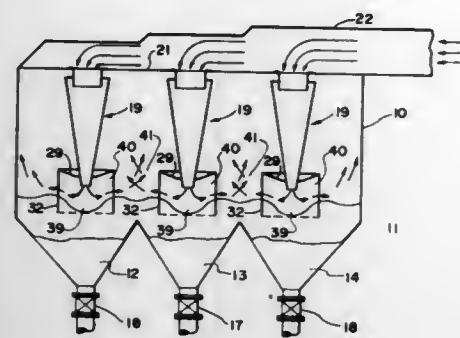
Int. Cl. B01d 47/02

U.S. Cl. 55-95

5 Claims

A method and apparatus for scrubbing gases with liquid. It employs at least one nozzle which discharges a stream of gas downwardly against the surface of a body of scrubbing liquid (e.g., water). The nozzle is made with converging flat side walls to provide an elongated discharge opening which extends horizontally over the body of scrubbing liquid. The

impingement of the discharging gas upon the liquid body serves to depress the surface of the liquid to form a trough-like region. Some scrubbing action is caused by such impingement, and the impingement causes some of the liquid to be entrained in the gas flow whereby a gas-liquid mixture flows in opposite



lateral directions from the sides of the trough-like region. The nozzle is provided with shield means whereby the movement of gas and entrained liquid from the trough-like region is confined. Preferably the method and apparatus makes use of a plurality of such nozzles disposed side by side.

3,827,217

ELECTROSTATIC PRECIPITATOR FOR THE COLLECTION OF PARTICLES CONTAINED IN A GAS
Robert Volsy, Brignoud, France, assignor to Commissariat A L'Energie Atomique, Paris, France

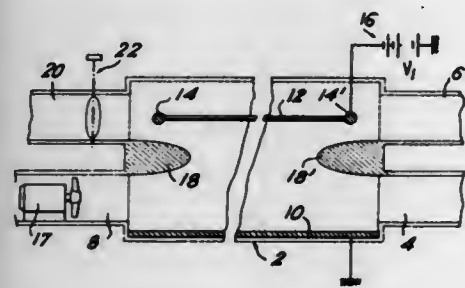
Filed Dec. 19, 1972, Ser. No. 316,522

Claims priority, application France, Dec. 31, 1971, 71.47801

Int. Cl. B03c 3/04

U.S. Cl. 55-121

8 Claims



3,827,218

VALVELESS LOW PRESSURE AIR DEHUMIDIFIER
Bernard W. Settlemeyer, Coraopolis, Pa., assignor to Ajax Magnethermic Corporation, Warren, Ohio

Filed Aug. 31, 1972, Ser. No. 285,549

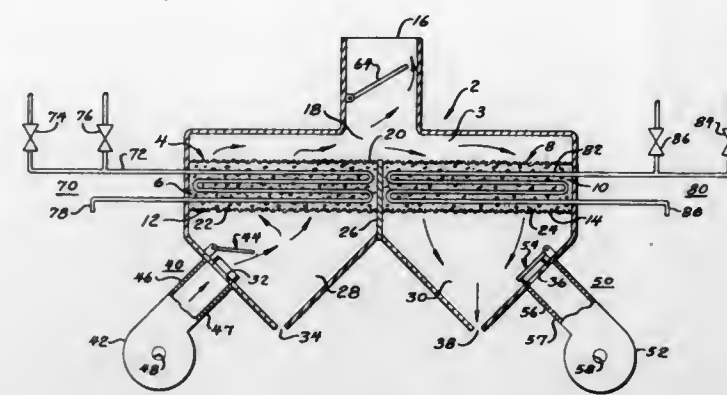
Int. Cl. B01d 53/00

U.S. Cl. 55-179

2 Claims

A low pressure air dehumidifier is disclosed in which damper means responsive to pressure caused by air flow from air intake blowers controls the flow of air through the dehumidifier. Where the dehumidifier includes two adsorbent beds having alternating drying and regeneration cycles, the blowers

are operated alternately to thereby cause one vent means to open and allow moist air to flow through a drying bed. During this time the other blower is off and the other vent means is



3,827,219

DETASSELING APPARATUS

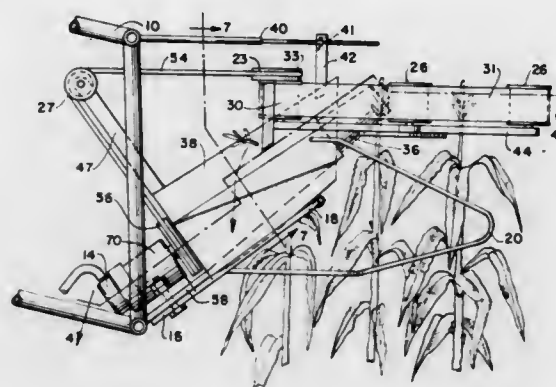
Joseph A. Ackerman, Rural Rt. 3, Carmi, Ill. 62821

Filed June 25, 1973, Ser. No. 373,183

Int. Cl. A01d 45/02

U.S. Cl. 56-53

3 Claims



The present invention relates to an apparatus for removal of tassels from corn and like plants. The apparatus is self-powered and mountable with a conventional hydraulic frame on farm implements. The apparatus consists of a belt feeder system to direct the upper portion of the plant stalk into a tassel severing means. The tassel severing means consists of two cooperating conical rollers adjustably inclined downwardly from the belt feeder system to the mounting means of said conical rollers. The rollers cooperate to sever the plant tassel from the plant stalk. The apparatus has a slotted shield below said roller severing means to depress and separate the leaves of the lower portion of the plant stalk from the plant tassel to be severed.

3,827,220

SAFETY GUARDS FOR ROTARY LAWNMOWERS

David Paul Seldel, Milperra, New South Wales, Australia, assignor to Victor Limited, New South Wales, Australia

Filed Oct. 10, 1972, Ser. No. 296,169

Claims priority, application Australia, Oct. 11, 1971, 6604/70

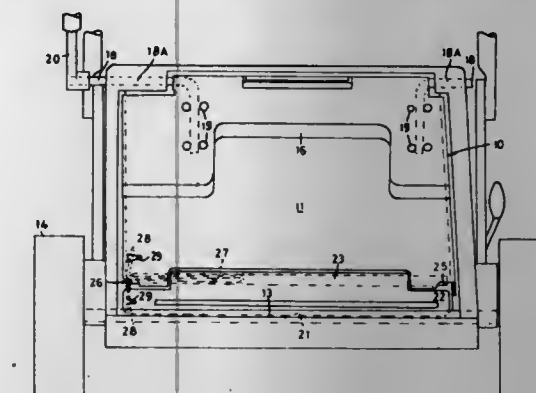
Int. Cl. A01d 67/00

U.S. Cl. 56-320.2

6 Claims

A safety cover guard for the grass discharging orifice of a rotary lawnmower provided with a removable grasscatcher having a protruding lip for gathering cuttings close to the blade cutting circle, the cover guard having a lower pivoted

flap to enable the protruding lip to enter the orifice while the cover guard is in position, means operable while the grass-



3,827,221

ORANGE PICKER

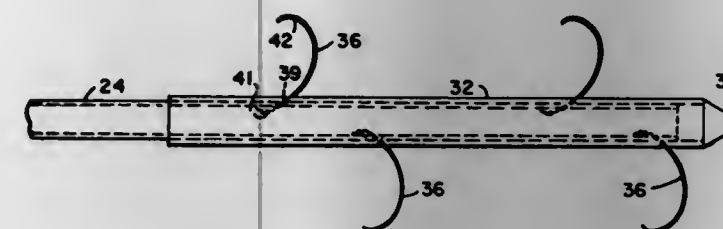
Pictlaw Chen, Davis, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Filed May 4, 1973, Ser. No. 357,486

Int. Cl. A01g 19/08

U.S. Cl. 56-328 R

6 Claims



An orange picker, particularly for use in a grove of orange trees, includes a portable carriage having a movable frame thereon. An arm is movable to and fro on the frame toward and away from an orange tree and is effective to penetrate into the interior of the tree. On the arm is a hook, preferably flexible, having a base portion secured to the arm and an outstanding terminal portion spaced from the arm. The hook is normally C-shaped and is resilient. In operation, the arm with the terminal hook withdrawn is thrust into the tree. The hook is projected from the arm and is then withdrawn. The hook is large enough to pass over, without effect, any small, immature oranges, is flexible enough to be deflected without harm by tree branches and the like and is small and strong enough to engage with an orange of a size to be picked. The inner edge of the hook interengages with the stem of a large orange and severs the stem or pulls the orange therefrom. The orange then falls into a suitable receiver.

3,827,222

ROW CROP HARVESTING MACHINE

Andrew J. Toti, 311 W. River Rd., Modesto, Calif. 95351

Filed June 12, 1972, Ser. No. 262,128

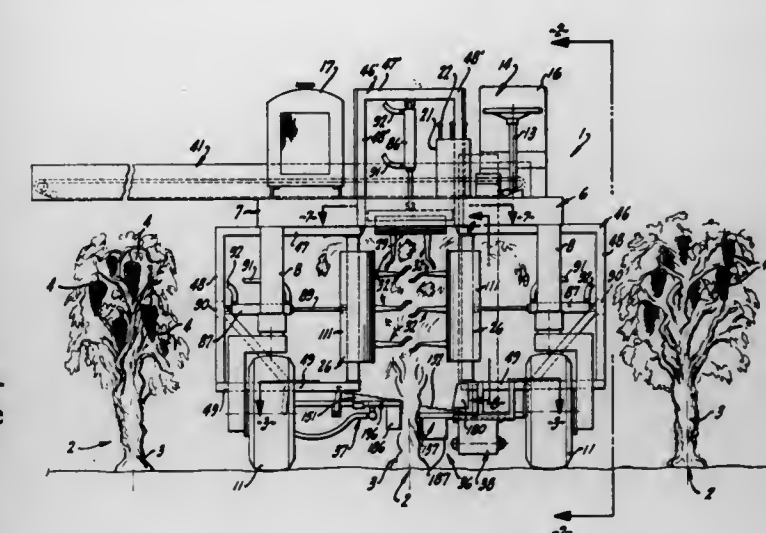
Int. Cl. A01g 19/00

U.S. Cl. 56-330

76 Claims

A machine for harvesting various row crops of which grapes are exemplary. The subject machine includes a plurality of selectively positionable picking units mounted on a self-propelled carriage on opposite sides and above the row crop to be picked. Each picking unit includes a plurality of picking arms designed to rotate selectively about their respective individual axes. Each picking arm includes an offset nose portion which moves eccentrically relative to the axis of the arm for most effective picking. Each picking unit preferably is adjustably mounted on the movable carriage so that the picking

angle of the respective arms may be selectively oriented relative to the row crop being harvested. Each picking unit also may be mounted for reciprocal motion relative to the row crop to further enhance effective picking. Collecting means is



3,827,223

HAY ROLL FORMING MACHINE

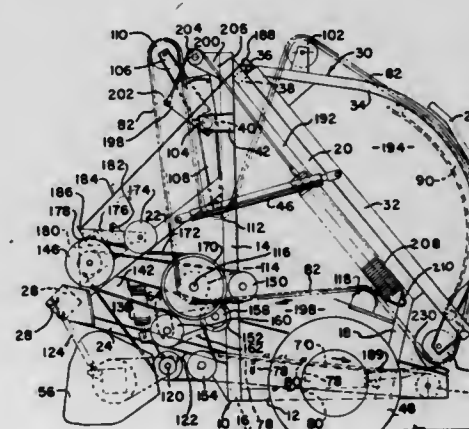
Allison W. Blanchine, Lititz; Jack W. Crane, New Holland, and Aquila D. Mast, Lancaster, all of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Apr. 24, 1973, Ser. No. 353,944

Int. Cl. A01d 39/00

U.S. Cl. 56-341

4 Claims



A machine to form compact rolls of hay of substantial size by picking up a swath or windrow of hay and the like from a field, engage it by cooperating upper and lower endless flexible aprons driven in suitable directions to coil the hay into a compact roll while supported upon floor means mounted stationarily in the bottom of the machine to effect baling of all the hay without loss upon the ground. When the roll type bale of hay reaches a predetermined diameter, the upper apron is raised to provide an exit and the lower apron assists in ejecting the bale onto the ground, or the machine can transport it to a desired location for discharge, if desired. The roll is initiated within a space between the upper and lower aprons which in cross-section is wedge shaped, the lesser distance between the cooperating courses of the aprons being adjacent the forward end of the machine, and results in a relatively soft core for the rolls, whereby when ultimate pressure is formed in the finished roll, the core is not unduly compressed.

3,827,224

DEVICE COMPRISING AT LEAST ONE RAKE MEMBER ADAPTED TO ROTATE ABOUT AN UPWARDLY EXTENDING AXIS

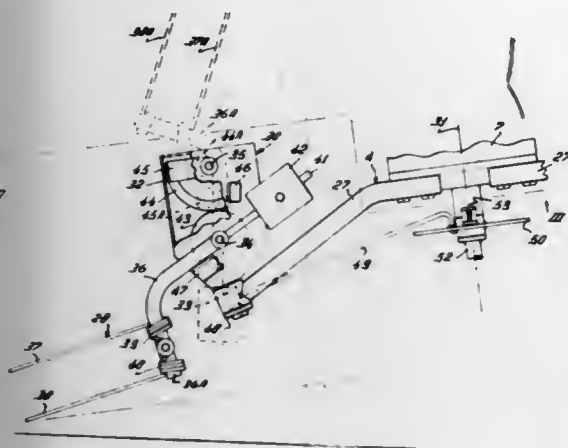
Herman Mulder, 17, Gaeistraat, Wateringen; Jan Huibert
Leonard Philomena Van Pol, 16, 's Prinsensingel, and Berend
Hakkeling, 19, Kon. Julianaweg, both of Maasland, all of
Netherlands

Filed Nov. 6, 1972, Ser. No. 303,689

Int. Cl. A01d 79/00

U.S. Cl. 56-370

49 Claims



A raking device has one or more rotary rakes with tines that work crop by rotating in a circular path close to the ground. The tines are mounted in groups on radial spokes and are movable to another working position and/or a transport position by being pivoted relative to the rotary axis of the rake about a pivot connection. A displaceable guide member can be connected to the rear of the frame by a pivotal linkage. The guide member or another displaceable weighted mass is mounted on the frame and interconnected to the tines so that the displacement of the mass acts to pivot the tines from one position to another. An adjusting rod connects the tines to the rotary axis to afford a working setting of the position of the tines.

3,827,225

HIGH SPEED STRANDER

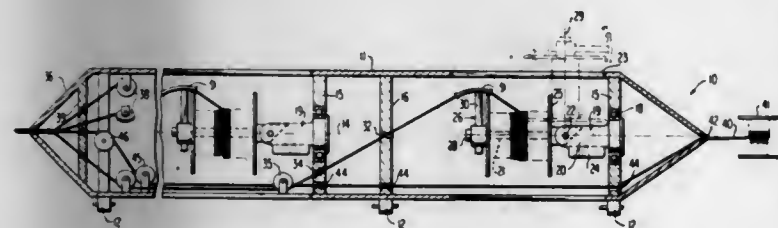
Roger J. Schoerner, Carrollton, Ga., assignor to Southwire
Company, Carrollton, Ga.

Filed May 18, 1970, Ser. No. 38,414

Int. Cl. D07b 3/04, 3/06

U.S. Cl. 57-13

20 Claims



A high speed cable strander including a rotatable frame and one or more wire carrying bobbins carried by the frame. The bobbins are positioned with their longitudinal axes extending approximately parallel to the axis of rotation of the frame, and the wire is paid off the bobbins along the axes of the bobbins without requiring the bobbins to rotate.

3,827,226

RING RAIL TRACKING ARRANGEMENT FOR RING SPINNING MACHINES

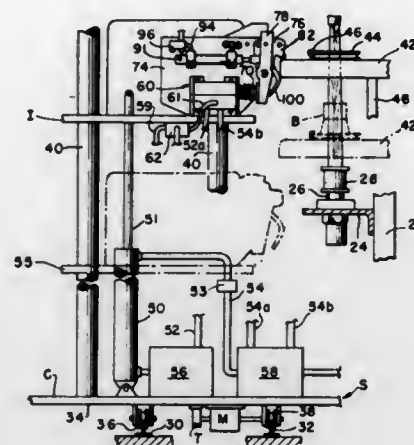
Ellyu Lesser, Worcester, Mass., assignor to Leesona Corpora-
tion, Warwick, R.I.

Filed Sept. 19, 1973, Ser. No. 398,577

Int. Cl. D01h 15/00

U.S. Cl. 57-34 R

7 Claims



A tracking arrangement for synchronizing the vertical movement of a working platform; for example, forming part of an automatic servicing tender for ring spinning machines, with the vertically reciprocating ring rail of the spinning machine including drive means for independently moving said platform, means for sensing the changing position of said ring rail, and servo control means responsive to said rail position sensing means to control said independent drive means to drive said platform to follow the movement of said rail.

3,827,227

GRASPER BAR PIVOTING AND POSITIONING

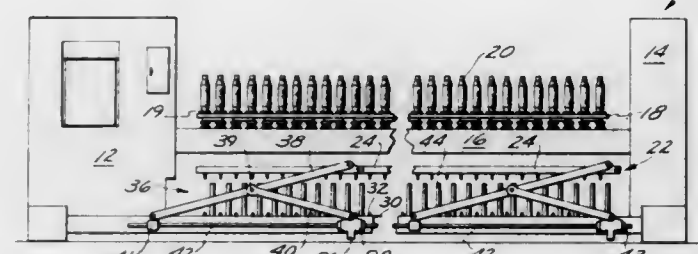
Lester W. Pray, and Gordon C. Anderson, both of Clemson,
S.C., assignors to Maremont Corporation, Chicago, Ill.

Filed Apr. 30, 1973, Ser. No. 355,605

Int. Cl. D01h 9/00, 9/04

U.S. Cl. 57-52

5 Claims



Disclosed are means for pivoting and positioning the bobbin tube grasper bars of an automatic doffing apparatus with precision and in concert on both sides of a textile yarn processing machine, such as a spinning frame, such that tube grasper elements depending from said bars are precisely positionable in coaxial alignment with and above the spindle blades thereof for donning tubes thereon by gravitational free fall. Present means obviate the problems associated with a non-linear or otherwise skewed grasper bar due to an imbalance of diverse forces imposed at diverse points along the longitudinal length thereof, as frequently occurs in prior art constructions. Present means employs a single actuating means, such as a hydraulic piston and cylinder assembly, joined by linkages to move control shafts on both sides of the machine, the control shafts in turn being interconnected with each grasper bar lifting and pivoting mechanism spaced therealong by a bell crank and pivot lever. Further present means includes adjusting means for balancing all forces exerted on the grasper bar and adjusting its aforesaid position exactly by changing the pivot point position of each bell crank.

3,827,228

TEXTILE APPARATUS

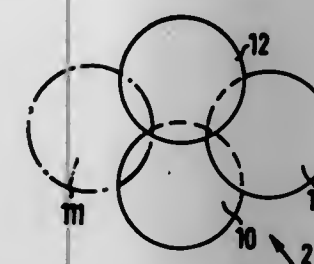
David L. McNeight, Congleton, and William John Morris,
Manchester, both of England, assignors to Ernest Scragg &
Sons Limited, Cheshire, England

Filed Feb. 26, 1973, Ser. No. 335,756

Int. Cl. D02g 1/04; D01h 7/92

U.S. Cl. 57-77.45

17 Claims



Apparatus for friction twisting is such that S-twisted yarn and Z-twisted yarn can be produced with like treatments, the apparatus not only allowing change of direction of travel of the friction surfaces relatively to the yarn path but also reversal of the direction in which the surface succeed one another around the path.

3,827,229

DEVICE FOR SELECTIVELY CHANGING THE SENSE OF ROTATION OF THE TWIST TUBES OF A FALSE-TWIST MACHINE

Joachim Bienlok, Wattwil, Switzerland, assignor to Heberlein
& Co. AG, St. Gallen, Switzerland

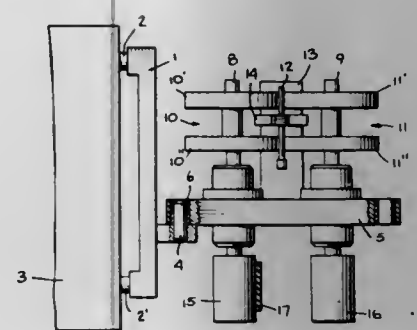
Filed Oct. 19, 1973, Ser. No. 408,115

Claims priority, application Sweden, Nov. 1, 1972,
15901/72

U.S. Cl. 57-77.45

Int. Cl. D02g 1/06

4 Claims



A mounting plate carrying rollers and drive means for driving a twist tube and a magnet for pressing the tube against the rims of the rollers, may be positioned in either of two positions 180° opposite from one another in order to reverse the sense of rotation of the tube by means on the mounting plate and on a machine frame which means cooperate with each other to permit such opposite mounting.

3,827,230

GLASS FIBER SIZE

Alfred Marzocchi, East Cumberland, and Nicholas S. Janetos,
Providence, both of R.I., assignors to Owens-Corning
Fiberglass Corporation, Toledo, Ohio

Continuation-in-part of Ser. No. 28,033, April 13, 1970,
abandoned. This application July 27, 1972, Ser. No. 275,612

Int. Cl. D02g 3/18

U.S. Cl. 57-140 G

17 Claims

A glass fiber size which is prepared by reaction of an epoxidized ester with an amino compound, a glycidox compound or a carboxy compound. In addition, the epoxidized ester can

be replaced by a melaminealdehyde resin, a urea-aldehyde resin, a polyamide or a carboxylated butadiene-styrene resin. Glass fibers sized in accordance with the present invention show improved compatibility with impregnants formulated to include a resorcinol-aldehyde resin and an elastomer.

3,827,231

WRIST WATCH FOR DIGITAL INDICATION

Rolf Foerster, Pforzheim, Germany, assignor to Firma Bern-
hard, Foerster, Pforzheim, Germany

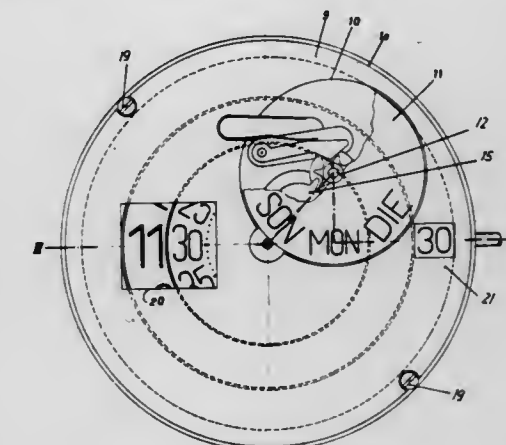
Filed Dec. 12, 1973, Ser. No. 426,682

Claims priority, application Germany, Jan. 8, 1973,
2300694

Int. Cl. G04b 19/24

U.S. Cl. 58-5

8 Claims



Digital indicating means comprise digit discs for indicating the time of the day and a rotary date ring for indicating the date of the month. A mounting ring is spaced around said date ring. A cross-member is carried by said mounting ring and overlies said date ring and has a recess which is eccentric with respect to said date ring. A day disc is accommodated in said recess and serves to indicate the day of the week.

3,827,232

SPRING DRIVEN TIMER

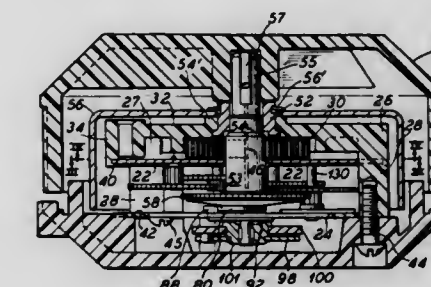
Ronald M. Bassett, Chicago, Ill., assignor to International Re-
gister Company, Spring Grove, Ill.

Filed Dec. 11, 1972, Ser. No. 313,967

Int. Cl. G04f 3/02

U.S. Cl. 58-21.13

4 Claims



In a spring driven timer a partially transparent housing is provided for enclosing a main spring, a gear train, an escape-ment, and a bell-sounding hammer. A drive shaft passes through the housing, supported by a bearing on a wall of the housing. The shaft supports at one end a timing cam and a hammer-cocking cam, and supports at its other end a bell adapted to be sounded by said hammer and an upper case member adapted to be rotated manually for setting said timer by initially adjusting the angular position of said drive shaft. A lost motion connection between a stop lever rotatably mounted on the shaft and a stop dog secured to the shaft for rotation therewith, permits 360° rotation of the shaft during its initial adjustment.

3,827,233

GEOGRAPHICAL TIMEPIECE OR CLOCK

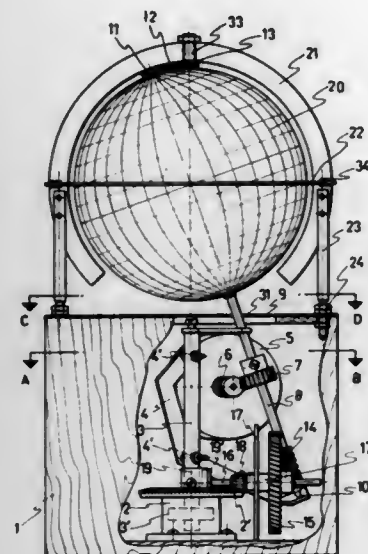
Jesus Villar Echevarria, and Jesus Villar Lopez, both of Avenda del Cld 124 Piso 13, Valencia, Spain

Filed June 22, 1973, Ser. No. 372,611

Claims priority, application Spain, Aug. 4, 1972, 182126; Jan. 5, 1973, 187411

Int. Cl. G04b 19/22

U.S. Cl. 58—44



A geographical timepiece or clock wherein the minute hand shaft axially extends to a worm with which a worm gear, divided into 24 helicoidal teeth corresponding to the 24 hours of the day, meshes. The worm gear is attached to an elongated shaft which is joined to a dial whose surface is decorated as a terrestrial globe and which, on the end opposite to that receiving the dial, has a worm which engages with a worm gear having 75 teeth mounted on a second shaft. A third shaft is installed within a fixed support, has a strong structure and is provided for supporting the machinery by means of bearings and is coupled by a bevel gear having 73 teeth with a bevel gear having 15 teeth which is fixed to the second shaft.

3,827,234

DISPLAY DEVICE FOR CALENDAR WATCH

Kunimi Imanishi, 31-29, 3 cho-me Sanbashi-dori, Kochi, Japan

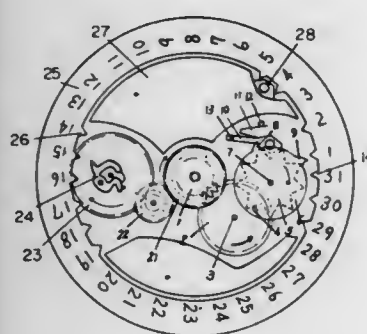
Filed Aug. 3, 1973, Ser. No. 385,294

Claims priority, application Japan, Aug. 3, 1972, 47-78679

Int. Cl. G04b 19/24

U.S. Cl. 58—58

1 Claim



A compact calendar watch is provided with a minimum number of component parts and displays correct dates automatically for one year from the first of March to the end of February at which time an adjustment is made manually; thus, troublesome monthly manual adjustments are eliminated.

3,827,235

WINDING AND SETTING MECHANISM FOR WATCHES

Peter Bachmann, Bettlach, Switzerland, assignor to Ebavches Bettlach S.A., Bettlach, Switzerland

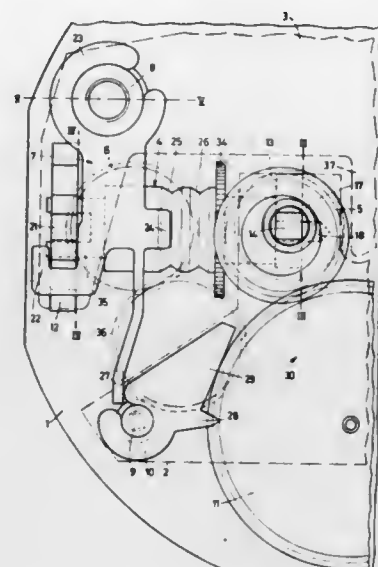
Filed June 18, 1973, Ser. No. 370,672

Claims priority, application Switzerland, June 30, 1972, 9897/72

Int. Cl. G04b 27/02

5 Claims U.S. Cl. 58—67

9 Claims



Winding and setting mechanism for watch movements, characterized by a drive pinion rigidly connected with the stem, by a sliding crown wheel mounted between the drive pinion and the center of the movement and cooperating with the ratchet wheel for the winding of the drive spring, and by a setting wheel mounted between the drive pinion and the periphery of the movement. The crown wheel has a circular opening engaged on a fixed pivot element of circular shape and of a diameter less than that of said opening, and it is held in engagement with the drive pinion by a portion of a bridge which extends tangentially to its toothing.

3,827,236

COOLING SYSTEMS FOR TURBOCHARGER MECHANISMS

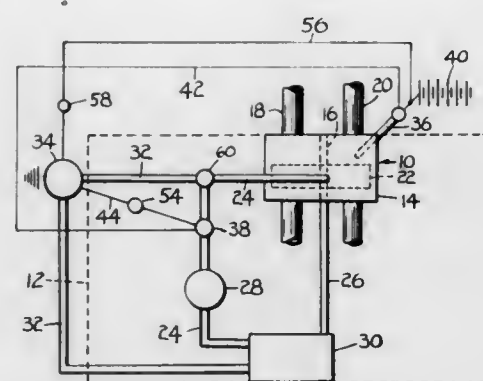
Donald Rust, Star Rt., Box 20c, St. Paul, Oreg. 97137

Filed Dec. 18, 1972, Ser. No. 316,044

Int. Cl. F02b 37/04; F02c 7/26

U.S. Cl. 60—13 R

2 Claims



A cooling system for turbocharger mechanisms for the purpose of cooling the turbocharger mechanism when the vehicle engine has been shut off, thus preventing damage which may result from residual heat in the turbocharger. The system includes an auxiliary pump and conduits bypassing the engine oil pump, the auxiliary pump being controlled in part in its operation by a temperature responsive switch installed in the exhaust portion of the turbocharger. The temperature responsive switch is in an electric circuit with a pressure responsive

switch operated by the engine oil system, the arrangement being such that the auxiliary pump will operate when the engine is shut off as long as an elevated temperature exists in the turbocharger mechanism.

3,827,237

METHOD AND APPARATUS FOR REMOVAL OF NOXIOUS COMPONENTS FROM THE EXHAUST OF INTERNAL COMBUSTION ENGINES

Ernst Linder, Muhlacker; Richard Zechall; Josef Wahl, both of Stuttgart, and Peter Jergen Schmidt, Schwieberdingen, all of Germany, assignors to Robert-Bosch GmbH, Herlingen-Schillerhohe, Germany

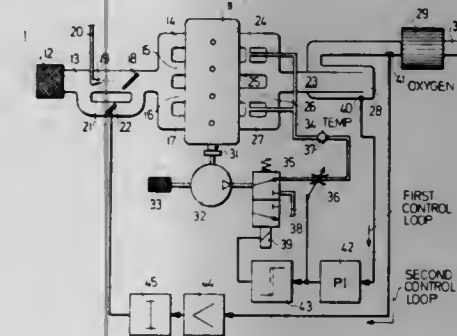
Filed Oct. 24, 1972, Ser. No. 300,047

Claims priority, application Germany, Apr. 7, 1972, 2216705

Int. Cl. F02b 75/10

U.S. Cl. 60—274

36 Claims



A reactor to oxidize unburned hydrocarbons and carbon monoxide is connected to the exhaust system of the engine. A further reactor is connected to the exhaust system designed to reduce nitrogen-oxygen compounds (NO_x). A temperature sensing device senses the temperature of the reactors, and air is admitted to the exhaust system of the engine to control the temperature thereof; an oxygen signal is being sensed representative of oxygen component in the exhaust system of the engine and the mass ratio of air to fuel of the mixture supplied to the engine is controlled to provide for proper air-fuel ratio with minimum noxious exhaust. The two control loops thus formed are interconnected by the internal combustion engine, the control effects of the two control loops being balanced with respect to each other.

3,827,238

DEVICE FOR SUPPLYING A SUPPLEMENTARY FUEL TO A CATALYTIC ENGINE EXHAUST CLEANER

Yoshimasa Hayashi, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Kanagawa-ku, Japan

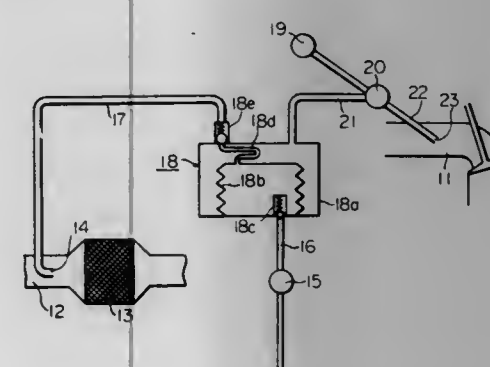
Filed May 21, 1973, Ser. No. 362,297

Claims priority, application Japan, May 31, 1972, 47-54202

Int. Cl. F02b 75/10

U.S. Cl. 60—286

11 Claims



A device for supplying and metering supplementary fuel to a catalytic exhaust gas cleaner for increasing the efficiency of

3,827,239

HYDRAULIC POWER TRANSMISSION AND BRAKING SYSTEM FOR VEHICLES

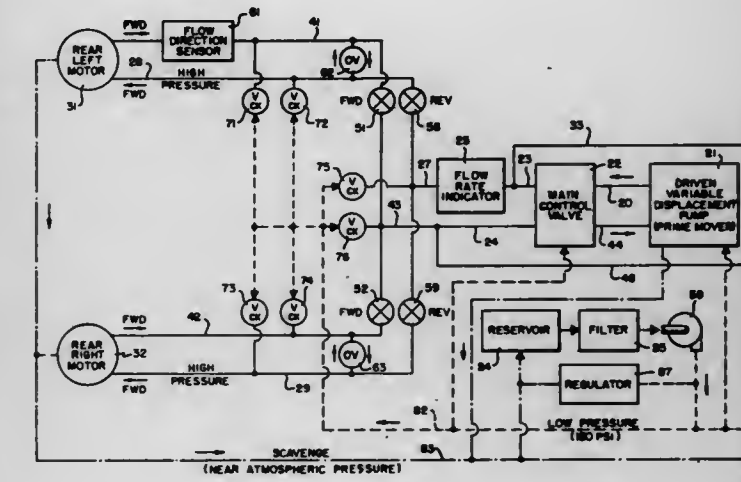
Bernhard Ulrich, Jr., Corpus Christi, Tex., assignor to Tex-Trans, Inc., Corpus Christi, Tex.

Filed Nov. 10, 1972, Ser. No. 305,513

Int. Cl. F16h 39/46; F15b 11/16

U.S. Cl. 60—420

20 Claims



A hydraulic power transmission and braking system for vehicles in which individual hydraulic wheel motors are connected through suitable control apparatus to a variable displacement hydraulic pump which is driven by an appropriate power source. The displacement of the pump varies automatically in response to hydraulic fluid pressure and flow rate requirements imposed by the vehicle operating conditions. The power transmission control apparatus automatically switches from the four-wheel drive mode to the two-wheel drive mode as the vehicle accelerates past a predetermined speed. The braking control system proportions the braking force applied to each of the hydraulic wheel motors in accordance with the load imposed on that wheel by the vehicle operating conditions.

3,827,240

HOT GAS ENGINE

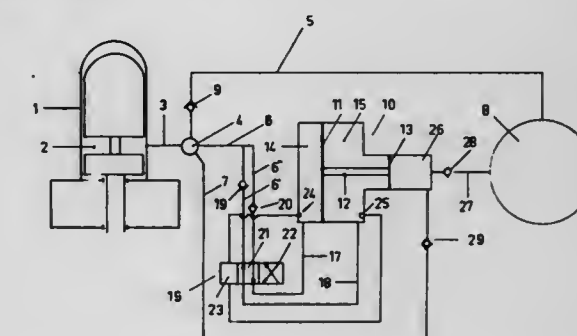
Ulf Rolfsson Lundquist, Mjolby, Sweden, assignor to Forenade Fabriksverken, Eskilstuna, Sweden

Filed Apr. 2, 1973, Ser. No. 346,940

Int. Cl. F02g 1/14

U.S. Cl. 60—521

3 Claims



In a Stirling cycle engine, a compressor pump pumps gas from the engine to a reservoir to decrease engine power. The compressor is of the differential piston type with a free piston with controls alternating the working gas pressure on the two sides of the piston to maintain high and low pressures operating a pump for storing working gas in a reservoir under pressure.

3,827,241

GOVERNING POWER OUTPUT OF HOT GAS ENGINES
Sten Hakan Almstrom, Lund, and Yngve Roland Gothberg, Malmö, both of Sweden, assignors to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmö, Sweden

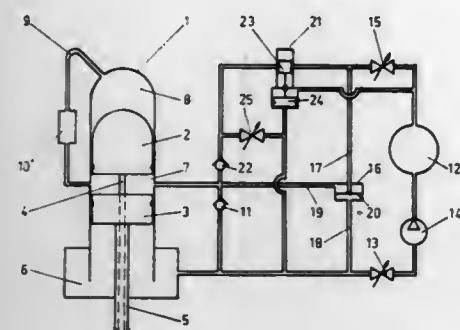
Filed Sept. 4, 1973, Ser. No. 394,090

Claims priority, application Great Britain, Sept. 5, 1972, 41038/72

U.S. Cl. 60—521

Int. Cl. F02g 1/04

5 Claims



To reduce the pressure requirements for introducing working gas to increase engine power, the gas is introduced at the high pressure portion of the working cycle but only under the low output load conditions, and if a high engine load is present then the gas is introduced at the lower pressure portion of the working cycle. Pressure sensing valves control the flow of gas under these conditions.

3,827,242

MASTER CYLINDER FOR A TWO-CIRCUIT BRAKE SYSTEM

Juan Belart, Walldorf, Germany, assignor to PTT Industries, Inc., New York, N.Y.

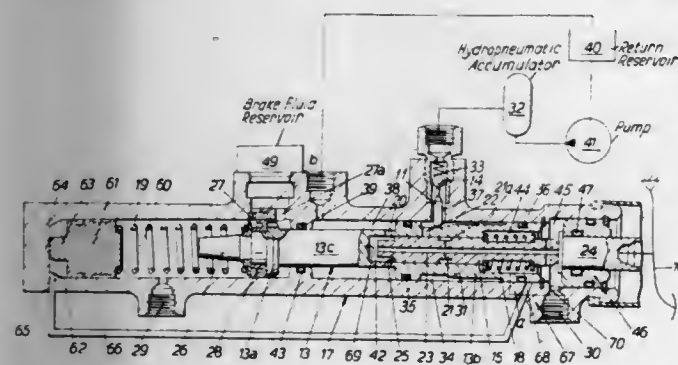
Filed Nov. 20, 1972, Ser. No. 307,910

Claims priority, application Germany, Dec. 24, 1971, 2164590

U.S. Cl. 60—552

Int. Cl. F15b 7/00

24 Claims



This relates to a master cylinder for a two-circuit system having a brake pressure medium accumulator. More particularly there is provided an arrangement for such a master cylinder that will prevent the brake pedal from traveling a great distance upon failure of one brake circuit. The master cylinder includes a master piston operating on one chamber to hydraulically apply brake pressure to said one brake circuit. The master piston is at first mechanically actuated by the brake pedal to actuate said one brake circuit. The outer surface of the master piston includes an inclined ramp that opens a valve and permits the accumulator pressure to be applied to the brake-pedal-applied end of the master piston. To prevent travel of the brake pedal upon failure of said one brake circuit, a freely axially displaceable secondary piston is provided in said one chamber. The transverse surface of the secondary piston opposite the adjacent end of the master piston is supplied with brake pressure from the accumulator via the brake-pedal-applied end of the master piston upon failure of said one

brake circuit. This will move the secondary piston against the adjacent end of the master piston and prevent movement of the master piston thereby preventing undesired brake pedal travel.

3,827,243

METHOD FOR RECOVERING GEOTHERMAL ENERGY

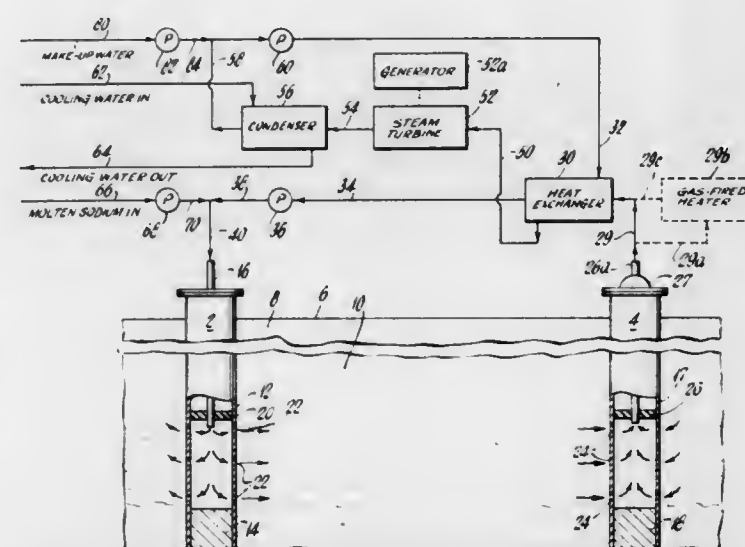
Peter L. Paull, Weston, Conn., and Paul F. Kerr, Palo Alto, Calif., assignors to Texaco Development Corporation, New York, N.Y.

Filed Sept. 1, 1972, Ser. No. 285,783

Int. Cl. F03g 7/04

U.S. Cl. 60—641

23 Claims



A method of heating a fluid which can be, for example, molten sodium, in a dry geothermal reservoir formation penetrated by an injection well and a production well comprising injecting the said fluid into the formation via the injection well, forcing the fluid through the formation with simultaneous heating and finally recovering the heated fluid via the production well. Utilizing heat exchangers at the surface, the heated fluid may be employed to supply process heating requirements for steam making, preheating of refinery streams such as crude oil feed to distillation units, salt evaporation, etc.

3,827,244

A FORM FOR PRODUCING A CONCRETE LINING OF MINE GALLERIES, TUNNELS, SHAFTS OR THE LIKE
Heinz-Theo Walbrohl, Nordstrasse 73, Bonn, Germany

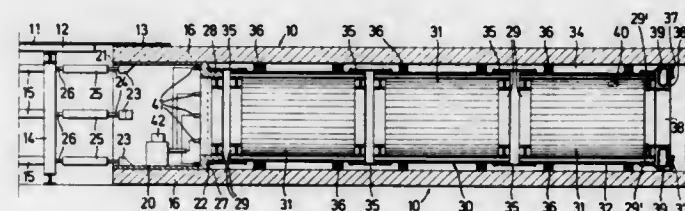
Filed Dec. 20, 1972, Ser. No. 316,715

Claims priority, application Germany, Dec. 22, 1971, 2163740

U.S. Cl. 61—84

Int. Cl. E01g 5/16

17 Claims



A shuttering or form for producing a concrete lining in galleries, tunnels, shafts or the like, in which the concrete is introduced between an inner shuttering and the natural soil, the concrete lining being supported by the form until the concrete has reached its desired strength.

3,827,245

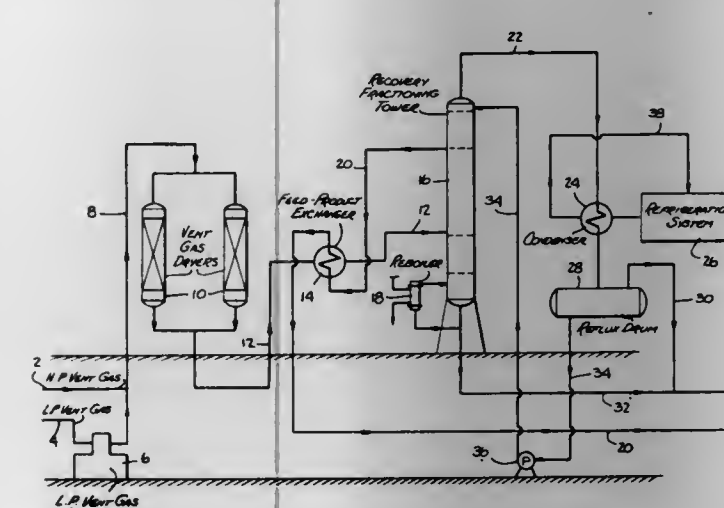
RECOVERY AND PURIFICATION OF ETHYLENE FROM DIRECT HYDRATION ETHANOL VENT GAS STREAMS
Harold A. Nygaard, Lexington, and Jacob N. Rubin, Newton Highlands, both of Mass., assignors to Stone & Webster Engineering Corporation, Boston, Mass.

Filed Sept. 22, 1971, Ser. No. 182,713

Int. Cl. F25j 3/02

U.S. Cl. 62—18

5 Claims



Apparatus and process for recovering ethylene from the wet vent gas streams of catalytic ethylene hydration processes.

3,827,246

PRESSURE CONTROL SYSTEM FOR CRYOGENIC FLUIDS

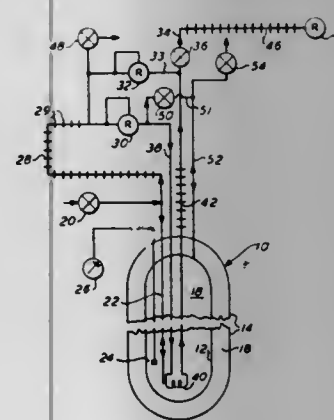
Walter B. Moen, Berkeley Heights, and George R. Spies, Murray Hill, both of N.J., assignors to Alcoa, Inc., New York, N.Y.

Division of Ser. No. 777,048, Nov. 19, 1968, Pat. No. 3,650,290. This application Nov. 3, 1971, Ser. No. 195,512

Int. Cl. F17c 7/02

U.S. Cl. 62—50

9 Claims



Heat for maintaining operating pressure in a single phase cryogenic fluid at or above the critical pressure is provided by controllably circulating a portion of the warmed delivery fluid in heat exchange with the storage fluid. The circulated delivery fluid is reheated and recombined with the remainder of the delivery fluid. A regulator device having a double acting valve element movable between two opposite positions controls flows respectively to a pressurizing heat exchanger coil and to a by-pass leading directly to delivery.

3,827,247

PROCESS OF COMPLETE CRYOGENIC VAPORIZATION OF LIQUEFIED NATURAL GAS

Yukiyasu Kojima, Yokohama; Kazuo Akiyoshi, Tokyo, and Kenji Kawada, Yokohama, all of Japan, assignors to Showa Denko K.K., Tokyo, Japan

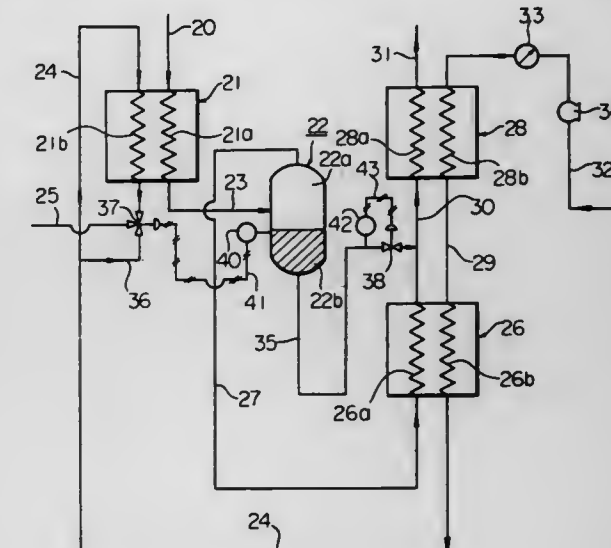
Filed Feb. 8, 1973, Ser. No. 330,577

Claims priority, application Japan, Feb. 12, 1972, 47-14354

Int. Cl. F17c 7/02

U.S. Cl. 62—52

7 Claims



Liquefied natural gas is cryogenically vaporized completely while being utilized as a cryogen for cryogenic heat-exchange process by vaporizing the liquefied natural gas by a first vaporization step at a temperature lower than -110°C until the non-vaporized residue of the liquefied natural gas becomes a predetermined amount which is in a range between a critical percentage at which higher hydrocarbons in the residual liquefied natural gas are frozen out therefrom and a percentage higher by 8% than the critical percentage, separating the residual liquefied natural gas from the vaporized natural gas, conditioning the first vaporized natural gas to a temperature from -110° to -40°C and then, vaporizing the residual liquefied natural gas by a second vaporization step by introducing it into the conditioned first vaporized natural gas.

3,827,248

ICE CRYSTALS

Neophytos Granlaris, Riverdale, N.Y., assignor to Struthers Patent Corporation, Houston, Tex.

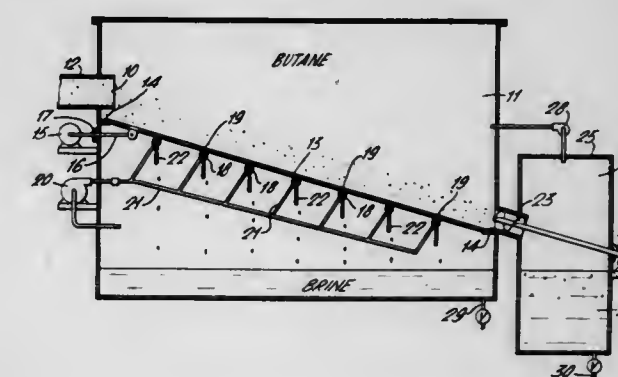
Filed Apr. 30, 1973, Ser. No. 355,690

Claims priority, application Great Britain, May 1, 1972, 20157/72

Int. Cl. B01d 9/04

U.S. Cl. 62—123

9 Claims



Ice crystals formed in a solution, such as in the ice crystallization conversion of seal water to fresh water, or slush freezing of citrus juice, coffee or tea, are washed in liquid butane at a temperature below 32°F . The crystals rest on an inclined screen sinking down in the butane and they are agitated

mechanically by butane jets and/or by vibration of the screen. Brine, which is mechanically washed from the crystals, sinks through the screen to be collected below it. Washed ice crystals move down the screen to be collected, melted and debutanized.

3,827,249

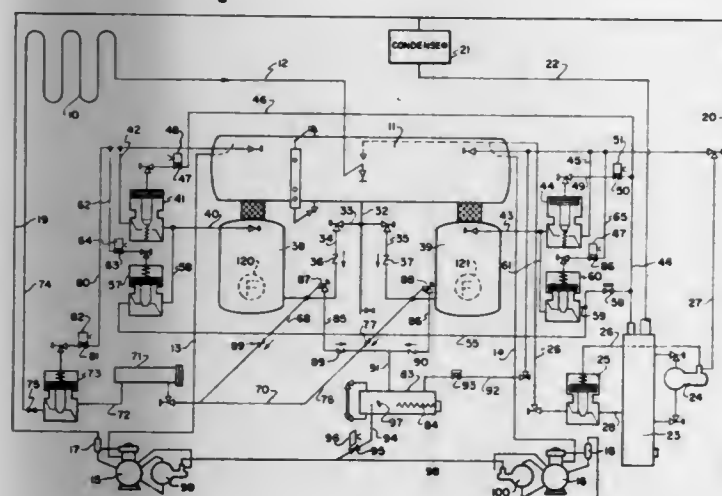
PRESSURIZED REFRIGERANT RECIRCULATION SYSTEM WITH CONTROL MEANS

Milton W. Garland, Waynesboro, Pa., and Robert C. Fish, St. Louis, Mo., assignors to Frick Company, Waynesboro, Pa.
Filed Mar. 12, 1973, Ser. No. 340,638

Int. Cl. F25b 43/00

U.S. Cl. 62-174

7 Claims



A refrigeration apparatus having an accumulator-separator with a pair of pumping tanks which are sequentially operated by high pressure gas from the receiver for pumping liquid refrigerant to an evaporator. The apparatus provides a fool-proof fail-safe automatically operated system in which the accumulator-separator and the pumping tanks are of a size to accommodate all of the refrigerant within the system so that a rise in pressure induced by temperature increase caused by a power failure is not sufficient to rupture the system.

3,827,250

ECONOMIZER PRESSURE REGULATING SYSTEM

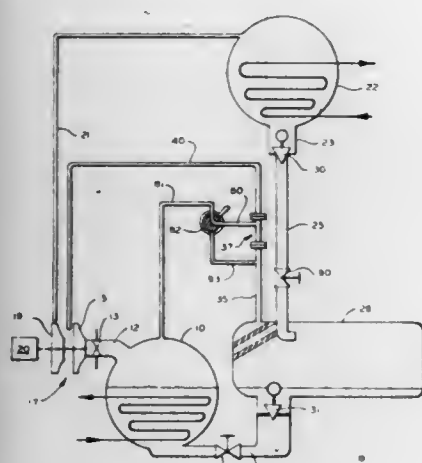
Hans Gerhard Kerschbaumer, and James W. Endress, both of Syracuse, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed July 23, 1973, Ser. No. 381,811

Int. Cl. F25b 41/00

U.S. Cl. 62-196

1 Claim



The economizer pressure regulator installed in the line from the vapor area of the economizer to the second stage of the centrifugal compressor in a refrigeration system includes a valve movable to open and close a port in the line. The valve is

movable toward open position by the direct application of pressure from the economizer against one side of the valve. The valve is urged toward closed position by a spring acting against the opposite side of the valve. The valve is also urged toward closed position by the pressure in the cooler of the refrigeration system. Accordingly, the vapor area of the economizer is not connected to the second stage of the compressor until the pressure in the economizer exceeds the pressure in the cooler, and, in addition, the force of the spring acting on the valve.

3,827,251

APPARATUS FOR COOLING A LIVING ORGAN

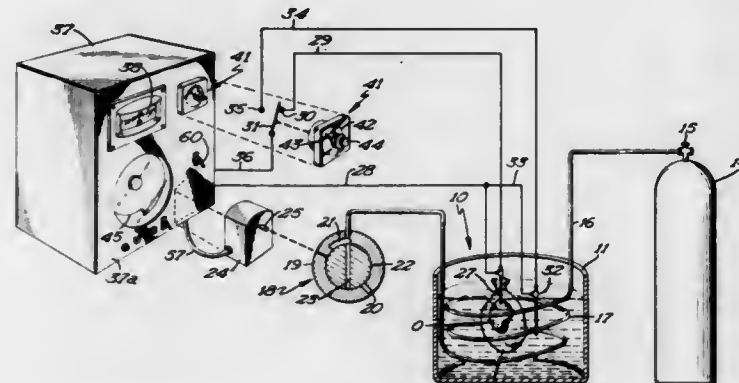
William L. Koski, 3905 Halifax Ave., Minneapolis, Minn. 55422, and Emil S. Swenson, 10500 Dogwood Rd. N.W., Coon Rapids, Minn. 55433

Filed July 2, 1973, Ser. No. 375,925

Int. Cl. F25b 41/04

U.S. Cl. 62-217

5 Claims



An organ cooling apparatus includes a receptacle which contains a liquid bath and which has a refrigerant coil therein. A refrigerant, such as liquid nitrogen is passed through the coil to cool the liquid bath within the receptacle. The organ to be cooled is placed in the bath and a control device including a mechanical program mechanism is preset to cool the organ at a constant rate in a predetermined cooling cycle. Both the theoretical and the true temperatures of the organ are constantly monitored and indicated on a calibrated temperature scale and when the true temperature of the organ is less than the theoretical temperature a valve connected in flow controlling relation in the refrigerant conduit is operated to produce flow of the refrigerant and cooling of the organ. Conversely, when the true temperature of the organ is equal to or greater than the theoretical temperature, the valve is closed to interrupt the flow of refrigerant through the coil, and the cooling rate of the organ is also interrupted. With this arrangement, the organ is cooled at a predetermined uniform rate, and this method of cooling precludes damage to the organ.

3,827,252

METHOD OF REGULATION OF THE FRIGORIFIC POWER OF A JOULE-THOMSON REFRIGERATOR AND A REFRIGERATOR UTILIZING SAID METHOD

Patrice Chovet, Bernin; Claude Rollin, Grenoble; Honore Galasso, Echrolles, and Roger Prost, Saint Egreve, all of France, assignors to L'Air Liquide, Societe Anonyme Pour L'Etude Et L'Exploitation des Procédes Georges Claude, Paris, France

Filed Mar. 19, 1973, Ser. No. 342,672

Claims priority, application France, Mar. 23, 1972, 72.10139

Int. Cl. F25b 41/04

U.S. Cl. 62-222

9 Claims

The invention relates to a method of and apparatus for the regulation of the frigorific power supplied by a refrigerator utilizing the Joule-Thomson expansion of a refrigerant fluid at a temperature below its inversion temperature, in which the

flow-rate of the expanded refrigerant fluid is automatically regulated in dependence on the frigorific output to be supplied, and is regulated to a value higher than the flow-rate corresponding to the minimum frigorific power to be supplied, under steady operating conditions, by the expansion of said refrigerant fluid, so as to compensate for the thermal losses of said refrigerator under these operating conditions. The refrigerator comprises an expansion device consisting of an

3,827,254

REFRIGERATED DISPLAY CASE

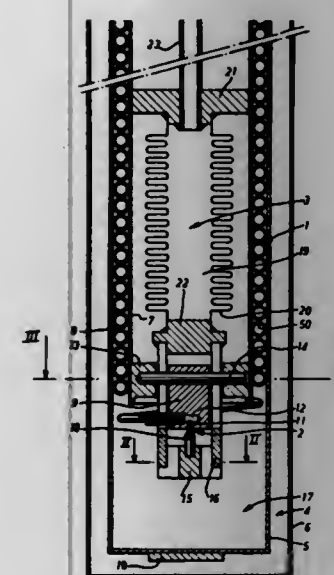
Malcolm D. MacMaster, Yardley, and Herbert R. Morris, Morrisville, both of Pa., assignors to Emhart Corporation, Bloomfield, Conn.

Filed May 4, 1973, Ser. No. 357,331

Int. Cl. A47I 3/04

U.S. Cl. 62-256

16 Claims



expansion orifice, a seating and a needle-valve, one of said two latter elements being fixed and the other movable, and a temperature-responsive detection device forming part of the regulation system and acting on said movable element in dependence on the temperature detected; the regulation may be effected by proportional action or by direct action, in the latter case, the temperature-responsive regulation chamber being constituted by a bellows member containing a charge of heat-expandable fluid.

3,827,253

CHILLER FOR ICE RINK REFRIGERATION SYSTEMS

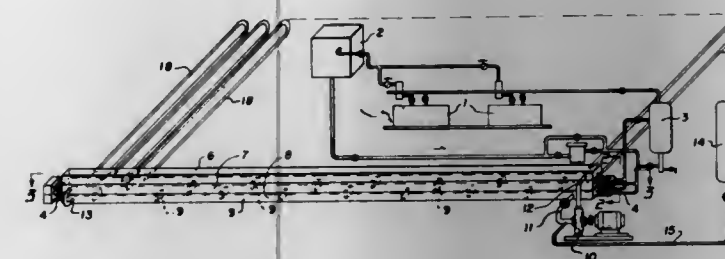
George H. Williams, Coquitlam, British Columbia, Canada, assignor to Burrard Refrigeration Ltd., Port Moody, British Columbia, Canada

Filed Apr. 30, 1973, Ser. No. 355,938

Int. Cl. A63c 19/10

U.S. Cl. 62-235

13 Claims



A chiller consisting of a tubular header for location alongside an ice rink and beneath the ice level. The chiller is divided into three vertically arranged longitudinal chambers having connectors for ice forming pipes which extend beneath the rink. Refrigerant conduction piping extends longitudinally through the chiller and connections are provided for a circulation pump to circulate the chilling medium within the header. The chilling medium being circulated through the header and ice forming pipes is chilled by heat exchange with the refrigerant carried by the refrigerant conduction piping from a refrigeration unit connected thereto.

3,827,255

MEANS FOR PREVENTING FLOW OF LUBRICANT-SATURATED REFRIGERANT IN AUTOMOTIVE AIR-CONDITIONING SYSTEMS

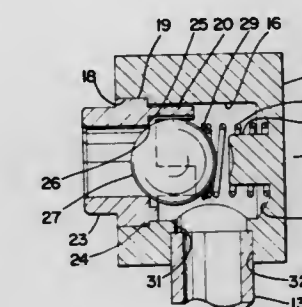
Arthur S. Kish, Lyndhurst, Ohio, assignor to Murray Corporation, Cockeysville, Md.

Filed Mar. 30, 1973, Ser. No. 346,589

Int. Cl. F25b 41/04

U.S. Cl. 62-296

4 Claims



A check valve is incorporated in an automotive air-conditioning system for preventing flow of the refrigerant through the system when a car is not in use, whereby to avoid migration of the lubricating oil with which the refrigerant is saturated, and consequent damage to the compressor of the system. The check valve is preferably in the form of a spring-pressed ball, and is disposed between the compressor and muffler. To facilitate assembly in this system, the valve is provided as a part of a muffler and hose assembly.

3,827,256

BAR-CABINET FOR THE PRESERVATION, REFRIGERATION AND DISTRIBUTION OF ALCOHOLIC AND UNALCOHOLIC DRINKS

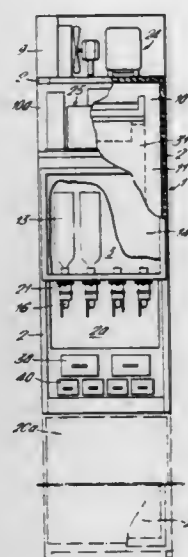
Alfredo Wiesner, via O. Beccari 23, Rome, Italy (00100)

Filed Jan. 23, 1973, Ser. No. 326,138

Claims priority, application Italy, Jan. 31, 1972, 48044/72

Int. Cl. F25c 5/18

U.S. Cl. 62—330



A bar cabinet for the preservation, refrigeration and distribution of alcoholic and nonalcoholic beverages at different temperatures, including a refrigeration unit for the production of ice cubes, wherein the cooling at different temperatures of the various drinks or components to produce said drinks or for the preservation of foods usually taken with the different drinks is performed by the ice cubes which move only under the effect of the force of gravity along a predetermined path associated with guiding means adapted to control the ice cube movements and to let a part of said cubes stop near the zones or devices or goods which require additional cooling.

3,827,257

AIR CONDITIONING SYSTEM

Cornelis Doornik, Berghem, Netherlands, assignor to Wed.

Joh. Verhuist en Zonen B.V., Netherlands

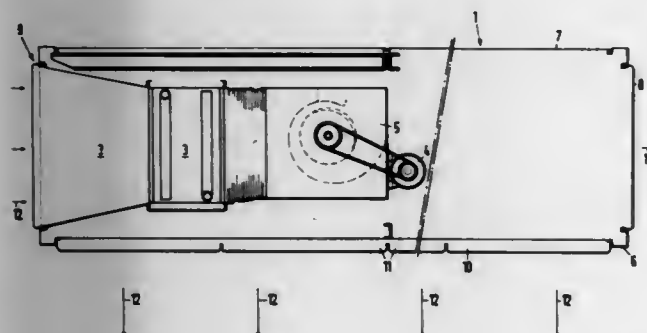
Filed May 2, 1973, Ser. No. 356,278

Claims priority, application Netherlands, May 4, 1972, 726018

Int. Cl. F25d 17/04

U.S. Cl. 62—418

1 Claim



A free-of-draught air conditioning system comprising a plurality of cooling units each having its own air conditioning means. Each cooling unit and associated air conditioning means is housed in a housing having diffusely permeable sidewalls and a diffusely permeable bottom wall. The sidewalls and the bottom wall are preferably made of perforated, plastic-coated sheet metal panels.

3,827,258

DISCONNECTIBLE TORQUE AND AXIAL LOAD TRANSMISSION APPARATUS

Archer W. Kammerer, Jr., and Gary R. Johnson, both of Houston, Tex., assignors to Baker Oil Tools, Inc., Los Angeles, Calif.

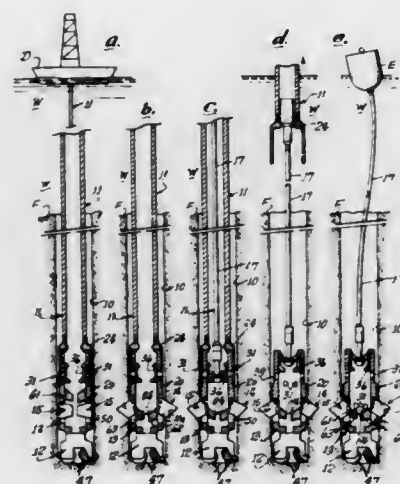
Division of Ser. No. 190,181, Oct. 18, 1971, Pat. No.

3,753,431, which is a division of Ser. No. 132,993, April 2, 1971, abandoned, which is a continuation-in-part of Ser. No. 23,700, March 30, 1970, abandoned. This application Dec. 22, 1972, Ser. No. 317,656

Int. Cl. F16d 3/06

U.S. Cl. 64—23

12 Claims



A tubular apparatus including an inner tubular member piloted within an outer tubular member, the members having a releasable connection through which torque and axial loads can be transmitted, such connection being readily disconnected, when desired, to permit axial separation between the members.

3,827,259

SELF HEALING CLUTCH

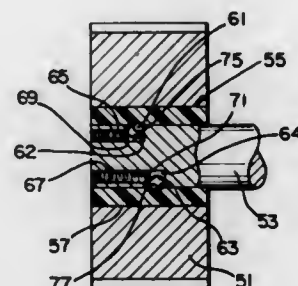
William S. Brucker, 1500 Providence Rd., Towson, Md. 21204

Filed Sept. 29, 1972, Ser. No. 293,455

Int. Cl. F16d 7/02, 7/06

U.S. Cl. 64—28 R

1 Claim



A power operated device, such as a portable power tool or the like, including a motor driven, rotary member coupled to an output member by a novel clutch. In accordance with the invention, the clutch is constructed to transmit torque from the motor driven member to the output member, under normal conditions; however, the clutch is designed to fail in shear or in cold flow, to allow relative rotation between the motor driven and output members, when the torque level in the device exceeds a predetermined safe value. The clutch is constructed to heal and recouple the driven and output members when the excessive torque level condition has been removed.

3,827,260

SHAFT-COUPLING DEVICE PREVENTABLE FROM OVER-TORQUE TRANSMISSION

Taizo Kato, 177-3 Minatoyamocho, Hyogoku, Kobe, Japan

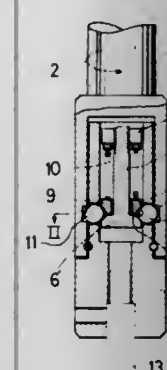
Filed Sept. 25, 1972, Ser. No. 291,600

Claims priority, application Japan, Sept. 25, 1971, 46-87493; Sept. 25, 1971, 46-87494, Mar. 22, 1972 Japan 47-28846, Feb. 16, 1972 Japan 47-19287

Int. Cl. F16d 7/04

U.S. Cl. 64—29

2 Claims



A mechanical shaft-coupling device fitted with at least one steel ball, inserted at the coupling part of driving and driven shafts, engages with both the driving and driven shafts under normal load to transmit normal torque but, shifts its position to cut the transmission with the driven shaft in over-loaded condition so that the driving shaft idles and no over-torque works on the driven shaft.

3,827,261

KNIT YARN PACKAGE

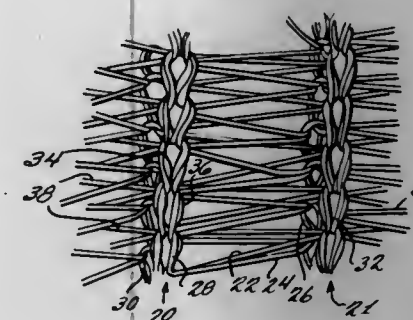
Kenneth J. Rupprecht, Little Compton, R.I., assignor to Globe Manufacturing Company, Fall River, Mass.

Filed May 8, 1972, Ser. No. 251,259

Int. Cl. D04b 21/00, 19/00

U.S. Cl. 66—195

2 Claims



The disclosure relates to a yarn package that is knitted with spandex yarns in the form of a strip which is narrow in width compared to its length. The strip is formed on a flat bed, warp knitting machine to provide a double knit fabric with two matching faces and from an end of which a plurality of individual yarn strands can be unravelled.

3,827,262

SPRAY WASHING SYSTEM FOR GARMENTS

Malcolm O. Manuel, Stanton, Minn., assignor to A-T-O Inc., Willoughby, Ohio

Filed Nov. 1, 1971, Ser. No. 194,345

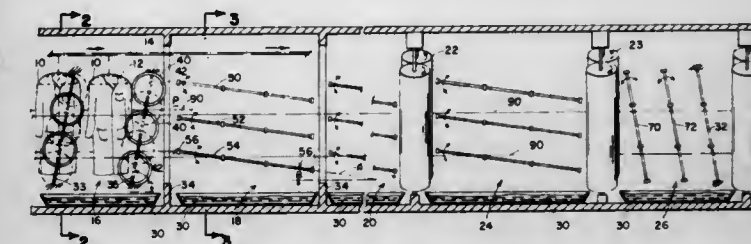
Int. Cl. D06f 31/00

U.S. Cl. 68—3 R

15 Claims

Spray washing system for garments. A pair of opposed nozzles on opposite sides of a garment hanging plane with the impact area of one of hollow form and that of the other elongated, extending thereacross, the former acting as a garment positioning element for the latter while both apply water to the garment. For washing pockets etc. sprays with elongated im-

pect areas extending horizontally sweep upwardly, preferably in up down repeated manner, preferably pipes carrying the nozzles rotating about their own axes. An agitating section, e.g. for effective rinse, employs nozzles with elongated impact areas extending vertically, sweeping horizontally, preferably



in a back and forth repeated manner, preferably also on pipes that rotate about their own axes. Vertically arranged soft roll pairs, such as of sponge rubber, driven at the same speed as the surface speed of the conveyor retain the water in each spray-section. Horizontally extending wires in the zone of the opposed nozzles confine the garments to the hanging plane.

3,827,263

AUTOMATIC KEY-SELECTOR KEY CASE

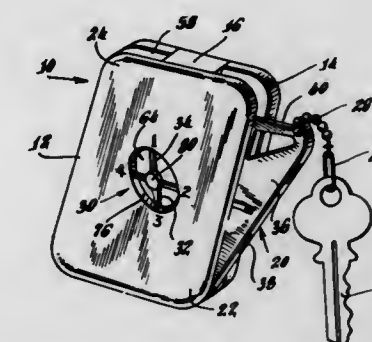
Rupert M. Starratt, 94 Housatonic Ave., Stratford, Conn.

Filed Jan. 19, 1973, Ser. No. 325,043

Int. Cl. A47g 29/10

U.S. Cl. 70—456 R

12 Claims



An automatic key-selector key case having a plurality of individual pivotally mounted key drawers each for holding an individual key and a single selector-release mechanism for selecting the desired key by opening the appropriate key drawer. The key drawers are spring biased to an open position and include a spring latch which engages a bracket to retain the key drawer in a closed position. The selector-release mechanism is a push-button dial which may be rotated to one of several indicia identifying the different key drawers and which is then depressed to disengage the spring latch of the selected key drawer. The selected key drawer automatically opens by virtue of the spring biasing the drawer.

3,827,264

METHOD OF PRODUCING SHEETS AND ARTICLE TO PRACTICE SUCH METHOD

Gary E. Miller, Monroeville, Pa., assignor to Arco Nuclear Company, Philadelphia, Pa.

Filed July 20, 1966, Ser. No. 566,603

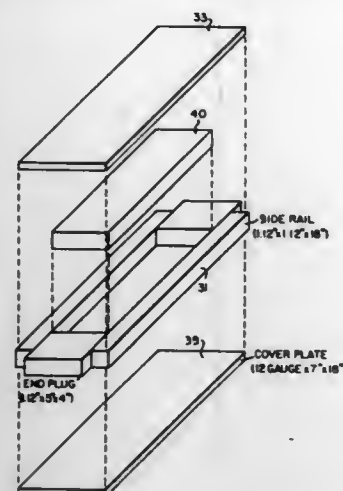
Int. Cl. B21b 45/00; B23p 17/00

U.S. Cl. 72—46

6 Claims

There is disclosed a method of reducing a billet of stainless steel containing about 2% of boron without edge cracking of the billet and without loss of the boron from the billet. The billet is coated with zirconia and enclosed in a jacket of mild steel and heated to about 1100°C. and rolled to the desired

thickness. The zirconia prevents the billet from adhering to the jacket. The stainless steel is produced by melting rods of a



standard stainless steel, for example AISI 304L, with a mild-steel can containing an appropriate quantity of boron powder.

3,827,265

FEEDING ORGANIZATION FOR GRINDING BALL MAKING MACHINE

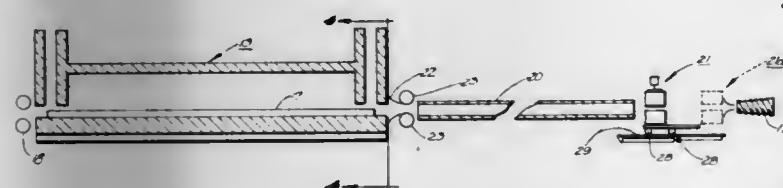
Oscar L. Pardo, Middletown, Ohio, assignor to Armco Steel Corporation, Middletown, Ohio

Filed Feb. 5, 1973, Ser. No. 329,551

Int. Cl. B21b 27/06

U.S. Cl. 72-69

8 Claims



A bar feeding organization for ball machines wherein grinding balls are produced by passing a bar between tapered, helically grooved rolls which progressively cut the bar into short lengths and roll these short lengths into balls. A heating furnace accommodates a plurality of pieces of bar stock, which may in turn be aligned with an insulated feed tube. The bars are fed into this insulated feed tube, and a pinch roll arrangement at the exit end of the feed tube engages the bar and starts it rotating. The pinch roll arrangement is mounted for movement toward and away from the ball machine, whereby to feed a rotating bar into the rolls of the ball machine. By virtue of the feed tube, whipping about the bar stock in process is prevented, too rapid cooling of the trailing end of the bar stock is avoided, so that bar stock of great length may be used with safety.

3,827,266

BAR LOCK ASSEMBLY

Russell W. Walters, Reading, Pa., assignor to BMR Security Products, Reading, Pa.

Filed Aug. 3, 1972, Ser. No. 277,565

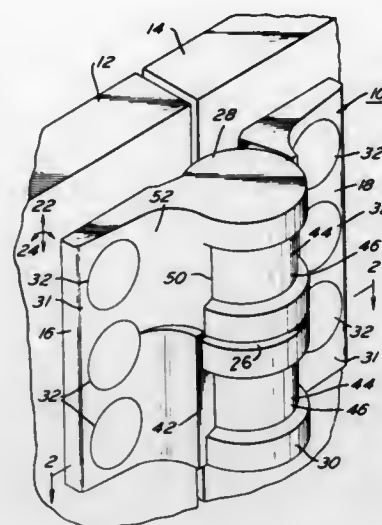
Int. Cl. E05b 63/00

U.S. Cl. 70-104

18 Claims

A locking bar assembly for constraining opposing movable section elements. The assembly includes a pair of strike plates with each having one lug element. Each strike plate is rigidly secured to a respective section element in a manner such that bore through openings formed in each lug may be aligned. A bar lock mechanism is insertable through the bore openings in

order to constrain the movable section elements. The locking bar assembly further includes a releasable capturing



mechanism which provides for an external attacking force to be transmitted to the strike plates instead of to the bar lock mechanism.

ERRATA

For Classes 72-46 and 72-69 see: Patents Nos. 3,827,264 and 3,827,265

3,827,267

ROTARY HEARTH FURNACE AND SYSTEM FOR FORMING BALLS

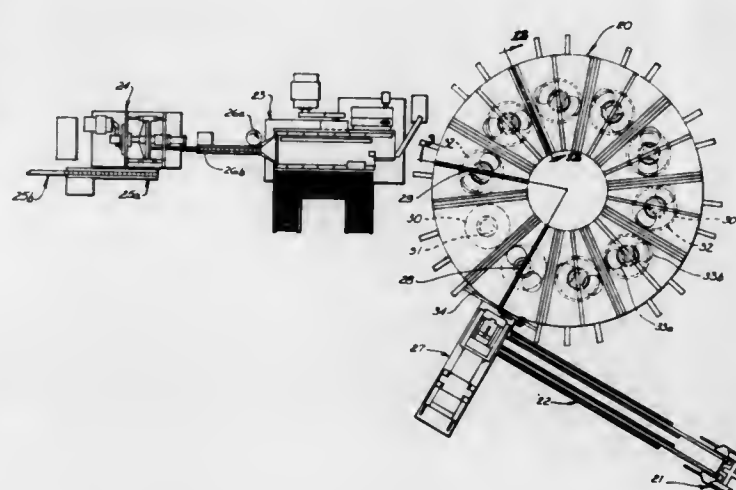
Ernest W. Lowderman, Independence, Mo.; Leland L. Barrington, Overland Park, Kans., and Ferdinand Young, Jr., Independence, Mo., assignors to Armco Steel Corporation, Middletown, Ohio

Filed Oct. 16, 1972, Ser. No. 297,886

Int. Cl. B21b 27/06

U.S. Cl. 72-69

3 Claims



A rotary hearth furnace comprising a single, unitary heating chamber the rotatable hearth of which is provided with a plurality of openings to receive turntables which are also rotatable, each turntable having a spindle to receive a coil or coils of rod. The furnace is provided with a charging station having a

lift mechanism which is movable from a retracted position beneath the hearth into engagement with a properly positioned turntable so as to enable the turntable to be raised out of contact with the hearth framework so that a coil may be deposited on the turntable about the spindle without putting undue strain on the hearth framework. The lift mechanism is capable of raising the turntable high enough above the hearth so that, when desired, the mechanism which is used normally to charge the coil of rod onto the turntable may be used to remove the turntable from the furnace. The furnace is also provided with an unreeling station having both a lift mechanism and a turntable rotating mechanism, all of which is movable from a retracted position beneath the hearth to an elevated position so as to move a turntable from contact with the hearth framework so that the rotating mechanism may be actuated to rotate that turntable in either direction as desired. This lift mechanism may raise this turntable to a more elevated position to enable any debris collecting between the turntable and the hearth to be cleared. An indexing mechanism is provided which moves the hearth and its turntables in a step by step fashion. A coil conveyor is provided by means of which a succession of coils of rod is brought to the charger which then places the coils in the furnace on a turntable at the charging station. The heated rod leaves the furnace from the unreeling station and is adapted to be fed immediately to a ball forging apparatus, whereafter such balls are immediately fed to a pancake sizer whereby the balls are finished to a truly spherical shape. After a coil is unreeling into the forging apparatus, the rotary hearth is indexed so as to bring the next turntable into such a position that a coil of rod thereon may also immediately be fed into such forging apparatus; this is continued so long as the forging apparatus is to be fed with rod, additional coils of rod being charged into the furnace on the emptied turntables as they are brought into charging position. Heating of a coil takes place as it moves through the furnace from charging position to unreeling position. Preferably the furnace is gas fired through burners located about the ceiling thereof.

tion with a pitch diameter slightly greater than the normal pitch diameter above the elliptical section, such as about 1.03 times the normal pitch diameter, to provide the self-locking action. Thus the friction which causes the self-locking action occurs along the flanks of the threads, rather than at the crest and roots.

3,827,269

ROLL FORMING APPARATUS

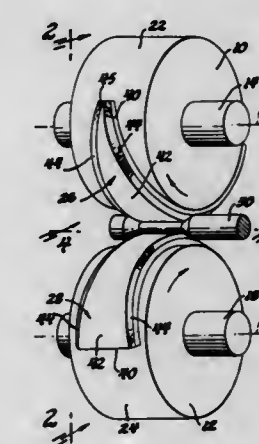
Milton B. Hoagland, Troy, and Lawrence P. Wroblewski, Detroit, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 6, 1972, Ser. No. 303,832

Int. Cl. B21d 37/06

U.S. Cl. 72-108

3 Claims



An improved die for a "wedge roll" type roll forming machine including a pair of vertically spaced rolls adapted for rotation in the same direction and defining a pair of mounting surfaces adapted for rigidly supporting the dies, the improved dies including a generally triangular forming surface bounded along the leading converging edges by a pair of driving surfaces disposed at an angle with respect to the forming surface, each of the driving surfaces having formed thereon a plurality of randomly spaced and irregularly shaped raised projections having flat top surfaces, tapered sides and substantial column rigidity under compression forces.

3,827,268

APPARATUS FOR MAKING SELF-LOCKING BOLTS

Jordan H. Stover, III, Tucson, Ariz., assignor to Rockford Screw Products Company, Rockford, Ill.

Division of Ser. No. 149,152, June 2, 1971, Pat. No. 3,763,903, which is a continuation-in-part of Ser. No. 770,359, Oct. 24, 1968, Pat. No. 3,601,830. This application Oct. 5, 1973, Ser. No. 403,789

Int. Cl. B21h 3/06

U.S. Cl. 72-90

6 Claims



A thread is rolled on the bolt blank around a predetermined length thereof by a pair of thread-rolling dies, and during the thread-rolling operation the bolt is indented at diametrically opposed parts of its threaded length, to give a portion of this length a generally elliptical cross section which is near but spaced from the leading end of the bolt, the indented portion surrounding a central axial bore which opens through the leading end of the bolt. The thread-rolling dies are arranged to provide the thread on the major axis of the elliptical cross-section.

3,827,270

DEBURRING DEVICES

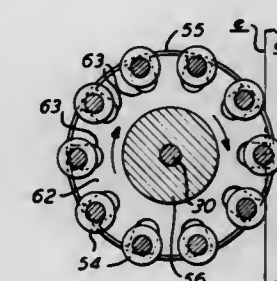
Hilda L. Nelsen, 2 Juniper St., Metuchen, N.J. 08840

Filed June 14, 1973, Ser. No. 369,840

Int. Cl. B21d 19/00

U.S. Cl. 72-199

13 Claims



An edge of sheet metal or other sheet material to be deburred is peened and/or rolled by plural peening or rolling elements loosely contained by a rapidly rotatable annular retainer formed with a circular, radially outwardly facing slot

through which peening and/or rolling action is provided between the metal edge held at said slot and the peening elements which are being centrifugally thrown outward by rapid rotation of said retainer.

3,827,271

DIE HOLDING DEVICE IN AN INDIRECT EXTRUSION MACHINE

Shunji Kishino; Takahiro Abe, both of Muroran; Reishi Tamura, Noboribetsu, and Hiroshi Amano, Muroran, all of Japan, assignors to Japan Steel Works Ltd., Tokyo, Japan

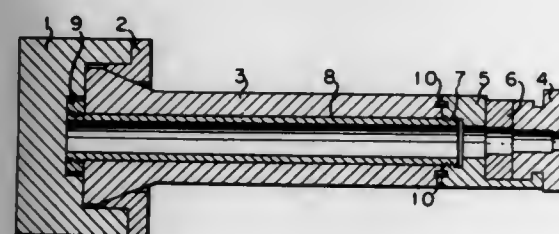
Filed Oct. 31, 1972, Ser. No. 302,507

Claims priority, application Japan, Nov. 25, 1971, 46-94135

Int. Cl. B21c 23/00

U.S. Cl. 72-253

5 Claims



A die in an indirect extrusion machine is secured to the stem of the machine at its free end through a die gripper secured to the free end of the stem by such means as screwing and the gripper is adapted to snugly receive the die without allowing it to shift axially.

3,827,272

SHEET STEEL DRAW DIE

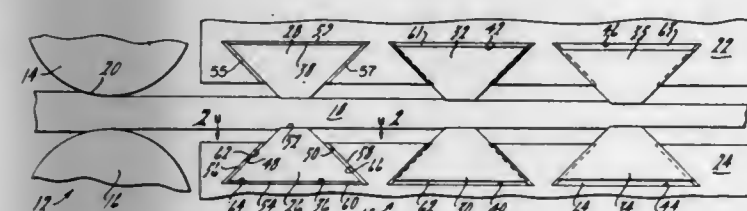
Louis J. Maiale, 3831 W. Paint St., Dearborn, Mich. 48204

Filed Apr. 23, 1973, Ser. No. 353,596

Int. Cl. B21c 37/02

U.S. Cl. 72-203

8 Claims



A draw die assembly for extruding sheet steel material and the like comprising a pair of opposed dovetail shaped dies supported within complementally formed slots located in a pair of die holder members. A plurality of wear plates are interposed between the inner periphery of the slot and the engaging surfaces of the dies whereby to facilitate removal of the dies for sharpening or regrounding. In one form of the invention, three pairs of dies are provided with each pair being adapted to successively reduce the thickness of the material. In a second form of the invention, the thickness of the material is reduced by integral multi-drawing blades disposed in each of a single pair of opposed die elements.

3,827,273

SHEARING DEVICE FOR UNEXTRUDED BUTTS IN AN INDIRECT METAL EXTRUSION MACHINE

Shunji Kishino; Takahiro Abe, both of Muroran, and Reishi Tamura, Noboribetsu, all of Japan, assignors to Japan Steel Works Ltd., Tokyo, Japan

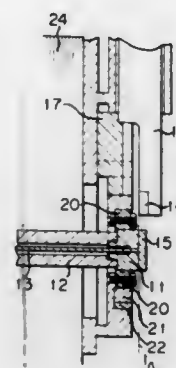
Filed Oct. 31, 1972, Ser. No. 302,506

Claims priority, application Japan, Nov. 25, 1971, 46-94134

Int. Cl. B21c 23/00

U.S. Cl. 72-255

1 Claim



In an indirect metal extrusion machine butts of a billet left on the end surface of a die are sheared off the die by a cutter arranged on a frame over the die when the die is retracted after the extrusion of the billet is completed.

3,827,274

STRAND DRAWING APPARATUS INCLUDING MEANS FOR PREPARING THE LEADING END OF THE STRAND

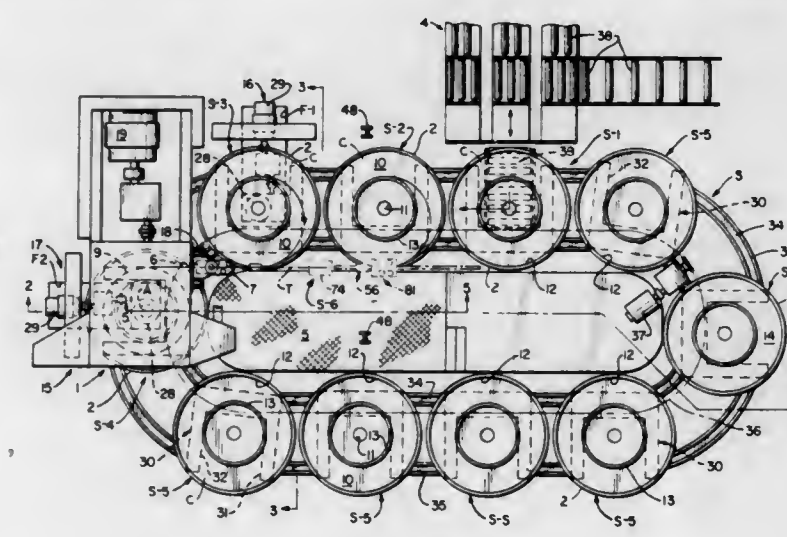
James W. Schuetz, Pittsburgh, Pa., assignor to Aetna Standard Engineering Company, Ellwood City, Pa.

Filed Oct. 20, 1972, Ser. No. 299,236

Int. Cl. B21c 1/02

U.S. Cl. 72-289

25 Claims



Apparatus for drawing stiff strand, such as large diameter tube, which apparatus includes means for moving receptacles, such as trays, containing coiled strand into an endless path, and in the endless path to and from a drawing unit. The apparatus includes a preparation station wherein by mechanical means the leading end of the stiff tube is moved into a preparation position, the leading end of the tube is grasped and dimpled so that it will prevent loss of a plug that is inserted into the end of the tube along with lubricant, the leading end of the tube is then pointed while it is so grasped, and the pointed leading end of the tube is mechanically moved to and through a die to the capstan of the drawing unit, on which leading end of the tube is grasped by a gripper. The tube is then wound on the capstan for a sufficient number of turns to provide a firm grip of the tube, after which the leading end of the tube is released and the drawing operation continued.

During the drawing operation the drawn tube is discharged downwardly over the free end of the capstan into one of the receptacles which has moved to and located below the capstan to receive a coil of drawn tube. The coil of drawn tube may then be moved through the path to a discharge station, or moved back to the preparation station in which the leading end of the tube is again prepared and inserted through the die and connected to the drawing unit for redrawing.

3,827,275

METHOD OF AND APPARATUS FOR THE UPSETTING OF BARS AND SIMILAR WORKPIECES

Franz Suttan; Paul Velt, and Oskar Rauber, all of Dusseldorf, Germany, assignors to Maschinenfabrik Hasenclever GmbH, Dusseldorf, Germany

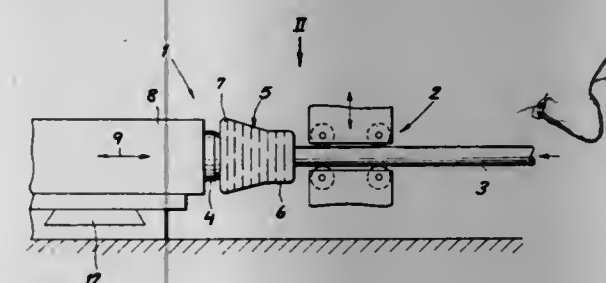
Filed Dec. 4, 1972, Ser. No. 311,741

Claims priority, application Germany, Dec. 7, 1971, 2160635; Jan. 18, 1972, 2202234; July 1, 1972, 2232584

Int. Cl. B21d 37/16

U.S. Cl. 72-342

13 Claims



A method of and an apparatus for the upset forming of the end of an elongated metal workpiece, such as a bar or rod, wherein an upsetting die or anvil is disposed within an induction-heating coil together with the end of the bar to be deformed. The anvil is thereby heated to a temperature at least equal to the temperature of the bar and the two are brought into axial engagement to deform the heated end of the bar. During deformation the anvil and the deformed end of the bar may be advanced out of the induction coil which preferably has an enlarged conical end to accommodate the head formed on the workpiece and the anvil. The remainder of the induction coil may lie along a cylinder coaxial with the workpiece.

3,827,276

SHIFT TRANSMISSION WITH SLIDEABLE GEAR-ENGAGING SLEEVE, PARTICULARLY FOR MOTOR VEHICLES

Eduard Willers, Kaarst, Germany, assignor to International Harvester Company, Chicago, Ill.

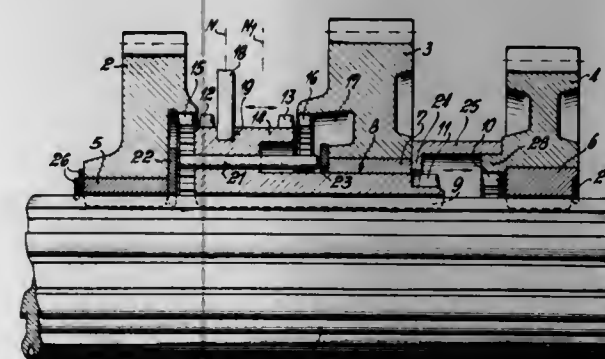
Filed Dec. 13, 1972, Ser. No. 314,886

Claims priority, application Germany, Dec. 15, 1971, 2162341

Int. Cl. F16h 3/08

U.S. Cl. 74-363

2 Claims



Series of gears in constant mesh with their mating gears rotatably borne on a sleeve non-rotatably arranged on a shaft.

Additional series of gears located at each end of the sleeve and being borne by the shaft, whereby the sleeve can be longitudinally shifted to engage one set or the other.

3,827,277

APPLICATOR FOR SURGICAL CLIPS

David Frederick Weston, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 56,519, July 20, 1970, abandoned.

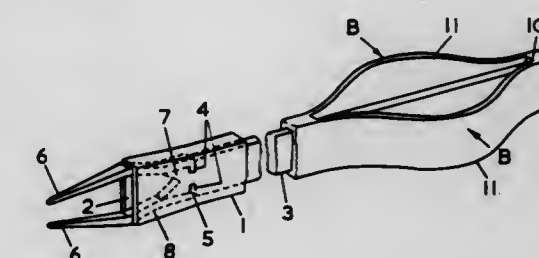
This application June 22, 1973, Ser. No. 372,510

Claims priority, application Great Britain, July 29, 1969, 37944/69

Int. Cl. B21d 9/08; B25b 9/02; A61b 17/12

U.S. Cl. 72-410

1 Claim



A hand-operated applicator for use with surgical clips, such as wound clips, comprising a pair of elongate members, one of which is capable of axial movement within a longitudinal cavity in the other, and a pair of jaws projecting from the cavity resiliently biased into an open position and connected to the inner elongate member so that the said axial movement causes the jaws to close against the bias. Clips are fitted into the jaws, preferably from a magazine. The applicator can be made entirely from plastic material but it may be preferred to make the small jaw members from steel. The cost could be low enough to allow the applicator to be supplied pre-sterilized and thrown away after one operation.

3,827,278

JOGGLING TOOL

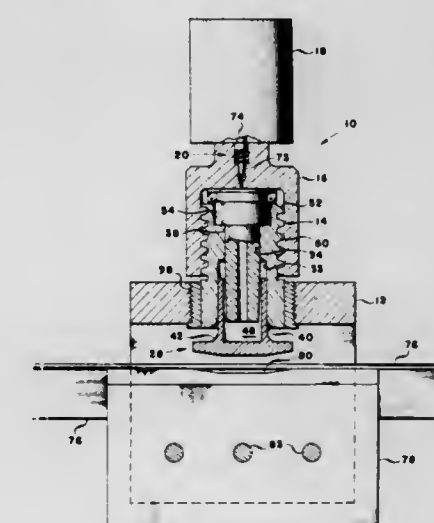
Butler A. Mershon, and Keith A. Wilhelm, both of Burbank, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed June 4, 1973, Ser. No. 366,713

Int. Cl. B21j 7/24

U.S. Cl. 72-430

15 Claims



A joggling tool explosively actuated to release energy at a high rate to a punch member which physically imparts a force to a workpiece held in a forming die member to accomplish a joggle or indentation therein. A cartridge mounted upon an inner barrel member is fired to develop explosive gas in its bore chamber to drive the punch member. An outer barrel member is mounted about the inner barrel member to guide the movement of the punch member. A breech housing cir-

cumscribes both barrel members and has mounted thereon a firing device for the cartridge. The outer barrel member is supported by a frame member or yoke which is securely mounted, such as by locating pins, to the forming die member.

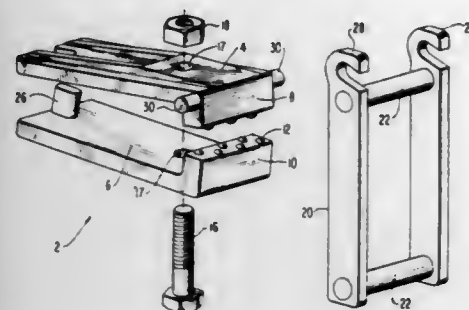
3,827,279

WEDGE-TIGHT CLAMP

Ervin Buske, P.O. Box 190, Gowrie, Iowa 50543
Filed Mar. 16, 1973, Ser. No. 341,913
Int. Cl. B21d 1/12

U.S. Cl. 72-457

1 Claim



The gripping end of a pair of jaws are clamped over the work by means of a clamp screw. Engaged between the other ends of the jaws is a bar on a shackle. When a pulling force is applied to the shackle in the longitudinal direction of the jaws, the other ends of the jaws tend to spread, the jaws pivot about the clamp screw, and the gripping ends thereof tighten against the work. At the gripping end, one of the jaws is provided with projections which are engageable by hooks on the shackle so that a pull at right angles to the longitudinal direction of the jaws can be applied to the work.

3,827,280

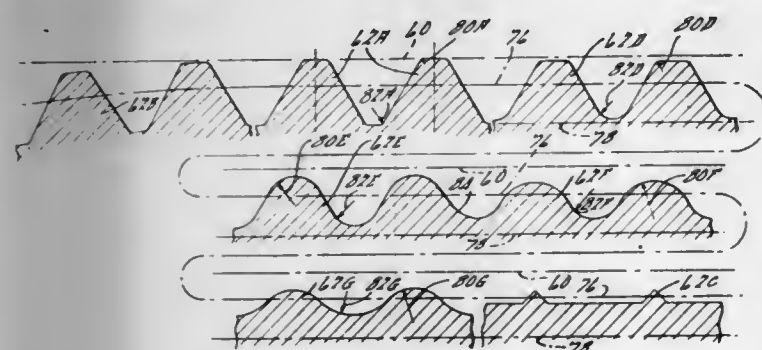
TOOTH FORMING TOOL

Robert L. Miller, Warren, and Louis M. Fisset, Roseville, both of Mich., assignors to Ex-Cell-O Corporation, Highland Park, Mich.

Filed Feb. 2, 1973, Ser. No. 329,069
Int. Cl. B21h 5/02

U.S. Cl. 72-469

8 Claims



A tool for pressure forming teeth on the periphery of a cylindrical workpiece, the tool having an improved tooth generating configuration which improves the useful life of the tools and which improves the flow characteristics of the metal in the workpiece during the tooth generating process.

3,827,281

SHEET MATERIAL AND KNIFE EDGE ABRASIVE TEST

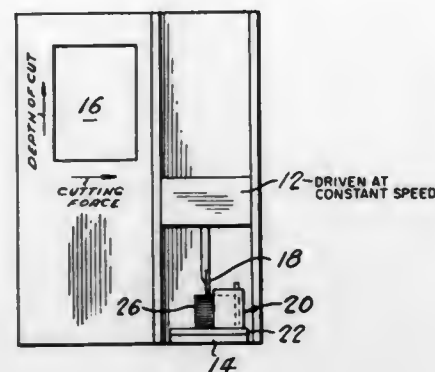
Richard Hamel, Dorion, Quebec, Canada, assignor to Domtar Limited, Montreal, Canada
Filed July 31, 1972, Ser. No. 276,771
Claims priority, application Canada, Aug. 3, 1971, 119,714
Int. Cl. G01n 3/58

U.S. Cl. 73-7

5 Claims

A method and apparatus for testing the abrasiveness of materials such as paper, textiles, or the like, by pressing a

sharp but relatively easily dulled cutting edge through a plurality of layers of paper and registering the force necessary to



move the knife edge through the layers relative to the depth of cut thereby to obtain an indication of the rate of dulling of the knife and thus the abrasion characteristics of the paper.

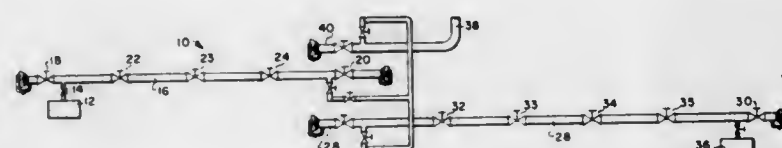
3,827,282

INSTALLATION, HYDROSTATIC TESTING, REPAIR, AND MODIFICATION OF LARGE DIAMETER FLUID TRANSMISSION LINES

Beryle D. Brister, 3902 Huntington, Amarillo, Tex. 79101
Filed July 19, 1971, Ser. No. 163,871
Int. Cl. G01m 3/00

U.S. Cl. 73-40.5 R

18 Claims



A pipeline, or a section of pipeline, is hydrostatically tested after assembly by pumping water into the pipeline behind a pig to completely fill a test section. A short length of the water in the pipeline is then frozen to form an ice plug at one or both ends of the test section. Additional water is then pumped into the test section to bring the pressure to a high value, typically at least 90 percent of the minimum specified yield strength of the pipe on one side of the ice plug. A lower pressure is established on the other side of the ice plug and is monitored to test the integrity of the ice plug. The test pressures and the ice plugs are maintained for at least 24 hours. If there is pressure loss, the leak is located and repaired. If there is no pressure loss, water is then pumped into the next test section and the procedure repeated. After all of the test sections have been tested, the water is then purged from the pipeline by pumping a dewatering pig through the pipeline, either with products or air. The method is also applicable to either test or repair pipelines which are in service by pumping a long slug of water through the line with the product. The water may then be frozen to provide ice plugs for testing, repairing or modifying the pipe.

3,827,283

FLUID LEAKAGE MEASURING APPARATUS

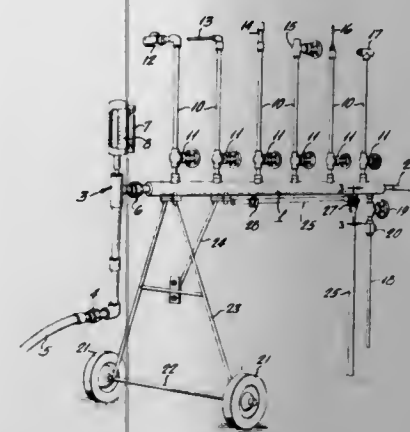
Julius Lerner, Broomall, and George F. Campbell, Jr., Glen Riddle, both of Pa., assignors to Sun Oil Company of Pennsylvania, Philadelphia, Pa.
Filed Mar. 5, 1973, Ser. No. 337,961
Int. Cl. G01m 3/04; G09b 25/04

U.S. Cl. 73-40

4 Claims

A fluid manifold, to which high-pressure steam may be supplied, has coupled thereto a row of individually valved branch

pipes each of which terminates in a respective leaky component (which produces a steam leak). A rotameter coupled



to the manifold measures the quantity of steam escaping through a selected, typical leaky component. The assembly is arranged to be easily transportable.

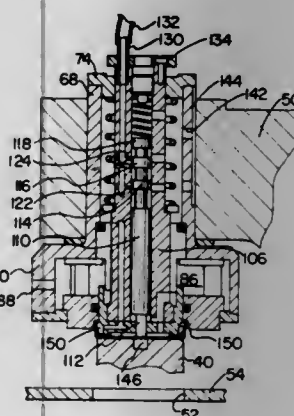
3,827,284

APPARATUS AND METHOD FOR PROCESSING AND TESTING MANUFACTURED ARTICLES

Thaddeus J. Armstrong, Elmwood Park; John A. Styczen, Niles, and Ladislav J. Klasek, North Riverside, all of Ill., assignors to Continental Can Company, New York, N.Y.
Filed Apr. 14, 1972, Ser. No. 244,063
Int. Cl. G01m 3/26

U.S. Cl. 73-45.1

62 Claims



An apparatus and method for processing or treating and simultaneously testing individual articles for conformance to predetermined standards or tolerances, and for rejecting articles failing to meet such standards.

The apparatus is typically embodied in a combination curler and tester for jar caps, and is adapted to receive a partially finished jar cap and impart a curl to the skirt portion thereof while simultaneously performing plural tests to determine that the curl is properly formed and that the gasket forming material is present in the configuration and amount necessary to prevent cap leakage. The apparatus includes a novel testing head assembly in which the position of a relatively movable detector element serves to control the flow of certain of the air used in testing, the testing head also including portions adapted to engage adjacent portions of properly formed caps to define a leak-tight air chamber and thereby to create a detectable air back pressure. Since air flow in the testing head is used to control air flow in an associated logic circuit, the decision of the circuit to accept or reject a cap is brought about in direct response to the condition of the cap being tested. The method includes detecting the condition of certain portions of the articles to be tested, and using the detecting means to control directly the air used within the associated fluidic logic circuit.

925 O.G.—3

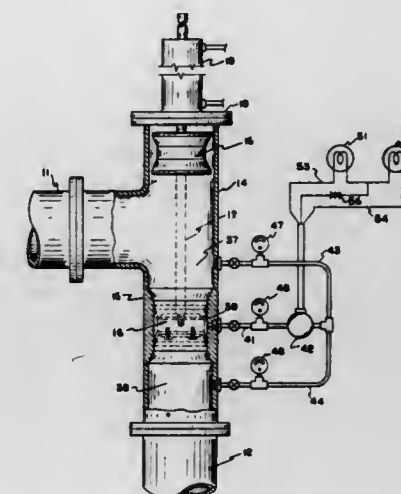
3,827,285

FLOW CONTROL APPARATUS AND METHOD WITH LEAK DETECTION

Marvin H. Grove, Houston, Tex., assignor to M & J Valve Company, Houston, Tex.
Continuation-in-part of Ser. Nos. 242,125, April 7, 1972, and Ser. No. 274,441, July 24, 1972, abandoned. This application May 21, 1973, Ser. No. 362,231
Int. Cl. G01m 3/28

U.S. Cl. 73-46

8 Claims



Apparatus for forming a liquid seal between two fluid spaces. A plunger means is movable between retracted and projected positions with respect to a sleeve that connects the spaces. Resilient sealing members carried by the plunger are so constructed that when contracted and stressed by movement into the sleeve, a pressure drop occurs in the space between the members. The resulting pressure differential is used to detect leakage. Also a method for leak detection making use of such apparatus.

3,827,286

DEVICE FOR BLOOD SEDIMENTATION RATE ESTIMATION

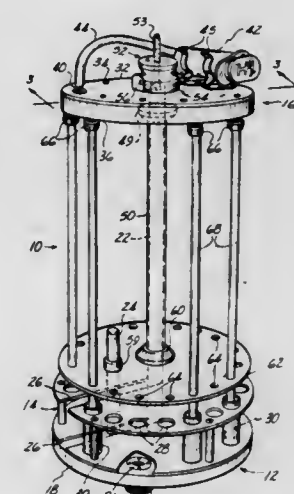
Kenneth Arthur George Bond; Roger Cameron Munro, both of Swansea, Wales, and Reginald Hayler, Shoreham-by-Sea, England, assignors to Gelman Instrument Company, Ann Arbor, Mich.

Filed July 21, 1972, Ser. No. 273,829

Claims priority, application Great Britain, July 29, 1971, 35703/71
Int. Cl. G01n 15/04, 33/16

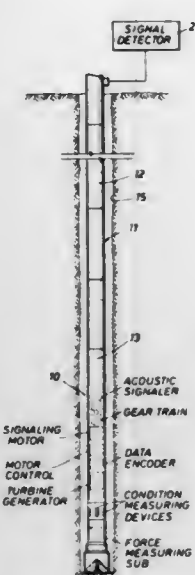
U.S. Cl. 73-61.4

15 Claims



A device for use in determining the sedimentation rate of blood samples having a stand, a rack removably mounted on the stand and adapted to retain a plurality of specimen holders for blood samples, and a manifold with a plurality of pipette

member having circumferentially-spaced rings joined together by elongated strips or bars is coaxially disposed on the sub body with the spaced rings tightly clamped between opposed shoulders on the sleeve members. Signaling means are coupled to two or more arrays of strain gages respectively



mounted on the rings and bars forming the loop and cooperatively arranged for transmitting signals to the surface which are representative of the longitudinal and torsional forces imposed on the sub body tending to dimensionally distort the loop-like member.

3,827,295

BELL NIPPLE MONITOR

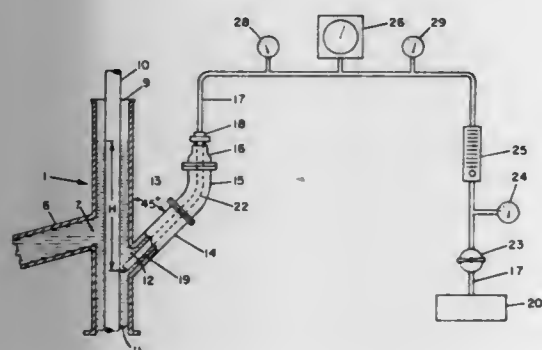
Robert W. Rochon, and Joe W. Sneed, both of San Antonio, Tex., assignors to Monarch Logging Company, Inc., San Antonio, Tex.

Filed June 29, 1972, Ser. No. 268,187

Int. Cl. E21b 47/10

U.S. Cl. 73-155

1 Claim



A method and apparatus for use in warning of changing conditions in a well during the drilling thereof consisting of determining differences in the hydrostatic head of the drilling fluids in the bell nipple above the flow line and recording the hydrostatic pressure to give a continuous record of changes during normal drilling operations. The apparatus consists of an air conduit connected to a bell nipple through an orifice in the bell nipple below the flow line. The air conduit communicates with a source of compressed air which is supplied with an air regulator for the purpose of maintaining a constant pressure source. Changes in hydrostatic head of the drilling fluid above the orifice is continuously detected by changes in the pressure in the air conduit and these changes are continuously recorded and correlated to reflect mud volume changes in the drilling fluid from the well.

3,827,296 SURFACE FLAW DETECTING DEVICE FOR COATED WIRE

Yoshihisa Hidaka, 26-14 Matsubara 3-chome, Setagaya-ken, Tokyo, Japan

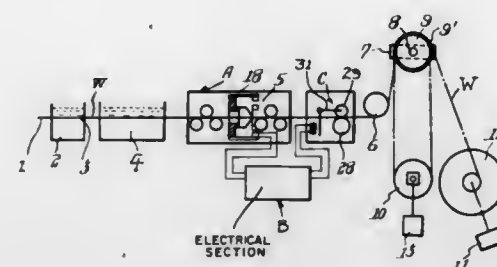
Filed Aug. 15, 1972, Ser. No. 280,873

Claims priority, application Japan, Aug. 17, 1971, 46-62023

Int. Cl. G011 5/00; B65h 25/00

U.S. Cl. 73-160

11 Claims



A device advantageously usable at the output end of a wire coating line to detect surface flaws in the coated wire and place thereon visual flaw-indicating marks. It includes a feeler and a marking roller both arranged along the path of wire travel and the latter is operable under control of an electric signal from the feeler action with an appropriate time lag.

3,827,297

FLOW METER PROVIDED WITH A VORTEX CHAMBER

Tor Lennart Bernt Griverus, Nasbydalsvagen 6, 183 31 Taby, Sweden

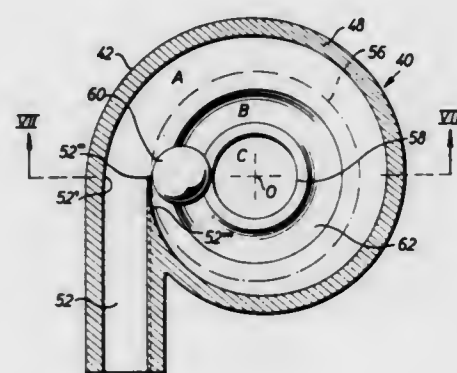
Filed Oct. 30, 1972, Ser. No. 302,021

Claims priority, application Sweden, Nov. 10, 1971, 14334/71; July 18, 1972, 9460/72

Int. Cl. G01p 5/06; G01f 1/00, 1/06

U.S. Cl. 73-194 C

15 Claims



A flow meter for measuring the flow parameters of liquid, gaseous and multicomponent media is comprised of a housing encompassing a flow chamber through which the medium flows while passing in a swirling movement three distinct, concentric flow zones, there being an inlet zone, an outlet zone and an intermediate sensing zone in which the flow parameters of the medium can be sensed and measured. Means are provided in the inlet zone for guiding the medium in a manner such that all particles thereof cross the interface between the inlet zone and the sensing zone uniformly, that is to say, at the same speed and at the same angle to a radius extending from said interface to the centre of the outlet zone.

3,827,298 ELECTROMAGNETIC FLOW METER

Isamu Kawamata; Mitsuo Ai, both of Katsuta, and Ichiya Satoh, Hitachi, all of Japan, assignors to Hitachi Ltd., Tokyo, Japan

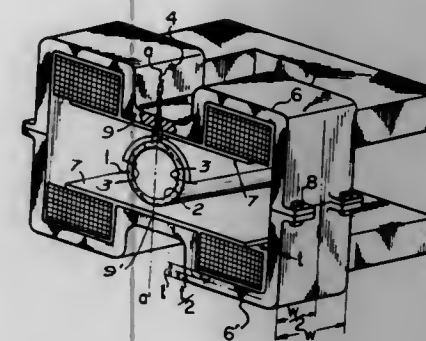
Filed Oct. 26, 1972, Ser. No. 300,890

Claims priority, application Japan, Oct. 29, 1971, 46-85505

Int. Cl. G01f 1/00

U.S. Cl. 73-194 EM

9 Claims



An electromagnetic flow meter utilizing Faraday's law is disclosed. The flow meter transmitter has a magnetic field forming means including a core, which is a cast core made of a ferromagnetic material containing silicon.

3,827,299

ELECTRICAL FLOW-METERS

John Michael Welland, Helms Hempstead, England, assignor to Perkin Elmer Limited, Beaconsfield, Buckinghamshire, England

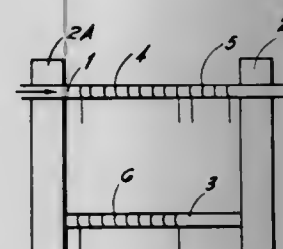
Filed June 9, 1972, Ser. No. 261,445

Claims priority, application Great Britain, June 9, 1971, 19596/71

Int. Cl. G01f 1/00

U.S. Cl. 73-204

10 Claims



An electrical fluid flow-meter of the type in which the flow rate is measured by means of a uniformly heated thin-walled measuring tube of good thermal conductivity having at each of its ends a member acting as a heat sink. To avoid the non-linearity or distortion in readout of previous flow-meters at high flow rates, a single primary heating and sensing device surrounding a substantial length first portion of the tube immediately downstream of the upstream end of the tube is used which responds to the temperature gradient changes at the upstream end of the measuring tube when a fluid flows through the tube. The downstream end of the primary heating and sensing device is immediately followed by a compensating heating means to maintain this downstream end of the sensor at a constant temperature level even for the highest flow rates which the flow-meter is designed to measure. This isolates the sensor from the temperature gradient near the downstream end of the measuring tube, which is not symmetrical to the gradient near the upstream end of the tube at relatively high flow rates, thereby yielding an almost perfectly linear output of the sensor relative to the flow rate being measured.

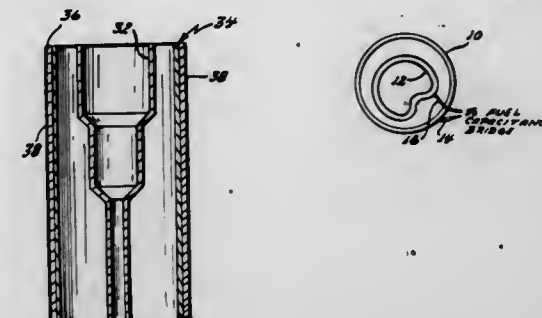
3,827,300 LEVEL SENSING DEVICE WITH CAPACITIVE GAGING TRANSDUCER

Sherwood S. Thaler, 45 Circle Rd., Lexington, Mass. 02173
Continuation of Ser. No. 59,965, July 31, 1970, abandoned.
This application Jan. 12, 1973, Ser. No. 323,023

Int. Cl. G01r 23/26; H01g 5/20

U.S. Cl. 73-304 C

14 Claims



A fuel level measuring system with gaging transducers in the form of probes having an outer, capacitive element and an inner, profiled element which may be continuous, representing an infinite number of capacitive plates, or divided into discrete plates whereby a single probe, operating as a three dimensional probe, performs the function of a multiplicity of probes for various attitudes of a vehicle. An attitude-responsive switch may be used to selectively energize distinct plates of the element.

3,827,301

FIN COOLED TEMPERATURE SENSOR EMPLOYING LIQUID CRYSTALS

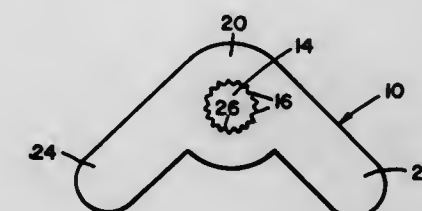
Robert Parker, Danville, Calif., assignor to Robert Parker Research, Inc., Livermore, Calif.

Filed Sept. 18, 1972, Ser. No. 290,199

Int. Cl. G01k 1/16

U.S. Cl. 73-356

8 Claims



An apparatus is provided for indicating the temperature of a surface or heat source by employing a single liquid crystal composition which is at varying distances from the surface. A first means is provided for heat exchanging with said surface. A second means is provided for heat exchanging with the ambient environment, with the first and second means in heat exchanging relationship. At least a portion of said second means is coated with a liquid crystal composition extending away from said first means. The apparatus is useful in combination with appliances or apparatus which are at elevated temperatures, particularly those which reach temperatures in excess of that which burns the skin, such as wood burning tools, soldering irons, electric ranges, conduits for high temperature fluids, and the like.

3,827,302

APPARATUS FOR SELECTIVELY SAMPLING FLUIDS

Atsushi Sato, Yokohama, Japan, assignor to Nippon Petrochemicals Co., Ltd., Tokyo, Japan

Filed Feb. 22, 1972, Ser. No. 227,868

Int. Cl. G01n 1/22

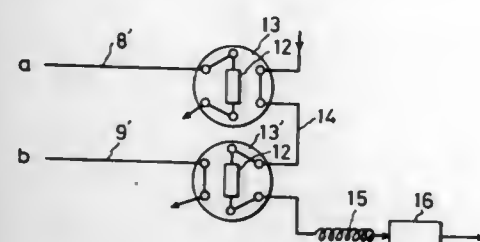
U.S. Cl. 73-422 GC

2 Claims

A selective fluid-sampling apparatus for use in connection with fluid analyzers, which apparatus operates without mixing

or contamination of one sample by another. In this apparatus each sample conduit is connected directly and in parallel to a

to a pump. The pipette is placed into a series of liquid samples. For each sample, the pump pulls a quantity of liquid through



sampling valve and all sampling valves are series-connected to one another by means of a pipe which supplies a carrier gas.

3,827,303

LIQUID CHROMATOGRAPHY

Masaru Shiina, Katsuta, Japan, assignor to Hitachi Ltd., Tokyo, Japan

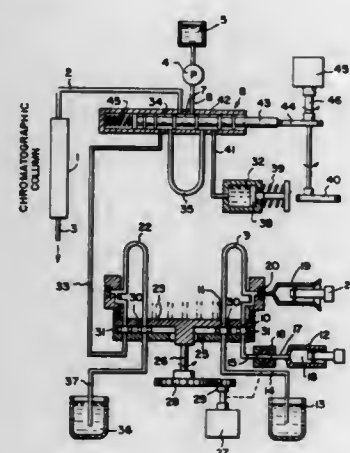
Filed Dec. 1, 1971, Ser. No. 203,799

Claims priority, application Japan, Dec. 16, 1970, 45-111796

Int. Cl. G01n 1/00

U.S. Cl. 73-422 GC

7 Claims



A liquid sample for a liquid chromatography testing is prepared by being injected in a tube containing development liquid to form an elongated slug of liquid sample having development liquid at its opposite ends. Thereafter, the development liquid with the intermediate sample slug is transferred to a chromatographic column for testing, so that only a very small quantity of sample is employed correlated to only the exact needs of the chromatographic column. The sample slug is injected by a hypodermic needle passing through an elastomeric plug, so that the hole made by the hypodermic needle is thereafter elastically sealed as the needle is withdrawn. A transfer valve will selectively connect a reservoir and suction device to the sample holding tube, and the pump and chromatographic column with the sample holding tube to in the first instance prepare the sample holding tube for injection of the sample and in the second instance to transfer the development fluid and injected sample to the chromatographic column. A plurality of such sample holding tubes may be connected by valve means for selective feeding to the chromatographic column.

3,827,304

SAMPLE HANDLING METHOD

Eric Marteau D'Autry, Villiers-Le-Bel, France, assignor to Warren E. Gilson, Madison, Wis.

Filed June 26, 1972, Ser. No. 266,327

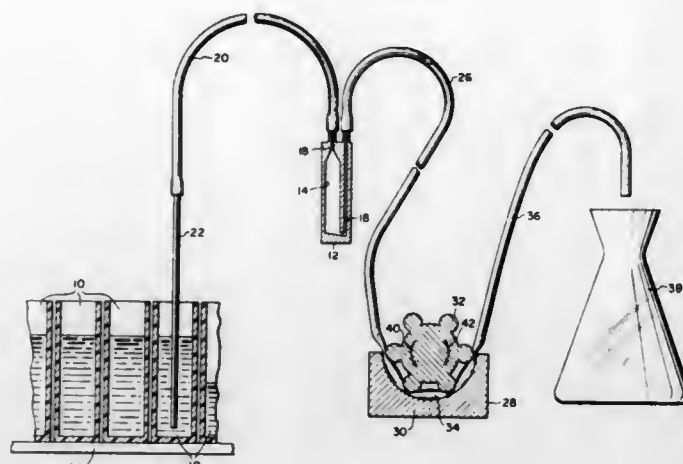
Claims priority, application France, July 20, 1971, 71.26580

Int. Cl. G01n 1/14

U.S. Cl. 73-425.6

10 Claims

A pipette is coupled to the top of a flow through analysis vessel, and the bottom of the vessel is connected by a conduit



the vessel and into the conduit. The pump is then reversed to return a portion of the sample to the vessel for analysis. After analysis, the sample is moved through the pump to a drain.

3,827,305

ADJUSTABLE PIPETTE

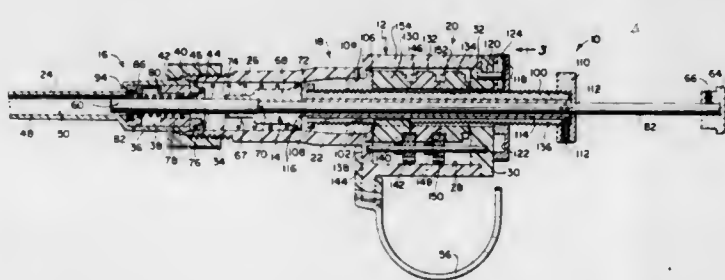
Warren E. Gilson, 4801 Sheboygan Ave., and Robert E. Gilson, 4 Franklin Ave., both of Madison, Wis. 53705

Filed Oct. 24, 1972, Ser. No. 300,215

Int. Cl. G01n 1/14

U.S. Cl. 73-425.6

11 Claims



An adjustable pipette includes an elongated body defining a barrel portion and a plunger cavity. A plunger unit is mounted for reciprocation in the body and includes a plunger portion extending from the barrel portion into the plunger cavity, and further includes an operating portion extending rearwardly out of the body. The plunger unit includes a stop disposed within the barrel portion, and an adjustable rear stop for varying the volume of a pipetted sample is carried on a threaded shaft received in a nut fixed in the body. An indicator including rotatable indicia-carrying rings is coupled to the shaft for providing an indication of the volume setting of the pipette. A forward stop for movement of the plunger unit is provided by an overtravel member engaged by the plunger stop member. Travel of the plunger unit past the forward position compresses an overtravel spring, and a seal assembly is compressed by the overtravel spring into sealing engagement with the plunger portion of the plunger unit. A sleeve carried within the threaded shaft around the operating portion of the plunger unit is adjustable relative to the shaft in order to align the indicator relative to the shaft. A lock arrangement is provided for locking the shaft in position to prevent inadvertent misadjustment of the volume.

3,827,306

SOFT WALL HYDROMETER

Homer S. Youngs, 8718 Dunway Dr., La Jolla, Calif. 92037

Continuation-in-part of Ser. No. 868,564, Oct. 22, 1969, Pat.

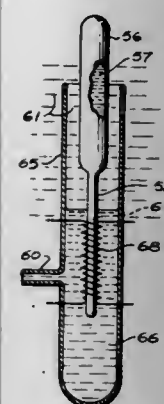
No. 3,604,272, which is a continuation-in-part of Ser. No. 583,244, Sept. 30, 1966, abandoned. This application July 19,

1971, Ser. No. 163,922

Int. Cl. G01n 9/14

U.S. Cl. 73-450

8 Claims



A specific gravity sensing instrument in which a closed cell having, at least in part, highly compliant walls is completely filled with either a reference liquid, and is completely immersed in a sample liquid to be measured, or conversely the cell is completely filled with the sample liquid and completely immersed in the reference liquid, in either case the specific gravity of the sample liquid is determined by the buoyancy of the cell.

3,827,307

DRAG DEVICE FOR BENDIX-TYPE ROPE STARTERS

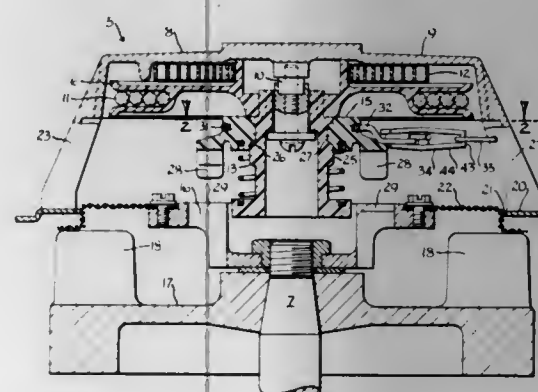
Robert Couchman, Jr., Menomonee Falls, Wis., assignor to Briggs & Stratton Corporation, Wauwatosa, Wis.

Filed July 12, 1973, Ser. No. 378,435

Int. Cl. F02n 3/02; F16d 41/00

U.S. Cl. 74-6

6 Claims



A drag device for retarding rotation of the driving clutch element of a Bendix-type engine starter comprises a friction member having jaw portions embracing said clutch element under converging bias and jaw actuating arm portions projecting radially to one side of said element. An elongated friction relieving element has at one end a highly eccentric cam lengthwise confined between the jaw actuating arms. Its other end is confined against orbital motion about the clutch axis. Orbital motion of the arms due to excessive friction angularly displaces the friction relieving member to cam the arms apart, thus diverging the jaws to relieve friction.

3,827,308

PRECISION ROTARY INDEX

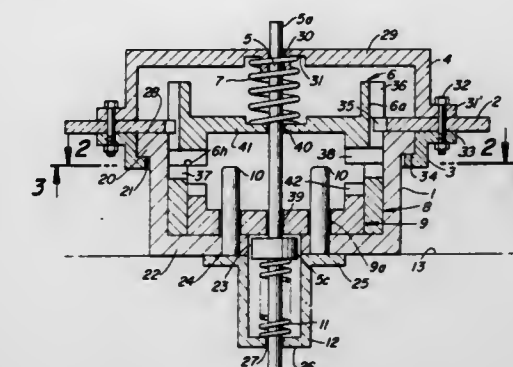
David E. Brown, 686 Irvine Dr., Erie, Pa. 16511

Filed Jan. 16, 1973, Ser. No. 324,171

Int. Cl. F16h 27/02

U.S. Cl. 74-88

25 Claims



A mechanism is disclosed for converting axial input motion or reciprocating motion of an input member to a precise unidirectional incremental angular displacement of an output member about the axis of the mechanism to achieve a predetermined amount of angular motion. This predetermined amount of angular motion results for each input reciprocation. This is achieved by using a set of three cooperating cams—one stationary locator cam and two moving cams: one drive cam moving axially and one output cam moving both axially and angularly; a spline or other axially movable angular driving device is used for subtracting the axial movement from the motion of the output cam to yield a purely rotary motion.

3,827,309

MANIPULATING MECHANISM

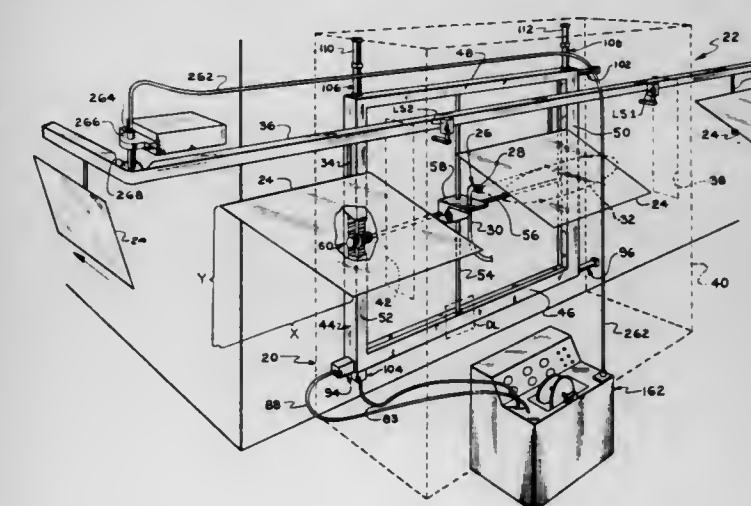
Richard A. Dooley, 400 S. We twood Ave., Toledo, Ohio 43609

Filed Mar. 14, 1973, Ser. No. 341,133

Int. Cl. F16h 21/44

U.S. Cl. 74-110

34 Claims



Apparatus for manipulating a tool through predetermined motions is provided. The apparatus includes a rectangular frame with mutually perpendicular supporting rods extending between opposite frame members. A mounting carriage is slidably mounted on crossing portions of the rods with the tool, e.g., a spray gun, mounted thereon. A conveyor carrying products to be painted is located adjacent the frame with the spray gun automatically painting the products carried on the conveyor. Rack and pinion mechanisms are carried by the frame members for independently moving the two supporting rods in mutually perpendicular directions so that the spray gun on the carriage can be manipulated in any predetermined pattern. The rack and pinion mechanisms are operated through hydraulic boosters by flexible cables. The cables, in turn, are controlled through additional rack and pinion mechanisms of

which movable racks are controlled through cam and follower mechanism. The stationary rack of one of the latter rack and pinion mechanisms can be moved in accordance with the conveyor speed to coordinate movement of the spray gun with movement of the products on the conveyor.

3,827,310

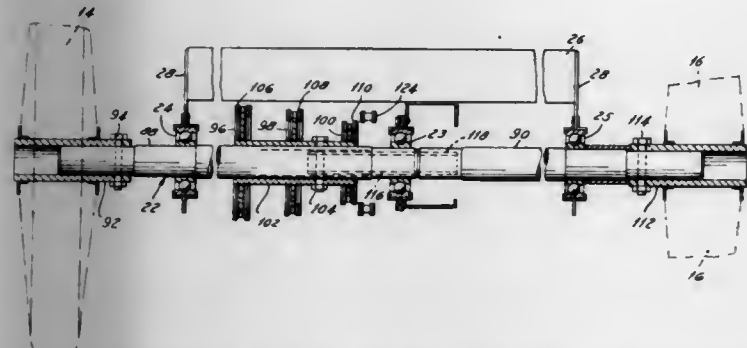
TRANSMISSION FOR WHEELED VEHICLE

Donald C. Gates, Troy, Mich., assignor to EVI, Sterling Heights, Mich.

Filed Dec. 29, 1972, Ser. No. 319,640
Int. Cl. F16h 9/04

U.S. Cl. 74—217 S

9 Claims



A transmission for a pedal-driven vehicle. The transmission sprockets are rotatably mounted on a tubular shaft and are individually engaged by ratchet assemblies on the shaft. The ratchet assemblies are operated by a transmission shift rod axially slidably mounted in the shaft. The pedal drive is a dual system having pedals for each of two passengers to drive the tubular shaft. Over-running clutches associated with each set of pedals permits one passenger to hold his pedals stationary while the other passenger pedals.

ERRATUM

For Class 74—363 see:
Patent No. 3,827,276

3,827,311

OSCILLATABLE PINION

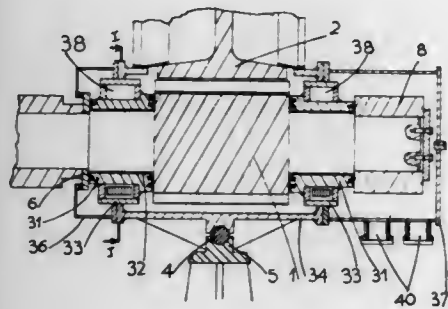
Gerard Pere, Le Breuil, France, assignor to Creusot-Loire, Paris, France

Filed Sept. 11, 1972, Ser. No. 288,065
Claims priority, application France, Sept. 21, 1971, 71.33851

Int. Cl. F16h 57/00; F16n 39/00

U.S. Cl. 74—410

2 Claims



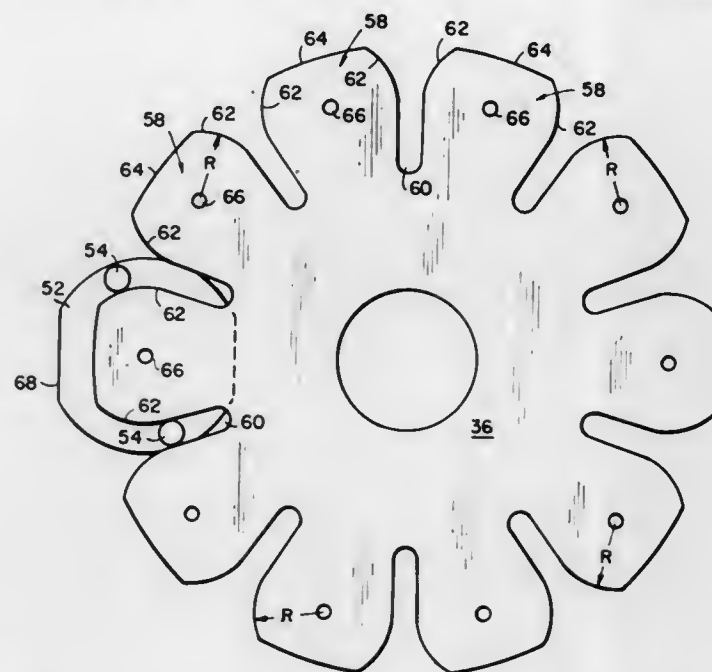
An oscillatable pinion which has a pair of journals each reached by a half bearing, the half bearings being supported in a bearing body carried on a hinge pin whose axis is transverse to the axis of the bearing and perpendicular to the normal force of one of the gears in relation to the other.

3,827,312
INDEXING MECHANISM FOR A COLLATING AND COLLECTING APPARATUS

Thomas R. Bristol, Redwood City; Harold Lakin, Portola Valley, and Fred L. Renga, Sunnyvale, all of Calif., assignors to Addressograph-Multigraph Corporation, Cleveland, Ohio
Division of Ser. No. 58,938, July 28, 1970, Pat. No. 3,674,142.
This application June 30, 1972, Ser. No. 281,370
Int. Cl. F16h 27/04

U.S. Cl. 74—436

2 Claims



An indexing drive mechanism for collating and collecting apparatus in which a plurality of receiving bins are arranged in a helical array on a vertically movable platform. The indexing mechanism is related to the well-known "Geneva" type drive but it is so constructed that the drive is fully positive whether the direction is clockwise or counterclockwise and further the construction of the indexing mechanism is such that there are no vertically no alignment problems during assembly.

3,827,313

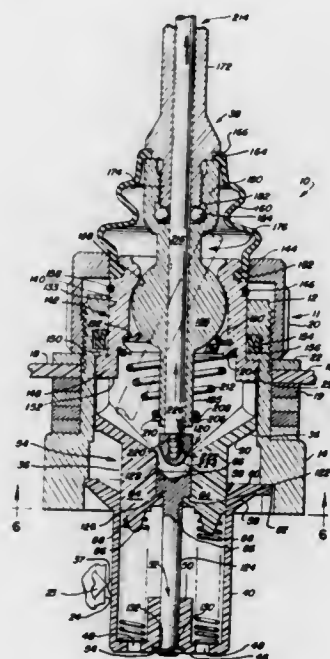
MINIATURIZED JOYSTICK AND CAM STRUCTURE WITH PUSH BUTTON SWITCH OPERATING MEANS

Rudolf H. Kiessling, Milwaukee, Wis., assignor to Square D Company, Park Ridge, Ill.

Filed Jan. 24, 1973, Ser. No. 326,224
Int. Cl. G05g 9/00; H01h 25/04

U.S. Cl. 74—471 XY

6 Claims



A switching mechanism has an operating arm pivotably movable in selected directions about an intermediate pivot

point and the arm drives at least one camming member for operating a second cam in a cam-actuated self-restoring contact module. Mechanisms are provided for momentary or maintained switching operations for up to nine positions for four contact modules, for mastered control of a fifth contact module in each position, and for a latched central position.

3,827,314

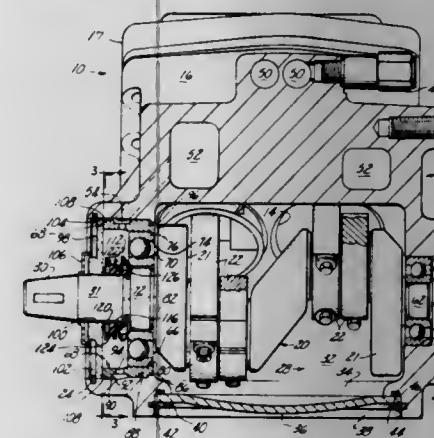
COMPRESSOR CONSTRUCTION

Duane F. Steele, Tecumseh, Mich., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Feb. 5, 1973, Ser. No. 329,632
Int. Cl. F16h 57/02

U.S. Cl. 74—606

22 Claims



A reciprocating piston type gas pump with a crankshaft assembled into a crankcase thereof through an opening in the front wall of the crankcase. The crankshaft is journaled in the crankcase by a pair of bearings one of which is received in a blind pocket in the rear wall of the crankcase and the other is received in the opening of the front wall thereof. A drive shaft integral with the crankshaft extends through the opening. A cover plate is received in the opening over the drive shaft and is spaced from the front bearing by a sleeve which controls within close tolerances the working height of a seal interposed between the bearing and the cover plate to prevent fluids from escaping from the crankcase between the drive shaft and the cover plate.

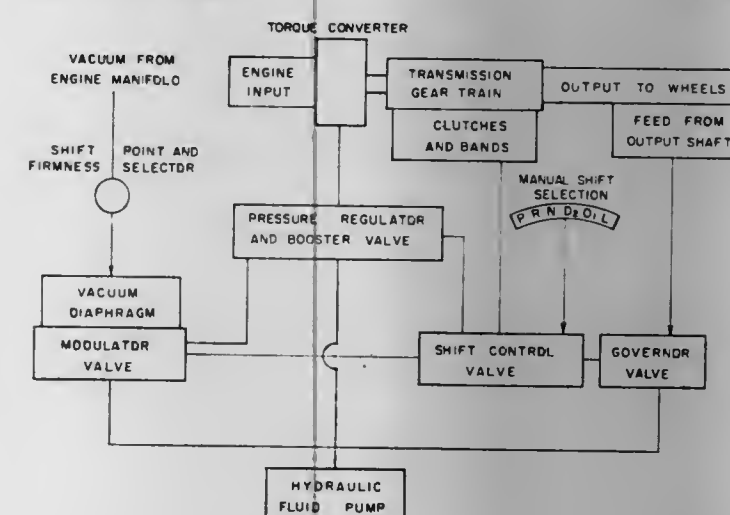
3,827,315

AUTOMATIC TRANSMISSION SHIFTING POINT AND FIRMNESS VARIATION CONTROL

Joseph Paul Lupo, 116 Burda Ln., New City, N.Y. 10956
Filed Jan. 23, 1973, Ser. No. 326,053
Int. Cl. B60k

U.S. Cl. 74—863

4 Claims



A method and system providing variable vehicle operator control of the shift points and shifting firmness of a stock automatic transmission to obtain high-performance shifting

without mechanical modification of the transmission by intercepting the transmission input torque signal to the transmission hydraulic control system and modifying it to be unrepresentative of actual vehicle engine torque and carburetor opening. Particular suitability is achieved with automatic transmissions having an engine vacuum signal responsive modulator valve.

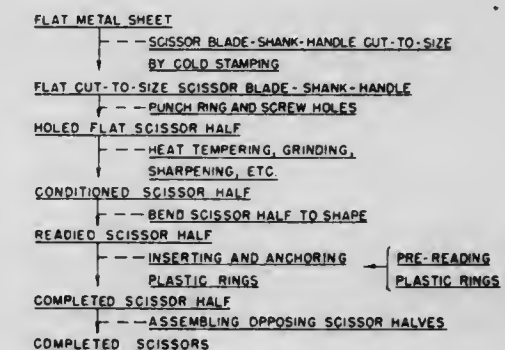
3,827,316

METHOD OF PRODUCING NEW SCISSORS

Italo Marco Levi Laurenti, 432 Park Ave., South, New York, N.Y. 10016
Filed July 16, 1973, Ser. No. 379,585
Int. Cl. B21k 11/06

U.S. Cl. 76—104 A

6 Claims



In a preferred embodiment, a process, and resulting scissors product, including cold-stamping each of the commonly shank-pivoted opposing blade-shank-handle strips from sheet-steel and bending at least one of the strips between the shank and handle portions thereof, and after cutting-out a ring-plug from each handle to thereby form the scissor rings, for each ring inserting from opposite top and bottom faces of the ring opposing abutable inserts each insert having a laterally outwardly extending flange which overhangs the respective ring's upper or lower surface — as the case may be — such that upon subsequent securing-together thereof of the opposing inserts the ring is vise-clamped therebetween.

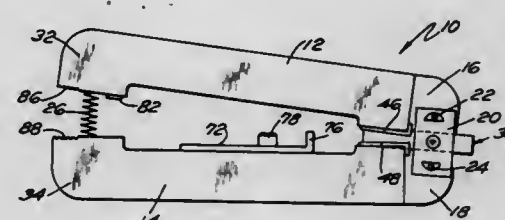
3,827,317

WIRE STRIPPER

Joseph Perrino, Ash St., Rehoboth, Mass. 02769
Filed Dec. 18, 1972, Ser. No. 316,382
Int. Cl. H02g 1/12

U.S. Cl. 81—9.5 B

10 Claims



A device for stripping insulation from the end of a wire having elongated pivotal grip members between which a tubular member extends. The wire projects through the tubular member for engagement with a stop gauge and opposed cutting elements envelop the tubular member and are movable by the grip members in a cutting operation to penetrate the insulation of the wire, whereafter the end portion of the insulation as located between the stop gauge, and the penetrated section is stripped from the wire. The cutting elements and tubular element are replaceable in accordance with the requirements of use.

3,827,318

AUTOMATIC LATHE WITH ROTARY CUTTER

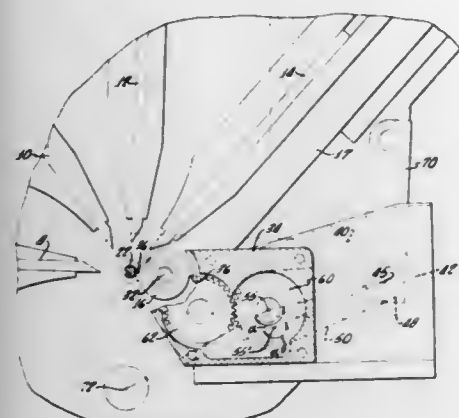
Jess Frank Sorenson, Yucaipa, Calif., assignor to Sorenson Engineering, Inc., Yucaipa, Calif.

Filed Mar. 23, 1972, Ser. No. 237,487

Int. Cl. B23b 1/00, 25/00

U.S. Cl. 82-1 C

12 Claims



A sliding headstock automatic lathe includes a cutting tool which rotates in the same direction as the workpiece and at a speed precisely twice that of the workpiece, resulting in two or more flat cuts on the workpiece. The cutting tool is driven from the lathe spindle nose by a drive train which accommodates the relative longitudinal movement of the spindle nose and lateral movement of the cutting tool without slippage.

3,827,319

WEIGHT CONTROLLED SLICING SYSTEM

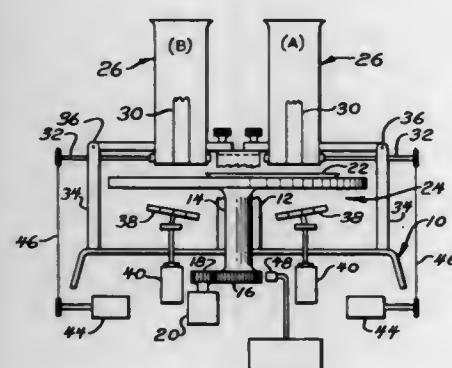
Keith E. Flesch, Garrett, Ind., assignor to Peter Eckrich & Sons, Inc., Fort Wayne, Ind.

Filed June 20, 1973, Ser. No. 372,466

Int. Cl. B26d 4/56

U.S. Cl. 83-73

6 Claims



A weight controlled slicing system for simultaneously and accurately, independently cutting slices from plural loaves in such a way as to minimize give-away. The slicing system includes a single knife and plural means for simultaneously feeding plural loaves toward the knife in a cutting area. Plural slice receivers, each associated with a weight cell, are adapted to receive the slices from the respective loaves as they are cut and signal a control system that controls the feed rate of each feeding means in accordance with the slices cut in a desired package weight. To minimize the number of components required, the various control functions relative to each weight cell are multiplexed.

3,827,320

AIR EXHAUST SYSTEM FOR WASTE MATERIAL

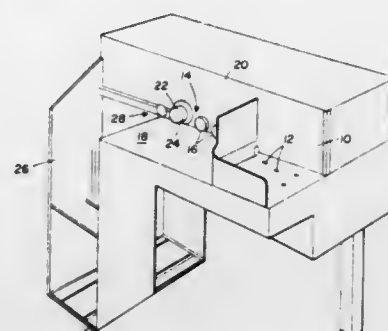
James D. Parks, Iowa City, Iowa, assignor to Westinghouse Learning Corporation, Iowa City, Iowa

Filed Feb. 16, 1973, Ser. No. 332,813

Int. Cl. B26d 7/06

U.S. Cl. 83-100

7 Claims



An exhaust system for removing relatively stiff waste strips of paper cut from a thick document or booklet by a continuous cutting wheel. Air under pressure is injected into a discharge tube near the cutting wheel to draw the waste strips into the tube and convey them through the tube to a point of discharge. The discharge tube is oriented in the direction of movement of the document to minimize jamming because of the stiffness of the waste strips being handled.

3,827,321

ROTATABLE RESILIENT PUNCH AND DIE CUTTER APPARATUS

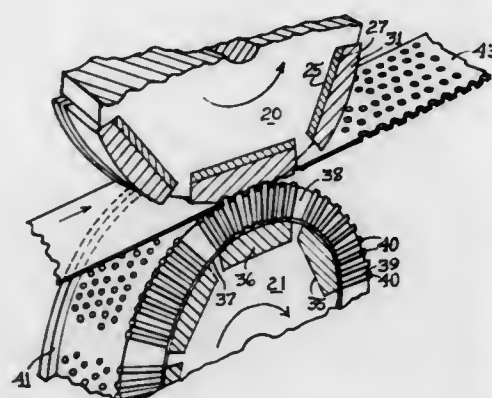
Erich Bley, 690 Greenleaf, Elk Grove, Ill. 60007

Filed June 25, 1973, Ser. No. 373,156

Int. Cl. B26f 1/08

U.S. Cl. 83-117

8 Claims



A perforating, cutting, or embossing apparatus consisting of a pair of coating rotatable rollers, one of which has mounted on its periphery a urethane punch, while the other roller provides an anvil in the form of a metallic die plate designed to cooperate with the punch to perform the desired operating function.

3,827,322

EJECTION MEMBER FOR CUTTING DIES

Phillip G. Saunders; Jack R. Simpson, and Daniel R. Peer, all of Toledo, Ohio, assignors to Contalner Graphics Corporation, Toledo, Ohio

Filed Aug. 23, 1972, Ser. No. 283,219

Int. Cl. B26d 7/06

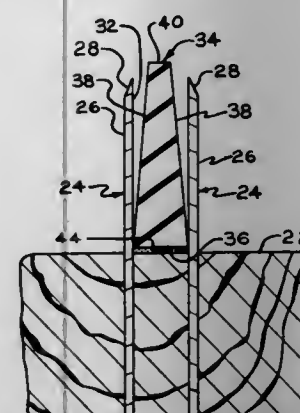
U.S. Cl. 83-128

13 Claims

A resilient ejection strip for a cutting die is provided. In the production of carton blanks and the like from sheet material, such as corrugated board, slots and various other openings are frequently made in the blanks. The pieces of sheet material from which the openings are made must be ejected from the cutting dies after forming, or the dies will not be operable after

several blanks are produced. A resilient ejection strip is located in a cavity or recess formed by the cutting rules to eject the severed pieces of sheet material. The ejection strip is tapered in cross section so that it cannot completely fill the

parallel to line bar. Contact strip between roll and cant is longitudinally separated from saw by overhang length. Roll is journaled on arm hinged at one end to permit rotation of arm to accommodate cants of different widths. Hinge axis posi-



cavity formed by the cutting rules and cause damage because of a lack of space to expand. The new ejection strip also has a bottom surface which is rough or textured to provide a larger surface area for the purpose of adhering the ejection strip to the die board.

3,827,323

OVERHUNG SHEAR

Klaus Jacobs, Cologne-Raderthal, Germany, assignor to Meyer, Roth & Pastor, Cologne-Raderberg, Germany

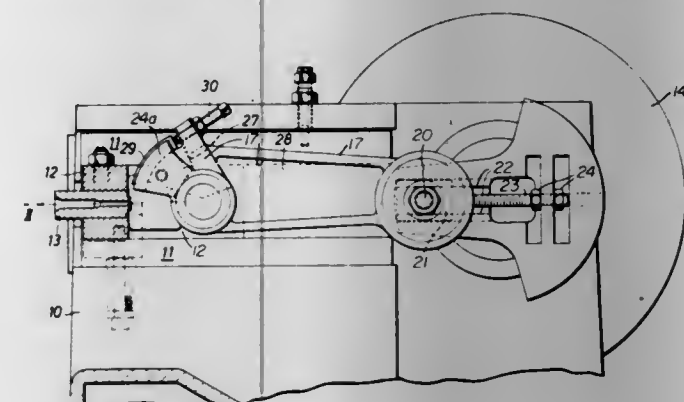
Filed Aug. 20, 1968, Ser. No. 753,998

Claims priority, application Germany, Aug. 23, 1968, 1627233

Int. Cl. B23d 25/02

U.S. Cl. 83-310

7 Claims



An overhung or flying shear for cutting wire or band sections or the like from moving articles, such as rods, bands or the like, is provided with a slide for the cutting chuck, the slide being movable parallel to the direction of this movement by a crank drive which actuates at the same time the knife guided by the slide, the shear being particularly characterized by a transmission member which is directly connected with the connecting rod of the crank drive and which directly moves the knife.

3,827,324

CROWDER ROLL ARM FOR BANDMILL

Francis Edwin Allen, North Vancouver, British Columbia, Canada, assignor to Letson and Burpee Ltd., Vancouver, British Columbia, Canada

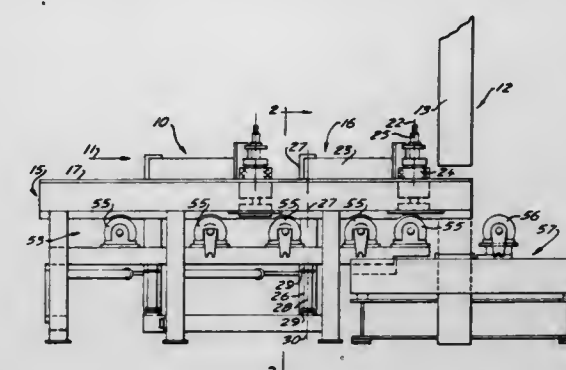
Filed June 16, 1972, Ser. No. 263,437

Int. Cl. B27b 15/08, 25/02

U.S. Cl. 83-425.2

10 Claims

Crowder roll assembly for use with infeed conveyor and fixed line bar of setting bandmill. To change sawn cant width, bandmill sets to line bar which remains stationary. Bandmill cuts cant fed through saw, sawn datum face of cant being pressed against line bar by crowder roll to maintain axial feed



3,827,325

TRIM SAW MOUNTING BRACKET ASSEMBLY

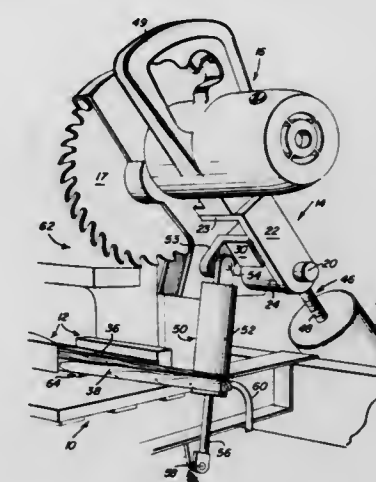
Robert L. Ward, and Willie M. Welch, both of Shreveport, La., assignors to Gang-Nail Truss Company of Shreveport, Inc., Shreveport, La., a part interest

Filed Apr. 4, 1972, Ser. No. 240,368

Int. Cl. B27b 5/04

U.S. Cl. 83-461

3 Claims



A bracket assembly for mounting a saw on a truss fabricating press has a bearing sleeve, and a shaft forming a journal arranged in the sleeve and connected to a longitudinally extending member adapted for mounting a saw. The pivotal mounting of the longitudinally extending member permits the performance of trimming operations on chords of bowstring trusses positioned on the press. The lower chord is first positioned and trimmed, followed by the upper chord. A stop is arranged on the shaft for rotation therewith to limit the swing of the longitudinally extending member toward the press. A counterweight may also be attached to the longitudinally extending member for balancing the weight of the saw. A fluid motor or the like may be arranged between and connected to the frame of the press and the longitudinally extending member for selectively swinging the saw toward and away from the chords.

3,827,326

TABLE FOR USE WITH TRAVERSE POWER TOOL

Gilbert E. Martin, 5139 Grandy Ave., Detroit, Mich. 48211

Filed Apr. 2, 1973, Ser. No. 347,224

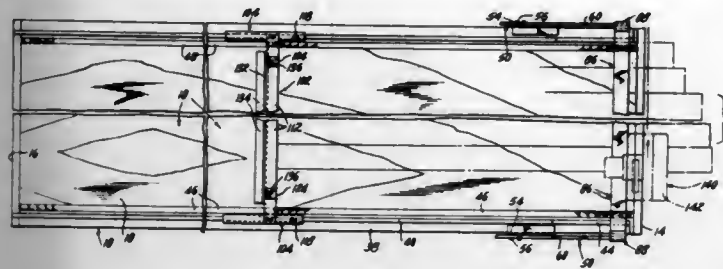
Int. Cl. B27b 27/02, 5/18; B27c 5/04

U.S. Cl. 83-468

6 Claims

A table has a flat surface to support one or more workpiece articles in such fashion as to provide for uniform cutting or

shaping operations thereon. The table has side guide rails to which a backstop assembly and a swing arm assembly are adjustably mounted. The swing arm assembly includes a crossbar used to guide the traverse of a work tool. Extension means for the backstop assembly is also provided.



justably mounted. The swing arm assembly includes a crossbar used to guide the traverse of a work tool. Extension means for the backstop assembly is also provided.

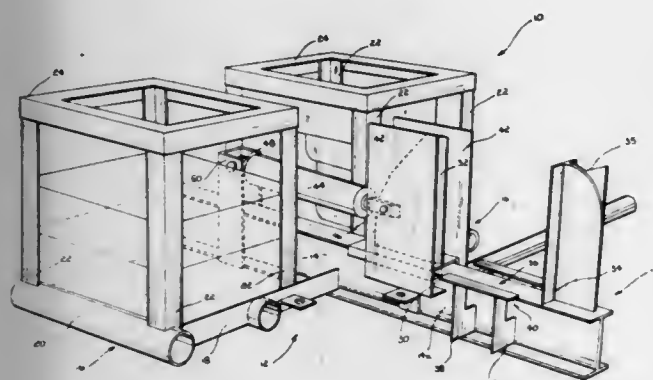
3,827,327

LOG CUTTING APPARATUS FOR CUTTING LOGS INTO SELECTED LENGTHS

Amos F. Davis, Rt. 1, Box 86, Seven Springs, N.C.
Filed Oct. 30, 1972, Ser. No. 301,946
Int. Cl. B26d 7/28, 5/12

U.S. Cl. 83-522

15 Claims



In abstract, a preferred embodiment of the present invention comprises a logcutting or shearing apparatus adapted to cut logs into selected lengths. More particularly, the log cutting apparatus of the present invention is of the shear type and, accordingly, includes a horizontally reciprocally mounted shearing blade cooperable with a stationary shearing back to receive logs therebetween and to shear the same into preselected lengths by reciprocating the shearing blade back and forth relative to the cooperative shearing back. To appraise the operator of the length of logs being cut, the present invention provides a visual log length indicator with length markers thereon that extend outwardly from the log cutting apparatus and is particularly oriented so as to extend generally perpendicular to the plane of the shearing blade.

3,827,328

CONTROL SYSTEM FOR HYDRAULIC PRESSES

Philip A. LaFlamme, and Romeo E. Couture, both of Nashua, N.H., assignors to Greenerd Press & Machine Company, Inc., Nashua, N.H.

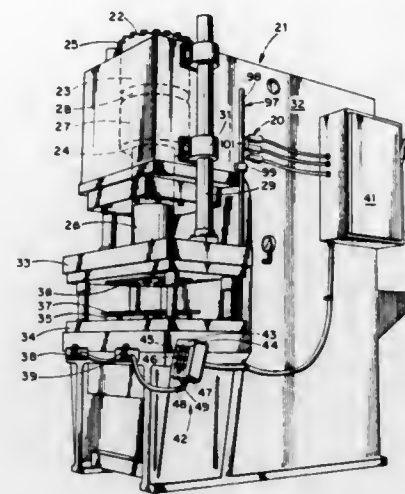
Filed Dec. 26, 1972, Ser. No. 318,545
Int. Cl. B26d 5/12

U.S. Cl. 83-617

7 Claims

A hydraulic press is free of the conventional, four-way, drum-type, directional control valve and substitutes a plurality of relatively small, commercially-available, solenoid-actuated, pressure relief valves. High speed cycling is obtained with a large volume, low pressure pump paired with a small volume,

high pressure pump, the latter valved out of the pressure line upon work-piece contact. The high pressure pump performs



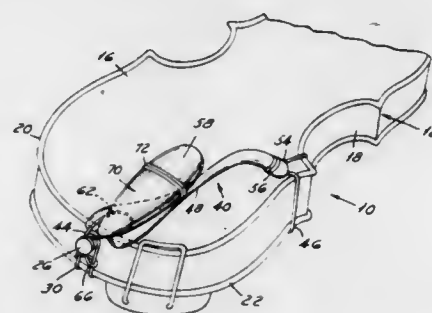
3,827,329

UNIVERSAL SHOULDER REST FOR VIOLINS AND VIOLAS OF ALL SIZES

Domenico M. Annessa, 3536 Burns, Detroit, Mich.
Filed June 11, 1973, Ser. No. 368,979
Int. Cl. G10d 1/02

U.S. Cl. 84-280

14 Claims



The universal shoulder rest or shoulder rest appliance is for bowed string musical instruments such as violins and violas. The appliance includes a unitary structure mounted on the back of the instrument box and having an elongated arm and a plate connected to the base of the arm. The plate extends beneath the arm and diverges therefrom throughout its length. The base, located at one end of the arm, is provided with a groove and the other end of the arm is provided with a foot having a groove. The groove on the base interfits with the lower ridge of the instrument back beneath the end pin thereon. The intermediate portion of the arm between the ends thereof is curved to provide space between the intermediate portion of the arm and the back of the instrument box when the appliance is applied to the instrument. The back surface of the plate is adapted to engage a person's shoulder to rest the instrument thereon. Yieldable means are provided in the grooves at the ends of the arm for connecting the structure to violins and violas of all sizes.

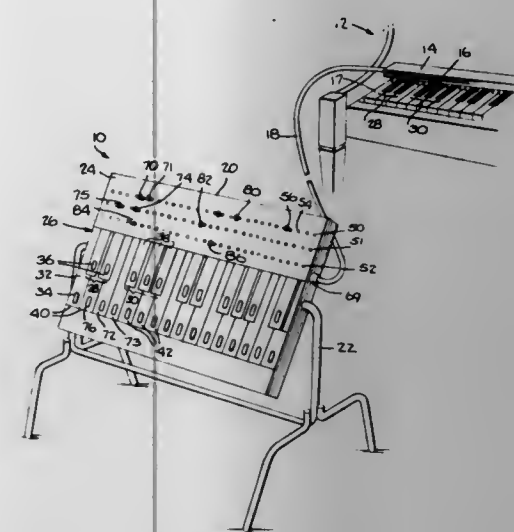
3,827,330

MUSIC TEACHING DEVICE

Daniel Ward, 150 W. Eckerson Rd., Spring Valley, N.Y. 10977
Filed Apr. 11, 1973, Ser. No. 349,917
Int. Cl. G10b 15/02

U.S. Cl. 84-472

13 Claims



This invention relates to music teaching devices and, more particularly, to a manipulative and audio-visual music education aid which provides novel tactile and audio-visual demonstration of musical concepts.

3,827,331

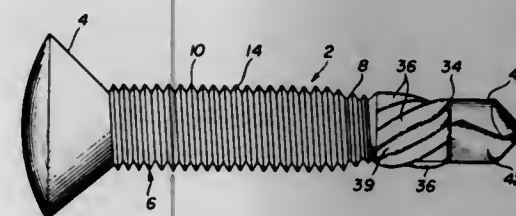
SELF-EXTRUDING SCREW

Herman G. Muenchinger, South Dartmouth, Mass., assignor to Research Engineering & Manufacturing, Inc., New Bedford, Mass.

Filed Nov. 1, 1972, Ser. No. 302,886
Int. Cl. F16b 25/00

U.S. Cl. 85-41

6 Claims



A self-extruding screw comprises a shank with a thread-forming section and a lead section. The thread-forming section may be of arcuate polygonal cross-section. A lead section is adjacent to the thread-forming section and has ribs that are helically disposed opposite to the helix of the thread of the thread-forming section to enlarge, extrude and cold work a pilot hole in a workpiece. The ribs may be eccentric or concentric with respect to the axis of the shank, depending upon whether or not the screw is to be captive with the workpiece. The lead section may also include a drill point to form the pilot hole.

3,827,332

AIRCRAFT HAVING RECOILLESS RIFLE

David B. Lindsay, Jr., 1460 Gulfview Dr., Sarasota, Fla. 79335
Filed Oct. 31, 1972, Ser. No. 302,451

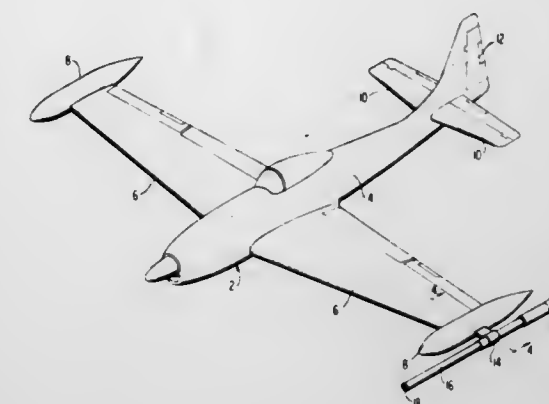
Int. Cl. F41f 3/02

U.S. Cl. 89-1.7

4 Claims

A single-fuselage fixed wing aircraft is provided with a recoilless rifle at the outer portions of the wing. The large

caliber recoilless rifle has a rearwardly directed exhaust nozzle which emits a recoil-balancing blast of high velocity propel-



lant gases into an area which is spaced from the tail structure of the aircraft.

3,827,333

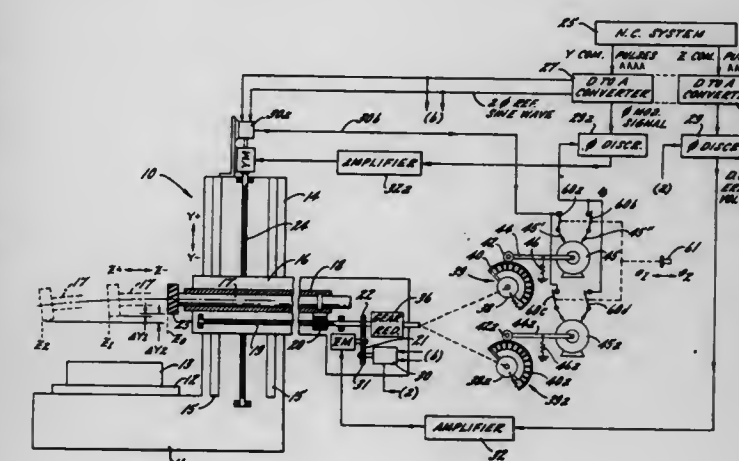
GRAVITY SAG COMPENSATION SYSTEM

John E. Hurd, Rockford, Ill., assignor to The Ingersoll Milling Machine Company, Rockford, Del.

Filed June 29, 1973, Ser. No. 375,108
Int. Cl. B23c 1/02, 9/00; B23b 39/08

U.S. Cl. 90-14

8 Claims



In a machine tool having a headstock vertically movable along a Y axis and a spindle horizontally extensible from the headstock along a Z axis, the sag or droop of the extremity of the spindle as a cantilever member will change as the spindle position along the Z axis is changed. A compensating system is here disclosed which senses the Z axis position of the spindle to create a signal varying as a predetermined function of that position to represent the amount of sag for a given weight load on the spindle. That signal is injected into the servo positioning loop for the Y axis to make the positioned height of the headstock correspondingly greater than that designated by a Y axis command, such that the cutter on the spindle extremity ends up at the commanded and desired Y axis position. This substantially eliminates workpiece errors otherwise arising because of spindle drooping under gravity, especially when the sensed spindle is extended by a relatively great amount from its supporting headstock. The sensing and signal producing device is physically adjustable to enable matching of the predetermined function to observed amounts of sag for different weight loads. A plurality of such devices may be pre-adjusted for different weight loads and then selectively switched into the system when each load is actually placed on the spindle.

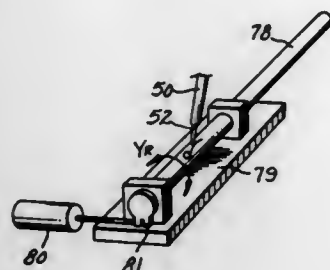
3,827,334

NUMERICALLY CONTROLLED ENGRAVING MACHINE SYSTEM

Myrie H. English, West Chester, Pa.; Laurence Goodstal, Ilion, N.Y.; Wayne E. Leek, Mohawk, N.Y.; Robert J. Sanzo, Ilion, N.Y.; Robert L. Turner, Newark, Del.; Clark B. Workman, Mohawk, N.Y., and Edward W. Yetter, West Chester, Pa., assignors to Remington Arms Company, Bridgeport, Conn. Division of Ser. No. 141,136, May 7, 1971. This application June 15, 1973, Ser. No. 370,542
Int. Cl. B23d 5/04

U.S. Cl. 90—34

24 Claims



A system for automatic simulation by computerized machinery of a hand-engraved pattern in a workpiece. The present system, while concerned primarily in the simulation of engraving patterns by a machine process, nonetheless is applicable to the generation or regeneration of a variety of intricate patterns. In such respect, the process may be useful in copying decorative patterns for printed cards, reproducing of contour maps, and a myriad of other purposes involving the simulation of contours or of a pattern of lines existing in multi-dimensional space.

The invention introduces several novel aspects to the art of computerized machinery, and particularly to numerically controlled machinery having multi-axis operation, with one of the major objectives being a reduction of volume of control tape and operation time. The present system usually involves two computers: (1) a digital computer for generating a control tape numerically representative of the pattern to be reproduced; and (2) a digital control computer for controlling a multi-axis machine to regenerate the pattern stored on the control tape.

3,827,335

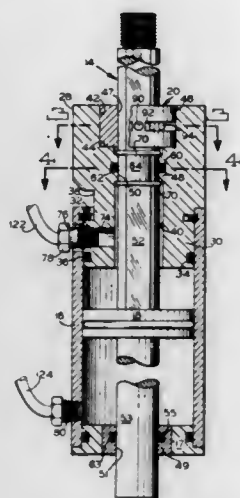
FLUID SYSTEM WITH ANGULAR DISPLACEMENT SENSOR FOR AXIALLY RECIPROCATING SHAFT

Herbert J. Lewis, Hudson Falls, and William H. Ziegler, Waterford, both of N.Y., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 249,334, May 1, 1972, abandoned. This application July 10, 1973, Ser. No. 377,989
Int. Cl. F15b 13/042, 11/08

U.S. Cl. 91—3

5 Claims



The angular displacement of an axially reciprocating shaft is sensed by a fluid actuated sensor which generates signals

responsive to the angular displacement and transmits them to a proportional fluidic amplifier which divides a controlled fluid flow proportional to the signals and directs the proportionally divided flows to a fluid responsive device.

3,827,336

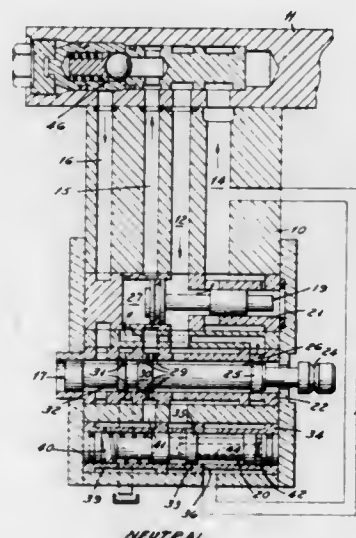
TRACTOR HYDRAULIC LIFT CONTROL VALVE

James A. Caywood; Charles E. McKeon, both of Birmingham, and Willard G. Smith, Detroit, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 232,807, March 8, 1973, abandoned. This application Sept. 26, 1973, Ser. No. 401,020
Int. Cl. F15b 11/08, 13/04

U.S. Cl. 91—446

2 Claims



An automotive flow control valve for a tractor hydraulic lift system regulates the flow from a fixed displacement pump to a lift cylinder in accordance with the degree of movement of the control valve so that the rapidity of response to a signaled lift of the tractor hitch is generally in proportion to the amplitude of the lift signal. Upon flow to the hydraulic lift cylinder dropping to a predetermined small part of pump output, an unload valve diverts pump flow to sump.

3,827,337

HYDROSTATIC BEARINGS FOR THE SWASH PLATE OF A BARREL-CYLINDER HYDRAULIC PUMP OR MOTOR

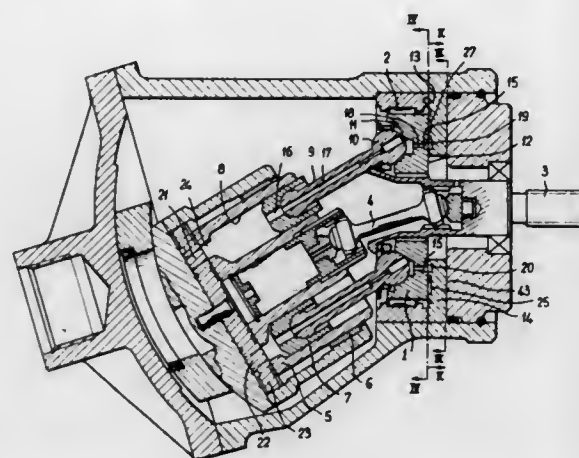
Francois C. Pruvot, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt, France
Filed Mar. 29, 1972, Ser. No. 239,290

Claims priority, application France, Apr. 28, 1971, 71.15146

Int. Cl. F01b 13/04

U.S. Cl. 91—489

4 Claims



This hydrostatic bearing for the swash plate of a hydraulic high-pressure and cylinder barrel machine is formed on a face of a bearing plate which registers with one face of a swash

plate, and comprises a main bearing consisting of a set of two arcuate grooves surrounded by sealing surfaces and disposed in proper phase relationship to ports formed in the fluid distributor plate, and another set of grooves in the other face of said swash plate, identical in number to that of distributor orifices formed at the end of the barrel cylinders, said bearing further comprising at least three auxiliary hydrostatic bearings consisting of cavities formed in the other face of said bearing plate, said last-named cavities being concentric to the grooves of said main bearing.

3,827,338
FLUID DEVICE

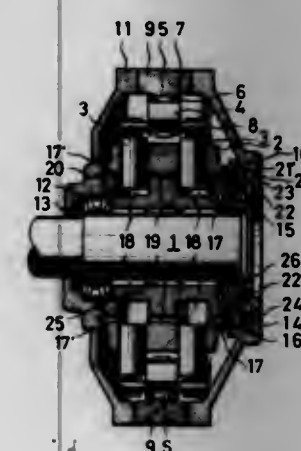
Hiroshi Oguni, Akashi, and Masaya Nakagawa, Osaka, both of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe-shi, Kyogo-ken, Japan

Filed Aug. 23, 1971, Ser. No. 174,097

Claims priority, application Japan, Aug. 25, 1970, 45-73850
Int. Cl. F01b 1/06

U.S. Cl. 91—491

9 Claims



This invention relates to fluid devices of the radial piston type providing eccentric rollers, eccentric pinions or cams of elliptic or any shape as desired which are mounted on the piston pins for increasing the number of piston strokes and producing a high output power with small capacity.

3,827,339

DOUBLE ACTING HYDRAULIC PUMP

Samuel R. Rosen, Lorain; Alvin A. Rood, Westlake, and Donald R. Scharf, Amherst, all of Ohio, assignors to Nordson Corporation, Amherst, Ohio

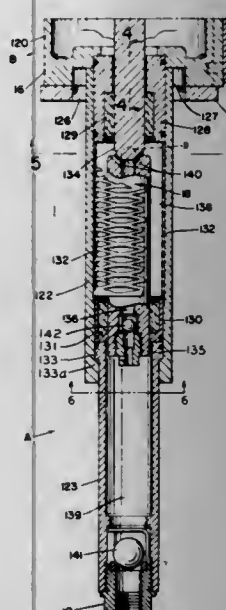
Continuation-in-part of Ser. No. 809,235, March 21, 1969.

This application May 17, 1971, Ser. No. 144,055

Int. Cl. F01b 7/00

U.S. Cl. 92—152

2 Claims



A double acting hydraulic pump and air motor therefor including means for controlling the inlet and exhaust of air to

and from the opposite sides of the piston in the air cylinder. The pump has a stepped diameter housing including an upper pump cylinder defining an outlet chamber for liquid and a lower pump cylinder received within the upper pump cylinder and defining an inlet chamber for liquid. A pump piston reciprocates in the two cylinders and is slidably received in two axially spaced stationary packing sleeves having a resilient spacer sleeve interposed axially therebetween. The spacer sleeve is formed of metal sheet adapted to deflect resiliently under load. The upper end of the upper pump cylinder is received within a recess in the lower end of the air motor housing. A retainer plate connected to the lower end of the air motor housing is provided with an opening to allow passage of the upper end of the upper pump cylinder and a pair of radially extending ears thereon. The pump housing is rotatable about its own longitudinal axis to align or misalign the ears and the opening and retain the pump housing to or release it from the motor housing.

3,827,340

FRACTURABLE ADHESIVE BACKING TOOL

Jerry L. Keck, Chicago, and James Robert Rowley, Calumet Park, both of Ill., assignors to Ludlow Corporation, Needham Heights, Mass.

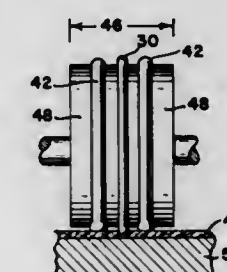
Division of Ser. No. 169,653, Aug. 6, 1971, Pat. No. 3,719,584.

This application Dec. 8, 1972, Ser. No. 313,241

Int. Cl. B31b 1/14

U.S. Cl. 93—58.1

1 Claim



A process and apparatus for selectively compressing paper stock of the type which is used as a protective backing sheet for adhesive-coated systems. The process comprises use of a novel compression tool, the precise characteristics of which depend on the paper stock being utilized. The compression tool comprises a blunt, rotatable, circular, working edge which has a radius of at least 0.02, but preferably at least 0.04 inches in diameter and at least one half of the thickness of the paper being weakened. This tool advantageously comprises the compressing edge, being mounted integrally with a bearing surface which makes pressure control easier and limits penetration of the tool. In the preferred embodiments of the invention, the bearing surface is faced with elastomeric material. Disclosure is also made of a novel release sheet and adhesive sheet assembly which is manufactured utilizing the process and apparatus of the invention.

3,827,341

METHOD OF MAKING A PACKAGE

Leo J. Stage, Roselle Park, N.J., assignor to Arvey Corporation, Chicago, Ill.

Division of Ser. No. 229,981, Feb. 28, 1972. This application

Mar. 30, 1973, Ser. No. 346,283

Int. Cl. B31b 49/04

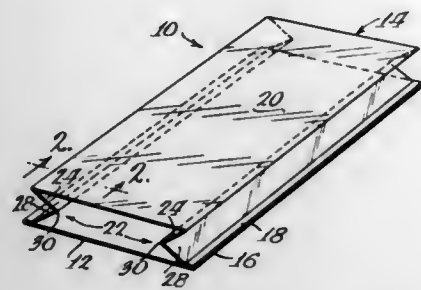
U.S. Cl. 93—35 R

11 Claims

A gusset pouch and a method of making the pouch is disclosed. The pouch consists of two webs of material that have coterminous marginal edges with the first web having a width greater than the second web between the marginal edges. The first web has a main body portion substantially the same width as the second web with an interconnecting segment between the main body portion and each of the receptive marginal edges. The two webs are interconnected or adhered to each

other at one end while the segments each have first and second overlapping portions respectively adhered to the first web and to the second web.

The method of making the package or pouch includes folding the first web along spaced fold lines to produce first and second overlapping portions adjacent each marginal edge with



the first fold lines spaced inwardly from the respective marginal edges, positioning a second web adjacent the first web and heat sealing the webs to each other along the exposed portions to produce a gusseted tube. The gusseted tube can then be formed in individual pouches by heat sealing transversely of the webs at longitudinally spaced locations and severing the webs along one edge of the transverse heat seal.

3,827,342

AIR CIRCULATING DEVICE

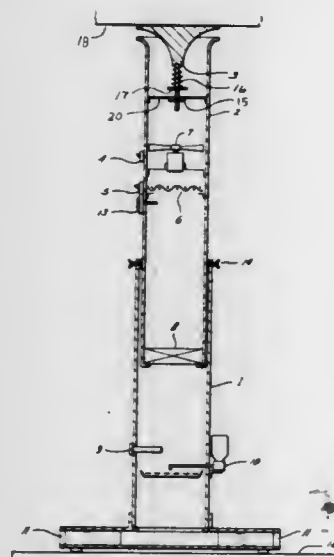
George W. Hughes, 2601 Mills, Houston, Tex. 77026

Filed Oct. 11, 1973, Ser. No. 405,471

Int. Cl. F24f 13/00

U.S. Cl. 98—33

6 Claims



An air circulating device having telescoping members adjustable vertically, and having means for treating air passing therethrough, and having air intake means in the base thereof and air diffusing means at the upper end thereof and air moving means mounted in one of the telescoping members, and having tension means for maintaining the device mounted vertically in a room.

3,827,343

GREASE-COLLECTING HEAT EXCHANGER INSTALLATION

William J. Darm, 5815 S.W. Tucker, Beaverton, Oreg. 97005

Filed May 12, 1972, Ser. No. 252,909

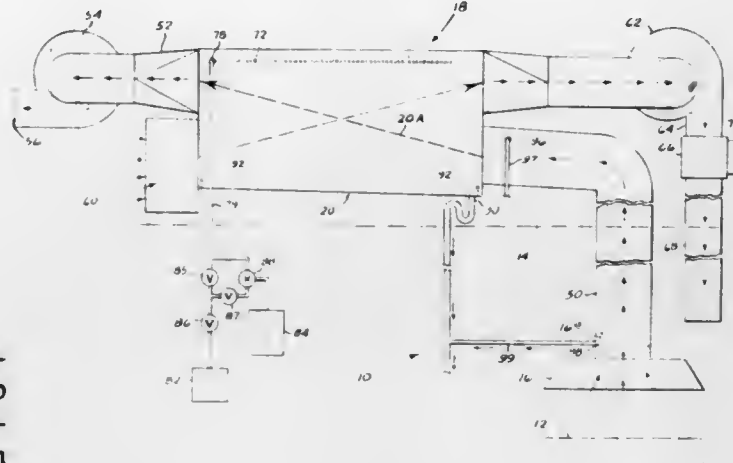
Int. Cl. F28f 3/00

U.S. Cl. 98—115

5 Claims

A heat exchanger with a set of channels through which grease laden air travels. Relatively cool air passes through the heat exchanger in a second set of channels. Washing means including liquid tubes within the first set of channels is provided for washing collected grease from the surfaces defining the

first set of channels. A cooking facility including a hood for collecting grease laden air connected to a heat exchanger. Relatively cool air from an outside source passes through the heat exchanger to promote the collection of grease in the



exchanges from the grease laden air received from the hood. The air from the outside source is raised in temperature on passing through the exchanger. Such heated air may be used as a source of heat for heating a building enclosure.

3,827,344

APPARATUS FOR THE FAST COOKING, IN HOT WATER, OF DOSED QUANTITIES OF FOODSTUFFS IN GENERAL

Modesto Pratolongo, Milan, Italy, assignor to Santa Martha Bay Shipping and Trading Co. Ltd., Curacao, Netherlands Antilles

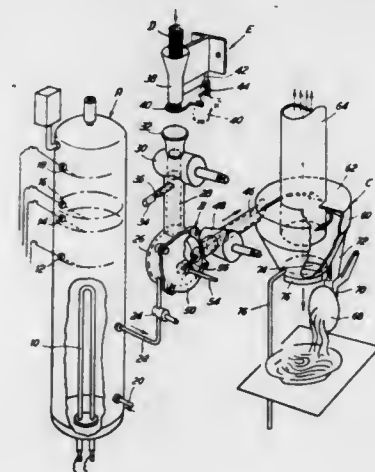
Filed Sept. 18, 1972, Ser. No. 289,941

Claims priority, application Italy, Oct. 9, 1971, 29724/71; Oct. 9, 1971, 29725/71; Oct. 9, 1971, 29726/71

Int. Cl. A47j 19/00, 43/04

U.S. Cl. 99—352

11 Claims



Fast cooking apparatus for dosed quantities of foodstuffs comprises a dosing device for the introduction, into a pressurized cooking chamber a desired quantity of food which is cooked under pressure at temperatures of over 100° C. The cooked food is conveyed, by the pressure within the cooker, into a centrifugal separator, wherein the excess of cooking water and its vapour are removed from the cooked food.

3,827,345

COMPUTER COOKING MEANS

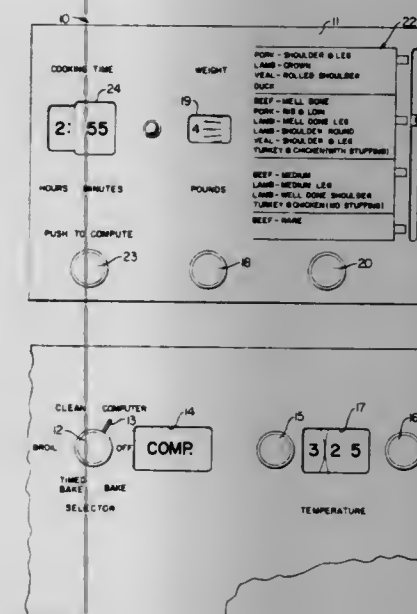
James P. Willson, Garden Grove, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 111,727, Feb. 1, 1971, Pat. No. 3,731,059, which is a continuation-in-part of Ser. No. 47,345, June 18, 1970, abandoned. This application Feb. 20, 1973, Ser. No. 333,669

Int. Cl. A47j 27/00; G06c 29/00

U.S. Cl. 99—325

23 Claims



A computer-controller device for controlling the cooking operation of a cooking apparatus, the device having a weight input means for setting the device at a weight setting corresponding to the weight of a meat item to be cooked by the apparatus. The device has a meat doneness input means for setting the device at a doneness setting for a particular meat item. The device has means operatively associated with the input means to cause the cooking apparatus to cook the meat item at a predetermined and substantially constant cooking temperature for a period of time computed in accordance with a cooking time formula based on at least the weight setting of the device and for causing a subsequent reduction in the cooking temperature at a particular point in the time period as computed in accordance with the doneness setting of the device whereby the meat item will be substantially at the doneness of the doneness setting at the termination of the computed cooking time period.

3,827,346

FOOD-TREATMENT APPARATUS WITH GREASE-COLLECTION HOOD FOR AIR CIRCULATOR

Karl Tropp, Werdorf; Wilfried Durth, Burbach-Wahlbach, and Henrich Jakob, Burg, all of Germany, assignors to Berger Eisenwerke Aktiengesellschaft, Herborn, Germany

Filed June 8, 1973, Ser. No. 368,117

Claims priority, application Germany, June 15, 1972, 7222326

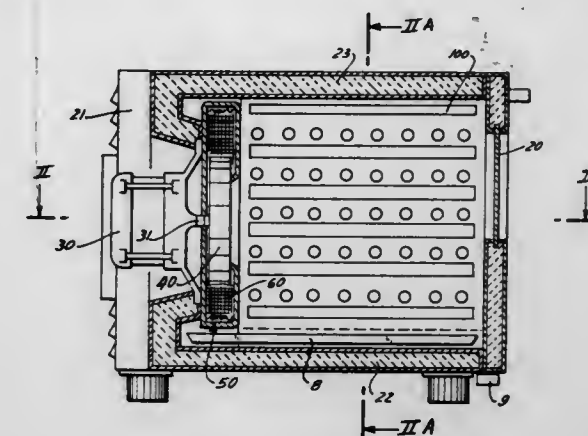
Int. Cl. A47j 27/00

U.S. Cl. 99—446

2 Claims

A foodstuff is placed on a rack in a food-treatment apparatus having a chamber. Air in the chamber is drawn in by a blower positioned adjacent a rear wall and is displaced outwardly along the chamber walls past neaters to again reach the

foodstuff. The blower is surrounded by means, e.g. a hood, for protecting the oven from grease or fat spatter, and the bottom



of the chamber is provided with a trough for collecting fat dripping from the hood, the racks, baffle plates and other surfaces in the oven.

3,827,347

MACHINE FOR CONDITIONING WASTE MATERIAL FOR RECYCLING

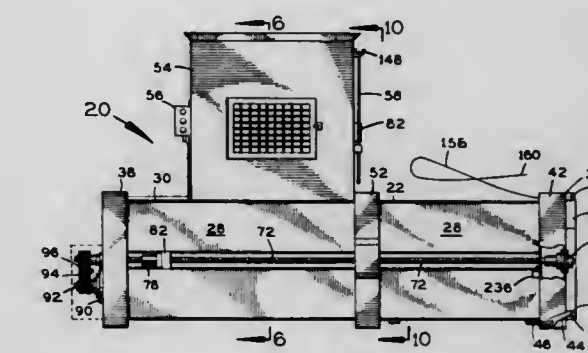
Winthrop W. Gilman, 565 16th Ave., South, Naples, Fla. 33940

Division of Ser. No. 248,709, April 28, 1972. This application Feb. 12, 1973, Ser. No. 331,635

Int. Cl. B65b 13/20

U.S. Cl. 100—8

10 Claims



A machine which bales waste material to condition it for recycling and thus helps alleviate waste disposal problems which lead to pollution. The machine includes a ram which reciprocates to compact waste material in a container and ultimately eject the waste material in the form of a bale. The resistance of the compacted material to the ram is sensed to reverse the ram automatically. In an automatic mode, the ram keeps reciprocating and compacting as long as the input of the machine is loaded until a full bale is formed and ejected. Excess waste material at the input is sheared off. A manipulator is disclosed which facilitates binding of the compacted waste into a bale. Drive means and control means are disclosed. The ram can move all the way to the discharge end of the container or any compacting position short of the discharge end to give uniformity of compaction. The bale weight is fully adjustable.

3,827,348

COMPACTOR WITH SINGLE RING-SUPPORTED BAG

Ransom J. Hennells, Plymouth Township, Wayne County, Mich., assignor to Compactor Company, Inc., Belleville, Mich.

Filed Oct. 16, 1972, Ser. No. 297,823

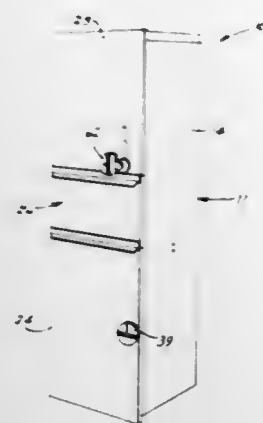
Int. Cl. B30b 1/08, 15/30

U.S. Cl. 100—53

15 Claims

A waste compactor comprising a substantially closed cabinet having an extendible ram assembly mounted adjacent the upper end thereof and means for supporting a disposable

bag under the ram assembly. The cabinet is provided with a door on the lower front side thereof for permitting access to the bag. The bag is supported on a substantially rectangular ring, which ring in turn is supported on suitable ledges formed on the inner surfaces of the cabinet walls. The ledges enable the support ring to be slid outwardly of the cabinet when the door is open to permit interchanging of the bags. A chute is



swingably mounted on the cabinet for permitting waste to be deposited into the bag. The chute is movable into a closed position wherein it substantially closes the front wall of the cabinet. The chute, when in the closed position, coacts with the door to prevent opening of same, and also coacts with a safety device to permit energization of the ram assembly. The safety device prevents actuation of the ram assembly when the chute is in its open position.

3,827,349

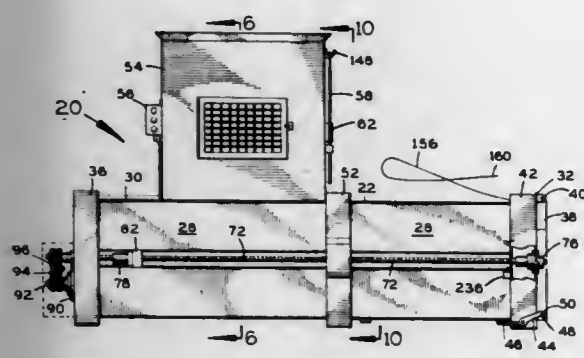
MACHINE FOR CONDITIONING WASTE MATERIAL FOR RECYCLING

Winthrop W. Gilman, 565 16th Ave., South, Naples, Fla. 33940

Division of Ser. No. 248,709, April 28, 1972. This application
Feb. 12, 1973, Ser. No. 331,662
Int. Cl. B30b 15/14

U.S. Cl. 100-98 R

5 Claims



A machine which bales waste material to condition it for recycling and thus helps alleviate waste disposal problems which lead to pollution. The machine includes a ram which reciprocates to compact waste material in a container and ultimately eject the waste material in the form of a bale. The resistance of the compacted material to the ram is sensed to reverse the ram automatically. In an automatic mode, the ram keeps reciprocating and compacting as long as the input of the machine is loaded until a full bale is formed and ejected. Excess waste material at the input is sheared off. A manipulator is disclosed which facilitates binding of the compacted waste into a bale. Drive means and control means are disclosed. The ram can move all the way to the discharge end of the container or any compacting position short of the discharge end to give uniformity of compaction. The bale weight is fully adjustable.

3,827,350 MACHINE FOR CONDITIONING WASTE MATERIAL FOR RECYCLING

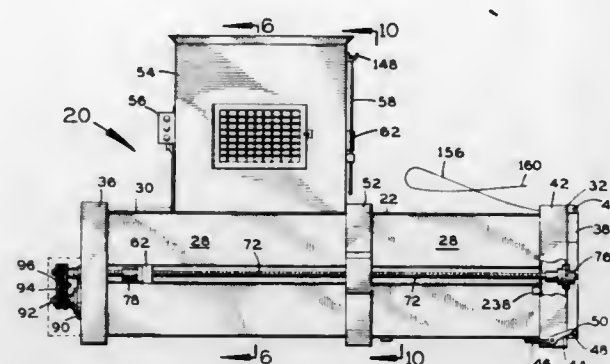
Winthrop W. Gilman, 565 16th Ave., South, Naples, Fla. 33940

Filed Apr. 28, 1972, Ser. No. 248,709

Int. Cl. B30b 15/26

U.S. Cl. 100-52

5 Claims



A machine which bales waste material to condition it for recycling and thus helps alleviate waste disposal problems which lead to pollution. The machine includes a ram which reciprocates to compact waste material in a container and ultimately eject the waste material in the form of a bale. The resistance of the compacted material to the ram is sensed to reverse the ram automatically. In an automatic mode, the ram keeps reciprocating and compacting as long as the input of the machine is loaded until a full bale is formed and ejected. Excess waste material at the input is sheared off. A manipulator is disclosed which facilitates binding of the compacted waste into a bale. Drive means and control means are disclosed. The ram can move all the way to the discharge end of the container or any compacting position short of the discharge end to give uniformity of compaction. The bale weight is fully adjustable.

3,827,351

APPARATUS FOR FLATTENING METAL CANS AND CRUSHING GLASS CONTAINERS

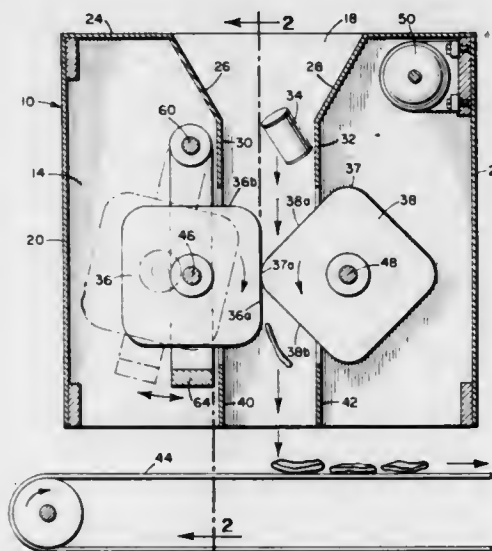
William L. Rosenow, Vienna, Va., assignor to Ecology Recycling Inc., Vienna, Va.

Filed Feb. 12, 1973, Ser. No. 331,695

Int. Cl. B30b 3/04, 7/04

U.S. Cl. 100-176

3 Claims



The invention relates to an apparatus for flattening can containers and crushing glass containers. A pair of rollers, having substantially square cross-sections with rounded edges are turned towards each other 45° out of phase by suitable gearing and power means. Cans and bottles are flattened or crushed by

the vise-like action of the flat surfaces of the rollers. One of the rollers is mounted on a spring-biased yoke member to prevent jamming of the apparatus by a foreign non-crushable object which may enter the apparatus.

3,827,352

REFUSE COMPACTOR CONTAINER ASSEMBLY

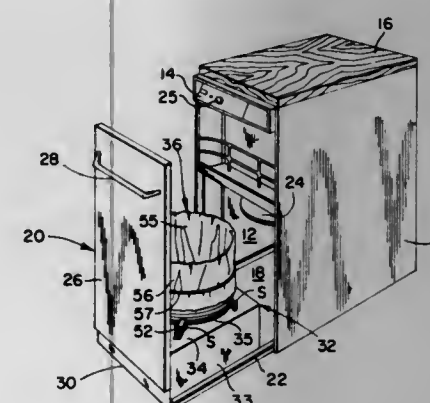
Jerome F. Stratman, Cypress, and John Novak, Anaheim, both of Calif., assignors to The Tappan Company, Mansfield, Ohio

Continuation-in-part of Ser. No. 112,138, Feb. 3, 1971, Pat. No. 3,741,108. This application Nov. 3, 1971, Ser. No. 195,226

Int. Cl. B30b 15/06

U.S. Cl. 100-229 A

7 Claims



A container assembly is provided on a slide or carriage selectively partially removable from a refuse compactor housing, such container assembly including a lightweight, substantially cylindrical plastic receptacle that may be removed from the slide for either remote withdrawal of compacted refuse or cleaning. A plastic liner is usually disposed within the receptacle and is maintained in such position by a cuff embracingly held or clamped against the external surface thereof by a stretched retaining band.

3,827,353

CHRISTMAS TREE BALING MACHINE

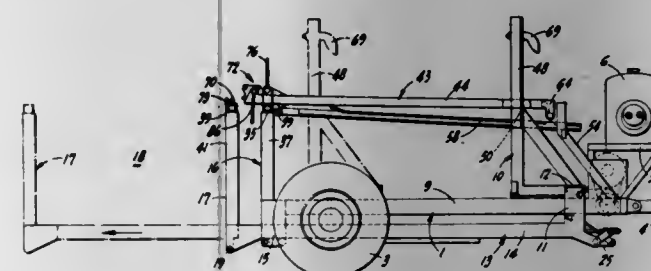
Jon Lewis Isberg, Molalla, Oreg., assignor to Yule Tree Farms, Molalla, Oreg.

Filed Apr. 12, 1973, Ser. No. 350,323

Int. Cl. B30b 7/04

U.S. Cl. 100-232

10 Claims



A machine, for field use on a Christmas tree farm, adapted to support a pallet and embodying mechanism operative to compress a loose-bulk stack of cut Christmas trees into a compact bale on the pallet; the bale then being strapped to said pallet for transport from field to market.

3,827,354

DEVICE FOR LUBRICATION OF HORIZONTAL WINE AND FRUIT PRESSES WITH CYLINDRICAL PRESS BASKET

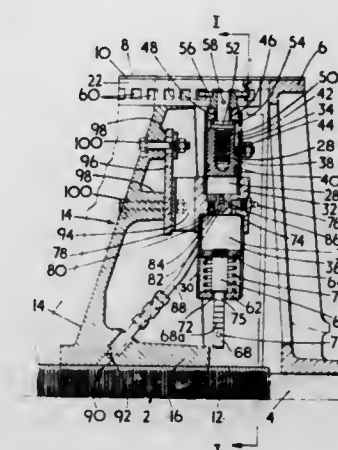
Heinrich Bredebusch, Erbach/Odenwald, Germany, assignor to Rotary Hoes Limited, West Hordon, Essex, England

Filed Oct. 29, 1972, Ser. No. 301,260

Int. Cl. B30b 1/18, 15/00; F16n 1/00

U.S. Cl. 100-289

10 Claims



A horizontal wine and fruit press has a cylindrical pressing chamber and a threaded spindle extending axially through the chamber on which spindle a pressing plate is mounted. The plate is rotatable relative to the spindle and a lubricating device is disposed on the plate for lubricating the threaded opening in the plate. The lubricating device includes a lubricating cylinder and a feed cylinder connected to the lubricating cylinder. The lubricating cylinder has a piston movable by movement of the pressing plate along the pressing chamber.

3,827,355

METHOD OF MAKING RECORD MEMBERS

Paul H. Hamisch, Sr., Dayton, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

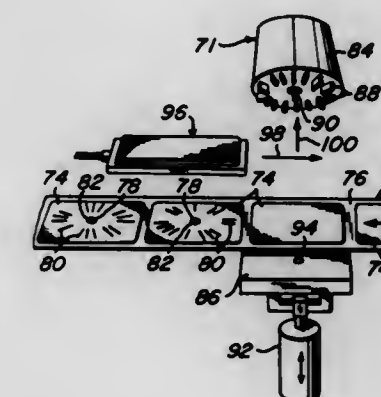
Division of Ser. No. 92,468, Nov. 24, 1970, Pat. No. 3,783,783.

This application Apr. 9, 1973, Ser. No. 349,596

Int. Cl. B41m 3/14; B44b 5/00

U.S. Cl. 101-26

1 Claim



There are disclosed record members in the form of a web of pressure sensitive labels and a web of tickets formed by transverse cuts in the web, with each member having a mark printed at one marginal edge, the mark preferably being printed using invisible ink. A method of making the record members includes the step of inking a cutter and operating the cutter to simultaneously cut the web to provide a plurality of record members and printing along at least one marginal edge of each member. Another record member has an aligner formed in it and a printed mark forming an outline around the aligner, the aligner having a predetermined relationship with respect to a code printed on the record member. A method of making the record member comprises providing code forming

members and aligner forming members, inking the aligner forming member, applying the code to the record member and substantially simultaneously forming an aligner in the record member and printing a mark immediately adjacent the aligner. There is also disclosed a web of record members composed either of pressure sensitive ticket, or label stock material in which there are marks disposed at equally spaced apart intervals along its length. The marks are used to control intermittent feeding of the web of record members so that recording can be at any desired location on the record members and the record members can be cut to the desired length without shifting the cutter or the recorder means relative to each other. There is also disclosed apparatus for practicing these methods.

3,827,356

ROTARY PRINTER FOR USE IN CONJUNCTION WITH AN INDEXED CONVEYOR

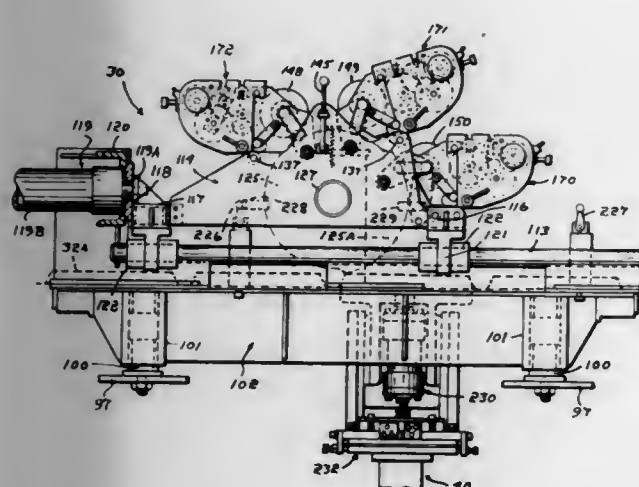
Gerald A. Snow, 5 Pine Ridge Rd., Cumberland Foreside, Maine, and Vladimir W. Orlovsky, 691 High St., Bath, Maine 04530

Continuation-in-part of Ser. No. 192,190, Oct. 26, 1971, abandoned. This application Aug. 23, 1972, Ser. No. 283,056

Int. Cl. B41f 17/00, 3/58

U.S. Cl. 101—35

15 Claims



A rotary printer for printing articles advanced step-by-step by a conveyor and thermoformable sheets carried thereby. The printer has a base in support of a carriage and includes structure to reciprocate the carriage relative to the base a predetermined distance lengthwise of the conveyor. The carriage has a rotatable member including at least one arcuate blanket portion that may include sections, one form roll for each color to be printed and for each blanket portion, and an ink distributor for each form roll. Structure is provided to rotate the rotatable member in the same direction in both directions of carriage travel, one direction being the printing direction with the blanket portion or portions engaging the article or articles or the thermoformable sheet and, in the other direction, each blanket portion being returned to a predetermined starting position and, by then, being at least partially re-inked by rolling engagement with a form roll. Where more than one other form roll is provided for each blanket portion, each blanket portion is re-inked by its rolling engagement therewith so that most of the re-inking is effected in the return stroke. When a blanket portion is a minor arc, the rotatable member is turned at such an increased rate in the inking direction that it is always in its predetermined starting position at the end of the travel of the carriage in its return or inking direction. The printer may be incorporated in a thermoformer.

3,827,357 ON-THE-FLY PRINTER WITH SHORTENED PRINT CYCLE

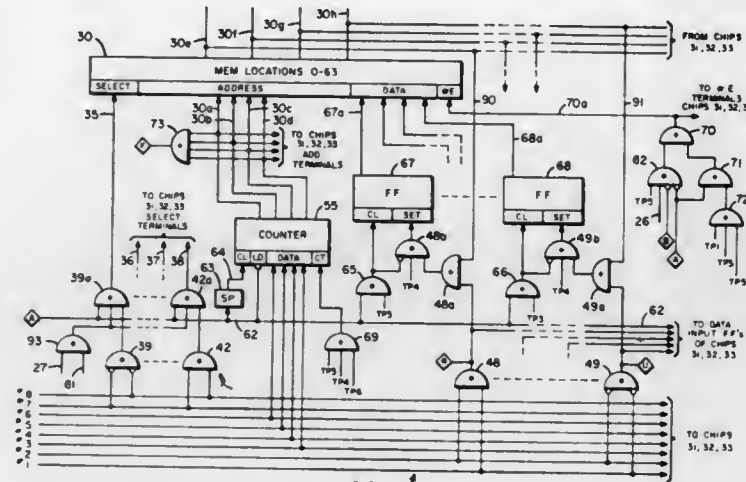
Ralph W. Mahoney, Telford, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Sept. 12, 1973, Ser. No. 396,636

Int. Cl. B41j 7/08; G06f 3/12

U.S. Cl. 101—93 C

9 Claims



An "on-the-fly" printer is equipped with an associative memory which is arranged to automatically account for all the non-printable characters in a print line and to shorten the print cycle time of the printer.

3,827,358

DEVICE FOR MOVING A WEB IN A ROTARY PRINTING PRESS FOR THE PRINTING OF VARYING FORMATS

Mikulas Budai, Gallen, Switzerland, assignor to Firma Ferd Ruesch Maschinenfabrik, St. Gallen, Switzerland

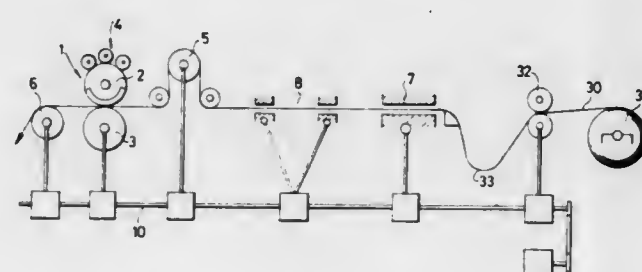
Filed Sept. 25, 1972, Ser. No. 291,842

Claims priority, application Germany, May 23, 1972, 2224970

Int. Cl. B41f 13/04; B41j 15/16

U.S. Cl. 101—228

11 Claims



A rotary printing press for printing varying formats on a continuous web of paper that is fed in an intermittent manner, includes the combination of a feed mechanism and a compensating roll means in order to maintain the web of paper continuously under a uniform pressure. In addition, the control of the compensating roll means permits the web of paper to be pulled through the printing machine with constant speed during the rolling of the printing plate, in a manner that the movement of the compensating roll means compensates for the sinusoidal movement of the intermittent feed so as to establish a constant speed of the paper web.

3,827,359

UNDERWATER DEMOLITION DEVICE

Raymond S. Daughenbaugh, 4601 S. "B" St., Oxnard, Calif. 93030

Filed Aug. 28, 1968, Ser. No. 756,351

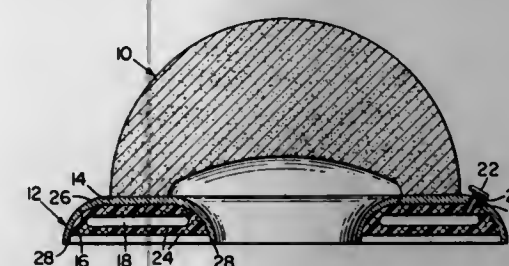
Int. Cl. F42b 22/00

U.S. Cl. 102—1 R

8 Claims

A device for attaching an explosive charge to an underwater portion of a sea-going vessel including an adhesive substance

having a suitable chemical material therein adapted to react with sea water and initiate an exothermic reaction which melts



the adhesive substance and bonds the device and any connected explosive charge to the hull of the vessel.

3,827,360

PNEUMATIC LAUNCHER AND COMBINATION FLARE-IGNITOR

Allan F. J. Gelmer, 1701 Richard W. Dr., Glenview, Ill. 60025

Filed Apr. 21, 1972, Ser. No. 246,300

Int. Cl. C06d 1/10

U.S. Cl. 102—70 F

13 Claims



This invention relates to a pneumatic launcher and to a flare ignitor. The flare ignitor permits the flare to be automatically ignited once it leaves launcher as well as providing a means to readily hand ignite a flare. The launcher permits a plurality of devices to be sequentially launched.

3,827,361

SETTABLE PNEUMATIC ALTITUDE DETECTION EQUIPMENT

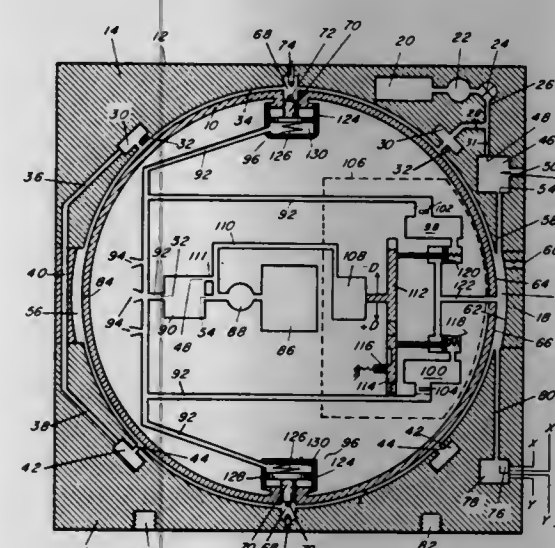
Alvin L. Zechnowitz, Rockland; James A. Xenakis, Nassau; John D. Barbieri, Queens, and Nai Chai Chang, Westchester, all of N.Y., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sept. 17, 1973, Ser. No. 397,526

Int. Cl. F42c 5/00; G01c 21/00, 19/30

U.S. Cl. 102—70.2 R

7 Claims



A settable pneumatic altitude detection device provides an electrical signal to a missile or projectile for arming and

destructing the missile or projectile at preset altitudes. The present invention's main structural elements are a pair of sphere supports which hold therein a rotatable sphere assembly. The sphere support structure has two spherically shaped gas bearing pads which are separated and fixedly held to a circularly shaped collar. Two separate gas supplies are operatively positioned in the sphere support structure and in the rotatable sphere. An electrical initiating signal causes a gas release mechanism and a time delay valve, for each gas supply, to controllably release gas therefrom. Gas is forced through peripherally positioned jet nozzles on the sphere, and through operatively positioned venting ports and calibrated orifices in the sphere support structure. After the missile is fired, the sphere is pneumatically uncaged from its polar supporting structure so that it can freely spin on a nearly frictionless gas cushion. A pneumatically controlled distance meter operatively located in the sphere activates pressure operated switches on the ascent and the descent of the missile trajectory. The aforesaid switches provide an electrical signal which arms the missile on ascent and causes the missile to self-destruct on descent.

3,827,362

ELECTRICAL CIRCUIT DESTRUCT SYSTEM

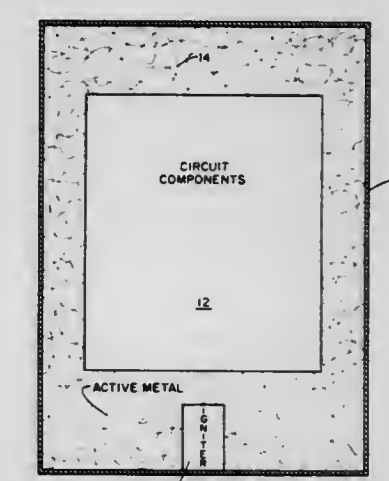
Clayton M. Huggett, Burke, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 14, 1972, Ser. No. 282,084

Int. Cl. H04k 1/00

U.S. Cl. 102—90

8 Claims



A system for destroying critical electrical circuitry within a pressurized container, without creating hazards to surrounding apparatus and personnel, utilizing active metals and the pressurizing gas as a reactant.

3,827,363

WATER-SOLUBLE SHOTSHELL WAD AND METHOD OF MANUFACTURING SAME

Roger J. Curran, Stratford, Conn., assignor to Remington Arms Company Inc., Bridgeport, Conn.

Filed Dec. 13, 1972, Ser. No. 314,708

Int. Cl. F42b 7/08

U.S. Cl. 102—95

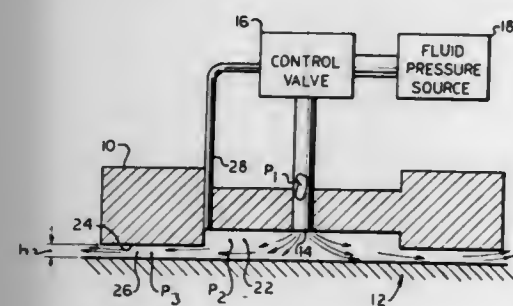
15 Claims



A shell wad is molded from a water-soluble plastic such as an ethylene oxide polymer or a poly(ethylene oxide)-urea blend. A water-insoluble layer is formed on the wad either by coating the wad with a water-soluble material or exposing the

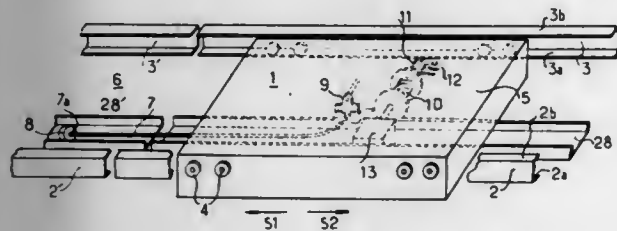
outer surface of the wad to a material such as an acrylic acid polymer which reacts with the surface of the wad to produce a water-insoluble association compound covering the surface so that the wad is insoluble while in the shotshell. When the shotshell is fired, this water-insoluble layer is abraded and burned so that a substantial portion of the water-soluble material is exposed placing the wad in a water-soluble condition.

3,827,364
ADHESION AIR BEARING FEEDBACK CONTROL APPARATUS AND METHOD
Richard L. Maison, San Diego, Calif., assignor to Rohr Industries Inc., Chula Vista, Calif.
Filed Oct. 25, 1972, Ser. No. 300,504
Int. Cl. B61b 13/08
U.S. Cl. 104—23 FS



The method and apparatus which utilizes Bernoulli's theorem, in part, for controlling the displacement H of an air bearing relative to its support surface wherein the fluid under pressure from a pressure source is supplied to a region intermediate the bearing and the support surface to suspend or alternatively, to levitate the bearing a predetermined equilibrium distance H from the surface. The supply of fluid from the pressure source is regulated by a valve in response to pressure variations sensed at least one of different pressure zones of the region through a passage in the bearing connecting said one zone of the region and the valve to maintain the predetermined separation or displacement distance.

3,827,365
AUTOMATIC TYPE OF LOAD-CARRYING TROLLEY AND ITS APPLICATIONS TO STORAGE INSTALLATION ON ONE OR MORE LEVELS
Georges Coppel, Paris, France, assignor to Construction Mills.K, Saint-Ouen, France
Filed Apr. 26, 1972, Ser. No. 247,726
Claims priority, application France, May 12, 1971, 71.17274
Int. Cl. B61j 3/00
U.S. Cl. 104—88



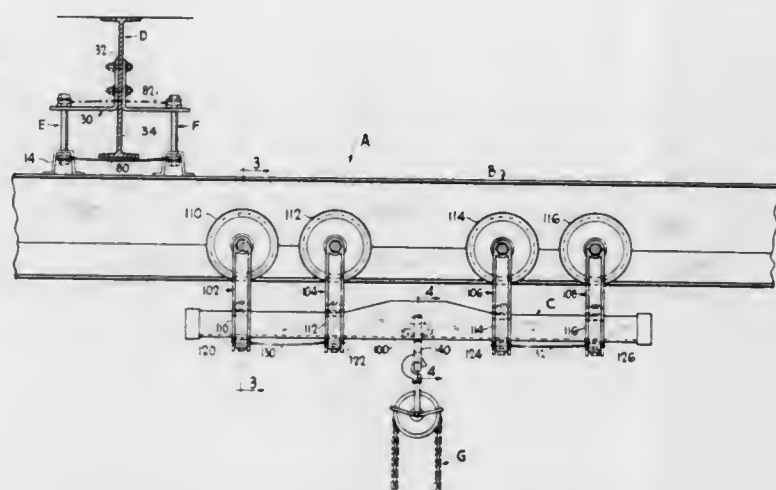
A storehouse with parallel corridors containing pallets, with a self-propelling selecting trolley adapted to take the pallets on to a transfer device rolling on a track perpendicular to the corridors and possibly into an elevating device, the control originating from a central point.

The motive power and the control signals between the control point, the transfer trolley and the self-propelling trolley are transmitted by cables, continuity being assured on the

various routes by winding drums and movable cables, provision being made so that the carrying device cannot move until the carried device attached through its winding-drum to the cable has engaged with the carrying device.

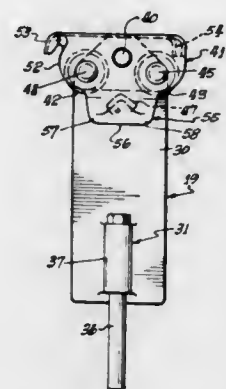
Application to storage installations on one or more levels with entrance and exit by service corridors.

3,827,366
MATERIAL HANDLING APPARATUS
Karl A. Pamer, Chagrin Falls, Ohio, assignor to McNeil Corporation, Wickliffe, Ohio
Filed June 9, 1972, Ser. No. 261,529
Int. Cl. B61b 3/00
U.S. Cl. 104—89



Overhead monorail material handling devices having parts supported by resilient, flexible closed vessels or containers filled with fluid. In some applications a plurality of such vessels or containers are connected by conduit means so that the liquid therein can flow from one to another.

3,827,367
CONVEYOR TROLLEY WITH CAMMING HEADS
Marius F. Paglia, 2913 Westbrook Ave., Hollywood, Calif. 90046
Filed Nov. 27, 1972, Ser. No. 309,672
Int. Cl. E01b 25/22
U.S. Cl. 104—93

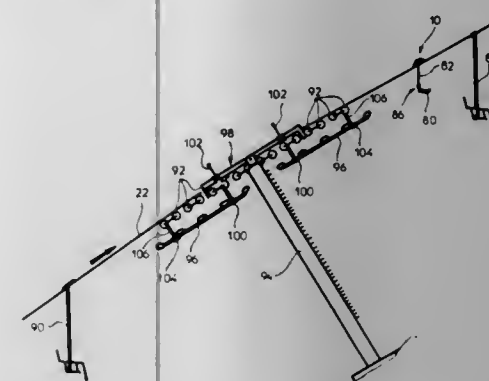


An improved conveyor trolley system of the type in which a series of load-carrying trolleys are supported in rolling suspension from an overhead monorail track, and are moved by pushing engagement between successive trolleys. The invention resides in the combination of a track with predetermined curvature range, trolleys of predetermined maximum length, and leading and trailing camming means on each trolley to insure smooth pushing engagement when a trolley series of the specific type is moved on a track of the specified type.

One preferred species includes a skirt cam for inhibiting derailment of the trolley when traveling on a track of the specified type.

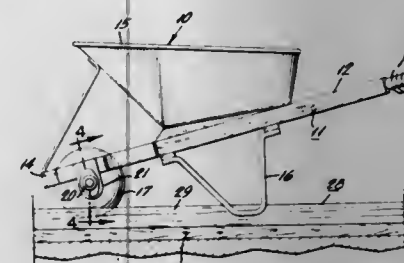
Another preferred species provides the cam surfaces in a unitary formed sheet metal body incorporated in each trolley head assembly.

3,827,368
BRAKING DEVICE OF A RESCUE APPARATUS FOR AN OVERHEAD CABLE TRANSPORT INSTALLATION
Marcel Garnier, Grenoble, France, assignor to Pomagalski S.A., Fontaine, France
Filed Feb. 1, 1973, Ser. No. 328,598
Claims priority, application France, Feb. 11, 1972, 72.4777
Int. Cl. E01b 25/14
U.S. Cl. 104—112



A rescue apparatus comprising a carriage serving as a support for a seat, which can run by gravity on the carrier cable of an overhead cable installation. A brake system permits the regulation of the velocity downward travel on the cable. The carriage and the brake system are so devised as to permit the passing of the grips from which are suspended the loads on the cable and also of the towers.

3,827,369
WHEELBARROW HAVING SPHERICAL WHEEL
Harry B. Mueller, 938 Queen Dr., West Chester, Pa. 19280
Filed Oct. 2, 1972, Ser. No. 293,765
Int. Cl. B61b 13/00; B62b 1/18
U.S. Cl. 104—118

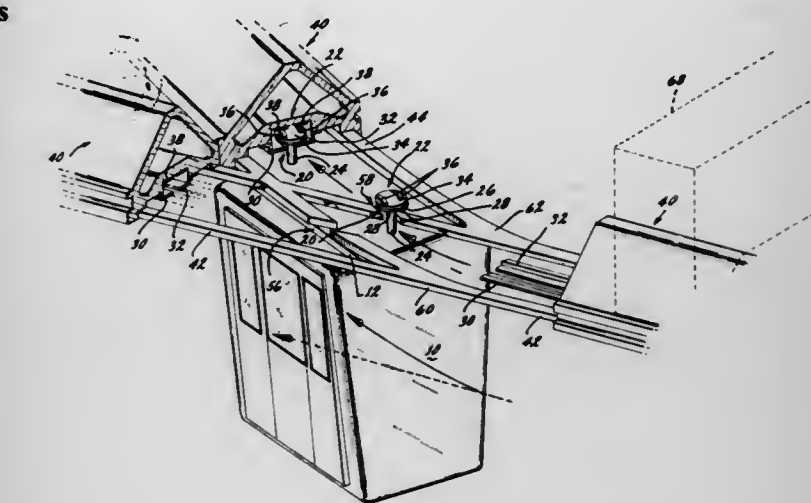


A wheelbarrow having a hopper and a frame with handles at one end is provided with a spherically shaped wheel which is rotatably mounted by means of an axle and bearings at the other end of the frame to support the frame. The spherical wheel permits the frame to be pivoted readily about a vertical axis even when the wheel is engaged in a channel such as between parallel track-rails. In one embodiment, the spherical wheel contains a toroidal inner tube which grips the axle when inflated so that the axle rotates in the bearings mounted on the frame. In another embodiment, the spherical wheel is tubeless, and aligned stub shafts extend outwardly in opposite directions from the sidealls of the spherical wheel for rotation in the bearings mounted on the frame.

3,827,370
PASSIVE SWITCHING SYSTEM
Charles C. Hill, La Jolla, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.
Filed July 9, 1973, Ser. No. 377,607
Int. Cl. B65g 17/44
U.S. Cl. 104—130

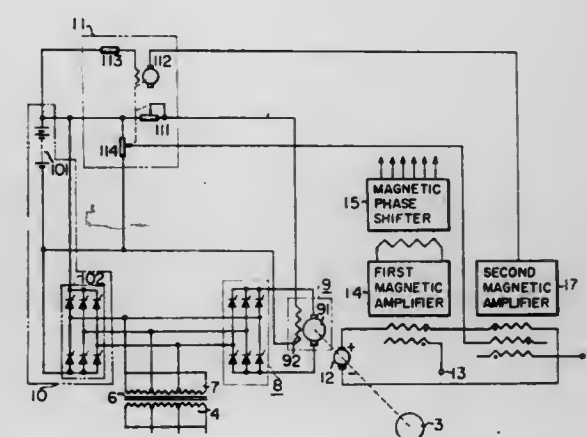
Apparatus for the switching of a magnetically suspended vehicle from a primary guideway through a curved intersec-

tion to a secondary guideway. The vehicle is equipped with a pair of electromagnetic motors which provide a magnetic force to suspend the vehicle from a pair of support rails positioned above and in a superimposed relationship with the electro-magnetic motors. The rails at the intersection of the guideways have increased width so as to maintain an essen-



tially superimposed relationship with their respective electromagnetic motor throughout the curve of the intersection and one rail of each guideway has at least one opening to allow the vehicle structure to pass through and the remaining rail of each guideway forms a unitary rail member. The vehicle is switched by a relative speed difference between the motors caused by input power frequency differences.

3,827,371
LINEAR AND ROTARY MOTOR DRIVING SYSTEM FOR ELECTRIC CAR
Yoshimitsu Onoda, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Sept. 19, 1972, Ser. No. 290,355
Claims priority, application Japan, Sept. 20, 1971, 46-72423
Int. Cl. B601 9/16
U.S. Cl. 104—148 LM



A driving system for an electric car comprising a linear motor, a controlled rectifier device, and a d.c. motor connected to the wheels of the car. The primary winding of the linear motor is disposed along a track for producing a mobile magnetic field, while the secondary winding thereof is disposed on the car and is connected to the controlled rectifier device which drives the d.c. motor. The controlled rectifier device is suitably controlled so that the propulsive force can be developed by the d.c. motor in a low speed range and by the linear motor in a high speed range.

3,827,372

HAULAGE GRIP FOR RELEASABLY GRIPPING A TRACTION CABLE

Roger Laurent, Chambéry, France, assignor to Poma 2.000 S.A., Fontaine, France

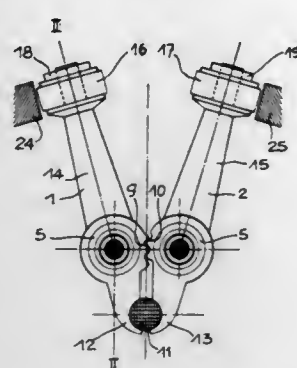
Filed Dec. 30, 1971, Ser. No. 213,954

Claims priority, application France, Dec. 31, 1970, 7047652

Int. Cl. B61b 7/20

U.S. Cl. 104—209

4 Claims



A haulage grip for releasably gripping a traction cable by which a vehicle provided with that grip is moved. The haulage grip comprises two pivotally mounted levers each lever being biased by a torsion bar into a closing position for gripping the cable and each lever being provided with a roller to cooperate with stationary cam rails which control the opening and closing of the grip. Toothed segments connect mechanically the two levers which pivot together symmetrically.

3,827,373

ARTICULATED RAILWAY TRUCK

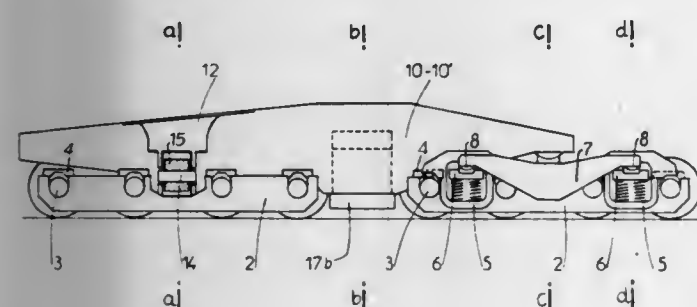
Robert Mouneydiere, Le Perreux, France, assignor to Creusot-Loire, Seine, France

Filed Aug. 2, 1971, Ser. No. 168,181

Int. Cl. B61f 3/10, 5/06, 5/16

U.S. Cl. 105—182 R

3 Claims



A low hung double bogie for heavy large loads has a chassis for each bogie beneath the axles and receiving no load. The load-carrying frame extends over the bogies and rests on a cross-member at each bogie. Each cross-member is supported by laterally spaced secondary equalizers at each bogie. The ends of the pairs of secondary equalizers are supported by cross-members in turn supported by primary equalizers between adjacent axles of the bogie and carried by the axle bearings.

3,827,374

VARIABLE FORCE HOPPER GATE ACTUATING MECHANISM

Robert Beck Winsor, Senneville, Quebec, Canada, assignor to IEC-Holden Ltd., Montreal, Quebec, Canada

Filed Apr. 27, 1973, Ser. No. 354,923

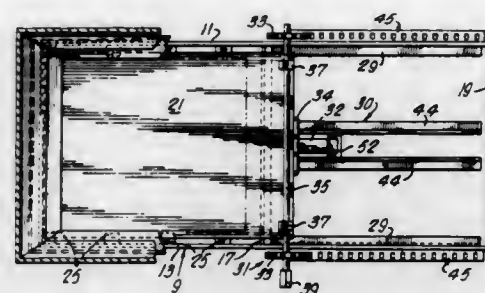
Int. Cl. B61d 7/20, 7/22, 7/26

U.S. Cl. 105—282 P

11 Claims

A rack and pinion gear variable force applying mechanism particularly suitable for opening the gates of railway hopper

cars. The mechanism includes a cam member, preferably rotatably mounted on the gate, and a rack member preferably fixed to a frame guiding the gate between open and closed positions. Teeth on the cam cooperate with slots on the rack to move the gate between open and closed positions as the



cam is rotated through substantially one revolution. Each succeeding tooth on the cam is located a greater radial distance from the center of rotation of the cam than a preceding tooth to transmit a variable force between the cam and rack during cam rotation.

3,827,375

CONTAINER SECURING MEANS FOR RAILWAY FLAT CARS

Boris S. Terlecky, and Leonardus F. A. Grob, both of St. Louis, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

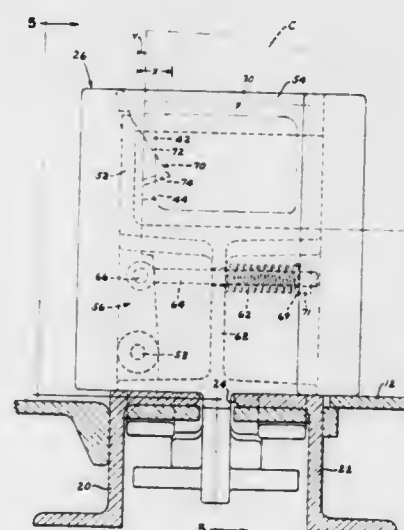
Continuation of Ser. No. 711,373, March 7, 1968, abandoned.

This application May 30, 1972, Ser. No. 257,981

Int. Cl. B60p 7/10; B65j 1/22; B61d 45/00

U.S. Cl. 105—366 D

7 Claims



Means to secure containers on railway flat cars including a releasable lock carried by a corner support for the container and adapted to engage the lower corner of a container at an opening within the corner fitting of the container. The lock automatically secures the container upon the lowering of the container onto the corner supports and is released by a vertical lifting of the container from the corner supports upon a predetermined force exerted by the container against the lock upon the vertical lifting of the container. The container is retained on the corner supports by the locks until a predetermined lifting force is exerted whereby the container is released without any manual actuation of the container securing means.

3,827,376

SHELF RACK

Archie Solomon, 2616 Fenwick, University Heights, Ohio 44118

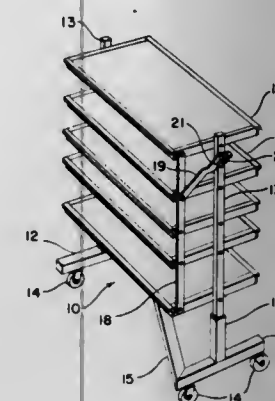
Continuation of Ser. No. 661,923, Aug. 21, 1967, abandoned.

This application Mar. 10, 1971, Ser. No. 123,067

Int. Cl. A47b 43/00

U.S. Cl. 108—91

3 Claims



This invention comprises a shelf rack in which the shelves can be collapsed to an essentially vertical position and the end frames supporting the shelves are connected by an essentially diagonal rail whereby the racks can be nested for storage.

3,827,377

RACK ASSEMBLY

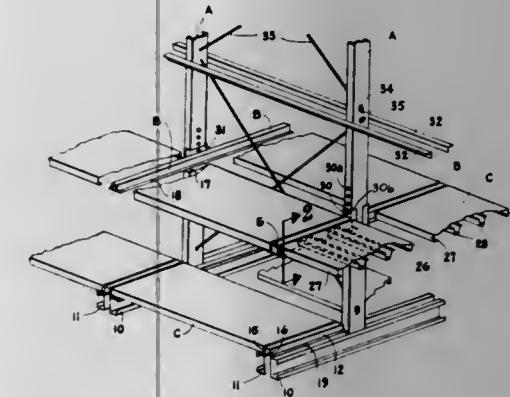
Paul C. Aughtry, Jr., Greenville, S.C., assignor to Gower Manufacturing Co., Inc., Greenville, S.C.

Filed Apr. 20, 1972, Ser. No. 245,805

Int. Cl. A47f 5/10

U.S. Cl. 108—108

3 Claims



A rack assembly including vertical columns that have elongated load arms extending outwardly therefrom. The load arms include a pair of interlocking sections having outwardly extending flanges adjacent the lower edge thereof. Deck panels are supported on the flanges of the load arms. The deck panels are constructed of an elongated planar sheet of sheet metal having opposed outer edges with a plurality of support members carried therebetween. Tie straps interconnect the outer edges of the deck panel adding rigidity thereto.

3,827,378

DISPOSAL OF WASTE BY INCINERATION

Frederick W. Kufirin, Janesville; Paul R. Virnoche, Newton; Donald J. Allen, Fort Atkinson; Phillip E. Gokey, White-water, and Frederick A. Rose, Fort Atkinson, all of Wis., assignors to Polar Wave Company, Sheboygan, Wis.

Division of Ser. No. 20,319, March 17, 1970, Pat. No. 3,694,825.

This application May 22, 1972, Ser. No. 256,776

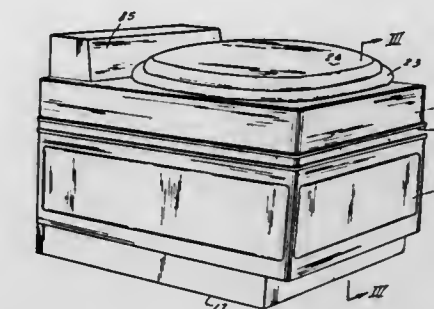
Int. Cl. F23g 5/12

U.S. Cl. 110—9 R

23 Claims

Waste is disposed of by incineration including burning solids, vaporizing liquids and converting any residual gases

into elemental substantially odorless form. Discharge temperature of the treated gases is reduced to an acceptable level. Practice of the method is exemplified in an incineration apparatus such as a toilet utilizing a "soft" gas flame providing not only incinerating and vaporizing heat within a firebox but



3,827,379

ROTARY KILN TYPE SOLID WASTE INCINERATING SYSTEM AND METHOD

Hidemasa Tsuruta, Tokyo, and Michinori Makiguchi, Chiba-ken, both of Japan, assignors to Nittetu Chemical Engineering Ltd., Tokyo, Japan

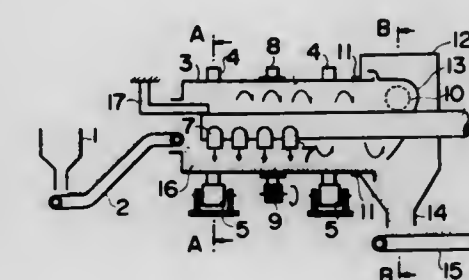
Filed Mar. 23, 1973, Ser. No. 344,289

Claims priority, application Japan, Apr. 24, 1972, 47-028968

Int. Cl. F23g 5/06

U.S. Cl. 110—14

20 Claims



A rotary kiln type solid waste incinerating system and a method for continuously and efficiently incinerating a large amount of solid waste are disclosed. A vortex is established within the rotating cylinder of the kiln by injection of air to vigorously agitate the atmosphere within the kiln and thereby ensure uniform distribution of oxygen and efficient combustion. In one embodiment, the system includes an air induction duct which is approximately concentric with the rotary cylinder and which has a plurality of air injection nozzles at suitable intervals along its length for injecting air into the rotary cylinder in a direction tangential to its inner surface to establish a vortex.

3,827,380

METHOD FOR LINKING CIRCULAR KNITTED GARMENT SECTIONS

Luis Sentis Anfruns, Panama St. Nos. 2 & 4, Barcelona, Spain

Continuation-in-part of Ser. No. 217,991, Jan. 14, 1972, abandoned. This application Oct. 29, 1973, Ser. No. 410,893

Int. Cl. D05b 7/00

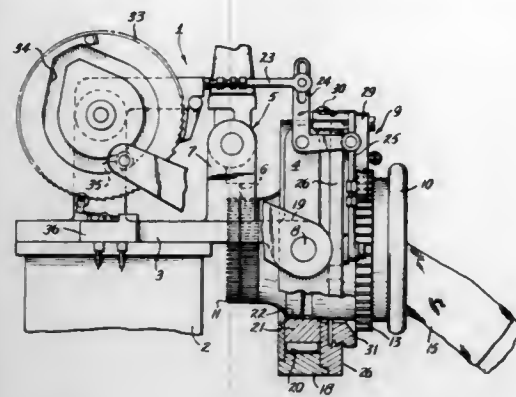
U.S. Cl. 112—25

4 Claims

A method for linking together by stitching in a linking machine toe pieces and upper stocking sections using a linking machine utilizing separable work cylinders which are loaded

with stocking sections at separate work stations. The toe pieces and upper stocking sections are individually circular knitted, leaving a last yarn course loosely formed on each stocking section to enable the loops of the last yarn course of

and wherein the stitch forming instrumentalities may produce stitch abnormalities in at least one of the vector directions of workpiece movement, a method of forming normally appearing stitches by tensioning the stitch forming thread in response to the vector direction of workpiece movement. The method



the stocking sections to be mounted on the points of the work cylinder by operators at individual work stations. The loaded work cylinders are transferred to the linking machine, the stocking sections are joined, and the work cylinders are unloaded in a smooth, continuous operation.

3,827,381

AUTOMATIC SEWING MACHINE CONTROL HAVING A MANUALLY CONTROLLED OPERATING SEQUENCE

Theo Meindert Baanstra, Warmbronn; Wolf-Rudiger Von Hagen, Grotzingen, and Wolfgang Niem, Leonberg, all of Germany, assignors to Union Special Maschinenfabrik G.m.b.H., Stuttgart, Germany

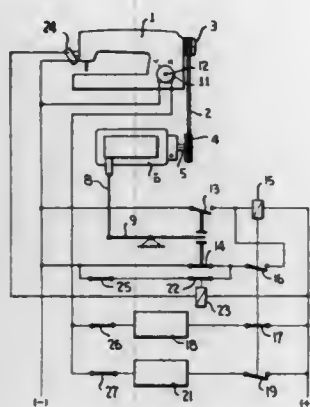
Filed Feb. 9, 1972, Ser. No. 224,676

Claims priority, application Germany, Feb. 16, 1971, 2107351

Int. Cl. D05b 19/00

U.S. Cl. 112-121.11

14 Claims



This disclosure relates to an automatic control for a sewing machine which will effect the automatic controlling of the operation of the sewing machine at both the leading and trailing edge of a workpiece while at the same time permitting a manually controlled operating sequence during other portions of the sewing cycle which will in no way affect the automatically controlled operations.

3,827,382

METHOD AND APPARATUS FOR FORMING NORMALLY APPEARING STITCHES

Raymond A. De Vita, Hamilton; Adolph S. Dorosz, Beverly, and Henry M. Scaletti, Jr., Wenham, all of Mass., assignors to USM Corporation, Boston, Mass.

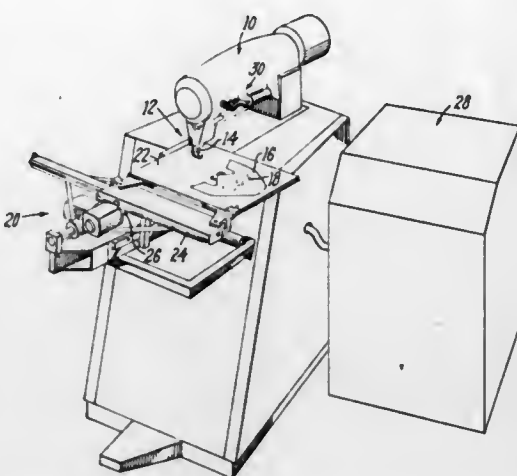
Filed Oct. 24, 1972, Ser. No. 299,945

Int. Cl. D05b 3/04, 47/04

U.S. Cl. 112-262

6 Claims

In a sewing machine having thread stitch forming instrumentalities for forming successive stitches in a workpiece and having means for moving the workpiece in vector directions



may also include drawing the stitch abnormalities into the workpiece. Apparatus for carrying out the foregoing method has means responsive to the vector direction of workpiece movement for controlling variable thread tensioning means included in the stitch forming instrumentalities.

3,827,383

SALVAGE METHOD UTILIZING WATER EMULSIFIED POLYESTER RESIN AND HOLLOW MICROSPHERES

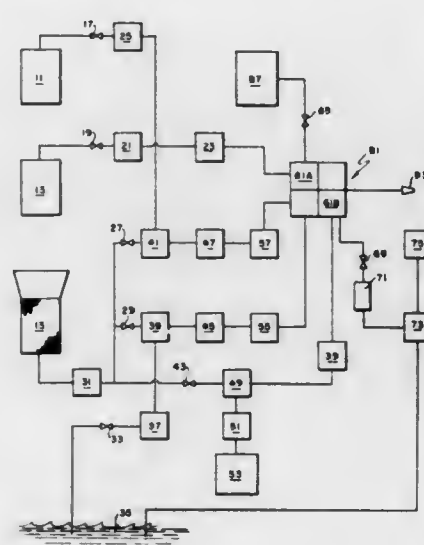
Allen Winer, Rockville, and Robert E. Proodian, Upper Marlboro, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 16, 1971, Ser. No. 163,182

Int. Cl. B63c 7/12

U.S. Cl. 114-50

5 Claims



The invention is a method of supplying buoyancy to sunken objects by the use of a combination of water emulsified polyester resin, water, hollow microspheres, and depending on ambient conditions, a drag reduction agent.

3,827,384

CONTAINERSHIP

Thomas Trygve Lunde, 6 Locksley Ave., San Francisco, Calif. 94122, and Einar O. Lunde, 66 Calypso Shores, Novato, Calif. 94947

Filed Apr. 21, 1972, Ser. No. 246,475

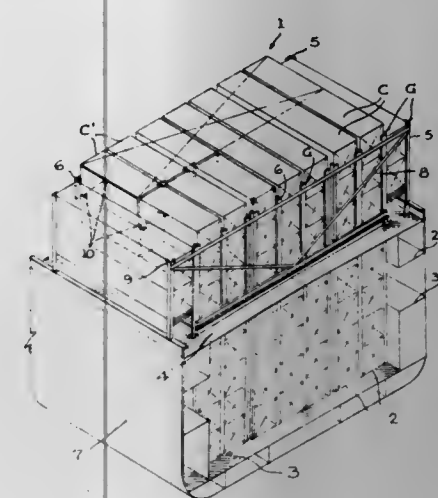
Int. Cl. B63b 25/02

U.S. Cl. 114-72

14 Claims

A containership includes a plurality of container-receiving cells each defined by a plurality of vertical guides extending

from the tank top to a level adjacent the main deck hatch opening. Additional guides further extend upwardly from the below-deck guides to provide series of uninterrupted cells each accommodating a plurality of containers both below and



above deck. Included are other above-deck guides to permit stowage to the skin of the ship. Hatch covers are provided having hinged end sections automatically operable during raising and lowering thereof within the above-deck guides to lock and unlock the covers at the main deck hatch coaming.

3,827,385

CARGO VESSEL

Hisashi Soma, Yokohamashi, Japan, assignor to Mitsui Shipbuilding and Engineering Co. Ltd., Tokyo, Japan

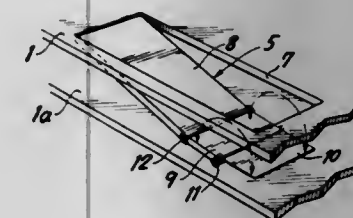
Filed Nov. 2, 1972, Ser. No. 303,201

Claims priority, application Japan, Nov. 2, 1971, 46-87340

Int. Cl. B63b 3/48

U.S. Cl. 114-85

1 Claim



A cargo vessel in which the tweendecks are displaceable vertically, being lifted to clear the hold for bulk cargo. Ramps are provided which are operable when the tweendecks are lowered to permit passage vehicles through an opening in the upper deck down the ramp to the next lower deck. The ramp is hingedly supported at one end at the upper deck at one end of the opening. The other end of the ramp is slidably supported on the lower deck so that when the lower deck is raised, it raises that end of the ramp into the opening. That end of the ramp is provided with a subramp which has limited pivotal movement relative to the main ramp and a foldable extension at the free end which may be folded back over the subramp.

3,827,386

MEANS FOR LOWERING THE MAST ON SAILBOATS

Carl Faden, 2830 Bay Dr., Merrick, L. I., N.Y. 11566

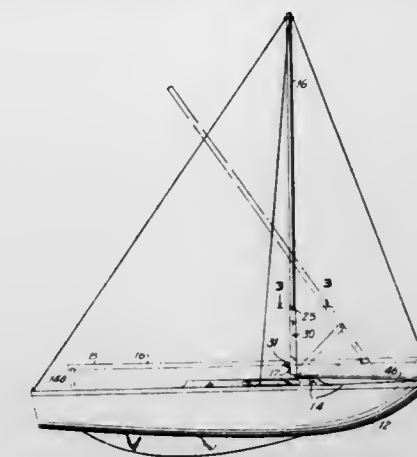
Filed July 9, 1973, Ser. No. 377,550

Int. Cl. B63b 15/00

U.S. Cl. 114-91

9 Claims

This invention provides means for lowering the mast on a sailboat without requiring any adjustment or release of the



boat, the second end being pivotally secured to an intermediate position on a mast, the lower end of the mast being pivotally and slidably secured to the hull of the sailboat.

3,827,387

BOAT CONSTRUCTION FOR AMUSEMENT PARK USE

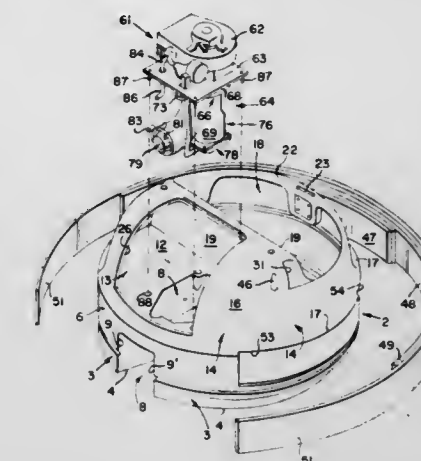
Edgar A. Morgan, Palo Alto, Calif., assignor to Arrow Development Co., Inc., Mountain View, Calif.

Filed May 22, 1972, Ser. No. 255,382

Int. Cl. B63b 21/04

U.S. Cl. 114-219

3 Claims



Presented is a boat construction for use primarily in amusement parks where patrons pay a prescribed fee and operate the boat for a limited time. The boat hull is generally cylindrical in its configuration, is equipped with propulsion means activated by the concensionaire, and steering means controlled by a passenger or patron occupying the boat.

ERRATUM

For Class 114-235 see:
Patent No. 3,827,407

3,827,388

SHIP PROPULSION SYSTEM

William H. Fulton, Chelmsford, Mass., assignor to Fulton Projects, Inc., Chelmsford, Mass.

Filed June 1, 1971, Ser. No. 148,568

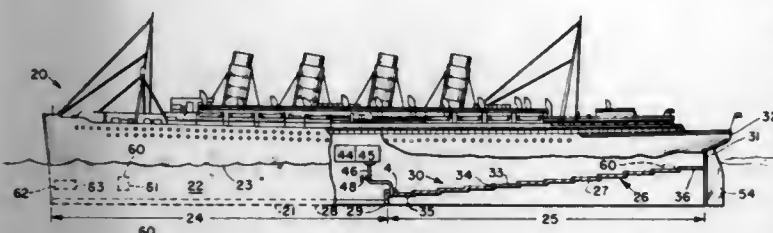
Int. Cl. B63h 11/00, 11/12; B63b 1/34

U.S. Cl. 115-11

7 Claims

An elongated water borne vessel is propelled forwardly with substantially less horse power than required by conventional propeller driven ships by means of a series of upwardly rising steps extending from full depth at the ship bottom rearwardly

to just below the water line proximate the stern. Compressed air is delivered to the bottommost step for propelling the ship forwardly and then rising and expanding up each successive



step to continue to exert forward thrust. Boundary surfaces along the sides of the steps prevent sidewise escape of the air bubble occupying each step.

3,827,389

BOAT STABILIZER

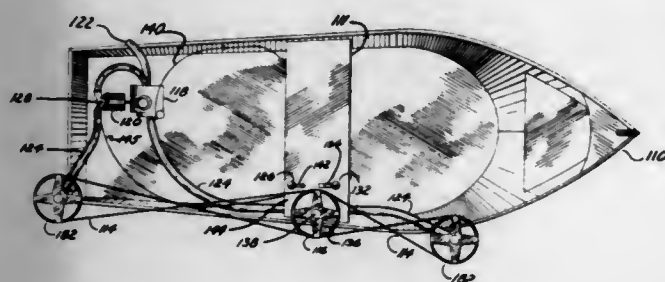
Richard L. Kureth, 31742 Sheridan, Garden City, Mich. 48135

Filed Aug. 11, 1971, Ser. No. 170,769

Int. Cl. B63h 11/00

U.S. Cl. 115-12 A

5 Claims



A boat stabilizer system comprising a pair of nozzles attached permanently or temporarily to a boat to extend beneath the boat adjacent the front and rear so that a pressurized stream of water can be directed through the nozzles in a desired direction to stabilize the boat against wind and current to prevent drifting.

3,827,390

HYDROJET PROPULSION DRIVE

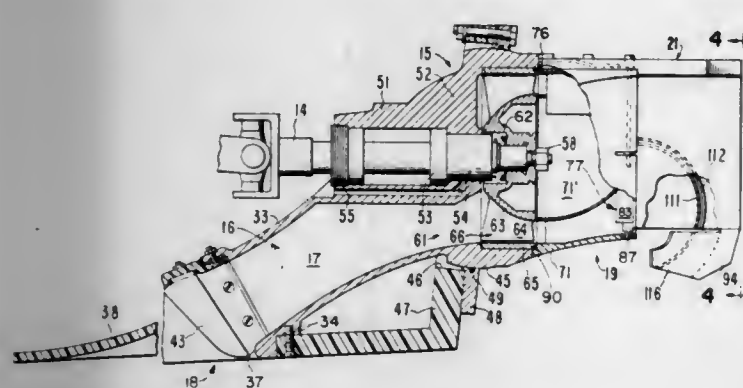
Robert T. De Vault, Malibu, and Ralph Maloof, Woodland Hills, both of Calif., assignors to Daul Davidson, Denver, Colo.

Continuation-in-part of Ser. No. 108,946, Jan. 22, 1971. This application Dec. 21, 1971, Ser. No. 210,394

Int. Cl. B63h 11/10

U.S. Cl. 115-12 R

28 Claims



An improved hydrojet propulsion drive is described for a propulsion drive having a pair of vertical substantially rectangular openings on either side of a rotatably mounted steering vane with means for directing the propulsion jets from said openings into the steering vane, downwardly, and forwardly

for reverse drive of the craft. The water directing means includes a pair of deflection plates movable across the jet streams deflecting the stream into a reversal cup carried by and below the steering vane. Deflection ridges can be included on the deflection plates for sub-dividing the reversal jet stream. The hydrojet pump impellor and stator stages are positioned at mating ends of forward and aftward housings secured together only by two bolts which readily permit disassembly for immediate access to the impellor and stator. The stator can be formed by slotting cup-shaped member, projecting straightening vanes through the slots to an opposed flange member and ridgedly securing the three-elements together.

3,827,391

HYDROFOIL VEHICLE

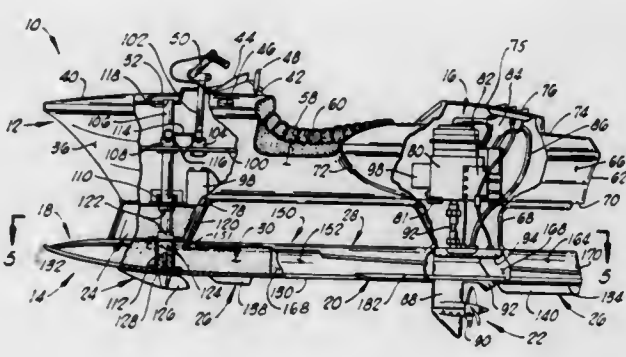
William R. Stanberry, Sr., and William R. Stanberry, Jr., both of Derby, Kans.

Filed Apr. 23, 1973, Ser. No. 353,903

Int. Cl. B63h 5/06

U.S. Cl. 115-70

6 Claims



The hydrofoil vehicle has a buoyant hull to support a rider. A powering device is in the hull with a propeller therefrom. The ski assembly includes a main ski below the hull mounted on the forward and aft ends thereof. It has a pair of helper skis oppositely alongside the aft end portion of the main ski. Stabilizing fins extend below the main ski, and a rudder is used to steer.

3,827,392

WATER PLANING CRAFT

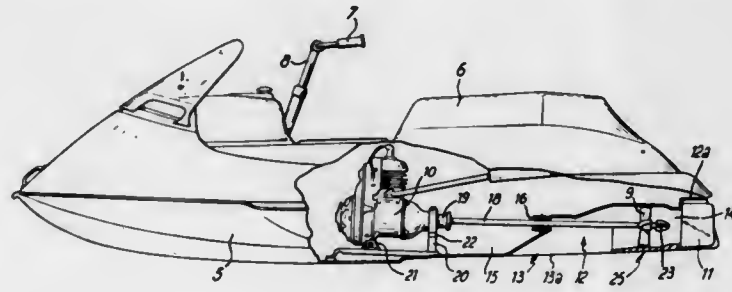
Dennis L. Jones, Breaston, England, assignor to Scooter Ski Limited

Filed July 21, 1972, Ser. No. 274,015

Int. Cl. B63h 11/02

U.S. Cl. 115-70

6 Claims



A planing water craft includes a hull having a longitudinally directed tunnel located on the centre line of the craft, the tunnel having a forward inlet and a rear outlet with the former disposed rearwardly of the centre of the hull, and there being a single resiliently-mounted propeller shaft in the tunnel driven from an engine resiliently mounted in a sealed engine compartment forwardly of the tunnel.

3,827,393

VEHICLE TIRE DEFLATION SIGNALLING MEANS

Harry C. Winther, Glen Mills, Pa., assignor to Walter J. Winther; Charles R. Winther; William J. Winther and Shirley M. Winther, Glen Mills, Pa., part interest to each

Continuation-in-part of Ser. No. 113,566, Feb. 8, 1971, Pat.

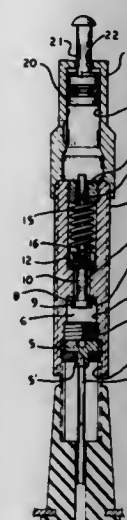
No. 3,717,845. This application Feb. 15, 1973, Ser. No.

332,776

Int. Cl. B60c 23/06

U.S. Cl. 116-34 R

6 Claims



An attachment for a pneumatic tire for a vehicle or the like which contains a pressure-differential-responsive valve communicating with the interior of the tire and operative to activate a conspicuously decorated signal making unit to cause the unit to be displayed for visual observation when air pressure in the tire for any reason is reduced to a predetermined undesirably low value, whereby an observer may ascertain that the tire is under-inflated and thus in a possibly hazardous condition.

3,827,394

DEVELOPER APPARATUS

Yasuhiro Takahashi, and Osamu Saita, both of Tokyo, Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

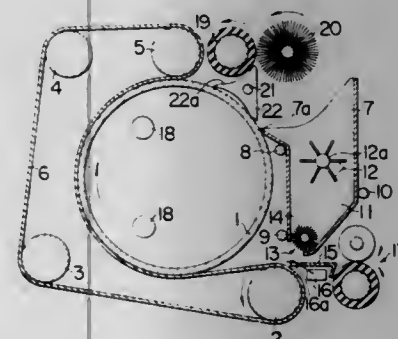
Filed Feb. 11, 1972, Ser. No. 225,438

Claims priority, application Japan, Feb. 15, 1971, 46-8216; July 16, 1971, 46-63344

Int. Cl. G03g 13/08; B05b 7/14

U.S. Cl. 118-2

4 Claims



Means detect positioning of a medium bearing a latent image and responsive thereto actuate discharge of developer material from hopper means. Means convey the medium and developer material thereon about a heated drum. Endless belt means conform the medium to the drum.

3,827,395

ADHESIVE SYSTEM

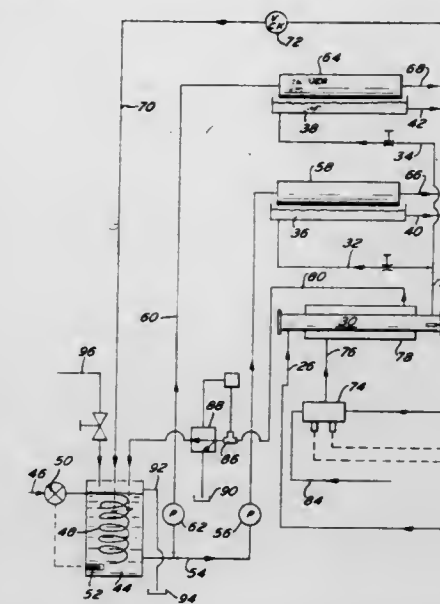
Walter J. Goettsch, Wilmette, Ill., assignor to Harris-intertype Corporation, Cleveland, Ohio

Filed July 3, 1972, Ser. No. 268,403

Int. Cl. B05c 1/08, 1/10

U.S. Cl. 118-5

6 Claims



Apparatus for applying a starch adhesive bonding agent which is continuously circulated and heated to a temperature about 20°F below its gelatinization temperature. An applicator roll for applying the bonding agent is also heated by a circulation system so as to increase the temperature of any bonding agent on the roll to a desired temperature such as 2°F below gelatinization temperature.

3,827,396

APPARATUS FOR PRODUCING PAPER BAGS

Dominick Terzuoli, 2258 E. 70 St., Brooklyn, N.Y. 11234

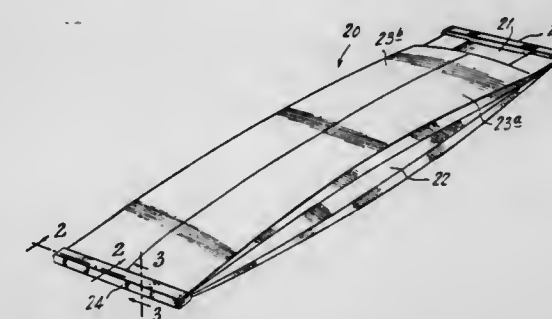
Division of Ser. No. 122,321, March 9, 1971, Pat. No.

3,716,181. This application Dec. 18, 1972, Ser. No. 316,368

Int. Cl. B05c 11/00

U.S. Cl. 118-44

1 Claim



Paper bags are produced by folding a web of paper and adhesively securing together overlapped longitudinal edges of the folded web to form a flat tube having opposed panels connected, at their sides, by pleats which extend along the sides of the tube and which are creased inwardly between the panels, cutting across the tube at locations spaced apart along the latter to divide the tube into sections, and embedding at least one end of each tube section in an enveloping cap of thermoplastic material which extends across the tube section and at least partly closes the respective end. The enveloping cap is formed on an end of each tube section, preferably during the movement of successive tube sections along a conveyor path, by dipping the tube section end in a mass of the thermoplastic material heated to a plastic state and then withdrawing the tube section end from the heated mass, or by inserting the tube section end into the cavity of a mold that moves with the tube sections and into which the thermoplastic material is injected about the tube section end, or by applying the ther-

moplastic material in heated plastic state to one or more rollers that are traversed by the tube section end as the respective tube section is moved along the conveyor path.

3,827,397

APPARATUS FOR COATING MOVING FILAMENTARY STRANDS

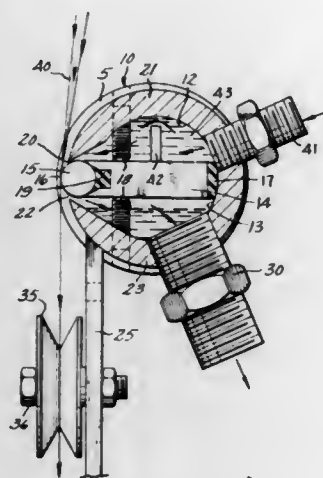
Friedrich Hebbeling, deceased, late of Pittsburgh, Pa., and Lothar J. Uhl, administrator, 7720 E. Jefferson Ave., Detroit, Mich. 48231

Filed June 29, 1971, Ser. No. 157,823

Int. Cl. B05c 1/04

U.S. Cl. 118—50

6 Claims



Apparatus for coating continuous moving filamentary strands with a binder material that has a walled binder material supply chamber and a walled sump chamber, said chambers having a non-rotatable applicator shoe with an exteriorly exposed surface and interposed in spaced relationship between the chamber walls. Binder material under low pressure flows in a sheet-like film from the supply chamber to the sump chamber by wall attachment over the exposed surface of the applicator shoe. The filamentary strands in contact with and moving through the sheet-like binder material are thereby continuously coated with the binder material.

3,827,398

APPARATUS FOR TINNING ELECTRICAL CIRCUIT WIRES AND THE LIKE

Hermann Trattner, and Hans Raab, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

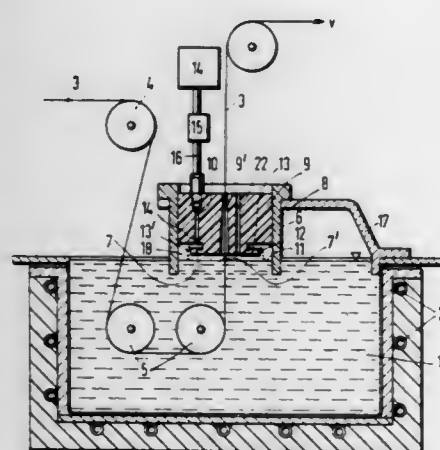
Filed Feb. 12, 1973, Ser. No. 331,851

Claims priority, application Germany, Feb. 18, 1972, 2207719

Int. Cl. B05c 3/15

U.S. Cl. 118—58

9 Claims



An apparatus for tinning electrical circuits wires with a solder layer of tin or a tin alloy in which the wire is fed through

a solder bath of tinning metal with the wire emerging upwardly therefrom in a substantially vertical direction, the exit point of the wire from the bath being encircled by a non-metallic tubular member, for example of quartz or quartz glass, with the casing having its adjacent end immersed in the bath. The upper end of the member is closed by a non-metallic insert which is spaced above the surface of the bath and is provided with an orifice through which the wire passes, the space between the insert and the surface of the bath being adapted, in use, to receive an agent which will inhibit, i.e., dissolve or prevent the formation of tin oxide, for example, an inert gas or zinc chloride. The insert may be provided with a supply passageway for the inhibiting material and may be provided with an annular shaped flange which may be positioned concentrically with respect to the exiting wire and disposed below said supply passageway, whereby material, such as zinc chloride, may be received on said flange and distributed around the exiting point of the wire from the tinning metal.

3,827,399

APPARATUS FOR EPITAXIAL GROWTH FROM THE LIQUID STATE

Hiroyuki Kobayashi, Osaka, Japan, assignor to Matsushita Electric Industrial Company, Limited, Kadoma, Osaka, Japan

Continuation of Ser. No. 860,772, Sept. 24, 1969, abandoned.

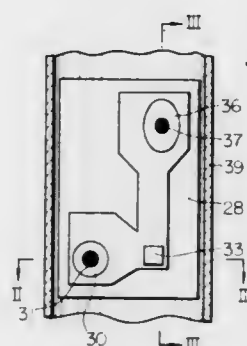
This application June 14, 1972, Ser. No. 262,529

Claims priority, application Japan, Sept. 27, 1968, 43-70902

Int. Cl. H011 7/00

U.S. Cl. 118—64

2 Claims



An elongated boat disposed in a furnace tube has a recessed portion to support a substrate, for liquid epitaxial growth thereon, and second and third recessed portions transversely spaced from and longitudinally spaced from, respectively, the substrate supporting recess and adapted to hold liquid materials. The boat is rotatable about an axis parallel to the tube axis and the tube is swingable on an axis normal to said tube axis whereby the materials may be sequentially applied to said substrate.

3,827,400

COATING APPARATUS

Julian Pascoe Grenfell, Pyrford, England, assignor to Badalex Limited, Weybridge, England

Filed Oct. 4, 1972, Ser. No. 294,995

Claims priority, application Great Britain, Oct. 5, 1971, 46235/71; May 19, 1972, 23618/72

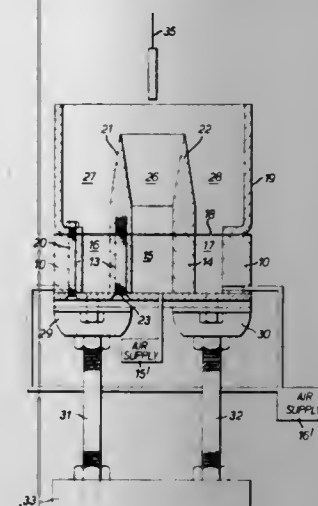
Int. Cl. B05c 3/09

U.S. Cl. 118—421

5 Claims

This invention relates to coating apparatus of the type in which an article to be coated is immersed in a main fluidized bed of the coating material. At least one supplementary fluidized bed is provided which contains a supply of additional coating material, the level of the supplementary bed being capable of being raised to a level above that of the main bed whereby additional coating material is transferred from the

supplementary bed to the main bed to replenish the coating material therein. Once the desired level has been achieved,



the level of the supplementary bed is lowered and any surplus coating material is arranged to fall back into the supplementary bed.

3,827,401

SANITARY RECEPTACLE FOR PETS

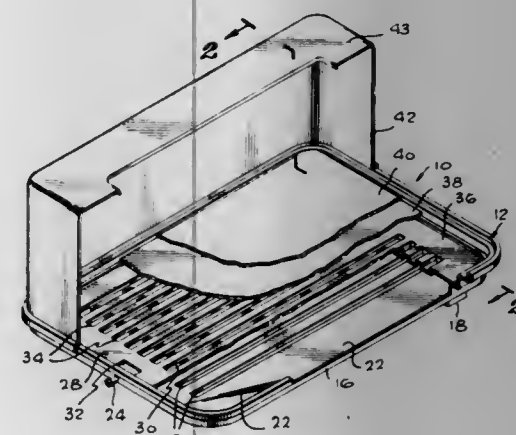
Gertrude K. Franzl, 105-25 65th Ave., Forest Hills, N.Y. 11375

Filed Oct. 16, 1972, Ser. No. 297,589

Int. Cl. A01k 29/00

U.S. Cl. 119—1

12 Claims



An improved sanitary animal toilet is provided which includes an open topped, hollow self-supporting basin, a porous horizontal platform removably disposed in the basin above its lower end, a porous skid resistant mat removably disposed on the platform and a sheet of disposable porous paper or the like positioned on the mat. The sheet traps feces, while the mat and drainboard allow urine to pass to a drain in the basin below the platform. A basin liner and basin enclosure, the latter for male animals, can also be provided. The basin can be made inflatable for easy use. A carrying or storage case is provided for each model of the receptacle.

3,827,402

ANIMAL FACILITY

Frank R. Laurenz, P.O. Box 359, Eagle Butte, S. Dak. 57625

Continuation-in-part of Ser. No. 295,594, Oct. 6, 1972, abandoned. This application July 18, 1973, Ser. No. 380,146

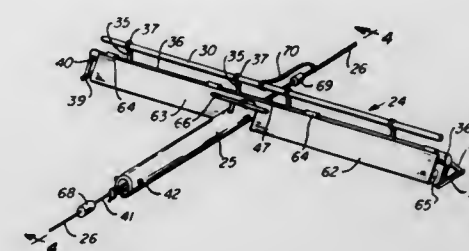
Int. Cl. A01k 01/00; B65g 25/08

U.S. Cl. 119—15

10 Claims

The disclosed animal facility comprises an alleyway having a substantially horizontal animal-supporting surface, plus an assembly for discouraging animals from lying down in the alleyway. The assembly comprises a movable elongated elec-

trode means substantially transversely oriented across the alleyway. A scraper for removing dung may optionally be included. Power train means is provided for effecting substantially automatic movement of the electrode means along the alleyway as a substantially transverse object in proximate relationship above the animal supporting surface. Additionally,



the assembly comprises frame means for supporting the electrode means for its movement, sensing means for detecting an obstruction to the movement of the electrode means, and responsive electrical means actuated in response to the sensing means for sending a jolting charge of electrical energy to the electrode means.

3,827,403

ANIMAL TRAINING DEVICE

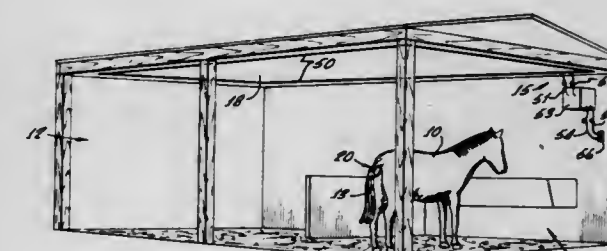
Richard C. Meyer, La Habra, Calif., assignor to Arne J. Peterson, Newport Beach and Herold F. Deardorff, Corona, both of, Calif., part interest to each

Filed June 8, 1973, Ser. No. 368,273

Int. Cl. A01k 15/00

U.S. Cl. 119—29

15 Claims



A urination-defecation trainer for animals comprising an energy transmitting means for defining a limited, chosen area, portable means carried by the animal and attached to its tail for sensing the angular orientation thereof and for providing an output when the animal raises its tail while standing. The portable means carried by the animal also receives the transmitted energy in the chosen area, and physically stimulates or shocks the animal. The portable means is responsive to the sensing means and the receiving means for selectively activating the stimulating or shocking means when the animal raises its tail dependent upon the location of the animal relative to the chosen area.

3,827,404

FEEDER DEVICE

Max D. North, Midway, Utah

Filed July 31, 1972, Ser. No. 276,850

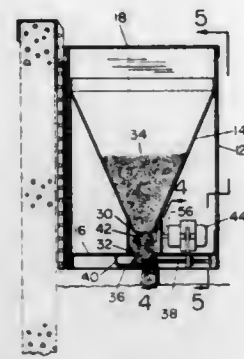
Int. Cl. A01k 5/02

U.S. Cl. 119—51.11

10 Claims

An automated feeding apparatus with a solenoid-powered sweeper that scatters controlled amounts of feed from off a platform onto which loose dry feed pours from a hopper above. The sweeper is provided with adjusting threads and

may be a simple stove bolt for easy adjustment of the penetration of the sweep. A timer is also provided to increase or



decrease the solinoid activation frequency for further controlling the amount of feed dispensed during a given period as well as dispensing at the desired time of day.

3,827,405

CANISTER BAIL FOR POULTRY FEEDER

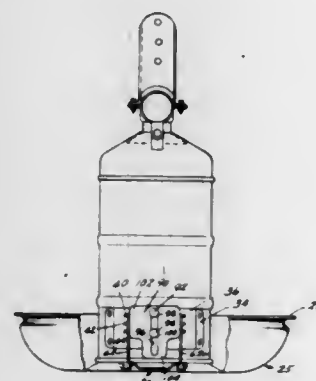
Dee Dexter Allen, Zeeland, Mich., assignor to U.S. Industries, Inc., New York, N.Y.

Filed Mar. 30, 1973, Ser. No. 346,421

Int. Cl. A01k 05/00, 39/00

U.S. Cl. 119—53

5 Claims



A cup-shaped feed pan is suspended from a feed container by a pair of U-shaped bail hooks, the web portion of which is pivotally attached to the pan bottom. The upper ends of the hook arms include a first portion extending inwardly, and a second portion extending laterally outwardly, generally parallel to the web. The container includes similar sets of vertically spaced laterally extending slots interconnected by a vertical slot for receiving the end portions of each arm when the hook is flexed inwardly. When released from being flexed inwardly the ends hook behind the wall of the container thus providing a releasable connection between the hooks and the container. A slideable lock plate prevents unintentional movement of the bail hooks by the poultry.

3,827,406

HIP CLAMP AND LIFTING FRAME FOR BOVINE QUADRUPEDS

Avalo A. Berns, R.R. Box 26, Greeley, Iowa 52050

Filed Apr. 11, 1973, Ser. No. 350,066

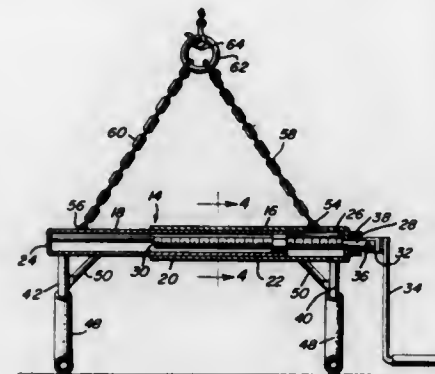
Int. Cl. A61d 3/00

U.S. Cl. 119—100

3 Claims

A pair of large and small diameter elongated tubular members including a first pair of relatively telescoped ends. The other pair of ends of the tubular members include laterally outwardly projecting rounded open frames disposed in planes generally normal to the longitudinal center lines of the tubular members and the frames project outwardly of corresponding sides of the tubular members. The telescoped end of the small

tubular member includes structure defining a central threaded bore opening endwise outwardly of the small tubular member and the free end of the outer tubular member includes end wall defining structure having a threaded bore formed therethrough. An elongated screw member includes a first end journaled through the end wall defining structure of the outer tubular member against axial shifting relative thereto. The other end of the screw member is threadedly engaged in the



3,827,407

TUG/BARGE LATCHING MECHANISM

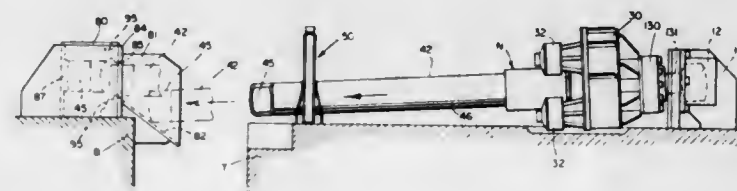
Andrew Stratienko, Wyndmoor, and Robert J. Kornsey, Hatfield, both of Pa., assignors to Philadelphia Gear Corporation, King of Prussia, Pa.

Filed Sept. 4, 1973, Ser. No. 393,913

Int. Cl. B63b 21/00

U.S. Cl. 114—235 A

12 Claims



A self-latching self-releasing mechanism for coupling and releasably locking a marine tug to a barge includes, in a preferred form, a non-powered latching mechanism of the keeper type mounted at the aft end of the barge and a power-driven latch coupling mechanism mounted on the fore end of the tug. The power-driven latch coupling mechanism includes a latch bar mounted at the forward end of an elongated tubular nut adapted to be driven forwardly and rearwardly in the axial direction of the tubular nut by a power-driven screw shaft. Provision is made for rotating the tubular nut, and hence the latch bar, through 90°, to effect latching and unlatching. The rearward end of the screw shaft is supported for rotation in the housing of the power drive which in turn is supported for universal movement on a stub mounted in a self-aligning spherical bearing in a support housing mounted on the tug. Axial or translational thrust forces are transmitted through the screw shaft and its power drive housing to the support housing. The power drive and its housing move axially with any axial movement of the screw, and hence are not subjected to the axial thrust forces. Self-latching and self-releasing of the latching mechanism is accomplished and controlled by the direction of rotation of the tubular nut on the screw shaft.

3,827,408

ROTARY COMBUSTION ENGINE

Yoshikazu Ishikawa, Tokyo, Japan, assignor to Nissan Motor Company, Limited, Kanagawa-ku, Yokohama City, Japan

Filed May 24, 1973, Ser. No. 363,397

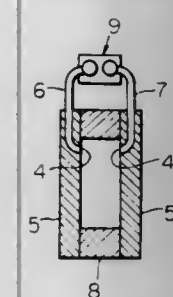
Claims priority, application Japan, June 2, 1972, 47-54974

Int. Cl. F02b 53/04

U.S. Cl. 123—8.13

3 Claims

PRIOR ART



A rotary combustion engine comprising primary and secondary intake ports formed in each of two side walls through which a primary and a secondary air-fuel mixture respectively are supplied into the engine, the primary port being covered by the rotor prior to the secondary port during operational rotation of the rotor.

3,827,409

FUEL INJECTION SYSTEM FOR INTERNAL COMBUSTION ENGINES

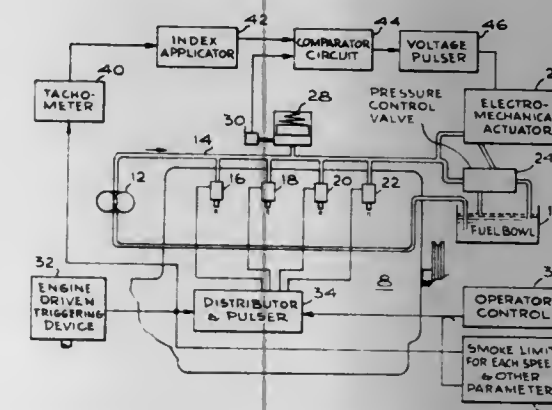
Cormac G. O'Neill, Lafayette, Calif., assignor to Physics International Company, San Leandro, Calif.

Filed June 29, 1972, Ser. No. 267,550

Int. Cl. F02m 5/06

U.S. Cl. 123—32 EA

8 Claims



A system is provided for varying the fuel pressure of an internal combustion engine having a common rail system as a function of an engine parameter, such as engine speed or air mass intake.

3,827,410

METHOD FOR ACCOMPLISHING A HIGH DRIVING FORCE AT A COMBUSTION GAS DRIVEN IMPACT DEVICE AND AN IMPACT DEVICE FOR CARRYING OUT OF SAID METHOD

Eero Antero Erma, 23 Ottfjällsvägen, 130 21 Klinten; Stig Bertil Arthur Fredin, 14 Hastskövagen, 136 71 Handen; Karl Gosta Lindh, 19 Nytorpsvägen, 191 45 Sollentuna, and Leo Anders Timgren, 12 Dalen, 132 00 Saltsjö-Boo, all of Sweden

Filed Dec. 7, 1972, Ser. No. 313,130

Claims priority, application Sweden, Dec. 13, 1971, 15926/71

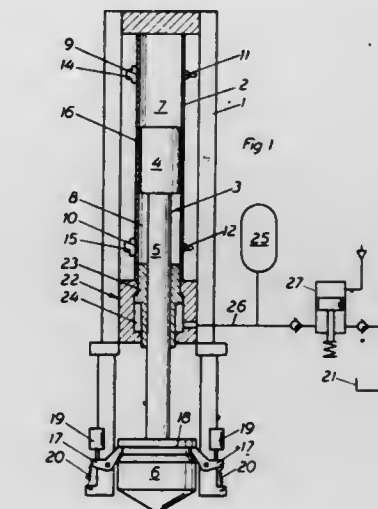
Int. Cl. F02b 71/00

U.S. Cl. 123—46 R

8 Claims

A method and a device for obtaining high energy impacts mainly for demolishing purposes. In a piston-cylinder device,

the cylinder is charged with pressurized combustible gas at both sides of the piston and a rearwardly directed compression stroke is initiated by ignition of the gas volume at the forward end of the piston. At a certain pressure, the compressed gas volume within the rear end of the cylinder is ignited and a forwardly directed working stroke is initiated. The device com-



prises a gas supply system and two ignition systems, one of which is manually controlled for the compression stroke initiating and the other is a pressure sensitive automatic system for the working stroke initiating. The impact device also comprises a retarding device by which kinetic energy is absorbed from the piston unit at the end of the working strokes.

3,827,411

ROTARY PISTON INTERNAL COMBUSTION ENGINE OF TROCHOIDAL CONSTRUCTION

Heinz Lamm, Esslingen-St. Bernhard, and Lothar Kortner, Stuttgart, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

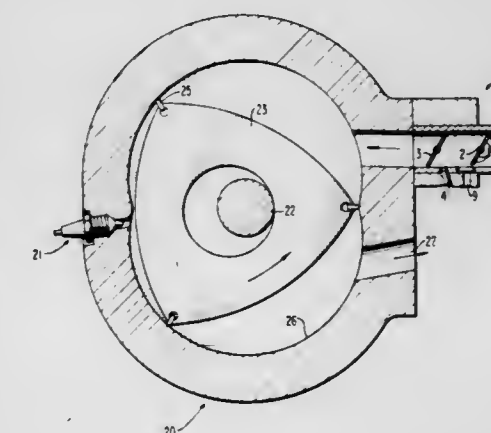
Filed Jan. 17, 1972, Ser. No. 218,170

Claims priority, application Germany, Jan. 15, 1971, 2101733

Int. Cl. F02b 33/00

U.S. Cl. 123—119 R

12 Claims



A rotary piston internal combustion engine of trochoidal construction which includes two throttle valves arranged in the inlet channel and an injection nozzle for the injection of fuel which is disposed within the area delimited by the two throttle valves and injects the fuel transversely into the flow of the sucked-in combustion air; both throttle valves are supported in the inlet channel at least approximately centrally thereof whereby the throttle valve disposed closer to the trochoidal space of the engine is supported immovably or in such a manner that it carries out rotary movements in unison with the other throttle valve and in the same direction.

3,827,412

EXHAUST RECIRCULATION

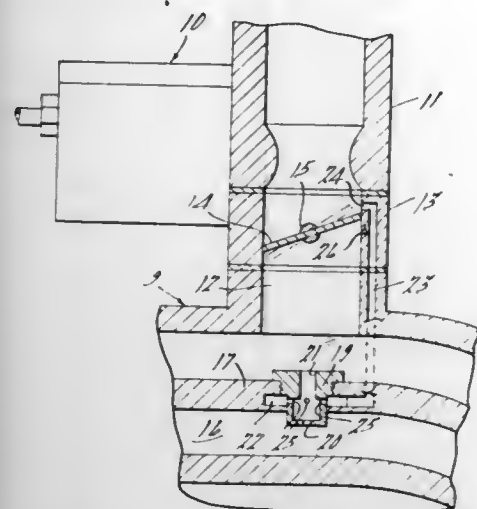
Dennis Carl Waitzman, Southfield, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Sept. 18, 1972, Ser. No. 289,904

Int. Cl. F02b 33/00; F02m 7/00

U.S. Cl. 123-119 A

16 Claims



Automobile exhaust gases are recycled by means of a recycling duct which receives these gases at a restricted upstream end located within the environment of the hot gases of the exhaust system, passes in heat exchange relationship through the conventional intake manifold hot spot to facilitate heating of the latter, and discharges the hot exhaust gases at a restricted downstream end in opposition to the inlet flow of the fuel-air mixture at a location directly below the throttle valve. A second restricted duct extends within the sidewall of the carburetor inlet induction conduit and bypasses the throttle valve, opens into the induction conduit upstream of the throttle valve to receive inlet gases during idle, and discharges into the recycling duct between the latter's upstream and downstream restrictions to inhibit exhaust flow through said recycling duct during engine idle operation.

3,827,413

TIMING CONTROL SYSTEM

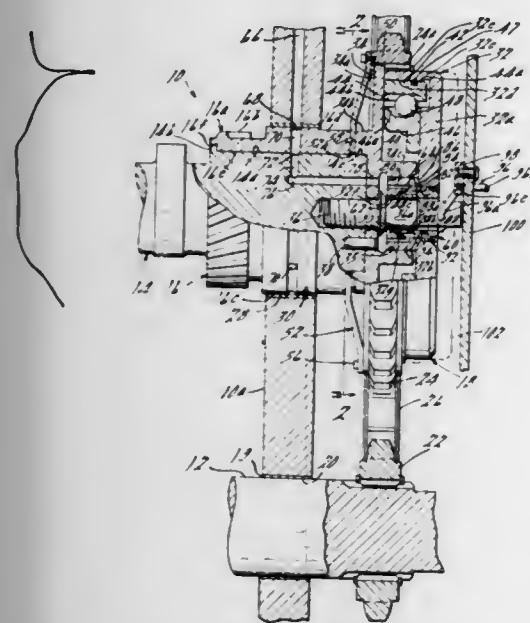
George B. K. Meacham, Birmingham, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Mar. 2, 1973, Ser. No. 337,512

Int. Cl. F02d 37/06

U.S. Cl. 123-99

31 Claims



A mechanism for maintaining a predetermined angular phase relation between a distributing device and a crankshaft in an internal combustion engine of the type employing an ap-

paratus for varying the timed angular phase relation between the engine crankshaft and camshaft. This mechanism, in one disclosed embodiment, comprises a device drivingly interconnecting the camshaft and the crankshaft and operative to vary the angular phase relationship therebetween, a distributor drive gear journaled on the camshaft, and a spider driving the distributor drive gear in a constant angular phase relationship with the crankshaft irrespective of varying phase relationships between the camshaft and the crankshaft. Several other mechanisms are also disclosed.

3,827,414

EXHAUST RECIRCULATION

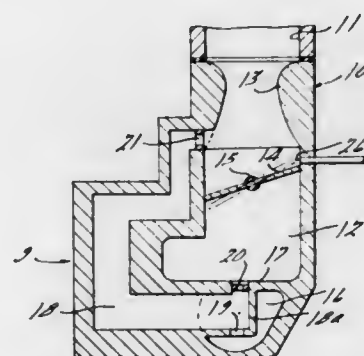
Jorma O. Sarto, Orchard Lake, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Sept. 21, 1972, Ser. No. 291,115

Int. Cl. F02b 33/00; F02m 7/00

U.S. Cl. 123-119 A

17 Claims



Automobile engine exhaust gases are recycled through a recycling duct having a restricted upstream end opening into the exhaust system and first and second restricted downstream ends opening into the carburetor inlet induction conduit downstream and upstream respectively of the throttle valve. The restrictions for the recycling duct are dimensioned with respect to each other so that when the throttle valve is at its closed or idle position, a major quantity of the air required to support engine combustion at idle will bypass the throttle valve and flow through the portion of the recycling duct from the second downstream end to the first. The second restricted downstream end opens into the induction conduit at the usual fuel metering venturi restriction and is restricted appreciably less than the first downstream end, such that when the throttle valve is opened from the idle position, the first downstream end will have only a minor influence on the pressure in the recycling duct and the exhaust gas flow thereinto from the exhaust conduit via the restricted upstream end will be substantially a function of the pressure differential between the exhaust pressure at the upstream end and the venturi pressure at the second downstream end. The induction conduit pressure immediately upstream of the upstream leading edge of the blade of the throttle valve, when the latter is at its idle position, is employed to operate a valve to close the recycling duct completely at a location upstream of the two downstream ends during both idle and wide open throttle operation of the engine.

3,827,415

FUEL SUPPLY DEVICE FOR INTERNAL COMBUSTION ENGINES

Takayuki Makino, Okazaki; Shinya Ishii, and Rokuji Ohkubo, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed Oct. 7, 1971, Ser. No. 187,298

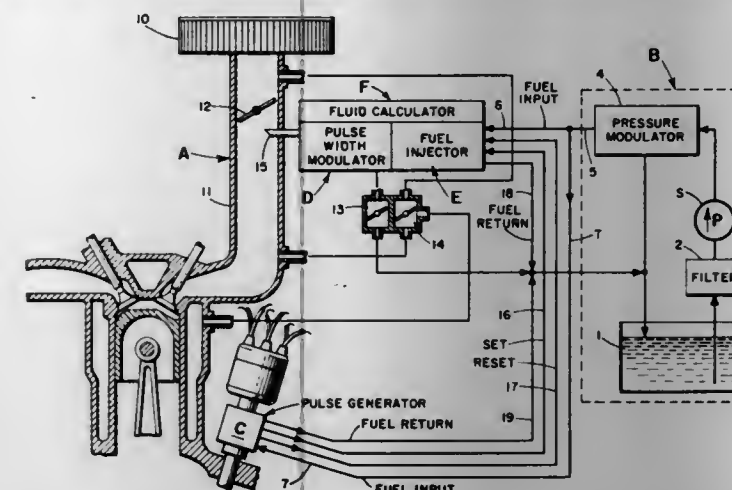
Claims priority, application Japan, Nov. 7, 1970, 45-97562 Int. Cl. F02m 7/00; F02d 31/00

U.S. Cl. 123-119 R

7 Claims

A fuel supply device for internal combustion engines, comprising a rotating pulse generating means and a fluid calculat-

ing means having a pulse-width modulating means and a fuel injection means. The rotating pulse generating means comprises a pulse generator and a fluid element for shaping wave forms and utilizes liquid fuel as a medium to produce pulse signal conforming to the fuel injection timing in accordance with the number of engine revolution. The pulse-width modulating means comprises a variable liquid resistor adapted to throttle the pulse signal in conformity with the internal pressure in an intake manifold, and further comprises a fluid ele-



ment for controlling pulse width which is set by the pulse signal and is reset by the throttled signal obtained from the variable liquid resistor. Thus, the pulse-width modulating means is adapted to modulate the pulse signal conforming to the fuel injection timing to provide a control pulse having a width which better corresponds with the fuel injection timing. The fuel injection means comprises a fluid element for fuel injection and supplies fuel to the downstream side of a throttle valve in the intake manifold in accordance with the control pulse signal having the modulated pulse width.

3,827,416

QUICK-HEAT ENGINE INTAKE MANIFOLD

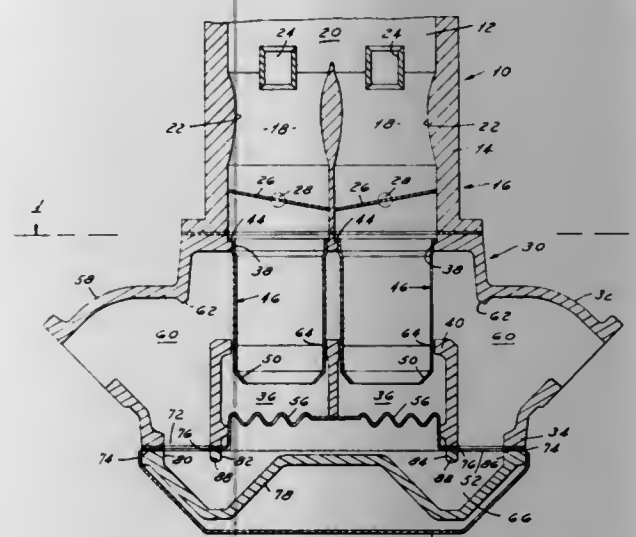
William R. Ader, Westland, and Richard P. Krygowski, Livonia, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed May 4, 1973, Ser. No. 357,307

Int. Cl. F02m 31/00

U.S. Cl. 123-122 A

6 Claims



The central portion of the intake manifold plenum is separated from the carburetor throttle riser bores by a branch of an exhaust gas crossover passage and joined together by a thin high heat transfer sheet metal tube that passes through the passage with the resultant heating and evaporation of liquid fuel in the tube; a second branch of the crossover passage passes out of the manifold and beneath a second thin sheet metal high heat transfer plate directly under the tube to further evaporate liquid fuel splashed against the plate from the tube.

3,827,417

COLD STARTING DEVICE FOR USE IN AN INTERNAL COMBUSTION ENGINE

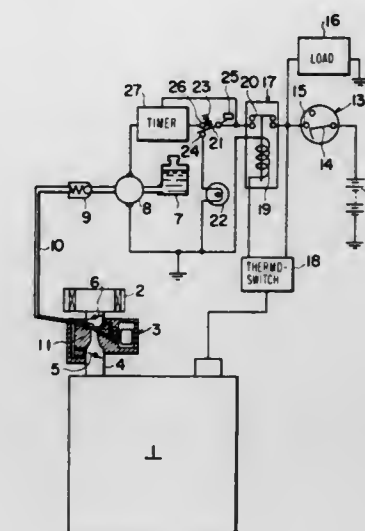
Yasuyuki Morita, Hiroshima, Japan, assignor to Toyo Kogyo Company Limited, Hiroshima, Japan

Filed Nov. 30, 1972, Ser. No. 310,734

Claims priority, application Japan, Nov. 30, 1971, 46-112913

Int. Cl. F02n 17/00; F02m 3/04 U.S. Cl. 123-127

8 Claims



A cold starting device for use in an internal combustion engine which supplies starting liquid such as oil to the air intake system between a choke valve and a throttle valve of the engine before cranking of the engine in order to assist in starting the engine in winter, by increasing engine compression.

3,827,418

CAPACITIVE DISCHARGE IGNITION SYSTEM HAVING INDUCTOR IN PARALLEL WITH IGNITION COIL

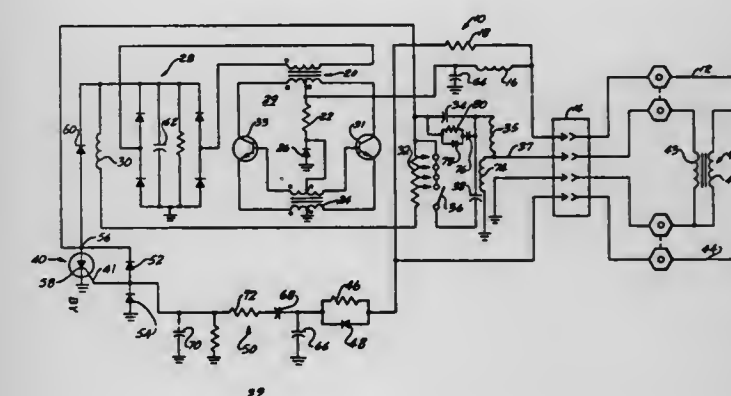
Christopher A. Jacobs, 3570 1/2 Eagle Rock Blvd., Los Angeles, Calif. 90065

Continuation-in-part of Ser. No. 866,626, Oct. 15, 1969, Pat. No. 3,716,037. This application Nov. 29, 1972, Ser. No. 310,364

Int. Cl. F02p 1/00

U.S. Cl. 123-148.0 CD

2 Claims



An ignition system for internal combustion engines utilizing a capacitive discharge to supply energy to the spark plugs. The charging and discharging of the capacitor is controlled by a circuit utilizing a silicon controlled rectifier (SCR) which operates in response to the engine controlled switching means for turning on and in response to positive back-biasing for turning off. The system includes an inductor connected in parallel circuit relationship with the ignition coil for providing sufficient SCR back-biasing inductance in the circuit in the event of any real or apparent changes in ignition coil characteristics.

3,827,419

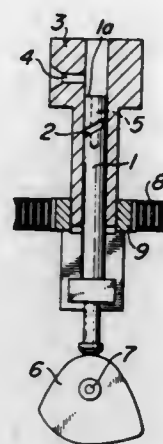
FUEL INJECTION MEANS FOR A DIESEL ENGINE

Takuji Isomura, Toyota, Japan, assignor to Nippondenso Co., Ltd., Kariya-shi, Aichi-ken, Japan
Continuation-in-part of Ser. No. 889,066, Dec. 30, 1969. This application Aug. 13, 1971, Ser. No. 171,597

Int. Cl. F02b 3/00; F02m 39/00

U.S. Cl. 123-32.6

6 Claims



Fuel injection means for a diesel engine in which a portion of fuel is auxilarily injected prior to main fuel injection during engine starting. A cam for driving a plunger of a fuel injection pump has a two stage lift, the first stage of the lift being for the main fuel injection and the second stage being for the auxiliary fuel injection. After the end of the first stage, the height of the top dead center of the first stage is maintained constant for a predetermined angle of rotation of the cam, and thereafter the second stage comes into operation. A pump plunger is provided with a slanted groove for terminating fuel injection, the groove being so arranged that, during normal operation of the engine, it comes to open to a fuel intake and out put port formed in a pump cylinder at the first stage of the cam lift, and during engine starting it does not open to said fuel intake and out put port until the second stage is reached.

3,827,420

GRINDING WHEEL DRESSING APPARATUS

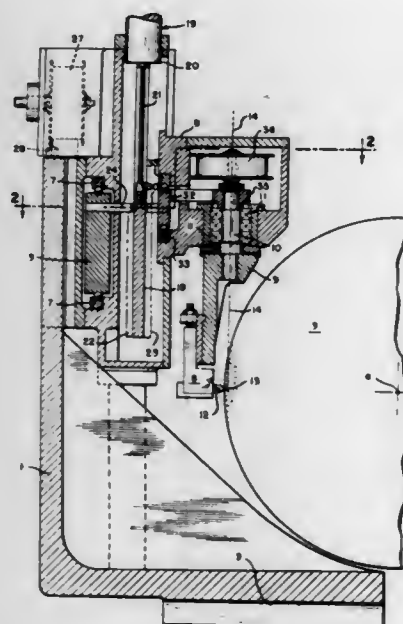
Nils O. Hoglund, Short Hills, N.J., assignor to Hoglund Engineering and Manufacturing Company, Inc., Berkeley Heights, N.J.

Filed Feb. 28, 1972, Ser. No. 230,024

Int. Cl. B24b 53/08

U.S. Cl. 125-11 PH

8 Claims



A wheel dressing apparatus for dressing the periphery of a grinding wheel with a cutter mounted for following the straight and curved periphery of the grinding wheel. One cam

is included for cross-feeding the cutter transversely of the periphery of the grinding wheel and a second cam produces pivoting movement of the cutter along a curved path having a component directed radially of the grinding wheel. The second cam also maintains the cutter normal to the periphery of the grinding wheel as it is pivoting.

3,827,421

HYDRAULIC BLADE MOUNT

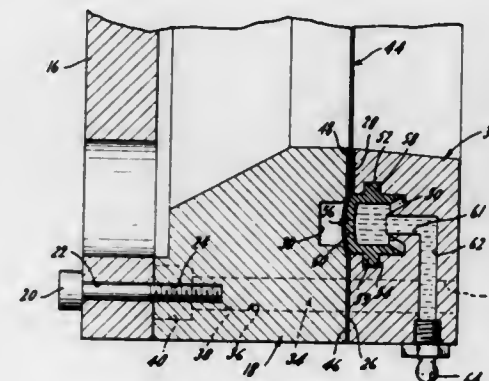
Frederick A. Schumacher, Wyckoff, and Keith H. Wolos, Butler, both of N.J., assignors to Silicon Technology Corporation, Oakland, N.J.

Filed June 29, 1973, Ser. No. 375,038

Int. Cl. B28d 1/04

U.S. Cl. 125-15

10 Claims



An inside diameter cutting blade is mounted in a circular saw blade housing. The cutting blade is tensioned by pressurized hydraulic fluid within a channel which causes a fluid-tight gasket in the channel to bear against and tension the outer circumference of the blade. Accurate and uniform tensioning of the cutting blade is accomplished by the pressure of the hydraulic fluid, which uniformly deforms the gasket. The hydraulic fluid is water soluble and permits easy clean-up should any of the fluid leak past the gasket. The use of a bleed fitting permits total release of tensioning pressure, required during blade changes without complete removal of tensioning fluid thus permitting return to full blade tensioning pressure in greatly reduced time.

3,827,422

DRESSER FOR ABRASIVE WHEELS

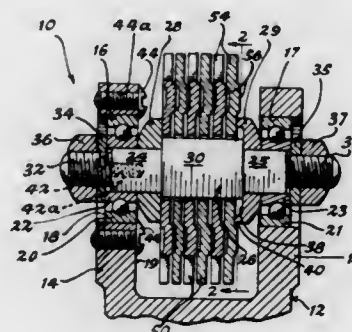
Kenneth J. Wise, 167 Glencove Rd., Kenmore, N.Y. 14223

Filed Feb. 5, 1973, Ser. No. 329,758

Int. Cl. B24b 53/14

U.S. Cl. 125-37

3 Claims



A dresser including a nest of cutter discs having teeth arranged about their periphery, central openings for loosely receiving a supporting shaft and partially interfitting projections and recesses arranged in an annular area thereof in close proximity to the roots of the teeth. End washers are employed to exert pressure on the discs in a direction axially of the supporting shaft in an annular area thereof intermediate the central openings and the projections and recesses, whereby to resiliently deform certain of the discs in order to impart rigidity to the nest of discs both radially and annularly thereof.

3,827,423

UNITARY CELLULAR-STRUCTURED COOKING FIRE APPARATUS

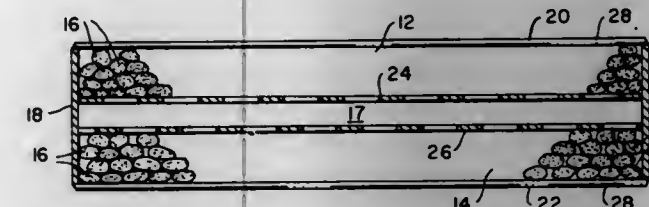
Walter J. Bolitho, 30005 W. Thirteen Mile Rd., Farmington, Mich. 48024

Filed July 5, 1972, Ser. No. 269,123. The portion of the term of this patent subsequent to Feb. 1, 1989, has been disclaimed.

Int. Cl. A47j 37/07

U.S. Cl. 126-29

3 Claims



A unitary cellular structured cooking-fire appliance having dual compacted volumes of trap rock separated by a convection chamber is positioned broadside over a primary source of heat for cooking the edibles. The upper portion or cell of the dual compacted volumes of trap rock provides both a substantially uniform temperature cooking surface and a non-combustible collector and absorber of liquid animal fats and the lower spaced apart portion or cell of trap rock is capable of being heated to incandescence, is positioned over the primary source of heat for acting as a distributor of the heat generated from the primary source of heat to the whole area of the cooking surface.

3,827,424

RADIANT HEATERS

Gabriel Brola, 4, Avenue Victor Hugo 94, Nogent-sur-Marne, France

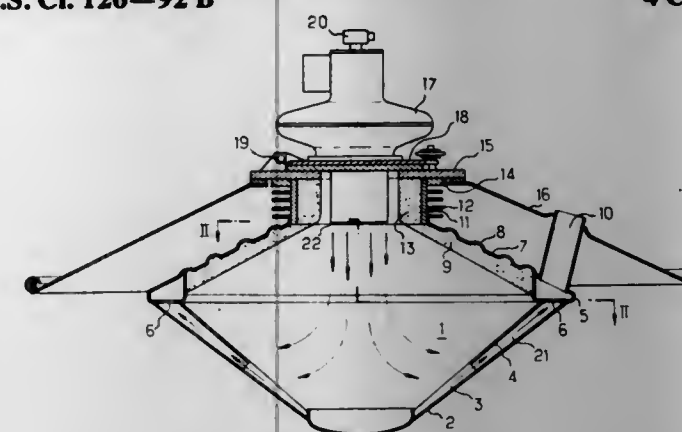
Filed Jan. 22, 1973, Ser. No. 325,605

Claims priority, application France, Mar. 6, 1972, 72-08554

Int. Cl. F24c 3/04

U.S. Cl. 126-92 B

4 Claims



An infra-red radiant heater comprises a combustion chamber defined by two oppositely-directed frusto-conical members joined together at their bases. A burner is supported by one of the members and the other member has radial corrugations, this latter member being heated by the combustion gases and serving as an emitter of infra-red radiation. The corrugations direct the combustion gases towards a vent.

3,827,425

COOKING METHOD AND APPARATUS

Harry D. Forse, and Eldon W. Brown, both of Anderson, Ind., assignors to Food-Quik Products, Inc., Anderson, Ind.

Filed Dec. 3, 1970, Ser. No. 94,682

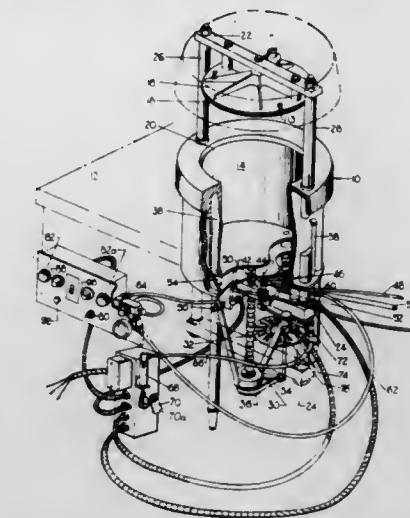
Int. Cl. A47j 27/06

U.S. Cl. 126-369

2 Claims

Cooking apparatus including a sealable chamber adapted to contain a food article which is indirectly heated by a steam jacket surrounding the chamber. An inlet valve is provided for

pressurizing the cooking chamber with steam, and an adjustable vent valve is provided which in conjunction with the inlet valve permits a controlling of the pressure within the chamber and the flow of steam therethrough, thereby regulating moisture content and transfer of heat energy.



Method of cooking wherein a food article is heated in a pressurized atmosphere having a constant flow of steam therethrough; after the article is fully cooked under these conditions, the pressurized atmosphere may be exhausted and the food article indirectly heated to remove surface moisture.

3,827,426

PROSTHETIC PUMP

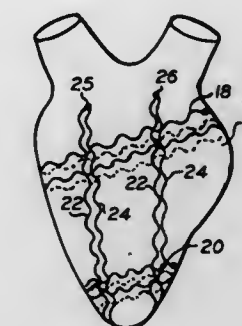
Mark Page, 29 Burbury Ln., Brooklyn, N.Y. 11020, and Philip N. Sawyer, 606 3rd St., Brooklyn, N.Y. 11215

Filed July 16, 1971, Ser. No. 163,372

Int. Cl. A61b 19/00; A61f 1/24

U.S. Cl. 128-1 D

11 Claims



A pump particularly suited for use as a prosthetic device in a biological system to replace a pumping component of said system; a novel electro-mechanical transducer; a method for providing a prosthetic pump in a biological system; and method for forming an electrically actuated contractile element for use on a pump. The pump is formed of a resilient sidewalled chamber with exterior and interior surfaces contoured in the shape of the component to be replaced. The walls of the chamber are provided with one or more contractile elements arranged so that upon contraction of said elements the chamber will be contracted. A preferred contractile element is formed of a titanium-nickel alloy such as Nitinol selected from the class of binary equiatomic compounds of transition elements from group IV and group VIII. By arranging the Nitinol secured in a stressed orientation with respect to the chamber wall, subsequent application of current pulses to the wire will produce a heating of the Nitinol wire returning the wire to its original unstressed shape, thereby contracting the chamber wall to produce pumping. The pump has particular application as an artificial heart.

3,827,427

APPARATUS FOR MEASURING RADIOACTIVITY IN THE HUMAN EYE

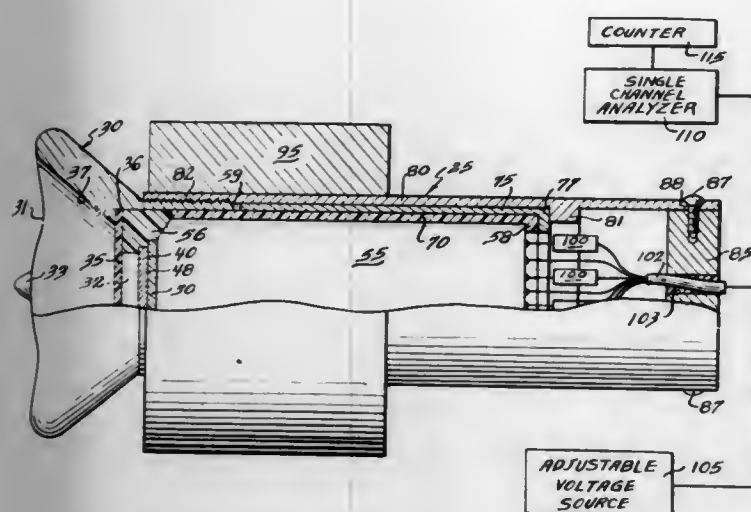
Glenn F. Knoll, Ann Arbor, Mich., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Jan. 8, 1973, Ser. No. 321,595

Int. Cl. A61b 6/00

U.S. Cl. 128-2 A

6 Claims



Measurement of radioactivity in the human eye is facilitated by affixing an eye cup to a radiation detector to maintain a precisely repeatable position of the detecting element with respect to the eye. This apparatus is particularly useful in the diagnosis of ocular melanoma in patients who have ingested a radioactive chemical that is concentrated in an ocular melanoma. Such precisely repeatable positioning of the radiation detector allows use of smaller doses of the radioactive tracer, thus minimizing the radiation hazard to the patient.

3,827,428

BIPOLAR ELECTRODE STRUCTURE FOR MONITORING FETAL HEARTBEAT AND THE LIKE

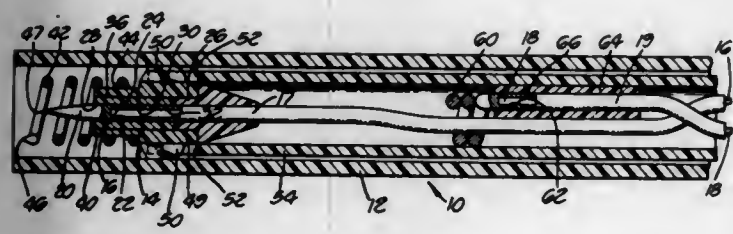
Edward H. Hon, and Robert W. Hon, both of 11 Bradbury Hills Rd., Bradbury, Calif. 91010

Continuation-in-part of Ser. No. 108,034, Jan. 20, 1971. This application Dec. 4, 1972, Ser. No. 311,764

Int. Cl. A61b 5/04

U.S. Cl. 128-2.06 E

26 Claims



An improved electrode system for monitoring fetal heartbeat includes a curved guide tube adapted to be inserted through the vagina and cervix of a woman in labor, a retaining coil mounted on a holder member which is slidably disposed in the guide tube, a flexible driving tube adapted to rotate the holder member to screw the retaining coil into a fetal epidermis and two spaced electrodes which are adapted to be electrically connected to a suitable apparatus for monitoring fetal heartbeat. In the first disclosed embodiment of the invention one of the electrodes is a pointed member mounted in the holder which mounts the retaining coil. The retaining coil, when screwed into the fetal epidermis, maintains the pointed first electrode in piercing engagement with the fetus. In the second disclosed embodiment the retaining coil and the first electrode are one and the same structure; i.e., the first electrode is in the form of a coil which is adapted to screw into the

fetal epidermis. In both of the embodiments disclosed the second electrode is spaced from the first electrode and electrical contact between the two electrodes is established by vaginal and cervical secretions of the woman in labor. Driving connection between the holder member and the flexible driving tube is provided by slots in the forward end of the driving tube and fin means on the holder. In the second embodiment disclosed the second electrode is in the form of a flat member mounted on the rear end of the holder and serves as the fin means.

3,827,429

AMBULATORY ORTHOPEDIC TRACTION APPARATUS

Norman L. Heikes, Santa Barbara, Calif., assignor to Pantec Development Company, Santa Barbara, Calif.

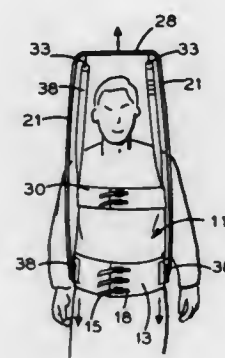
Continuation of Ser. No. 154,941, June 21, 1971, abandoned.

This application June 20, 1973, Ser. No. 371,895

Int. Cl. A61h 1/02

U.S. Cl. 128-75

9 Claims



This disclosure relates to traction apparatus designed particularly for the treatment of afflictions of the spinal column. It provides a resilient bowed member adapted to be connected between a belt-like harness to be worn about the lower torso of a patient to be treated and another harness which is also worn by the patient in a region upwardly spaced from the other harness element. The second harness may be at various locations and is so located that when the bowed member of resilient form is attached there will be exerted a tractive force between the two harness members thereby continually to maintain the tractive effect on the wearer. The resilient harness holder with its bowed shape pulls the two harness elements in opposite directions and while providing the force essential to maintain the tractive effect nevertheless assures that the wearer may have mobility without any sacrifice of the usefulness of the apparatus or any significant reduction in the curing effect thereof.

3,827,430

ORTHOPEDIC BRACE

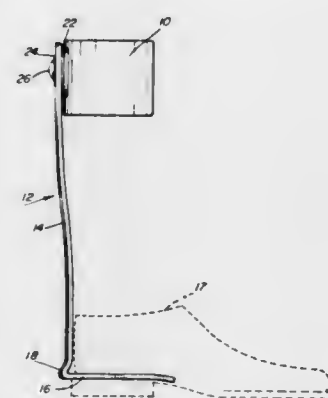
Michael F. Fadden, 11 Hamilton Ct., Whippany, N.J. 07981

Filed Jan. 4, 1973, Ser. No. 321,080

Int. Cl. A61f 3/00

U.S. Cl. 128-80 E

8 Claims



The specific embodiment provides an orthopedic foot brace comprising a shank member having an elongated vertical por-

tion and a shoe engaging portion at the lower end of the vertical portion. The shoe engaging portion is biased upwardly about a pivot point at the lower end of the vertical portion. An elongated vertical slot is provided at the upper end of the vertical portion, and a calf engaging member is slidably mounted in the slot.

3,827,431

ORTHOPEDIC APPLIANCE HAVING DETACHABLE FASTENING MEANS

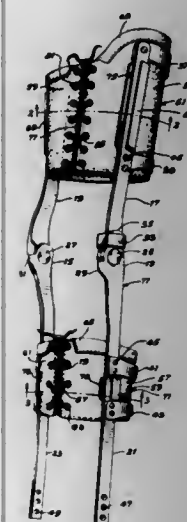
Ignatius Richard Pecorella, 183 Norwood Ave., Buffalo, N.Y. 14222

Filed Apr. 3, 1972, Ser. No. 334,911

Int. Cl. A61f 3/00

U.S. Cl. 128-80 F

10 Claims



An orthopedic appliance includes a pad member adapted to hold the appliance onto a limb, such as a human leg or arm, which pad is readily removable from the appliance and easily installed on it. In a highly preferred structure the pad has fastened to it a plurality of channel or similar members adapted to hold it to brace portions of the orthopedic device in proper position when the pad is laced or otherwise fastened about the limb. Yet, although the pad can be removed readily for washing it will not fall off the appliance, even when the orthopedic device is not held to the limb. Also, it may be readily reinstalled on the appliance without the need for snapping, tying or similarly fastening it into place on the appliance parts.

3,827,432

BREATHING APPARATUS

Claes E. G. Lundgren, Lund, and Stig L. Akesson, Malmo, both of Sweden, assignors to AGA Aktiebolag, Lidingo, Sweden

Filed Aug. 20, 1971, Ser. No. 173,605

Claims priority, application Sweden, Aug. 24, 1970, 11489/70

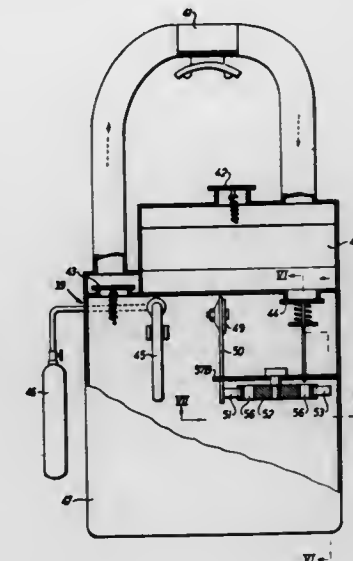
Int. Cl. B63c 9/00; A61m 16/00

U.S. Cl. 128-142.2

15 Claims

A breathing apparatus of the type having a rebreathing system from which the user inhales and into which he exhales and which receives fresh gas making up for consumed oxygen. The rebreathing system alternately operates as a fully closed system and a fully open system; it operates in the closed mode during a series of breaths until the oxygen in the system has been consumed, and then it operates in the open mode to permit exhalation to the ambient medium. The switching of the

system between the open and closed modes is effected in dependence on the volume of gas inhaled, or the number of in-



halations made, during the course of the series of breaths, and the volume of gas exhaled, or the number of exhalations, to the ambient medium.

3,827,433

RESPIRATORY DEVICE AND PROCEDURE

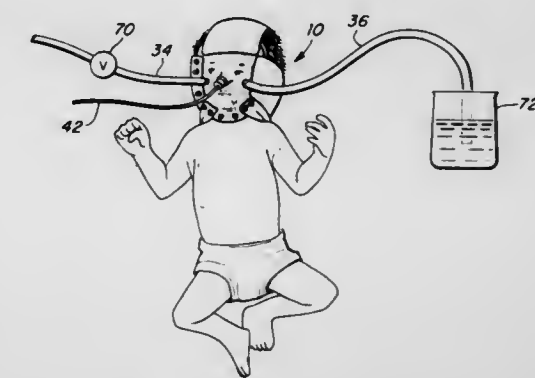
Daniel C. Shannon, Boston, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Mar. 7, 1972, Ser. No. 232,428

Int. Cl. A61m 16/00

U.S. Cl. 128-145.5

9 Claims



Applying positive end expiratory pressure breathing assistance to, for example, an infant by enclosing the infant's face in a gas-tight mask, providing inhalation air into the mask, and restricting the passage for exhaled air from the mask, such as by immersing the end of the passage in a liquid, to maintain a positive pressure above ambient pressure in the passage, and hence within the mask.

3,827,434

CATHETER INSERTION DEVICE

Thomas C. Thompson, Dallas, and John A. Gula, Farmers Branch, both of Tex., assignors to Vicra Sterile, Inc., Dallas, Tex.

Filed June 21, 1972, Ser. No. 264,888

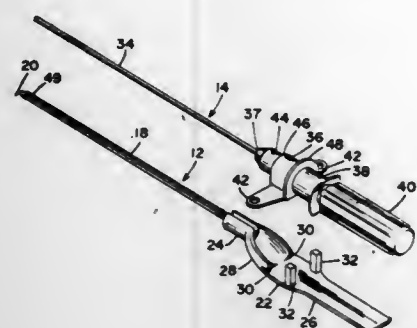
Int. Cl. A61m 5/00

U.S. Cl. 128-214.4

4 Claims

A catheter insertion device having a needle assembly comprising a hollow slotted needle with a needle hub affixed to its proximal end and a catheter assembly comprising a flexible catheter having a sealing segment with an enlarged outside diameter to prevent bleedback and a hollow catheter hub

secured to its proximal end, the two assemblies being releasably locked together to prevent relative longitudinal movement of the catheter in the needle, the locking being



releasable without relative longitudinal movement of the catheter and needle. The catheter is provided with a wire stylet having an enlarged rounded distal tip.

3,827,435

DISPOSABLE OSTOMY POUCH WITH VARIABLE MEANS

Arthur E. Marsan, 6700 Escondido Dr., 4-B, El Paso, Tex. 79912

Filed Apr. 19, 1973, Ser. No. 352,563
Int. Cl. A61f 5/44

U.S. Cl. 128—283

3 Claims



This invention relates to a so-called "ostomy" pouch intended for use by patients who undergo a surgical procedure known as colostomy, ileostomy, ureterostomy, ileal bladder, etc. The invention is characterized by an improved construction capable of low cost of manufacture whereby it is economical for disposal after a single use and is featured by its adaption to varying its positioning on the patient so that it may be used while the patient is in a vertical ambulatory position for walking, running, sitting, or standing, or in bed in a horizontal position. Another feature is a channeled gasket, a supplement which has improved functions in the use of the pouch.

3,827,436

MULTIPURPOSE CRYOSURGICAL PROBE

Joseph G. Stumpf, Fairfield, and Joseph F. Andera, Trumbull, both of Conn., assignors to Frigtronics of Conn., Inc., Shelton, Conn.

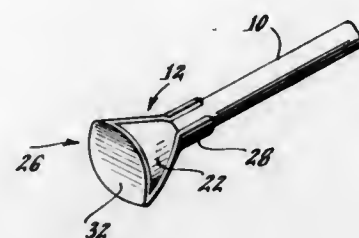
Filed Nov. 10, 1972, Ser. No. 305,359
Int. Cl. A61f 7/00; A61b 17/36

U.S. Cl. 128—303.1

6 Claims

A cryosurgical probe having a refrigerated tip with a plurality of surfaces. The surfaces are differently shaped and positioned to facilitate treatment of different bodily tissues. A plurality of insulating sleeves are provided to fit over the probe tip. Each sleeve defines an opening which is positioned to expose a different one of the surfaces.

The foregoing abstract is not to be taken either as a complete exposition or as a limitation of the present invention. In order to understand the full nature and extent of the techni-



cal disclosure of this application, reference must be had to the following detailed description and the accompanying drawing as well as to the claims.

3,827,437

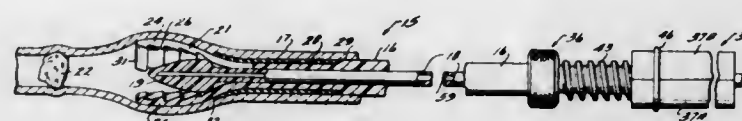
SURGICAL TOOL

Yoshio Inaba, 506 Dixmyth Ave., Cincinnati, Ohio 45220
Filed June 20, 1973, Ser. No. 371,864

Int. Cl. A61b 17/22; A61m 29/00

U.S. Cl. 128—328

4 Claims



A surgical tool which includes a first elongated tubular member of flexible material and a second elongated member slidably mounted therein. Lengthwise extending circumferentially spaced slits are provided in a head end portion of the first elongated member dividing the head end portion into a plurality of jaws. A head on the second elongated member can be retracted between the jaws to cause the jaws to diverge. A resilient band surrounds portions of the jaws remote from the head end of the first elongated member so that when the head is further retracted until the head is inboard of a head end of the resilient band, the resilient band causes the jaws to close.

3,827,438

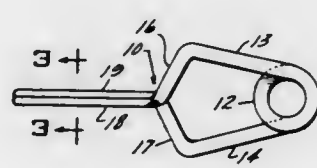
ANEURYSM CLIP

George Kees, Jr., P.O. Box 113, Alexandria, Ky. 41001
Filed July 10, 1972, Ser. No. 269,986

Int. Cl. A61b 17/12

U.S. Cl. 128—346

2 Claims



A one-piece aneurysm clip formed from an elongated spring metal ribbon having a central helical portion, diverging first connecting portions extending from the helical portion, and converging second connecting portions extending from the first connecting portions. The axis of the helical portion extends transversely of a major crosswise axis of the ribbon. The jaws are turned 90 degrees from the plane of the helical portion and are arranged to engage flatwise, spring action of the helical portion urging the jaws to engaged position.

3,827,439

PLUG VALVE FOR PHYSIOLOGICAL SHUNT SYSTEMS

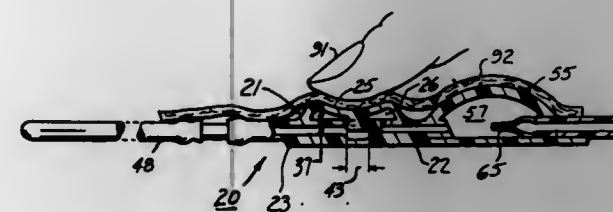
Rudolf R. Schulte, Santa Barbara, Calif., and Harold D. Portnoy, Bloomfield Hills, Mich., assignors to Heyer-Schulte Corporation, Goleta, Calif.

Filed Oct. 30, 1972, Ser. No. 302,181

Int. Cl. A61m 27/00

U.S. Cl. 128—350 V

19 Claims



A valve utilizing a mechanically retainable plug for the stoppage of drainage flow through a shunt system installed in a human body. The valve includes a valve body with an internal cavity and a first and a second port entering the cavity. These ports are connected to conduits which conduct fluids to be drained, for example, to a catheter and to a shunt tube. A valve seat is formed peripherally around one of the ports so that fluid flowing through this respective port passes through the valve seat. A plug is supported in the cavity so as to be movable toward and away from this port. The plug has a set of dimensions which is oversized relative to the valve seat so as to form a fit which will hold the plug in said port to close the valve at the valve seat. A compressible reservoir may be connected to one of the ports to function as a source of elevated pressure for the valve to remove the plug from the port. A check valve may be utilized with the reservoir to prevent backflow out of the reservoir when it is compressed. The valve may discharge into a shunt, which shunt may include a check valve that prevents reverse flow of fluids into the system.

3,827,440

CHECK-VALVE FOR TRACHEOTOMY TUBES

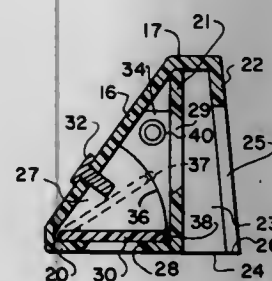
Arthur I. Birch, 6178 S. Windemere Way, Littleton, Colo. 80102, and Darrell E. Brown, 4994 E. Geddes Ct., Littleton, Colo. 80122

Filed Jan. 18, 1973, Ser. No. 324,731

Int. Cl. A61m 16/00

U.S. Cl. 128—351

13 Claims



A removable check-valve for installation on the external portion of a tracheotomy tube including a housing containing a free-floating, flat type disc for opening and closing the tracheotomy tube during the breathing cycle regardless of the body position of the user. An auxiliary port may be provided on the housing for supplying supplemental oxygen continuously to the user without direct loss of oxygen to the atmosphere.

3,827,441

BRASSIERE CONSTRUCTION FOR THE HANDICAPPED

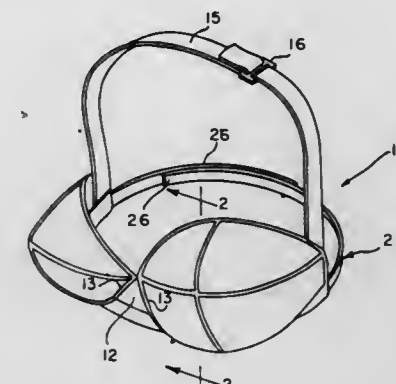
Lois K. Rudolph, 104-B Parkview Apts., Collings Ave., Collingswood, N.J. 08107

Filed Oct. 10, 1972, Ser. No. 296,300

Int. Cl. A41c 3/00

U.S. Cl. 128—425

6 Claims



A pair of connected breast cups, a flexible strap extending from the breast cups for engagement about a wearer's neck, and an arcuate stay extending from the breast cups for retaining engagement about the wearer's torso.

3,827,442

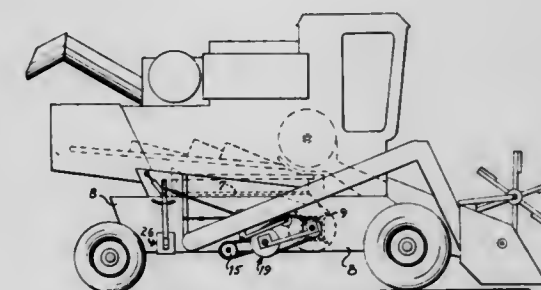
COMBINE CONTROL

Robert H. Scholz, Box 714, Thornton, Wash. 99176
Filed Mar. 21, 1973, Ser. No. 343,279

Int. Cl. A01f 7/00

U.S. Cl. 130—24

6 Claims



A fan speed control for hillside combines. The tendency of crop materials to move more quickly or more slowly along the cleaning shoes of a combine in response to uphill or downhill inclination of the combine is compensated by speed variation in the fan or blower that moves the materials over the pans. Fan speed is controlled by a mechanical linkage connecting an upright pendulum and a variable speed drive to the fan. The pendulum and associated linkage are calibrated to increase fan speed during downhill travel and to decrease fan speed during uphill travel, thereby substantially normalizing the movement of the crop materials over the cleaning shoes or pans for all such attitudes of the combine.

3,827,443

CONICAL TRANSITION

T. Gary Drayer, Silvis, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed June 29, 1973, Ser. No. 375,206

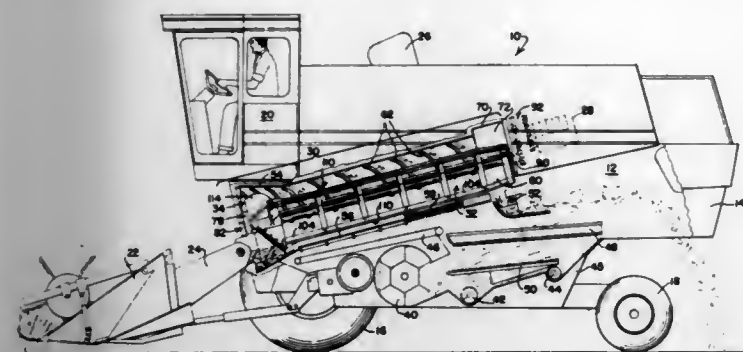
Int. Cl. A01f 12/18

U.S. Cl. 130—27 T

11 Claims

An axial flow combine of the type embodying threshing and separating means in the form of a cylindrical casing within which a rotor operates and which defines a threshing region and a separating region. A funnel-like frusto-conical extension at the forward end of the casing is provided with internal heli-

cal transport fins and cooperates with a vaned impeller on the rotor to move the crop material rearwardly into the threshing



region, the outer edges of the impeller vanes sweeping around the frusto-conical wall of the extension in close coextensive proximity thereto.

3,827,444 COMBINED CIGARETTE HOLDER AND ASH RECEPTACLE

Yusuff Mohammed Khan, 3 Hobson St., San Fernando, Trinidad And Tobago

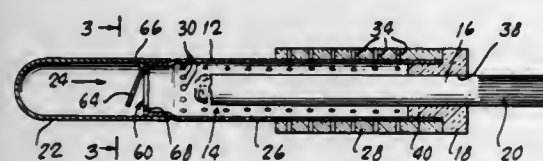
Filed June 28, 1973, Ser. No. 374,775

Claims priority, application Trinidad And Tobago, June 30, 1972, 65/72

Int. Cl. A24f 13/16

U.S. Cl. 131-174

2 Claims



A combined cigarette holder and ash receptacle comprises a cigarette chamber in which the cigarette is substantially entirely enclosed. A clamp holds the cigarette firmly within the chamber such that only the non-lighted tip of the cigarette protrudes outwardly from the chamber. An ash receptacle is releasably connected to the opposite end of the chamber from the clamp to receive the ash formed during smoking of the cigarette. A one-way valve prevents the ash from returning to the cigarette chamber should the device be inverted.

3,827,445 ADJUSTABLE CHIN REST FOR SMOKERS PIPES

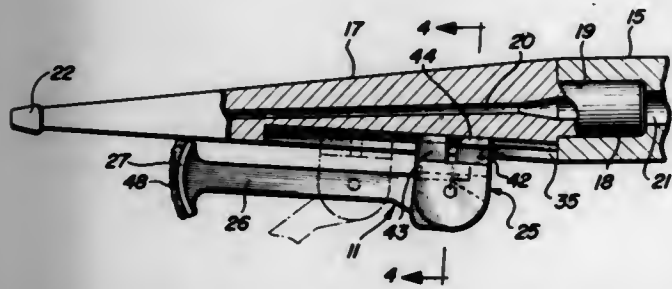
Harold W. Dahly, 4859 N. Paulina St., Chicago, Ill. 60640

Filed July 2, 1973, Ser. No. 375,342

Int. Cl. A24f 13/22

U.S. Cl. 131-186

4 Claims



A chin rest mountable on a pipe including a support member slidably associated with the mouthpiece, an arm pivotally connected to the support member and terminating at its free end with a chin plate, wherein the arm extends at an angle to the mouthpiece of the pipe when the chin plate engages the chin of the smoker, and the relative location of the chin rest along the length of the mouthpiece may be adjusted to fit the smoker.

3,827,446 FRUIT AND VEGETABLE HARVESTING DEVICE

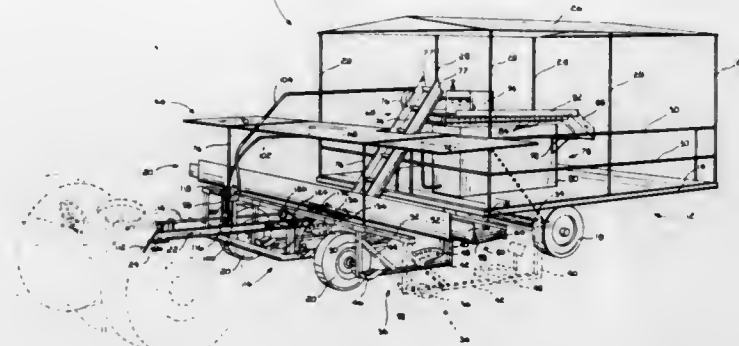
Bass Honeycutt, Rt. 5, Clinton, N.C. 28328

Filed Dec. 1, 1972, Ser. No. 311,121

Int. Cl. B08b 3/02

U.S. Cl. 134-63

11 Claims



A fruit and vegetable harvesting device including a mobile frame structure adapted to be towed by a tractor having a power takeoff associated therewith. The mobile frame structure includes a plurality of laterally spaced and transversely aligned picking stations disposed on the forward portion thereof with each picking station including a seat structure supported in close proximity to the ground such that an individual worker seated thereon may pick the randomly disposed fruit or vegetables growing therebeneath as the mobile frame structure traverses the field. The mobile frame structure further includes a conveyor system for conveying the individual picked fruit or vegetables from the various picking stations to a unitized washing and grading facility disposed on the mobile frame structure.

3,827,447 METHOD AND COMPOSITION FOR REDUCING THE FRICTIONAL DRAG OF FLOWING FLUIDS

Dale J. Meier, El Cerrito, Calif., and Vitold R. Kruka, Houston, Tex., assignors to Shell Oil Company, New York, N.Y.

Division of Ser. No. 204,357, Dec. 2, 1971. This application

Dec. 12, 1973, Ser. No. 424,147

Int. Cl. F17d 1/16

U.S. Cl. 137-13

3 Claims

The flow properties of non-aqueous liquids are improved by the incorporation therein of hydrogenated polyisoprene.

3,827,448 SUB-SEA PIPELINE TAPPING DEVICE

Richard O. Alba, 3804 Kent St., Metairie, La.

Filed Jan. 3, 1972, Ser. No. 214,821

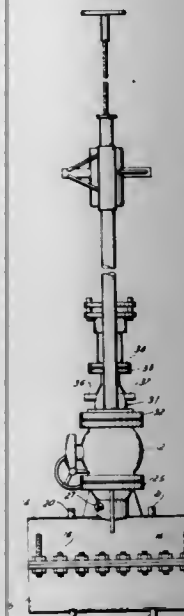
Int. Cl. B23b 41/08; F16e 41/04

U.S. Cl. 137-15

2 Claims

The present invention provides a device for tapping a pipeline submerged in water and while in service. The present device comprises pipe saddle means adapted to fit around and clamp over a given submerged pipeline to be tapped. The pipe saddle is adapted for injection of an epoxy resin therein to form a fluid tight seal between the pipe and the saddle. The saddle is also provided with a side outlet to which full flow through valve means is operably connected. Pipe tapping or drilling means are in turn provided for connection to the valve means whereby when said valve means is in a fully open position, the drilling head of the drilling means can be inserted

through the valve and side outlet of the pipe saddle into contact with the pipe to be tapped. The tapping means further



comprises a packing assembly for sealing off the tapping sub-assembly upon drilling through the pipe, as well as means for controlling the exact depth of drilling.

3,827,449 AUTOMATIC MECHANISM FOR THE DISCHARGE OF FLUID IN A PRESSURIZED SYSTEM

Luis Gurizzan; Alberto Gurizzan, both of 26 de Julio No. 122, Bernal, Buenos Aires; Modesto Albin Sayavedra, 25 de Mayo No. 170; Luis Alberto Otamendi, Ascasuhi No. 76, both of Quilmes, Buenos Aires, and Pedro Antonio Mulas, Lamadrid No. 1570, Bernal, Buenos Aires, all of Argentina

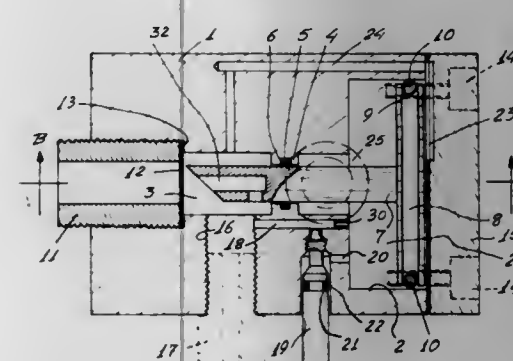
Filed Dec. 29, 1972, Ser. No. 319,190

Claims priority, application Argentina, Feb. 11, 1972, 240508

Int. Cl. F16k 17/14, 17/40

U.S. Cl. 137-68

3 Claims



A mechanism for automatically releasing a pressurized fluid includes a slidable piston to puncture a seal normally closing the fluid outlet, the piston being controlled by the pressure differential between fluids on opposite sides of a cylinder and normally equalized by communication with the pressurized fluid; actuation of the piston results from exposure of one side of the cylinder to atmospheric pressure.

3,827,450

AUTOMATIC CONTROL FOR DEBRINING RELISH STOCK AND OTHER MATERIALS

Melvin E. Leverenz, and Kenneth H. Leverenz, both of St. Clair, Mich., assignors to Diamond Crystal Salt Company, St. Clair, Mich.

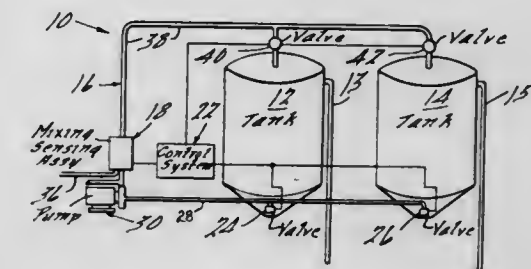
Continuation-in-part of Ser. No. 42,836, June 2, 1970, Pat. No. 3,710,811. This application Sept. 29, 1972, Ser. No. 293,417

The portion of the term of this patent subsequent to Jan. 16, 1990, has been disclaimed.

Int. Cl. G05d 11/08, 11/13

U.S. Cl. 137-88

6 Claims



An improved system for accurately debreining relish stock, other food stock materials, or like materials requiring automatically controlled debreining.

3,827,451

QUICK RELEASE VALVE

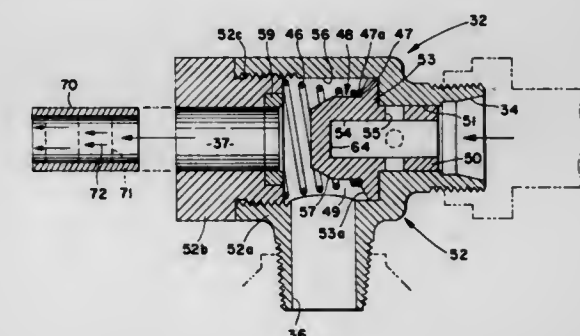
Elwood I. Roob, Parma, Ohio, assignor to Eaton Corporation, Cleveland, Ohio

Division of Ser. No. 127,691, March 24, 1971, Pat. No. 3,734,258. This application May 21, 1973, Ser. No. 361,912

Int. Cl. F16k 11/00; F16d 25/04

U.S. Cl. 137-102

6 Claims



A drive for transmitting torque from a driving to a driven member includes an inflatable member which is adapted to connect the driving and driven members when inflated by a fluid under pressure. The drive includes a valve assembly having an inlet connected to a fluid supply, a first outlet in communication with the inflatable member and a second outlet for venting the inflatable member. The valve assembly has a movable valve member which has a first position for restricting fluid flow between the inlet and the first and second outlets while providing for fluid communication between the first and second outlets. When fluid is supplied under pressure to the inlet, the valve member has a surface area against which the fluid acts to move the valve member from the first position to a second position. In the second position, the valve member restricts fluid flow between the first and second outlets while providing for fluid communication between the inlet and the first outlet which effects inflation of the inflatable member, resulting in the driving and driven members being drivingly connected thereby. A muffler may be utilized in connection with the second outlet to control the level of noise associated with the operation of the valve.

3,827,452

AUTOMATIC SHUT-OFF VALVE

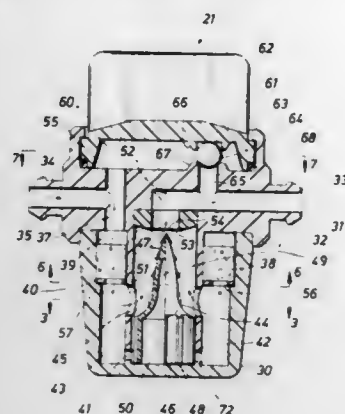
Carl B. Baumgarten, Houston, Tex., assignor to Gemco Manufacturing Corp., Buffalo, N.Y.

Filed Sept. 25, 1972, Ser. No. 291,816

Int. Cl. F16k 31/22; B67c 3/16

U.S. Cl. 137-205

22 Claims



An automatic shut-off valve having an emergency by-pass for use with vacuum systems is disclosed. Vacuum systems are frequently used to suction off or handle liquids, yet the vacuum pump or some additional part of the system is not adapted to handle liquids. The present valve operates to automatically shut off the passage to the pump when a liquid floods the automatic shut-off valve which is located at some point in the vacuum system prior to the pump. When the automatic shut-off valve is flooded, a flotation needle-like valve is forced into the passage leading onto the pump, thus blocking it. The needle valve can be more securely seated by a series of barbs which are designed to prevent its downward movement. If the suction is more important than the system, for example during an operation, a by-pass is provided to circumvent the closed needle valve.

3,827,453

DIRECTIONAL CONTROL VALVE

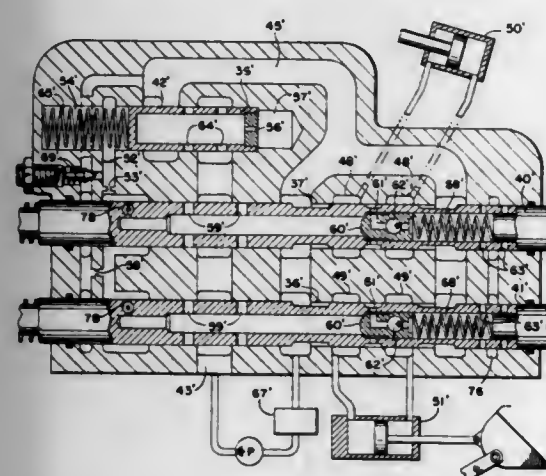
Thomas J. Malott, Mentor, and John C. Paul, Richmond Heights, both of Ohio, assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed May 5, 1972, Ser. No. 250,793

Int. Cl. F15b 11/02

U.S. Cl. 137-117

12 Claims



A pressure compensated spool type directional control valve characterized in that it has a compensating piston which senses the pressure drop across a metering orifice whose flow area is determined by the position of the spool in the valve housing and which is operative to divert excess flow to the reservoir when the pressure drop across the metering orifice exceeds a predetermined value, said compensating piston being so operative in conjunction with the operation of any one of the spools of a plural spool directional control valve.

The compensating piston may also be operated as an unloading valve to bypass pump output to the reservoir when the spool or spools of the directional control valve are in neutral position, or as a relief valve by employment of a pilot relief valve member in association with the side of the compensating piston which is exposed to pressure downstream of the metering orifice.

Another characterizing feature of the pressure compensated directional control valve herein is that each spool has a secondary compensating piston therein which decreases the pressure drop flow forces at the spool metering orifice. In a two-spool directional control valve the compensating piston adjusts to the lower load demand when both spools are simultaneously shifted to an operating position. In one form of two-spool directional control valve having a pressure compensating piston as aforesaid, check valves are provided to make adjustment to the higher load when both spools are simultaneously shifted to an operating position.

3,827,454

VEHICLE AND VEHICLE CONTROL SYSTEM

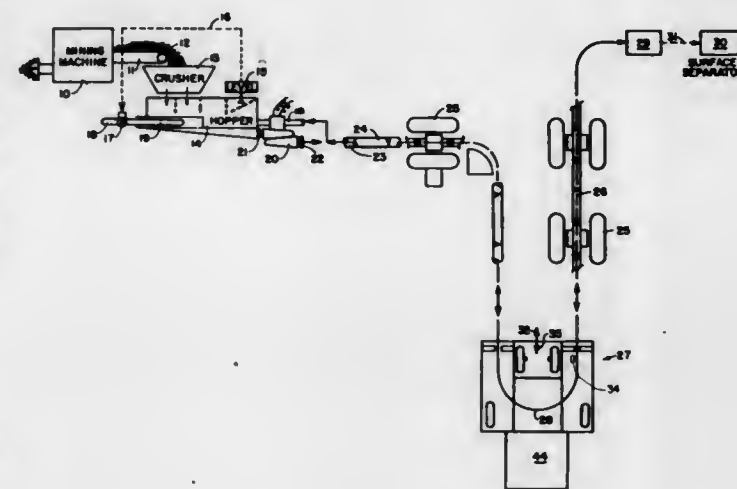
James H. Tarter, Royal Oak, Mich., assignor to Continental Oil Company, Ponca City, Okla.

Filed Dec. 26, 1972, Ser. No. 318,350

Int. Cl. B65g 53/54

U.S. Cl. 137-344

4 Claims



A slurry hose transportation system has a plurality of powered carts supporting the slurry hose or hoses. Some of the carts are in storage, some are being conveyed out of storage, and some are in use. While the carts are in storage they are in an unpowered or "parked" state. While being conveyed, the carts are turned on as they pass to the use state and turned off as they pass to the storage state. Command signals to the carts can then only affect the carts in actual use.

3,827,455

SELF-SEALING SYSTEM FOR STORING AND DISPENSING A FLUID MATERIAL

Walter Joe Lee, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sept. 6, 1973, Ser. No. 394,950

Int. Cl. B65d 87/48; F17c 13/00

U.S. Cl. 137-375

5 Claims

The self-sealing system disclosed herein is particularly adapted for storing and dispensing a liquid composition, such as a liquid fuel. The fuel is stored in one or more containers which are connected by a conduit to a use point, such as an engine. The containers and conduit are enclosed by a jacket which is spaced from these components. The jacket space is divided into gas-tight sections, with each section being filled with a gas under pressure. Pressure-actuated valves are installed in the conduit at several positions between the containers and the use point. At least one valve is in direct communication with each gas tight section. In normal operation,

3,827,457

FLUID PRESSURE SYSTEM FOR CONVERTING DIGITAL SIGNALS TO ANALOG SIGNALS

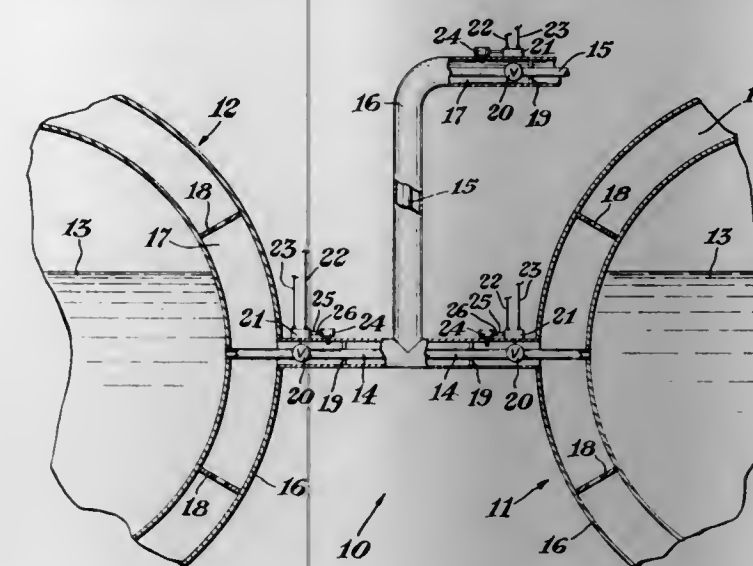
Norman Vutz, Radnor, and Donald Brown, Monroeville, both of Pa., assignors to Westinghouse Air Brake Company, Wilmerdinga, Pa.

Filed June 22, 1973, Ser. No. 372,849

Int. Cl. G05d 7/03; F15c 3/00

U.S. Cl. 137-599

4 Claims



sure drop will occur in the affected section. The pressure drop will actuate the nearest valve and close the valve to stop the flow of fuel at that point.

3,827,456

FLUID VALVES

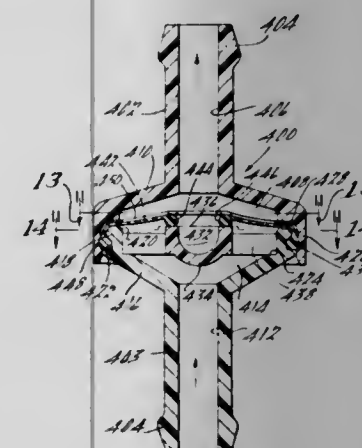
William L. Sheppard, 36655 Romulus Rd., Romulus, Mich. 48174

Continuation-in-part of Ser. No. 65,773, Aug. 21, 1970, abandoned. This application May 18, 1972, Ser. No. 254,655

Int. Cl. F16k 15/14

U.S. Cl. 137-525

15 Claims



There is disclosed a family of check and/or pressure relief fluid valve utilizing a spring biased annular diaphragm element for valving. In a single-function form there is disclosed a simple check valve. In a dual-function form there is disclosed a check valve also having a pressure relief function permitting reverse flow above a predetermined pressure differential, this form being disclosed in an automotive fuel tank filler tube cap (i.e. a "gas cap"). There is also disclosed an improved filler tube cap construction and seal therefor. In a multifunction form there is disclosed a fluid valve capable of relieving a source of fluid under pressure to a primary outlet at a first very low pressure and additionally to a secondary outlet at a higher pressure. This valve also acts as a check valve by preventing the pressure of the fluid source from dropping below that at the secondary outlet. There is also disclosed an arrangement for using this multifunction valve in an evaporative emission control system for a motor vehicle having an internal combustion engine. All of the valves disclosed are particularly suited for gaseous fluids.

A fluid pressure system for converting a digital pressure signal into an analog pressure by control of fluid pressure passing through at least a pair of restrictors in series and by monitoring the pressure between the two restrictors each one of which may be characterized by a subsonic or sonic flow rate therethrough so as to produce any combination of such flow rates therebetween, depending upon the input pressure and the cross-sectional area and geometric configuration of said restrictors.

3,827,458

DIVERTER VALVE FOR LIQUIDS

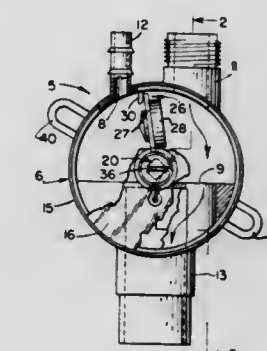
Don C. Arnold, Palatine, Ill., assignor to Granda Corp., Alden, Ill.

Filed Nov. 22, 1972, Ser. No. 308,805

Int. Cl. F16k 11/16

U.S. Cl. 137-610

3 Claims



A diverter valve for liquids, usable for example in combination domestic tub and shower installations, having a hollow valve body with a supply port for pressurized liquid and a pair of spaced outlet ports communicating with ducts possessing upward and downward directionality. A valve stem for manual actuation is mounted rotatably on the valve body, the stem having a valving portion within the body adapted to be positioned to close the outlet port leading to the downward duct, thereby causing liquid flow through the outlet port leading to the upward duct. The valve stem is spring biased to a "rest" position such that the outlet port leading to the downward duct is open, permitting liquid to flow through such port and duct, and, due to hydraulic characteristics, precluding liquid flow through the other outlet port and associated upward duct. When the stem is rotated manually to close the outlet port communicating with the downward duct, the pressure in the liquid overcomes the spring bias and maintains the port closed until liquid flow through the supply port is stopped, at which time the valve reverts to "rest" condition.

3,827,459 WATER POWERED DRIVE FOR AUTOMATIC CONTROLLERS

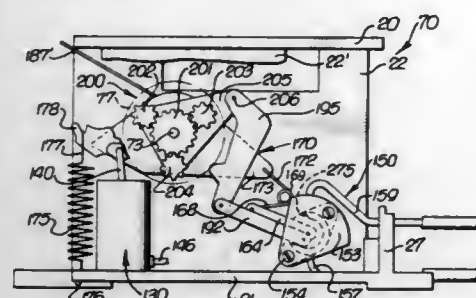
Edwin J. Hunter, Riverside, Calif., assignor to The Toro Company, Riverside, Calif.

Filed Oct. 19, 1971, Ser. No. 190,528

Int. Cl. A01g 27/00

U.S. Cl. 137—624.14

8 Claims



An automatic irrigation controller apparatus having a cam follower operated bank of pilot valves for operating selected pilot operated water valves throughout a watering or irrigation system is provided with a water powered means for receiving water under pressure from a source thereof and a member driven in a predetermined manner by the force of such water for driving a cam means to operate said cam followers via power transmission means between the water driven member and a cam shaft mounting said cam. A water piston is mounted in a cylinder with associated water valve means for selectively connecting the cylinder to a source of water under pressure and to a vent to provide a reciprocal movement for the piston, a return stroke for the piston being accomplished through the provision of a spring. A reciprocal piston movement is translated through a power transmission means including a drive ratchet wheel connected to the piston and a driven ratchet wheel connected to the cam shaft. An escapement mechanism is provided with a ring gear mounted about an engagement with a plurality of planetary gears mounted by a carrier about a sun gear driven by an input shaft of the apparatus connected to the cam shaft. Differences in the speed of rotation of the input shaft and the escapement means ring gear cause movement of the carrier which is connected to a valve restricting means for restricting the flow of water to the cylinder to regulate the speed of the water motor and rotation of the apparatus input shaft to that determined by the escapement mechanism.

3,827,460 FLUID DISTRIBUTION APPARATUS

Ronald Rimmer, Cheltenham, England, assignor to Dowty Fuel Systems Limited, Cheltenham, England

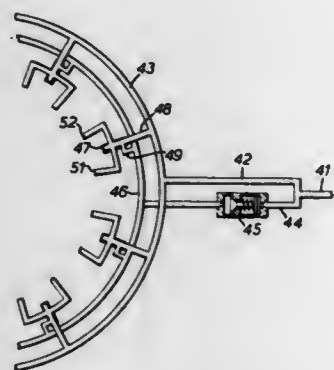
Filed Feb. 3, 1972, Ser. No. 223,258

Claims priority, application Great Britain, Feb. 8, 1971, 4158/71

Int. Cl. F15c 1/16

U.S. Cl. 137—809

3 Claims



This invention relates to a fluid-distribution apparatus in which one main fluid inlet flow is divided substantially equally

between a number of outlets for example as the feeding of a plurality of burners on a gas turbine engine from a single fuel supply. At low total flow rates the difference in height of the various outlets can adversely effect the equality of distribution of liquid between the outlets and it is known to provide a restrictor in series with each outlet to improve the flow division between the outlets. However, where there is a large range of flow rates, the simple restrictors which are effective at low flow rates will cause a very substantial pressure loss at high flow rates. Further a simple restrictor essentially involves a passage of small cross-section which can become blocked by solid particles within the liquid. The present invention substitutes vortex chamber devices for the simple restrictors, arranged to provide a predetermined unique relation between flow rate and pressure drop to ensure effective equalisation at low flow rates and to require only a moderate pressure drop at high flow rates. The vortex chamber devices further are less liable to blockage by solid particles.

3,827,461 STREAM FILAMENT MIXER FOR PIPE FLOW

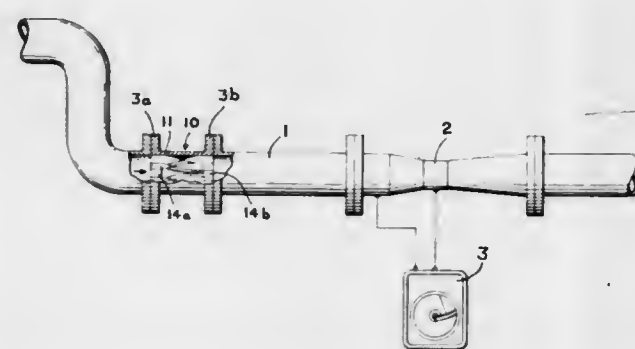
Frederick C. Gilman, Pompton Lakes, N.J., assignor to Worthington Pump International, Inc., Mountainside, N.J.

Filed Nov. 21, 1972, Ser. No. 308,399

Int. Cl. F15d 1/04

U.S. Cl. 138—39

9 Claims



A stream filament mixer for reducing stratification of velocity-stratified flows and net vortex flows within a piping system, which includes: a housing to be connected in the piping system forming a fluid flow passage having an inlet and an outlet; associated guide surfaces formed by a plurality of circumferentially disposed oppositely twisted adjacent strips connected in the longitudinal line of the housing, for generating a plurality of oppositely rotating vortexes of equal strength in the fluid passing through the fluid flow passage formed by the housing so that the fluid will be delivered in a substantially homogeneous, unstratified flow from the outlet of the housing into the associate piping of the piping system in which the stream filament mixer is connected without generating substantial differential pressure across the point where the stream filament is connected in the piping system.

3,827,462 INSULATING PLUG

Jerry J. Celesta, Rodeo, Calif.

Filed Aug. 7, 1972, Ser. No. 278,512

Int. Cl. F161 55/10

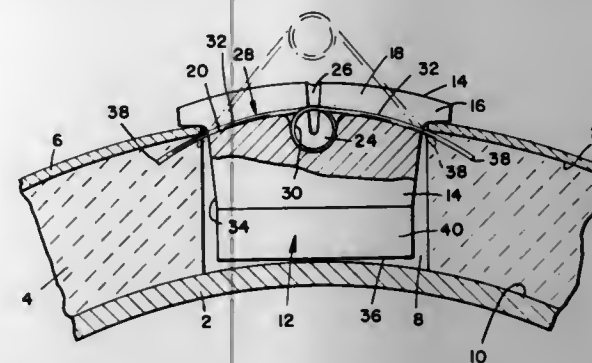
U.S. Cl. 138—90

21 Claims

A plug for closing and insulating holes through thermal insulation around pipe, vessels and the like. A plug extends into the hole and has a cap covering the hole and limiting the maximum extent to which the plug can enter the hole. A groove extends across the cap and holds an elongate spring having op-

positely oriented arms that protrude past the groove, into the insulation around the pipe and beneath an outermost insula-

tion layer or skin. The groove is sufficiently deep so that the spring continuously biases the cover into engagement with the skin to thereby removably retain the plug in the hole.



3,827,463 METHOD OF AND APPARATUS FOR THE PRODUCTION OF A SLIDE FASTENER

Friedrich Glindmeyer; Karl Limpens, both of Stolberg, and Wilhelm Hennenberg, Alsdorf, all of Germany, assignors to Firma William Prym-Werke K.G., Stolberg/Rhineland, Germany

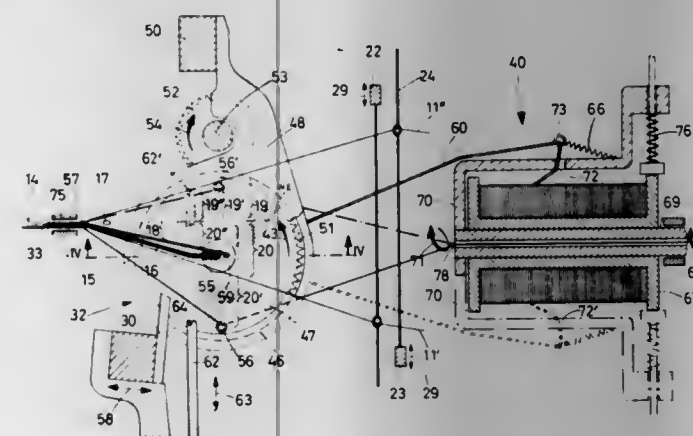
Filed Mar. 27, 1972, Ser. No. 238,192

Claims priority, application Germany, Mar. 25, 1971, 2114561; Apr. 10, 1971, 2117598; May 22, 1971, 2125470

Int. Cl. D03d 41/00

U.S. Cl. 139—35

7 Claims



A method and of producing a slide fastener tape and an apparatus therefor for guiding back and forth a fastener member-forming warp in a shed forming movement through a weaving plane to form a row of fastener members, feeding the profile strand within a range of a stop point about a loop-forming mandrel, the latter held at one end and binding the profile strand by a weft thread and the shed forming movement caused by feeding the latter about the mandrel.

3,827,464 MANUFACTURE OF SPRINGS

Terence James Leonard Clarke; Robert Charles Quarumby, both of Groby, and George Arthur Matts, Oadby, all of England, assignors to The British United Shoe Machinery Co. Ltd., Leicester, England

Filed Jan. 15, 1973, Ser. No. 323,891

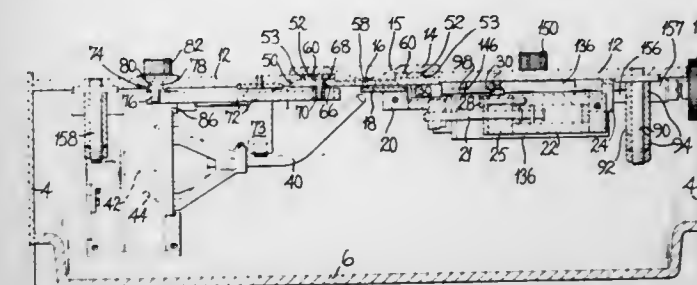
Claims priority, application Great Britain, Jan. 21, 1972, 2914/72

Int. Cl. B21f 35/02

U.S. Cl. 140—103

1 Claim

The invention relates to machines for use in forming attaching loops in generally longitudinal orientation at or from end portions of coil springs. An end portion of a spring is located axially of a machine axis and transversely of a machine



which the spring is formed is correctly positioned. The machine further comprises looping means for operating on the located and orientated end portion of the spring to form a loop of a desired configuration and orientation.

3,827,465 APPARATUS FOR FORMING TWISTED PAIRS OF CONDUCTOR WIRE

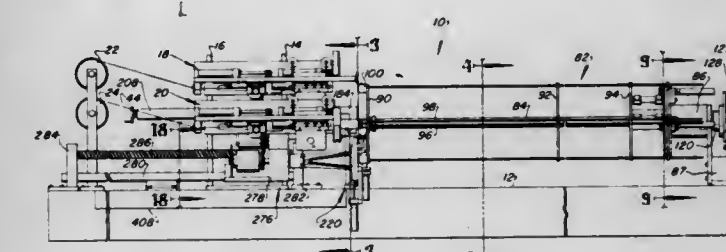
Fred W. Loy, Whitehall; William J. Harms, Nunica; Charles W. Wojahn, Holland, and Frederick Karasinski, Grand Rapids, all of Mich., assignors to Gardner-Denver Company, Quincy, Ill.

Filed Mar. 20, 1972, Ser. No. 236,413

Int. Cl. B21f 7/00

U.S. Cl. 140—149

20 Claims



Apparatus for forming twisted pairs of electrical conductor wire cut to predetermined lengths and having one wire end of a pair longitudinally offset from the adjacent end of the other wire of the pair. The apparatus includes plural wire preparation units which operate to cut predetermined lengths of wire and strip insulation from one or both ends of each wire. The wire preparation units are operable to feed prepared wires to a rotary wire carrier which includes a plurality of pairs of side by side elongated wire receiving tubes. The wire carrier is rotatably indexable from a wire receiving position to a position where a wire offsetting device comprising a fluid operated clamp and linear actuator operates to longitudinally offset one wire of a pair of wires prior to a twisting operation. The wire carrier is further indexable to a position wherein a pair of wires becomes engaged with a wire tensioning device and the adjacent ends of a pair of wires are gripped by a twisting and pulling apparatus. The twisting and pulling apparatus includes a linearly movable carriage having a pair of rotatable gripping jaws which grip adjacent ends of a pair of wires and withdraw the wires from the wire carrier tubes through the tensioning device while rotating. The combined linear and rotary movement of the gripping jaws is controlled to impart a predetermined number of twists to a wire pair.

3,827,466 WASHING AND FILLING MACHINES

Anthony John Wiggan, Bilston, England, assignor to GKN Sankey Limited, Bilston, Staffordshire, England

Filed Mar. 23, 1972, Ser. No. 237,411

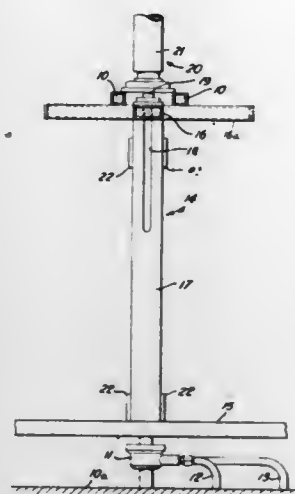
Int. Cl. B67c 3/32; B08b 3/02

U.S. Cl. 141—92

9 Claims

A machine for washing and/or filling containers comprises at least one treatment station, the station having a fixed wash-

ing to filling head at the bottom of the station and a support cradle for an inverted container, the cradle having a lower support surface to support an inverted container above the head and an upper bearing surface, the two surfaces being



spaced apart by a sufficient distance for a container to be placed in the cradle, the cradle being moveable downwardly to lower the container onto the head and to clamp the container between the head and the upper bearing surface ready for treatment by the head.

3,827,467

FLUID DISPENSING APPARATUS

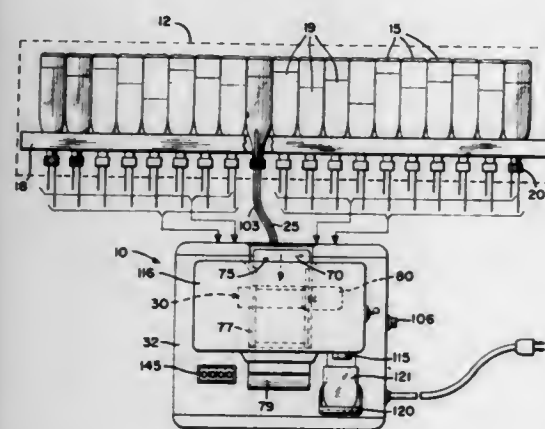
Terry L. Henley, Xenia; Frederick A. Henley, Centerville, both of Ohio, and Donald I. Townsend, Midland, Mich., assignors to HH & T Industries, Inc., Xenia, Ohio

Filed Apr. 30, 1973, Ser. No. 355,516

Int. Cl. B65b 3/30

U.S. Cl. 141-104

19 Claims



A fluid dispensing apparatus simultaneously dispenses precise quantities of various fluids according to a predetermined schedule encoded onto a control card. The card has projections or bumps thereon which engage trigger arms as the card is moved at a constant speed through a channel past the trigger arms. The trigger arms control a plurality of valves by unlocking over-center locking arms which release previously pinched-off sections of resilient tubing to release the various fluids controlled thereby. Completed travel of the card causes reset of all the valves and terminates dispensing of the fluids.

3,827,468

ROUTING GUIDE

Orvil A. Markham, 9060 Jared, Dallas, Tex. 75217

Filed May 23, 1973, Ser. No. 363,001

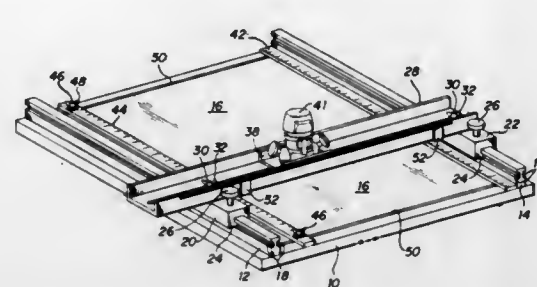
Int. Cl. B27c 5/04; B43I 7/00

U.S. Cl. 144-136 R

6 Claims

A routing guide having a base with tracks on either side thereof for receiving a workpiece therebetween; a slotted

guide member extends between the tracks over the base, and has carriage means slidably engaging each track for movement of the guide member along the tracks; a mounting plate is received over the slot of the guide member so that a portable cutting tool such as a router may be carried thereon so that the



bit of the tool extends through the hole in the mounting plate and the slot on the guide member to be traversable across the workpiece placed on the base; the guide member is pivotally mounted on each of its ends so that it may be rotated with respect to the tracks for making angular cuts.

3,827,469

PENCIL SHARPENER

Werner Mobius, Erlangen, Germany, assignor to Firma T. Paul Mobius, Erlangen, Germany

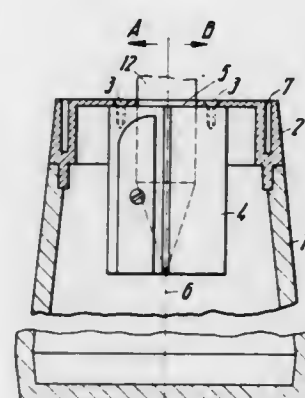
Filed May 16, 1973, Ser. No. 360,794

Claims priority, application Germany, May 20, 1972, 2224888

Int. Cl. B43I 23/08

U.S. Cl. 145-3.3

13 Claims



A pencil sharpener is formed of a housing with an opening in its surface and a cover extending across and closing the opening. A sharpening member is secured to the cover and extends inwardly into the housing so that a pencil to be sharpened has its longitudinal axis extending transversely of the cover. The cover is elastically deformable in the direction transverse to the direction of insertion of a pencil into the sharpening member so that any force exerted on a pencil in such transverse direction will be absorbed by the cover and will not result in damage to the pencil. The elastic deformation can be provided by the use of an elastically deformable material for the cover and, further, by shaping the cover, such as with grooves, so that it deforms elastically in the desired direction.

3,827,470

RATCHET SCREW DRIVER

Harley W. Douglas, 142 Whiting St., and Kenneth Graydon, 4 Cross St., both of Ingersoll, Ontario, Canada

Filed Mar. 1, 1973, Ser. No. 336,937

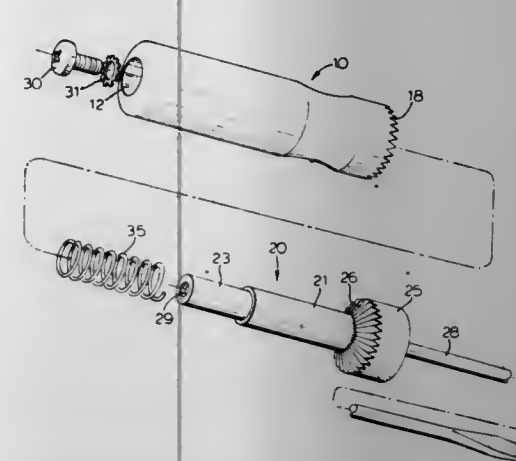
Int. Cl. B25b 15/04

U.S. Cl. 145-76

6 Claims

A ratchet screw driver is shown. The screw driver is comprised of a blade carrying shank which is intimately slidable within a sleeve housing provided in the handle. Complementa-

ry ratchet teeth are formed on a sloping mating surface of the handle and the shank. The ratchet teeth are normally maintained in a spaced disengaged position from each other by a



biasing means in the handle. The ratchet teeth engage with each other when the blade is pressed downwards into the slot of the screw to be operated.

3,827,471

FLEXIBLE TRANSPORTING CONTAINERS

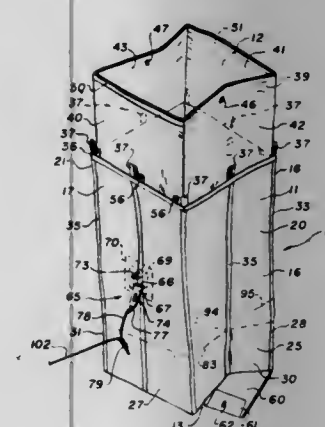
Gerald H. Gregory, Surrey, British Columbia, and Donald W. Benedict, Beach Grove, British Columbia, both of Canada, assignors to False Creek Industries Ltd., Vancouver, British Columbia, Canada

Filed Sept. 18, 1972, Ser. No. 290,108

Claims priority, application Great Britain, Oct. 18, 1971, 48450/71

Int. Cl. A01g 19/06

U.S. Cl. 150-2



A container in the form of a tube-like bag open at the top and bottom and having a bottom section that can be folded over the lower end of the bag and up the side of the latter. Securing means releasably connects the folded-over bottom section to the side of the bag. The container can be rolled or folded up for storage and shipment, and it can be opened into tubular form and filled with particulate material through the upper end thereof. Release of the securing means when the bag is lifted up or suspended allows the bottom section to straighten out and the material to discharge from the container.

3,827,472

RECLOSABLE BAG

Tatsuro Uramoto, Tokyo, Japan, assignor to Kabushiki Kaisha Seisan Nipponsha, Tokyo, Japan

Continuation-in-part of Ser. No. 882,491, Dec. 5, 1969, abandoned. This application Feb. 16, 1972, Ser. No. 226,680

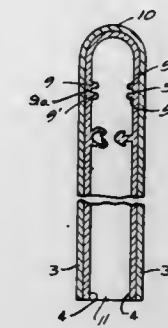
Int. Cl. B65d 31/02

U.S. Cl. 150-3

11 Claims

A flexible bag structure having an outer layer and an inner layer with the layers bonded to each other and being coexten-

sive to the top of the bag, and the inner layer formed of a plastic with interlocking rib and groove profiles integral with the plastic to close the top of the bag and tear strip means in-



tegral with the inner layer and opposite the coextensive outer layer for tearing the top off of the bag with the tear strip means preferably in the form of a pair of ribs.

ERRATUM

For Class 152-319 see: Patent No. 3,827,792

3,827,473

TIRE TRACTION DEVICE

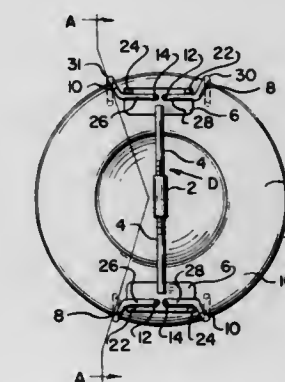
Robert Blickensderfer, 8191 Butterworth Rd., Mainville, Ohio 45039, and Robert Blickensderfer, III, 3312 Elmwood Dr., N.W., Corvallis, Oreg. 97330

Filed Dec. 16, 1971, Ser. No. 208,570

Int. Cl. B60c 27/02

U.S. Cl. 152-218

15 Claims



A traction device for a tire or the like which includes a plurality of traction members; means for adjustably connecting of the traction members in spaced relation to each other; each of the traction members including a yoke and a U-shaped traction element for encircling the tread of a tire in a transverse direction; the U-shaped traction element having the free end of one leg of the U pivotally secured to the yoke; stop means on the yoke for preventing rotation of the traction element in a direction which, when positioned on the tire, would displace the traction element outwardly from the tire tread; and means on the yoke permitting rotational inward displacement of the traction element.

This invention relates to tire traction devices and, more particularly, to an improved emergency device which may be rapidly and easily mounted on and demounted from a vehicle tire to provide increased traction.

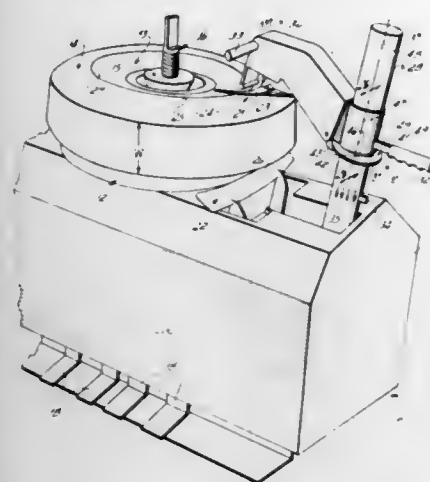
3,827,474

POWER COLUMN LATCH

David W. Besuden, Cincinnati, Ohio, assignor to Magnum Automotive Equipment, Inc., Cincinnati, Ohio
Filed Jan. 30, 1973, Ser. No. 328,015
Int. Cl. B60c 25/06

U.S. Cl. 157—1.28

6 Claims



An improved power column latch for an upper bead breaker mechanism that is adapted to restrain the upper bead breaker in desired location on the power column when the power column is drawn down to break a tire's bead away from a wheel's rim on a tire changer machine. The upper bead breaker mechanism includes a collar, the collar being telescoped over and slidable relative to the substantially vertically oriented power column. The improved latch is characterized by a doughnut-shaped element that surrounds the power column, the element having an inside diameter slightly greater than the outside diameter of the power column. The doughnut-shaped element is pivotally mounted on its outer periphery, to the upper bead breaker mechanism beneath the collar. This allows the doughnut-shaped element to fall by gravity into latching engagement with the power column, thereby precluding upward movement of the upper bead breaker on the power column as the power column is drawn downwardly when breaking a bead. This also allows the doughnut-shaped element to be easily lifted out of latching engagement with the power column by an operator, thereby permitting the upper bead breaker to be manually positioned on the power column as desired by the operator and as dependent on the width of the tire being changed.

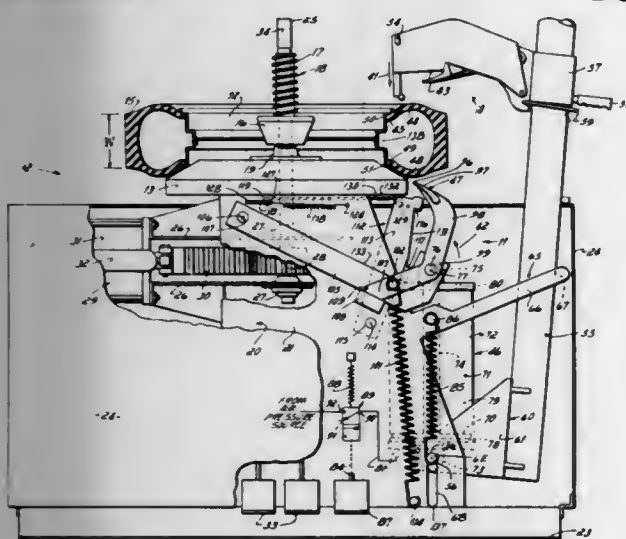
3,827,475

LOWER BEAD BREAKER MECHANISM

William G. Brosene, Jr., Cincinnati, Ohio, assignor to Magnum Automotive Equipment, Inc., Cincinnati, Ohio
Filed Jan. 30, 1973, Ser. No. 328,011
Int. Cl. B60c 25/06

U.S. Cl. 157—1.28

2 Claims



A lower bead breaker is mounted for limited vertically upward movement in an arcuate path by virtue of a control arm

that is pivotally fixed to the machine's main frame at one end and that is pivotally connected to a fluid motor at the other end, the lower bead breaker's blade being spring loaded against a stop block fixed to the main frame so as to lift the blade off the machine's table and locate same in the home position. The lower bead breaker is selectively adapted to track against a spring loaded, manually positionable travel limiter arm that functions to limit the vertically upward movement of the lower bead breaker's blade in the away or extended position, use of the travel limiter arm depending on the width of the pneumatic tire being processed.

3,827,476

METHOD AND APPARATUS FOR DISTILLING OF SOLVENTS IN WHICH FOREIGN MATTER IS DISSOLVED

Erwin Biesinger, Rottenburg, Germany, assignor to Seco Maschinenbau GmbH & Co. KG, Rottenburg/Neckar, Germany

Filed Dec. 21, 1972, Ser. No. 317,358
Claims priority, application Germany, Dec. 23, 1971, 2164373

Int. Cl. B01d 1/26, 1/00

U.S. Cl. 159—44

4 Claims

A method and apparatus for distilling solvents in which foreign matter is dissolved, resulting for instance from treating of textile material. The solvent is fed in a first distilling vessel in which it is evaporated until the liquid solvents therein reaches a predetermined level, whereafter the remaining liquid solvent is discharged from the first into a second distilling vessel wherein the solvent is subjected to a subsequent distilling operation so that a cake, from foreign matter dissolved in this solvent, will form only in the second distilling vessel from which it can be discharged without interrupting the distilling process in the first distilling vessel.

3,827,477

METHOD OF HEATING ALCOHOLIC BEVERAGES

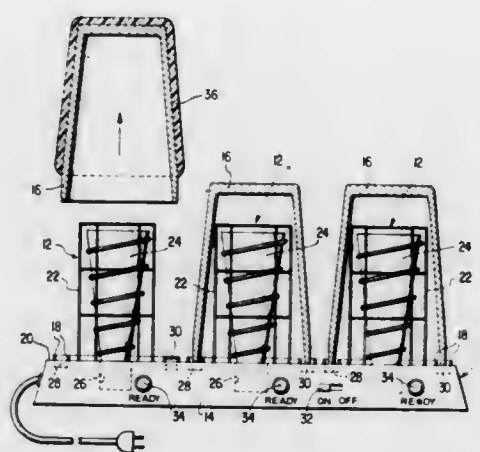
Robert I. Weiner, Owings Mills; Henri H. Hoge, and Benicio I. Dussan V., both of Baltimore, all of Md., assignors to Robert I. Weiner, Owings Mills, Md.

Filed Sept. 1, 1972, Ser. No. 285,591

Int. Cl. F24h 3/00

U.S. Cl. 165—1

5 Claims



A thick walled aluminum cocktail shaker is preheated to a predetermined temperature in excess of a desired hot service temperature for an alcoholic beverage, such as buttered rum mix. The shaker is removed from the preheat source prior to introduction of the beverage which is then shaken until thermal equilibrium is achieved.

The apparatus involves a preheat console upon which one or more of the cocktail shakers are, each, adapted to be supported in an inverted position in surrounding relation to an upstanding, substantially similarly shaped preheating element which, for a given power input, assures substantially uniform preheating of the entire shaker to a desired temperature within the shortest possible time.

3,827,478

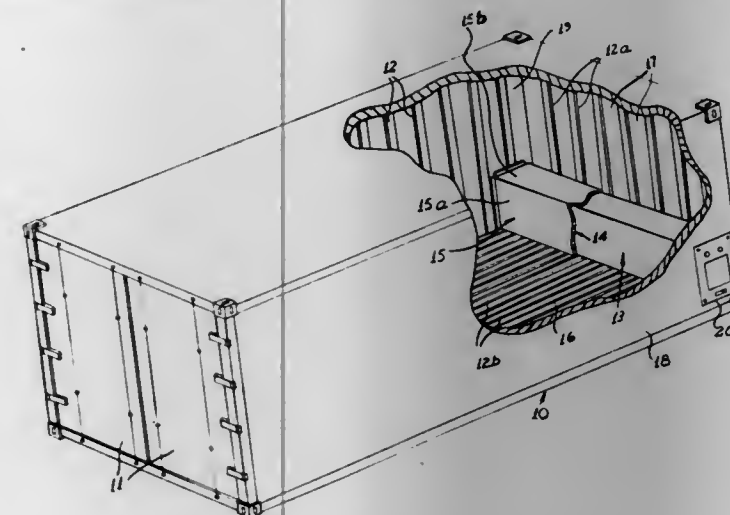
SHIPPING CONTAINER WITH REMOVABLE ENVIRONMENTAL CONTROL UNIT

Maurice Beaudet, St. Philippe de La Prairie, Quebec, Canada, assignor to Galt Equipment Ltd., Quebec, Canada
Continuation-in-part of Ser. No. 126,114, March 19, 1971.
This application Nov. 28, 1972, Ser. No. 309,969

Int. Cl. B60h 3/00

U.S. Cl. 165—42

3 Claims



The combination of a shipping container and a portable environmental control cartridge unit is disclosed. The container has external walls and access doors to a storage space which includes a compartment therein having an access opening in the external walls different from the access doors to the storage space. The compartment is in air or gas communication with the storage space but has no access for the removal or placement of goods between the compartment and the storage space. The portable environmental control cartridge unit is removably positioned in the compartment being insertable and removable from the compartment through the access opening.

3,827,479

SURFACE CONDENSOR

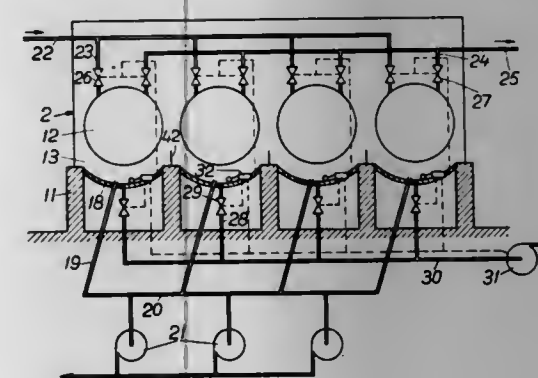
Peter Fejes, Vasteras, Sweden, assignor to Asea Atom AB, Vasteras, Sweden

Filed Apr. 12, 1971, Ser. No. 133,095

Int. Cl. F28f 27/02

U.S. Cl. 165—101

4 Claims



A surface condenser for steam generated by nuclear power includes a plurality of cooling tubes arranged in a common casing having inlet openings for steam and an outlet opening above a plurality of basins for collecting condensate. Each basin is provided with a closeable return conduit for pure condensate containing a valve which is normally open. There is also a line through which polluted liquid can be drawn off from any basin provided with a normally closed valve. An arrangement for measuring the pollution in each basin opens the valve for polluted liquid in response to a leakage of coolant from the tubes and at the same time shuts off the flow to the leaking tube bundle.

The casing also supports a housing enclosing a plurality of turbines which are fed by the steam and which discharge to the condenser.

3,827,480

ELECTRICALLY INSULATED DOUBLE TUBE HEAT PIPE ARRANGEMENT

Gregor Gammel, Dossenheim; Peter H. Pawlowski, Heidelberg; Uwe Heidtmann, Nussloch, and Mattias Jons, Heidelberg, all of Germany, assignors to Brown, Boveri & Cie AG, Mannheim, Germany

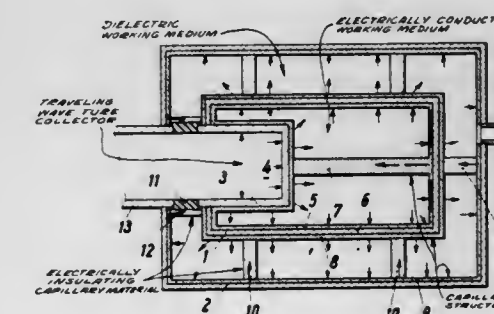
Filed Apr. 20, 1972, Ser. No. 245,827

Claims priority, application Germany, Apr. 27, 1971, 2120477

Int. Cl. F28d 15/00

U.S. Cl. 165—105

8 Claims



For cooling a heat source, such as a component part of electronic equipment which has a high electrical potential, a heat pipe arrangement is employed which is formed of a closed first pipe or tube in contact with the heat source and a closed second pipe or tube enclosing the first tube. A capillary structure of a metallic material is formed on the inner surface of the first tube and a similar capillary structure also of a metallic material is formed on the outer surface of the first tube and acts as a part of the capillary structure within the second tube. On the inner surface of the second tube, spaced outwardly from the capillary structure on the outer surface of the inner tube, is another capillary structure connected by a bridging member formed of an electrical insulating material, to the capillary structure on the outer surface of the inner tube to permit condensation to flow from the capillary structure on the outer tube to that on the inner tube. Similarly, a bridging member is provided within the inner tube for the same purpose, the vaporizable working medium within the inner tube is either water or a metal while the working medium within the outer tube is a vaporizable dielectric liquid.

3,827,481

DISTRIBUTOR FOR GEL-LIKE MATERIALS

Zoltan P. Mandy, Camillus; George Akerhielm, Manilus, and David Tulowiecki, Liverpool, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed May 1, 1973, Ser. No. 356,258

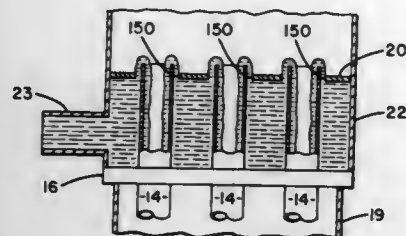
Int. Cl. F28f 25/00

U.S. Cl. 165—118

3 Claims

Apparatus for distributing a gel-like material such as sludge to the entrances of a plurality of vertically extending conduits such as falling film heat exchange tubes used in a freeze-thaw sludge treatment system. The apparatus comprises a plate hav-

ing a set of orifices for receiving the upper ends of the conduits, there being slight clearance between the orifice edge and the conduit. The gel-like material is introduced beneath



the distributor plate under pressure, and the material flows upwardly through the clearance and into the upper ends of the conduits in a uniform manner.

3,827,482

RADIATOR FAN FOR EARTH MOVERS

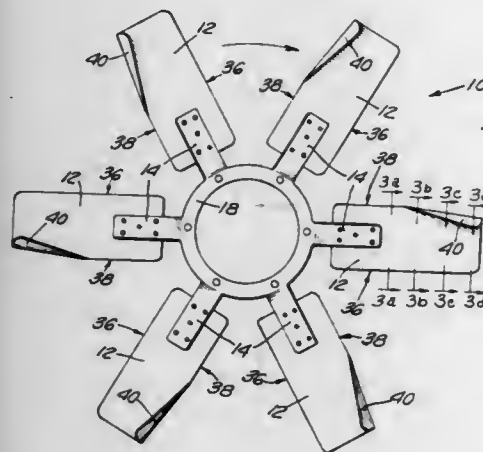
Robert R. Pope, 13100 Skiomah, Apple Valley, Calif. 92307

Filed Dec. 21, 1972, Ser. No. 317,202

Int. Cl. F28f 19/00

U.S. Cl. 165—119

4 Claims



A radiator fan for earth moving equipment, in which air is blown through the radiator, said fan being designed to remove most of the rock and dirt from the air before the air is blown through the radiator, so as to prevent damage to the radiator core. The trailing edges of the fan blades are curled around on the side facing the radiator, so that stones or dirt are caught by the curled portion and accelerated in a circular path around the axis of the fan, causing the debris to be thrown radially outward by centrifugal force. The centrifugally thrown sand and dust particles are caught by a shroud surrounding the fan, and are then picked up and carried forwardly through the radiator core at relatively low velocity by the turbulent air outside the main blast of the fan.

3,827,483

HEAT EXCHANGER

Harold H. Hopkinson, Manlius, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed May 16, 1973, Ser. No. 360,703

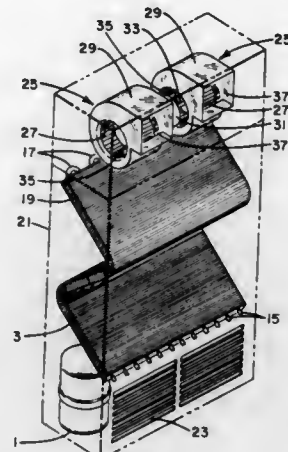
Int. Cl. F25b 39/04

U.S. Cl. 165—145

3 Claims

A heat exchanger for a refrigeration circuit comprising a plurality of parallel tubes bent in an accordion shape, and a

plurality of parallel heat exchange fins running transverse to the tubes. The heat exchanger is advantageously mounted in a



vertically extending casing, and heat exchange medium is directed upwardly over the tubes and fins to absorb heat transferred therefrom.

3,827,484

LIQUID METAL HEAT EXCHANGER

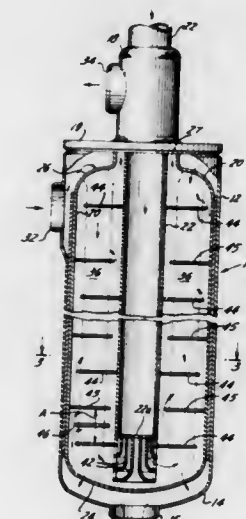
Walter Wolowodiuk, 51 Evergreen Ave., New Providence, N.J. 07974

Continuation-in-part of Ser. No. 8,501, Feb. 4, 1970, abandoned. This application Jan. 8, 1973, Ser. No. 321,507

Int. Cl. F28f 9/22

U.S. Cl. 165—161

4 Claims



A liquid metal heat exchanger in which one of the heat exchange fluids flows alternately radially inward and outward across a series of circular baffles to exchange heat with another heat exchange fluid flowing through a plurality of tubes perpendicular to the baffles in which the first mentioned fluid is not excessively accelerated at any point in its travel across the baffles. The tubes are arranged in concentric circular rows with the spacing between tubes in each row being smaller at larger circles than at comparatively smaller circles.

3,827,485

HEAT EXCHANGER AND METHOD OF MANUFACTURE THEREFOR

Stephen L. Hickman, and Carl O. Griewahn, both of Adrian, Mich., assignors to Brazeway, Inc., Adrian, Mich.

Filed Mar. 23, 1973, Ser. No. 344,245

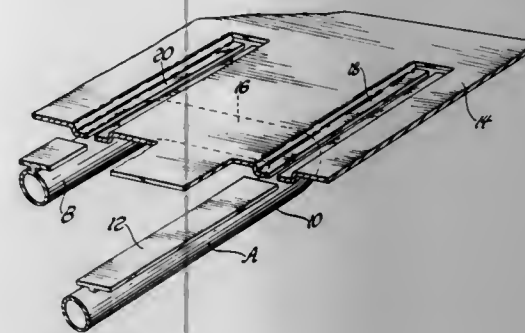
Int. Cl. F28f 1/32

U.S. Cl. 165—171

9 Claims

A heat exchange apparatus comprising a tube and plate and a method of manufacture for the heat exchange apparatus.

The method includes the steps of forming the tube, such as by extrusion, to provide an external attachment appendage which, in the illustrative embodiment, is T-shaped in cross section, forming spaced parallel slots in a thin plate, offsetting the material of the plate along and adjacent the slots to accom-



modate the T-shaped attachment appendage in sliding relationship therewith and, finally, compressing the tube against the plate to lock the two elements together and to provide a flush surface on the side of the plate which is opposite the tube.

3,827,486

WELL REENTRY SYSTEM

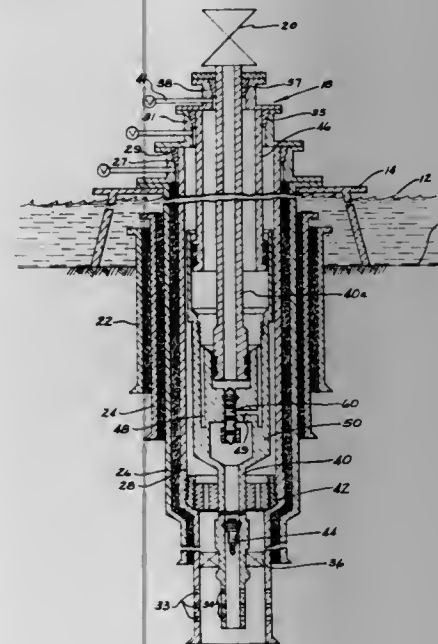
Harold Hall, Virginia Water, England, assignor to Brown Oil Tools, Inc., Houston, Tex.

Filed Mar. 17, 1972, Ser. No. 235,611

Int. Cl. E21b 43/01

U.S. Cl. 166—5

16 Claims



Method and apparatus for completing a well having a wellhead supported on a platform above a body of water and the well bore of which penetrates the floor of the body of water. The method comprises the steps of: running at least one casing string into the well bore; cementing the casing string in the well bore; running a first portion of a tubing string into the casing string; suspending the first portion of the tubing string in the casing string at a point below the floor; lowering a second portion of the tubing string through the body of water into sliding and sealing telescopic engagement with the upper end of the first portion of the tubing string; and suspending the second portion of the tubing string at the wellhead. The apparatus may comprise a safety valve assembly installed in the first portion of the tubing string at a point below the water body floor. The valve assembly may be hydraulically operated by fluid conducted to the valve assembly through a conduit supported at the wellhead and extending through the body of water for fluid-tight communication with the valve assembly.

3,827,487

TUBING INJECTOR AND STUFFING BOX CONSTRUCTION

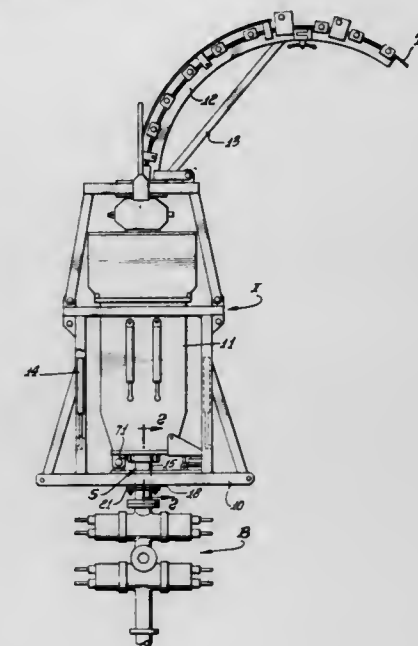
John L. Jackson, Lafayette, and John E. Steinwinder, Broussard, both of La., assignors to Baker Oil Tools, Inc., Los Angeles, Calif.

Filed Apr. 30, 1973, Ser. No. 355,753

Int. Cl. E21b 33/03

U.S. Cl. 166—77

6 Claims



A tubing injector base and a tubing stripper are mounted on the top flange of a blowout preventer assembly at the top of a well. The tubing stripper comprises a longitudinally split housing and a removable stripper rubber.

3,827,488

CASING HANGER ASSEMBLY AND OPERATING TOOLS THEREFOR

Andre L. Piazza, and Raymond K. Lamb, both of Houston, Tex., assignors to The Rucker Company, Houston, Tex.

Filed May 7, 1973, Ser. No. 357,832

Int. Cl. E21b 33/10

U.S. Cl. 166—87

20 Claims



A casing hanger assembly adapted to be set in a wellhead by longitudinal actuation, and operating tools for running, setting and retrieval thereof. A circulating casing hanger having a body including a fluid passageway carrying a seal sleeve having a seal for sealing in the passageway. A longitudinally movable actuator for moving a locking ring and the sleeve

downwardly to set the seal and engage the ring in a locking recess in the body. Coacting tapering faces directed inwardly and downwardly between the locking ring and the recess and coacting tapering faces directed downwardly and outwardly between the actuator and locking ring providing a releasable holding structure as well as providing a mechanical advantage for setting the seal. Various locking means and energy storing means may be used to maintain the seal in a set position. Hanger and protector bowl setting and retrieving tools for operating the assembly.

3,827,489

APPARATUS FOR INSTALLING AND REMOVING FLOW VALVES

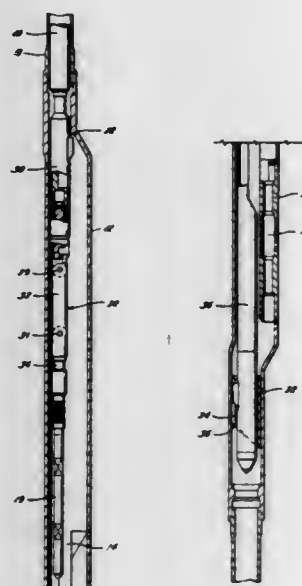
Harold E. McGowen, Jr., No. 1 Powderhorn Ln., Houston, Tex. 77024

Filed Apr. 25, 1973, Ser. No. 354,361

Int. Cl. E21b 7/06

U.S. Cl. 166—117.5

5 Claims



A tubing mandrel for use in a well tubing having an open bore for alignment with the well tubing and valve pocket offset from the open bore with an actuating shoulder in the mandrel above the pocket for actuating a valve handling apparatus and an orientation sleeve in the mandrel adjacent or below the valve pocket. A valve handling apparatus for use in the mandrel having an actuating key adjacent the upper end and an orienting key adjacent the lower end. The actuating shoulder being positioned out of the open bore and above the pocket.

3,827,490

APPARATUS FOR INSTALLING AND REMOVING FLOW VALVES

Howard H. Moore, Jr., and Harold E. McGowen, Jr., both of Houston, Tex., assignors to Camco, Incorporated, Houston, Tex.; Harold E. McGowen, Jr., Houston and Howard H. Moore, Jr., Weimar, both of, Tex.

Continuation-in-part of Ser. No. 725,637, May 1, 1968, abandoned, and a continuation-in-part of Ser. No. 864,260, Sept. 18, 1969, abandoned. This application Dec. 4, 1970, Ser. No. 95,408

Int. Cl. E21b 23/00

U.S. Cl. 166—117.5

14 Claims

An apparatus for installing and removing flow valves in a well tubing having a plurality of valve receiving side pockets offset from the main bore by providing an orientation sleeve for directing a guide key of a valve handling apparatus in the sleeve, and a shoulder in the sleeve for actuation of the valve handling apparatus. A valve handling apparatus including a support body supporting a longitudinally movable body which

includes a guide key pivotally connected at its lower end and yieldably urged outwardly by spring means so that the guide



key will readily pass downwardly through any number of orientation sleeves and can selectively install or remove a valve in or from any desired vertically positioned mandrel.

3,827,491

APPARATUS FOR SELECTIVELY RECEIVING AND RELEASING WELL TOOLS

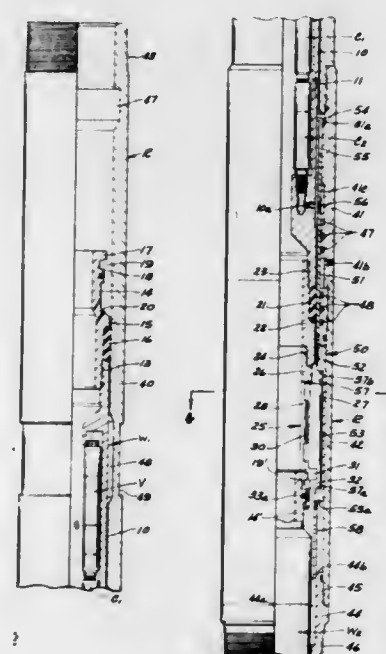
Robert W. Dinning, Houston, Tex., assignor to Macco Oil Tool Company, Inc., Houston, Tex.

Filed Mar. 26, 1973, Ser. No. 344,568

Int. Cl. E21b 33/16, 33/00

U.S. Cl. 166—154

22 Claims



Apparatus for selectively receiving a well tool within a well conduit comprising: a tubular housing adapted for connection in a well conduit; a tubular sleeve disposed within the housing for limited movement between an upper closed position and lower open position; cooperable ports in the sleeve and housing, registerable when the sleeve is in the lower position, to provide fluid communication between the interior and exterior of the conduit; and a latch recess engageable by latches on the well tool for receiving the well tool and moving the sleeve from its closed position to its open position as the well tool is moved downwardly through the conduit. Seals may be provided between the well tool and the sleeve and housing respectively, isolating the upper end of the sleeve from the pressure within the conduit, the lower end of the sleeve being subjected to the pressure within the conduit. The upper end of the sleeve may be in fluid communication with the exterior of the conduit through the ports when the sleeve is in its open position.

3,827,492

OIL WELL BRUSH TOOL

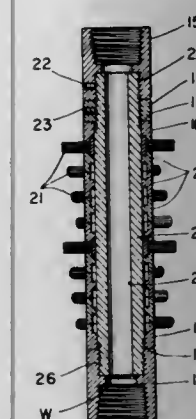
Donald P. Hammon, Long Beach, Calif., and Edwin J. Hammon, Albuquerque, N. Mex., assignors to Industrial Concepts Corporation, Albuquerque, N. Mex.

Filed Feb. 20, 1973, Ser. No. 333,776

Int. Cl. E21b 37/02

U.S. Cl. 166—173

4 Claims



A mandrel designed for insertion in an oil pipe string includes a plurality of ring members surrounding the mandrel in a stacked array the upper and lower ends of the mandrel threadedly receiving end members for squeezing the ring members together in a longitudinal direction. A plurality of brush elements extend radially from between adjacent circumferential edges of the ring members, the squeezing force on the ring members holding the brushes in their set position. The sets of brushes from between two adjacent ring members are circumferentially staggered relative to the sets of brushes from the next adjacent ring member so that 360° engagement of the oil well casing takes place when the mandrel is moved through the casing. Either brushes in the form of bunches of stiff wires may be used or rigid block members constituting cutting blades may be substituted for the brushes to thereby enable the casing to be gauged or broached to a given diameter determined by the radial extent of the cutters.

3,827,493

LATCH FOR RETRIEVABLE FLOW CONTROL DEVICES

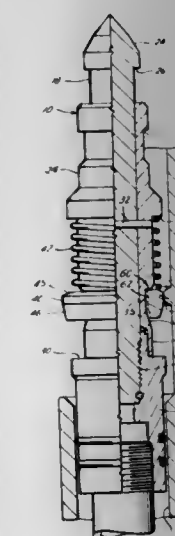
Ben D. Terral, Houston, Tex., assignor to Camco, Incorporated, Houston, Tex.

Filed May 16, 1973, Ser. No. 360,659

Int. Cl. E21b 23/00

U.S. Cl. 166—215

1 Claim



An improved latch for locking flow control devices in a mandrel receiver in which a spring-loaded concentric ring

moves laterally into a semi-circular recess positioned above the receiver by providing means whose outside diameter is larger than the inside diameter of the latch ring and located on the latch body in a location that will mechanically force the latch ring through the latching shoulder and into the latching recess insuring that the latch ring will not be caught within the latching shoulder. A shoulder on the latch positioned to carry the locking ring past the locking shoulder when the flow control device is seated in the receiver.

3,827,494

ANTI-FRICTION BALL VALVE OPERATING MEANS

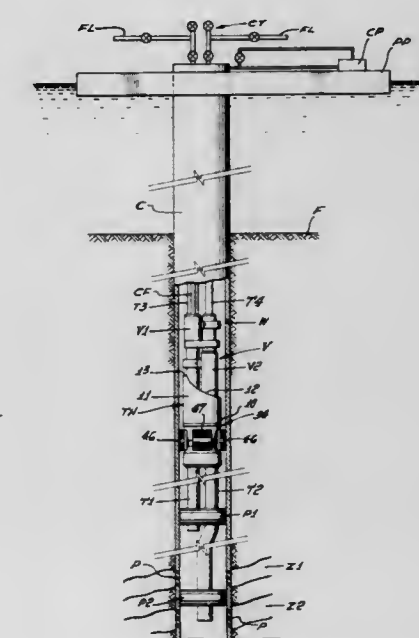
Talmadge L. Crowe, Houston, Tex., assignor to Baker Oil Tools, Inc., Los Angeles, Calif.

Filed Nov. 3, 1972, Ser. No. 303,623

Int. Cl. E21b 43/12

U.S. Cl. 166—224

30 Claims



A ball valve is supported in a subsurface shutoff valve for wells in a ball guide which transmits the closing force for rotating the ball through fingers which engage the ball adjacent to its axis of rotation on a small radius so that there is a low frictional moment arm. The ball valve is opened by control fluid pressure and closed by a spring and well fluid pressure, and the spring acts to overcome the hydrostatic pressure of the control fluid.

3,827,495

SAND STABILIZATION IN SELECTED FORMATIONS

Marion G. Reed, Hacienda Heights, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 177,263, Sept. 2, 1971, abandoned, Continuation-in-part of Ser. No. 875,026, Nov. 10, 1969, Pat. No. 3,603,399. This application Nov. 27, 1972, Ser. No. 309,875

The portion of the term of this patent subsequent to Sept. 7, 1988, has been disclaimed.

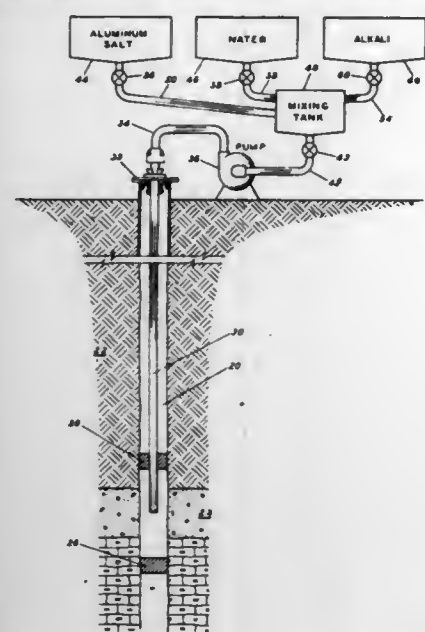
Int. Cl. E21b 33/138, 43/27

U.S. Cl. 166—250

44 Claims

The disclosure provides a method of sand stabilization in

certain selected clay-containing formations by treating the formation with a hydroxy-aluminum solution having a ratio of



the hydroxyl groups to the aluminum atoms in the range of from 1.5 to 2.7.

3,827,496

HIGH WATER CONTENT MICELLAR SOLUTION CONTAINING THICKENERS

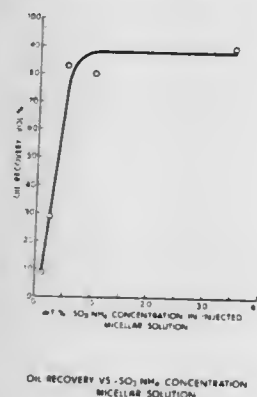
Donald E. Schroeder, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Filed Feb. 23, 1973, Ser. No. 335,187

Int. Cl. E21b 43/22

U.S. Cl. 166—273

10 Claims



Improved oil recoveries with water-external micellar solutions are obtained by flooding with a micellar solution containing water, a viscosity-increasing agent dissolved in the water, hydrocarbon, and monovalent cation-containing petroleum sulfonate(s) having an average equivalent weight within the range of about 300-525 and being present in concentrations at least five times the CMC (critical micelle concentration) within the particular micellar solution. Optionally cosurfactant and/or electrolyte can be present. The micellar solution can be followed by an aqueous mobility buffer and the buffer followed by a waterdrive. The micellar solution is displaced toward a production well to recover crude oil therethrough.

3,827,497

OIL RECOVERY PROCESS USING AQUEOUS SURFACTANT COMPOSITIONS

Dale W. Dycus; Earl W. Malmberg, and Harry L. Wilchester, all of Dallas, Tex., assignors to Sun Oil Company, Dallas, Tex.

Filed Feb. 1, 1973, Ser. No. 328,813

Int. Cl. E21b 43/22

U.S. Cl. 166—274

11 Claims

A surfactant composition useful in recovering oil by water-flooding with brine comprises a mixture of an organic sulfonate surfactant, a sulfated or sulfonated oxyalkylated alcohol and a polyalkylene glycol alkyl ether.

The disclosure provides a method of treating a water-sensitive formation penetrated by a well by contacting the formation with a hydroxy-aluminum solution having a ratio of the hydroxyl groups to the aluminum atoms in the range of 1.5 to 2.7.

3,827,498

FLUID LOSS ADDITIVE

Curtis W. Crowe, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 177,680, Sept. 3, 1971, abandoned. This application May 1, 1972, Ser. No. 249,085

Int. Cl. E21b 43/22, 43/26

U.S. Cl. 166—282

10 Claims

An additive for aqueous fluids including aqueous acid solutions, brines, fracturing fluids, work over fluids, etc., and a method for treating a heterogeneous permeable subterranean formation with such an aqueous fluid containing said additive is taught. The additive comprises a mixture of particulate oil soluble resins one being friable and the other pliable.

3,827,499

INJECTIVITY IN SUPPLEMENTED OIL RECOVERY

Charles J. Norton; David O. Falk, both of Denver, and Robert E. Evans, Littleton, all of Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Oct. 2, 1972, Ser. No. 293,952

Int. Cl. E21b 43/16

U.S. Cl. 166—305 R

13 Claims

Oil recoveries with polyionic thickeners in aqueous slugs are improved by increasing the salt concentration in the slug to improve the injectivity and thereafter decreasing the salt concentration to obtain improved mobility control.

3,827,500

FORMATION PERMEABILITY MAINTENANCE WITH HYDROXY-ALUMINUM SOLUTIONS

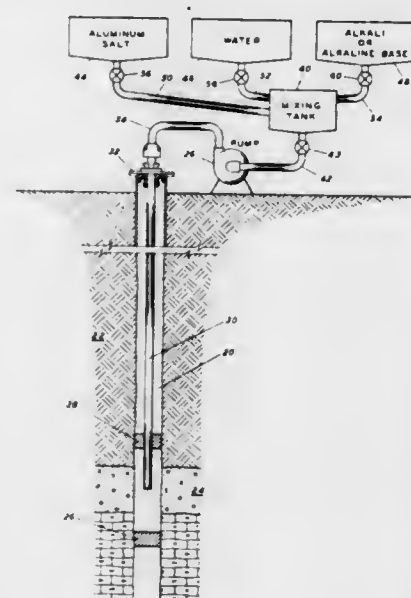
Marion G. Reed, Hacienda Heights, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 176,073, Aug. 30, 1971, which is a continuation-in-part of Ser. No. 875,026, Nov. 10, 1969, Pat. No. 3,603,399. This application June 5, 1972, Ser. No. 259,922. The portion of the term of this patent subsequent to Sept. 7, 1988, has been disclaimed.

Int. Cl. E21b 43/16

U.S. Cl. 166—305 R

16 Claims



3,827,501

METHOD AND APPARATUS FOR AUTOMATICALLY TERMINATING UNCONTROLLED FLOW OF WELL FLUIDS FROM A SUBSURFACE FORMATION

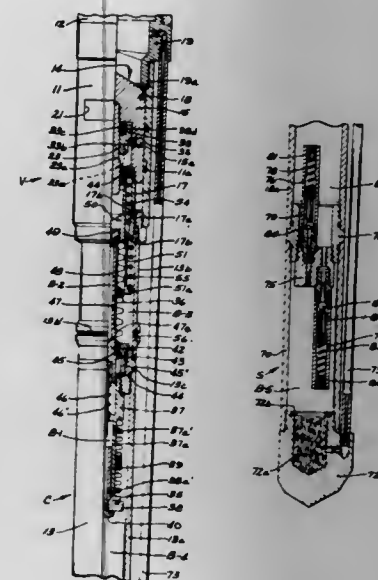
Joseph L. Johnson, Houston, and Shelby L. Guldry, Conroe, both of Tex., assignors to Udell Garrett, Inc., a Division of Maccos Oil Tools, Inc., Houston, Tex.

Filed Apr. 9, 1973, Ser. No. 349,009

Int. Cl. E21b 43/12

U.S. Cl. 166—314

16 Claims



Disclosed is a self-contained, automatic valve assembly designed to be anchored at a subsurface location within a well conduit which extends into a subterranean formation employed as a reservoir to store pressurized natural gas. The valve is preferably supported by a retrievable packer which anchors the valve within the conduit and forms a seal to force gas flowing in the conduit to flow through the valve. Operation of the valve is governed by a pressure charged dome control which acts through a bellows to move a valve stem to the closed position to terminate flow through the valve when the flowing well pressure drops by a predetermined amount relative to the dome pressure. Compensating means included in the dome control permit the value of the flowing well pressure required to close the valve to be raised or lowered by controlling the pressure at the wellhead.

In the method of the invention, the pressure acting on the dome control is automatically increased as gas is injected into the formation so that the differential between the dome pressure and the reservoir pressure remains at a substantially fixed value. During periods when gas is being removed from the well, the control pressure acting in the dome is periodically reduced by control of the wellhead pressure so that the valve remains open as the reservoir pressure falls. During gas injection or gas removal, the valve functions as a safety device and closes automatically to terminate well flow any time the flowing well pressure drops below the dome control pressure by an established value.

3,827,502

FIRE-EXTINGUISHING APPARATUS

Frank R. Lockwood, Northwood, England, assignor to Chubb Fire Security Limited, Sunbury-on-Thames, Middlesex, England

Filed Apr. 24, 1972, Ser. No. 246,666

Claims priority, application Great Britain, May 3, 1971, 12698/71; Sept. 17, 1971, 43474/71

Int. Cl. A62c 3/00

U.S. Cl. 169—51

14 Claims

A fire extinguisher comprises a tube of thermoplastic material containing a fire-extinguishing liquid, the tube con-

stituting a "continuous" detector and a continuous dispenser along the whole of its length. The strength of the tube wall is



such that the tube will resist the internal pressure at ordinary temperatures but will burst at a temperature developed by fire.

3,827,503

HARVESTING MACHINE FOR CABBAGE, OR THE LIKE

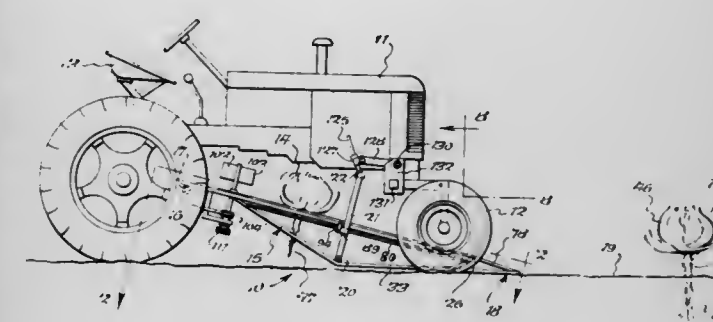
Carl J. Hansen, W. Shelby Rd., Middleport, N.Y. 14105

Filed July 27, 1972, Ser. No. 275,528

Int. Cl. A01d 27/04

U.S. Cl. 171—38

9 Claims



A machine for harvesting a crop item such as a cabbage having a relatively large head located above ground and a stem-root combination connected to said head including a stem merging into an elongated root, comprising a frame, a connection for mounting the frame on a tractor, a snout at the leading end of the frame having an entry portion for receiving the stem, a conveyor comprising a pair of substantially parallel screws of opposite pitch leading upwardly away from said entry portion, means for rotating said screws in opposite directions to engage said stem and move said crop item upwardly along said conveyor, a pair of spaced rails underlying the head for guiding said head in its movement along said conveyor, stabilizing rails below said screws for engaging said stem-root combination to stabilize said crop item during its movement along said conveyor, and a cutter mounted on said frame remote from said snout for severing said stem from said head proximate said head when it reaches the end of movement on the conveyor.

3,827,504

ROD WEEDER

Clarence R. Zimmerman, 6th Ave. and County Rd., Almira, Wash. 99103

Filed Mar. 21, 1973, Ser. No. 343,501

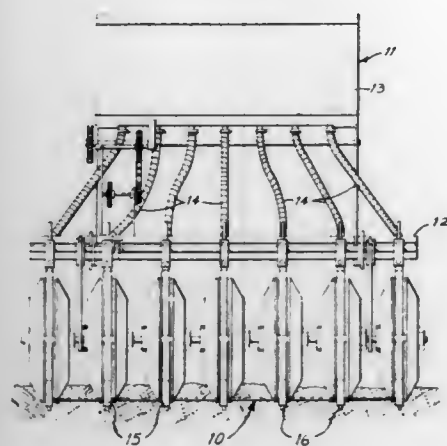
Int. Cl. A01b 39/19

U.S. Cl. 172—44

8 Claims

A rod weeder for setting a moisture level slightly below ground level and for controlling weeds prior to seeding. The weeder is comprised of a plurality of rectangular rod or helical

coil members loosely encircling a wire rope or cable. The cable is held under tension between at least two furrow opening elements of a seed drill or other implement. The rod or coil



3,827,505

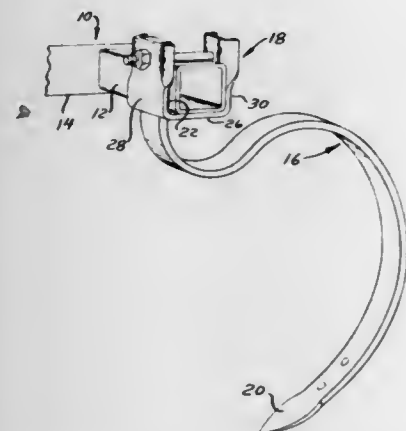
MOUNTING CLAMP FOR SPRING TOOTH

Harry Sosalla, Sac City, Iowa, assignor to Royal Industries, Inc., Sac City, Iowa

Filed Aug. 4, 1972, Ser. No. 277,994

Int. Cl. A01b 23/02

U.S. Cl. 172-707

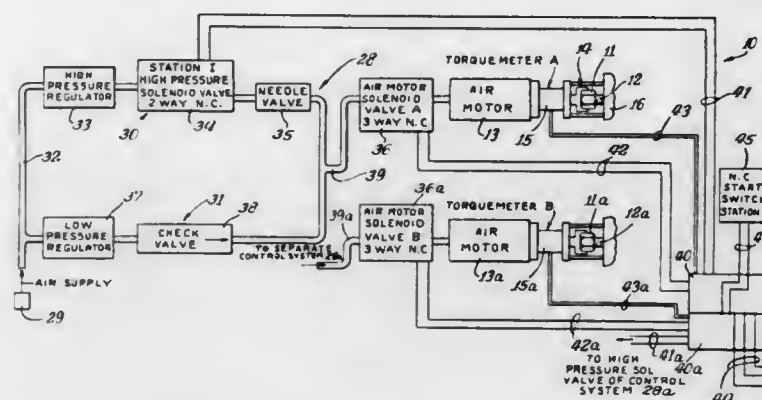


A mounting clamp for a spring tooth for securing the same to the frame of a spring tooth cultivator; and a cultivator including the same. Disclosed is a U-shaped clamp having generally parallel legs spaced from each other a distance equal to the sum of the width of the frame member and the width of the mounting end of the spring tooth. The forward one of the legs includes rearwardly directed wings having a length corresponding to the width of the mounting end of the spring tooth while the bight of the clamp is provided with an elongated slot through which the mounting end may be passed to be interposed between the frame and the forward leg. The forward leg supports the mounting end throughout its entire length and thereby reducing breakage while the wings preclude pivoting of the spring tooth that would destroy the cultivating pattern.

3,827,506
TORQUE CONTROL APPARATUS
Sydney Himmelstein, 1591 Sheridan Rd., Lake Forest, Ill. 60045, and Richard S. Tyter, R.R. No. 3 Witt Rd., Barrington, Ill. 60010
Continuation-in-part of Ser. No. 288,379, Sept. 12, 1972, abandoned. This application Dec. 27, 1972, Ser. No. 318,864
Int. Cl. B25b 23/14

U.S. Cl. 173-12

26 Claims



A torque-applying apparatus having one or more torque motors each arranged for forcibly threading a first threaded member into tightened association with a corresponding second threaded member. A control is provided for controlling the operation of each torque motor to firstly seat the first threaded member relative to the second threaded member by a rapid threading operation at a low torque. When the seated condition of all of the threaded members is sensed, the control automatically operates each torque motor to slowly apply gradually increasing higher torque to provide a preselected maximum-torque, tightened condition of the threaded members.

3,827,507

HYDRAULICALLY POWERED DEMOLITION DEVICE

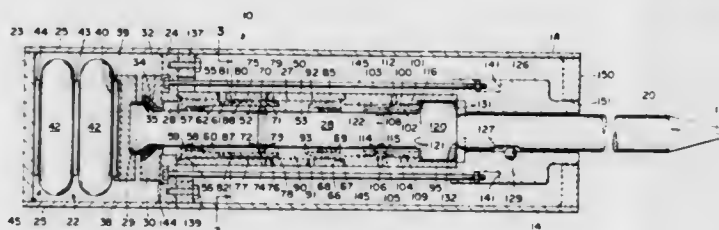
Raymond E. Lance, Fort Worth, Tex., assignor to Construction Technology, Inc., Grand Prairie, Tex.

Filed Sept. 18, 1972, Ser. No. 289,787

Int. Cl. B25d 9/02

U.S. Cl. 173-15

14 Claims

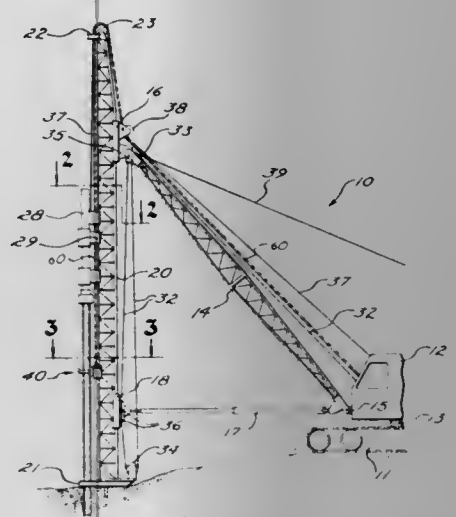


A hydraulic hammer for driving a demolition tool is disclosed. The hammer carries a piston which reciprocates in a cylinder. High pressure fluid drives the hammer to a retracted position to compress an air spring. The piston is momentarily held in the retracted position while an annular valve sleeve disposed about the piston is automatically moved downwardly by differential fluid pressure to open an annular passageway around the piston to permit the fluid to freely bypass the piston. The piston is then released so that the stored energy rapidly accelerates the hammer through an impact stroke without significant impedance from fluid and without displacing fluid from the cylinder. Since high pressure fluid is required only on the retraction stroke, the volume of fluid necessary to operate the hammer is essentially reduced by 50 percent, thus permitting either the force or frequency to be doubled for a given high pressure fluid source. A safety shuttle valve is also included which is cooperable with the tool member to bypass pressure fluid to reservoir until a predetermined load is imposed on the tool.

3,827,508
MECHANICAL SAFETY PILE MONKEY
Alan G. MacKinnon, Newcomerstown, Ohio, assignor to The Foundation Equipment Corporation, Newcomerstown, Ohio
Filed Jan. 5, 1973, Ser. No. 321,527
Int. Cl. E02d 7/02

U.S. Cl. 173-112

11 Claims U.S. Cl. 173-163



There is disclosed herein a pile driver apparatus having a lead supporting said pile driver, and means mounting a pair of laterally closing jaws for sliding movement along the lead below the pile driver. The jaws close around the lower end of an undriven pile and upon upward movement thereof, the jaws slide with respect to the pile and pull the pile into alignment with the pile driver.

3,827,509

FLOATING TYPE DRIVE SPIKE ACCESSORY

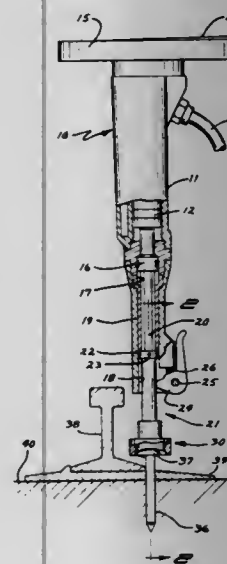
John O. Larson, Minneapolis, Minn., assignor to Lewis Bolt & Nut Company, Minneapolis, Minn.

Filed Dec. 8, 1972, Ser. No. 313,453

Int. Cl. B25c 3/00

U.S. Cl. 173-128

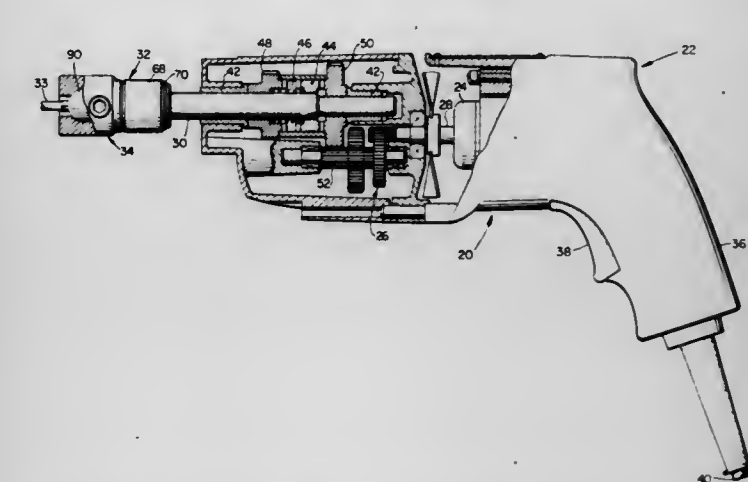
14 Claims



A tool or accessory for use in conjunction with paving breakers or similar power hammers for driving spikes having varying shaped heads and fully seating the heads. The tool includes a central striking member adapted to be reciprocally engaged in and driven by the power hammer. The striking member is encircled by a free floating casing adapted to fit over the spike head for proper guidance of the same, the casing having predetermined clearance to accommodate reciprocation of the fast moving striking member. The casing may be spring loaded. Means for easy assembly and disassembly are provided.

3,827,510
POWER TOOL
Robert Mazepa, Liverpool, N.Y., assignor to Rockwell International Corporation, Pittsburgh, Pa.
Filed July 12, 1972, Ser. No. 271,127
Int. Cl. B23b 45/00

11 Claims



A power driven hand tool having a special ball joint coupling assembly that couples the power output spindle to a tool holder to provide for relative angular displacement between the tool holder and the spindle.

3,827,511

APPARATUS FOR CONTROLLING WELL PRESSURE

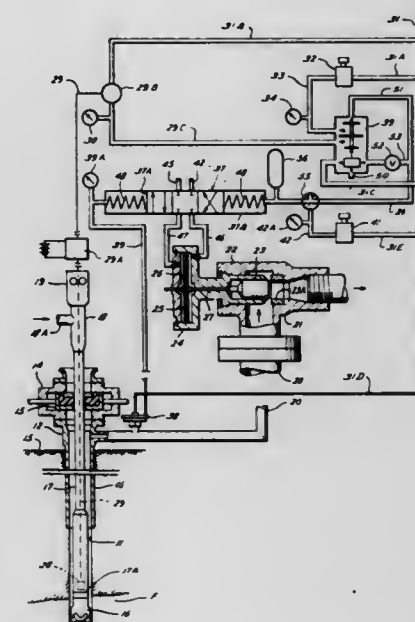
Marvin R. Jones, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.

Filed Dec. 18, 1972, Ser. No. 315,804

Int. Cl. E21b 7/00

U.S. Cl. 175-25

10 Claims



Apparatus is disclosed for controlling the bottom hole pressure of a well into which a drill string extends by automatically regulating a choke at the outlet of the well.

3,827,512

ANCHORING AND PRESSURING APPARATUS FOR A DRILL

Tibor O. Edmond, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

Filed Jan. 22, 1973, Ser. No. 325,773

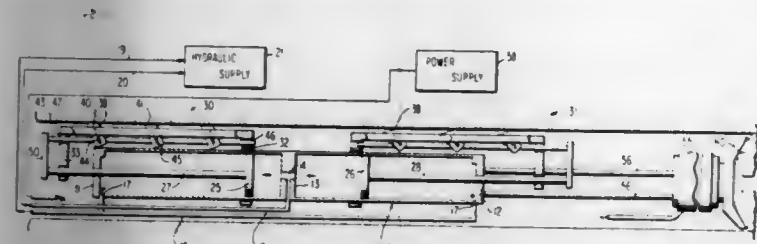
Int. Cl. E21b 3/12; E21c 19/00

U.S. Cl. 175-94

13 Claims

An apparatus designed to hydraulically force a drill horizontally into a formation thereby drilling a borehole comprising a

cylinder having enclosed ends with a pair of pistons axially positioned inside the cylinder. Each piston has a piston rod journaled in the end of the cylinder and projecting from the end. The apparatus for anchoring the cylinder against the borehole comprises a plurality of anchors which are slidably journaled both to the outside of the cylinder and to the piston rod. An anchor engaging and disengaging means is coupled between the anchors and the piston rod so that when the pistons are pushed apart by hydraulic fluid one set of anchors



disengages from the wall and the other set of anchors engages the wall. Continued hydraulic pressure will then apply pressure against the drill column forcing the drill into the formation. When the maximum movement of the anchors has been reached, hydraulic fluid is then applied to the opposite sides of both pistons, whereupon one set of anchors which was engaged will become disengaged and retract while the other set of anchors which was disengaged will engage the borehole and apply application of hydraulic pressure against the drill column.

3,827,513

APPARATUS FOR MEASURING POWDER

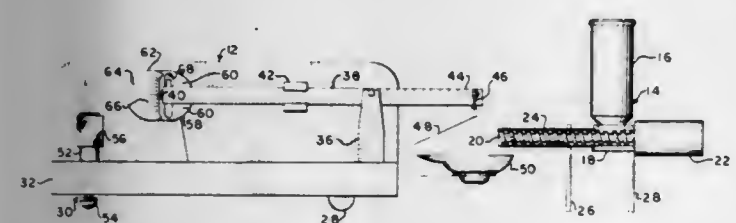
Irving Epstein, 4216 Shoreclub Dr., Mercer Island, Wash. 98040

Filed Jan. 15, 1973, Ser. No. 323,978

Int. Cl. G01g 13/04, 13/02

U.S. Cl. 177-121

7 Claims



An automatic gun powder weighing scale comprising a beam and a screw conveyor controlled by the rocking of the beam.

3,827,514

WEIGHT MEASURING HOOK BLOCK APPARATUS FOR CRANES

Richard S. Bradley, Fairmont, Minn., assignor to Weigh-Tronix, Inc., Armstrong, Iowa

Filed June 25, 1973, Ser. No. 373,487

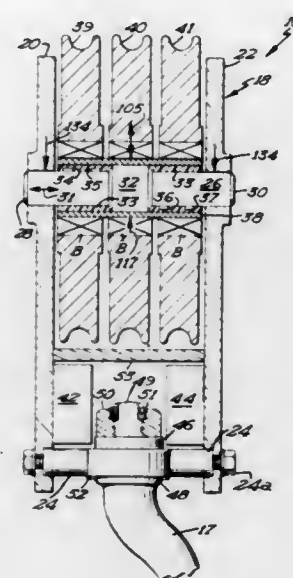
Int. Cl. G01g 19/14, 3/14; G01l 5/12; B66c 1/40

U.S. Cl. 177-147

22 Claims

A weight measuring hook block apparatus for cranes attachable between the crane and the hook or other load engaging device and usable on already existing cranes or as original

equipment on hereafter constructed cranes comprises a hook block frame member supporting the ends of a substantially straight longitudinal bar which is elastically deformable in response to loading forces applied to the bar. A force applying member is positioned on the bar between the ends thereof to transmit forces to the bar which are exerted on the force applying member. One of the members is carried by the crane, and the remaining member is arranged to carry the load engaging device so that a load applied to one of the members



causes the remaining member to exert reaction force on the bar to deform the bar elastically. Strain gauge means operatively mounted on the bar detect deformation of the bar caused by these forces and provide a measurable response indicating the weight of the load carried by the load engaging device. Means are provided on the hook block frame member to transmit a radio signal to the crane cab, the radio signal including information informing the operator of the magnitude of the load.

3,827,515

WEIGHING SCALE

William Y. Hutchinson, Chicago, and Walter P. Kushmuk, Niles, both of Ill., assignors to Continental Sale Corporation, Chicago, Ill.

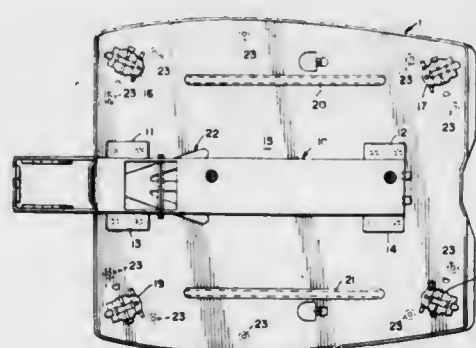
Division of Ser. No. 254,767, May 18, 1971, Pat. No.

3,743,040. This application Mar. 21, 1973, Ser. No. 343,549

Int. Cl. G01g 21/28, 21/08

U.S. Cl. 177-241

4 Claims



A weighing scale is provided having a number of features including a folding column or pillar, a new type of weighing mechanism, a new type of beam scale, and a new type of knob assembly for weight indicating means for a beam scale, all arranged in a compact form which is completely portable and adapted for packing, shipping and storage.

3,827,516

STEERING MECHANISM FOR SNOWMOBILE

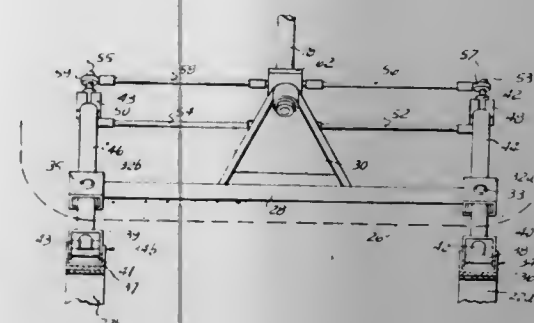
George C. Lucia, P.O. Box 38, Suamico, Wis. 54173

Filed Jan. 29, 1971, Ser. No. 110,836

Int. Cl. B62m 27/02

U.S. Cl. 180-5 R

8 Claims



A steering mechanism for snowmobiles or similar ski borne vehicles which mechanism is actuated in response to movement of a selectively rotatable steering means such as a steering wheel to provide turning movement of the skis in the direction travel is desired and, at the same time, to provide tilting movement of the skis each about its own longitudinal axis. To achieve these combined results, a first pair of rods is connected between the steering means and a crank mechanism fixed to the skis for providing the turning movement. A second pair of rods is likewise connected between the steering means and the skis for providing respective tilt motion and a common actuator is connected to the steering means and both pair of rods for operating them.

3,827,518

SUSPENSION SYSTEM FOR HITCH ASSEMBLY

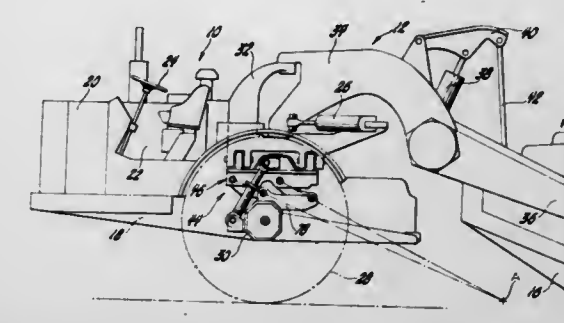
Bernard A. Kuhl, Mayfield Heights, and John B. Mason, Hudson, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 23, 1973, Ser. No. 390,694

Int. Cl. B60g 5/06

U.S. Cl. 180-12

2 Claims



A suspension system for the hitch assembly of an articulated scraper for controlling bounce and pitch type movement of the tractor and the trailing unit. The suspension system is located below the steering frame and includes front and rear links of equal length that are arranged so that straight lines passing through the centers of the pivotal connections of each link intersect at a point located between the front and the rear axles of the vehicle. A spring device is pivotally connected between the hitch assembly and the tractor for cushioning relative movement therebetween.

3,827,519

VEHICULAR EXERCISER APPARATUS

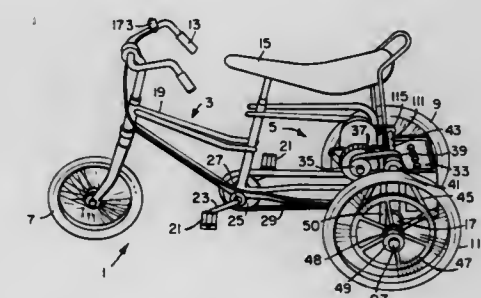
John R. Snider, 1231 N. Lawrence Expy., No. 381, Sunnyvale, Calif.

Filed Oct. 15, 1971, Ser. No. 189,614

Int. Cl. B62d 61/06

U.S. Cl. 180-25 R

2 Claims



A vehicular exerciser apparatus comprising a three-wheeled cycle having a saddle seat for supporting an individual and pedal means for propelling said cycle manually and an electrical motor train means for propelling said cycle independent from the manual power means and in combination with the manual propelling means.

3,827,520

CLUTCH MEANS FOR A 4 X 4 DRIVE TRANSFER VEHICLE

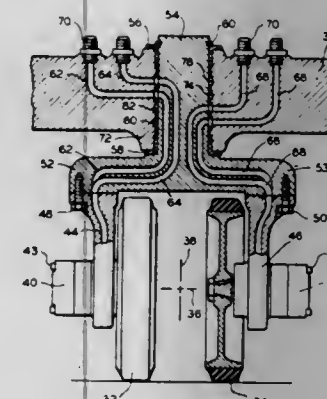
James F. Mueller, Lakewood, Ohio, assignor to Eaton Corporation, Cleveland, Ohio

Filed June 25, 1973, Ser. No. 373,238

Int. Cl. B60k 17/02

U.S. Cl. 180-44 R

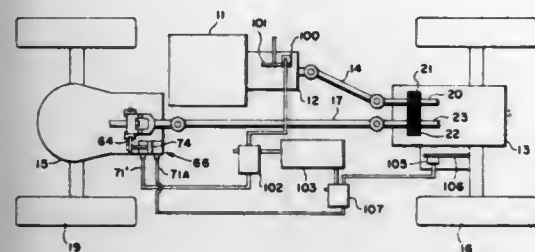
9 Claims



A dual path hydrostatic drive-steer wheel assembly for vehicles in which a pair of wheels is mounted for dirigible movement from a common rotatable shaft, the wheels being driveable and controllable independently at either the same or different rotative speeds so as to provide vehicle traction drive and to steer the vehicle by causing the wheels to rotate with the common shaft to any selected steering angle.

A truck-tractor drive arrangement of the type which automatically converts rear wheel drive into four wheel drive includes a housing attached to the input end of a standard front drive-steer axle. Within the housing is a unidirectional clutch for driving the front wheels in a forward direction whenever the rear wheels lose traction and slip. An automatic lockout of

the unidirectional clutch is provided for locking the arrangement into four wheel drive when drive occurs in a rearward direction. Alternatively, the lockout may also include provi-



operation which illuminate to warn whenever the vehicle is braked (decelerated) while traveling in the forward direction or whenever the vehicle is traveling at any speed in the reverse direction. The vehicle wheels are driven by hydraulic motors supplied with fluid through a hydraulic circuit from engine-driven pumps and the vehicle's direction of movement and rate of speed are determined by a single pedal control in the operator's cab. The hydraulic circuit comprises a relief valve manifold having a passage wherein fluid pressure exceeds a predetermined level when the vehicle is braked (decelerated) while moving in the forward direction or whenever the vehicle moves at any speed in the reverse direction. A pressure responsive switch actuator connected to the aforesaid passage operates an electric switch to turn on the brake light whenever pressure in the passage exceeds the predetermined level.

sions for automatically disengaging the unidirectional clutch when the tractor is travelling at highway speeds in the forward direction.

3,827,521

SPARE TIRE ENCLOSURE

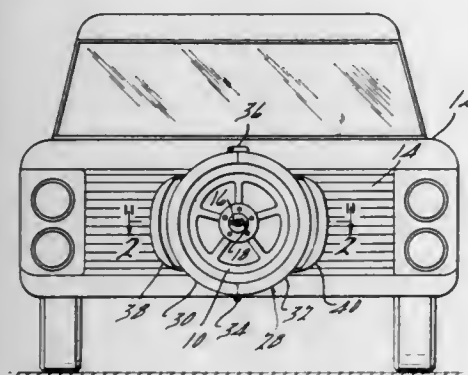
Emery H. Welsh, 3390 E. Cook Rd., Grand Blanc, Mich. 48439

Filed Oct. 30, 1972, Ser. No. 302,261

Int. Cl. B60k 11/02

U.S. Cl. 180—54 A

8 Claims



A spare tire enclosure for a spare tire mounted in front of the radiator of a vehicle. Ducts on the enclosure are directed toward the radiator.

3,827,522

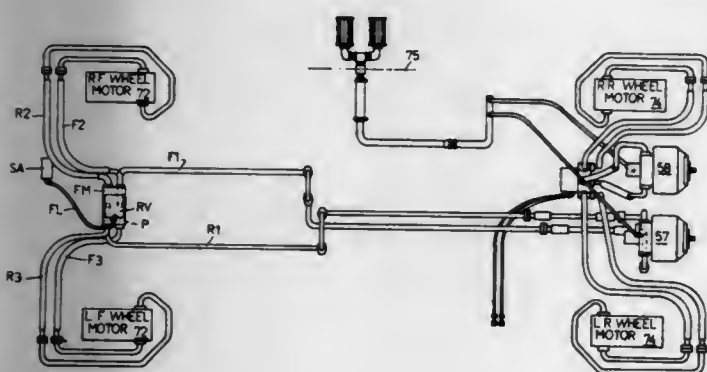
FLUID PRESSURE ACTUATED BRAKE LIGHT SWITCH
Kenneth M. Krause, Saukville, Wis., assignor to Koehring Company, Milwaukee, Wis.

Filed Aug. 10, 1973, Ser. No. 387,344

Int. Cl. B60t 17/00

U.S. Cl. 180—66 R

8 Claims



A hydraulically propelled material handling vehicle, such as an end loader or lift truck, operable off-road and over-the-road, requires rear-mounted brake lights for over-the-road,

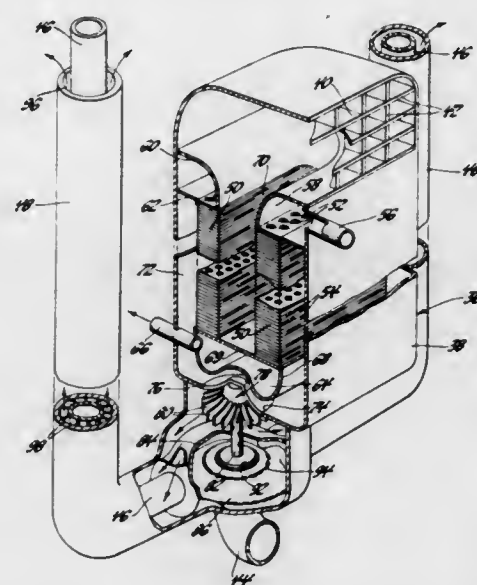
3,827,523
ENGINE COOLING FROM EXHAUST GAS TURBINE
Dick H. Williams, Oak Park, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 10, 1973, Ser. No. 359,184

Int. Cl. B60k 11/04

U.S. Cl. 180—68 R

3 Claims



A combined cooling and exhaust system for a vehicle such as a truck powered by a liquid-cooled engine including a housing enclosing a coolant-filled radiator and having an air inlet at one end adapted to be positioned in the stream of air flowing over the moving vehicle. A rotary type compressor is located adjacent the air outlet portion of the radiator and is adapted to draw air through the radiator from the air outlet. The rotary compressor is connected by a drive shaft to a rotary type turbine located in a separated exhaust gas passage of the housing and adapted to extract energy from the exhaust gas and convert it into rotary energy to power the compressor. Air from the radiator is ducted to atmosphere through a relatively large diameter outlet tube extending from the compressor which encircles a smaller diameter exhaust gas tube connected to the turbine whereby the exhaust gas is cooled and exhaust noise muffled by the air flowing in the annular space between the two tubes.

3,827,524

FREE WHEEL LOCKING MECHANISM

Tooru Kagata, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya City, Aichi Pref., Japan

Filed Nov. 3, 1972, Ser. No. 303,363

Claims priority, application Japan, Nov. 29, 1971, 46-112081

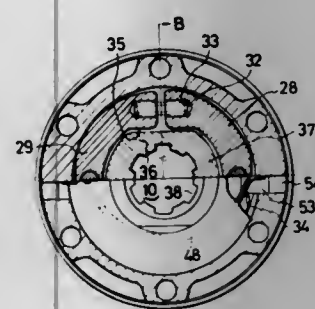
Int. Cl. B60k 25/00

U.S. Cl. 180—70

4 Claims

A free wheel locking mechanism for a vehicle comprising, an axle shaft mechanically connected to an engine of the vehi-

cle, a drive member connected to the axle shaft and rotatable thereby, a non-drive member operatively connected to the wheels of the vehicle so as to rotate therewith, means for selectively transmitting the driving force from the engine to the axle shaft, frictional means disposed between the drive member and the non-drive member, the frictional means being automatically and frictionally engaged with the non-drive member or automatically disengaged from the non-drive



member according to the control of the driving force being transmitted to the axle shaft, and manual operating means independently manually controlling the connection between the non-drive member and frictional means, whereby the automatic operation is normally attained by frictional means, and the manual operation is independently attained by manual operating means when engine braking of four wheels is needed.

3,827,525

ENERGY ABSORBING CONSTRUCTION FOR FRONT-ENGINE MOTOR VEHICLES

Bertold Felzer, Russelsheim/Main, Germany, assignor to General Motors Corporation, Detroit, Mich.

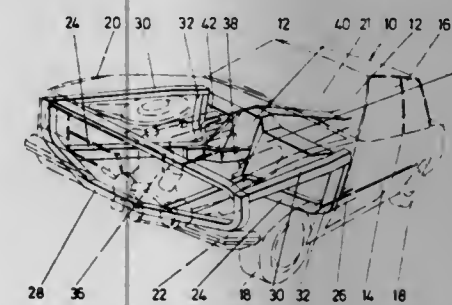
Filed Apr. 26, 1973, Ser. No. 354,703

Claims priority, application Germany, May 24, 1972, 2225089

Int. Cl. B60r 21/00

U.S. Cl. 180—82 R

5 Claims



A front-engined motor vehicle has two convergent slide rails extending from the engine compartment into a large-mouthed transmission tunnel extending into the vehicle passenger compartment and diminishing in cross-section rearwardly of the mouth. The convergent slide rails and the transmission tunnel resist in an energy-absorbing manner rearward movement of the engine consequent upon a frontal impact on the vehicle.

3,827,526

AUTOMOTIVE SECURITY SYSTEM AND SOLENOID LOCK FOR SAME

Arthur H. Smith, Maplewood, N.J., assignor to Wagner Electric Corporation, Parsippany, N.J.

Filed Feb. 5, 1973, Ser. No. 329,592

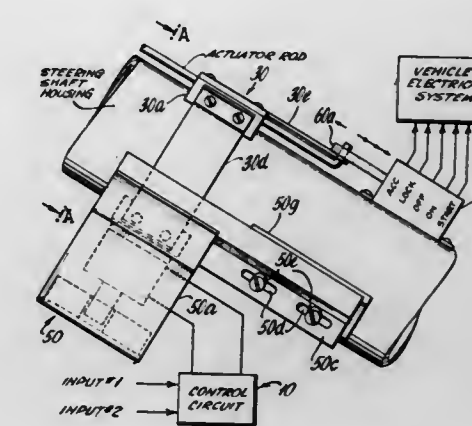
Int. Cl. B60r 25/00

U.S. Cl. 180—114

8 Claims

A system including a solenoid and locking block moveable relative to one another and mounted on the steering shaft housing of an automobile to enable actuation of the ignition

switch from the LOCK position to the ACCESSORY, OFF ON and START positions only during energization of the solenoid and consequent retraction of a spring-loaded locking pin



from the locking block. A modified locking block enables actuation of the ignition switch between the LOCK and ACCESSORY positions when the solenoid is de-energized.

3,827,527

GIMBAL GROUND EFFECT VEHICLES

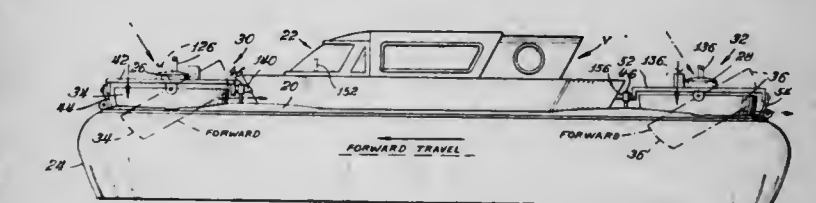
William R. Bertelsen, Rock Island, Ill.

Continuation-in-part of Ser. No. 779,988, Nov. 29, 1968, abandoned. This application Jan. 18, 1971, Ser. No. 107,350

Int. Cl. B60v 1/14

U.S. Cl. 180—120

10 Claims



Ground effect vehicles including power means for providing a flow of gas and gimbal mounted flow-directing means for selectively directing the flow of gas into a lift component and a propulsion or control component. The propulsion or control component acts directly from the flow-directing means and is directed over the top of a deck or platform. Single and multi-engine versions are disclosed, and eye lid devices which cooperate with the flow-directing means to reduce loss of lift-gas are described.

3,827,528

LOW COST AUXILIARY HYDROSTATIC DRIVE FOR TRUCKS

Walter M. Shaffer, Peoria, Ill., assignor to Towmotor Corporation, Mentor, Ohio

Filed Oct. 10, 1972, Ser. No. 296,153

Int. Cl. B60k 7/00

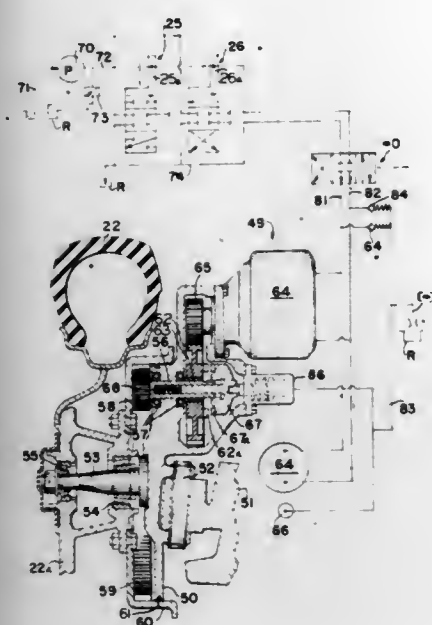
U.S. Cl. 180—44 M

8 Claims

By employing priority valving for fluid pressure normally utilized to operate hydraulic lift and tilt circuits in a lift truck, the fluid output of an engine driven pump normally powering the lift and tilt circuits can be used, when these circuits are idle, to power auxiliary hydraulic motors mounted on the lift truck's dirigible wheels to provide four wheel drive in the lift truck in its low speed ranges. A simplified control lever system, which is mechanically interconnected with the main

transmission control linkages of the lift truck, controls both the direction and operation of the auxiliary drive so it is coor-

vibration damping system provided is comprised of a combination of loner foam rubber or plastic strips located behind the horizontal grill members yet in contact therewith and a



minated with that of the main transmission without complex control systems. Also, a simplified hydrostatic wheel drive unit is provided.

3,827,529

SOUND DAMPENER FOR A FLAT ENGINE MOUNTED IN THE STERN OF A MOTOR VEHICLE
Gunther Fritzsche, and Peter Krause, both of Edenkoben/Pfalz, Germany, assignors to Fiem Heinrich Gillet KG, Weinstrasse, Germany

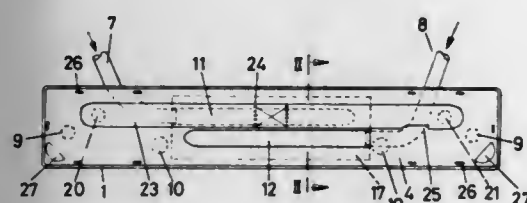
Filed Jan. 26, 1973, Ser. No. 326,880

Claims priority, application Germany, Jan. 27, 1972, 7202898[U]; June 13, 1972, 2228700

Int. Cl. G10k 1/04

U.S. Cl. 181—33 D

5 Claims



The invention concerns a sound dampener or muffler for a flat engine mounted in the stern of a motor vehicle which is made of two circumferentially joined shells that form a housing divided into two chambers by a separating wall, with input and output pipes passing through the shell halves and where the wall supports the tuning elements and is provided with perforations for connecting the tuning elements.

3,827,530

VIBRATION-DAMPING SYSTEM

Arthur R. Heath, 6200 Afton, Dayton, Ohio 45415

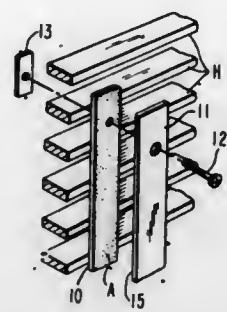
Filed July 2, 1973, Ser. No. 375,728

Int. Cl. E04b 1/84

U.S. Cl. 181—33 A

10 Claims

This disclosure is directed to a system for reducing significantly or eliminating radiator grill vibration noise in recreational vehicles occurring at comparatively high speeds. The



plurality of strut-strip members fastened to the outer face of said horizontal grill members wherein resilient foam rubber or plastic strip members are located between comparatively rigid strut members and the horizontal grill members.

3,827,531

EXHAUST MUFFLER

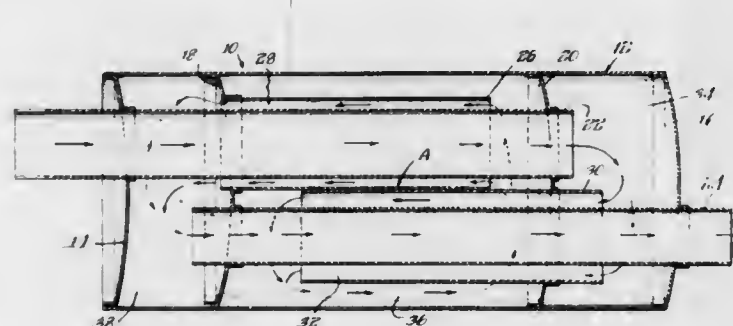
Joseph A. Hansen, Stoughton, Wis., assignor to Nelson Muffler Corporation, Stoughton, Wis.

Filed Aug. 17, 1973, Ser. No. 389,259

Int. Cl. F01n 1/08

U.S. Cl. 181—53

8 Claims



The present invention relates generally to exhaust mufflers and more particularly to the improvements in exhaust mufflers for use with internal combustion engines. The exhaust muffler disclosed herein comprises an elongate muffler housing and a plurality of conduits disposed in substantial parallelism with the longitudinal axis of the housing. Inlet and outlet conduits are each supported at one extremity within the end wall or closure of the housing and additional conduits are telescopically associated with said inlet and outlet conduits. These telescopically associated conduits are supported by flange means within the housing so as to present the elongate annular passages opening at opposite extremities into said housing, said telescopically associated conduits being peripherally joined so as to enhance lateral rigidity thereof within the housing.

3,827,532

COLLAPSIBLE OVERHEAD GUARD

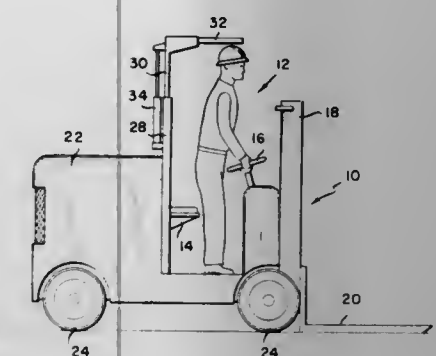
Paul R. Minich, Jr., and Thorkild Jensen, both of 6400 Goldsboro Rd., Bethesda, Md. 20036

Filed May 18, 1973, Ser. No. 361,609

Int. Cl. B60j 7/00; B60r 21/02

U.S. Cl. 187—9

5 Claims U.S. Cl. 188—68



Industrial vehicle overhead guard providing operator protection over a range of vertical positions may be opened to allow for necessary movement of the vehicle operator.

3,827,533

OPERABLE SKATE TYPE OF RAILWAY CAR RETARDER

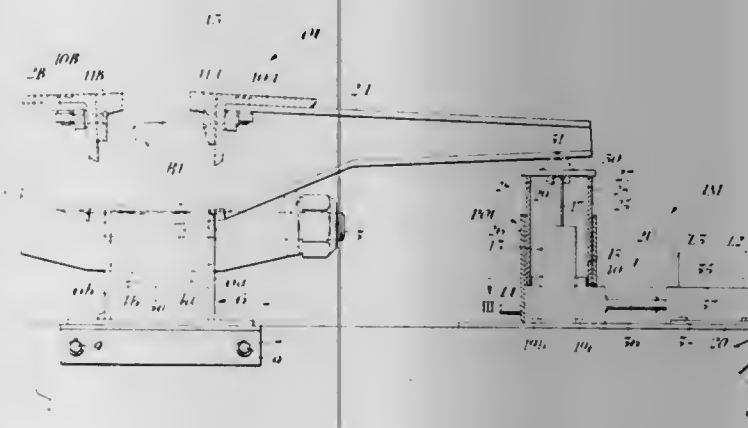
Peter M. Noble, Valencia, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

Filed Jan. 2, 1973, Ser. No. 320,310

Int. Cl. B61k 7/08

U.S. Cl. 188—62

10 Claims



This invention relates to an operable skate type of railway car retarder including a plurality of inner and outer levers pivotally supported on the cross ties and physically disposed on opposite sides of a track rail. Each of the inner and outer pivotal levers supports an elongate braking element which is disposed parallel to the track rails. Each of the outer pivotal levers of the car retarder is operated by an actuating mechanism. Each actuating mechanism includes a power operating unit as well as a locking unit. The power operating unit utilizes a fluid piston and cylinder as well as slide piston and guide cylinder to raise the outer lever to cause the braking element to assume a braking position. The locking unit includes a fluid piston and cylinder operating a lock block which engages the slide piston and locks the lever in its braking position or disengages the slide position and releases the lever allowing the retarder to assume its nonbraking position.

925 O.G.—5

3,827,534

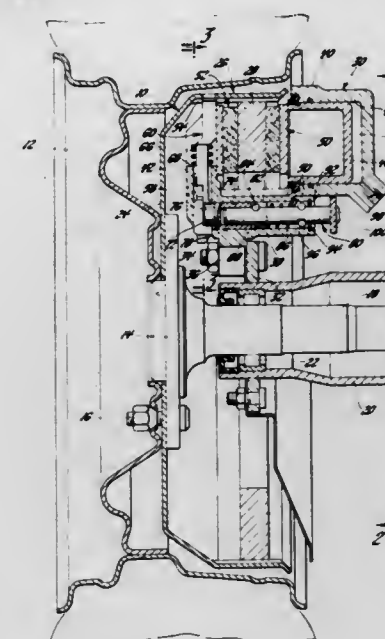
DISC BRAKE PARKING BRAKE

Frank W. Brooks, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed July 25, 1973, Ser. No. 382,442

Int. Cl. F16d 63/00

4 Claims



A disc brake has a peripherally mounted and driven annular disc and a fixed caliper assembly with a caliper leg on either side of the disc and a caliper mounting section extending across the disc radially inward thereof. The inboard caliper leg has a hydraulically actuated piston and cylinder for service brake actuation. The outboard caliper leg has a radially movable parking bolt which is selectively engageable with a mating slot, several circumferentially spaced slots for this purpose being provided in the disc drive and retainer member. The caliper mounting section has a cam rotatably received therein and engaging the parking bolt. The cam is actuated through a rotatable shaft and lever connected to a suitable parking brake control mechanism. The parking bolt is urged into engagement with a mating slot by a compression spring. The cam is rotated in one direction to permit the parking bolt to so engage the slot, and is rotatable in the other direction to disengage the bolt.

3,827,535

ELECTRICALLY OPERATED DISK BRAKE AND AUTOMATIC ADJUSTING MECHANISM

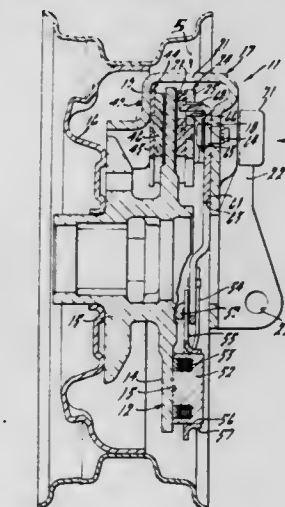
Neil R. Hoffman, Saukville, and Johann H. Jansen, Milwaukee, both of Wis., assignors to Kelsey-Hayes Company, Romulus, Mich.

Filed Sept. 11, 1972, Ser. No. 288,134

Int. Cl. F16d 65/34

U.S. Cl. 188—138

11 Claims



An electrically operated disk type brake. The electric operator includes an electromagnet that is supported con-

tiguous to the rotor and which, when actuated, moves axially into engagement with the rotor and rotates slightly with it. Means including tilting pin operators interconnect the electromagnet with the brake pads for actuating the brake pads in response to rotation of the electromagnet with the rotor. An improved automatic adjusting device is incorporated that is responsive to circumferential movements of the brake pads for adjusting the at rest position of the pads. Substantially all of the brake parts are formed from sheet metal and the electromagnet is press fit into its supporting member to reduce cost of the overall assembly.

3,827,536

BRAKE LINING WEAR ADJUSTING DEVICE

Siegfried Ohmayer, Offenbach, and Karl Storzel, Spremlingen, both of Germany, assignors to ITT Industries, Inc., New York, N.Y.

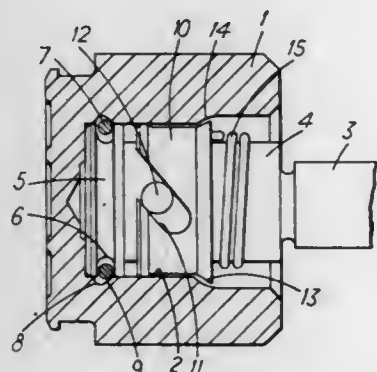
Filed Mar. 23, 1973, Ser. No. 344,019

Claims priority, application Germany, Apr. 19, 1972, 2218929

Int. Cl. F16d 65/56

U.S. Cl. 188—196 F

6 Claims



This relates to an adjusting device to compensate for brake lining wear. In known adjusting devices there is provided an additional part releasably connected in an actuating piston to serve as a safety device if the piston stroke is excessive. According to the present invention this additional part is eliminated by providing a driving bushing with a friction surface shaped like a cone. This conical friction surface is enlarged in a direction opposite to the adjusting direction. This conical friction surface directly engages a conical friction surface present on the inner surface of the actuating piston.

3,827,537

HYDRAULIC SHOCK AND SWAY SUPPRESSOR

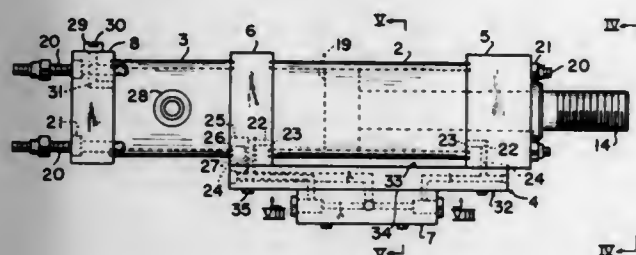
Henry E. Haller, Jr.; Henry F. Huettner, both of Pittsburgh, and Elliott E. Martin, Jr., Valencia, all of Pa., assignors to National Valve and Manufacturing Company, Pittsburgh, Pa.

Filed July 7, 1972, Ser. No. 269,769

Int. Cl. F16f 9/34

U.S. Cl. 188—314

8 Claims



An hydraulic shock and sway suppressor, which will absorb normal thermal movement of a piping system but will resist vibration and shock in the system or other equipment includes a cylindrical reservoir in axial alignment with a piston-cylinder

assembly of the suppressor and a manifold on the piston-cylinder assembly which provides fluid communication between the reservoir and a valve assembly and between the valve assembly and both sides of the piston in the piston-cylinder assembly. Relief valve means may be disposed between the manifold and the valve assembly.

3,827,538

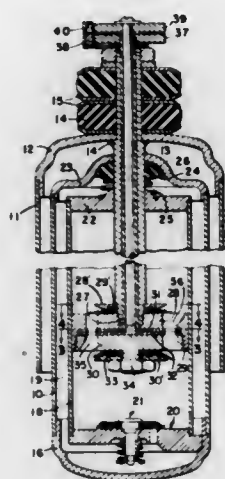
SHOCK ABSORBERS

Frank S. Morgan, 5405 N. 27th Rd., Arlington, Va. 22207
Division of Ser. No. 593,016, Nov. 9, 1966, Pat. No. 3,548,977.
This application Aug. 14, 1970, Ser. No. 63,919

Int. Cl. F16f 9/44

U.S. Cl. 188—319

7 Claims



Remote controlled infinitely variable fluid shock absorber operable manually or automatically in response to changes in static pressure of a variable spring system, speed indicating signaling device or actuation of the hydraulic breaking system.

The combination with means of securing shock absorber piston components together by end crimping of a tubular outer bearing sleeve. A control for infinitely varying a preselected ratio of flow of working fluid through the passages of pistons used in damping device cylinders.

3,827,539

SHOCK ABSORBER AND PISTON VALVE STRUCTURE

John H. Fader; Johan H. Keijzer, both of Hasselt; Marcel J. R. Graulus, and Roland H. C. Beets, both of St. Truiden, all of Belgium, assignors to Monroe Belgium N.V., St. Truiden, Belgium

Division of Ser. No. 45,867, June 12, 1970, abandoned. This application Mar. 30, 1972, Ser. No. 239,811

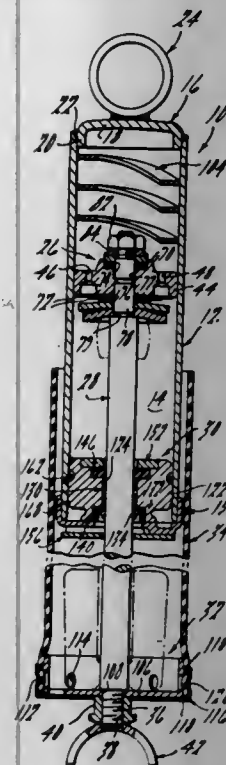
Int. Cl. F16f 9/24, 9/32

U.S. Cl. 188—322

4 Claims

A shock absorber comprising an elongated cylindrical pressure cylinder having a piston reciprocally disposed therein and connected to a piston rod extending outwardly from one end thereof, the piston rod carrying a dirt shield which extends coaxially of the pressure cylinder and in partial surrounding relationship therewith. The pressure cylinder is adapted to be filled with preselected quantities of a hydraulic damping fluid and a pressurized gas for damping reciprocal movement of the piston therein. The piston is provided with a novel valve arrangement which controls the compression and rebound characteristics of the shock absorber, and one end of the pressure cylinder is provided with a novel rod guide assembly which is designed so as to provide for convenient charging of the cylinder with the aforesaid pressurized gas. The interior of the pressure cylinder is provided with a generally helically

shaped baffle arrangement which is compressible axially within the cylinder in response to reciprocal movement of the



piston therein and functions to prevent undesirable foaming or aeration of the hydraulic fluid during operation of the shock absorber.

3,827,540

CLUTCH AND IGNITION INTERLOCK

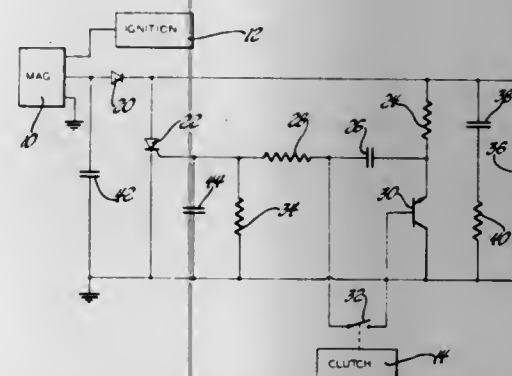
John F. Bolinger, and Douglas B. Leathem, both of Michigan City, Ind., assignors to Meridian Industries, Inc., Southfield, Mich.

Filed Aug. 17, 1972, Ser. No. 281,354

Int. Cl. B60k 21/00

U.S. Cl. 192—.084

9 Claims



An interlock circuit is provided for use with machines to prevent starting of the prime mover unless an interlock switch is in a safe condition. In the illustrative embodiment the interlock circuit is adapted to prevent starting of the engine of a lawn tractor unless the clutch thereof is disengaged. After the engine is started the clutch may be engaged without killing the engine. The circuit comprises a controlled rectifier connected across the magneto primary coil through a rectifier. The voltage pulses applied across the output of the controlled rectifier are also applied to the gate thereof through a capacitor in a charging circuit which includes the input of the controlled rectifier. The interlock switch is connected across the input of the controlled rectifier and when it is opened, as by engagement of the clutch, the applied voltage pulses to the input of the controlled rectifier through the charging circuit causes the controlled rectifier to conduct on each pulse. Accordingly the ignition system is disabled and the engine cannot be started.

3,827,541

REPLACEABLE CAM SWITCHING DEVICE FOR A COIN CONTROLLED MACHINE

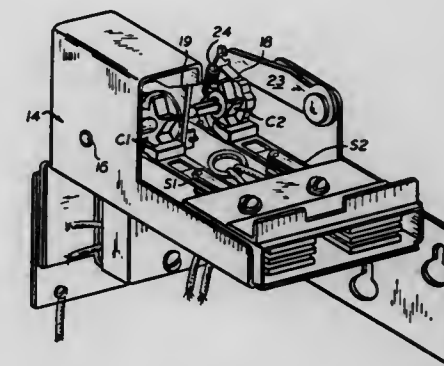
Harry Greenwald, Whitestone, and Robert Tuppo, Elmhurst, both of N.Y., assignors to Walter Kidd & Company, Inc., Clifton, N.J.

Filed June 18, 1973, Ser. No. 370,868

Int. Cl. G07f 5/20

U.S. Cl. 194—1 L

2 Claims



A switching device for a coin controlled machine in which operation of the machine is effected by closing both of two series connected switches by the action of two rotary indexed cams. The number of coin slide movement cycles required to effect concurrent closing of both switches is determined by the ratio of the number of lobes on the cams, and can be changed by replacing one of the cams.

3,827,542

CHARACTER STORAGE ARRANGEMENT FOR A POWERED TYPEWRITER ACTION

Rudolf Blum, Nuernberg, Germany, assignor to Triumph Werke Nuernberg A.G., Nuernberg, Germany

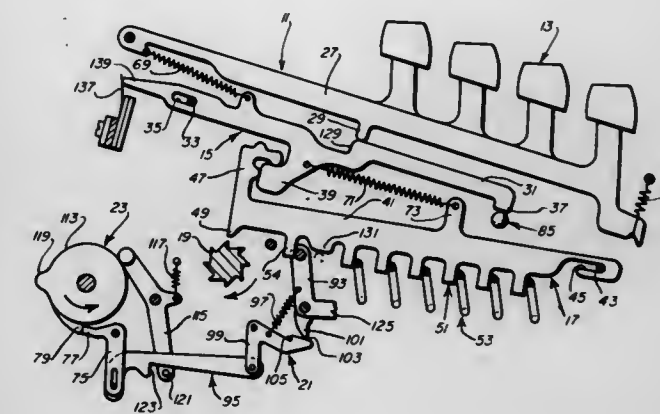
Filed Nov. 21, 1972, Ser. No. 308,587

Claims priority, application Germany, Nov. 29, 1971, 2159070

Int. Cl. B41j 23/02

U.S. Cl. 197—16

3 Claims



A type action of a power driven single element typewriter is provided with a storage arrangement enabling type characters to be successively printed in response to the successive operation of corresponding type keys even though the type keys are operated prior to the completion of a previously initiated

printing cycle. The orienting movement of the printing element is determined by pawls moved to an operating position by the operation of a type action for engagement with a moving member undergoing a predetermined stroke. The orienting pawls are operably engagable with the moving member only at the beginning of an orienting movement of the single print element, and orienting pawls which are moved to the operating position after the beginning of an orienting movement are resiliently maintained at the operating position for operable engagement with the moving member upon completion of the previous orienting movement.

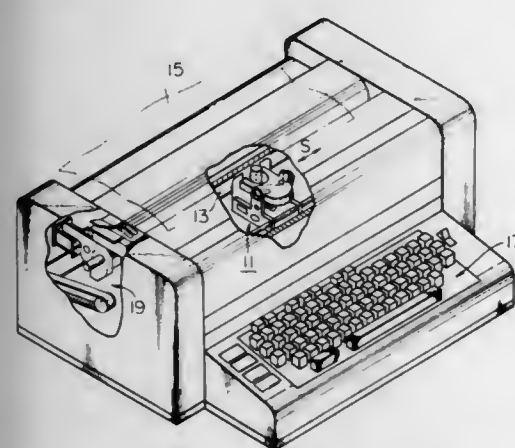
3,827,543 TYPEWRITING MECHANISM FOR A TYPEWRITER MACHINE

Reijiro Kawano; Kazuhiro Goda, both of Kawasaki; Hiroshi Yamakawa, Tokyo, and Masayoshi Otsuka, Kawasaki, all of Japan, assignors to Kurosawa Tel-Communications Limited, Tokyo, Japan

Filed May 22, 1972, Ser. No. 255,697
Int. Cl. B41j 1/32

U.S. Cl. 197—55

8 Claims



A typewriting mechanism for a typewriter machine in which mechanism a swingable hammer bracket supporting a typewheel having a number of types formed on the surface of the typewheel, is driven by a single rotary magnet without being disconnected from a type-character selecting mechanism so that the typewheel strikes against the platen and a type-character on the surface of the typewheel is printed on the typewriter paper around the platen. The single rotary magnet also actuates a locking mechanism of the typewheel and a lever for driving an ink ribbon feed mechanism.

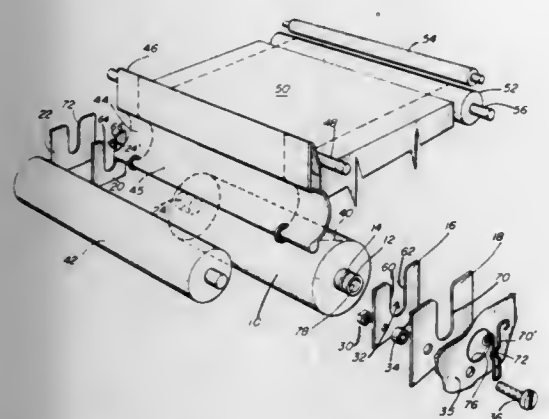
3,827,544 STRIP CHART RECORDING ROLL AND SYSTEM FOR SUPPORTING ROLL DURING RECORDING

John R. Smith, Winchester, Mass., assignor to Parke, Davis & Company, Detroit, Mich.

Filed Aug. 16, 1972, Ser. No. 281,073
Int. Cl. B41j 15/00

U.S. Cl. 197—133 R

3 Claims



The specific embodiment provides a system for supporting a strip chart recording roll where the recording roll includes an

elongated core having strip chart recording material rolled thereabout. The core has at least one cylindrical end protruding from the rolled material, and the protruding end has an annular recess formed thereabout. The specific embodiment also provides a yoke having an upwardly opened substantially U-shaped portion for seating the annular recess therein.

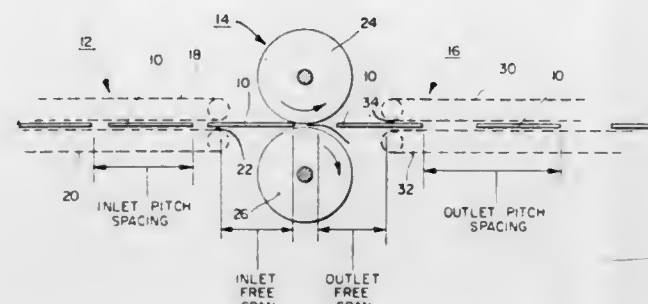
3,827,545 METHOD AND APPARATUS FOR CHANGING THE SPACING BETWEEN DISCRETE, FLEXIBLE WEB PRODUCT

Eric S. Buhayar, Swathmore, Pa., assignor to Scott Paper Company, Delaware County, Pa.

Filed Dec. 4, 1972, Ser. No. 311,453

U.S. Cl. 198—34

19 Claims



Method and apparatus for changing the spacing between discrete, flexible web products employ, in seriatim, an inlet conveyor moving at a first predetermined speed, a speed regulator, and an outlet conveyor moving at a second predetermined speed. The speed regulator moves through a repeating cycle; each cycle including, sequentially, a first constant speed period at which the speed is the same as the inlet conveyor speed, a first changing speed period, a second constant speed period at which the speed is the same as the outlet conveyor speed, and a second changing speed period terminating in the first constant speed period. Discrete web products are directed in a downstream direction at a constant inlet pitch spacing by the inlet conveyor toward the speed-regulator. A web product entering the speed regulator initially is gripped simultaneously at its leading end by the speed regulator and at a region upstream from the leading end by the inlet conveyor. The speed regulator is in its first constant speed period matching the speed of the inlet conveyor for at least a part of the time that the web product is simultaneously gripped by the inlet conveyor and speed regulator to assure that transfer of control of the web product from the inlet conveyor to the speed regulator is achieved with the inlet conveyor and speed regulator moving at the same speed. During the time that movement of the web product can be controlled solely by the speed regulator, the speed regulator moves through its first changing speed period into its second constant speed period to correspondingly change the speed of the web product from that of the inlet conveyor to that of the outlet conveyor. The web product is then directed to the outlet conveyor, and initially is gripped simultaneously at its leading end by the outlet conveyor and at a region upstream from the leading end by the speed regulator. The speed regulator is in its second constant speed period matching the speed of the outlet conveyor for at least a part of the time that the web product is simultaneously gripped by the speed regulator and outlet conveyor to assure that transfer of control of the web product from the speed regulator to the outlet conveyor is achieved with the speed regulator and outlet conveyor moving at the same speed. After movement of the web product is solely controlled by the outlet conveyor the speed regulator experiences its second changing speed period and returns to its first constant speed prior to having any effect upon the movement of the next adjacent web product being directed by the inlet conveyor to the speed regulator. The cycle is then repeated. In this manner the outlet pitch spacing of the web products at the outlet conveyor will

be greater than the inlet pitch spacing of the web products if the speed of the outlet conveyor is faster than the speed of the inlet conveyor, and the outlet pitch spacing will be less than the inlet pitch spacing if the speed of the outlet conveyor is slower than the speed of the inlet conveyor.

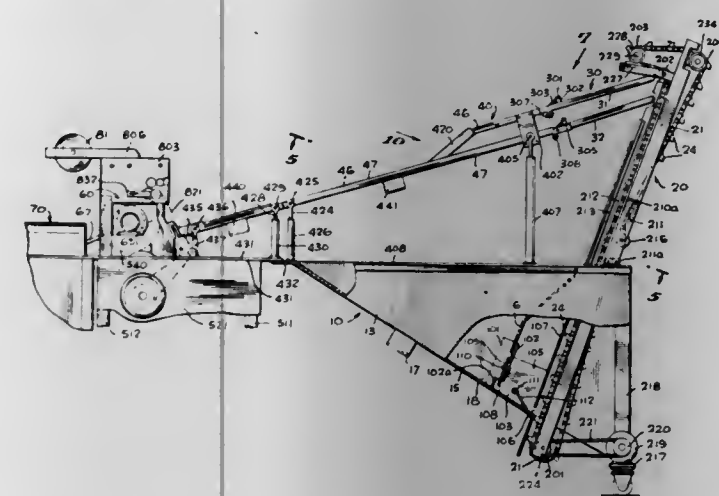
3,827,546 COIN WRAPPING MACHINE

Peter Pilat, Rockaway, N.J., assignor to The National State Bank, Elizabeth, N.J.

Division of Ser. No. 759,322, Sept. 12, 1968, Pat. No. 3,608,271. This application Apr. 29, 1971, Ser. No. 138,774
Int. Cl. B65g 47/18

U.S. Cl. 198—53

6 Claims



A machine is disclosed preferably for wrapping coins, and includes a conveyor and inclined plate means for assembling a plurality of coins on edge adjacent one another to form a roll of loose coins and means for wrapping a sheet of material around the loose coins. This disclosure is particularly directed to the hopper means for storing the loose coins and the conveyor means which comprises a plurality of buckets, spaced chain means for supporting the buckets, and support means for the spaced chain means. The buckets are supported so that they travel in two different paths including a generally vertical path and a generally horizontal path. The coins being discharged from the chutes as they assume the horizontal path of travel.

3,827,547 GLASS SHEET CONVEYING APPARATUS

Phillip Sidney Nixon, Skelmersdale, England, assignor to Pilkington Brothers Limited, Lancashire, England

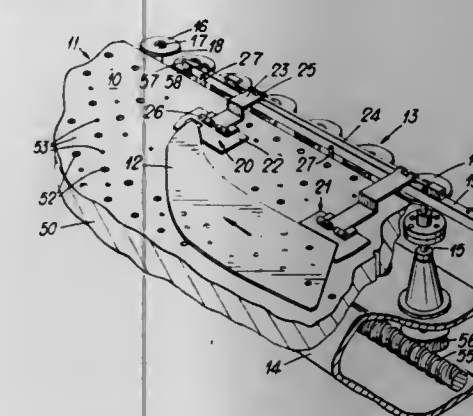
Filed Apr. 10, 1972, Ser. No. 242,418

Claims priority, application Great Britain, Apr. 16, 1971, 9692/71

Int. Cl. B65g 13/02

U.S. Cl. 198—127 R

6 Claims



Apparatus for conveying a succession of articles, such as glass sheets, by contact with an adjacent edge portion of each article, along a conveying path such as a gas hearth, comprises a plurality of elongated carriage members each carrying one

or more drive-transmitting elements (e.g. transverse arms) for engaging edge portions of the articles, particularly of articles presenting indented or skewed edges, and a set of rotary drive elements conical discs on vertical spindles for propelling the carriage members by frictional engagement. The drive elements may be used without the carriage members for directly driving straight-edged articles. A roller conveyor with means for driving the carriage members frictionally alongside the conveyor rollers may precede the gas hearth.

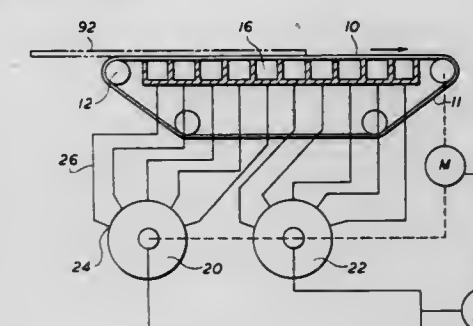
3,827,548 BELT CONVEYOR FOR SHEET MATERIAL

Masaharu Matsuo, No. 3-17, Chome, Higashi Komagata, Sumida-ku, Tokyo, Japan

Claims priority, application Japan, Sept. 11, 1972, 47-90340
Filed Mar. 21, 1973, Ser. No. 343,382
Int. Cl. B65g 15/00; E03b

U.S. Cl. 198—184

1 Claim



A perforated conveyor belt for cardboard sheets and the like travels over a row of suction chambers sequentially evacuated in synchronization with the belt travel by a suction pump connected with the chambers through a rotary distributor valve in which the orifice of an exhaust conduit in the valve rotor sweeps circumferentially offset ports on the valve shell, the ports being connected to the chambers respectively. The circumferential width of the orifice may be adjusted for varying the number of simultaneously evacuated chambers. The valve rotor and the belt are driven synchronously by a common motor.

3,827,549 EXTENDED COOLING CONVEYOR

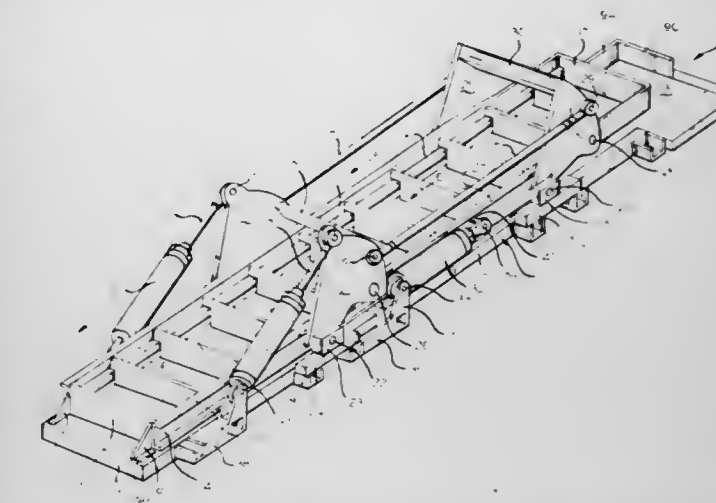
William Allan Hunter, Palatine, Ill., assignor to Hunter Automated Machinery Corporation, Schaumburg, Ill.

Filed Mar. 16, 1973, Ser. No. 341,873

Int. Cl. B65g 25/08

U.S. Cl. 198—221

3 Claims



An extended cooling conveyor for moving poured foundry moulds in step-by-step fashion to cool the same comprises a fixed base frame supporting the moulds, and a frame movable in a closed path with respect to the base frame and including spaced mould engaging members supported thereby and alternately engaged with moulds to move same with respect to

the fixed frame and disengaged therefrom to return to a position of engagement with a mould displaced from the previous mould position. Structure is provided for imparting desired movement to the movable frame, and comprises paired laterally spaced rocking members also spaced lengthwise of the fixed frame and having a pivoted connection to a fixed abutment and a slide connection between the rocking members and the movable frame.

3,827,550

BOTTLE CARRIER

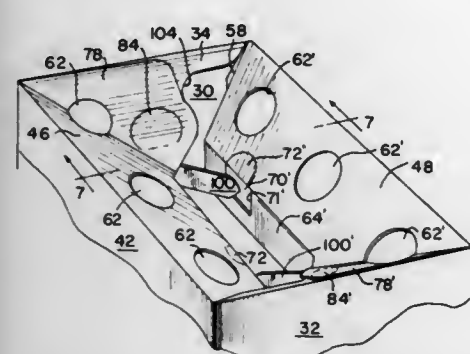
Edwin L. Arneson, Hillsdale, N.J., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Filed Sept. 20, 1972, Ser. No. 290,539

Int. Cl. B65d 5/10, 5/36, 5/48

U.S. Cl. 206—181

20 Claims



A collapsible carrier for beverage bottles or the like which is formed from a blank of foldable sheet material cut and scored to provide connected side and end wall forming panels and co-operating top and bottom wall forming panels hinged to the top and bottom edges of the side wall forming panels, the top wall forming panels being foldable between the side and end wall panels when the carrier is collapsed and when the carrier is set up opening automatically for assembly with the bottles and having spaced apertures for accommodating top portions of the bottles, together with hinged marginal portions which move into bottle separating position, and the bottom wall forming panels having overlapping margins with latching and locking elements, together with hinged bottle separating panel and tab members.

3,827,551

SHOPPER'S KIT

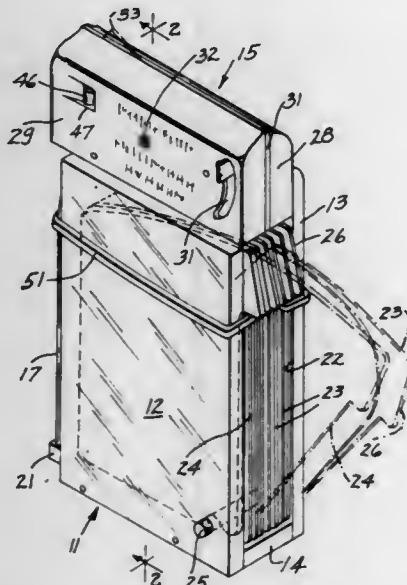
Harry E. Croft, 5424 W. Ferdinand Ave., Chicago, Ill. 60644

Filed July 7, 1972, Ser. No. 269,555

Int. Cl. A45c 11/34; B65d 85/00

U.S. Cl. 206—214

11 Claims



A receptacle for insert-type envelopes and writing panels having a head assembly on one end including a cutting blade

being normally locked in a concealed position, together with containers for selectively holding said envelopes and panels within the receptacle. A finger engaging portion is provided to move the blade into a partially exposed position for use. The invention also includes a writing instrument on which is mounted a normally guarded cutter blade.

3,827,552

REINFORCED PACKAGE AND METHOD FOR ITS PREPARATION

Veikko Ilmari Janhonen, Vilkinmaentie 19, 00560 Helsinki 56, Finland

Filed Nov. 20, 1972, Ser. No. 307,967

Claims priority, application Finland, Nov. 23, 1971, 3349/71; Aug. 24, 1972, 2354/72

Int. Cl. B65d 33/02, 85/62

U.S. Cl. 206—424

6 Claims



A reinforced package comprising a bag-like envelope having a reinforcing plate therein, wherein the goods are placed on one side of the plate between the envelope and the plate and the package together with its reinforcing plate and contents is folded at least double so that the contents are confined between walls formed by the reinforcing plate.

3,827,553

CARD SHIFT MECHANISM FOR RANDOM ACCESS FILING SYSTEMS

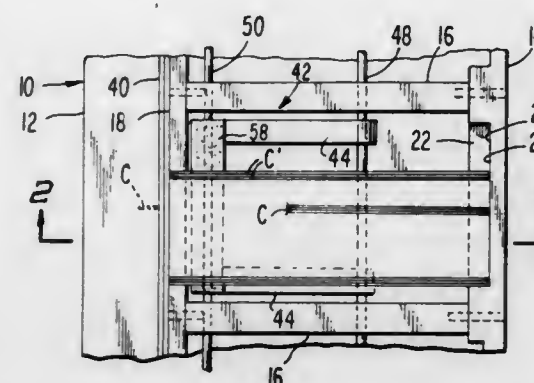
Laurence Allan Cross, Jr., Groverville, N.J., assignor to Random Data Systems, Inc., Trenton, N.J.

Filed May 21, 1973, Ser. No. 362,273

Int. Cl. B07c

U.S. Cl. 209—80.5

19 Claims



Equipment is disclosed, in which a soft rubber feed pad underlies randomly filed code cards. In a manner already known to the art, selector slides are extendable into downwardly opening notches of the cards, so that cards whose notches conform to a selected code are free to move in a prescribed direction while the remaining, unwanted cards are restrained against such movement.

To separate the selected from the unwanted cards, the feed pad is given cyclical, rotational motion through a circular path. During a portion of each cycle of movement of the pad, it frictionally contacts the undersides of the cards, and as further travel of the feed pad through the same cycle occurs, the feed pad frictionally grips and moves the selected cards in a direction to off-set the same from those that have not been selected.

The number of revolutions of the feed pad per minute is governed by the number of cards which it underlies. Typically, movement of the feed pad is on the order of 1,300 – 2,000 r.p.m. This motion imparts incremental advancement to the selected cards to a fully off-set position in respect to the unwanted cards and has the unexpected and desirable result of shifting all the cards to an upright position to facilitate the final separation thereof, simultaneously with the card off-setting function.

In alternative arrangements, an eccentrically rotating bar may be the member contacting the cards to discharge the card shifting function. Also, in commercial embodiments two feed pads, or eccentric bars, can be connected for joint operation.

3,827,554

BEAN SIZER AND-BROKEN BEAN ELIMINATOR

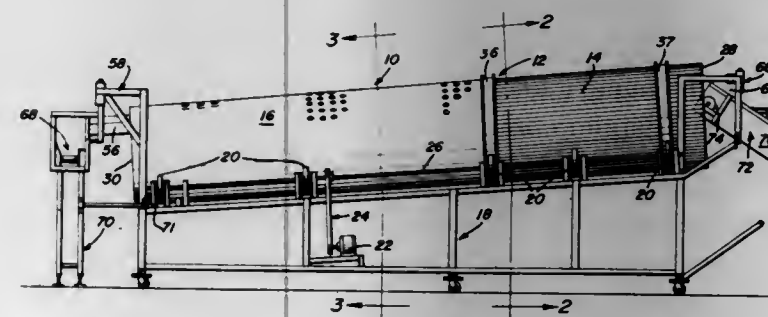
Jimmy W. Richard, Homestead, Fla., assignor to Conveyor Line Products, Inc., Princeton, Fla.

Filed Dec. 29, 1972, Ser. No. 319,740

Int. Cl. B07b 1/00

U.S. Cl. 209—95

10 Claims



A gravity separator having a cylinder formed by a first drum arranged for forming a stream of articles fed into the separator, and a second drum arranged for receiving articles from the first drum and separating out articles having a dimension less than a predetermined value for that dimension. The first drum is constructed from a plurality of longitudinally extending and longitudinally spaced members. These members and the gaps resulting from the spacing between them form an article sorter which permits undersized articles, such as pin beans, and foreign matter, such as sand, rock pebbles, and the like, to fall out of the drum. The longitudinal members advantageously have a V-shaped cross-section, with the apex of the V arranged directed into the drum. The second drum is provided with a plurality of internally opening, circumferential recesses arranged for receiving articles from the stream below a predetermined size for separating out undersized or broken articles. Each of the recesses has a wall which converges on itself as it extends away from an opening toward a bottom portion, and rounded edges arranged between the opening and wall and between the wall and bottom portion. An eliminator conveyor is arranged in the second drum for receiving articles discharged from the recesses by force of gravity when the recesses are elevated by rotation of the cylinder.

3,827,555

PARTICLE SORTER WITH SEGREGATION INDICATOR
Louis A. Kamensky, Briarcliff Manor, and Isaac Klinger, Yorktown Heights, both of N.Y., assignors to Bio/Physics Systems, Inc., Mohawac, N.Y.

Filed Mar. 5, 1973, Ser. No. 338,215

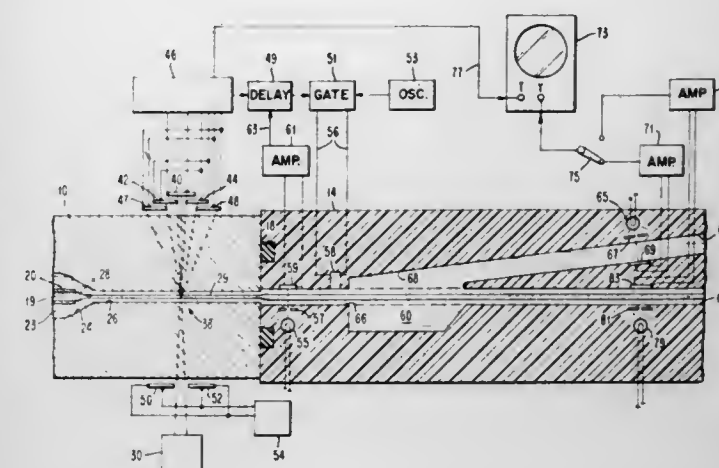
Int. Cl. B07c 5/342

U.S. Cl. 209—111.7

13 Claims

Small particles to be sorted are entrained in a stream of fluid and particle differences are detected to control a sorting means located downstream. The sorting means is effective to

switch the particle carrying fluid to two different paths determined by the particle differences to thereby accomplish the



sort. A photoelectric particle detector is positioned to detect the passage of particles through one of said paths in order to verify that the sorting operation has occurred.

3,827,556

PURIFICATION OF KAOLIN CLAY BY FROTH FLOTATION

Miller B. Mallory, Macon, Ga., assignor to Engelhard Minerals & Chemicals Corporation, Woodbridge, N.J.

Filed Nov. 6, 1972, Ser. No. 303,997

Int. Cl. B03d 1/02

U.S. Cl. 209—166

5 Claims

A method for removing finely divided particles of a colored titaniferous impurity from a dispersed alkaline pulp of kaolin clay by froth flotation. The collector for the impurities is a very low rosin acid tall oil which also provides controlled frothing without the addition of hydrocarbon oils to prevent overfrothing.

3,827,557

METHOD OF COPPER SULFIDE ORE FLOTATION

Elias Fischer, Wilmette, Ill., assignor to Stepan Chemical Company, Northfield, Ill.

Filed May 17, 1971, Ser. No. 144,231

Int. Cl. B03d 1/06

U.S. Cl. 209—167

4 Claims

A novel flotation promoter used in the concentration of copper bearing ores for the efficient selective flotation of copper values, including chalcocite, with suppression of iron pyrites; the promoter comprising a sodium sulfate of an aliphatic hydrocarbon having a carbon chain in excess of 12 carbons and chemically combined with at least one mole of the C₂-C₃ alkylene oxides.

3,827,558

FLUID FILTER WITH BYPASS AND CONDITION INDICATOR

Robert L. Firth, Minneapolis, Minn., assignor to Donaldson Company, Inc., Minneapolis, Minn.

Filed Nov. 9, 1972, Ser. No. 304,959

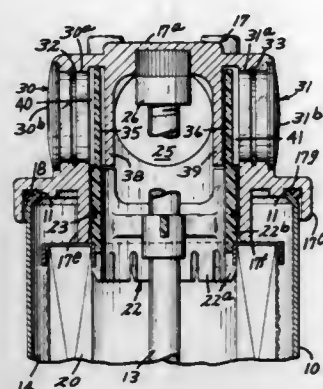
Int. Cl. B01d 35/14

U.S. Cl. 210—90

3 Claims

A cylindrical filter housing having an open top end and a closed bottom end is provided. A cover member for the housing includes a coaxially positioned, cylindrical guide portion. A cylindrical filter element is yieldingly biased against the guide portion and a bypass member is attached to the top of the filter element for guided sliding movements in the guide portion. An inlet opening in the cover leads to the opening in the guide portion, and an outlet opening in the cover leads to

an annular chamber surrounding the filter element. An indicator tab on the bypass member extends upwardly behind a win-



dow located in a side wall of the cover, and the cover is constructed to provide an air pocket around the tab to resist entry of fluid therein.

3,827,559

EXTENDED SURFACE ROTATING BIOLOGICAL CONTACTOR

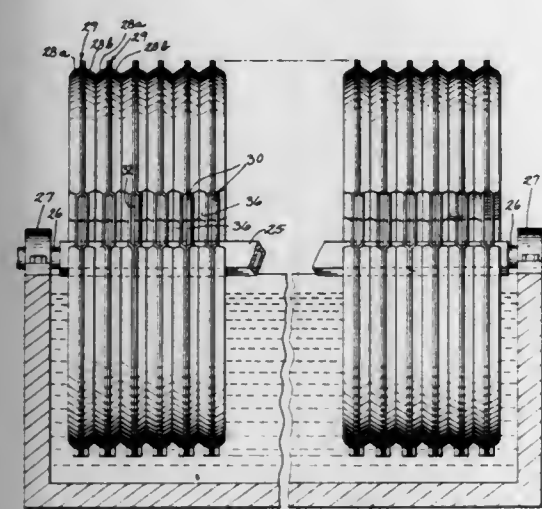
Donald N. Gass, West Allis, and David G. Prosser, Mequon, both of Wis., assignors to Autotrol Corporation, Milwaukee, Wis.

Filed May 10, 1972, Ser. No. 252,038

Int. Cl. B01d 21/00

U.S. Cl. 210—150

29 Claims



There is disclosed a rotating biological contactor formed of abutting thin wall sheets arrayed along a central hollow square shaft. The contactor takes several forms. In some forms, the sheets are identical vacuum formed sheets joined face-to-face and back-to-back to define a plurality of spaced radial passages open to the perimeter of the contactor and series of concentric passages extending between, and opening into, adjacent radial passages. The identical sheets may be continuous or built up from circular sectors. In other forms, alternate flat sheets and formed sheets are employed to define a similar arrangement of concentric and radial passages. In still another form, trapezoidal formed sections are employed with flat sheets to define a series of parallel, generally concentric passages and with the radial passages being defined by the space between the side edges of the trapezoidal sections.

3,827,560

AQUARIUM FILTER

Michael S. J. Morton, 11860 14th South, Seattle, Wash. 98168
Filed June 21, 1971, Ser. No. 155,132

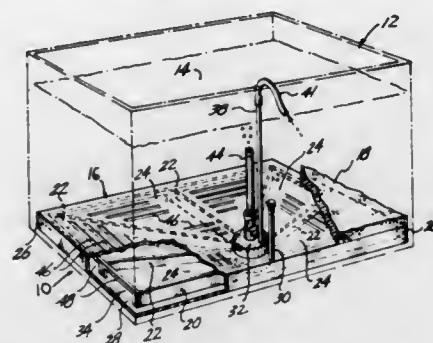
Int. Cl. E04h 3/20

U.S. Cl. 210—169

11 Claims

A filter for placement on the bottom of an aquarium tank and adapted to underlie a layer of filtering material such as

sand or gravel, including in one form, a plurality of walled chambers adjacent an aeration compartment, each of the chambers including a perforated top surface and the aeration compartment including an air inflow tube, an air and water outflow tube and ports communicating with each of the walled chambers. The aeration compartment additionally includes means for segregating the flow of water from an individual walled chamber through the aeration compartment and out the air and water outflow tube such that application of a partial vacuum to the outflow tube causes an increased flow of water through the filtering material above, and the top per-



forations of the individual walled chamber to flush settled mulm or the like out of the walled chamber and out of the filtering materials.

The method of cleaning a filter underlying a layer of filtering material such as sand or gravel on the bottom of an aquarium, including the steps of connecting partial vacuum generating means to the aerator discharge tube, turning off the flow of air into the aeration compartment and segregating individual walled chambers such that the flow of water through the sand or gravel above, and through the top perforations of the segregated walled chamber is increased to flush the mulm into the aeration compartment and out the outflow tube thereof.

ERRATUM

For Class 210—179 see:
Patent No. 3,827,985

3,827,561

DEAERATOR FOR DIALYSIS SYSTEM

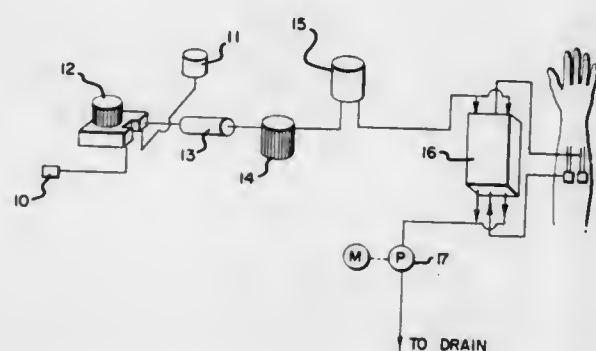
Earl J. Serfass, Largo; Edward R. Lindsay, Jr., Clearwater; Gene Myron Holmes, Seminole; James D. Aid, and French Bishop, Jr., both of St. Petersburg, all of Fla., assignors to Milton Roy Company, St. Petersburg, Fla.

Filed Sept. 20, 1972, Ser. No. 290,638

Int. Cl. B01d 31/00

U.S. Cl. 210—180

10 Claims



A blood dialysis system has a deaeration chamber with a cylindrical filter. Dialysis fluid passes from the outer surface to the inner bore of a cylindrical depth type filter thereby trapping air bubbles on the outer surface to deaerate the fluid. The inner bore of the cylindrical filter is connected to the outlet port of the chamber. A small diameter bleed hole between

the outlet port and the outer section of the chamber prevents excess air from building up around the outside of the filter. The outlet from the deaeration chamber is connected to the inlet of a constant head vessel. The inlet of the constant head vessel is connected to a vertical riser having an opening below the liquid level in the head vessel so that the fluid is discharged into the head vessel without unnecessary turbulence. The turbulence of the discharge of the water otherwise induces the entrainment of air in the solution rather than allowing it to liberate. In another embodiment the water is heated before being supplied to the inner bore of the cylindrical filter. In another embodiment an air permeable membrane is positioned across the top of the head vessel. In another embodiment a nozzle is included in the inlet to the deaeration chamber to subject the incoming fluid to subatmospheric pressure thereby increasing the size of the air bubbles making them easier to filter out of the fluid stream.

3,827,562

FILTERING DEVICE

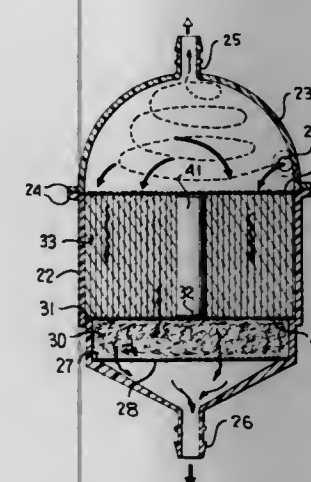
William G. Esmond, 537 Stamford Rd., Baltimore, Md. 21229

Continuation-in-part of Ser. No. 231,691, March 3, 1972, Pat. No. 3,795,088. This application Dec. 6, 1972, Ser. No. 312,487

Int. Cl. B01d 31/00

U.S. Cl. 210—304

12 Claims



This disclosure relates to a device for the removal of gases, particulate matter and oil primarily from blood after the treatment thereof in an artificial body device. The filter device utilizes a plurality of filter cloth layers disposed generally parallel to the path of blood flow and being supported in spaced relation and against collapse by a relatively coarse mesh arranged in layers and disposed between adjacent filter cloth layers. The device operates primarily on the principal of laminar flow of the blood through the filter cloth layers with the filter cloth being formed of a material having an affinity for the blood whereby gases or bubbles entrapped therein will be caused to be released.

3,827,563

SUPPORTING PLATES FOR THE MEMBRANES OF A DIALYZER, PARTICULARLY FOR HEMODIALYSIS

Christian Thorkild Boe, Farum, and Steen Gamwell Dawids, Klampenborg, both of Denmark, assignors to Aktieselskabet De Danske Sukkerfabrikker, Copenhagen, Denmark

Filed July 12, 1971, Ser. No. 161,645

Claims priority, application Denmark, July 13, 1970, 3641/70

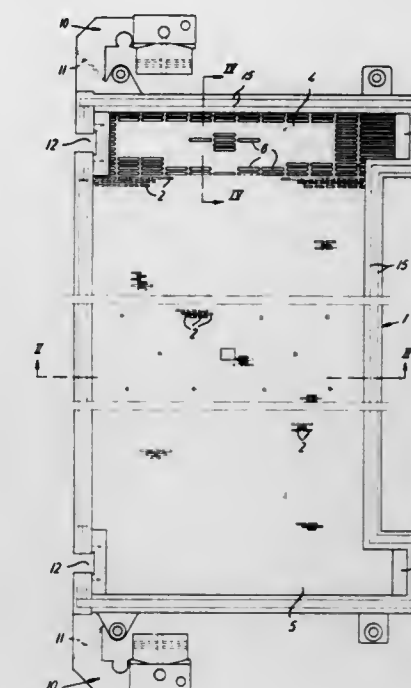
Int. Cl. B01d 31/00

U.S. Cl. 210—321

10 Claims

For use in a dialyzer consisting of a stack of alternate pairs of membranes and supporting plates for these, a supporting plate is provided which has supporting projections arranged in

a pattern such as to subdivide the path of flow from one end of the dialyzer to the other into a multitude of short longitudinal



sections each connected at both ends through transverse flow paths with adjacent longitudinal sections at both sides thereof.

3,827,564

REVERSE OSMOSIS MEMBRANE MODULE

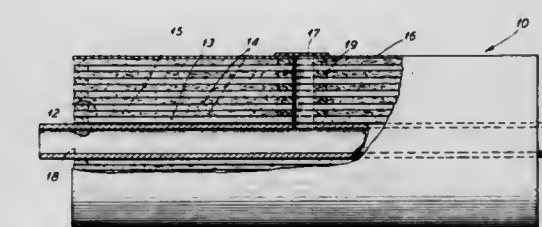
Stanley F. Rak, Mundelein, Ill., assignor to Culligan International Company, Northbrook, Ill.

Filed Jan. 12, 1973, Ser. No. 323,249

Int. Cl. B01d 31/00

U.S. Cl. 210—321

7 Claims



A spiral-wound membrane module for separating a solvent from a solution such as water from an impure solution by means of a reverse osmosis process and a method for making such membrane module. An elongated sheet of semi-permeable membrane material has disposed in juxtaposition to its opposite surfaces, respectively, a sheet of porous product water spacer material and a sheet of a feed water spacer material to provide a three-ply membrane composite which is wrapped around a hollow tubular mandrel. The membrane composite wound around the tubular mandrel is disposed in an outer cover in which at least one opening is provided having its end sealed and extending through a radial axis of the spirally wound membrane composite and a wall of the tubular mandrel. Thus, the porous product water spacer material is in direct fluid communication with the tubular mandrel and the product water collected in the product water spacer material is required only to traverse a maximum of one-half revolution thereof to drain into the hollow tubular mandrel.

3,827,565

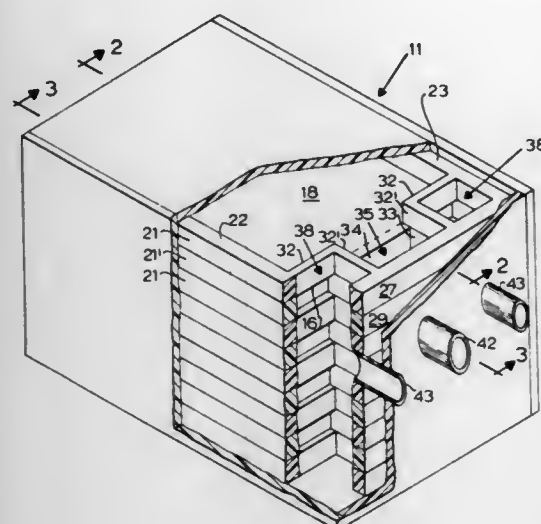
METHOD AND DEVICE OF ARTIFICIAL ENDOCRINE PANCREAS

Kenneth N. Matsumura, P.O. Box 1249, Berkeley, Calif. 94701

Division of Ser. No. 888,733, Dec. 29, 1969, Pat. No. 3,734,851. This application May 16, 1973, Ser. No. 360,981
Int. Cl. B01d 31/00, 13/00

U.S. Cl. 210-22

12 Claims



A method for treating and changing the constitution of blood or other body fluid as the pancreatic islet cells effects such change normally in the blood or other body fluid passing therethrough in a live animal, in cooperation with or substitution for the animal endocrine pancreas; and a device for carrying out such treatment. The method comprises positioning on one side of a semi-permeable membrane and in contact therewith body fluid to be treated and the positioning on the opposite side of the membrane and proximate therewith once dispersed live pancreatic islet cells. The device comprises means associated with the membrane for positioning body fluid in contact with one side of the membrane, conduit means for introducing such fluid to and withdrawing it from the membrane, and once dispersed live pancreatic islet cells disposed on the other side of the membrane out of direct contact with the fluid. Additionally, the device may have a second membrane for dialyzing the fluid.

3,827,566

MULTI-LEVEL, PLEATED FILTER ARRAY

Carlos I. Garcia Ponce, Mexico City, Mexico

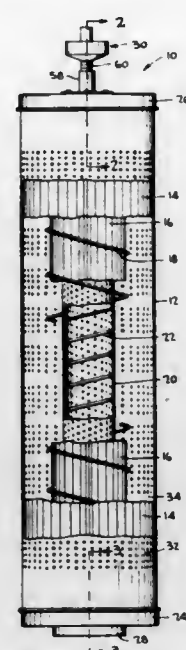
Continuation of Ser. No. 826,187, May 20, 1969, abandoned.
This application Dec. 6, 1972, Ser. No. 312,648
Int. Cl. B01d 27/06

U.S. Cl. 210-338

5 Claims

A multi-level, resin-impregnated, pleated, paper product filter assembly having spaced annular arrays of normally stable, pleats resiliently flexible circumferentially, a helical spring circumjacent between adjacent apices of the pleated arrays to resist collapse of paper product filters due to radial forces between adjacent filter levels and providing two-stage filtration in which the outer filter array comprises a filter pore size effecting first stage filtration of generally larger solids foreign matter, and the second or inner filter array provides second stage filtration of relatively finer foreign particles; in which perforated inner and outer cylindrical shells stabilize the filter cartridge or assembly in which the outer shell includes a plurality of spaced circumferentially disposed series

of perforations to equalize pressure over the outer surface of the outer filter element; and in which an end cap and resilient



seal combine with the outer and inner shells to coaxially clamp and insure against short-circuiting of the liquid being filtered.

3,827,567

APPARATUS FOR TREATING MATERIAL SUSPENDED IN WATER

Lars-Goran Rundqvist, Tumba, Sweden, assignor to AB Celco, Tumba, Sweden

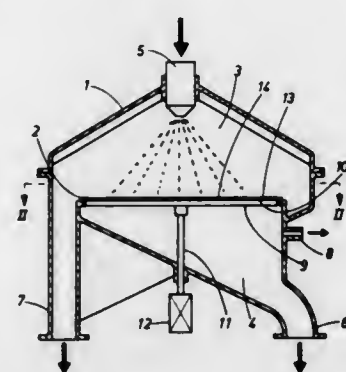
Filed Mar. 21, 1973, Ser. No. 343,234

Claims priority, application Sweden, Mar. 29, 1972, 4066/72

Int. Cl. B01d 35/16

U.S. Cl. 210-414

5 Claims



The apparatus comprises means for spraying a suspension upon one side of a strainer, and a device which at least in successive increments covers the other side of the strainer, thereby preventing clogging of the strainer.

3,827,568

FULL FLOW FLUID FILTER

Louis R. Toth, Montrose; Ray Hagler, Jr., Valencia, and Orville F. Keller, La Canada, all of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Jan. 12, 1973, Ser. No. 323,279

Int. Cl. B01d 27/00, 25/18

U.S. Cl. 210-448

9 Claims

A filter for removing particulate impurities from a fluid comprising a hollow, generally cylindrical housing having axial fluid channels along the inner surface and open opposite ends forming an inlet and an outlet for the filter. A plurality of annular, generally disc-shaped filter elements are tightly stacked within the housing. Outer edges of the filter elements

3,827,570

PAPER TRAY

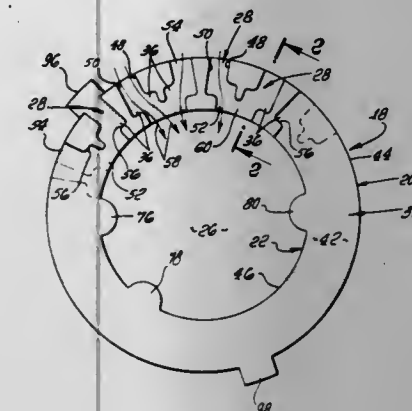
Paul J. Betts, Muskegon, Mich., assignor to Browne-Morse Company, Muskegon, Mich.

Division of Ser. No. 831,071, June 6, 1969, Pat. No. 3,612,637. This application Apr. 15, 1971, Ser. No. 134,132

Int. Cl. B421 17/12; B65d 1/36

U.S. Cl. 211-10

4 Claims



hollow inner core and each channel includes means defining a low-velocity pocket for trapping particulate impurities in a fluid flowing therealong. One end of the hollow inner core is blocked such that the path for fluid flowing between the inlet and outlet is through the axial and radial channels and the hollow inner core.

3,827,569

PEGBORD DISPLAY RACK

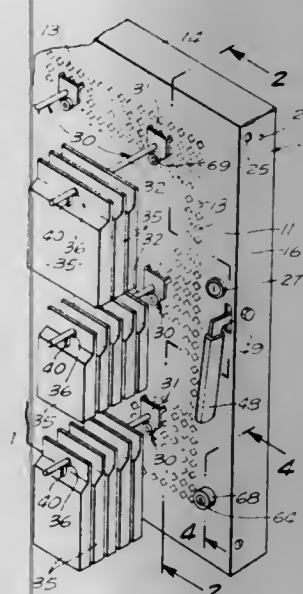
Glenn R. Canning, 8318 Elmont St., Pico Rivera, Calif. 90660

Filed May 11, 1973, Ser. No. 359,470

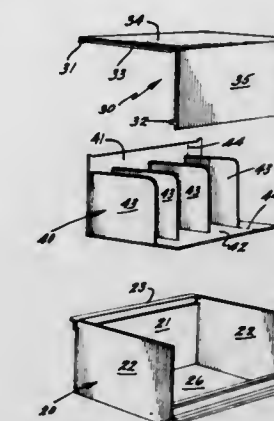
Int. Cl. A47f 7/024

U.S. Cl. 211-7

9 Claims



A display rack for carded merchandise includes a pegboard with a spring loaded plate mounted on the rear thereof. A plurality of card holding devices are attached at arbitrarily spaced locations on the pegboard. Each card holding device includes a tubular hanger on which the merchandise card are hung and an actuating rod slidably movable within the tubular hanger. A spring loaded extension portion on each rod withdraws it outwardly from the back of the pegboard and causes a retaining post pivotally supported on the forward end of the rod to project outwardly through a slot on the forward end of the tubular hanger to prevent removal of the merchandise cards. When the plate is pushed inwardly, all the rods are simultaneously depressed into their tubular hangers causing the retaining posts to be pivoted into the tubular hangers to thereby enable the removal of the merchandise cards.



A filing tray for use in a file drawer, being removable therefrom, having ends, a side panel, a bottom, and having a detachable cover which can be placed thereon for storing purposes. A paper hopper for use in said tray, being removable therefrom, having a side, a bottom, partitions, and a breakaway line; said hopper capable of being oriented in said tray with its side against the side of said tray, with its side opposite the side of said tray or, with a portion thereof being broken off at said breakaway line, with its side generally parallel to the ends of said tray.

3,827,571

DISPLAY STAND FOR SUPPORTING PREHUNG ARTICLES

George H. Koutny, Chicago, Ill., assignor to Pace Promotions, Inc., Chicago, Ill.

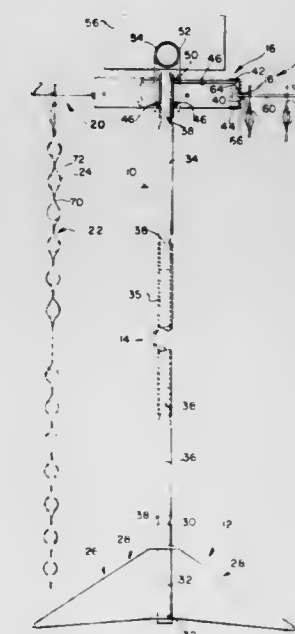
Continuation of Ser. No. 196,956, Nov. 7, 1971, abandoned.

This application June 29, 1973, Ser. No. 375,183

Int. Cl. A47f 5/00, 7/00

U.S. Cl. 211-59

2 Claims



A display stand which includes a hanger unit to which a plurality of packaged articles are strung so that the hanger unit with the prehung packaged merchandise is packaged for shipment in a conventional carton, and when said hanger unit and prehung packaged articles is ready for display, the hanger unit with the prehung articles is removed from the carton and readily attached to the display stand.

3,827,572

WORKING BARREL RACK

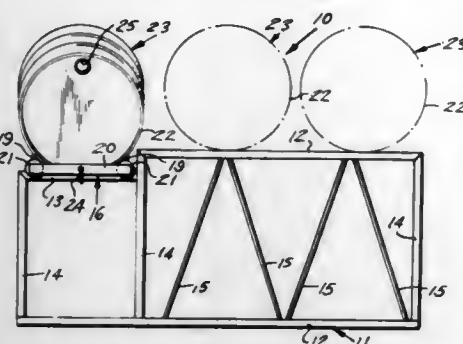
Raymond C. Cockrum, 513 Ann Dr., Tecumseh, Okla. 74873

Filed June 1, 1972, Ser. No. 258,709

Int. Cl. A47f 1/16; A47g 29/00

U.S. Cl. 211-81

1 Claim



A device for supporting barrels. This device consists primarily of a frame structure consisting of a tiltable cradle which will enable the user to remove all of the contents therefrom and the frame structure of the device will support other barrels prior to their use.

3,827,573

FOLDING CART

Marcel Guerette, Irrebonne, Quebec, Canada, assignor to Matthew Moody Limited, Terrebonne, Quebec, Canada

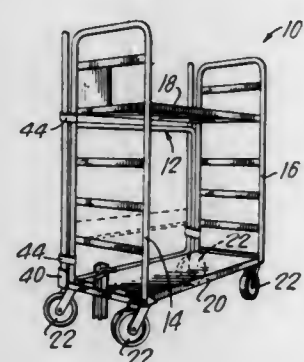
Filed Nov. 1, 1972, Ser. No. 302,790

Claims priority, application Canada, Nov. 18, 1971, 128026

Int. Cl. B62b 11/00

U.S. Cl. 211-149

6 Claims



A folding cart having a side frame with end frames hinged to the side frame and a pair of shelves hinged to the side frame.

3,827,574

DEMOUNTABLE SHELF EDGE FENCE

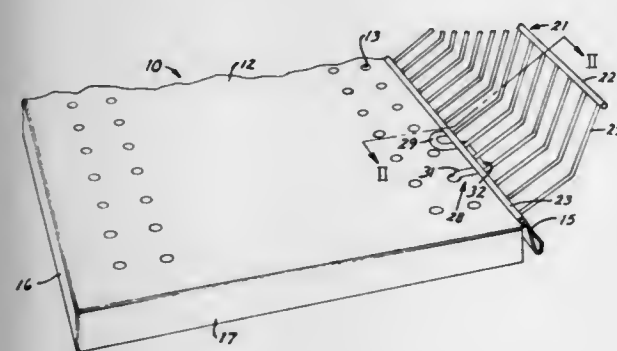
Frank G. Craig, Sr., Battle Creek, Mich., assignor to Roblin Industries, Inc., Battle Creek, Mich.

Filed Oct. 24, 1972, Ser. No. 300,121

Int. Cl. A47f 5/10

U.S. Cl. 211-184

10 Claims



A demountable fence for a shelf having a plurality of holes therethrough comprises a fence panel and a plurality of clips

fixed to and spaced along the bottom edge of the fence panel. The clips support the fence panel on the shelf and removably secure the fence panel to the shelf. Each clip includes a sinusoidally curved securement element extending from the fence panel in one direction along the shelf into one of the holes and terminating in an end portion disposed below the shelf for supporting the fence in a substantially upright but somewhat sloped orientation in a cantilevered manner. The clip further includes an ear laterally offset from the securement element and extending from the fence in the same direction and a connecting element joining the ear and securement element and offset from the fence in the opposite direction, the ear limiting the extent of entry of the securement element into the hole in the shelf as the fence panel is pivoted over and past the hole during installation on or removal from the shelf.

3,827,575

METHOD AND APPARATUS FOR PROVIDING COUPLING TRAIN ACTION AND ALIGNMENT CONTROL FOR RAILWAY VEHICLES

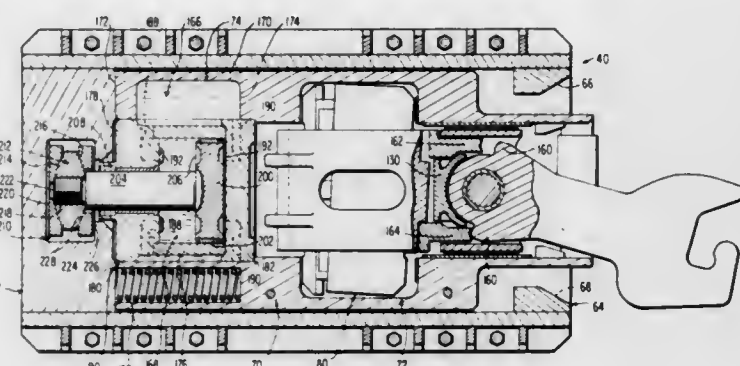
John E. Mosier, and Jack G. Stephenson, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Jan. 30, 1973, Ser. No. 327,997

Int. Cl. B61g 9/16, 7/12

U.S. Cl. 213-8

24 Claims



A coupling, train action and alignment control apparatus generally for articulated vehicles and particularly for railway vehicles. The apparatus includes a sill structure directly connectable to an underframe of a railway vehicle including a first side wall for projecting normally downward with respect to the underframe, a second side wall projecting normally downward with respect to the underframe and extending in a spaced parallel posture coextensively with the first side wall, and a buff backstop means projecting normally downward from the underframe between and spanning the first and second side walls at a buff end thereof. Draft stop means are connected within the sill to the side walls at the draft end thereof. A coupling bar having a shank end is extended into the draft end of the sill. A mechanical cushioning and alignment assembly is positioned within the sill at the draft end and is pivotally connected to the shank end of the coupling bar for axially cushioning both buff and draft forces imparted thereto and generally axially aligning the central longitudinal axis of adjacent railway vehicles. A hydraulic cushioning assembly is positioned within the sill and is axially connected to the buff backstop and the mechanical cushioning and alignment assembly for cushioning in series with the mechanical cushioning assembly both buff and draft forces imparted by the coupling bar during coupling and run-in and run-out train action events and for permitting axial travel of the mechanical cushioning and alignment assembly to assist in alignment of the railway vehicles.

3,827,576

AUTOMATIC STACK FEEDER

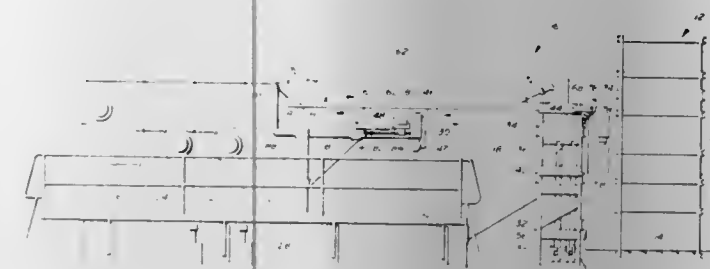
Henry D. Ward, Jr., Royal Crest Rd., Rt. 1, Box 52K, Phoenix, Md. 21131; William F. Ward, Brick House Rd., R.D. 2, Box 271, Hampstead, Md. 21074, and Clyde E. Taber, III, Rt. 3, Mill Creek Rd., Fallston, Md. 21047

Continuation-in-part of Ser. No. 876,360, Nov. 13, 1969, abandoned. This application Nov. 23, 1971, Ser. No. 201,333

Int. Cl. B65h 3/04; B65g 60/00

U.S. Cl. 214-6 D

17 Claims



An automatic stack feeder arrangement is provided for delivering large corrugated paperboard sheets to a printer-slitter machine. A stack of the corrugated paperboard sheets is automatically raised to bring the topmost to a desired level where overhanging friction rolls thrust it into parallel friction belts. The conveyed corrugated paperboard sheet is deposited in a hopper on the feed table. The lower set of friction belts is adjustable in working length so as to provide a variable feed table hopper area. The upper set is hinged so that it can be raised away from the lower set.

3,827,577

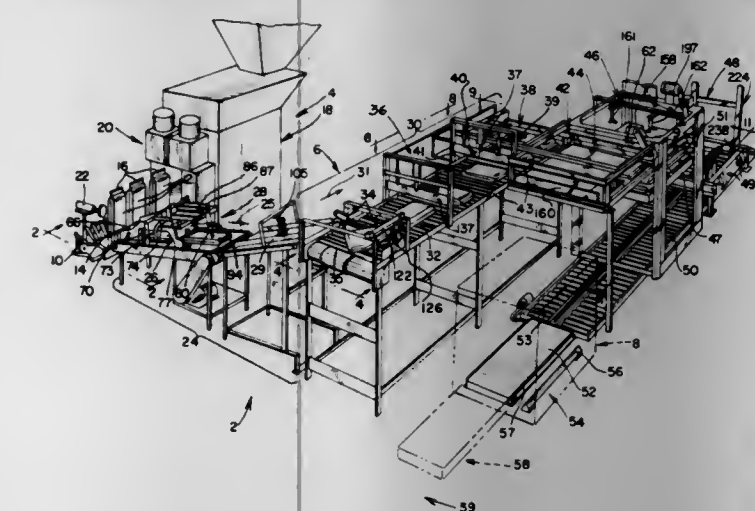
APPARATUS FOR ASSEMBLING LAYERS OF PACKAGES ON A PALLET

Kenneth G. Kurk, and Robert S. Kilbride, both of Quincy, Ill., assignors to Moorman Manufacturing Company, Quincy, Ill. Division of Ser. No. 89,658, Nov. 16, 1970, Pat. No. 3,700,127. This application May 1, 1972, Ser. No. 249,419

Int. Cl. B65g 57/26

U.S. Cl. 214-6 P

7 Claims



A method and apparatus for arranging bags in layers with the sewn end of each bag in each layer facing inwardly of the layer and for depositing each layer on a pallet. Some bags are turned 180° and some bags are turned 90° while the bags are being conveyed to a marshalling station where the bags are gathered sequentially in groups. The first two groups are sequentially moved onto a plate to form a layer of bags having a predetermined pattern. Then, the plate is moved over a pallet and the layer is wiped off the plate over the pallet while the plate is retracted. The next two groups are arranged in a layer having a different pattern and deposited over the pallet in like manner. These steps are repeated several times to quickly deposit eight layers on the pallet with adjacent layers having interlocking patterns. Preferably, 90° turning of a bag is ac-

complished by blocking movement of the bag on one side near one end while quickly moving a guide member along the other side of the bag toward the other end and then quickly retracting the guide member.

3,827,578

ROTARY GRAIN DISTRIBUTION SYSTEM

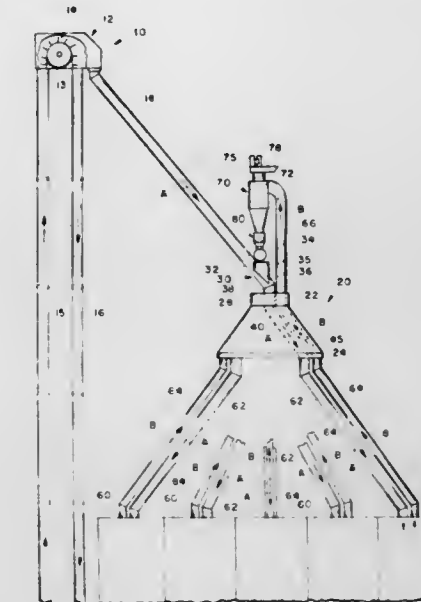
Richard Murray Hough, Sunfield, Mich. 48890

Filed Sept. 25, 1972, Ser. No. 291,772

Int. Cl. B65g 53/00

U.S. Cl. 214-16 R

17 Claims



A rotary grain distribution system includes a distributor having a grain filling chute and an air exhausting chute rotatably positioned within a housing. The grain chute selectively couples a grain input chute to one of a plurality of grain distribution chutes extending from the bottom of the distributor to a plurality of grain storage bins located below the distributor in a ring. The exhausting chute selectively couples the intake of a cyclone precipitator to the one of a plurality of evacuation chutes extending from the bottom of the distributor to each storage bin for the bin being filled. Particulate material collected by the precipitator is returned to the grain input chute through a rotary dump valve such that a blower coupled to the precipitator can maintain negative pressure in the system to prevent discharge of dust and particulate material therefrom.

3,827,579

IRRADIATED FUEL PROCESSING SYSTEM

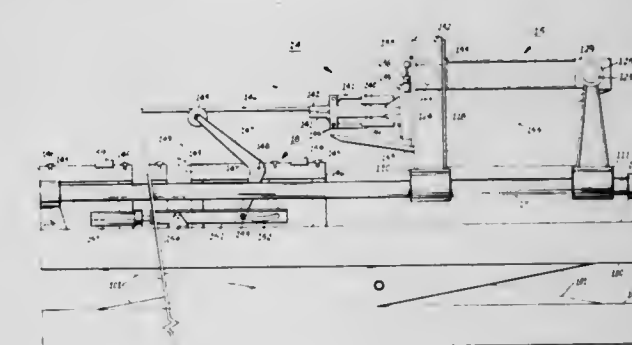
Wyvil R. Kendall, San Jose, Calif., assignor to General Electric Company, San Jose, Calif.

Division of Ser. No. 715,602, March 25, 1968, Pat. No. 3,621,742. This application Nov. 2, 1970, Ser. No. 86,092

Int. Cl. B65g 59/02

U.S. Cl. 214-8.5 C

9 Claims



A system for handling irradiated nuclear reactor fuel bundles preparatory to reprocessing the irradiated fuel contained

3,827,572

WORKING BARREL RACK

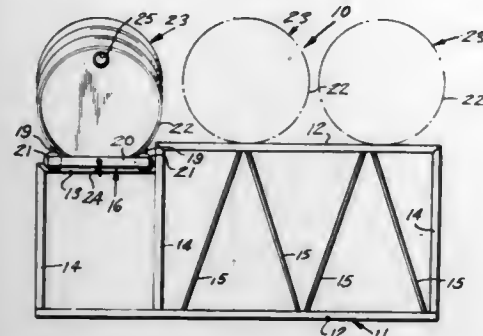
Raymond C. Cockrum, 513 Ann Dr., Tecumseh, Okla. 74873

Filed June 1, 1972, Ser. No. 258,709

Int. Cl. A47f 1/16; A47g 29/00

U.S. Cl. 211-81

1 Claim



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3,827,573

FOLDING CART

Marcel Guerette, Irrebonne, Quebec, Canada, assignor to Matthew Moody Limited, Terrebonne, Quebec, Canada

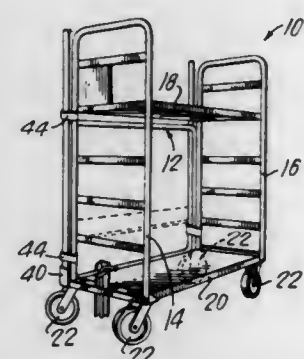
Filed Nov. 1, 1972, Ser. No. 302,790

Claims priority, application Canada, Nov. 18, 1971, 128026

Int. Cl. B62b 1/00

U.S. Cl. 211-149

6 Claims



A folding cart having a side frame with end frames hinged to the side frame and a pair of shelves hinged to the side frame.

3,827,574

DEMOUNTABLE SHELF EDGE FENCE

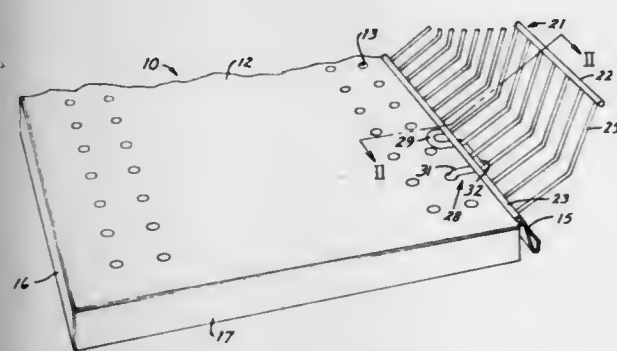
Frank G. Craig, Sr., Battle Creek, Mich., assignor to Roblin Industries, Inc., Battlecreek, Mich.

Filed Oct. 24, 1972, Ser. No. 300,121

Int. Cl. A47f 5/10

U.S. Cl. 211-184

10 Claims



A demountable fence for a shelf having a plurality of holes therethrough comprises a fence panel and a plurality of clips

fixed to and spaced along the bottom edge of the fence panel. The clips support the fence panel on the shelf and removably secure the fence panel to the shelf. Each clip includes a sinusoidally curved securement element extending from the fence panel in one direction along the shelf into one of the holes and terminating in an end portion disposed below the shelf for supporting the fence in a substantially upright but somewhat sloped orientation in a cantilevered manner. The clip further includes an ear laterally offset from the securement element and extending from the fence in the same direction and a connecting element joining the ear and securement element and offset from the fence in the opposite direction, the ear limiting the extent of entry of the securement element into the hole in the shelf as the fence panel is pivoted over and past the hole during installation on or removal from the shelf.

3,827,575

METHOD AND APPARATUS FOR PROVIDING COUPLING TRAIN ACTION AND ALIGNMENT CONTROL FOR RAILWAY VEHICLES

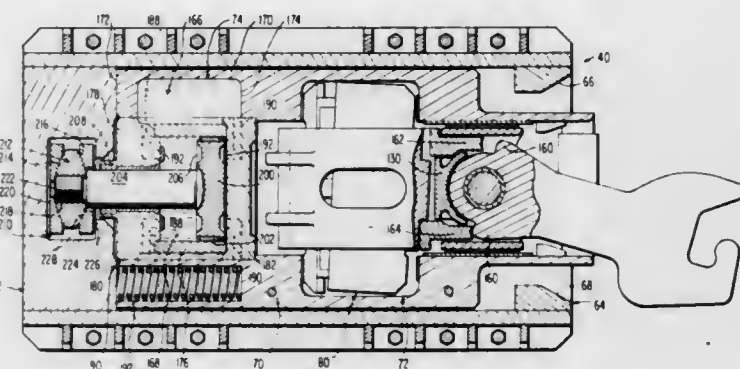
John E. Mosier, and Jack G. Stephenson, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Jan. 30, 1973, Ser. No. 327,997

Int. Cl. B61g 9/16, 7/12

U.S. Cl. 213-8

24 Claims



A coupling, train action and alignment control apparatus generally for articulated vehicles and particularly for railway vehicles. The apparatus includes a sill structure directly connectable to an underframe of a railway vehicle including a first side wall for projecting normally downward with respect to the underframe, a second side wall projecting normally downward with respect to the underframe and extending in a spaced parallel posture coextensively with the first side wall, and a buff backstop means projecting normally downward from the underframe between and spanning the first and second side walls at a buff end thereof. Draft stop means are connected within the sill to the side walls at the draft end thereof. A coupling bar having a shank end is extended into the draft end of the sill. A mechanical cushioning and alignment assembly is positioned within the sill at the draft end and is pivotally connected to the shank end of the coupling bar for axially cushioning both buff and draft forces imparted thereto and generally axially aligning the central longitudinal axis of adjacent railway vehicles. A hydraulic cushioning assembly is positioned within the sill and is axially connected to the buff backstop and the mechanical cushioning and alignment assembly for cushioning in series with the mechanical cushioning assembly both buff and draft forces imparted by the coupling bar during coupling and run-in and run-out train action events and for permitting axial travel of the mechanical cushioning and alignment assembly to assist in alignment of the railway vehicles.

3,827,576

AUTOMATIC STACK FEEDER

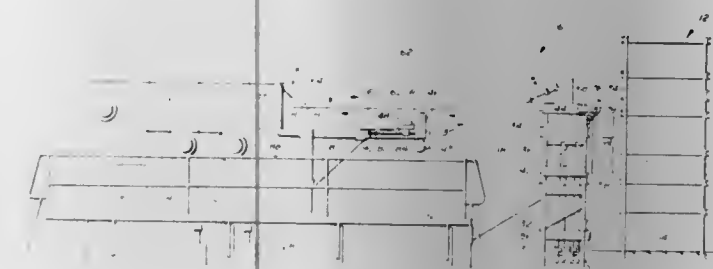
Henry D. Ward, Jr., Royal Crest Rd., Rt. 1, Box 52K, Phoenix, Md. 21131; William F. Ward, Brick House Rd., R.D. 2, Box 271, Hampstead, Md. 21074, and Clyde E. Taber, III, Rt. 3, Mill Creek Rd., Fallston, Md. 21047

Continuation-in-part of Ser. No. 876,360, Nov. 13, 1969, abandoned. This application Nov. 23, 1971, Ser. No. 201,333

Int. Cl. B65h 3/04; B65g 60/00

U.S. Cl. 214-6 D

17 Claims



An automatic stack feeder arrangement is provided for delivering large corrugated paperboard sheets to a printer-slotter machine. A stack of the corrugated paperboard sheets is automatically raised to bring the topmost to a desired level where overhanging friction rolls thrust it into parallel friction belts. The conveyed corrugated paperboard sheet is deposited in a hopper on the feed table. The lower set of friction belts is adjustable in working length so as to provide a variable feed table hopper area. The upper set is hinged so that it can be raised away from the lower set.

3,827,577

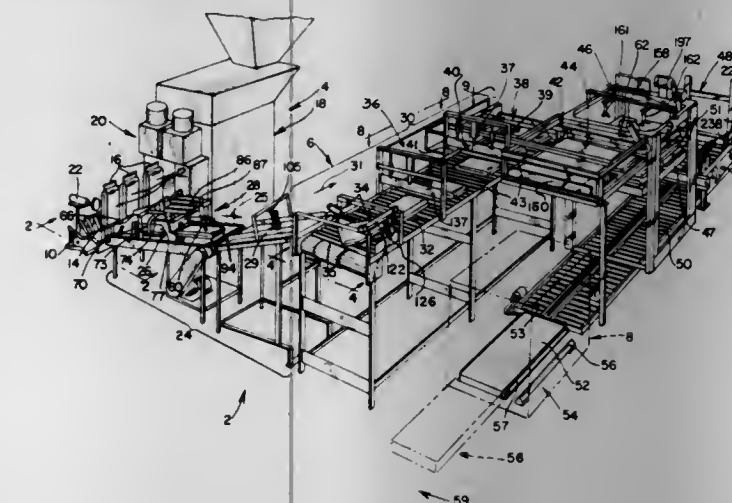
APPARATUS FOR ASSEMBLING LAYERS OF PACKAGES ON A PALLET

Kenneth G. Kurk, and Robert S. Kilbride, both of Quincy, Ill., assignors to Moorman Manufacturing Company, Quincy, Ill. Division of Ser. No. 89,658, Nov. 16, 1970, Pat. No. 3,700,127. This application May 1, 1972, Ser. No. 249,419

Int. Cl. B65g 57/26

U.S. Cl. 214-6 P

7 Claims



A method and apparatus for arranging bags in layers with the sewn end of each bag in each layer facing inwardly of the layer and for depositing each layer on a pallet. Some bags are turned 180° and some bags are turned 90° while the bags are being conveyed to a marshalling station where the bags are gathered sequentially in groups. The first two groups are sequentially moved onto a plate to form a layer of bags having a predetermined pattern. Then, the plate is moved over a pallet and the layer is wiped off the plate over the pallet while the plate is retracted. The next two groups are arranged in a layer having a different pattern and deposited over the pallet in like manner. These steps are repeated several times to quickly deposit eight layers on the pallet with adjacent layers having interlocking patterns. Preferably, 90° turning of a bag is ac-

complished by blocking movement of the bag on one side near one end while quickly moving a guide member along the other side of the bag toward the other end and then quickly retracting the guide member.

3,827,578

ROTARY GRAIN DISTRIBUTION SYSTEM

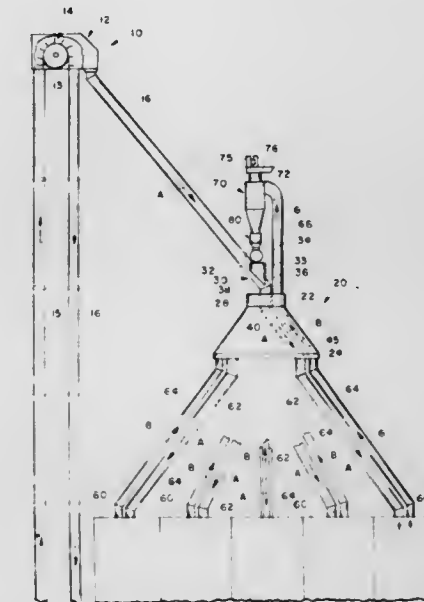
Richard Murray Hough, Sunfield, Mich. 48890

Filed Sept. 25, 1972, Ser. No. 291,772

Int. Cl. B65g 53/00

U.S. Cl. 214-16 R

17 Claims



A rotary grain distribution system includes a distributor having a grain filling chute and an air exhausting chute rotatably positioned within a housing. The grain chute selectively couples a grain input chute to one of a plurality of grain distribution chutes extending from the bottom of the distributor to a plurality of grain storage bins located below the distributor in a ring. The exhausting chute selectively couples the intake of a cyclone precipitator to the one of a plurality of evacuation chutes extending from the bottom of the distributor to each storage bin for the bin being filled. Particulate material collected by the precipitator is returned to the grain input chute through a rotary dump valve such that a blower coupled to the precipitator can maintain negative pressure in the system to prevent discharge of dust and particulate material therefrom.

3,827,579

IRRADIATED FUEL PROCESSING SYSTEM

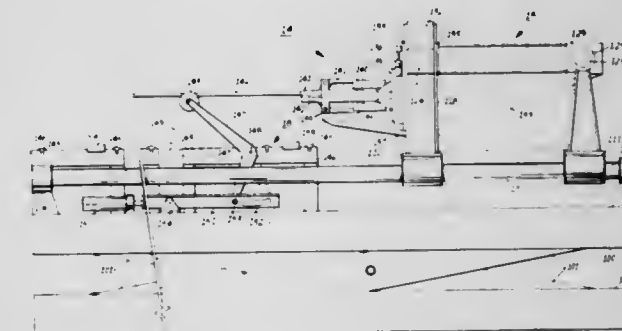
Wyvil R. Kendall, San Jose, Calif., assignor to General Electric Company, San Jose, Calif.

Division of Ser. No. 715,602, March 25, 1968, Pat. No. 3,621,742. This application Nov. 2, 1970, Ser. No. 86,092

Int. Cl. B65g 59/02

U.S. Cl. 214-8.5 C

9 Claims



A system for handling irradiated nuclear reactor fuel bundles preparatory to reprocessing the irradiated fuel contained

therein is disclosed. This system includes a fuel bundle clamping table including means to remove bundle end fittings and to clamp the bundle in a fixed position while permitting longitudinal movement of the fuel rods through the bundle; a fuel rod pulling assembly including means for pulling fuel rods from the bundle, for handling the rods and for collecting groups of rods; a shear feed assembly including means to feed groups of fuel rods incrementally to a shear; and a shear assembly including means to simultaneously cut two small pieces from the end of each rod of a set with each shearing stroke. A process for performing the above-indicated operations is also disclosed. This system is simple, reliable and capable of being remotely operated, disassembled and modified.

3,827,580

APPARATUS FOR AFFIXING FABRIC SWATCHES TO SAMPLE CARDS

Hans Rohner, Kuttigen, Switzerland, assignor to Polytex AG, Glattbrugg, Switzerland

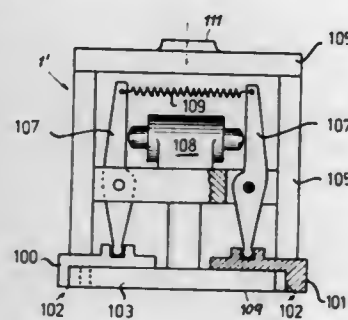
Filed Mar. 13, 1972, Ser. No. 234,151

Claims priority, application Switzerland, Mar. 17, 1971, 3944/71

Int. Cl. B65g 59/02

U.S. Cl. 214—8.5 C

3 Claims



Swatches are picked up one-by-one from the top of a stack of swatches of the same size (usually of different color), folded over, and then applied to a paper strip and bonded thereto in the production of sample cards. The pickup is carried out by a pickup head having a pair of elements each carrying an array of pins whose points or tips project slightly (0.03–0.6mm) from the elements. These elements are brought down onto the top swatch, and the points are displaced outwardly to prick into this swatch. Then the pickup head is lifted, taking with it only the topmost swatch.

3,827,581

APPARATUS FOR SUPPLYING SHAFT LIKE MATERIALS

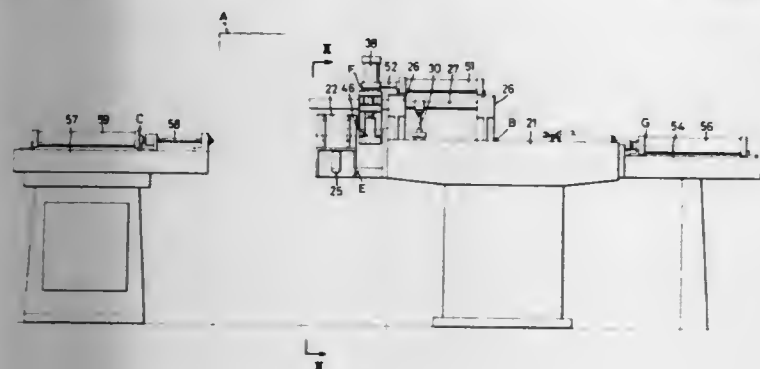
Takao Inui, Osaka, Japan, assignor to Kabushiki Kaisha Tange Tekkosho (Tange Industries, Ltd.), Osaka-fu, Japan

Filed July 20, 1973, Ser. No. 381,333

Int. Cl. B65h 51/26

U.S. Cl. 214—1 PB

1 Claim



An automatic apparatus for supplying shaft-like materials to a processing machine having an insertion hole for the materi-

als. The apparatus comprises an inclined table for queuing and supporting the materials thereon in parallel with the insertion hole of the processing machine, a lifting means provided at the lower end of the queuing table for lifting the materials one at a time, the lifting means serving also as a stopper for preventing the materials on the queuing table from dropping, a turnable chuck means for fetching the material on the lifting means, a driving means for turning the chuck means, and an insertion means for inserting the material held by the chuck means into the insertion hole of the processing machine. The chuck means is turnable from a first position in which the material is held by the chuck means coaxially with the insertion hole to a second position in which the chuck means locates just above the material lifted by the lifting means.

3,827,582

STACKING DEVICE

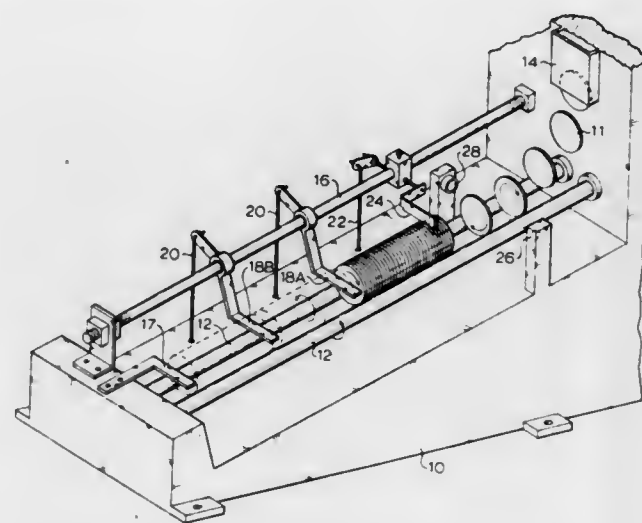
George H. Lederer, 75 Gordon Rd., Willowdale, Ontario, Canada

Filed Dec. 13, 1971, Ser. No. 207,393

Int. Cl. B65g 47/24

U.S. Cl. 214—7

7 Claims



Flat round articles are separated into stacks of known length by being stacked to a greater length against a stop and being divided out to a lesser length from the stop.

3,827,583

SCRAP CHARGING MACHINE FOR CONVERTERS

Bernhard Enkner, Linz, Austria, assignor to Vereinigte Österreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

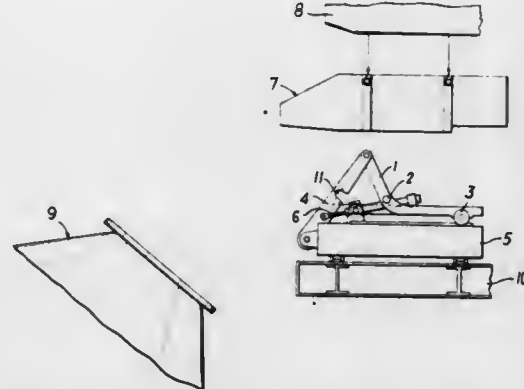
Filed Dec. 29, 1972, Ser. No. 319,524

Claims priority, application Austria, Jan. 11, 1972, 179/72

Int. Cl. F27b 3/18

U.S. Cl. 214—18 SC

1 Claim



A scrap charging machine for converters is provided with which the ideal movements of crane charging are imitated and which is adaptable to local conditions. It comprises on a bogie chutes and chute carriers, and a crank mechanism for lifting

and tilting the chutes. The chute carriers include a fork-shaped part which receives the chute and is movable on wheels on the bogie so as to form a chute carrier vehicle, and tilting levers hinged to the fork-shaped part and the bogie. The machine further comprises push rods hinged to the bogie and the tilting levers, and a stop between the fork-shaped part and the tilting levers. Upon actuation of the push rods the chute carrier vehicle is moved in a straight line in horizontal direction until the stop is reached, whereupon it is lifted into charging position and tilted.

3,827,584

CHARGING APPARATUS FOR SHAFT FURNACE

Rudolf Greuer; Herbert Hickmann, and Wolfgang Welke, all of Oberhausen, Germany, assignors to Thyssen Niederrhein AG Hutten-und Werke, Oberhausen, Germany

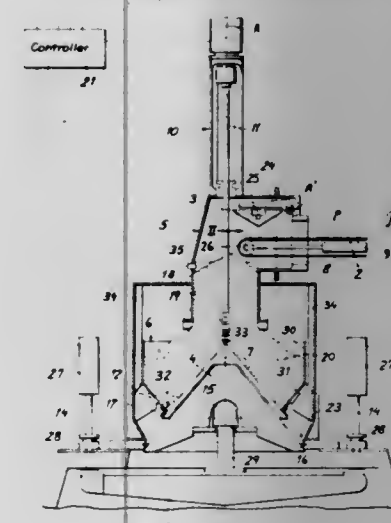
Filed Jan. 16, 1973, Ser. No. 324,132

Claims priority, application Germany, Jan. 20, 1972, 2220264

Int. Cl. F27b 11/12

U.S. Cl. 214—36

7 Claims



A housing on top of a shaft-type furnace, e.g. for the direct reduction of iron ore with a reducing gas preferably consisting in major part of carbon monoxide and hydrogen, has a laterally opening inlet and a downwardly opening outlet. Green pellets, e.g. of iron ore, are charged into the housing through the inlet and pass with a minimum free fall into a bucket which is lowered linearly in the housing as a pile of pellets is formed in the bucket so that the top of the pile remains substantially at the same level, adjacent the discharge end of the loading device. Once the bucket has been displaced linearly downwardly to its lowermost position, the pellet feed is stopped and the input is blocked by a pivotal bell. The bottom of the bucket, which is formed by another linearly displaceable but pivotally suspended bell, is then displaced downwardly away from the sides of the bucket and a bell temporarily blocking the outlet is also moved downwardly to allow the mass of pellets in the bucket to spill out and down into the furnace. The bells thus form alternately effective inlet and outlet gates sealing the head of the furnace against the escape of gas.

3,827,585

METHOD AND APPARATUS FOR LOADING BAGGED MAIL FROM A LOADING DOCK INTO A HIGHWAY VEHICLE

Joseph E. McWilliams, 1345 Canterbury Ln., Glenview, Ill. 60025

Continuation-in-part of Ser. No. 152,585, June 14, 1971, abandoned. This application July 27, 1972, Ser. No. 275,792

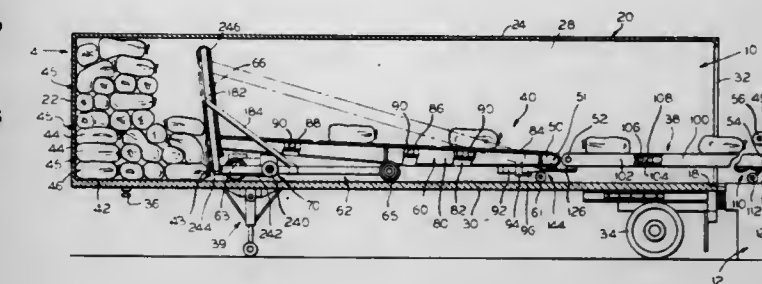
Int. Cl. B65g 67/08

U.S. Cl. 214—41

17 Claims

The invention relates to the loading of mail bags from a loading dock into an end loading highway vehicle to fully and

completely load the vehicle, in one form of which a pair of tandem connected conveyors are mounted on the loading dock for running under existing mail bag handling conveyors, that are proportioned lengthwise, and are mounted to be moved into the vehicle for loading purposes, to extend between the existing conveyor where there is one, and if not, the loading dock, and the desired unloading point of the bags within the vehicle. The bags are moved single file down the conveyors, with the leading conveyor end being upwardly and laterally movable relative to a baffle member connected thereto that extends transversely of vehicle. The conveyors accelerate the bags up to propelling speed whereby they are propelled forwardly of the conveyor discharge end and against the vehicle end wall to fall behind the baffle member which serves to dam the bags against any substantial rebound.



In another form the tandem connected conveyors are in sections carried by a wheeled frame, which is provided with a forward conveyor section for swinging movement about a horizontal axis adjacent its rearward end for elevational distribution of the mail bags, and that carries a high speed bag propelling belt conveyor equipped with a bag damming baffle member of a roll up type. Associated with the wheeled frame is a second conveyor section having its forward end approximating the elevation of the rearward end of the first conveyor section, and having its rearward end at an elevation for convenient manual loading of mail bags thereon. The second conveyor section includes a belt conveyor operating at a lower speed for conveying mail bags received thereon to the high speed propelling conveyor. Both conveyor sections have dimensions transversely thereof that substantially span the transverse dimension of the vehicle loading area.

3,827,586

VEHICLE TOWING AND JACKING DEVICE

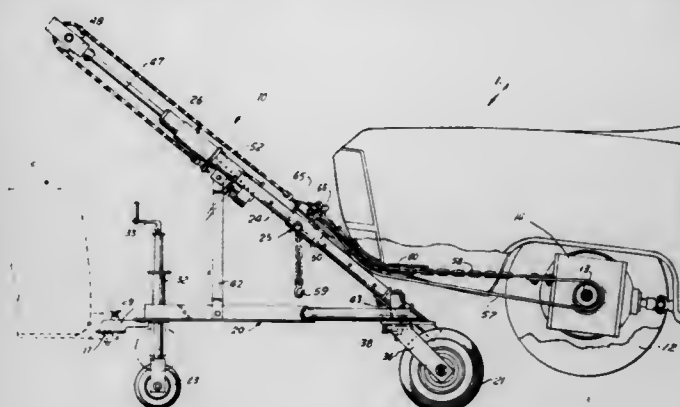
Russell R. Lambert, Sr., Trenton, Tex., assignor to Warren K. Boney, Dallas, Tex., a part interest

Filed Mar. 15, 1971, Ser. No. 124,104

Int. Cl. B60p 3/12

U.S. Cl. 214—86 A

13 Claims



For towing a disabled vehicle with another vehicle such as a pickup truck or passenger automobile, a towing device is in the form of a two wheel trailer coupled to the towing vehicle through a conventional ball and socket hitch with the trailer including a hydraulic jack for lifting one end of the disabled vehicle from the pavement. The trailer includes a forwardly inclined track, a carriage raised and lowered on the track by means of the hydraulic jack, and belt and chain coupling as-

semblies for securing one end of the disabled vehicle to the carriage. The trailer includes a third wheel which can be lowered to operative position for use of the trailer as a self contained jacking device in a service area.

3,827,587

AUTOMATIC SELF-LEVELING FORKS

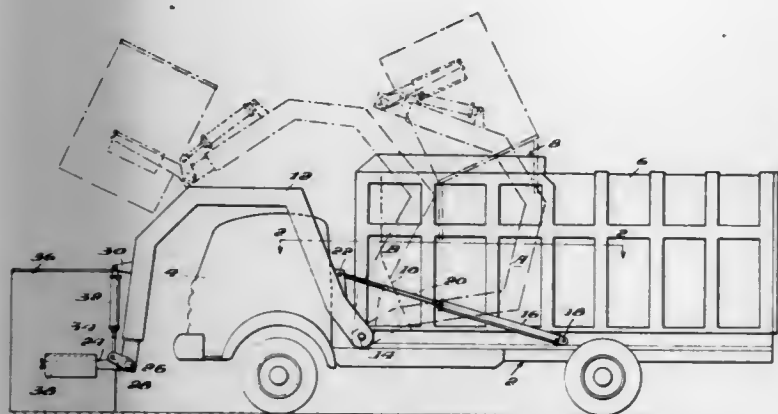
Harvey W. Liberman; Samuel E. Harvey, and Steven C. Voorhees, all of Knoxville, Tenn., assignors to Carrier Corporation, Syracuse, N.Y.

Filed July 31, 1969, Ser. No. 846,569

Int. Cl. B65f 3/02

U.S. Cl. 214—302

23 Claims



Apparatus for automatically leveling the forks of vertically moveable hoist arms. In a typical embodiment, the arms are used on refuse collection vehicles for lifting and dumping detachable containers into the body of the vehicle. The arms are pivotally mounted at one end on the vehicle and the opposite ends of the arms has fork devices for engaging brackets on opposite end walls of the detachable containers. Swinging movement of the arms and of the forks is accomplished by means of hydraulic cylinders or rams. A hydraulic pump supplies fluid under pressure to the arm cylinders for raising the arms. A portion of the fluid is conducted to the fork cylinder by means of a gear or vane type flow divider, so that the rate of extension of the piston in each fork cylinder is at a predetermined ratio of the displacement of the arm piston. This causes the forks to swing downwardly at a predetermined rate while the arms are being raised toward a dumping position, thereby maintaining the container approximately horizontal until it is in a position to be inverted for dumping.

3,827,588

FILM CARTRIDGE OPENER

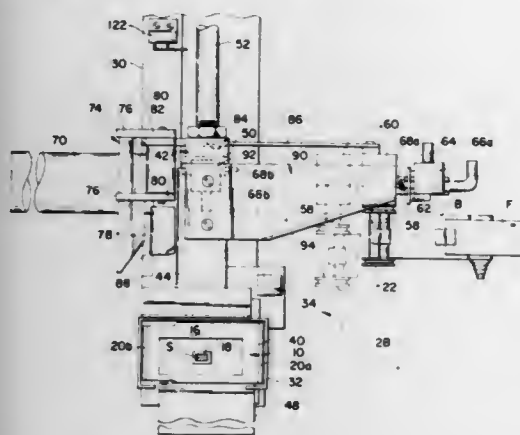
Oliver W. Gnage, and John J. Enfonde, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 16, 1973, Ser. No. 342,007

Int. Cl. B65g 65/04

U.S. Cl. 214—305

8 Claims



Apparatus for opening frangible film cartridges and capturing the spool of exposed film housed therein so that the film

can be readily removed from the spool. A frangible film cartridge is removed from a cartridge hopper and driven past a knife edge to slit the cartridge housing adjacent the film spool as the cartridge is being positioned such that the film spool contained therein is captured on a support post. The post is then actuated to pull the film spool from the slit cartridge and present the spool to a manual film stripping station while the cartridge housing is discarded. After the film is stripped from the spool, the support post is returned to its initial position for receiving a new film spool, the empty spool being automatically discarded.

3,827,589

CARRIER APPARATUS FOR MOTOR VEHICLES

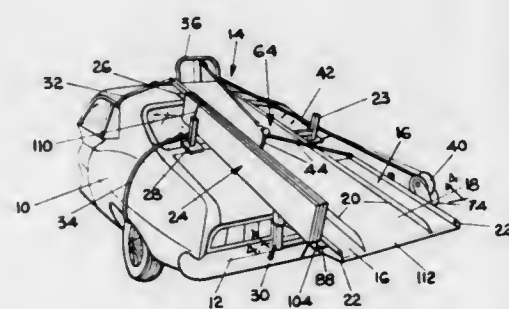
Warren R. Townsend, Jr., 1200 96th Ave., Zeeland, Mich. 49464

Filed Oct. 19, 1971, Ser. No. 190,482

Int. Cl. B60r 9/00

U.S. Cl. 214—450

9 Claims



A snowmobile carrier for automobiles, the carrier having a support deck including a central trackway and a pair of lateral trackways disposed on either side of the central trackway for receiving and supporting the runners of a snowmobile. The support deck is pivotally mounted at the lower end to the bumper of the auto. Central support means are secured to a central portion of the support deck and extend downwardly to rest between the rear window and trunk of the auto. The support deck is releasably secured through straps and the like at its upper end to the automobile to prevent shifting of the carrier on the auto. A special folding ramp is supported in folded position at the side of the support deck and engages the bottom portion of the support deck in unfolded position for loading and unloading of the snowmobile. The pivotable mounting means between the bottom of the support deck and the bumper includes an annular receiving ring secured to the bumper and a pair of unequal length pins engaging the rings for ease in loading of the carrier onto the auto. Further, the central support means for the carrier is adjustable vertically to adapt the carrier to cars of different shapes.

3,827,590

BAGGAGE LOADER

Carl L. Lodjic, Long Beach, Calif., assignor to Global Erectors, Inc., Long Beach, Calif.

Filed June 8, 1973, Ser. No. 368,194

Int. Cl. B64d 9/00

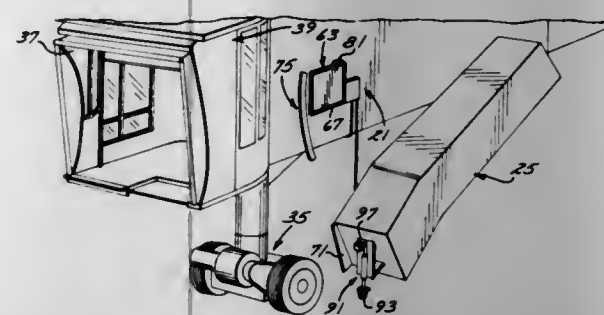
U.S. Cl. 214—505

11 Claims

Baggage loader apparatus mounted on the side of an elevated passenger walk-way, such as an airplane loading

ramp, for receiving baggage from an access doorway in such loading ramp and depositing at ground level. The baggage loader includes an elongated closed ended chute extending alongside the walk-way, one extremity thereof being formed with a baggage receiving compartment having a side opening facing the walk-way for registration with the access doorway. Mounting means pivotally mounts the extremity of the chute opposite the one extremity from the walk-way and raising

sure member which is slipped around that neck from above. A cover for the open top of the neck is integral with that member



means is provided for selectively raising and lowering the free end of such chute whereby the chute may be raised to register its side opening with the access doorway for receipt of luggage to be deposited in such chute. Thereafter, the free end of the chute may be lowered to ground level for access thereto by baggage men for removal of the baggage from the side opening and such baggage will slide downwardly toward such side opening as pieces thereof are removed from such chute.

3,827,591

TAMPER PROOF SECONDARY CLOSURE DEVICE

Dennis Gerald Spelman, Bromley Kent, England, and David Thomas Jones, Ystalyfera, Swansea, Wales, assignors to Viscose Development Company Limited, Croydon, England

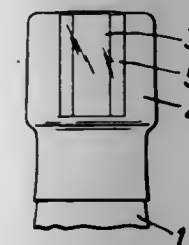
Filed Oct. 18, 1971, Ser. No. 189,914

Claims priority, application Great Britain, Oct. 19, 1970, 49493/70

Int. Cl. B65d 41/24

U.S. Cl. 215—38 A

25 Claims



A tamper-proof secondary closure device and a method of applying said device to the neck of a bottle. The method comprises the steps of applying a layer of sensitive material to the neck of the bottle and then shrinking a secondary closure thereover, the arrangement being such that the sensitive material is visibly affected by the process of applying a solvent or softening agent to the secondary closure and subsequently attempting to remove it from the neck of the bottle.

3,827,592

CHILDPROOF CONTAINER CLOSURE

Werner Deussen, Taunusstrasse 3-7, 6229 Walluf/Rheingau, Germany

Filed Sept. 25, 1972, Ser. No. 292,125

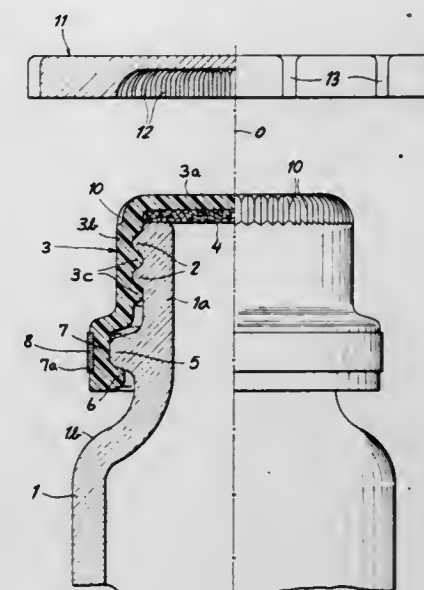
Claims priority, application Germany, Mar. 22, 1972, 2213887

Int. Cl. A61j 1/00

U.S. Cl. 215—9

13 Claims

The neck of a container, such as a medicine bottle, has a bead gripped from below by an annular lip of an elastic clo-



or threaded into same and can be removed only with the aid of a special key engaging the cover under slight downward pressure from above.

3,827,593

CONTAINER SAFETY CLOSURE

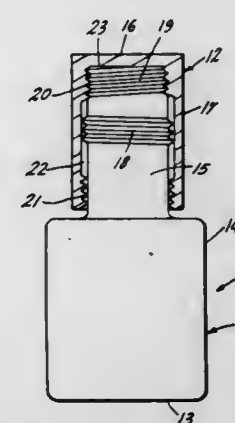
Kenneth D. Kramb, Portage, and Walter J. Isabell, Kalamazoo, both of Mich., assignors to K.I.C. Incorporated, Portage, Mich.

Filed Mar. 16, 1973, Ser. No. 342,274

Int. Cl. B65d 55/02

U.S. Cl. 215—9

10 Claims



In combination, a safety container and cap assembly, the container having an elongated neck with at least two sets of threads of opposite pitch with respect to each other, one arranged proximally and one arranged distally with respect to the container, the cap having at least two sets of threads of opposite pitch with respect to each other, one arranged proximally and one arranged distally with respect to the cap complementary to and engageable with the respective sets of threads of the container, the set of threads proximal to the container having a greater diameter than that of the set of threads distal to the container, thereby permitting the distal threads of the cap to clear the distal threads of said container, the sets of threads of the container and the cap being sufficiently spaced apart so that only one set of complementary threads are engageable at one time.

3,827,594

A TWIST-OFF CROWN CLOSURE WITH SEAL

Antoine Joseph Leenaards, Lausanne, Switzerland, assignor to Societe Du Bouchon Couronne (Crown Cork Company France), Essonne, France

Continuation of Ser. No. 39,270, May 21, 1970. This

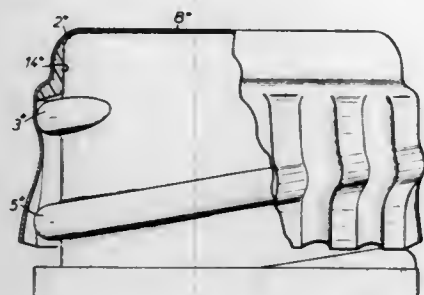
application Mar. 31, 1972, Ser. No. 240,305

Claims priority, application France, May 21, 1969, 69.16460; Sept. 11, 1969, 69.30888; Dec. 23, 1969, 69.44549

Int. Cl. B65d 23/00, 53/00

U.S. Cl. 215-324

32 Claims



A closure member for a container, particularly a bottle, has a top portion and a skirt portion connected by an inclined connecting zone whose height, measured in the direction of the axis of the closure member, is preferably equal to at least one twelfth of the diameter of the skirt portion. The extent of the inclined connecting zone permits sealing means to be accurately positioned within the closure member whereby the degree of sealing and the ease of removal of the closure can be controlled.

3,827,595
BEER KEG

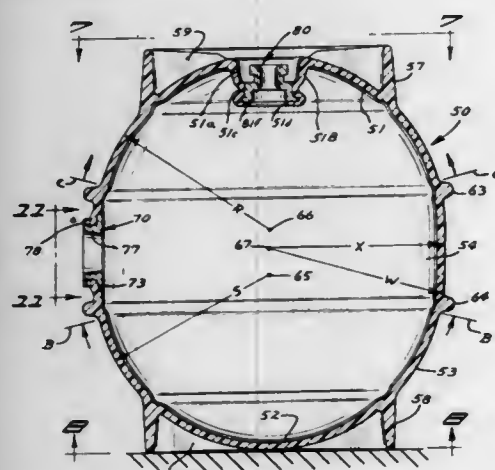
Richard W. Reynolds, Burnsville, Minn., assignor to Huck Finn, Inc., Spring Lake, Minn.

Continuation-in-part of Ser. No. 58,341, July 27, 1970, abandoned. This application Jan. 12, 1972, Ser. No. 217,306

Int. Cl. B65d 1/20

U.S. Cl. 220-1 R

6 Claims



A beer keg having the top, bottom and side walls made of plastic, and tapper and filler plug mounting members made of plastic or metal which in one embodiment are cast in position as the top and side walls are formed. In the second embodiment the filler plug is retained in the central part of the keg as the keg is molded and thereafter mounted in a filler opening formed in the barrel.

3,827,596

COOKWARE COVER RELEASE VALVE

Robert E. Powers, Jr., Columbia, S.C., assignor to Carolina China, Inc., Columbia, S.C.

Filed Apr. 28, 1972, Ser. No. 248,540

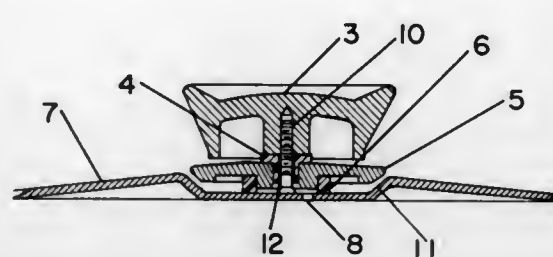
Int. Cl. B65d 51/16; F16k 31/44

U.S. Cl. 220-44 R

10 Claims

A cookware cover release valve is provided in a cover for a cookware utensil. The cover has a centered recessed well and

an air inlet opening therein with a gasket encompassing the opening. A plate element with an opening in its center rests on top of the gasket. A bushing in turn is mounted on the plate. The gasket, the plate and the bushing are all centered about a



screw in the well. An air gap exists between the bushing and screw. A turnable knob is mated to the screw above the bushing to open and close the air gap to help regulate the pressure therein.

3,827,597

BLADE DISPENSER

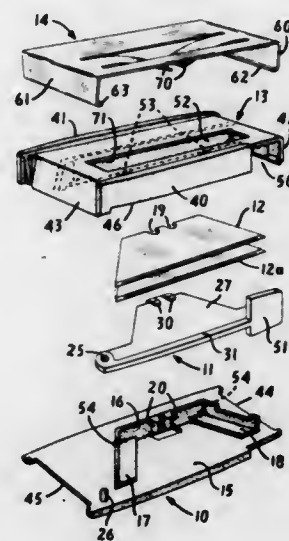
Paul A. Braginetz, Staunton, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Filed Mar. 5, 1973, Ser. No. 338,206

Int. Cl. B65h 1/08

U.S. Cl. 221-232

7 Claims



A combined container and dispenser for bare blades comprising a base member, a cover member, a blade ejector movable into and outwardly from the cover member, and a plate of elastic sheet metal engaged over the cover and interlocked under the base member holding the parts in assembled relation, the plate having spring pressure fingers integral therewith projecting through an opening in the cover member applying a spring pressure to the top of the contained stack of blades.

3,827,598

DISPENSERS FOR DISPENSING BOWED OPEN SPRING RETAINING RINGS PROVIDED WITH LOCKING PRONGS

Hans Erdmann, Maplewood, N.J., assignor to Waldes Kohlnoor, Inc., Long Island City, N.Y.

Filed Sept. 21, 1973, Ser. No. 399,490

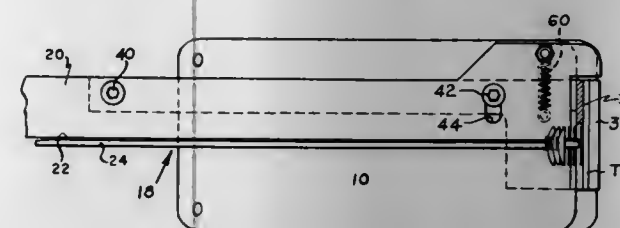
Int. Cl. B65g 59/06

U.S. Cl. 221-312

8 Claims

A dispenser of the swinging magazine-rail type according to U.S. Pat. No. 2,900,107, for dispensing bowed "open" spring-metal retaining rings having locking prongs projecting from the convex side or face thereof, as are known in the art and sold under the registered trademark "Prong-lock," and which is characterized by its ability to accept for dispensing a supply of such rings arranged in stack or column formation but

disposed in relatively turned-over or upside-down relation, as results in their convex sides facing and their locking prongs



pointing in the direction of ring-column feed. Such disposition of the locking prongs, because of the unique shaping and edge configuration thereof, is favorable to an applicator or assembly tool by which the dispenser is "operated" (which tool may take the form either of a hand-push applicator tool according to U.S. Pat. No. 2,835,028 or of a plier-type ring gripping and assembly tool according to that disclosed and claimed in applicant's co-pending U.S. Pat. application Ser. No. 292,100, filed Sept. 25, 1972), upon gripping the endmost ring of the ring column then in the "dispense ready" position, also applying a lateral push force on the one or two of the rings of the column next above the so-gripped endmost ring, which force is transmitted by said one or two of the so-pushed rings to the magazine rail, thereby imparting limited swinging motion to said rail which is utilized in separating and freeing said endmost ring from the rings of the column above same for relatively easy withdrawal from said dispenser.

3,827,599

PLURAL CONTAINER PRESSURE DIFFERENTIAL SYSTEM

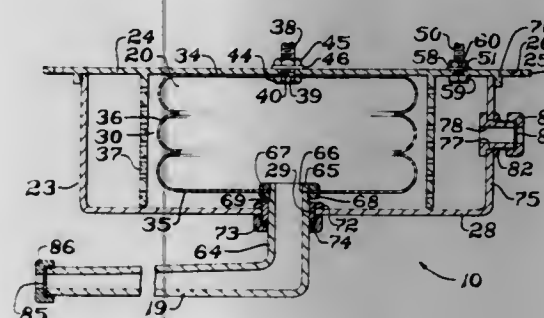
Vijay Rastogi, Troy, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed June 21, 1972, Ser. No. 264,841

Int. Cl. B65d 5/54

U.S. Cl. 222-52

11 Claims



A fluid pressure actuated system in which an inner contractile container is disposed within an outer container and has a spout extending outside the outer container with a pressure actuated closure in the spout for permitting the ejection of fluid from the inner container when the pressure differential between the inner and outer containers reaches a predetermined amount and the inner container is contracted. A valve in the wall of the outer container releases pressure from the outer container when the pressure inside the outer container exceeds the pressure outside by a predetermined amount which could occur when a space shuttle type vehicle leaves the earth's atmosphere and enters the vacuum of outer space. The system is thereafter triggered to react to an increase in outside pressure which occurs when the space shuttle type vehicle re-enters the atmosphere.

3,827,600

APPARATUS FOR DISPENSING A LIQUID AND ANOTHER MATERIAL

Donald E. Janke, Benton Harbor, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

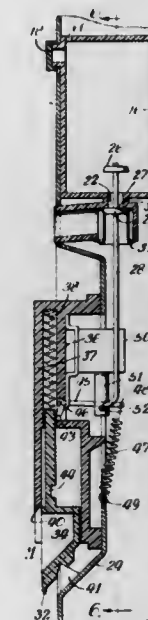
Continuation of Ser. No. 216,652, Jan. 10, 1972, abandoned.

This application June 20, 1973, Ser. No. 372,465

Int. Cl. B08b 13/00

U.S. Cl. 222-70

8 Claims



An apparatus for dispensing liquid and another material, such as a particulate detergent material, at different times in an operating cycle of an apparatus such as a dishwasher. The liquid may comprise a rinse aid dispensed by the apparatus subsequent to a washing cycle, such as during the last rinse cycle of the dishwasher operation. A single solenoid operator is associated with each of the dispensing means for coordinated operation thereof. The control measures a preselected quantity of the liquid for delivery thereof from a storage tank in the apparatus.

3,827,601

HAND POWERED LIQUID DISPENSER OF THE METERING TYPE

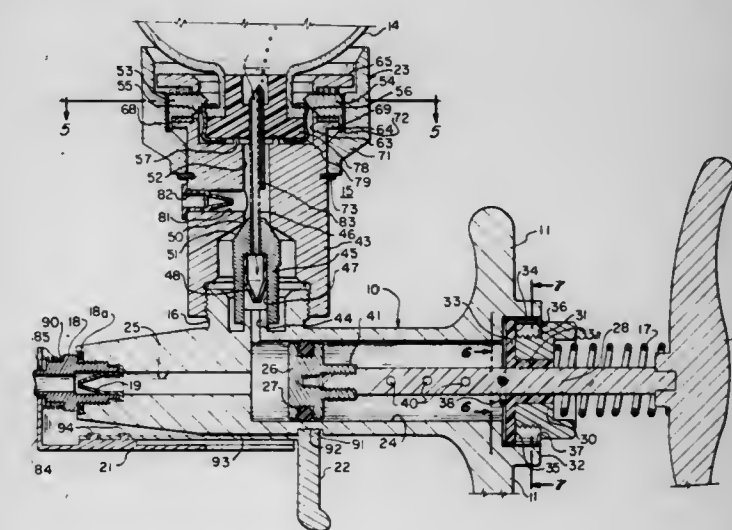
Joseph M. Magrath, P.O. Box 148, McCook, Nebr. 69001, and Leonard L. Hierath, Denver, Colo., assignors to Said Magrath, by said Hierath

Filed Mar. 23, 1973, Ser. No. 344,415

Int. Cl. B67b 7/24

U.S. Cl. 222-83

14 Claims



A hand powered liquid syringe or metering dispenser particularly for use in the veterinary medicine field comprises a pump mounted in a body having a transverse handle on grip.

Standard bottles or other containers for vaccines or medicines may be mounted on a fitting secured to the body to supply the pump through a piercing tube or needle secured in the fitting. Air is supplied through the fitting to replace liquid removed from the bottle and the needle and air inlet are positioned in a manner to prevent air from being discharged from the bottle with the liquid. The pump is actuated by a squeezing action on a plunger when a handle is pressed toward the pistol grip. Check valves are provided in the inlet and outlet passages of the pump. Cannulas or other liquid discharge elements may be removed from the dispenser without requiring handling by the operator; this is accomplished by a trigger mechanism actuated by the operator's hand while he is holding the pistol grip.

3,827,602

DUAL TUBULAR DISPENSING DEVICE

Augustus H. Nicholls, 1170 Longfellow Dr., Manhattan Beach, Calif. 90266

Continuation of Ser. No. 84,059, Oct. 26, 1970, abandoned.

This application Jan. 22, 1973, Ser. No. 325,854

Int. Cl. B67d 5/52

U.S. Cl. 222-137

5 Claims



A dispensing device including a duality of barrels attached together, each receiving a piston, the pistons being attached together exteriorly of the barrels for simultaneous and equal movement in ejecting material from nozzles at the ends of the barrels, each piston having a sealing means which may be a wedge-shaped forwardly projecting annular lip, the barrels including spaced grooves or ridges in their circumferential walls to interrupt the seals and allow air to bleed out when the barrels are filled. One piston may be provided with a stop to prevent reverse movement. An insert may be included in one of the barrels to fit through an opening in the piston and reduce the volume in the barrel to change the ratio of materials dispensed from the two barrels.

3,827,603

THERMOPLASTIC APPLICATOR SYSTEM IN WHICH THE PUMP BACK-PRESSURE CONTROLS THE DISPENSING OUTLET

Alan B. Reighard, Bay Village; Samuel R. Rosen, Lorain; Ronald R. Schroeder, Amherst, and Simon Z. Tamny, Lorain, all of Ohio, assignors to Nordson Corporation, Amherst, Ohio

Filed June 1, 1972, Ser. No. 258,891

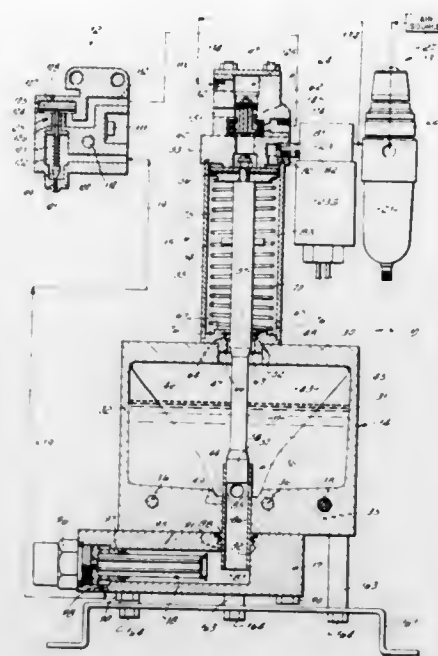
Int. Cl. B67d 5/60

U.S. Cl. 222-146 HE

30 Claims

An applicator system for melting thermoplastic material and supplying the molten or liquid material under pressure and at a controlled temperature to an applicator head or gun.

The material is heated in a reservoir from which it is pumped to the applicator gun by a single-acting, sleeve-type piston pump. The pump is driven by a single-acting reciprocating air motor. There is an interlock valve associated with the air



motor for controlling opening and closing of a valve of the gun. This interlock valve insures that the gun valve is never opened and molten material is never dispersed from the gun except when the molten material pressure is at a predetermined operating level.

3,827,604

MODULAR SOLENOID-OPERATED DISPENSER

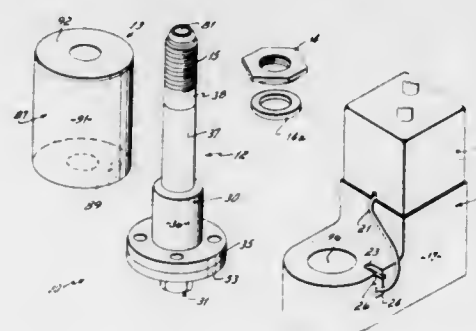
William M. Hamilton, Lorain; Alan B. Reighard, Bay Village, and Simon Z. Tamny, Lorain, all of Ohio, assignors to Nordson Corporation, Amherst, Ohio

Filed Sept. 11, 1972, Ser. No. 287,645

Int. Cl. B67d 5/62

U.S. Cl. 222-146 HE

13 Claims



A solenoid-operated dispenser for dispensing liquid materials. The dispenser comprises a heated service module which contains static parts, a gun module which contains all of the movable parts of the dispenser, and a plug-in solenoid coil module, all three modules of which are resiliently held in an assembled relationship by a single threaded nut.

3,827,605

LOCKING MEANS FOR LIQUID DISPENSERS

Michael Gene Knickerbocker, Long Beach, Calif., assignor to Diamond International Corporation, New York, N.Y.

Filed May 7, 1973, Ser. No. 357,542

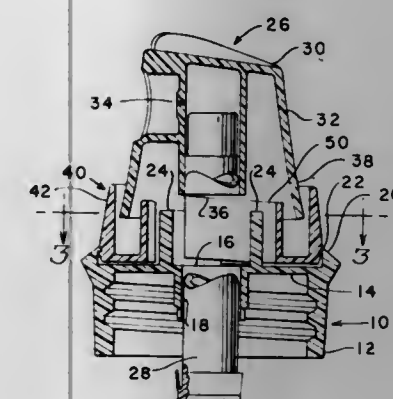
Int. Cl. B67d 5/32

U.S. Cl. 222-153

13 Claims

The dispenser such as a liquid dispensing pump has its pump plunger guided for axial operative movement through a container closure member and through a locking member

mounted on the closure member for rotary movement about a fixed axis coincident with the axis of the plunger tube. A locking tongue affixed to the locking member has a free end projecting transversely to and adjacent the axis of movement of the plunger and radially deflectible with respect to the axis for movement into and from locking position in the path of



operative movement of a stop shoulder carried by the plunger so as selectively either to immobilize the plunger or to permit unimpeded operation thereof, while cam means fixed to the closure cap governs the radial position of the free end of the locking tongue in accordance with the rotational position of the locking member.

3,827,606

PUMP IMMOBILIZING MEANS

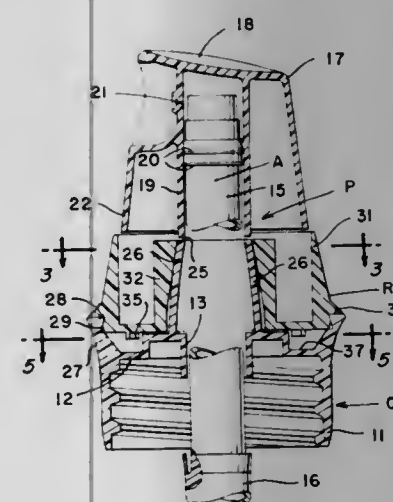
Michael Gene Knickerbocker, Long Beach, Calif., assignor to Diamond International Corporation, New York, N.Y.

Filed June 27, 1973, Ser. No. 374,102

Int. Cl. B67d 5/40

U.S. Cl. 222-384

8 Claims



A liquid dispensing pump has its pump plunger guided for axial operative movement through a container closure cap and through a rotary control member mounted on the closure cap for angular control movement about a fixed axis coincident with the longitudinal axis of the plunger. A locking finger projecting upwardly from the closure cap has a radially deflectible free end portion which is normally displaced from the path of reciprocation of a downwardly directed locking shoulder carried by the plunger, but is resiliently deflectible into such path for axial locking abutment with such shoulder to immobilize the plunger. Cam means carried by the control member is operative in a first position of the member to deflect the free end of the finger into locking relation with the said plunger and is operative in a second rotary position of the control member to permit retraction of the free end of the finger to a normal unstressed position displaced from the path of reciprocation of the locking shoulder.

3,827,607

PRESSURE OPERATED CONTAINER FOR DISPENSING VISCOUS PRODUCTS

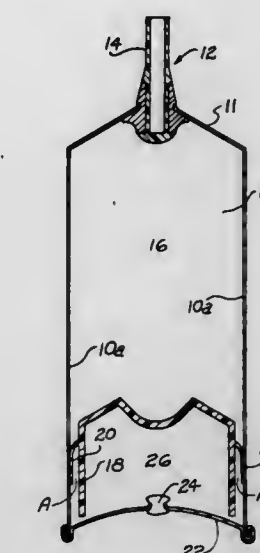
Robert S. Schultz, Old Greenwich, Conn., assignor to Eyelet Speciality Company, Wallingford, Conn.

Continuation-in-part of Ser. No. 290,977, Aug. 26, 1971, abandoned. This application Sept. 21, 1972, Ser. No. 290,977

Int. Cl. B65d 83/14

U.S. Cl. 222-389

30 Claims



The invention contemplates a pressurized container for viscous foods or other viscous products in which the body of the piston has a substantially smaller diameter than the diameter of the container. The outer periphery of the piston is provided with a resilient flange member that maintains a light sealing pressure on the interior surfaces of the container, allowing the piston to move smoothly upwardly within the container. Also, the dispensing valve and adjacent container contours are such as to achieve economies in piston construction and to provide precision control of valve action.

3,827,608

MOUNTING COVER FOR PRESSURIZED FLUID CANISTER

Edward H. Green, 11 Army Trail Rd., Addison, Ill. 60101

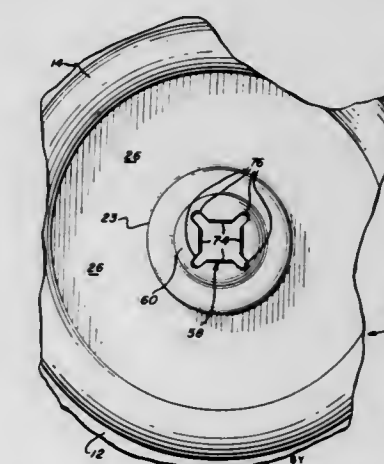
Continuation of Ser. No. 54,872, July 15, 1970, abandoned.

This application Jan. 12, 1973, Ser. No. 322,920

Int. Cl. B65d 83/14

U.S. Cl. 222-402.16

15 Claims



A structure for enabling gassing of an aerosol package while its sprayhead is in operative association with the package. The package comprises a canister having a valve assembly and sprayhead combination, the assembly being of the type in which the sprayhead has an integral stem that enters an opening in the cover member of the valve assembly or being of the type known as a stem valve in which there is a permanently connected stem which protrudes through the opening of the

cover member. In the latter type, the sprayhead is a button which fits onto the protruding end of the stem. In both cases, the valve is operated by pressing the sprayhead down, which carries the stem inwardly of the cover member and raises a valve seat off a gasket that is crimped into the cover member, beneath the crown of a boss formed in the cover member. The means which enables the gassing with the sprayhead in place comprises making the opening in the crown of the boss formed in the cover member noncircular, but having a plurality of points around the periphery of the opening which supports the stem in its sliding movement, the opening having lateral lobes which are normally blocked by the gasket to enable normal operation of the valve, but which enable propellant to be forced into the valve from the outside thereof while the stem is in place. This action of the entering gas under pressure invaginates the valve, and since the seat is at the same time lifted off the gasket, the gas can and does enter into the body of the canister.

3,827,609

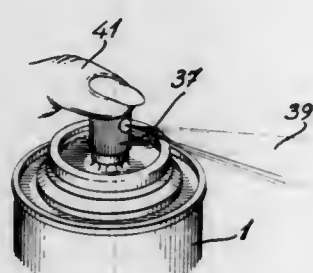
VALVE FOR LIQUID SPRAYER

Amabili Arnaldo, 2101 Champlain, Suite 416, Montreal 133, Province de Quebec, Canada

Filed June 18, 1973, Ser. No. 371,113

Int. Cl. B65d 83/14

U.S. Cl. 222—402.24



12 Claims returned through a pressure release valve to be recycled. Once a particular pressure in the upper chamber is obtained, air is forced into the upper chamber to evacuate the standpipe and lower chamber through the three-way valve and an outlet to thereby meter a precise quantity of liquid.

3,827,611

FOLDER WITH PAPER INSERTING MEANS

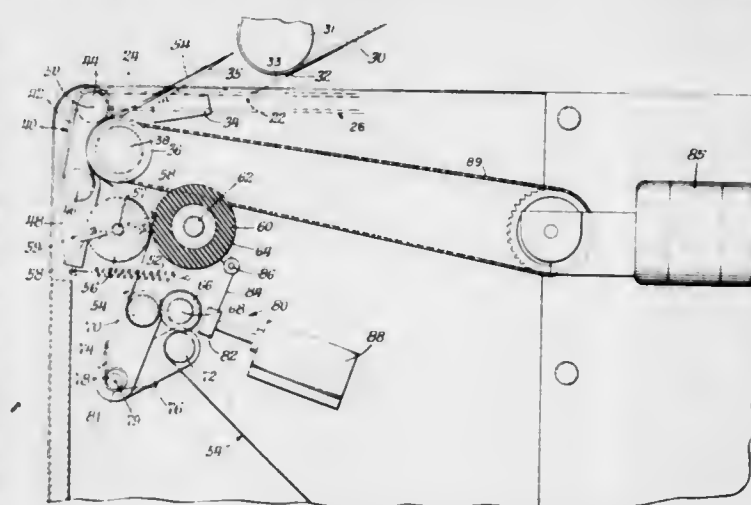
Frederick W. Grantham, Santa Monica, and Gordon L. Fleming, Malibu, both of Calif., assignors to Frederick W. Grantham, Santa Monica, Calif.

Filed Nov. 30, 1972, Ser. No. 310,840

Int. Cl. A41h 33/00

U.S. Cl. 223—37

12 Claims



A folder for folding articles of clothing, e.g., shirts, shorts, etc. with means for inserting a paper element or card in each article; the device includes means for introducing the paper or card at the entrance of the folder, with the article as it is introduced, and folding the article around the paper.

3,827,612

ADJUSTABLE FIT PACK FRAME

Mitchell F. Mead, 4898 Mt. Helix Dr., and Ralph A. Drollinger, 9722 Primrose, both of LaMesa, Calif. 92041

Filed Sept. 25, 1972, Ser. No. 292,151

Int. Cl. A45f 3/10

U.S. Cl. 224—25 A

7 Claims

A pack frame that is adjustable in length to position the shoulder bar, upper back band, and side arms of the device in

3,827,610
VOLUMETRIC FILLING DEVICE

Harold A. Stiefel, Jr., Rt. No. 1, Box 202 Q, Cleveland, Tex. 77327

Filed Aug. 9, 1972, Ser. No. 278,988

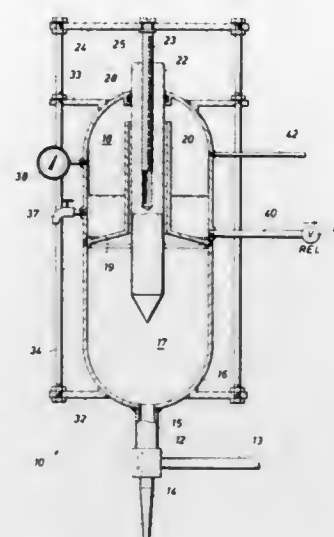
Int. Cl. G01f 11/44

U.S. Cl. 222—440

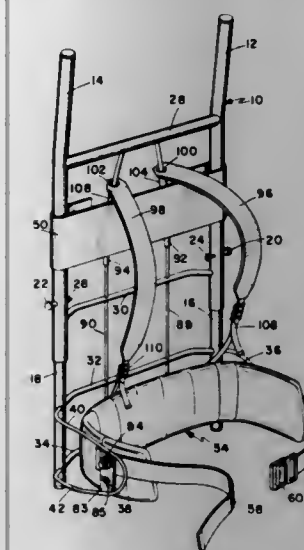
9 Claims

A volumetric filling device which utilizes a pair of connected chambers is selectively filled through a three-way valve with a product. The volume of the lower chamber is adjusted by vertically manipulating a displacement plug in a standpipe extending into the upper chamber. The standpipe extends into the second or upper chamber so that an overflow from the standpipe falls into the bottom portion of the upper chamber.

The chamber is pressurized upon the introduction of a product with pressure in the chamber being regulated. If excessive product is introduced, it flows from the bottom chamber through the standpipe into the upper chamber and is



the appropriate spaced relationship to fit a particular user. The length adjustment includes telescoping tubes for the main side rails and the central structural rods of the device. Adjustment is also provided for the space between the side arms and



3,827,613

GOLF BAG BICYCLE RACK

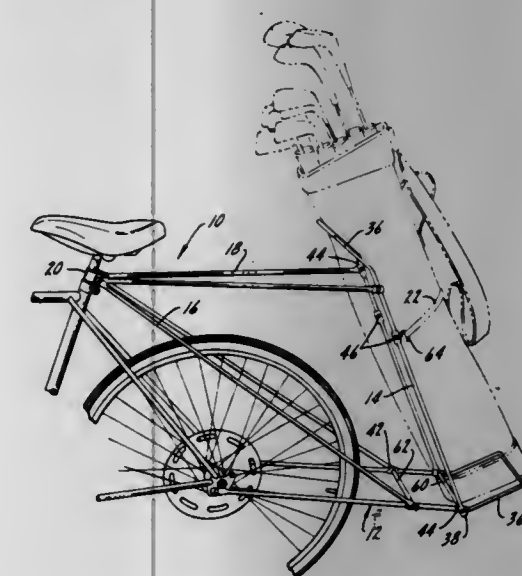
Marvin C. Meyer, 450 Norman Ct., Des Plaines, Ill. 60016

Filed Nov. 9, 1972, Ser. No. 305,117

Int. Cl. B62j 11/00

U.S. Cl. 224—40

8 Claims



A bicycle rack for carrying and supporting a golf bag containing clubs that is easily attachable and detachable while also being simply constructed.

3,827,614

PACKAGING CARRIER

Robert O. Baxter, Camden, Ark.; Carl A. Byars, Kansas City, Mo.; Richard J. Nadaskay, Freehold, N.J., and Lamar R. Roark, Camden, Ark., assignors to International Paper Company, New York, N.Y.

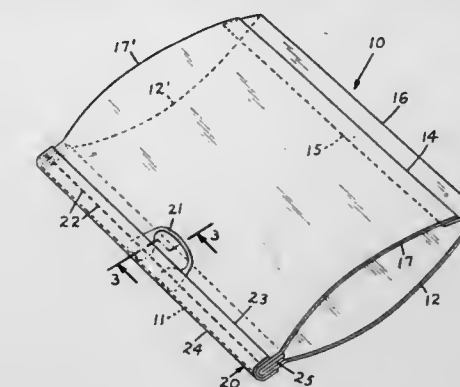
Filed Mar. 10, 1972, Ser. No. 233,429

Int. Cl. A45c 3/00

U.S. Cl. 224—45 H

6 Claims

Disclosed herein is a single wall, tubular packaging carrier constructed of a flexible material such as paper. The tubular



dinal edge and affixed thereto by sewing. At least three plies of flexible material are associated with the aforesaid longitudinal edge.

3,827,615

KNITTING MACHINE SELECTOR JACK BUTT REMOVAL APPARATUS

Falk Kuhn, and Friedrich Rombach, both of Rottenburg, Germany, assignors to Fouquet-Werke Frauz & Planck, Rottenburg am Neckar, Germany

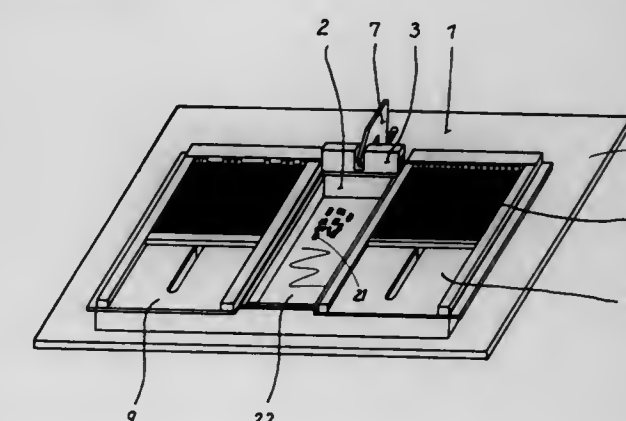
Filed July 24, 1973, Ser. No. 382,119

Claims priority, application Germany, July 29, 1972, 2237392

Int. Cl. B26f 3/00; G06k 1/00

U.S. Cl. 225—103

9 Claims



To selectively remove selector butts on selector jacks and provide a program on the jacks, in accordance with a pattern, a pattern reading means provides control signals which are decoded, synchronized with mechanical transport of the jacks in front of a hammer. The hammer is mechanically moved to a cocked position at which it can strike a butt, striking movement of the hammer being permitted, or inhibited, in accordance with the read information from the pattern, by means of an electrically operated latch, and, when movement is permitted, opening of the latch to thereafter permit striking movement of the hammer by previously stored force, for example a spring, to effect striking of selected butts in accordance with the pattern.

3,827,616

WEB FEEDING APPARATUS

Cyril John Atkinson, Royston, England, assignor to International Computers, Limited, London, England

Filed Mar. 12, 1973, Ser. No. 340,248

Claims priority, application Great Britain, Mar. 14, 1972, 11804/72

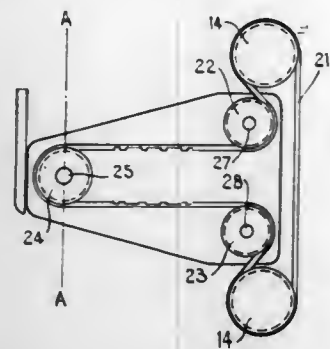
Int. Cl. G03b 1/30

U.S. Cl. 226—74

2 Claims

Web feeding apparatus comprising two pairs of web drive tractors, each pair drivable from a different one of two shafts,

and an endless flexible belt by which the shafts are driven, the belt having a generally T-shape to engage the shafts at ends of the T-head and a drive wheel in the base of the T with a pair of idlers on either side of the T-stem and head junctions, in which



the pair of idlers are moveable together in a curve transversely of the T-stem in the plane of the T. Such arcuate movement of the idlers with the drive wheel locked causes rephasing of the drive shafts and thus of the driven web.

3,827,617

HELICAL WEB PATH PROCESSING DEVICE UTILIZING FORCE COUNTER-ACTING SPOOLS

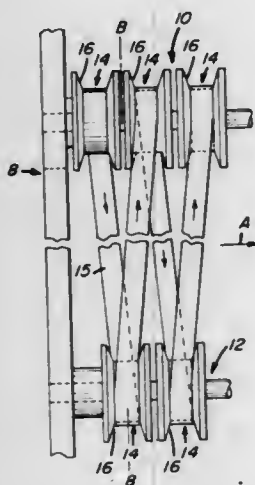
Robert I. Anderson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 16, 1973, Ser. No. 351,205

Int. Cl. B65h 17/42

U.S. Cl. 226—118

6 Claims



A helical web or film path processing device utilizing force counteracting spools for generating a force on the film to counteract the normal tracking force on the film generated by the film approaching a spool non-perpendicular to the spool axis. The tracking force tends to cause the film to climb the spool flanges, twist, fold over and in some situations to be damaged. The force counteracting spool has a tapered or frustum-shaped hub in which the hub end of smallest diameter is adjacent the trailing flange of the spool in the lateral direction of film movement.

3,827,618

RATCHET ARRANGEMENT FOR AN EXPLOSION DRIVEN SETTING GUN

Helmut Oesterle, Nofels; Fritz Mark, Mader, and Peter Jochum, Meiningen, all of Austria, assignors to Hilti Aktiengesellschaft, Furstentum, Liechtenstein

Filed June 4, 1973, Ser. No. 366,579

Claims priority, application Germany, June 7, 1972, 2227774

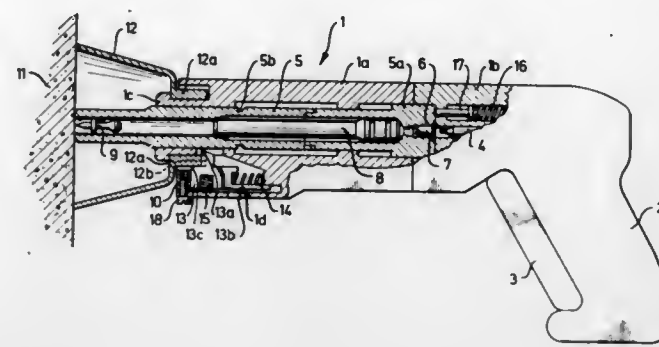
Int. Cl. B25c 1/14

U.S. Cl. 227—8

7 Claims

In an explosion driven setting gun using a detachable protective cap on the forward end of the gun housing, the cap is

secured against rotation by a radially displaceable ratchet mounted in the housing. The ratchet is also axially displaceable so that it can be removed from locking engagement with the trailing end of the protective cap. Two springs act on the ratchet, one biasing it radially inwardly and the other biasing it



axially into engagement with the protective cap. For releasing the ratchet from engagement with the protective cap, the gun housing has an opening aligned opposite the ratchet so that a member can be inserted through the opening into a notch in the ratchet for displacing it axially against the axial spring biasing action.

3,827,619

ULTRASONIC BOND MONITOR

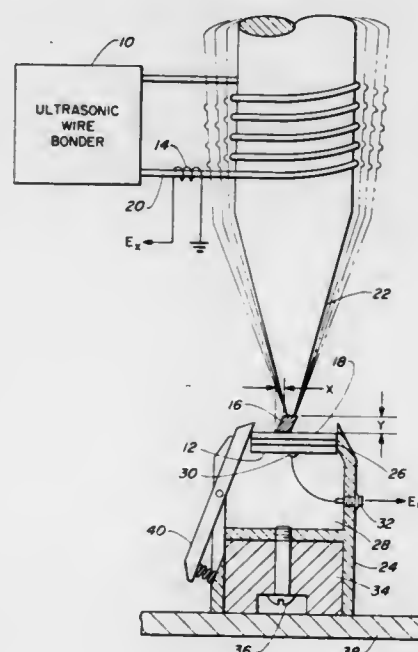
John H. Cusick, Santa Rosa; Alvin E. Brown, Redwood; Al S. Hamamoto, San Jose, and Jack L. S. Bellin, Palo Alto, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 19, 1973, Ser. No. 325,272

Int. Cl. B23k 5/20

U.S. Cl. 228—1

8 Claims



A system and method for monitoring the bond strength of ultrasonic bonds. A measure of bond quality is obtained non-destructively, by developing a voltage which is proportional to the amplitude of the traverse motion of the ultrasonic bonding tool, and also developing, by means of a transducer, a second voltage proportional to the tangential component of the forces applied during bonding. The voltages are fed into a logic circuit to derive their ratio, which is a measure of the bonding quality.

3,827,620

NON-REUSABLE NESTABLE CUP OR CONTAINER

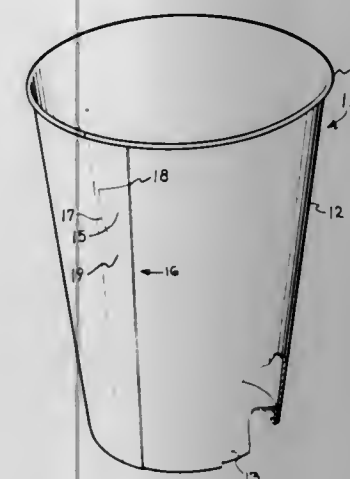
Rodney E. Ludder, 19 Hamilton Sq., Glen Head, N.Y. 11545

Filed Nov. 17, 1972, Ser. No. 307,452

Int. Cl. B65d 3/06, 3/28

U.S. Cl. 229—1.5 B

4 Claims



A nestable two-piece cup or container the sidewall portion of which is formed from a double-ended, crescent-shaped blank of paperboard or other sheet-like material by rolling it into a frusto-conical configuration with the edges of the blank overlapping one another in face to face contact and being glued to one another to form a side seam of double thickness, one of the edges of the blank being scored or perforated or otherwise deformed to form a tab which is manually removable from, or foldable out of, face to face contact with the other edge of the blank by the user of the cup to give a visible indication that the cup has been used and to thereby discourage the vendor from attempting to refill a previously used cup. The first user of the cup may be motivated to so deform the cup by placing a number, symbol or other graphic message on the underside of the tab or on the sidewall of the blank in the region normally covered by the tab, of a portion of such cups, and by advising the users of such cups that prizes will be awarded to those whose cups bear such graphic message.

3,827,621

DOUBLE WALL TRAY

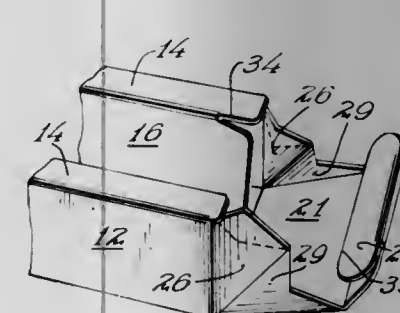
Robert A. Bliss, St. Paul, Minn., assignor to Hoerner Waldorf Corporation, St. Paul, Minn.

Filed Nov. 24, 1972, Ser. No. 309,435

Int. Cl. B65d 5/22

U.S. Cl. 229—34 HW

5 Claims



A double walled tray includes parallel double sidewalls including outer sidewalls and spaced inner liner walls connected by top flanges. End walls are connected to the outer sidewalls by pairs of gusset flaps. A top flap and a reversely turned locking flap hold the gusset flaps against the end walls.

3,827,622

EASY PACKING DEEP CONTAINER

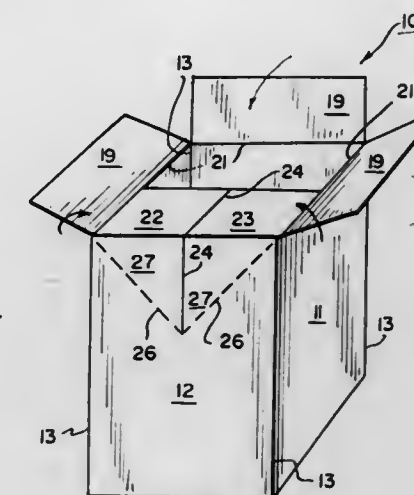
Robert D. McCloud, Burlington, N.C., assignor to Container Corporation of America, Chicago, Ill.

Filed Aug. 23, 1971, Ser. No. 173,795

Int. Cl. B65d 5/16

U.S. Cl. 229—37 R

3 Claims



An easy packing deep container is made from a cut and scored blank of paperboard or the like and comprises opposed pairs of main panels connected along lines of fold to define a tube, together with closure flaps extending from one end of the main panel and foldable to position to define an end closure for the tube. Second closure flaps extending from the opposite edges of the main panel are foldably connected thereto, one of the second closure panels being slit midway thereof perpendicular to the line of fold with its adjacent main panel to define a pair of minor closure flaps. The slit extends into the same main panel for a predetermined distance, and a score line extends from each side of the slit in such main panel to a corner of the panel to define a pair of triangular shaped subpanels, which together with the minor closure flaps are foldable to position to provide easy loading of the tube from the open side thereof. The triangular shaped subpanels are foldable back into the plane of such panel to complete the loading of the tube, and the minor flaps are thereafter foldable into overlapping and secured relationship with the second closure flaps after completing of the loading of the tube.

3,827,623

COLLAPSIBLE CONTAINER

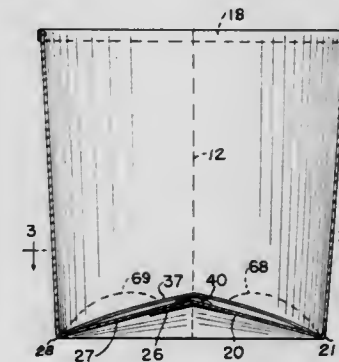
Edwin L. Arneson, Hillsdale, N.J., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Filed Apr. 10, 1972, Ser. No. 242,623

Int. Cl. B65d 5/10, 3/04

U.S. Cl. 229—39 R

10 Claims



A collapsible container formed from a cut and scored blank of paperboard or similar foldable sheet material which, when set up, provides a tubular body having an open top with a circular cross section and a bottom wall structure which comprises panels integrally hinged along straight lines to the bot-

tom edge of the tubular body, which panels are connected in pairs and are automatically foldable inwardly between the body side wall forming panels when the latter are collapsed and which, when the container is opened up, have interlocking portions adapted to hold the bottom wall panels in an upwardly directed cone-shaped formation, thereby providing a support for the container contents which has a degree of resiliency.

3,827,624

CARTON CLOSURE DEVICE

Amilcare Dogliotti, Neive, Italy, assignor to P. Ferrero C. S.p.A., Alba (Cuneo), Italy

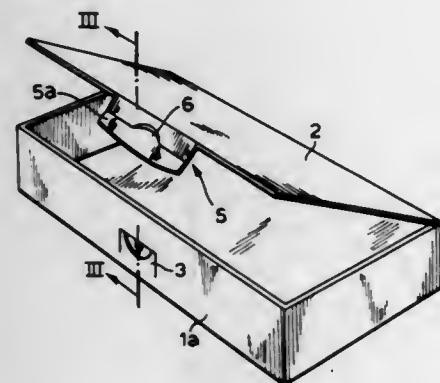
Filed July 12, 1972, Ser. No. 271,105

Claims priority, application Italy, Sept. 24, 1971, 53562/71

Int. Cl. B65d 5/66

U.S. Cl. 229-45

1 Claim



The invention relates to a closure arrangement for cartons having hinged lids, such as cartons for confectionary and the like. The closure arrangement comprises a flap on the edge of the lid parallel to the hinge. The flap is scored to form a hinge along a line parallel to the attachment edge of the lid and incised to form a tongue which projects towards the lid from that part of the flap on the side of the scored hinge remote from the lid. The body of the carton is formed with an incision in an inverted U-shape which forms a tongue the end of which has a substantially semi-circular recess. The tongue on the flap of the lid can thus be readily engaged through the recess at the end of the tongue on the carton to form a cooperating engagement to hold the lid in the closed position. The tongue on the carton base flexes to hold the tongue on the lid in position.

3,827,625

RECLOSABLE PACKAGE AND CONTROLLED RELEASE PAPER FOR USE THEREIN

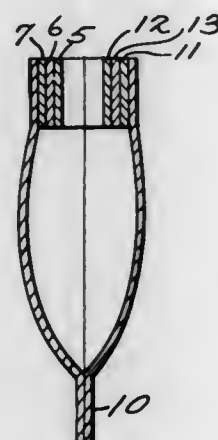
Harmon B. Miller, Atlanta, Ga., assignor to Reclosable Package Corp., Atlanta, Ga.

Filed June 21, 1972, Ser. No. 264,878

Int. Cl. B65d 33/16

U.S. Cl. 229-62

12 Claims



An improved reclosable package having a closure in which a pressure sensitive adhesive is adhered to a release sheet. The

adhesion is improved by using a release sheet partly coated with a release coating in areas interspersed with uncoated areas, the uncoated areas adhering more strongly to the pressure sensitive adhesive than the coated areas.

3,827,626

RURAL MAILBOX

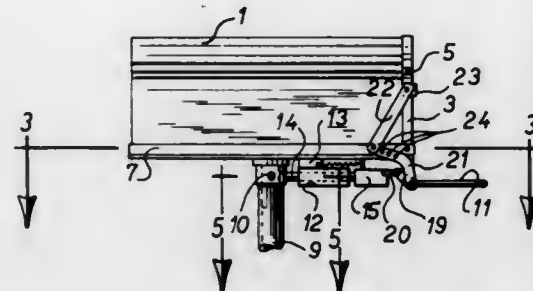
Henri Daigle, County of l'Islet, Saint Pamphile, Quebec, Canada

Filed Aug. 14, 1972, Ser. No. 280,498

Int. Cl. B65d 91/00

U.S. Cl. 232-17

5 Claims



A mailbox arranged to be made conspicuous of the presence or absence of mail therein, and provided with a pivoting and blocking mechanism and with a door-actuating mechanism, both arranged into an integrated actuating assembly operated by a single handle. The latter extends horizontally to be easily accessible and operable by a mailman through an open side window of the vehicle used for mail delivery. A plunger is arranged to block the mailbox into either of at least two angular positions arranged 90° apart around an upright pivot axis and linkages connect the handle to the plunger and to the door to simultaneously actuate the same.

3,827,627

SIGNALLING DEVICE FOR RURAL MAILBOX

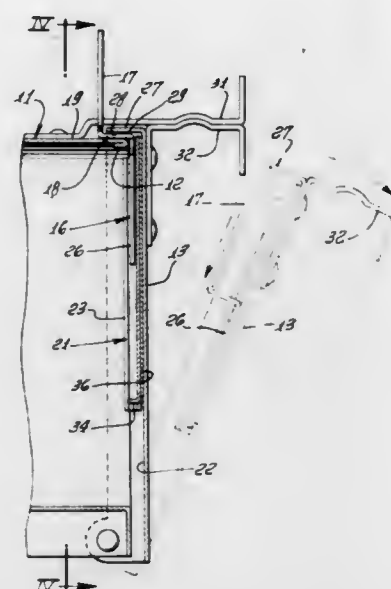
John H. Clement, 340 Wanao Rd., Kailua, Hawaii 96734

Filed Aug. 21, 1972, Ser. No. 282,424

Int. Cl. A47g 29/12

U.S. Cl. 232-35

2 Claims



A signaling device is disclosed for attachment to a mailbox of the type having an access opening and closure or door therefor movable from a vertical closed position to a generally

horizontal open position, in which the device includes a signal member adapted to be supported in an exposed exterior position relative to the box with the mailbox closure in its closed position. Another part of the device is adapted for attachment to the inside surface of the box closure and is coupled to the signal member such that when the closure is opened the signal member is released from its supported position so as to fall downwardly by gravity adjacent the access opening of the box. Upon subsequent closing of the mailbox door, the signal member is carried into the mailbox where it remains hidden from view until repositioned in its supported exposed orientation exteriorly of the box. In this manner, the device signals the owner that mail has been delivered by disappearing from its exposed exterior orientation to a hidden location inside the box thereby avoiding the conventional raised flag announcement to would be mail thieves that the box contains mail. In one embodiment, a holder is adapted to be attached to the inside surface of the box closure for slidably receiving a lower portion of the signal member which is arranged to extend downwardly into the mailbox adjacent the inside closure surface when shut. Opening of the closure releases the signal member from its supported exteriorly exposed position, causing it to slide downwardly by gravity to a retracted position relatively to the closure whereupon it is carried thereby to its hidden position interiorly of the box upon shutting the closure.

3,827,628

PNEUMATICALLY CONTROLLED DOCUMENT CARD PUNCH

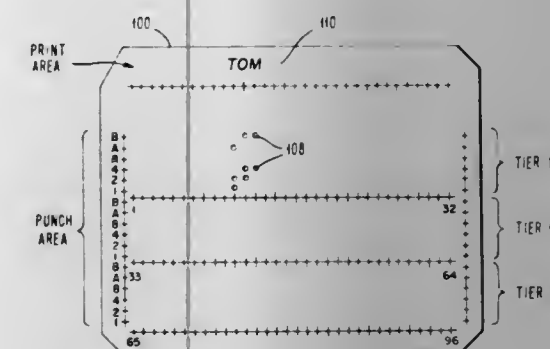
Karel Den Tex, Rochester, Minn.; Donald F. Jensen, Endicott, N.Y.; Merlin J. Ricklefs, Rochester, Minn.; Fred Saltz, Binghamton, N.Y.; Jon J. Schmidt, Stewartville, and Phillip S. Stacy, Rochester, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 17, 1972, Ser. No. 272,507

Int. Cl. 234 64; G06k 1/16

U.S. Cl. 234-18

14 Claims



A key operated punch for document cards which utilizes pneumatic logic for controlling the punching, reading and printing of document cards as they pass through the transport of the machine. The document cards include three tiers of punched information, and the machine automatically duplicates the punched information in the second tier of a card passing through a read station in the machine into the second tier of a card then in a punch station of the machine. The third tier of the card in the read station includes program data which, according to the punchings in this tier, indicate an end of field, a skip command, a dup command, or an ALPHA shift command effective for data being entered into the first tier of a card in the punch station.

3,827,629

DEVICE FOR ESTIMATING THE VALUE OF THE AMBIGUITY FUNCTION

Jacques Max, Saint-Egreve, and Wlodzimierz Kofman, Ville Neuve, Grenoble, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

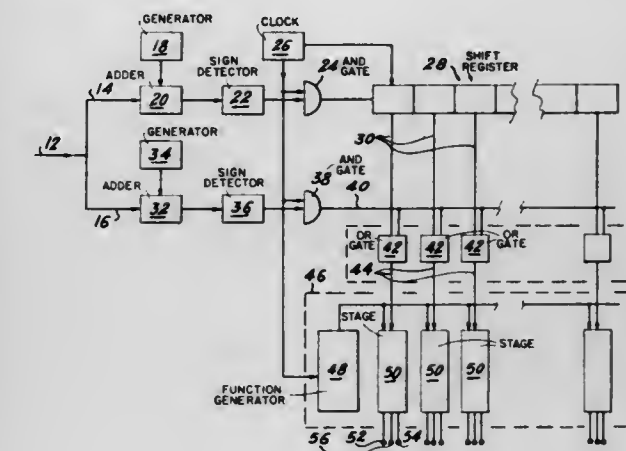
Filed Feb. 16, 1973, Ser. No. 332,802

Claims priority, application France, Feb. 24, 1972, 72.06301

Int. Cl. G06f 15/34; G06g 7/19

U.S. Cl. 235-150.53

2 Claims



The value of the ambiguity function defined by:

$$A(r, f) = \int_{-\infty}^{\infty} X(t)Y(t-r)e^{-2\pi i f t} dt$$

is estimated by means of a method and a device designated as an "ambiguity meter" which are of primary interest in the field of signal analysis and processing.

The approximate value adopted for $A(r, f)$ is equal to:

$$\int_{-T}^T \text{sgn } Z_1(t) \text{sgn } Z_2(t-r)e^{-2\pi i f t} dt$$

where $\text{sgn } Z_1(t)$ is the sign of $X(t)+B_1(t)$ and $\text{sgn } Z_2(t)$ is the sign of $Y(t)+B_2(t)$; and $B_1(t)$ and $B_2(t)$ are two random signals produced by generators. The functions $X(t)$ and $Y(t)$ are applied to the two inputs of the ambiguity meter. The signs Z_1 and Z_2 are detected, then sampled by AND-gates. $\text{sgn } Z_2(t-r)$ is stored in a shift register and integration is performed in the stages of a Fourier transformation circuit.

3,827,630

FUEL CONTROL DEVICE

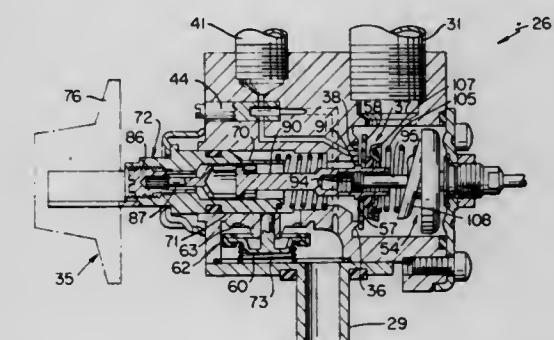
Roy C. Demi, Greensburg, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Filed July 18, 1973, Ser. No. 380,212

Int. Cl. G05d 23/12; F16k 1/00

U.S. Cl. 236-99

6 Claims



A control device having a housing provided with a valve seat and a movable valve member carried by the housing for

opening and closing the valve seat. A thermostatically operated device is operatively associated with the valve member for moving the valve member relative to the valve seat. A spring is carried by the housing and is operatively associated with the valve member to tend to move the valve member to close the valve seat, the spring being so constructed and arranged that the spring causes the valve member to substantially always tilt against the same part of the valve seat when the valve member is being moved to open or close the valve seat.

3,827,631

RAIL MOUNTING PAD

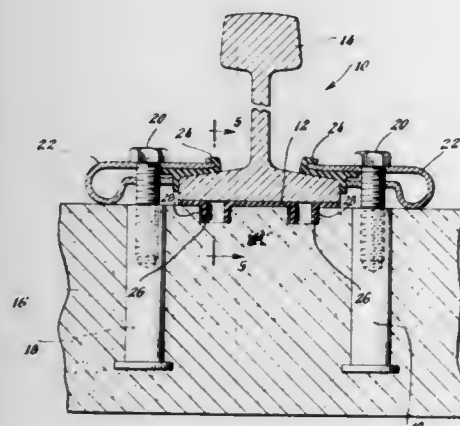
Edward F. Kirik, Fairfield, Conn., assignor to Syntex Rubber Corporation, Bridgeport, Conn.

Filed Dec. 29, 1972, Ser. No. 319,865

Int. Cl. E01b 9/40, 9/14

U.S. Cl. 238—283

6 Claims



A pad for use in a rail mounting assembly to dampen the rail vibration while providing electrical insulation between a rail and a tie, particularly where positive retention of the pad against lateral slippage is accomplished independently of the means used to secure the rail to the tie. Retention against lateral slippage is provided by disposing embossments on the pad which mate into socket recesses in the tie. Wear, permanent set, and cracking are alleviated by disposing apertures through the embossments to interrupt the lateral propagation of the strain wave caused by compressive stress imposed on the rail mounting assembly from rolling train wheels. Dampening of rail vibration is supplemented by cooperatively configuring the embossments and the socket recesses to develop desired spring forces upon compression of the pad.

3,827,632

FUEL AND OXYGEN LANCE ASSEMBLY

Nicholas M. Rymarchyk, Pittsburgh, and Leo L. Meinert, Baden, both of Pa., assignors to Berry Metal Company, Harmony, Pa.

Filed Sept. 13, 1973, Ser. No. 396,911

Int. Cl. B05b 15/00

U.S. Cl. 239—132.3

10 Claims

A lance for oxygen or for a mixture of oxygen and fuel includes a five pipe adapter arrangement which permits some to be readily disassembled from its fuel, oxygen and water coolant sources in order to test the same for leaks or other malfunctions. The assembly also includes a central fuel pipe which is surrounded by an insulating pipe with the said pipes including upper sleeve elements of piston type design which

are so assembled as to prevent the intermixture of fuel, oxygen, and water during the presence of leaks. The insulating



pipe also provides an insulating space which can be easily pressure tested in order to determine the sealing integrity of the assembly.

3,827,633

MOBILE DEVICE FOR REPAIRING FURNACE WALLS AND THE LIKE

Hiroshi Kouno, and Sueki Kubo, both of Kitakyushu, Japan, assignors to Kurosaki Yogyo Co., Ltd., Kitakyushu-shi, Japan

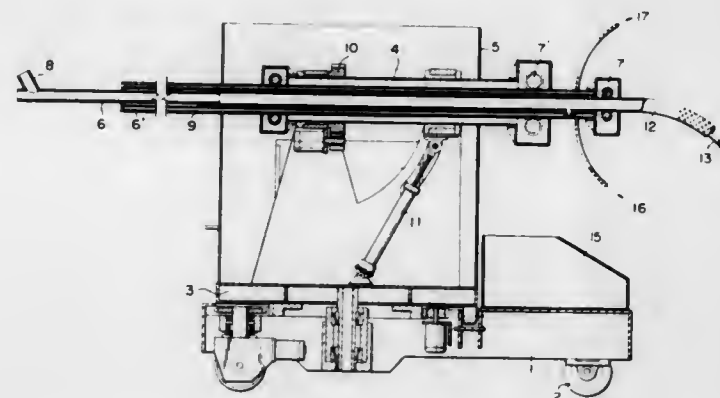
Filed Aug. 21, 1973, Ser. No. 390,235

Claims priority, application Japan, Aug. 25, 1972, 47-85056; May 21, 1973, 48-56563

Int. Cl. B05b 3/18

U.S. Cl. 239—132.3

20 Claims



A mobile device for repairing furnace walls includes a mobile unit on which telescopically disposed conduit means are mounted. A nozzle is mounted on the conduit means such that refractory material fed through the conduit means is discharged from the nozzle for deposit on the furnace walls. Supporting means are provided for supporting the conduit means on the mobile unit and for controlling the location and position of the nozzle whereby the conduit means may be operated from a remote position to control the location and direction of discharge of refractory material from the nozzle and provide for depositing the refractory material on the furnace wall with a minimum of waste.

3,827,634

CLEANING DEVICE

Paul Hammelmann, Zum Sundern 17,474, Oelde/Westfalen, Germany

Filed Mar. 8, 1973, Ser. No. 339,104

Claims priority, application Germany, May 4, 1972, 2221781

Int. Cl. B05b 3/04, 13/06, 15/10

U.S. Cl. 239—227

12 Claims



A cleaning device for the interior of tanks, silos and the like has a foldable and spreadable framework carrying spray heads. The framework can be folded to permit insertion through an opening, and can then be spread in the interior of the receptacle. The interior framework can be rotated about a longitudinal axis, and each of the spray heads can in itself be rotated with reference to the framework.

3,827,635

AIR HOSE ADAPTER

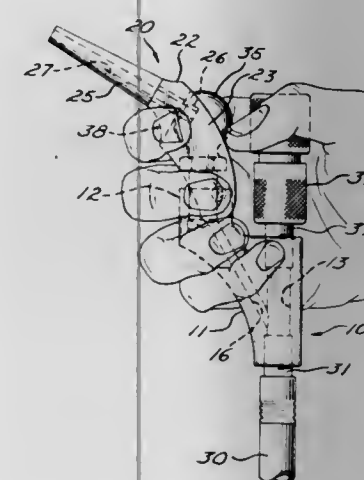
Anthony J. Krakowski, 4026 East Pleasant Valley Rd., Seven Hills, Ohio 44131, and Daniel S. Krakowski, 10178 Albion Rd., North Royalton, Ohio 44133

Filed Mar. 16, 1973, Ser. No. 341,884

Int. Cl. B05b 1/12

U.S. Cl. 239—391

13 Claims



There is disclosed herein an air hose adapter having an air tire chuck, an air blower nozzle movable into engagement with the chuck for blowing a stream of air, and a quick change coupling for attaching other air powered tools.

3,827,636

SUBSTANTIALLY LEAKLESS AERATOR

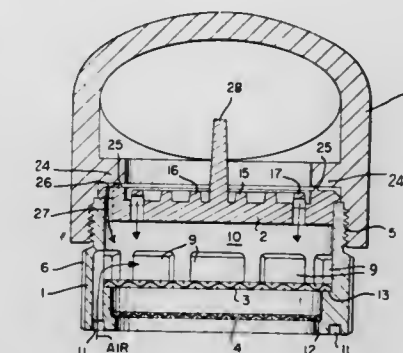
Richard G. Parkison, Somerville, and Barry S. Fichter, Dunellen, both of N.J., assignors to American Standard Inc., New York, N.Y.

Filed Feb. 15, 1973, Ser. No. 332,982

Int. Cl. E03c 1/08

U.S. Cl. 239—428.5

20 Claims



This application covers an aerator for a faucet. The aerator includes four principal parts: a disk or diaphragm having a plurality of apertures at its upstream end for converting incoming water into a plurality of jets of water; a substantially cylindrical body having an upper shoulder to support the diaphragm and having apertures to admit air to be mixed with the water jets produced by the diaphragm; and a pair of spaced screens of different dimensions downstream of the diaphragm for additionally mixing and emitting the air and water combination. The incoming air and the water jets developed by the diaphragm are combined and mixed in the space or chamber above the two screens before being discharged through the discharge outlet of the aerator. The diaphragm embodies a so-called "crush ring" positioned peripherally at its upstream end. The crush-ring contacts a flat ring near the end of the faucet spout and, because it is "crushed" or distorted to overcome and absorb irregularities in the end of the spout, it forms a primary obstruction to prevent leakage through the narrow spaces formed by the threaded segments that hold the aerator against the faucet spout. The body also provides additional spaces along its periphery to aspirate water that may be otherwise leaked out of the above-noted threaded portions of the structure and hence such water will be emitted from the downstream discharge end of the aerator, thereby avoiding leakage from the device.

3,827,637

SPRINKLER SYSTEMS

Christian Stephany, Erbach; Heinz Braunmiller, Weidensteden, and Johannes Katzer, Neu-Ulm, all of Germany, assignors to Kupex AG, Glarus, Switzerland

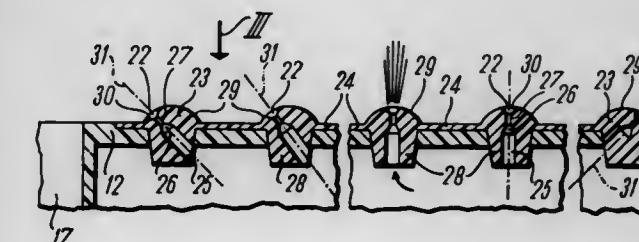
Filed Mar. 21, 1973, Ser. No. 343,294

Claims priority, application Germany, Sept. 30, 1972, 2248065

Int. Cl. B05b 3/16

U.S. Cl. 239—242

15 Claims



The present specification describes and claims a sprinkler system for watering lawns or beds of plants. The sprinkler system comprises a hollow body pivotally mounted on a stand

and arranged to receive and carry water under pressure, several openings being provided in the wall of the body, and a nozzle carrier in which several spray orifices are provided, the spray orifices pointing in different directions and each orifice being connectible to one of the openings in the body wall.

3,827,638

FUEL SPRAY NOZZLE

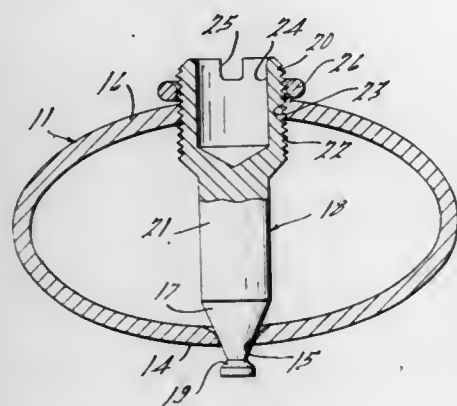
Robert M. Halvorsen, Birmingham, Mich., assignor to Ex-Cell-O Corporation, Highland Park, Mich.

Filed May 23, 1973, Ser. No. 363,055

Int. Cl. B05b 1/30

U.S. Cl. 239-534

6 Claims



A nozzle integrally mounted in a manifold tube which distends in response to internal pressure to vary the flow rate. The nozzle comprises a pintle having a threaded mounting section and a conical seat engageable with the manifold orifice. The mounting section is threaded directly into the manifold tube and the pintle is adjustable by a screwdriver slot to achieve the proper flow setting. A brazing ring is carried by each mounting portion, and all pintles on the manifold are simultaneously secured in position by placing the manifold in a brazing furnace.

3,827,639

DRYING CHAMBER APPARATUS

James G. Relue, 6015 Granville Dr., Sylvania, Ohio 43560, and Weston C. Jones, 3423 Muirfield Ave., Toledo, Ohio 43614

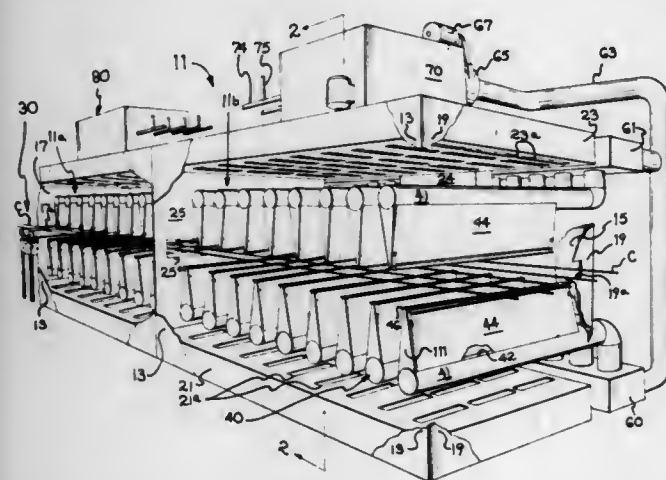
Division of Ser. No. 215,355, Jan. 4, 1972. This application

Apr. 26, 1973, Ser. No. 354,835

Int. Cl. B05b 1/14

U.S. Cl. 239-552

13 Claims



Method and apparatus for heat drying a continuous strand material by the expedient of exposing a moving array of individual strand material to blasts or jets of the heating medium as enhances accomplishment of the drying while simultaneously supporting said strand material.

3,827,640

ELECTRIC COFFEE MILL

Paul Marrie, Dijon, France, assignor to Societe Anonyme dite "ETUD", Dijon, France

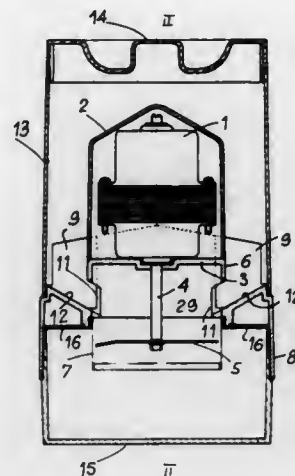
Filed Nov. 28, 1972, Ser. No. 310,087

Claims priority, application France, Dec. 1, 1971, 71.043057; May 19, 1972, 72.018024

Int. Cl. A47j 42/30, 42/52; B02b 7/02

U.S. Cl. 241-100

22 Claims



An electric coffee mill of the grinding blade type with a screen through which the ground product is removed, wherein the grain reservoir is arranged in such a way as to surmount and coaxially surround the grinding chamber which is closed at its upper end, the reservoir communicating with the chamber through two lateral, opposite openings situated at such a level that an expansion chamber is present in the upper part of the grinding chamber throughout the entire grinding operation including completion of the grinding.

3,827,641

MULTI-PURPOSE GRINDING MILL

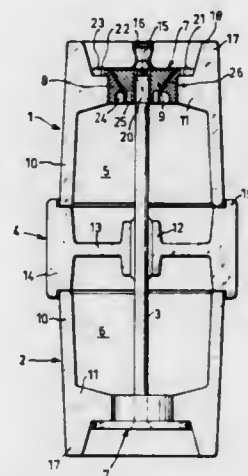
Axel Lennart Andersson, Orrefors, Sweden, assignor to Gullaskrufs Glasbruks AB, Orrefors, Sweden

Filed Sept. 29, 1972, Ser. No. 293,495

Int. Cl. A47j 42/04, 42/10

U.S. Cl. 241-101 R

6 Claims



A multi-purpose pepper grinder having condiment container portions arranged generally coaxially with one another and sealingly divided by a partition member. A drive shaft extends axially through the condiment containers and the partition member, and is fixedly attached at either end to a grinding mechanism mounted in the end walls of respective containers. The grinding mechanism comprises two main sections, of which one is non-rotatably fixed to the shaft and the other is non-rotatably mounted in the container end wall. The sections are provided with inlet and outlet passages for the unground and ground condiment respectively.

3,827,642

FEED PARTICULATOR APPARATUS

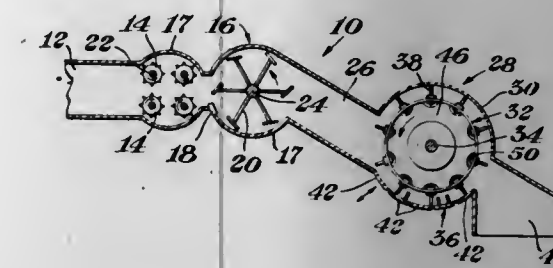
Frank W. Sageman, Priemer Rd., Uby, Mich. 48475

Continuation-in-part of Ser. No. 146,658, May 25, 1971, abandoned. This application Feb. 12, 1973, Ser. No. 331,649

Int. Cl. B02c 4/12

U.S. Cl. 241-101.7

8 Claims



The present invention is an improved feed particulator apparatus particularly suitable for use with forage harvesters. These harvesters consist of a gathering unit and feed rolls which feed a material to a cutter unit for chopping or slicing. The present feed particulator apparatus comprises a cylinder having projecting teeth which cooperates with a curved arcuate member which also can be fitted with projecting teeth. Each tooth has sharp-edged angled ridges on its sides such as are present in a file, e.g., and a notched shoulder at its outer tip. A tapered ridge-containing bar is mounted on the arcuate member between at least two rows of teeth. When used in combination with a forage harvester the present apparatus is positioned rearwardly of the cutter unit of the forage harvester.

3,827,643

WOOD COMMUNITING APPARATUS

Werner Grube, Brackwede; Karl-Friedrich Rutz, Guetersloh; Berthold Jung, Herford, and Johannes Schrage, Brackwede-Holtkamp, all of Germany, assignors to Maschinenfabrik B. Maier KG., Brackwede, West Germany

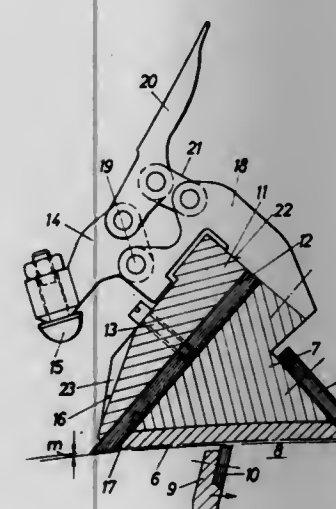
Filed Feb. 5, 1973, Ser. No. 329,997

Claims priority, application Germany, Feb. 15, 1972, 2205489

Int. Cl. B02c 18/18

U.S. Cl. 241-221

8 Claims



A wood comminuting apparatus has a fixed drum cage on the periphery of which are mounted a plurality of axially extending blade bars. Each blade bar has a surface upon which is supported a blade and a blade retaining plate. A clamping lever is mounted on a bracket which is fixed to the blade bar. The clamping lever acts upon the blade retaining plate to press the plate and blade against a supporting surface of the bar and to position the cutting edge of the blade to expose a predetermined portion of the cutting edge.

3,827,644

GRINDING APPARATUS

Johan Gunnar Inge Johansson, Taby, Sweden, assignor to Defibrator Aktiebolag, Stockholm, Sweden

Continuation of Ser. No. 6,112, Jan. 27, 1970, abandoned.

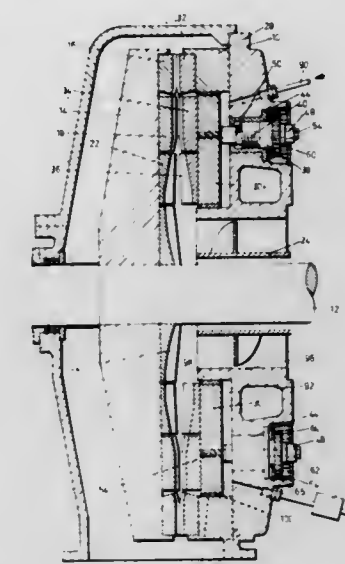
This application July 1, 1971, Ser. No. 159,069

Claims priority, application Sweden, Feb. 19, 1969, 2311/69

Int. Cl. B02c 7/06

U.S. Cl. 241-259.3

21 Claims



A grinding apparatus having a pair of grinding discs, at least one of which discs being rotatable and at least one of the discs being adjustable with respect to the other disc by means of two concentric interengaging screws, the outer screw surrounding the inner screw also engaging a part of the casing carrying the adjustable disc.

3,827,645

POSITIVE THREAD DELIVERY DEVICE FOR TEXTILE MACHINES

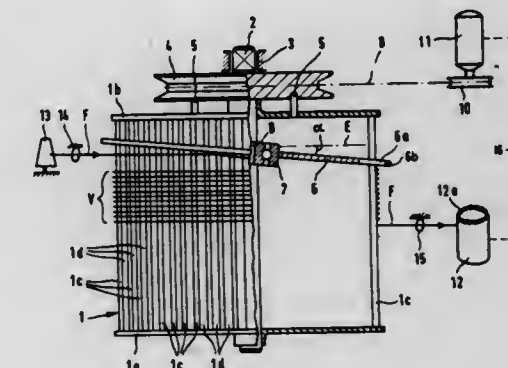
Karl Isac Joel Rosen, S-52300, Ulricehamn, Sweden

Filed Nov. 24, 1972, Ser. No. 309,289

Int. Cl. B65h 51/22

U.S. Cl. 242-47.12

10 Claims



A positive thread delivery device comprising a rotatable thread storage means upon which a number of turns of thread can be wound so that thread can be received tangentially and positively delivered tangentially upon rotation of the storage means, and a drive connection on the storage means connectable to a drive connection on a textile machine for rotating the storage means according to the thread consumption by the machine. The invention also includes a method of delivering thread to a textile machine in which thread is drawn from a supply by a positive feed storage device upon which a supply of thread is maintained, the storage device being driven in synchronism with the machine to deliver thread to the machine at the same rate as its consumption rate by the machine.

3,827,646

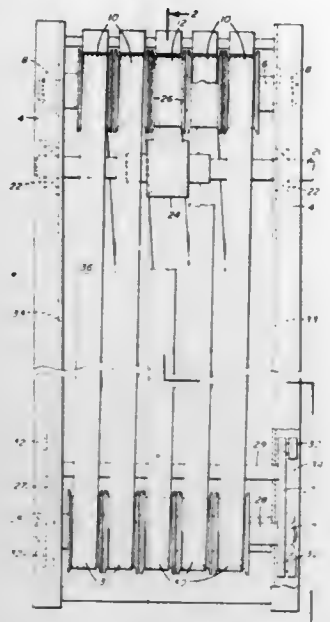
ELEVATOR MECHANISM FOR REDUCING WEB TENSION AND CONTROLLING ELEVATOR DESCENT
Leroy C. Nielsen, Spencerport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 5, 1973, Ser. No. 321,166

Int. Cl. B65h 75/00

U.S. Cl. 242—55.01

6 Claims



An improved elevator mechanism for reducing the tension of the web to a tolerable value, and for controlling the rapid descent of the movable carriage of the elevator mechanism. A series of film supporting spools is provided at the top and bottom of the elevator mechanism to form a multiplicity of film storage loops. The improved elevator mechanism comprises providing a deflectable top spool which is movable by web tension into engagement with an overdriven drive roller.

3,827,647

AUTOMATIC TAPE WINDING MACHINE

Willi Jores, Opladen; Hans Gref, Cologne; Helmut Lehmann, Leverkusen; Franz Hoffacker, Langenfeld; Hermann Luhrig, and Bernhardt Kreit, both of Leverkusen, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

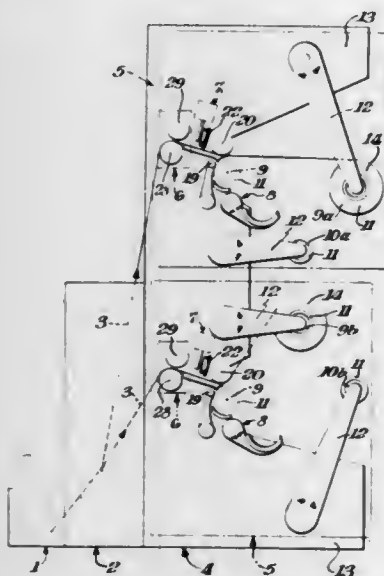
Filed Dec. 26, 1972, Ser. No. 318,211

Claims priority, application Germany, Dec. 30, 1971, 2165525

Int. Cl. B65h 19/20

U.S. Cl. 242—56 R

16 Claims



The automatic tape winding machine comprises a plurality of driven winding shafts, a winding-on mechanism and a cross

cutting unit for cutting tapes. The winding shafts are mounted on pneumatically pivotal arms in such a way that the packages do not touch one another when the winding shafts are swung in or out. When swung in, some of the winding shafts are initially situated in the vicinity of the winding-on units and are then swung out by completed packages, whilst at the same time the rest of the winding shafts remain stationary in readiness to receive empty winding tubes after the completed packages have been removed.

3,827,648

AUTOMATIC TAKE-UP OR SPOOLING DEVICE FOR PAPER TAPE OR AUDIT TRAIL

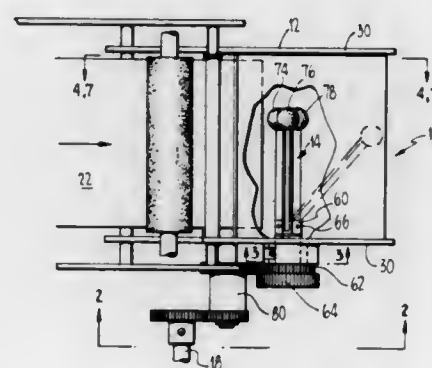
Riaz Rafaat, Santa Clara, Calif., assignor to The Singer Company, New York, N.Y.

Filed Apr. 30, 1973, Ser. No. 356,036

Int. Cl. B65h 75/28

U.S. Cl. 242—74

6 Claims



An apparatus for automatically starting and spooling of paper tape or other record media into roll form on an expandable and rotatable take-up. As the tape is initially fed into a housing, the core is expanded and its friction members engage and cause the tape to wind within itself into a roll of ever decreasing size forcing the core to retract and then wrap around the retracted core. Then continued rotation of the core forms the tape into conventional roll form. Means are also provided for facilitating access to the roll and for separation of the completed roll from the core.

3,827,649

CLICK PAWL DEVICE

Jean Noel Payen, Aix-les-Bains, France, assignor to Etablissements Carpano & Pons S. A., Cluses, France

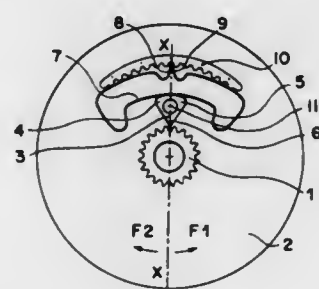
Filed June 27, 1972, Ser. No. 266,546

Claims priority, application France, June 30, 1971, 71.23932

Int. Cl. A01k 89/02

U.S. Cl. 242—84.1 R

4 Claims



A click pawl device for fishing reels includes a pivoted triangular click pawl having an apex urged into operative contact with a rotatable toothed wheel by a spring wire including (a) an elongate substantially rectilinear central portion bearing against a face of the pawl opposite said apex and (b) two bent-over portions including ends protruding outwardly from said face of the pawl and from the toothed wheel. Said ends can be

3,827,652

COLLAPSIBLE DYE SPRING OR THE LIKE

Robert L. Burchette, Jr., 570 El Paso St., Spartanburg, S.C. 29303

Filed Dec. 21, 1972, Ser. No. 317,130

Int. Cl. B65h 75/20

U.S. Cl. 242—118.11

17 Claims



A collapsible dye spring or the like described and claimed herein suitable for use for winding textile yarn thereon and dyeing same while the spring is in a partially collapsed condition. In the collapsed condition, adequate and uniform dye flow from the inside of the tube outwardly is permitted to evenly dye the yarn wound thereon. A tube having terminal flanges or rings is provided with at least one continuous helical lead of a predetermined pitch extending between and joining the flanges. The helical lead is flexible and is provided with means along its length to rigidify the tube and limit the axial compression of same. In the preferred form of the spring, a plurality of helical leads of predetermined pitches extend continuously from the first ring to the second ring with a plurality of generally perpendicularly disposed members connecting the leads along the length of the helices, the perpendicular disposition being with respect to the rings and not the leads. Also the members connecting the leads may have additional material surrounding same that tapers quickly into the lead outwardly from the perpendicular member.

3,827,651

KNOCK-DOWN SHIPPING CABLE REEL

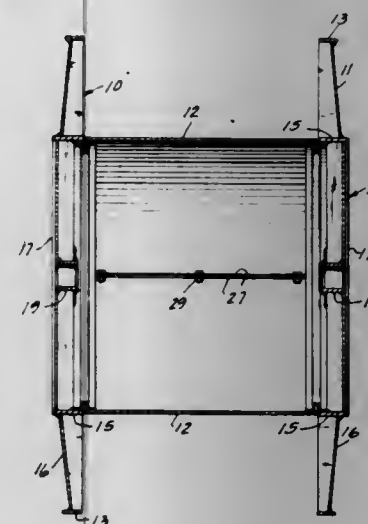
James L. Benson, Silvis, and William Sellmann, Rock Island, both of Ill., assignors to The George Evans Corporation, Moline, Ill.

Filed June 12, 1972, Ser. No. 261,940

Int. Cl. B65h 75/22, 75/14

U.S. Cl. 242—115

2 Claims



Knock-down reel structure for shipping heavy electric cable, wire rope and the like, in which the reel is disassembled when empty and returned to its shipping point in a knocked-down condition. The reel is in the form of two annular flanges or heads having radially outwardly opening channels extending inwardly of the inner margins thereof, for interlocking engagement with radial flanges at opposite ends of drum sections, in which the drum sections are in abutting engagement with each other, providing a cylindrical drum between the flanges and bolted or otherwise secured to each other.

3,827,653

THREAD DISPENSING BOBBIN

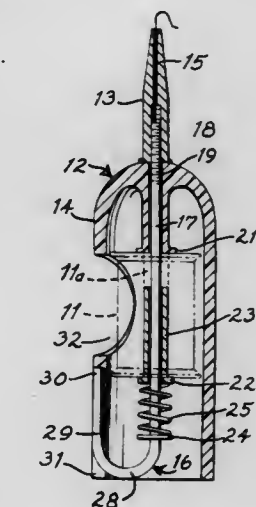
Anna J. Taylor, 518 North K, Livingston, Mont. 59047

Filed June 22, 1973, Ser. No. 372,840

Int. Cl. B65h 35/10, 49/00, 49/18

U.S. Cl. 242—137.1

7 Claims



A bobbin for manually dispensing thread from a spool rotatably held within an elongated housing. Thread is guided from the spool, through a spool support and out through a thread dispensing tip. Tension is imparted to the thread as it is

dispensed through the tip by a compression spring which exerts a constant axial force against the spool. Compression of the spring and tension of the thread is adjustable by turning the tip about its axis with respect to the spool support.

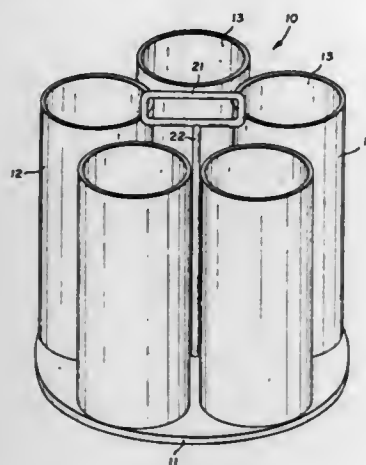
3,827,654 YARN CADDY

Fern E. Armstrong, 11 Edgewood Dr., Baldwinville, N.Y. 13027

Filed Dec. 16, 1971, Ser. No. 208,681
Int. Cl. B65h 49/36

U.S. Cl. 242—146

5 Claims



A yarn caddy holds a skein of yarn in each of several upright tubes for paying yarn out of the open top ends of the tubes for multi yarn, manual knitting. The tubes are supported on a flat disk that is preferably mounted for rotation on a support for twisting the yarns as they pay out of the tubes.

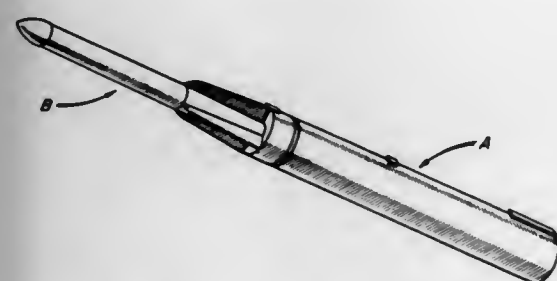
3,827,655 SHORT RANGE GUIDED MISSILE

Samuel A. Humphrey, and Charles W. Kissinger, both of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 4, 1963, Ser. No. 328,131
Int. Cl. F41g 7/08, 9/00; F42b 17/00

U.S. Cl. 244—3.15

2 Claims



A submarine launched missile having a solid propellant rocket motor portion and a weapon portion is adapted for guidance from the water through the air and after motor burn out, followed by motor and weapon separation, aerodynamic steering of the weapon to the target point by a terminal guidance system for control of movable surfaces on the weapon.

3,827,656

PROTECTIVE WEAPON FOR ATTACK AIRCRAFT

Ronald F. Dettling; John E. Bush, and Thomas R. Zulkowski, all of China Lake, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

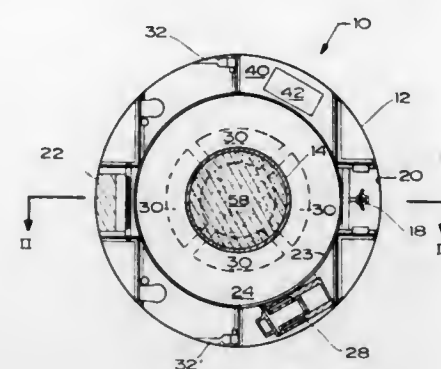
Filed Jan. 6, 1972, Ser. No. 215,928
Int. Cl. F42b 15/02

U.S. Cl. 244—3.16

8 Claims

A weapon for attack aircraft. The weapon has an omnidirectional launch capability. The weapon is lenticular shaped

with a warhead in the center. The weapon is controlled by an electronic seeker and is propelled by a rocket motor with a two dimensional truncated spike nozzle. The propellant tank



is pressurized by a boot strap mono-propellant gas generator. Control at launch is provided by flexible expandable panels which establish initial aerodynamic stability.

3,827,657 FLAP ARRANGEMENT FOR THRUST DEFLECTION IN AIRCRAFT

Hans-Jurgen Schwarzler, Munich, Germany, assignor to Vereinigte Flugtechnische Werke-Fokker Gesellschaft mit beschränkter Haftung, Bremen, Germany

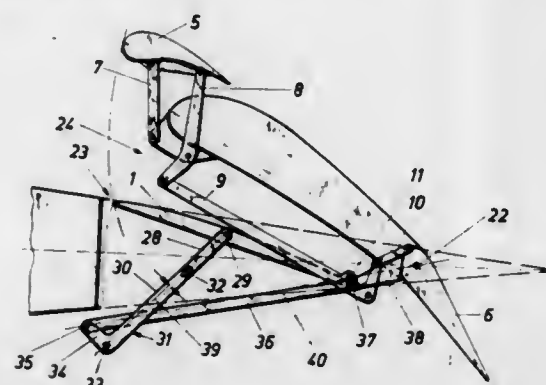
Filed Feb. 8, 1973, Ser. No. 330,475

Claims priority, application Germany, Feb. 16, 1972, 2207189

Int. Cl. B64c 9/20

U.S. Cl. 244—42 DA

11 Claims



A flap arrangement in aircraft wings having a pair of flaps in stacked disposition and normally forming part of a wing. The flaps have their front ends pivoted up to define a flow and thrust redirecting channel, in which the lower flap is aligned with the upper wing surface and the upper flap is erected sufficiently high to establish a flow redirecting channel with converging cross section.

3,827,658

ACTUATING MEANS FOR A VANE

Robert Hallworth, Rochdale, England, assignor to Lockheed Aircraft Corporation, Burbank, Calif.

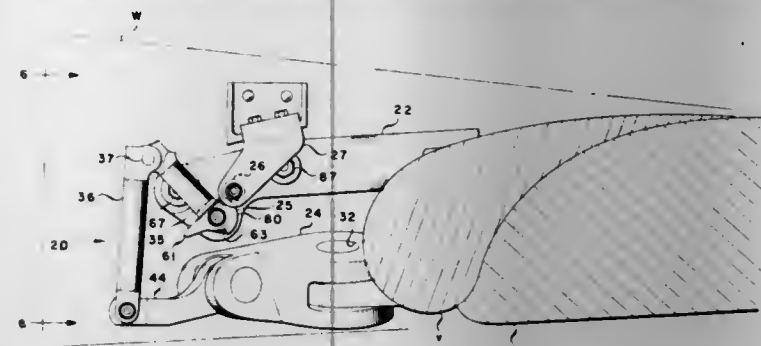
Filed Apr. 5, 1973, Ser. No. 348,269
Int. Cl. B64d 9/10, 9/20

U.S. Cl. 244—42 DB

1 Claim

A mechanism, two of which position a vane in proper working and aerodynamic relationship with a flap throughout the latter's travel in a Fowler flap assembly for an aircraft. The forward end of a folding linkage is operatively connected, via a vane support fitting, to a vane, and is operatively connected at its rear end to a flap. Each vane support fitting is secured to one or more carriages having banks of rollers mounted on tracks fixed to wing structure. A cam is mounted on the forward end of the linkage to co-act with a follower stationarily

disposed upon wing structure. In flap extension, the latching of cam upon follower prevents the folded linkage, its vane support fitting and vane from further opening and extending. Continued rotation of the unfolding linkage and cam provides disengagement from the follower. The linkage unfolds to a biased stiff or unyielding position as the flap pulls the linkage. In flap retraction, engagement of cam with follower breaks the



biased unyielding position of the linkage. The linkage folds as the flap retracts. The vane does not further retract until the linkage is folded to a degree where the cam can pass by its follower. The folding linkage includes a spring-piston-cable arrangement which assures biasing thereof in its unyielding and extended position, until the cam engages the follower in the retracting mode for the flap.

3,827,659 CONTROL SYSTEM MONITORING APPARATUS HAVING MINIMAL NUISANCE ALARM CHARACTERISTICS

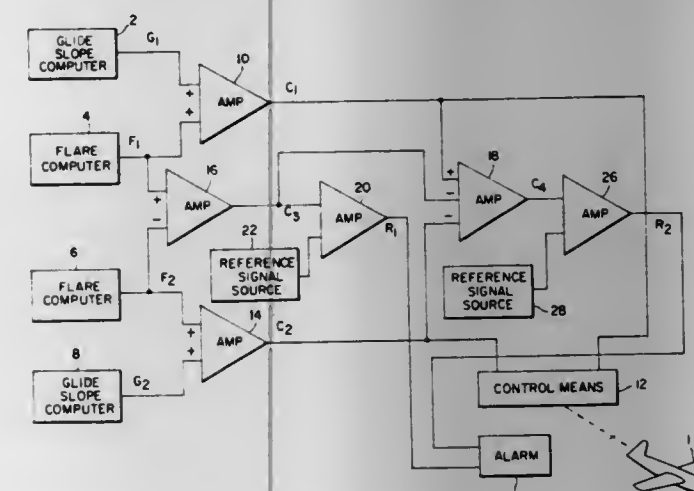
Martin William Feintuch, Paramus, N.J., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Mar. 7, 1973, Ser. No. 338,800

Int. Cl. B64c 13/18

U.S. Cl. 244—77 M

4 Claims



Apparatus for monitoring dual channel equipment such as used in aircraft control systems, and including apparatus for implementing the monitoring without sacrificing channel isolation while distinguishing between actual system failures and apparent failures due to tolerance build-ups.

3,827,660

AIRCRAFT ARRESTING APPARATUS

Donald B. Doolittle, Wilmington, Del., assignor to All American Industries, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 312,254, Dec. 5, 1972. This application Mar. 29, 1973, Ser. No. 345,877

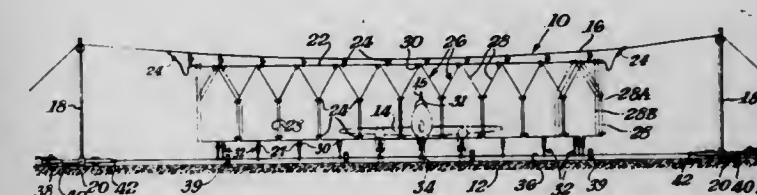
Int. Cl. B64f 1/02

U.S. Cl. 244—110 C

30 Claims

A compound array of vertically deployed open loops of strong inelastic webbing having a maximum dimension slightly smaller than the wingspan of the aircraft to be arrested are

detachably hung from a suspension line stretched above and across the runway. The array includes a number of laterally overlapped net elements which present enough loops to securely engage and restrain an aircraft which penetrates any portion of the barrier. Slide connectors attach lower portions of the loops to a rearwardly deployed cross runway pendant connected between a pair of energy absorbing devices. When an aircraft impinges upon the barrier, the loops break away from the suspension line and freely move to engage the stronger larger dimensional portions of the aircraft from behind and below it. The loops are conveniently deployed in a pentagonal configuration with their peaked tops connected to the suspension line, their sides breakably connected to each other and bottoms attached by slide connectors to a steel cross runway pendant, which can be optionally used for hook arrestment when the barrier is lowered. The nose wheels pass over and clear the cross runway pendant before the aircraft en-



gages the deployed barrier and its pendant anchored loops, which pull upwardly upon the pendant. The slide connectors are capable of considerable elongation without breaking when a predetermined force exceeding a safe holding force for their attached loops engaged aircraft portion is applied to them. When the elongation brings a sufficient number of loops into engagement, the connectors stop elongating and hold, thus applying substantially safe balanced restraint upon the engaged portions of the aircraft. The elongation is accomplished by stitched folded straps of an unyielding material or by use of a yielding material such as undrawn nylon or a low modulus of elasticity metal, such as annealed stainless steel. The elongatable or extensible connectors are assembled from disconnectable parts to facilitate removal and replacement after permanent distortion. The pendant is coated with an antifriction polymeric material to facilitate lateral sliding adjustment of the connectors and loops.

3,827,661

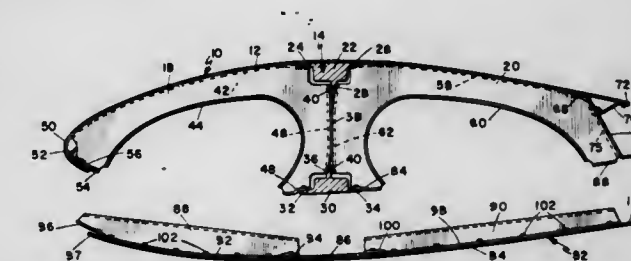
AIRCRAFT WING STRUCTURE AND METHOD OF ASSEMBLY

T. Claude Ryan, San Diego, and Peter F. Girard, La Mesa, both of Calif., assignors to Ryson Aviation Corporation, San Diego, Calif.

Filed July 26, 1972, Ser. No. 275,250
Int. Cl. B64c 1/00, 3/00

U.S. Cl. 244—123

2 Claims



An aircraft wing comprising an upper shell and a lower shell secured together to form a complete wing. The wing is of metal construction particularly adapted for assembly on an automobile rivetting machine, the use of two pre-assembled shells providing the necessary access to both sides for the rivetting machine to operate. The upper shell includes the top skin, ribs, spars and leading edge assembled in accurate airfoil configuration, the lower shell comprising the lower skin with

attached stiffeners conforming to the lower contour of the air foil section. Assembly of the shells is made primarily by blind rivets with conventional solid rivets where accessible.

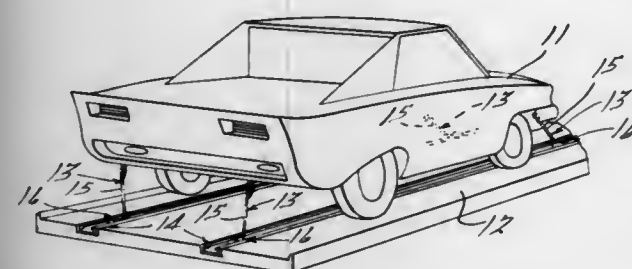
3,827,662

CARGO TIE DOWN

Raymond M. Krokos, Detroit, Mich., assignor to Evans Products Company, Plymouth, Mich.
Continuation of Ser. No. 110,030, Aug. 27, 1971, abandoned.
This application Oct. 26, 1972, Ser. No. 300,880
Int. Cl. B65j 1/22

U.S. Cl. 248—119 R

6 Claims



A device for tying down cargo, particularly motor vehicles, during shipment. The tiedown device has a simplified, compact arrangement that facilitates assembly and disassembly. A thrust taking member is fixed to a shaft on which a flexible transmitter is wound and is positioned between a pair of supporting members for absorbing lateral thrust.

3,827,663

SELF-ADJUSTING FURNITURE SUPPORT

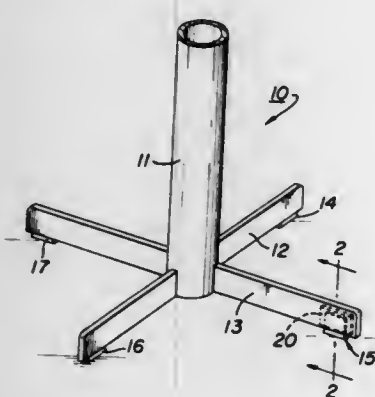
Arch E. Hinman, South Elgin, Ill., assignor to Johnson Industries, Inc., Elgin, Ill.

Filed Nov. 8, 1972, Ser. No. 304,613

Int. Cl. A47b 9/00

U.S. Cl. 248—188.3

6 Claims



A self-adjusting support includes a foot member spring biased in a downward direction along a rectilinear guideway extending at an angle of about twenty degrees from the horizontal plane.

3,827,664

TISSUE BOX HOLDER FOR AUTOMOBILES

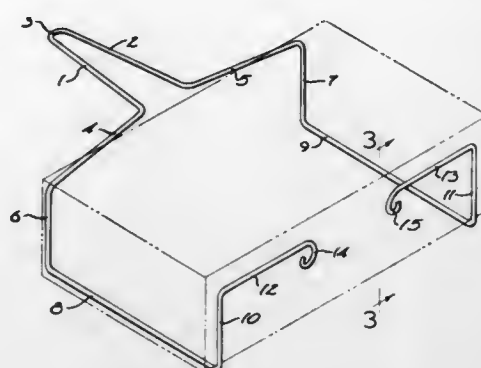
Perley E. Larson, 8408 191st S. W., Edmonds, Wash. 98020
Filed Oct. 24, 1972, Ser. No. 299,718
Int. Cl. B60r 7/00

U.S. Cl. 248—311

1 Claim

A length of spring wire is bent to provide a mounting support having two slightly diverging arms, which then diverge sharply in a common plane to downwardly bent parallel portions at right angles to the common plane of said arms forwardly extended parallel portions at right angles to the downwardly bent portions, upwardly extended parallel portions at the forward end of said forwardly extended portions

and free end portions extended toward each other from the top of the upwardly extended portions and terminating in



safety curls to engage and press a box of tissue resting on said forwardly extended portions against the downwardly bent portions.

3,827,665

SUPPORT STRUCTURE FOR OVERHEAD CONCRETE MOLDING FORMS

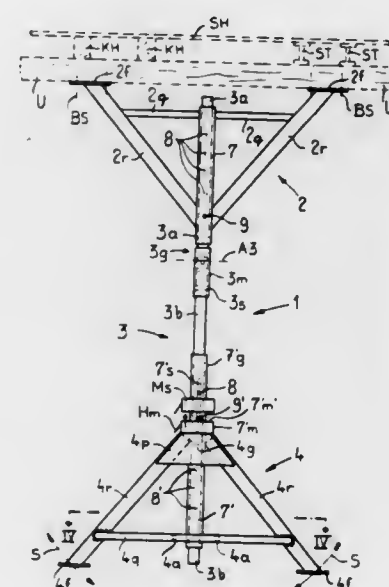
Laurenz Kistler, Steinhäuserstrasse 25, Zug, Switzerland
Filed Feb. 5, 1973, Ser. No. 329,729

Claims priority, application Switzerland, Feb. 7, 1972, 1724/72

Int. Cl. E04g 25/00

U.S. Cl. 248—354 P

9 Claims



Floor and ceiling supports, both generally V-shaped, are connected by a central post-like intervening spacer structure portion, the open arms of the V bearing against the ceiling, to be poured, and the floor or support, which may be a previously poured cement construction, respectively; the V-shaped support portions are preferably made of welded pipes, connected with the central spacer portion by holes and cross pins fitting into the holes to adjustably space the floor and ceiling portions, and permit limited swinging movement to allow for slight misalignments. The erected support structure of the double-V form is laterally maintained in position by stiffening members, preferably clamped to the post-like spacer and providing laterally extending clamp connections for pipe length to hold the support structure in lateral alignment.

3,827,666

TILTABLE FORM FOR PREFORMED BRICK WALL

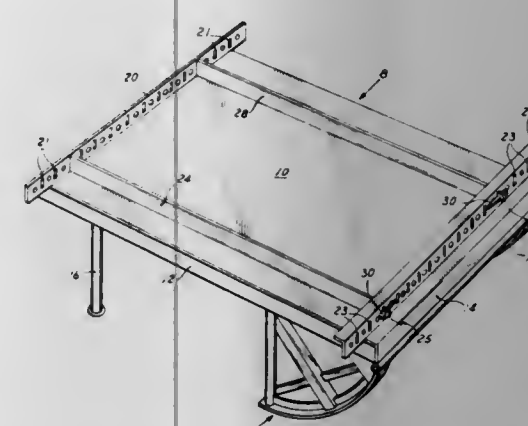
Edward J. Dreher, 5841 E. 67th Ave., Commerce City, Colo. 80022

Continuation-in-part of Ser. No. 5,774, Jan. 26, 1970, Pat. No. 3,642,395. This application Dec. 16, 1971, Ser. No. 208,722

Int. Cl. E04g 11/00

U.S. Cl. 249—18

3 Claims



Apparatus for producing variable width brick panel sections, having a planar table arranged to tilt from a horizontal to a vertical position, includes a removable frame, for resting on the planar table, including adjustable sides for predetermining the width of the panel to be built, and a tilt stand at one end of the table permits standing the unit vertically to discharge a finished panel. Spacers providing endwise and edgewise spacing of placed bricks on the planar table are readily removed prior to the addition of mortar trowelled into the spaces between the prepositioned brick.

3,827,667

COMPOSITE MOLD WALL STRUCTURE

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation of Ser. No. 53,833, July 10, 1970, abandoned, and a continuation-in-part of Ser. No. 601,259, Nov. 1, 1966,

Pat. No. 3,529,987, and a continuation-in-part of Ser. Nos. 432,033, Nov. 25, 1964, Pat. No. 3,414,863, and Ser. No. 432,924, Jan. 8, 1965, Pat. No. 3,346,220, and a continuation-

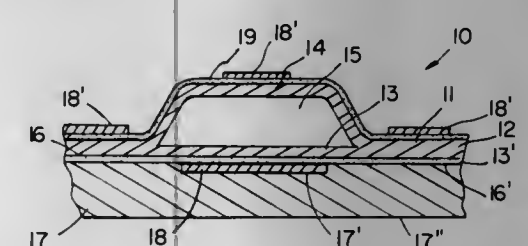
in-part of Ser. No. 641,101, Feb. 19, 1957, Pat. No. 3,173,195, and a continuation-in-part of Ser. No. 734,340, May 9, 1958,

Pat. No. 3,173,175. This application Oct. 24, 1972, Ser. No. 300,299

Int. Cl. B22d 27/04

U.S. Cl. 249—80

10 Claims



Composite structures are provided in the construction of heat transfer panels such as utilized in the making of large molds for producing articles of manufacture in molding cavities thereof wherein heat is transferred to and/or from the molding material during the molding process. The constructions involve the use of a relatively thin metal sheet or panel in combination with a bulk material such as ceramic material forming the major portion of the mold structure and providing support for the sheet material. Constructions are provided in which a heat transfer passageway is formed within or between the sheet material and the backup material through which heat transfer fluid may be flowed. The invention also consists of simple methods for forming the heat transfer molds.

3,827,668

LOCKING SYSTEM FOR A BLOWOUT PREVENTER

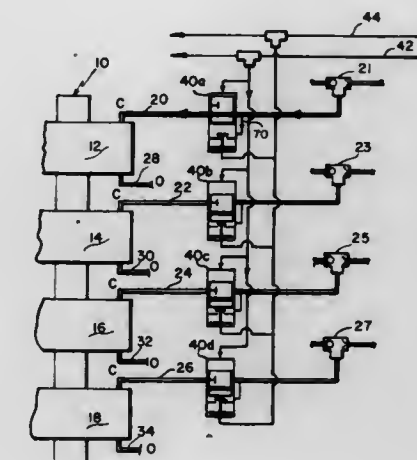
Douwe De Vries, and Samuel E. Gilmore, both of Houston, Tex., assignors to C. Jim Stewart & Stevenson, Inc., Houston, Tex.

Filed Oct. 5, 1972, Ser. No. 295,344

Int. Cl. E21b 33/06; F15b 11/16, 13/01

U.S. Cl. 251—1

3 Claims



A locking system for a blowout preventer having a plurality of individually actuated hydraulic rams. A pilot operated locking valve for each ram for locking the ram in the closed position in which all of the locking valves are pilot operated to open and close simultaneously by two common pilot lines. The locking valves are of the positive shut-off shear-seal type. They include a hydraulic override so that if one ram is closed and locked, which puts all of the locking valves in the closed position, a second ram can still be closed by applying more pressure in the closing line of that ram than applied in the pilot closing line, all without interrupting the other locking valves.

3,827,669

REMOTE CONTROL HYDRAULIC VALVE

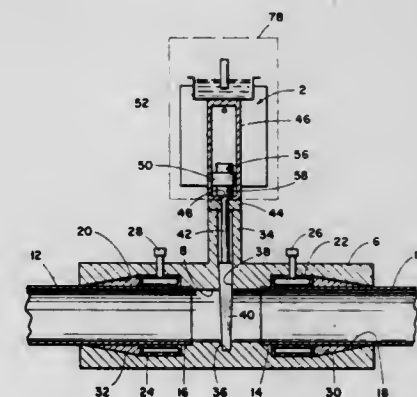
Fletcher Rodgers, Alva, Okla.

Filed May 7, 1973, Ser. No. 358,159

Int. Cl. F16k 31/143

U.S. Cl. 251—62

6 Claims



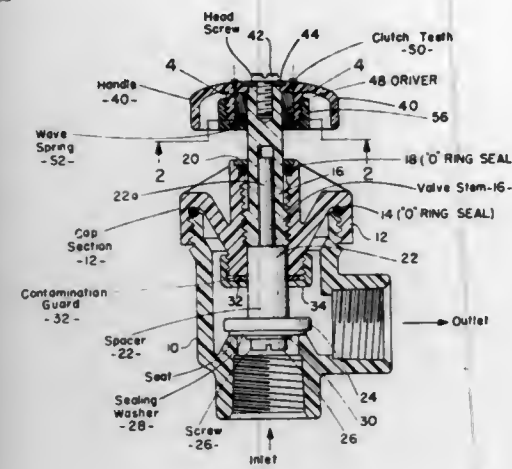
A device adapted to be installed in a pipe line, or the like, at a remote site and operated by remote control for selectively closing the pipe line for interrupting the flow of fluid therethrough. The device comprises a valve interposed in the pipe line and having a valve stem responsive to hydraulic pressure for alternately opening and closing the valve. The flow of hydraulic fluid is controlled by a motor which may be actuated from a main site whereby the hydraulic fluid may be directed to the valve stem in one direction for closing of the valve, and in a reverse direction for opening of the valve.

3,827,670 VALVE ASSEMBLY

Myrl J. Saarem, Carson City, Nev., assignor to Richdel, Inc., Carson City, Nev.

Continuation-in-part of Ser. No. 314,177, Dec. 11, 1972, abandoned. This application June 12, 1973, Ser. No. 369,260 Int. Cl. F16k 31/44

U.S. Cl. 251-81



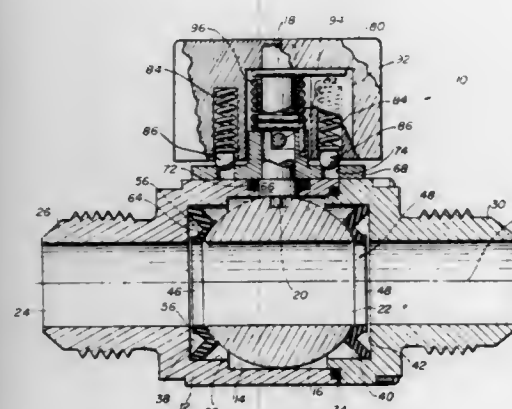
A manually operated angle valve assembly is provided which has particular, although not exclusive utility in sprinkler systems, or the like. The valve assembly of the invention serves to shut off and regulate the water flow from a supply source to the sprinkler heads or other outlets of the sprinkler system. The valve assembly to be described is formed of plastic components, and it incorporates a slip clutch between the handle and the valve stem which serves to obviate high stresses in the valve as it is closed. By such a construction, the objectionable characteristic of creep in the plastic parts of the valve is eliminated. The valve assembly also incorporates an improved contamination guard, and improved thread terminations, as will be described.

3,827,671

LOW PRESSURE BALL VALVE WITH ANNULAR SEAL
James D. Bolden, and Floyd G. Koller, both of Dayton, Ohio, assignors to Auto-Valve, Inc., Dayton, Ohio

Filed June 11, 1973, Ser. No. 368,690
Int. Cl. F16k 5/14

U.S. Cl. 251-84



A valve comprising a valve body in which a ball valve is centered between two annular seals. The seals are made from an elastic material like rubber and have a thin layer of Teflon on the sides facing the ball valve. The seals are specially shaped to provide for a low seal-loading pressure and to seal at the upstream side of the valve. A spring loaded handle is biased to urge the valve to a closed position.

3,827,672 ELECTROMAGNETICALLY CONTROLLED FLUID-OPERATING VALVE

Harald Stampfli, Petit-Saconnex, Switzerland, assignor to Lucifer S.A., Carouge-Geneva, Switzerland

Filed Dec. 13, 1972, Ser. No. 314,598

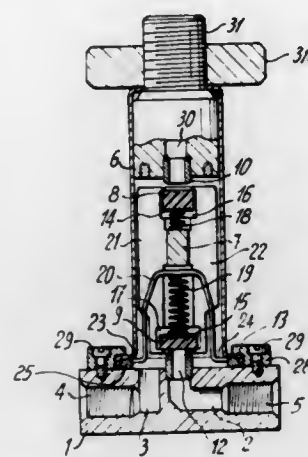
Claims priority, application Switzerland, Dec. 29, 1971, 19108/71

5 Claims

U.S. Cl. 251-129

Int. Cl. F16k 31/06

5 Claims



An electromagnetically controlled valve wherein the sealing member is subjected to a reduced straining through the fact that the usual valve-closing spring is inserted between a stationary transverse supporting member and a sealing member floatingly carried inside a recess provided in an electromagnetically controlled core. Thus the spring acts, upon deenergization of the controlling coil, on the sealing member to urge it against a flange surrounding the opening of the recess, an idle motion being afforded for the core beyond the point corresponding to engagement between the sealing member and its seat to allow the core to continue its return movement to a slight extent without interference of the spring.

3,827,673

VALVE SEAT CONSTRUCTION

Robert C. Houlgrave, 2500 Lazy Hollow No. 124C, and Joseph P. Weber, 9618 Windswept, both of Houston, Tex. 77042

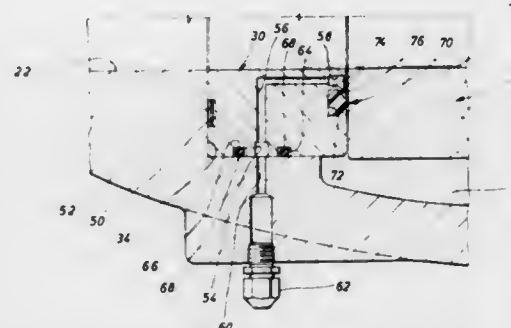
Filed Mar. 16, 1973, Ser. No. 342,223

Int. Cl. F16k 3/00

11 Claims

U.S. Cl. 251-360

2 Claims



A valve seat construction and method of inserting and securing a sealing member in a so-called dovetailed groove within a seat ring. The sealing member is first positioned beneath one flange overlying the groove and then a second flange is folded over the sealing member to complete the dovetailed groove. The sealing member projects between and beyond the groove and a void space is provided within the groove at least equal to the portion of the sealing member projecting beyond the face of the seat ring. A lubricant groove is positioned adjacent the sealing member to provide a secondary lubricant seal.

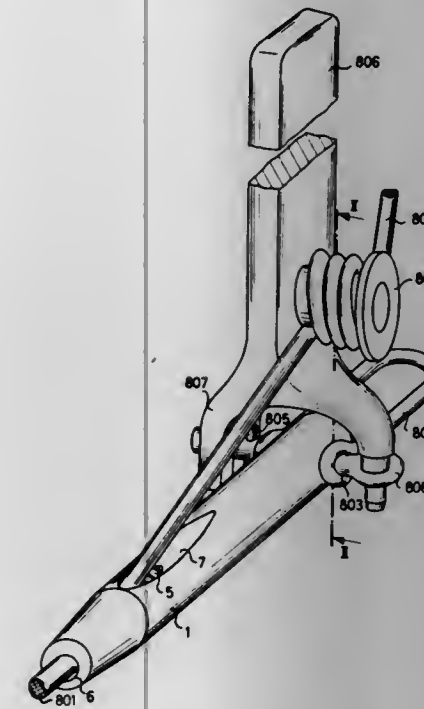
3,827,674 DEVICE FOR CLAMPING AND TIGHTENING CABLES AND THE LIKE

Max Pasbrig, Casa Luce-Via all'Eco, Orselina, Switzerland
Division of Ser. No. 820,410, April 30, 1969, Pat. No. 3,628,221. This application July 26, 1971, Ser. No. 166,277

Int. Cl. B66f 7/06

U.S. Cl. 254-73

12 Claims



The invention relates to a device for detachably connecting, fixing and tightening connecting elements, particularly electric cables, wire ropes, chains, belts and the like. The device consists of a housing equipped with a recess with wedge shaped clamping surfaces against which at least one spring-loaded clamping member tightens at least one associated connecting element. The connecting element passes rectilinearly through the housing and may be fitted thereto from the side. A sleeve or bush is provided for releasing the clamping effect, is displaceable on the housing and surrounds the same wholly or partially. The clamping device may be constructed as a closure in which case the connecting element has a pan-shaped configuration.

3,827,675

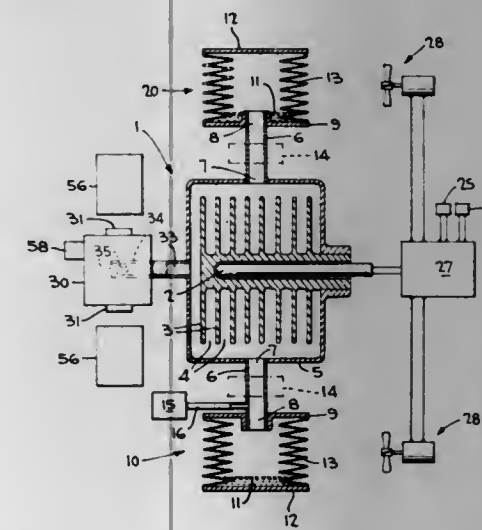
OSCILLATING BELLOWS

Mark Schuman, 101 G. St., S.W., Washington, D.C. 20024
Filed Apr. 6, 1972, Ser. No. 241,742

Int. Cl. G01j 3/30

U.S. Cl. 356-85

91 Claims



One or more bellows are driven in an oscillatory manner in response to a mass of compressible fluid that is cyclically

heated and cooled. The fluid is heated in a thermal lag heating chamber in fluid flow relationship with the bellows which cools the fluid. Cooling of the bellows, and therefore the fluid within the bellows, is augmented by fans blowing cool air over the folds of the bellows. An optical chamber for analyzing gas being pumped by the bellows is provided.

3,827,676

INTERFACIAL SURFACE GENERATOR

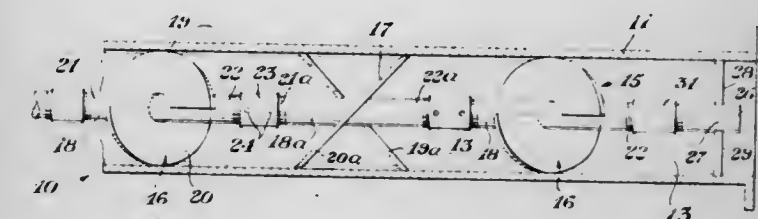
William C. Brasie, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Oct. 2, 1972, Ser. No. 293,826

Int. Cl. B01f 15/00

U.S. Cl. 259-4

3 Claims



An interfacial surface generator is shown having a jointed central support means which facilitates its insertion in conduits where limited room is available.

3,827,677

HANGER DEVICE FOR PORTABLE MIXERS

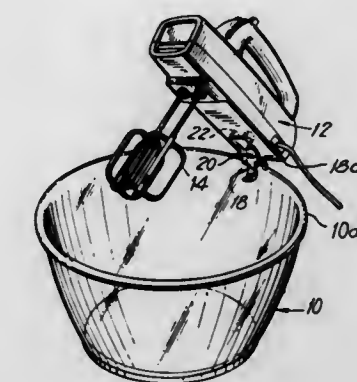
Carl E. Meyerhoefer, Little Neck, N.Y., and Richard J. Naples, New Britain, Conn., assignors to General Signal Corporation, New York, N.Y.

Filed Jan. 12, 1973, Ser. No. 323,331

Int. Cl. B01f 7/16, 15/00; A47g 29/00

U.S. Cl. 259-104

5 Claims



A support device is disclosed for use with a portable food mixer or the like so that the mixer can be parked or camped alongside of or on the edge of a bowl or other vessel when it is not in use, whereby undesired dripping is avoided.

3,827,678

ADDITIVE METERING APPARATUS FOR PLASTIC PROCESSING MACHINE

Charles Lee Andrews, III, 606 Whittington Pl., Statesville, N.C. 28677

Filed Nov. 27, 1972, Ser. No. 309,950

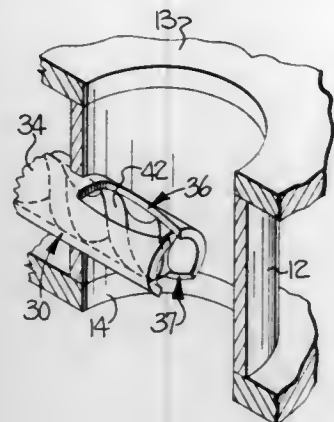
Int. Cl. B01f 7/08

U.S. Cl. 259-191

8 Claims

An apparatus for metering and mixing dry particulate additive with a dry particulate plastic material prior to heating the mixture and molding or injecting the same to form a finished article. The apparatus includes a vertically disposed feed throat tube through which the plastic material is adapted to be fed downwardly into the processing machine. A horizontally

directed tubular member extends into the feed throat tube for delivering the additive, the tubular member including vertically aligned upper and lower openings and an open forward end positioned within the feed throat tube. By this arrange-



ment, a portion of the plastic material enters the tubular member through the upper opening and is mixed with the additive therein, and the mixture falls through the lower opening and the open forward end of the tubular member.

3,827,679

METHOD OF INTRODUCING OXYGEN INTO A LIQUID TO BE CLARIFIED AND DEVICE FOR CARRYING THE METHOD INTO EFFECT

Joseph Richard Kaelin, Villa Seeburg, CH-6374 Buochs, Switzerland

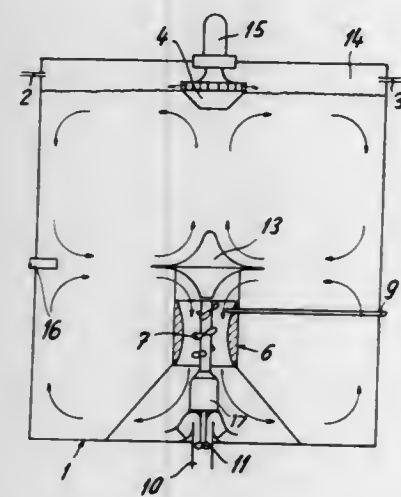
Filed Aug. 14, 1972, Ser. No. 280,478

Claims priority, application Switzerland, Aug. 13, 1971, 11974/71

Int. Cl. B01f 3/04; C02c 5/04

U.S. Cl. 261-91

4 Claims



Method of introducing oxygen into a liquid located in an activation tank of a clarification plant. The liquid is made to circulate in toroidal flows and oxygen or air is bubbled through.

3,827,680

METHOD AND DEVICE FOR RETAINING MATERIAL WITHIN A PLUNGING BELL

James E. Wheeler, Baltimore, Md., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed May 24, 1973, Ser. No. 363,710

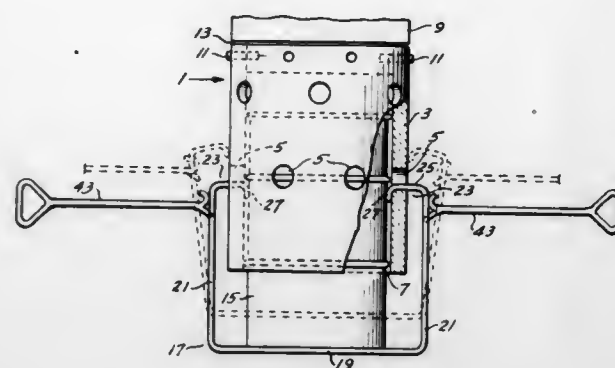
Int. Cl. C21c 7/00

U.S. Cl. 266-34 T

3 Claims

A method and device for charging and supporting containerized reagents within a plunging bell including position-

ing the reagents within a plunging bell and supporting the reagents with a support member depending from the sidewalls of



the plunging bell and extending across the bottom opening beneath the sidewalls of the plunging bell.

3,827,681

DAMPING SYSTEM ESPECIALLY SUITABLE FOR VEHICLE SUSPENSIONS

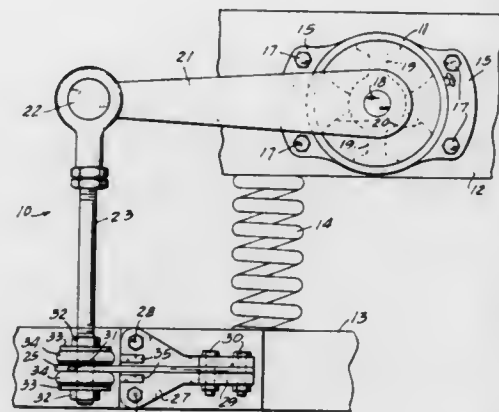
John Clayton Schultz, Buffalo, and Tsu Pin Shyu, Cheektowaga, both of N.Y., assignors to Houdaille Industries, Inc., Buffalo, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,271

Int. Cl. B60g 15/04, 15/06

U.S. Cl. 267-8 B

14 Claims



A damping system especially suitable for, but not limited to, vehicle suspensions is operable in a full range from low amplitude high frequency movements between relatively movable members to high amplitude low frequency movements between the members. The system includes a damper especially effective to control the high amplitude low frequency movements and having means for mounting in on one of the members, and a device tuned to damp the low amplitude high frequency movements having means for mounting in on the other of the members and being connected in series with the damper.

3,827,682

APPARATUS FOR ROTATION OF PLATES TO FACILITATE WELDMENT

Christopher J. Foster, Sr., Sands Point, and Christopher J. Foster, Jr., Port Washington, both of N.Y., assignors to Christopher J. Foster, Inc., Port Washington, N.Y.

Filed Jan. 17, 1973, Ser. No. 324,445

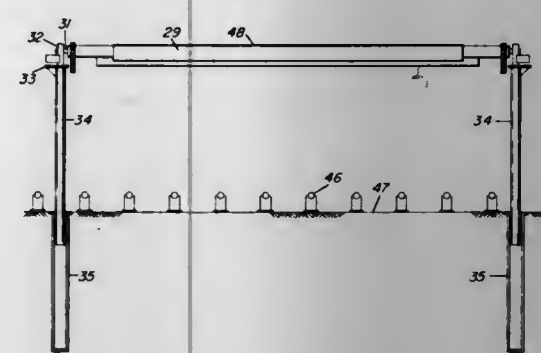
Int. Cl. B25b 11/00

U.S. Cl. 269-8

12 Claims

An apparatus and method for facilitating the weldment of plates and stiffness which form a section of predetermined size with the least amount of handling. The apparatus includes a

frame suitable to support the plates, holding devices to secure the plates to the frame, lifting mechanisms to lift the frame permit free movement of the movable jaw, such pinion being disengageable by a slidable spindle having a manually opera-



and plates for rotational purposes and a drive assembly to rotate the frame in an arc of 180° to facilitate the weldment of the plates together to form a plate section.

3,827,683

CLAMPING FRAME FOR PLASTIC SHEET MATERIAL

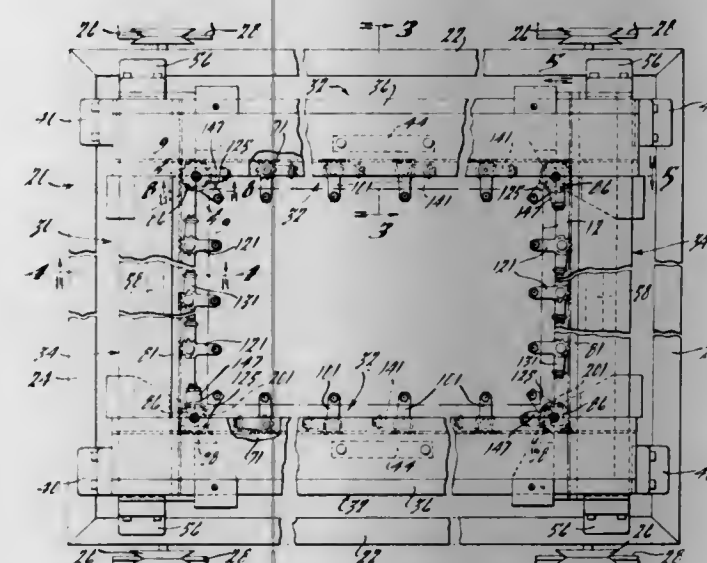
Ernest Y. Seborg, Rockford, and Harold R. Wanke, Cherry Valley, both of Ill., assignors to Greenlee Bros. & Co., Rockford, Ill.

Filed Mar. 6, 1972, Ser. No. 232,137

Int. Cl. B29c 17/02; D06c 3/08

U.S. Cl. 269-9

23 Claims



This disclosure relates to a frame for clamping a single sheet of plastic material or a pair of sheets of plastic material in parallel, closely spaced relation to each other during the routing of the plastic material through various stations during operations in which the sheet or sheets are formed into plastic products.

3,827,684

VICE

Robert Jacquet, 127, Rue Saint-Exupery 18100, Vierzon, France

Filed Feb. 21, 1973, Ser. No. 334,249

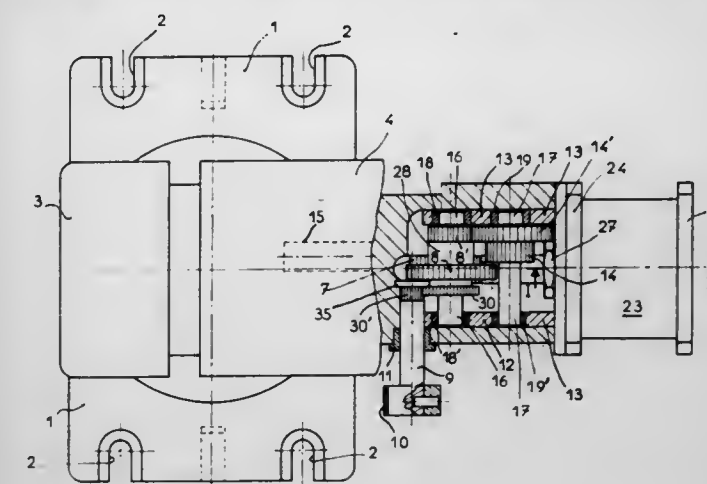
Claims priority, application France, Mar. 2, 1972, 72.07155

Int. Cl. B25b 1/18

U.S. Cl. 269-32

11 Claims

A vice having a movable jaw movable by a fluid-operated jack in which the piston rod of the jack moves a rack guided in the fixed part of the vice and connected through reduction gearing to a rack fixed to the movable jaw in arrangement such that one of the pinions of such gearing is disengageable to



3,827,685

CAM STOP POSITIONING APPARATUS

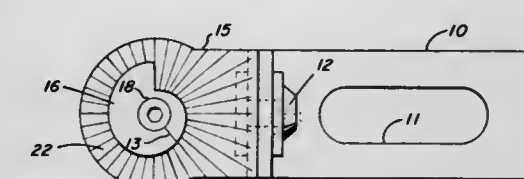
Stephen B. Wennes, Minneapolis, Minn., assignor to Dayton Rogers Manufacturing Company, Minneapolis, Minn.

Filed Sept. 22, 1972, Ser. No. 291,157

Int. Cl. B25b 5/04, 5/16

U.S. Cl. 269-229

8 Claims



Apparatus for positioning a work piece on a machine tool surface, said apparatus having a variable cam edge for holding the work piece and a calibrated scale for accurately repositioning the work piece.

3,827,686

STOP DEVICES

Bengt Rudolf Storkh, S-126 39 Hagersten, Pjajvagen 12, Sweden

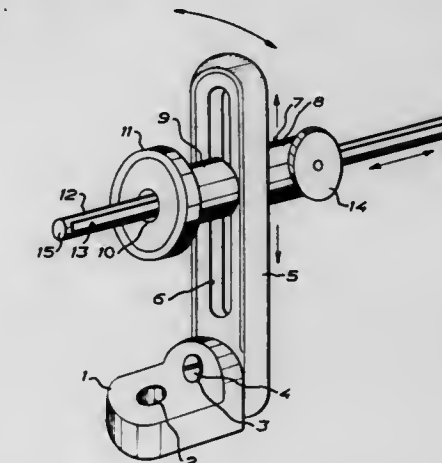
Filed Sept. 26, 1972, Ser. No. 292,297

Claims priority, application Sweden, Sept. 28, 1971, 12297/71

Int. Cl. B23q 3/04

U.S. Cl. 269-315

2 Claims



A stop device for use in positioning work pieces which for machining purposes are clamped in a vice or other clamping means. The stop device comprises a rotary foot which can be clamped to a work table or like means, an arm pivoted to the foot and lockable in a desired position thereto, a sleeve on said

arm extending transversely of the plane of pivotment of the arm, movable in the longitudinal direction of said arm and adapted to be clamped thereto, and a stop bar movable in and lockable to the sleeve, an end portion of said stop bar forming an abutment for the work piece.

3,827,687

DEVICE FOR SUPPORTING SENSITIVE PAPER CASSETTE FOR ELECTROPHOTOGRAPHY COPIER
Tateomi Kono, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

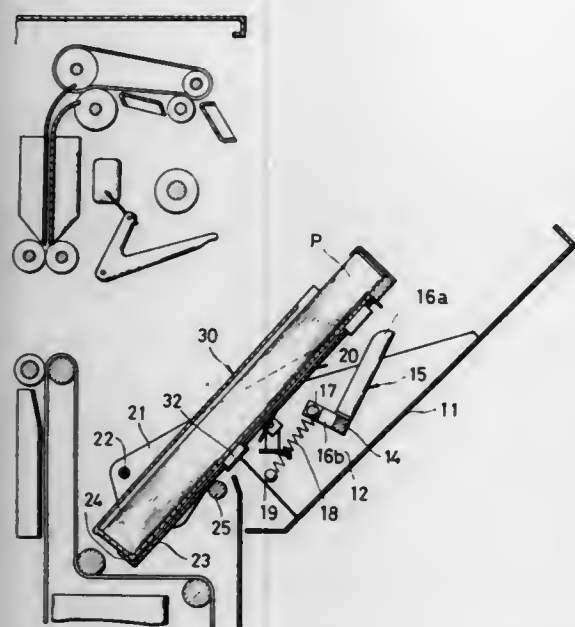
Filed Apr. 20, 1972, Ser. No. 246,033

Claims priority, application Japan, Apr. 21, 1971, 46-31286

Int. Cl. B65h 1/12, 1/26, 3/06

U.S. Cl. 271-117

4 Claims



A device for supporting a cassette of sensitive papers for xerography copier to elastically urge the cassette toward the driven feed roller so as to abut the uppermost of the stacked papers to automatically feed one by one to the copying zone, the elastical urging being made at one spot at a back wall of the supporter member in cooperation with the manual closing of the casing lid, and mounting of the cassette on the supporter member is made ready by engagement of a stud having an enlarged stud planted on the back wall of the cassette with a slot having a larger hole portion and a smaller hole portion.

3,827,688

SHEET DELIVERY MECHANISM

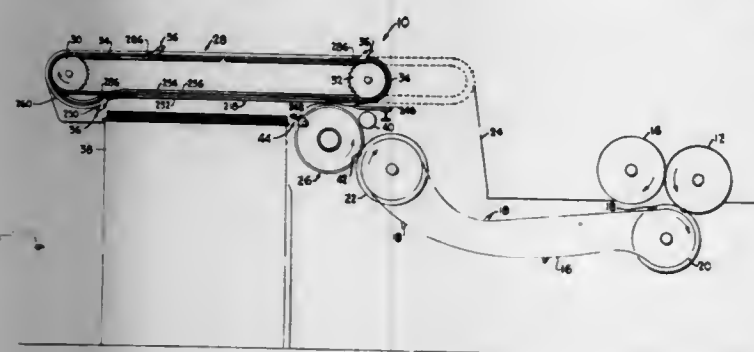
Dennis J. Luffy, Butler, and Robert L. Mosemiller, Pittsburgh, both of Pa., assignors to Miller Printing Machinery Co., Pittsburgh, Pa.

Filed Feb. 23, 1973, Ser. No. 335,253

Int. Cl. B65h 29/04

U.S. Cl. 271-203

7 Claims



A frame member having longitudinal side members and transverse connecting members is movably supported on the side frame members of the press so that the frame member can

be moved longitudinally relative to the transfer cylinder positioned therebelow. A drive shaft is rotatably journaled in the frame side members and has a plurality of drive sprockets mounted thereon in spaced relation to each other. Idler sprockets are supported from the rear transverse frame member and endless chains are reeved about the sprockets. Endless gripper guides are positioned adjacent the respective chains and have an inner rail and an outer rail with a guide track therebetween. The gripper guide has an intermediate portion at substantially the same elevation as the lower horizontal portion of the endless chains and a downwardly, depending, arcuate front portion that extends below the path of the endless chain. The gripper device that includes a pair of plates positioned on opposite sides of the gripper device has a pair of roller members positioned in the gripper track and secure the plates to each other. One of the plates has a depending arm member with a sheet gripper connected to the lower end portion of the arm. The gripper is arranged to engage the front edge of the sheet. The gripper device is connected to the adjacent chain by means of rods so that the chains propel the gripper device in the gripper track. As the gripper device is moved into the downwardly, depending, arcuate portion of the gripper track the forward velocity of the gripper device is reduced below the forward velocity of the chain connected thereto. Further, the depending arm on the plate member pivots rearwardly as it traverses the downwardly, depending, arcuate portion of the gripper track to further reduce the forward velocity of the gripper device while the chain is driven at a relatively constant velocity.

3,827,689

GYMNASTIC HORIZONTAL BAR

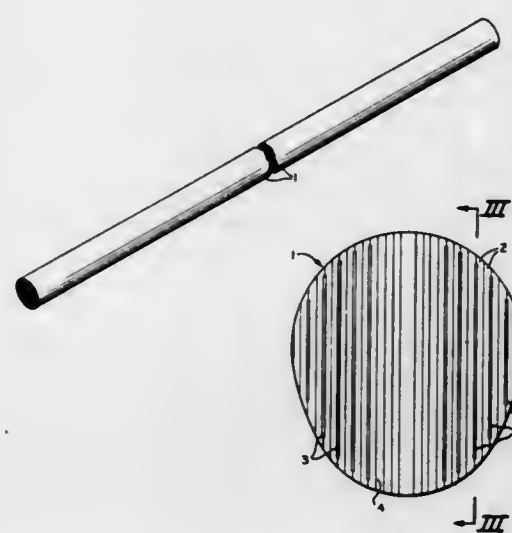
George W. Hyde, Mt. Pleasant, Pa., assignor to Permal Incorporated, Mount Pleasant, Pa.

Filed May 25, 1973, Ser. No. 364,017

Int. Cl. A63b 3/00

U.S. Cl. 272-63

5 Claims



A gymnastic horizontal bar is formed from thin wooden strips extending lengthwise of the bar side by side in parallel vertical planes, with laterally spaced reinforcing tapes sandwiched between some of the strips at both sides of the longitudinal axis of the bar. The tapes and wooden strips are laminated together to form a unitary bar of increased resistance to lateral impacts. The areas of the pair of wooden strips engaging the opposite sides of each tape are compressed by the tape so that the pair of strips engage each other above and below the tape, whereby the tapes are concealed and the bar has a continuous wooden surface.

3,827,690

BLOCKING SLED

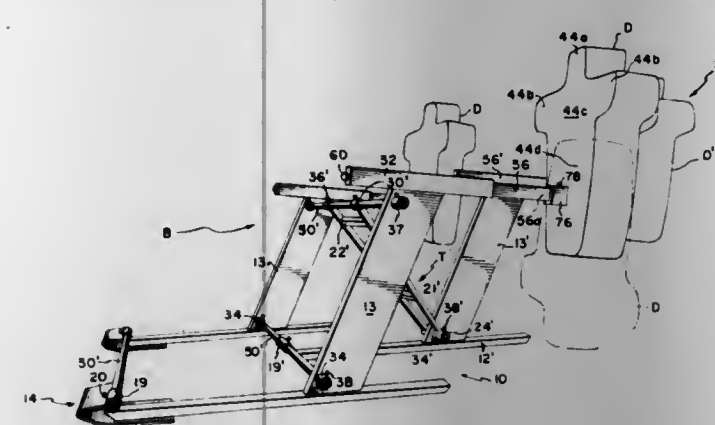
Orley David Rogers, Farwell, Mich., assignor to Rogers Athletic Co., Inc., Farwell, Mich.

Filed June 14, 1972, Ser. No. 262,689

Int. Cl. A63b 67/00

U.S. Cl. 273-55 R

22 Claims U.S. Cl. 273-85 F



A sled for training football players in the art of blocking and tackling including any selected number of individual, identical blocking sections each having a cantileverly supported blocking pad thereon adapted to be struck by a football player; each of the blocking sections is provided with a longitudinal runner having an upwardly extending support member for supporting the cantilever blocking pad support above the runner; the blocking sections are also adapted to be releasably coupled to an identical blocking pad section in a side-by-side relationship.

3,827,691

SIMULATED BASKETBALL GAME

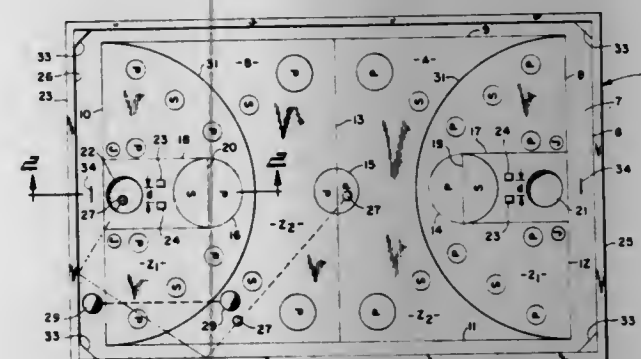
Vincent A. Benander, 4810 Donald Ave., Richmond Heights, Ohio 44143

Filed Mar. 28, 1972, Ser. No. 238,827

Int. Cl. A63f 7/06

U.S. Cl. 273-85 R

12 Claims



A gameboard having a flat, smooth playing surface on which a basketball court is imprinted. The court has a pair of recessed goals or baskets at opposing ends of the board for scoring points in the game. A bumper rail surrounds the playing surface of the gameboard. An ordinary penny is successively used by opponents in playing the game and scores are obtained by moving the penny into an opponent's goal. The penny may be caromed off the bumper rail in executing plays to score goals in the game. A plurality of chips are used by the opponents for blocking the pathway of the penny to the goals and a pair of upstanding spaced blocks in front of each recessed goal are utilized through which foul shots are attempted.

3,827,692

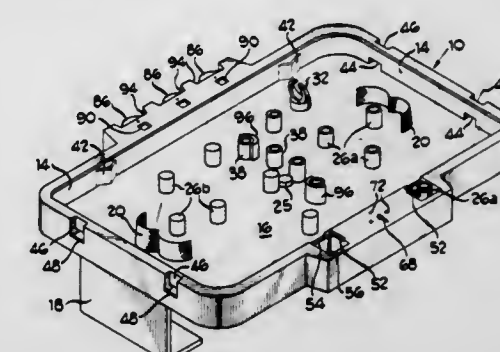
MAGNETIC TYPE GAME

Howard J. Morrison, Deerfield, and Robert K. Allen, Frankfort, both of Ill., assignors to Marvin Glass & Associates

Filed June 23, 1972, Ser. No. 265,632

Int. Cl. A63f 7/06, 9/14

20 Claims



A magnetic type game simulating sports action wherein a generally horizontal, elevated playing surface is provided with a generally horizontal transparent cover disposed in spaced relationship above the playing surface. A plurality of playing pieces are disposed for movement transversely over the playing surface beneath the cover, some of the playing pieces having magnetic portions on the tops thereof representing a first team of simulated players and another set of playing pieces having magnetic portions on the bottoms thereof representing a second team of simulated players. Manipulatable members are provided for each actual player of the game for positioning either beneath the playing surface or above the cover, depending on which team of simulated players he is to manipulate, each manipulatable member having a magnetic portion which attracts the magnetic portions of the playing pieces to move a chosen one of the playing pieces over the playing surface in response to movement of a player's manipulatable member.

3,827,693

RACING TOY APPARATUS

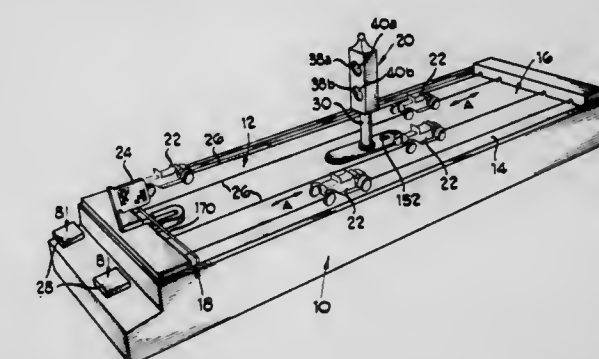
Gordon A. Barlow, Skokie, and Marvin I. Glass, Chicago, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Jan. 15, 1973, Ser. No. 323,705

Int. Cl. A63f 9/14

U.S. Cl. 273-86 F

23 Claims



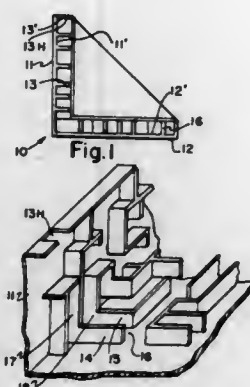
A racing toy apparatus which has an elongated raceway with starting and finishing ends. A plurality of simulated vehicles are movable in generally parallel paths longitudinally of the raceway by pulley and cable type members. A motor and reversible gear train is selectively engageable with a gear on one of the pulleys for each vehicle by a clutch operable independently by the participants to drive the vehicles in alternate forward and reverse intermittent operating intervals. A signal in the form of a traffic light is operatively associated with the reversing gear train to give a green light signal during the forward operation of the gears and a red light signal during the reverse operation of the gears. The participants attempt to be the first to move his respective vehicle to the finishing end of the raceway by timing the actuation of his individual clutch for moving his respective vehicle only during the forward operating intervals.

3,827,694 GAME APPARATUS

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840
Filed Jan. 24, 1972, Ser. No. 220,345
Int. Cl. A63t 7/00

U.S. Cl. 273—113

9 Claims



Constructions are provided in game boards and game board assemblies which employ one or more balls or otherwise manipulateable objects requiring skill on the part of the player by tilting, and in certain cases upending, the device in order to obtain an objective or predetermined movements of the manipulated device.

In one form, the gameboard is provided with a plurality of playing surfaces angulated with respect to each other and is shaped to permit a ball to travel from one playing surface to the other by properly manipulating the device. In another form, one or more holes are provided in the playing board surface through which a ball may fall and may be manipulated thereafter on the other playing surface. Suitable means are provided to restrict the movement of the ball against the other playing surface after it has fallen through the hole.

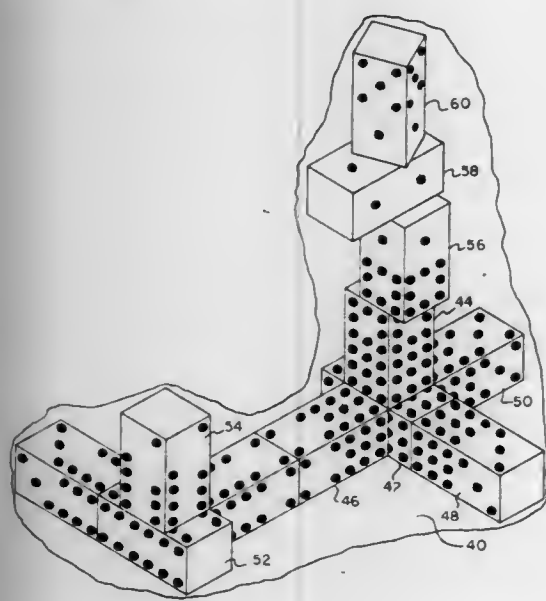
In yet another form, three dimensional configurations of maze type playing devices are provided which add to the playing interest and vary the degree of skill required.

3,827,695 THREE-DIMENSIONAL VERTICAL STACKING DOMINO GAME APPARATUS

Roy Paul Hess, 2760 Derbyshire, Cleveland, Ohio 44106
Filed Jan. 28, 1972, Ser. No. 221,603
Int. Cl. A63f 9/20

U.S. Cl. 273—137 D

8 Claims



A three-dimensional vertical stacking game includes a plurality of dominoes, each of which has a body with one end face for abutting stacking engagement with a face of another domino. Indicia markings are provided on at least two marked

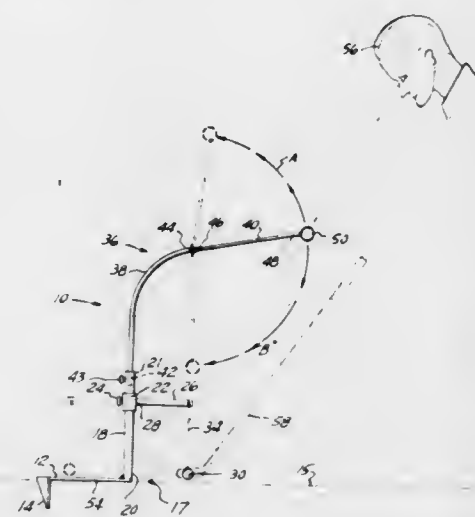
faces of the domino which are perpendicular to the one end face. The indicia identify two portions of each of the marked faces for use in playing the game. The body also has a second end face opposite to the one end face and perpendicular to the marked faces having indicia thereon, and third and fourth faces which are perpendicular to the first and second end faces. The faces comprise surface means on which other dominoes are stacked with matching adjacent indicia on each domino. The game also includes a storage container and a shaker. The storage container holds the dominoes and shaker therefor. The game is played by at least two players. The first player places a first domino on a horizontal playing surface. The second player selects a second domino having indicia which matches the indicia on the first domino and stacks the second domino directly on the first domino in a vertical direction so that the matching indicia on the first and second dominoes are adjacent to each other. A third domino having indicia which matches either of the played dominoes is selected by a subsequent player other than the second player. The third domino is placed in abutting relationship to the matching domino so that the matching indicia are adjacent to each other.

3,827,696 GOLF SWING TRAINING DEVICE

Richard A. Schafer, 38141 Donald, Livonia, Mich. 48154
Filed Nov. 21, 1973, Ser. No. 417,749
Int. Cl. A63b 69/36

U.S. Cl. 273—183 E

10 Claims



A golf swing training device and practice tee for aiding a golfer in developing the habit of keeping his head down while swinging a golf club. The training device includes a pivotally mounted horizontal attachment bar which selectively pivots in a horizontal plane, a golf ball suspended by a tether from the attachment bar, and an adjustable sighting guide member located between the golfer's head and the tethered golf ball. The golfer using the device may hit the tethered golf ball or alternatively, may pivot the tethered golf ball out of the way and substitute an untethered golf ball therefor.

3,827,697 AUTOMATIC RECORD PLAYER

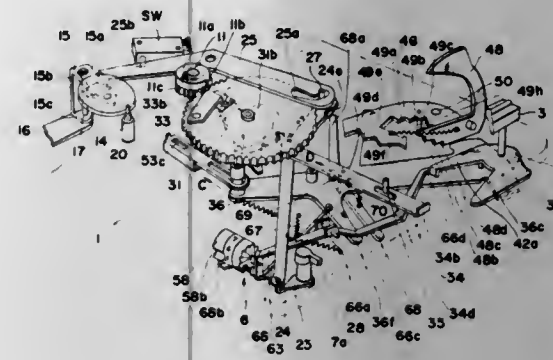
Seizo Miyoshi, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed May 1, 1972, Ser. No. 249,109
Int. Cl. G11b 17/16

U.S. Cl. 274—10 R

4 Claims

An automatic record player having a record changer by which a stack of records mounted on a changer spindle extending above the center of a turntable can be successively played out, wherein a cycle adjusting control is provided for enabling the record player to operate a predetermined number of times irrespective of the number of the records

mounted on the changer spindle. To this end, there is provided an index wheel having a plurality of characters on its peripheral surface for showing the number of records left un-



played or the desired number of performance done by the record player in an operative association with the movement of the tone arm.

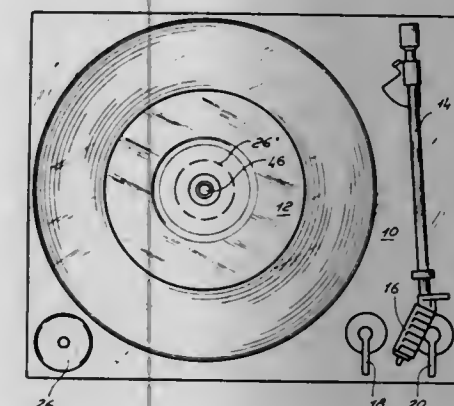
3,827,698

RECORD SEQUENTIALLY POSITIONING DEVICE FOR
AUTOMATIC PHONOGRAPH RECORD PLAYERS
Carlo Sostero, c/o Selmart S.p.A. 10 Via Bistagno, Torino,
Italy (10136)

Filed Sept. 17, 1973, Ser. No. 397,791
Claims priority, application Italy, Sept. 15, 1972, 29267/72
Int. Cl. G11b 17/04

U.S. Cl. 274—10 S

5 Claims



The specification describes a device for supporting phonograph records on the step of a long turntable spindle of an automatic record player, and for sequentially causing individual records to fall on said turntable for playing. The device comprise a long oscillatable arm located within said spindle, having an upper notched tip adapted to shifting the lowermost record in a stack located on said step, and disengaging it from said step, and a lower end portion cooperatively engaged in a control lever cooperating with the record layer program selection lever for phasedly oscillating said arm. The device is complemented with a separate body, designed for slidably fit on the upper portion of the spindle, over the record stack and designed for maintaining said stack horizontal and for latching said notched tip in its oscillated position when the last record of the stack has been caused to fall, for modifying the record player program. An ancillary member for adapting the device to manipulate large holed 45 r.p.m. records.

3,827,699

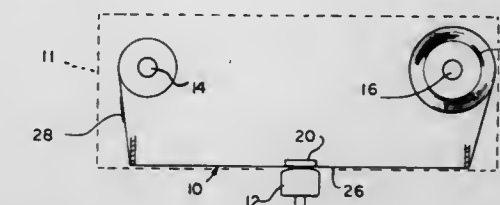
HEAD CLEANER FOR CASSETTE TAPES

Jerry Waugh, Lomita, Calif., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Dec. 7, 1972, Ser. No. 312,804
Int. Cl. G11b 5/40

U.S. Cl. 274—47

12 Claims



A cleaning leader for magnetic tapes comprising a plastic substrate and a non-abrasive coating having unoriented metal oxide particles dispersed through a binder, providing high and low spots on a surface of the coating.

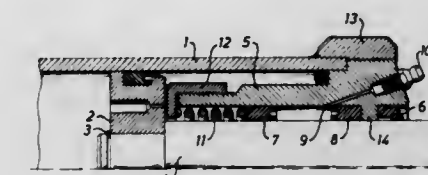
3,827,700 SEALING DEVICE

Sigurd Kaller, Vadursgatan 2A, S-58245 Linköping, Sweden
Filed Sept. 29, 1972, Ser. No. 293,718

Claims priority, application Sweden, Oct. 1, 1971, 12427/71; Aug. 29, 1972, 11105/72
Int. Cl. F16j 15/40

U.S. Cl. 277—59

4 Claims



A sealing arrangement for a high pressure gas cylinder closed at one end by a slideable piston. An annular space between the piston and cylinder carries opposing sealing members with facing sealing lips. Oil in the cavity between the sealing members is kept under pressure by the expansive force of the gas in the cylinder. The oil pressure is always maintained higher than the gas pressure by either a spring urging the sealing members together, or a stepped construction whereby the reactive area of the cavity is less than the active area between the piston and cylinder.

3,827,701

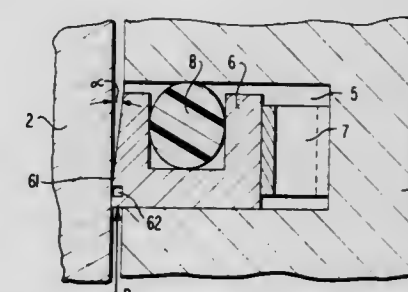
OIL SEAL FOR USE IN ROTARY PISTON INTERNAL COMBUSTION ENGINE

Hiroshi Sakamaki, Utsunomiya, Japan, assignor to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed Apr. 7, 1972, Ser. No. 241,937
Claims priority, application Japan, Apr. 8, 1971, 46-25834
Int. Cl. F01c 19/00

U.S. Cl. 277—81 P

2 Claims



An oil seal for use in a rotary piston internal combustion engine which has at least one annular groove provided on an

nular sliding face formed with an axial outer surface of the oil seal and adjacent to and facing an inside wall face of a side housing of the engine.

3,827,702

UNIDIRECTIONAL DIAPHRAGM FACE SEAL

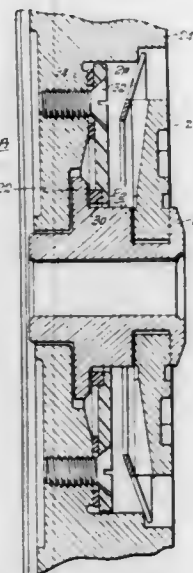
Olgerd S. Winiarz, Granada Hills, Calif., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Feb. 18, 1972, Ser. No. 227,358

Int. Cl. F16j 15/36

U.S. Cl. 277-88

1 Claim



A flexible diaphragm mounted seal operative in response to the differential pressure across the diaphragm.

3,827,703

RADIAL SHAFT SEAL WITH POSITIVE GARTER SPRING RETENTION

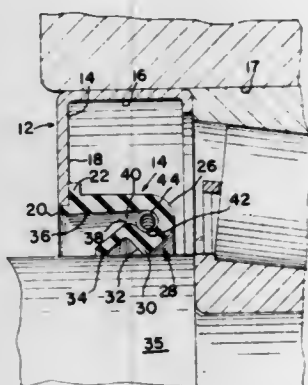
Robert V. Brink, Carpentersville, Ill., assignor to Chicago Rawhide Manufacturing Company, Chicago, Ill.

Filed July 23, 1971, Ser. No. 165,058

Int. Cl. F16j 9/06

U.S. Cl. 277-153

1 Claim



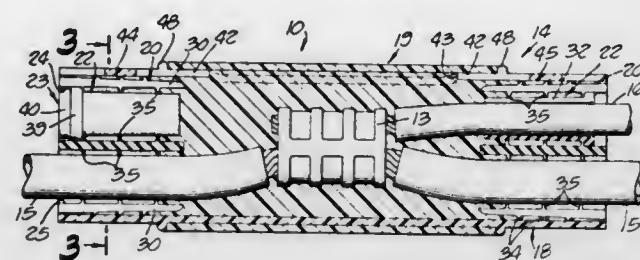
A shaft seal having a radially acting garter spring disposed in a relatively shallow spring-retaining groove which extends radially from one side wall of a relatively narrow, axially extending annular recess in the elastomeric body portion of the seal unit. The invention substantially reduces or eliminates "pop-out" of the garter spring, without diminishing the tolerance of the seal to radial run-out. In addition, seals of the present invention are able to be made by a method which reduces or eliminates the incidence of actual or potential splits in the outer wall of the spring-retaining groove, which in the prior art, resulted from excessive seal distortion occurring in newly formed seals during axial separation of the mold parts.

3,827,704
SEALING GROMMET AND PLUG FOR USE WITH ELECTRICAL CABLING
George W. Gillemot, 2331 20th St., Santa Monica, Calif. 90405, and John T. Thompson, 244 Loring St., Los Angeles, Calif. 90024

Division of Ser. No. 263,551, June 16, 1972. This application May 23, 1973, Ser. No. 363,075
Int. Cl. F16j 9/00; H02g 15/18

U.S. Cl. 277-209

13 Claims



A sealing grommet and detachable plug for use in providing a fluid-tight seal between an electrical cable and the wall of a housing or the like. The grommets are formed of soft elastomeric material having outwardly projecting flexible ribs adapted to have sealing engagement with an opening seating the grommet. One or more passages through the grommet are appropriately sized to accommodate a cable and preferably include inwardly projecting flexible sealing ribs. The grommet is preferably slit lengthwise of one side to permit assembly of the grommet about a cable from the side of the cable. Cables of different size are accommodated by providing a set of concentric grommets which interest and one or more of which may be detached as necessary to provide a snug seal for a particular size cable. When a cable is not present the smallest grommet of the assembly is closed by a solid plug.

3,827,705

TRICYCLE DRIVE TRAIN

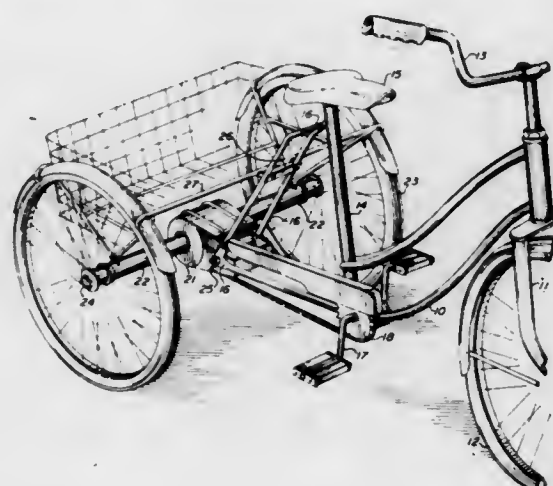
Raymond E. Templeton, 11144 Kolina Ln., Sun City, Ariz. 85351

Filed Dec. 11, 1972, Ser. No. 313,987

Int. Cl. B62k 13/04

U.S. Cl. 280-7.15

1 Claim



An improved drive train is provided for a tricycle having a front steering wheel and two rear driven wheels, the tricycle including a pedal crank for generating motive power and a drive train for transferring the motive power from the pedal crank to the driven wheels. The improvement comprises in cooperative combination a differential gear for applying motive power equally to each of said driven wheels and coaster brake means for selectively transmitting the motive power to the driven wheels.

In one embodiment, the motive power from the pedal crank is transmitted directly through a chain-sprocket combination

to a single conventional bicycle coaster brake. The motive power is then selectively transmitted from the coaster brake to a differential gear assembly which, in turn, drives a pair of rear axles having conventional front bicycle wheels directly attached to the outer ends thereof.

In another embodiment, power from the pedal crank is transmitted through a chain-sprocket assembly directly to a differential gear assembly which drives a pair of power transmission shafts having sprocket gears mounted on the outer ends thereof. Motive power is transmitted from each of the shaft-mounted sprockets through a drive-chain to a coaster brake assembled integrally in a conventional rear bicycle wheel.

3,827,706
WHEELED SKIS

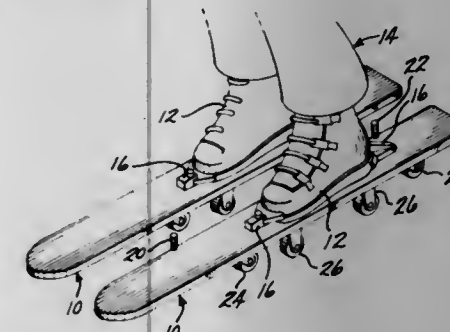
Pierce D. Milliman, 603 34th Ave. E., Seattle, Wash. 98102

Filed Sept. 11, 1972, Ser. No. 287,749

Int. Cl. A63c 17/04

U.S. Cl. 280-11.1 BT

6 Claims



A wheeled ski adapted for travel on a ground surface, such as a paved roadway, in a manner to closely simulate actual maneuvers and conditions of conventional snow skiing. There are two ski members, each having a forward and rear turning and sliding wheel located on the longitudinal center axis of the ski, and two sets of tracking wheels located on opposite sides of the ski member intermediate the forward and rear turning and sliding wheels. The tracking wheels each rotate about a horizontal transverse axis substantially fixed with respect to the longitudinal center line of the ski, while each of the turning and sliding wheels has a caster type mounting, in that the horizontal rotating axis of the wheel is spaced horizontally from a vertical axis about which a mounting for the wheel rotates. This particular combination of wheel elements on the ski members provides close simulation for the user of maneuvers performed in conventional snow skiing.

3,827,707
PORTABLE CARRIER

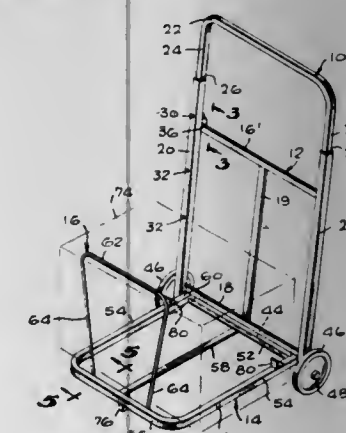
Jacob Bierman, 313 Cochran Ave., Los Angeles, Calif. 90036

Filed Dec. 26, 1972, Ser. No. 318,697

Int. Cl. B62b 11/00

U.S. Cl. 280-36 C

10 Claims



A portable carrier is described comprising a back support member, a bottom support member for conveying luggage,

packages and the like, pivotally mounted at the lower end of the back support member, and a front support member pivotally mounted at the forward end of the bottom support member, a handle connected to the back support member which can be adjusted as desired, and a pair of wheels mounted at the lower extremity of the back support member for mobility of the carrier. The portable carrier is designed so that the front support member can be pivoted downwardly into engagement with the bottom support member, and the bottom support member, with the front support member in nested position thereagainst, in turn pivoted upwardly into engagement with the back support member, whereby the carrier in such inoperative nested substantially planar condition, occupies a minimum of storage space, and in such condition is readily portable.

3,827,708

PORTABLE PICNIC CART

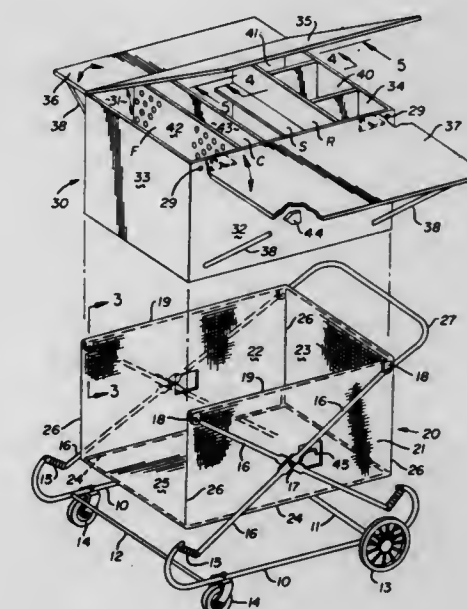
Juanita Derry, 2009 W. Washington St., New Castle, Pa. 16101

Filed Aug. 23, 1973, Ser. No. 391,001

Int. Cl. B62b 1/20

U.S. Cl. 280-36 R

6 Claims



A portable picnic cart includes a wheeled, foldable frame having a flexible carrier suspended therefrom and a removable chest, part of which is refrigerated, normally disposed therein. The top portion of the chest together with a pair of sidewardly extensible leaves form a table top and means on the wheeled foldable frame engage the removable chest when in position therein so that the chest holds the wheeled, foldable frame in upright position.

3,827,709

FIFTH WHEEL COUPLING

Francis Eli Madura, Whiting, and John Allan Kent, Chester-ton, both of Ind., assignors to Amsted Industries Incorporated, Chicago, Ill.

Filed Mar. 28, 1973, Ser. No. 345,533

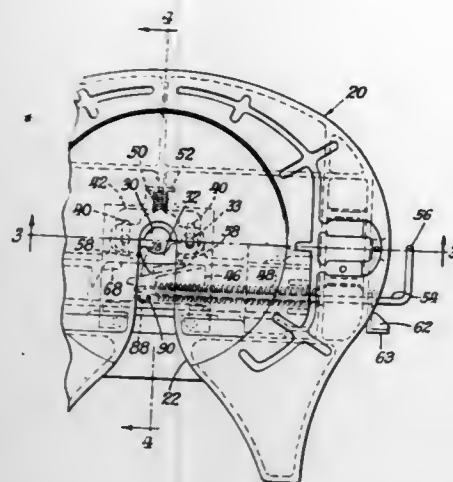
Int. Cl. B62d 53/12

U.S. Cl. 280-434

9 Claims

A fifth wheel coupling comprises a king-pin follower engageable with a bottom flange on a king-pin as it moves into a slot of a fifth wheel plate whereby the follower releases a lock which is spring-biased to locked position whereat a rear jaw

confines the king-pin against a front jaw of the plate. The lock engages the rear jaw along complementary wedge surfaces



which in conjunction with an elongated pivot pin hole in the rear jaw ensures snug fit of the king-pin within the jaws despite worn condition of the parts.

3,827,710

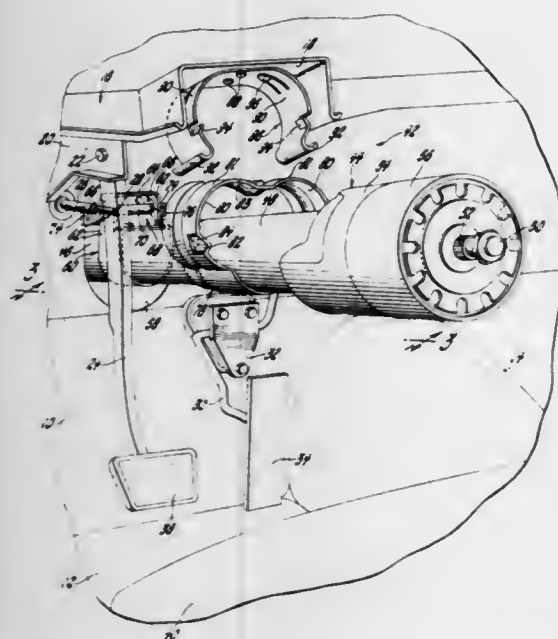
VEHICLE STEERING COLUMN INSTALLATION

Lehman J. Connell, Frankenmuth, and Lyle H. Durkee, Hemlock, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed June 25, 1973, Ser. No. 373,162
Int. Cl. B62d 1/18

U.S. Cl. 280—87 R

4 Claims



A vehicle steering column installation including a collapsible steering column assembly and an improved arrangement for supporting the latter on the body portion of the vehicle, the improved supporting arrangement including a collar on an upper mast jacket section of the column assembly engaging a rigid bar on the body portion to support the column assembly on the body portion for pivotal movement to a fully installed position, a keeper on the upper mast jacket section defining a pair of integral spring biased retaining fingers, and a striker on an upper mast jacket section of the column assembly defining a pair of bearing surfaces. The striker engages the keeper during pivotal movement of the column assembly toward the fully installed position to separate the retaining fingers which automatically engage the bearing surfaces when the column assembly achieves the fully installed position thereby to retain the column assembly in the fully installed position.

3,827,711
FRONT WHEEL SUSPENSION FOR A PASSENGER MOTOR VEHICLE

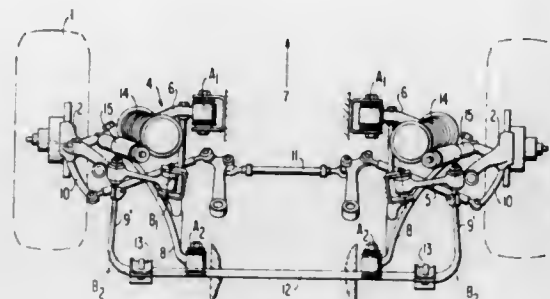
Alf Muller, Bittenfeld, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

Filed Aug. 15, 1973, Ser. No. 388,656
Claims priority, application Germany, Dec. 30, 1972, 2264278

Int. Cl. B62d 7/20

U.S. Cl. 280—96.2 B

12 Claims



A front wheel suspension for motor vehicles which includes a steering system disposed essentially to the rear of a vehicle cross plane containing the wheel centers that contains a steering linkage and a steering gear, as well as a wheel guide system formed by double cross guide members which include each a forward guide arm extending substantially in the vehicle cross direction and a rear guide arm forming the longitudinal support of the suspension; the cross guide members are elastically connected to the vehicle superstructure in points of pivotal connection which form a wide support base; the steering axis of the wheels which is determined by the points of pivotal connection of the cross guide members with the wheel carrier thereby extends obliquely downwardly and forwardly and intersects the vehicle cross plane containing the wheel centers intermediate the wheel center and the point of contact of the wheel and is so inclined in relation to the respective wheel plane that a steering roll radius results which is equal to or smaller than zero.

3,827,712

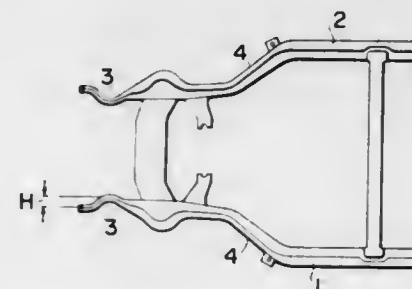
STRUCTURAL FRAME CAPABLE OF ABSORBING IMPACT ENERGY

Ichiro Suzuki, and Hiroyuki Watanabe, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed Oct. 31, 1972, Ser. No. 302,549
Claims priority, application Japan, Dec. 8, 1971, 46-99271
Int. Cl. B62d 21/00

U.S. Cl. 280—106 R

4 Claims



A structural frame capable of absorbing impact energy comprises structural frame member of metallic material defining closed rectangular cross-section. Portion of each of the structural frame members is bent in the direction perpendicular to the longitudinal direction of the frame and energy absorption materials of metallic material with bowl-shaped projections are attached to those two opposing inner surfaces of the frame members which oppose in the direction of bending so that the bowl-shaped projection abut against each other.

Upon collision, due to the resistance to plastic deformation of the bowl-shaped deformation the shape of the cross section of the structural frame may be maintained in its initial state and no abrupt decrease of blending moment takes place.

3,827,713

PASSIVE SEAT BELT ASSEMBLY FOR AUTOMOBILE OR THE LIKE

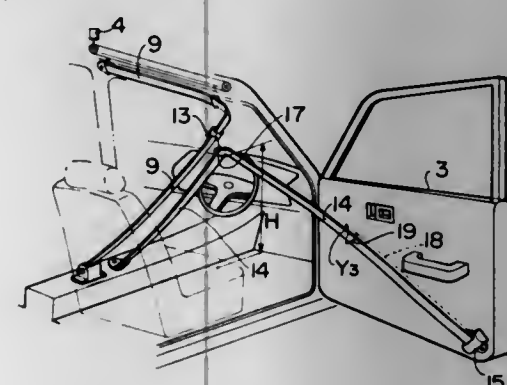
Katsuo Sakurai, Toyota, and Jiro Chofuku, Yokosuka, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed Dec. 5, 1972, Ser. No. 312,321

Claims priority, application Japan, Dec. 8, 1971, 46-99272
Int. Cl. B60r 21/02

U.S. Cl. 280—150 SB

2 Claims



A passive seat belt for an automobile or the like. A shoulder belt is linked to a guide assembly which, in turn, is linked to a drive means actuated in response to open-close operation of a door and which is mounted on the roof side rail so that it reciprocates to and fro along the rail, and a wrap belt is linked to a guide means mounted at a suitable position on the shoulder belt. Both belts take restrictive positions where passenger is constrained and non-restrictive positions in response to closing and opening of the door.

3,827,714

AUTOMATIC TENSIONING AND RELEASE DEVICES FOR AUTOMOTIVE SAFETY HARNESSES

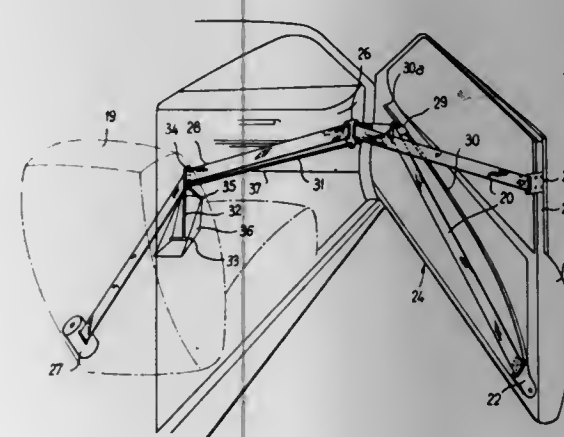
Andre Lefeuvre, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt and Automobiles Peugeot, Paris, both of, France

Filed Oct. 31, 1972, Ser. No. 302,548

Claims priority, application France, Nov. 10, 1971, 71.40357; May 17, 1972, 72.17653
Int. Cl. B60r 21/10

U.S. Cl. 280—150 SB

5 Claims



This device for retracting and restoring to an operative position the safety harnesses for the passengers of a motor vehicle comprises a safety harness consisting essentially of a strap, a pair of anchoring point for said strap which are disposed at dif-

ferent levels on the vehicle door and spaced laterally in relation to the seat adjacent to said door, a buckle slidably fitted on said strap, a first traction element secured to said buckle, a winder for said traction element secured to the passengers compartment at floor level, a strap guide element movable in relation to a fixed guide element and a second traction element for pulling said movable guide element, wherein one end of said second traction element is rigid with a fixed point of the passengers compartment and the other end is rigid with said movable guide element, the sliding buckle being also slidably mounted on said second traction element.

3,827,715

PYROTECHNIC GAS GENERATOR WITH HOMOGENEOUS SEPARATOR PHASE

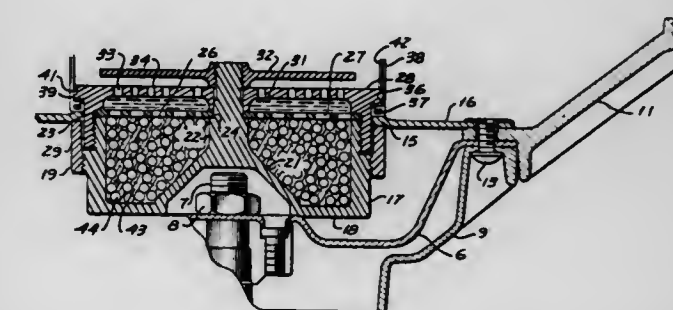
Robert W. Lynch, Fountain Valley, Calif., assignor to Specialty Products Development Corporation, Cleveland, Ohio

Filed Apr. 28, 1972, Ser. No. 248,738

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

14 Claims



A pyrotechnic gas generator in an automobile passenger restraint bag system is described. The preferred arrangement in the automobile steering wheel inflates a driver restraint bag in about 25 milliseconds with a deflagration granular propellant of low net heat output. To raise the burn rate for the cool propellant an inert non-crushable solid separator phase such as steel balls is uniformly dispersed in the propellant and immobilized for inhibiting segregation of the propellant and separator phase. In one embodiment the gas generator cavity is completely filled with steel balls having the granular propellant dispersed therebetween. The separator phase also withdraws heat from the resultant gas and freezes out non-gaseous reaction products.

3,827,716

SAFETY VEST

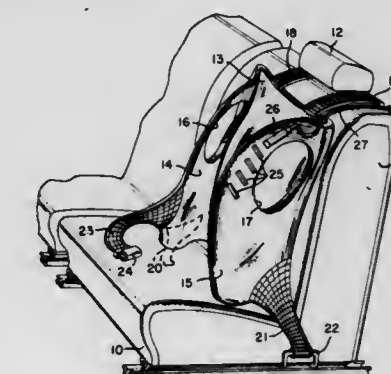
Rudolph Marion Vaughn, 2172 Salt Air Dr., Santa Ana, Calif. 92705, and David M. Harney, 3010 Country Club Dr., Glendale, Calif. 91208

Filed Apr. 11, 1973, Ser. No. 350,032

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

5 Claims



A safety vest for use in an automobile seat includes a back and right and front panel portion having right and front armholes respectively. The upper edge of the back is secured to

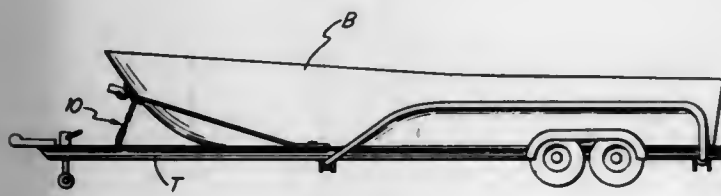
the back seat of the automobile and the lower right and left hand portions of the front panels are secured on lower sides of the seat. A single fastening strap extends diagonally from the lower right hand portion of the right front panel to the upper left hand portion of the left front panel and is held in place by a magnet within a slot structure for receiving a hook on the end of the fastening belt. Inflatable means responsive to a force greater than 4 g's is arranged to be actuated in front of a person's face for protection in the event of a crash.

3,827,717

PROW TIE-DOWN DEVICE FOR BOAT TRAILERS
William P. Whitley, Jr., 4525 E. 10th Ln., Hialeah, Fla. 33013
Filed Jan. 15, 1973, Ser. No. 323,534
Int. Cl. B60p 7/08

U.S. Cl. 280—179 R

3 Claims



A tie-down device for yieldingly attaching the prow of a boat to the framework of a boat trailer so as to minimize relative movement therebetween during trailering, is described. A single-acting hydraulic unit is connected in tandem with helical tension springs and in series with a turnbuckle; and attachment means is provided at each end for connection between the winch eye at the prow of a boat and the framework of the boat trailer on which the boat is cradled. The device is slow acting in the direction of expansion due to the dampening effect of the hydraulic unit, while at the same time affording quick return to normal, withdrawn position upon the release of stress, thereby minimizing bouncing of the boat on the trailer while being trailered over rough terrain.

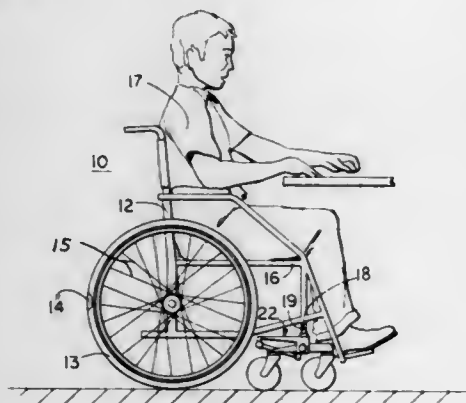
3,827,718
WHEEL CHAIR

Paul F. Curry, 1281 Middletown-Eaton Rd., Middletown, Ohio 45042

Filed May 30, 1973, Ser. No. 365,124
Int. Cl. B62b 5/04, 9/02

U.S. Cl. 280—242 WC

5 Claims



A wheel chair having a main framework supported by a pair of spaced main wheels rotatably mounted adjacent a rear portion thereof, and by casters carried by a pair of spaced housings mounted adjacent opposite ends of a front portion thereof. A swinging frame is pivotally mounted on each housing. A pair of caster supports is pivotally mounted on each swinging frame on opposite sides of the pivot thereof. Casters are rotatably mounted on the caster supports to support the front portion of the wheel chair. A stop bar is mounted on each of the housings and extends transversely of the swinging frame in the path of one of the casters on the swinging frame

so that if the other caster on that swinging frame moves over an edge of a step, that one of the casters engages the stop bar to arrest movement of the wheel chair.

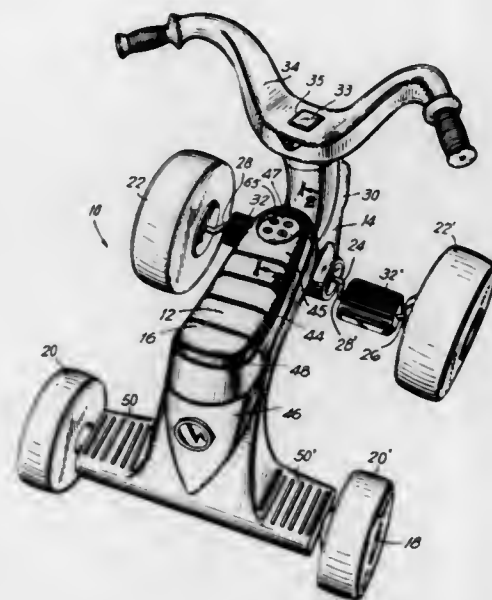
3,827,719

TOY CYCLE CONSTRUCTION
Raymond J. Lohr, and James Smith, both of Erie, Pa., assignors to Louis Marx & Co., Inc., New York, N.Y.

Filed Oct. 2, 1972, Ser. No. 294,127
Int. Cl. B62m 1/02; B62k 5/08

U.S. Cl. 280—259

6 Claims



A toy cycle in which the front wheel assembly is pivotally connected to the vehicle body for steering the vehicle and the pair of wheels carried by the front wheel assembly are mounted on a drive shaft journaled in the assembly, one wheel being drivable thereby. A pair of driving pedals are mounted on the drive shaft for driving the drive shaft to drive the drive wheel forwardly. Pivotal connecting means between the front wheel assembly and vehicle body are positioned rearwardly of the drive shaft whereby the vehicle has a small turning radius without cramping a driver's leg movement on the driving pedals.

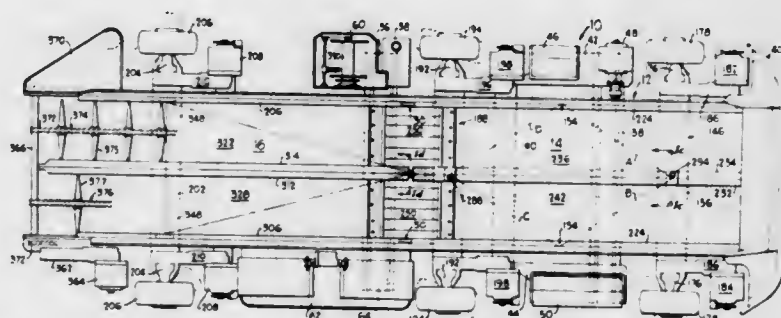
3,827,720

ARTICULATED HAULAGE VEHICLE
Arthur L. Lee, 2050 Tremont, Columbus, Ohio 43221

Filed Apr. 4, 1973, Ser. No. 347,644
Int. Cl. B60d 1/00

U.S. Cl. 280—400

11 Claims



The haulage vehicle has a frame member with separate front and rear sections that are connected to each other by universal means and are free to articulate in a plurality of planes. The frame rear section has a transversely mounted rear axle adjacent the rear portion on which a pair of propelling wheels are mounted and a transversely mounted intermediate axle adjacent the front portion of the frame rear section on which a pair of intermediate propelling wheels are mounted. The frame front section has a transversely mounted

front axle on which a pair of front propelling wheels are mounted. Separate propelling motors are mounted adjacent each of the propelling wheels and are drivingly connected to the adjacent propelling wheel. All of the propelling wheels are steerable and the drive motors are movable therewith. A body member is supported on the frame rear section and a boom member is supported on the frame front section. The boom member is connected to the body member by a plurality of longitudinally extending flexible plates, so that the boom and body members are free to articulate in a plurality of planes. Endless conveying means are positioned in the longitudinal haulage compartment formed by the body and boom members. With this arrangement, all of the propelling wheels on the haulage vehicle remain in contact with the ground as the haulage vehicle moves over uneven terrain and the haulage vehicle follows the contour of the uneven terrain.

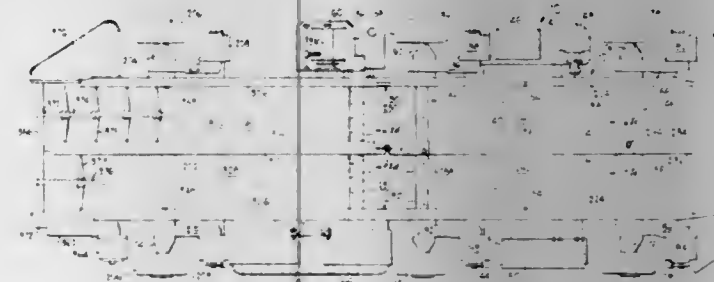
3,827,721

ARTICULATED HAULAGE VEHICLE
Arthur B. Coval, 180 E. Domnion Blvd., Columbus, Ohio 43214

Filed Apr. 4, 1973, Ser. No. 347,645
Int. Cl. B60d 1/00

U.S. Cl. 280—400

8 Claims



The haulage vehicle has a frame member with separate front and rear sections that are connected to each other by universal means and are free to articulate in a plurality of planes. The frame rear section has a transversely mounted rear axle adjacent the rear portion on which a pair of propelling wheels are mounted and a transversely mounted intermediate axle adjacent the front portion of the frame rear section on which a pair of intermediate propelling wheels are mounted. The frame front section has a transversely mounted front axle on which a pair of front propelling wheels are mounted. Separate propelling motors are mounted adjacent each of the propelling wheels and are drivingly connected to the adjacent propelling wheel. All of the propelling wheels are steerable and the drive motors are movable therewith. A body member is supported on the frame rear section and a boom member is supported on the frame front section. The boom member is connected to the body member by a plurality of longitudinally extending flexible plates, so that the boom and body members are free to articulate in a plurality of planes. Endless conveying means are positioned in the longitudinal haulage compartment formed by the body and boom members. With this arrangement, all of the propelling wheels on the haulage vehicle remain in contact with the ground as the haulage vehicle moves over uneven terrain and the haulage vehicle follows the contour of the uneven terrain.

3,827,722

SAFETY CHAIN ATTACHMENT FOR ROOF-MOUNTED TRAILER HITCH

Dennis D. Miller, and Jerry W. Karr, both of Warrensburg, Mo., assignors to Harmon Industries, Inc., Grain Valley, Mo.

Filed Jan. 8, 1973, Ser. No. 321,864

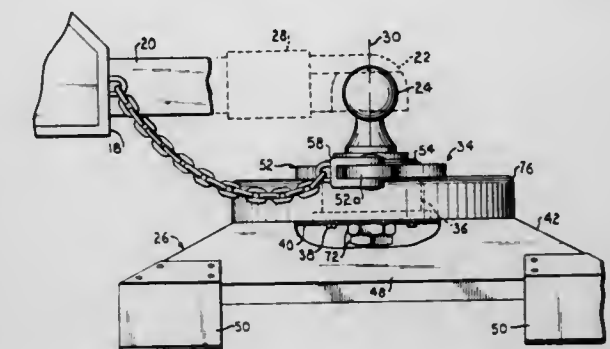
Int. Cl. B62d 53/10

U.S. Cl. 280—432

4 Claims

A hitch assembly which connects the tongue of a trailer and one or more safety cables or chains to a towing vehicle,

wherein relative rotation of the vehicle and trailer about the hitch axis is permitted without interference. The assembly includes a safety coupling device for the safety chains, such device having a fixed hub coaxial with the hitch axis and a rotatable element supported on the hub for rotation thereon. The element includes a pair of opposed, radially outwardly extending, horizontal arms to which two safety chains are connected that extend from the trailer body. The hub is secured by fasteners directly to the supporting structure of the hitch



assembly independently of the hitch ball or other hitch component, so that failure of the primary hitch does not affect the safety coupling. The arrangement is particularly advantageous in roof-mounted hitches where the vehicle and trailer are capable of unlimited relative rotation, in that the arms rotate with the trailer as the latter and the vehicle undergo relative rotation to prevent the safety chains from interfering with the free movement of either the vehicle or the trailer about the hitch axis.

3,827,723

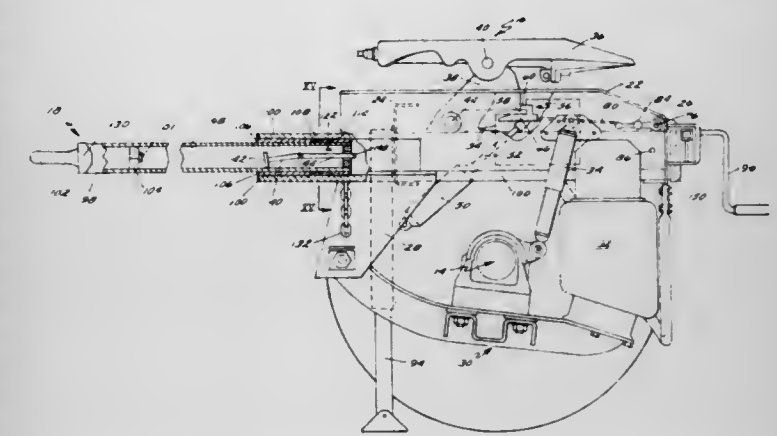
DOLLY FOR TRACTOR TRAILERS

Charles G. Neff, Saratoga, Calif., and William F. Beebe, Holland, Mich., assignors to Holland Hitch Company, Holland, Mich.

Filed Nov. 30, 1972, Ser. No. 310,892
Int. Cl. B62d 53/02

U.S. Cl. 280—476 R

14 Claims



A convertible dolly assembly having an elevatable fifth wheel and a specially locked, telescopically mounted drawbar. The dolly may be employed as a tandem axle on a tractor by lowering the fifth wheel, retracting the drawbar and fitting the drawbar and its supporting structure into a sleeve having locking means therein positioned at the rear of the tractor. Special cooperating locking means on the drawbar and the tractor include a rotatably engageable lock coupling on the end of the drawbar and a cooperable lock coupling in a sleeve-mount on the tractor. For use as a towing dolly to pull a second trailer, the drawbar is rotated 90° thereby unlocking it and allowing it to be extended. Once extended, it is again rotated 90° to lock it in extended position. The fifth wheel can be locked in its raised position by a pair of special locking and support keepers slidably mounted on the frame.

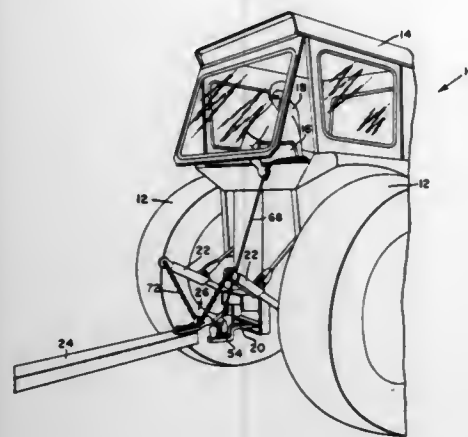
3,827,724 COUPLING DEVICE

John William Ackley, Moline, Ill., assignor to Deere & Company, Moline, Ill.

Filed Feb. 16, 1973, Ser. No. 333,315
Int. Cl. B60d 1/04

U.S. Cl. 280—511

8 Claims



A remotely actuatable coupling device having a ball hitch mounted on an agricultural tractor is adapted to accommodate different type hitch-engaging means carried by the tongue of the towed implement. Raising and lowering of the implement tongue is accomplished by the movement of a pick-up bale suspended from the pivotal draft links of the tractor. A keeper, mounted on the tractor and which can be controlled from the operator's station, releasably locks the engaging means to the ball hitch.

3,827,725 INFORMATION DEVICE

Alfred Fuetsch, Schulhausstrasse 636, CH-8307 Tagelswangen, Switzerland

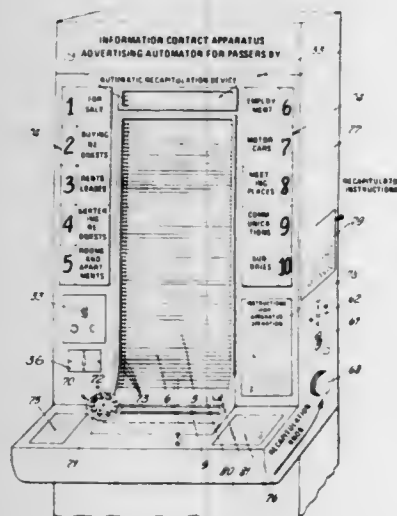
Filed Sept. 25, 1972, Ser. No. 292,026

Claims priority, application Switzerland, Sept. 30, 1971, 14334/71

Int. Cl. B42d 19/00

U.S. Cl. 281—8

10 Claims



The invention provides an information device comprising a casing including a viewing window and a closable writing aperture, means for supporting in said casing material to receive inscriptions, a take-up means to receive said inscription material after passage past the writing aperture and the viewing window, means for temporarily opening the writing aperture, and means for shifting the inscription material past said aperture and said viewing window.

3,827,726 IDENTIFICATION CARDS

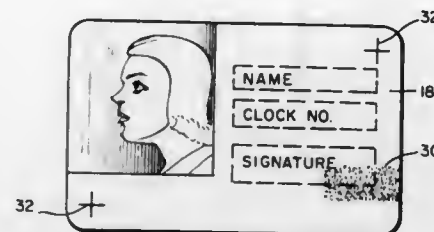
Robert A. McVoy, Melrose, and Ronald R. O'Connor, Bedford, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed May 2, 1972, Ser. No. 249,532

Int. Cl. B42d 15/00

U.S. Cl. 283—7

8 Claims



Identification cards including I. D. credit cards comprising a sheet material bearing a photographic image pattern preferably prepared by diffusion transfer processes. A portion of the photographic image pattern provides a security feature and comprises a partial or incomplete portion of a predetermined validation pattern. The predetermined validation pattern becomes apparent when another medium containing the residual portion of the validation pattern is superposed on the partial pattern which is part of the photographic information stored on the information-bearing surface.

3,827,727

CONSTRICTOR RING AND TUBE JOINT

Kurt O. Moebius, P.O. Box 2625, Palos Verdes Peninsula, Calif. 90274

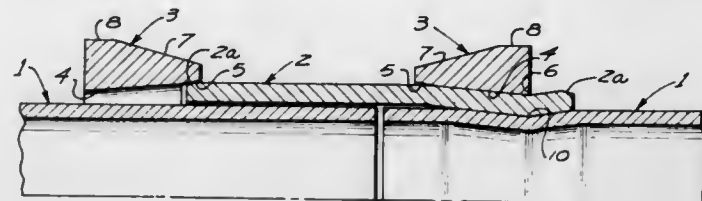
Continuation of Ser. No. 876,682, Nov. 14, 1969, abandoned.

This application June 26, 1972, Ser. No. 266,055

Int. Cl. F16l 13/14

U.S. Cl. 285—27

13 Claims



A constrictor ring and tube joint formed thereby in which the constrictor ring is provided with a tapered bore and which is also tapered externally in such a manner that the end having the smaller internal diameter also has the greater external diameter. The constrictor ring is internally dimensioned to be partially received on a collar or coupling connecting the ends of two tubes placed in abutment or the enlarged or bell end of a tube which receives the plain end of a mating tube and then is forced over the collar or bell end to cause local annular compression of the collar or bell end sufficiently to cause corresponding annular compression of the tube within and produce a high strength fluid tight tube joint.

3,827,728

PIPE CONNECTORS

Joseph H. Hynes, Ojai, Calif., assignor to Vetco Offshore Industries, Inc., Ventura, Calif.

Filed Oct. 30, 1972, Ser. No. 301,840

Int. Cl. F16l 15/00

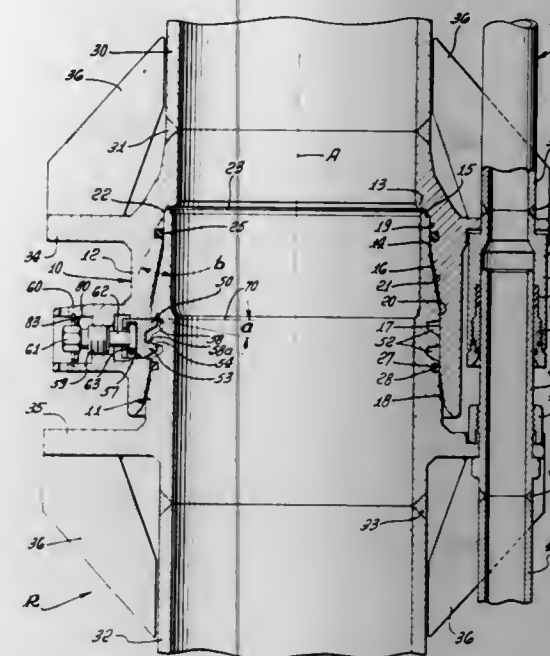
U.S. Cl. 285—90

14 Claims

A connector particularly useful in securing sections of an underwater oil well marine riser together, including a pin member received in a box member, the pin and box members being secured together by a plurality of lock dogs, or the like,

in the box member forced radially inwardly within a groove in the pin member, the groove and dogs having coengaging cam surfaces exerting an axial thrust between the pin and box members, compressing the pin member against the box in

tion by circumferentially moving a handle attached to the member. Movement of the handle causes a cam surface on the connecting member to engage a cam on the locking member thereby causing the locking member to move radially inward toward the surface of the sink sleeve and into a circumferential locking slot thereon. This places the disposer in a first



metal-to-metal sealing contact, the pin member being retained in compression to store energy therein and compensate for tensile loads imposed on the pin member so as to maintain the metal-to-metal sealing contact.

3,827,729

ADAPTER FOR USE WITH TRACHEAL TUBES

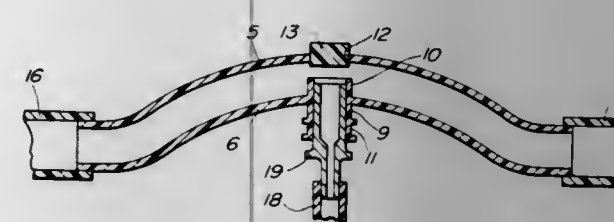
Jack M. Kamen, 440 Tippecanoe Pl., Gary, Ind. 46403

Filed July 3, 1972, Ser. No. 268,609

Int. Cl. A61m 25/00, 16/00

U.S. Cl. 285—121

9 Claims



An adapter for use with tracheal tubes, and embodying a connector for such tracheal tubes disposed in the central portion of an elongated portion of the adapter, with the connector extending a substantial distance into the central portion in a direction transverse to the length thereof and disposed in elevated position relative to the ends of the aforementioned elongated portion so as to protect against the accidental discharge of liquid into a tracheal tube connected to the adapter.

3,827,730

WASTE FOOD DISPOSER MOUNTING ASSEMBLY

Lauren W. Guth, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

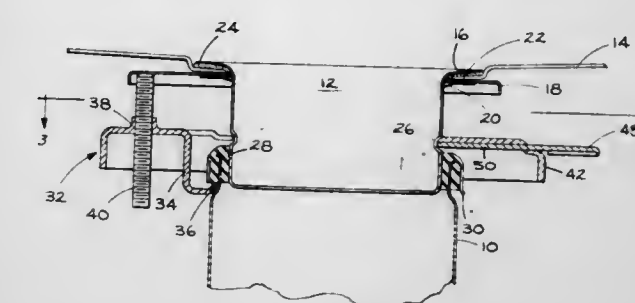
Filed Sept. 28, 1972, Ser. No. 292,970

Int. Cl. F16l 3/04

U.S. Cl. 285—159

6 Claims

A sink mount support assembly for a waste food disposer includes a connecting member which contains a slidable locked member for attaching the connecting member to a sink drain sleeve. The connecting member, which is attached to the upper end of a disposer hopper, is axially aligned and lifted toward its installed position on a sink drain sleeve with the locking member in an unlocked position. When positioned on the sink sleeve, the locking member is placed in a locked posi-



rotatable position on the sink sleeve wherein it can be axially manually rotated to align with plumbing fittings. Thereafter, by tightening set screws, the hopper of the disposer is sealed in drain flow communication with the sink sleeve and the disposer is firmly positioned whereby axial rotation is prevented. The assembly is disconnected by reversing the above procedure.

3,827,731

EXPANSION JOINT FOR TUBULAR INSULATING GAS-FILLED ENCLOSURE FOR HIGH-VOLTAGE CONDUCTOR

Carl Dieter Floessel, Fislisbach, and Klaus Floessel, Wettingen, both of Switzerland, assignors to BBC Brown Boveri & Company Limited, Baden, Switzerland

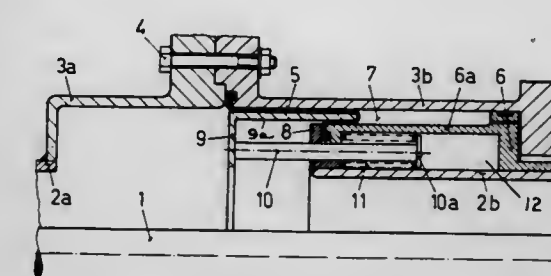
Filed Apr. 19, 1973, Ser. No. 352,669

Claims priority, application Switzerland, May 4, 1972, 6609/72

Int. Cl. F16l 55/00

U.S. Cl. 285—187

4 Claims



An expansion joint housing structure connecting the end portions of tubular sections of an enclosure for an electrical conductor supported concentrically therein in which the end of one section of the enclosure is rigidly connected to the joint housing structure while the end of an adjacent section of the enclosure is entered into the joint housing structure and fitted with a piston for longitudinal movement relative thereto in response to expansion and contraction of the enclosure due to the heating effect of the conductor current. A flexible sleeve membrane turned back upon itself is located in an annular gap formed between a part of the piston and the inner surface of the joint housing structure which serves as the piston cylinder, and functions as a seal between the relatively movable parts of the expansion joint. To prevent the membrane from turning completely inside-out while the enclosure is evacuated during the assembly process of the conductor within the enclosure, and prior to filling with the insulating gas, a support ring for it is provided, this ring including a cylindrical portion enterable into the gap formed at the turned-back end of the membrane, and being mounted on the piston for movement in a longitudinal direction relative thereto by means including loading springs which load the support ring in the direction of the turned-back end of the membrane.

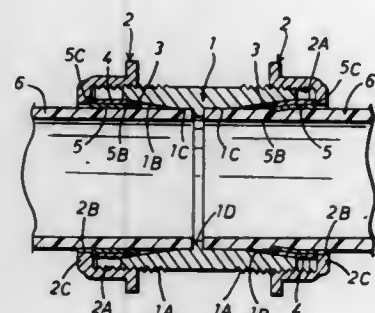
3,827,732

PIPE JOINT ASSEMBLY

Masaaki Noguchi, Nagoya, and Takezo Kawahara, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan
 Filed Nov. 27, 1972, Ser. No. 309,784
 Claims priority, application Japan, Dec. 4, 1971, 46-114286
 Int. Cl. F16I 19/08

U.S. Cl. 285—342

6 Claims U.S. Cl. 285—379



Disclosed herein is a pipe joint assembly which comprises a joint body member to hold the jointing end of a pipe therein, a fastening nut to be threaded on the body member, a lock ring protector provided with a plurality of flaps at its inner end and coupled with the outer circumference of the pipe to be positioned between the inner wall of a radial collar portion of the nut and a tapered portion formed within the body member, a lock ring member coupled with the lock ring protector to be positioned between the inner wall of the radial collar portion and the tapered portion, and a seal ring coupled with the pipe in a space between the tapered portion and the outer circumference of the pipe. The seal ring is in contact with the inner end of the lock ring member at its one end. In clamping the nut over the body member, the seal ring is deformed by way of the lock ring member to form the sealing between the body member and the pipe, and the flaps of the lock ring protector pierce into the pipe.

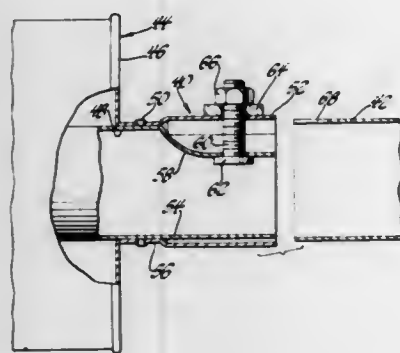
3,827,733

PIPE COUPLING UNIT

Thomas R. Cassel, 226 Shirley, Birmingham, Mich. 48009
 Filed June 29, 1972, Ser. No. 267,344
 Int. Cl. F16I 21/00

U.S. Cl. 285—382.2

11 Claims



A coupling device for pipes is disclosed which provides strong mechanical connection and fluid sealing without the requirement of close tolerances in the dimensions of the pipes to be connected. A coupling device comprises inner and outer sleeves with an annular space therebetween adapted to receive the end of a pipe to be joined. A coupling device may be double ended and adapted to accept a pipe to be joined at each end or it may be single ended and adapted to accept a pipe at one end only. Force exerting means suitably in the form of a threaded fastener coact with the inner sleeve for expanding at least a portion thereof radially whereby the end of a pipe inserted between the sleeves will be squeezed therebetween to form the joint.

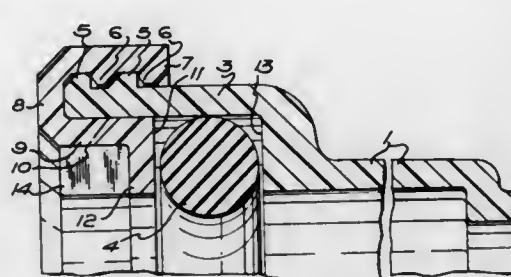
3,827,734

PIPE COUPLINGS

Kenneth Brown, Edlington, England, assignor to Hipworth Plastics Limited, Sheffield, England
 Filed Feb. 26, 1973, Ser. No. 335,724
 Claims priority, application Great Britain, Jan. 27, 1973, 4283/73

Int. Cl. F16I 17/00

5 Claims



A sealing ring is retained in an enlargement at the outer end of a plastics pipe coupling socket by a channel-section plastics retaining ring with snap-over engagement of its outer limb with the outside of the enlargement, with the inner limb fitting closely to the inside of the enlargement and terminating in an annular face having a radial extent substantially equal to the radial extent of an inner end face of the enlargement and spaced therefrom by at least the axial thickness of the sealing ring, the close fit of the inner limb of the retaining ring to the inside of the enlargement ensuring that the retaining ring will not twist off under pressure from within the socket, while the snap-over engagement prevents the retaining ring being pushed off.

3,827,735

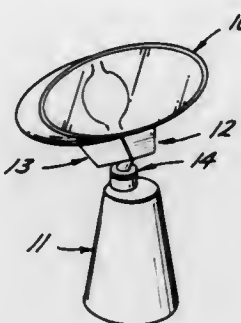
APPARATUS FOR HOLDING PARTS BETWEEN WHICH WIRING IS TO EXTEND IN SELECTED PIVOTAL POSITIONS WITH RESPECT TO ONE ANOTHER
 Ralph M. McFarlin, Pasadena, Tex., assignor to Esquire, Inc., New York, N.Y.

Filed June 18, 1973, Ser. No. 370,692

Int. Cl. F16c 11/00

U.S. Cl. 403—113

8 Claims



There is disclosed apparatus for mounting a light fixture in selected pivotal positions on and with respect to a base through which wiring from the fixture is to extend.

3,827,736

HEATED, VIBRATORY TRACK SANDER

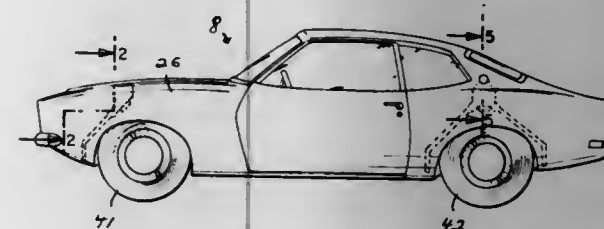
Silvio D. Mango, 55 Carleton Ter., Cresskill, N.J. 07626
 Filed Jan. 11, 1973, Ser. No. 322,605
 Int. Cl. B60b 39/06, 39/10; B61c 15/10

U.S. Cl. 291—20

7 Claims

This invention in a preferred embodiment is directed to a truck or automobile having associated with at least one or more rear wheels, and preferably with also front wheels separate vessels, one for each wheel, actuateable by either brake or special actuation switch means or both to release vessel sand and/or salt contents through a directed outlet opening

in front of the respective tires, and also behind the rear tires, the mechanism being separate for each of the front-of-tires release and the behind-tires release as controlled by the gear shift lever such that the anti-skid composition or mixture will be released on the track or path behind the tires only when backing and otherwise only in front of the tires when the vehicle is geared for forward motion, each vessel including a heating means for maintaining temperatures thereof and the contents thereof in an above-freezing state and a vibrator associated with each vessel for facilitating gravity feed of solid



contents of the vessel down an inclined wall and out of the outlet of the vessel, the vessel being mounted on rubber mounting structure itself mountable onto the vehicle, the period of actuation and feed being for typically one cycle of a one-cycle motor connected for revolving a feed gate at each vessel outlet opening for thereby feeding a controlled amount per actuation by virtue of a coil induction switch remaining closed for continuing a closed circuit until the one motor-cycle is completed, there being a master switch for activating and deactivating the entire system's electrical circuitry.

3,827,737

SHOWER DOOR LATCH

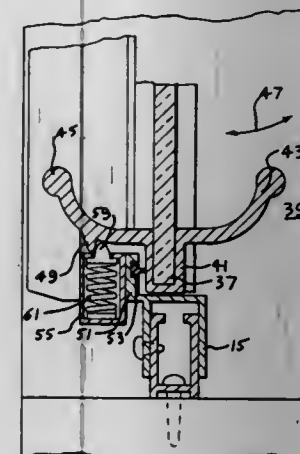
Arnold O. Rystad, Lakeport, Calif., assignor to Work Right Products Inc., Hayward, Calif.

Filed Oct. 16, 1972, Ser. No. 297,924

Int. Cl. E05c 19/02

U.S. Cl. 292—74

1 Claim



A latch for a shower door mounted on a shower door with one edge of the door hinged to the frame, with the other edge of the door extending to the opposite side of the frame. A handle means is secured to the moving edge thereof with the pull portions of the handle extending from opposite sides of the door. The pull portion of the handle extending from the side of the door facing inwardly toward the shower stall includes a lip or ridge portion projecting toward the opposed portion of the frame. A depressable detent or bolt means is mounted on the door frame so as to engage with the lip portion, whereby, when the door is closed, the latch means will be biased into contact with the lip portion to hold the door in the closed position.

3,827,738

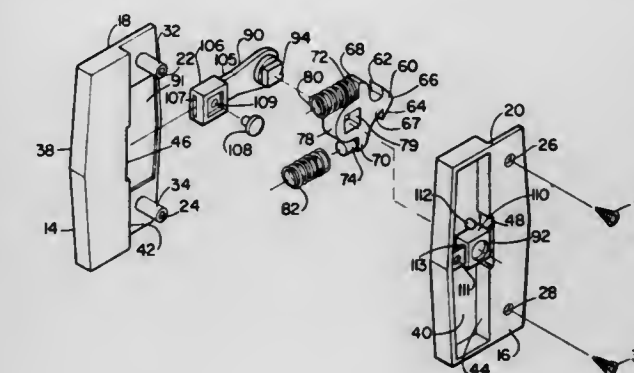
LATCH ASSEMBLY

Raymond N. Dushane, Jr., Fullerton, Calif., assignor to Columbia Manufacturing Corporation, Los Angeles, Calif.
 Filed Mar. 9, 1973, Ser. No. 339,922

Int. Cl. E05c 19/10

U.S. Cl. 292—128

16 Claims



Herein described is a latch assembly for use in a sliding closure which includes an inside pull and an outside pull. A two-way spring loaded lock mechanism is disposed within the frame of the closure. Two actuating levers are in operable connection with the lock mechanism. One actuating lever is operable from the outside pull and the other actuating lever is operable from the inside pull.

3,827,739

LEVER ATTACHMENT FOR DOOR LATCH-OPERATING DEVICE

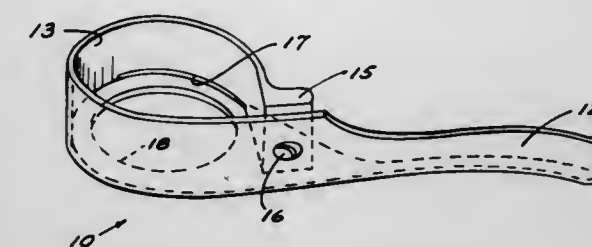
Loyal M. Overholser, 781 Briddlewood St., Dayton, Ohio 45430

Filed Jan. 22, 1973, Ser. No. 325,644

Int. Cl. E05c 21/00

U.S. Cl. 292—347

1 Claim



Lever attachment for facilitating the opening of a door is releasably attached to a door knob. The door latch-operating mechanism is actuated merely by application of a downward pressure to the lever. The device comprises a lever portion, clamp portion, face portion, and a securing means for releasably connecting the attachment to door knobs of differing sizes and configurations.

3,827,740

STRUCTURALLY REINFORCED VEHICLE BUMPER

Richard R. Golze, Bloomfield Hills, and Richard F. Klenle, Bloomfield Township, both of Mich., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed May 18, 1972, Ser. No. 254,466

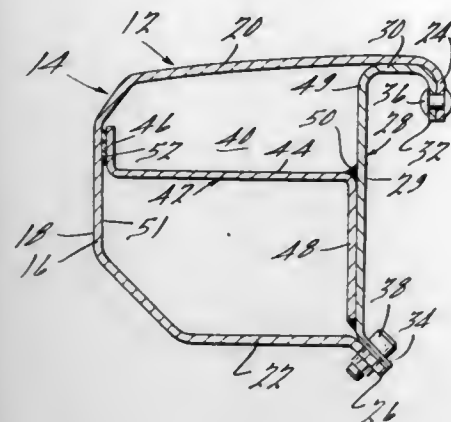
Int. Cl. B60r 19/04

U.S. Cl. 293—98

2 Claims

A structurally reinforced vehicle bumper assembly comprising a plurality of outer members secured together to define a closed bumper configuration having an internal chamber. A

bumper reinforcing structural element is positioned within this chamber and is secured to and interconnects two outer mem-



bers. This structural element is joined to one of these outer members by adhesive material, thereby permitting the assembly of the composite bumper.

3,827,741

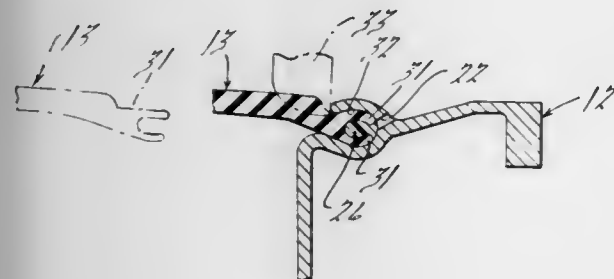
RESILIENT BUMPER ASSEMBLY

Carl A. Howell, Livonia, and George H. Muller, Ann Arbor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 6, 1973, Ser. No. 385,510
Int. Cl. B60r 9/08

U.S. Cl. 293-99

9 Claims



3,827,742

FIXTURE FOR HANDLING PANEL ARTICLES

Jimmie H. Holden, Rt. 1 Box 66, Athens, Ala. 35611

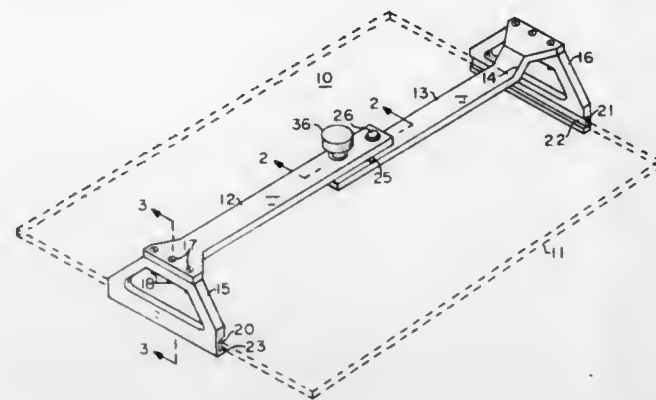
Filed May 7, 1973, Ser. No. 358,240
Int. Cl. B65g 1/12

U.S. Cl. 294-16

6 Claims

A fixture for gripping and handling fragile panel articles by their edges. The fixture includes a pair of bars disposed in slightly overlapped longitudinal relation. A transverse pivot pin is located between opposed bar faces intermediate the area of overlap, and the overlapped ends are adjustably secured to one another by clamping means on either side of

the pivot pin. The other ends of the bars have attached thereto perpendicularly extending gripping members providing a pair



of opposed gripping surfaces adapted to engage a panel by its edges. Movement of gripping surfaces together and apart is controlled by adjustment of the clamping means.

3,827,743

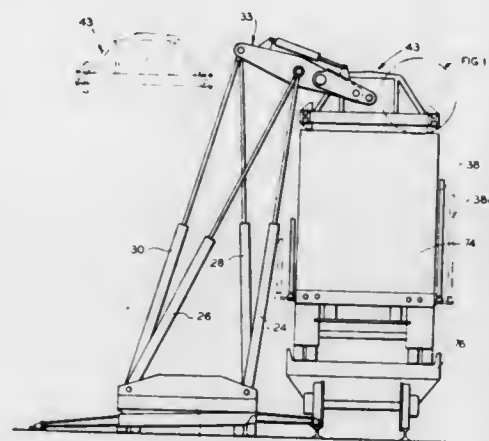
LOAD HANDLING APPARATUS

Peter J. Visser, Niles, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed June 30, 1972, Ser. No. 267,747
Int. Cl. B60p 1/48

U.S. Cl. 294-67 BB

12 Claims



A load handling apparatus, which may form a part of a load transfer machine for handling semi-trailers, cargo containers and other large loads. The load handling apparatus includes a load handling device and an associated mechanism which are readily collapsible by remote control to dimensions sufficiently small that the load transfer machine may be mounted on a semitrailer or other vehicle for movement over public highways. At the same time, the load handling apparatus is readily erectable, also by remote control, so that it may be quickly prepared for the handling of large loads.

3,827,744

PROCESS AND APPARATUS FOR HANDLING BULK BUILDING MATERIALS AT CONSTRUCTION SITES

Lawrence Joseph Ferdelman, New Brighton; Joseph A. Peters, Wayzata, and Willard Elvin Peterson, Minneapolis, all of Minn., assignors to Wunder-Klein-Donohue Company, Minneapolis, Minn.

Filed Jan. 29, 1973, Ser. No. 327,832
Int. Cl. B66c 1/16

U.S. Cl. 294-67 E

9 Claims

Bulk materials, such as wallboard panels, are carried to a desired floor level of a building under construction from a source of supply at the building site by loading the bulk material onto raised support members on the deck of a pallet carrier through an open side thereof by a mechanical lift device, hoisting the loaded pallet carrier to the desired floor

level of a building having a side wall opening, and engaging the outer edge of the building floor with friction padded support extensions projecting forwardly from the front end of the pallet carrier deck. A hinged ramp at the front end of the pallet carrier is then lowered against the building floor to permit a hand operated lift dolly to be rolled onto the carrier deck

through the pick-up ring in a direction opposite to the lay of the cable whereby any rotative forces of the cable are resisted by the twisted lacings and spinning of the net is avoided.

3,827,746

SAFETY LATCH FOR HOIST HOOK

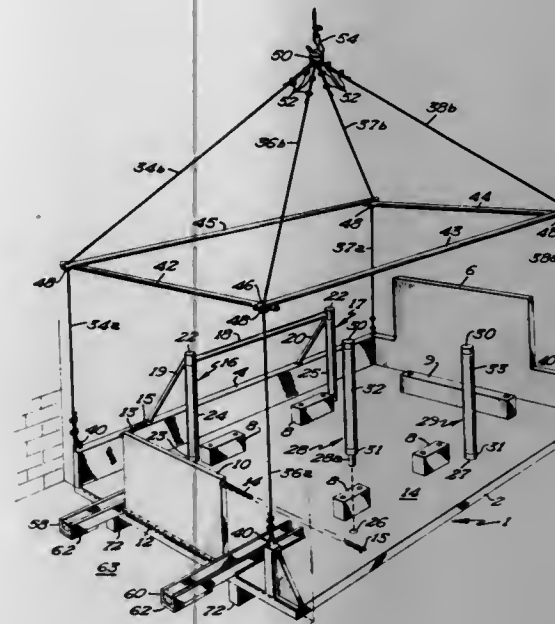
Lewis C. Byers, 3 Fairfield Dr., Baltimore, Md. 21228

Filed Jan. 5, 1973, Ser. No. 321,241

Int. Cl. B66c 1/36

U.S. Cl. 294-82 R

12 Claims



under the raised load to pick up the load of bulk material and deposit it on the building floor. Four lift cables extending from the corners of the pallet carrier are attached to the corners of a rectangular bar assembly, which, when held in an elevated position over the pallet carrier deck, holds the four lift cables in vertically extended positions wherein they do not interfere with the loading or unloading of the carrier.

A safety latch for a crane hook includes arm sections which are attached for movement to a shank of the hook adjacent to the mouth of the hook. Each arm has a spring biased pin which engages and seats in a related opening formed in the tip of the hook which facilitates the locking of the latch across the mouth of the hook after a load has been attached to the hook. Also, at the end of each arm section there is provided a notch which supports the enlarged point of the hook and prevents the point of the hook from catching in other objects. This notch keeps the point of the hook from bending outwardly under an extreme overload.

3,827,745

PERSONNEL OR CARGO NET

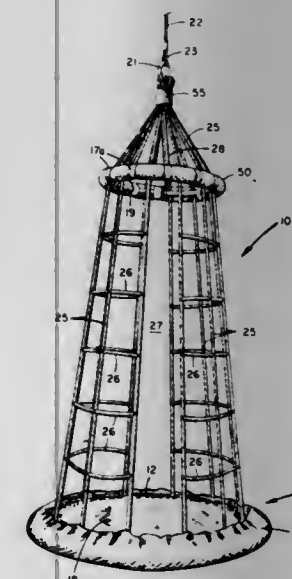
Billy Gene Pugh, P.O. Box 802, Corpus Christi, Tex. 78403

Filed Nov. 15, 1972, Ser. No. 306,586

Int. Cl. B66c 1/12

U.S. Cl. 294-77

11 Claims



A personnel or cargo net has a cushioned base spreader ring which carries a padded load supporting platform for the net, a top pick-up ring, an upper spreader ring of smaller diameter than the base spreader ring between the pick-up ring and base spreader ring, a web-like sidewall having longitudinally extending, circumferentially spaced lacings secured to the spreader rings and looped through the pick-up ring, a cable for securing the pick-up ring to a hoist, lacings secured at one end to the pick-up ring and at the other end to the upper spreader ring and twisted along with the lacings which are looped

3,827,747

ADJUSTABLE SEAT FOR AN INDUSTRIAL TRUCK

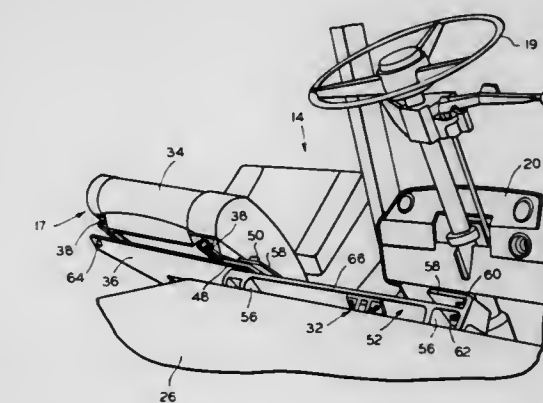
Austin C. Cookes, Birmingham, England, assignor to Clark Equipment Company, Buchanan, Mich.

Filed Oct. 5, 1972, Ser. No. 295,411

Int. Cl. B60n 1/02

U.S. Cl. 296-65 R

3 Claims



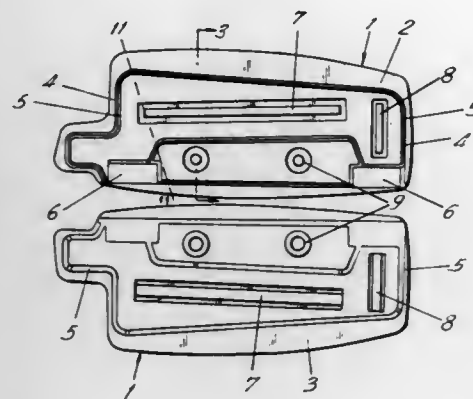
A device for biasing to a forwardly tilted position in an industrial truck a seat assembly of the type which can be swung outwardly from a forwardly facing operative position to a rearwardly facing non-operative position for the purpose of enabling easy removal and installation of storage batteries in electric fork trucks. The biasing device normally spring loads the seat assembly to said tilted position so as to facilitate such manipulation of the seat.

3,827,748 REINFORCED SUN VISOR, ESPECIALLY FOR MOTOR VEHICLES

Gerhard Herr, Wuppertal-Vohwinkel, and Willy O. Treber, Wuppertal-Elberfeld, both of Germany, assignors to Gebr. Happich GmbH, Wuppertal-Elberfeld, Germany
Continuation-in-part of Ser. No. 126,465, March 22, 1971, abandoned. This application Mar. 28, 1972, Ser. No. 238,794
Claims priority, application Germany, July 24, 1970, 2036772

U.S. Cl. 296—97 H Int. Cl. B60j 3/00

15 Claims



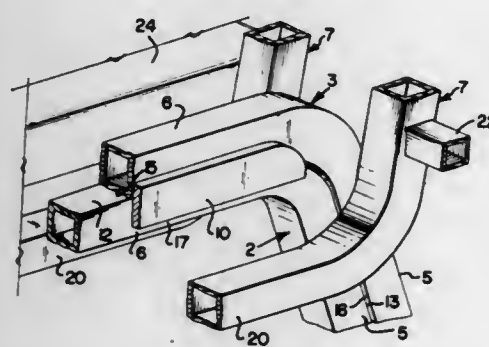
A reinforced sun visor comprising two superposed layers of foamed material sandwiching a wire reinforcing insert between them. In one embodiment the layers are held together at their edge by a foldable hinge. The facing surfaces of the layers are grooved to conform to the shape of the reinforcing insert and to receive the insert. The facing surfaces are in contact with each other while the insert is in place. One facing surface carries at least one projection and the other includes a correspondingly positioned and shaped depression. These elements cooperate to hold the visor body layers together and prevent respective lateral shifting. The invention also concerns a method of making a visor including molding the appropriately shaped visor body, emplacing the insert and folding the body sections together.

3,827,749 CHAIR STRUCTURE

Vern Johnson, Carbondale, Ill., and Bobbie L. Snyder, Kansas City, Mo.

Filed Mar. 6, 1973, Ser. No. 338,591
Int. Cl. A47c 15/00

U.S. Cl. 297—248



A chair structure adapted to stack vertically and to gang horizontally with a plurality of like chair structures wherein each chair structure has front and rear legs on each side with upper portions secured relative to a seat and frame spaced with said front and rear legs depending in diverging relation from said secured upper portions. The frame is mounted on the legs and has a base portion positioned between the legs and a back portion extending upwardly and rearwardly from the base portion. The front leg on each side and the back por-

tion of the frame are inclined in substantially parallel planes to permit compact vertical stacking. The legs on one side of a chair have greater spacing and are adapted to nest above and in engagement with the similar legs of another chair structure when stacked. The legs on said one side have a keeper member mounted thereon engageable with the legs of an adjacent chair structure nested therebelow to effect and maintain ganging of a plurality of like chair structures in side-by-side relation.

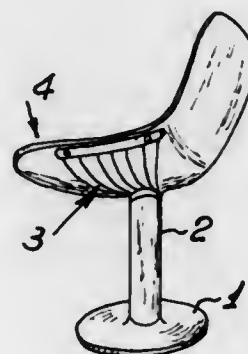
3,827,750 SUPPORT FOR THE SEAT OF A CHAIR

Marco Fantoni, Milan, Italy, assignor to Tecno S.P.A. Mobile furniture per arredamento, Milan, Italy
Filed Dec. 22, 1972, Ser. No. 317,516
Claims priority, application Italy, Jan. 13, 1972, 019311/72

Int. Cl. A47c 7/00, 7/14

U.S. Cl. 297—445

9 Claims



A chair with an integral support including a horizontal hub extending in the vertical plane of symmetry of the chair, two sets of brackets extending laterally from the hub and arranged symmetrically in respect of the plane, and two strips extending substantially horizontally and parallel to the plane, each of the strips interconnecting the outer ends of the brackets of a respective one of the sets. A seat having turned-down lateral edges extending substantially horizontally and parallel to the plane and shaped to conform to the upper support surfaces of the strips is mounted on the support by engaging the seat edges with the strips.

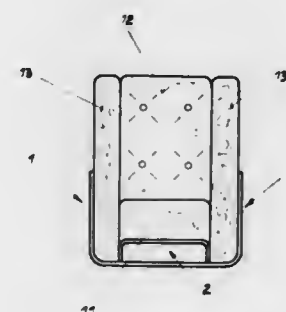
3,827,751 FURNITURE ASSEMBLY

Ole Wiberg, Vesterbrogade 180, Copenhagen, Denmark
Filed Jan. 16, 1973, Ser. No. 324,149

Claims priority, application Austria, Jan. 17, 1972, A376/72
Int. Cl. A47c 4/02, 7/02

U.S. Cl. 297—440

11 Claims



The frame of a piece of furniture consists of at least two interconnected components, each of which comprises an approximately U-shaped yoke extending in a plane and two extensions protruding from the yoke substantially at right angles to that plane.

3,827,752 PROTECTION UNITS FOR THE SEATS OF SCHOOL BUSES AND THE LIKE

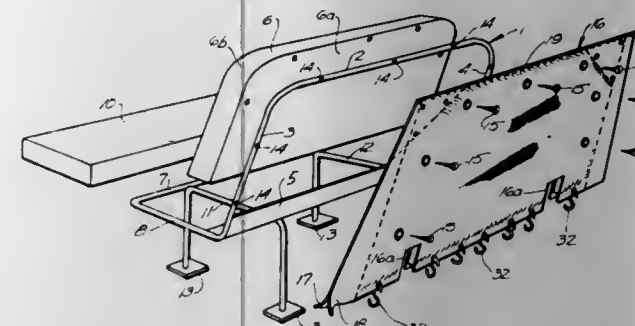
Charles Clarence Bissinger, Sr., 224 Compton Ridge Dr., Cincinnati, Ohio 45215

Filed Feb. 13, 1973, Ser. No. 332,071

Int. Cl. A47c 7/02

U.S. Cl. 297—452

12 Claims



A protection unit for the seat of a vehicle such as a school bus or the like wherein the seat comprises a metallic frame supporting upholstered or fiber glass back and seat portions. The protection unit comprises a layer of energy absorbing material and an outer layer of appropriate upholstery material configured to cover at least the upper portion (and preferably substantially all) of that portion of the exposed seat frame supporting the seat back. The protection unit may be rapidly and easily installed without removing the seat from the vehicle.

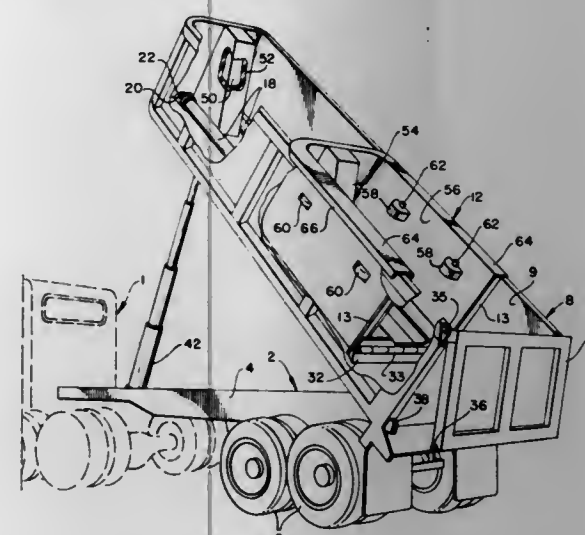
3,827,753 VEHICLE DUMP BODY WITH AUXILIARY INNER MOVABLE BODY

Charlie C. Pitts, 9324 Whitehurst, Dallas, Tex. 75231
Filed Dec. 4, 1972, Ser. No. 312,060

Int. Cl. B60p 1/16, 1/28

U.S. Cl. 298—1 B

5 Claims



An elongated dump body for a vehicle which has an auxiliary inner movable body mounted within the elongated dump body. A hydraulic cylinder-plunger means interconnects with the forward portion of the elongated dump body and the auxiliary inner movable body, so as to move a portion of the load rearwardly while the elongated dump body of the vehicle is in a horizontal position. An elevating jack is attached near the forward end of the elongated dump body to elevate the elongated vehicle dump body and the auxiliary movable inner body subsequent to the movement of the auxiliary inner movable body to move a portion of the material therein out at the rear end of the elongated vehicle dump body prior to the elevation of both bodies by the hydraulic jack to an angle to discharge the remaining portion of the material in the body by gravity. Provision is made for scraping a portion of both the

sides and floor of the elongated vehicle dump body as the material is moved rearwardly by the auxiliary inner movable body.

3,827,754 LOW PROFILE COAL MINING APPARATUS

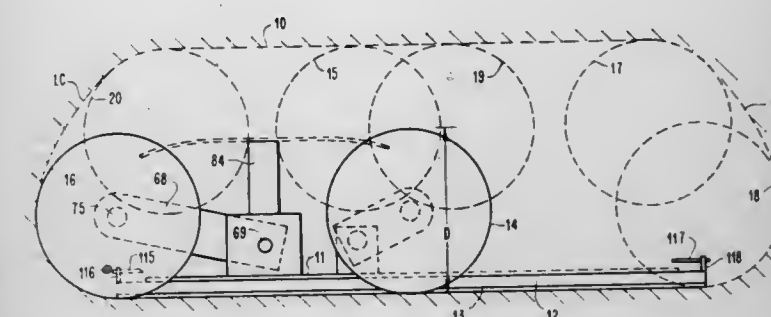
Charles W. Gilley, deceased, late of Maury City, Tenn. (by Martha R. Gilley, executrix)

Filed Jan. 5, 1973, Ser. No. 321,337

Int. Cl. E21c 27/24, 29/16

U.S. Cl. 299—30

24 Claims



Apparatus for mining shallow seams of coal or the like employs a combination of parts resulting in a low profile of the machine and which may be operated without requiring an operator to accompany the machine to the mine face. The mining augers are remotely controlled and may be adjusted to provide for mining of seams which are thicker than the minimum profile height of the machine. The augers are mounted on a carriage which travels along guides on a base plate which can be shifted toward or from the mine face by remote control, and the superstructure mounted on the carriage reaches a height no greater than the diameter of the augers.

3,827,755 DRUM TYPE ROTARY COAL CUTTER WITH WATER JET ORIFICES

Thomas Jeffrey Allen, Bessacarr, England, assignor to Fletcher Sutcliffe Wild Limited, Horbury, Wakefield, Yorkshire, England

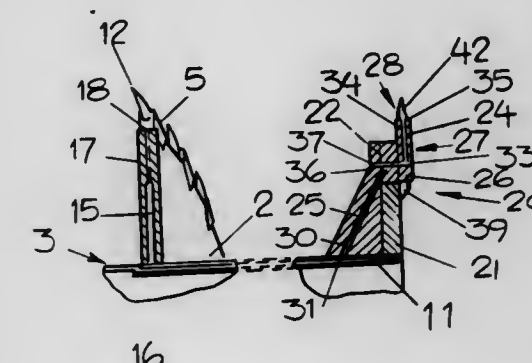
Filed Dec. 7, 1972, Ser. No. 311,734

Claims priority, application Great Britain, Dec. 11, 1971, 57638/71; Jan. 6, 1972, 706/72

Int. Cl. E21c 25/10

U.S. Cl. 299—81

20 Claims



A rotary coal cutter of the type having a drum mounting a cutting implement wherein channels lead through the cutter to orifices from which water can be jetted to reduce dust. In particular the cutter may be of the helical type. From a different aspect, the drum has tubes formed within the drum and communicating with jetting orifices in the cutting implement.

3,827,756 WHEELS

William E. Mitchell, Coventry, England, assignor to Dunlop Limited, London, England

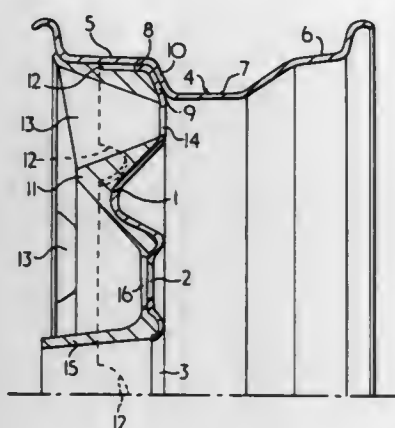
Filed Jan. 21, 1972, Ser. No. 219,794

Claims priority, application Great Britain, Jan. 25, 1971, 3116/71

Int. Cl. B60b 7/00

U.S. Cl. 301-63 R

13 Claims



A vehicle wheel comprising a rim portion provided with axially spaced circumferentially extending tire bead seating regions and a rim well region positioned there-between, and a central disc portion the outer periphery of which is provided with a flange turned axially outwardly, that is, towards the outboard side of the wheel, the flange being secured to the rim portion under the axially outer tire bead seating region and the region of the disc portion adjacent the flange being arranged to be located by the outboard side of the rim well against axially inward movement relative to the rim portion, of which the following is a specification.

3,827,757

APPARATUS FOR TRANSPORTING ROD-SHAPED ARTICLES

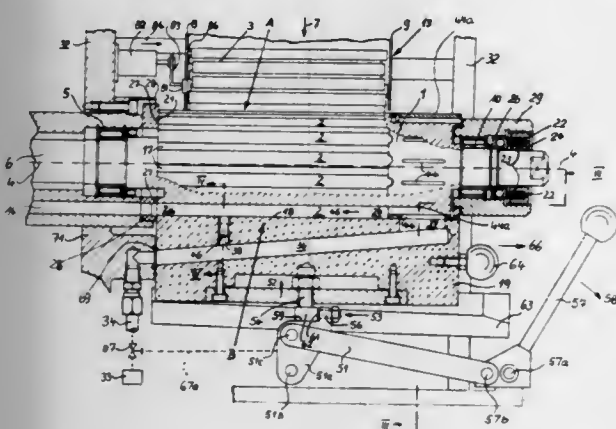
Bob Heitmann; Alois Kasperek, and Johann Torbeck, all of Hamburg, Germany, assignors to Hauni-Werke Korber & Co. KG, Hamburg, Germany

Filed May 5, 1972, Ser. No. 241,229

Int. Cl. B65g 53/00

U.S. Cl. 302-2 R

20 Claims



Apparatus for transporting filter stubs from a magazine having an open lower end into a tubular conveyor wherein the stubs are propelled axially into the hopper of a consuming or processing machine employs a single transfer drum which is continuously driven to move its axially parallel peripheral flutes from register with the open lower end of the magazine into register with the inlet of the tubular conveyor where the stubs are expelled from successive flutes by compressed air. A removable block is normally maintained in sealing engagement with ribs which separate the flutes from each other while the adjoining flutes register with the inlet of the tubular conveyor.

veyor to thus prevent excessive losses in compressed air. Such compressed air is admitted by way of two ports one of which register with one end of a flute only while the other end of such flute registers with the inlet of the tubular conveyor. The other port communicates with successive flutes prior to, during and after the short interval of registry with the inlet. A mechanical intercepting device is movable into the lower end of the magazine to engage the adjacent ends of one or more layers of stubs and to press the other ends of such stubs against a stationary wall of the magazine. This interrupts the admission of stubs into the path of successive ribs on the transfer drum. The drum can remain in motion while the intercepting device dwells in its operative position.

3,827,758

BRAKE SYSTEM

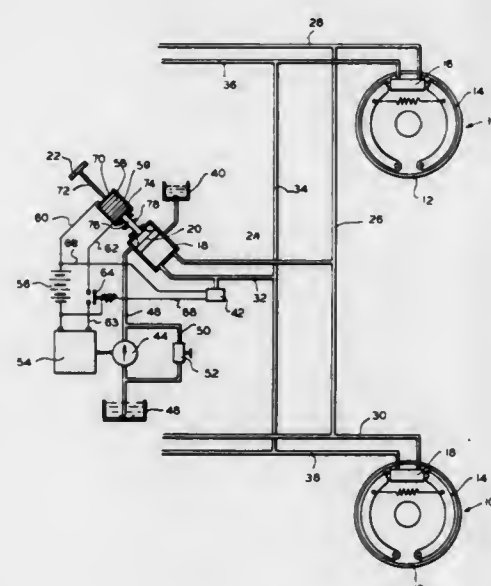
Howard C. Hansen, Battle Creek, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Dec. 18, 1972, Ser. No. 315,943

Int. Cl. B60t 13/74

U.S. Cl. 303-3

8 Claims



A brake system particularly for electric vehicles which provides power assisted hydraulic brakes in which the degree of power assistance is regulated for the braking force desired by the use of an operator compressible carbon pile in the circuit of an electric motor which drives a pump to vary the pressure in a master cylinder. In the event of any breakdown or malfunction for any reason in the power assist portion of the system the carbon pile may function as a compressible mechanical link between the hydraulic brakes and the foot pedal for manually applying the brake.

3,827,759

ANTISKID BRAKE SYSTEM WITH POWER ASSISTANCE

Juan Belart, Walldorf, Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jan. 16, 1973, Ser. No. 324,049

Claims priority, application Germany, Jan. 22, 1972, 2202998

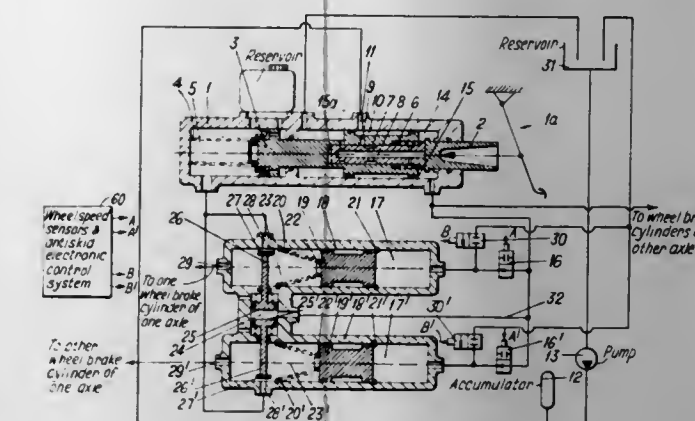
Int. Cl. B60t 8/12

U.S. Cl. 303-21 F

12 Claims

A power assisted brake system for a vehicle equipped with an antiskid system. The brake system includes a driver actuated control valve to switch on the assist power and a safety device which enables a certain braking power in case of failure of the assist power. The antiskid hydraulic control valves control the pressure in the hydraulic assist power connection. The

safety device includes a hydraulic emergency connection completely separate from the hydraulic assist power connection.



tion. This hydraulic emergency connection enables the elimination of the strong emergency spring employed in prior art arrangements. Two embodiments are disclosed.

3,827,760

WHEEL SLIP CONTROL SYSTEM FOR AUTOMOTIVE VEHICLES AND THE LIKE

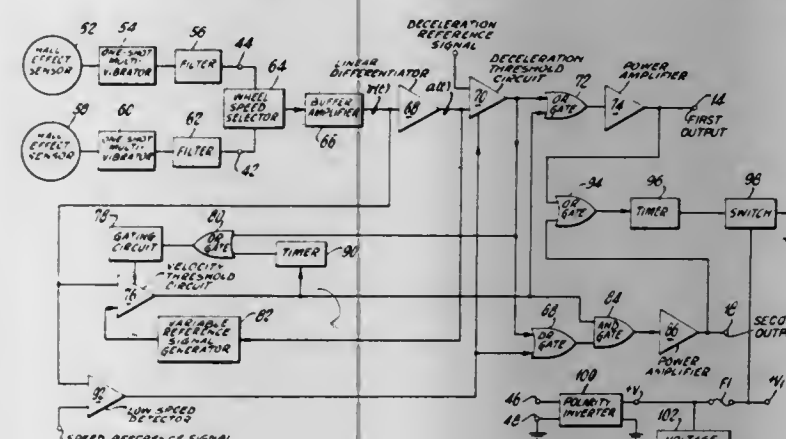
Joseph E. Fleagle, Overland, Mo., assignor to Wagner Electric Corporation, Parsippany, N.J.

Filed Jan. 17, 1972, Ser. No. 218,378

Int. Cl. B60t 8/10

U.S. Cl. 303-21 P

26 Claims



A control system for varying the pressure applied to fluid-controlled brake actuating mechanisms upon detection of a predetermined threshold of wheel deceleration brought about by the application of fluid pressure to the brake actuating mechanisms and upon detection of a subsequent, predetermined decrease in wheel rotational velocity. Signals proportional to the velocity and rate of change of velocity of a selected wheel are employed to control the sequence and duration of the energization and de-energization of the solenoid valves in a modulator valve assembly. The incremental decrease in wheel velocity from the time said deceleration threshold is reached, at which time a gradual reduction in brake line fluid pressure is effected, is monitored to determine when a predetermined increment of wheel speed Δv has been exceeded, at which time a sharp reduction in brake line pressure is effected. This predetermined increment Δv is defined by the value of wheel velocity at the time said deceleration threshold is reached and a variable reference signal which is directly related to the rate of change of wheel speed. The magnitude of Δv is inversely related to the magnitude of said reference signal, thereby shortening the period of time between the sensing of said wheel deceleration threshold and the sharp reduction of brake line pressure under road and load conditions which cause wheel velocity to decrease very rapidly upon application of braking force.

3,827,761

AUTOMOTIVE ANTISKID DEVICE WITH SAFETY APPARATUS

Masami Inada, Toyooka, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

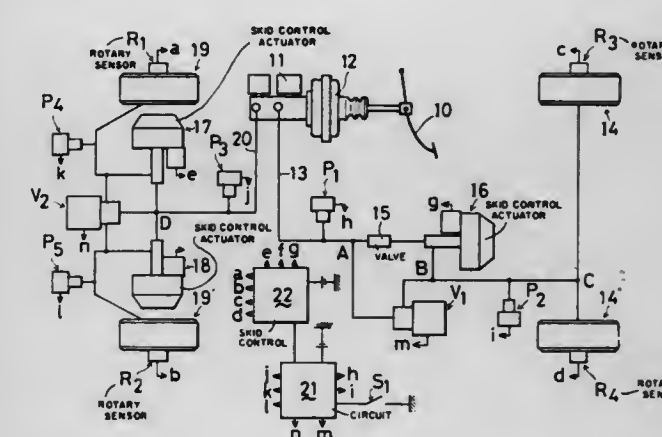
Filed Sept. 25, 1972, Ser. No. 292,251

Claims priority, application Japan, Sept. 25, 1971, 46-74909

Int. Cl. B60t 8/00

U.S. Cl. 303-21 AF

2 Claims



An automotive antiskid device having safety apparatus which includes a brake fluid pressure control apparatus disposed within a fluid pressure circuit from a master cylinder to the wheel cylinders and controlling the brake pressure to the wheel cylinders in accordance with a skid signal, fluid pressure detecting apparatus formed upon both sides of the master cylinder and the wheel cylinders, respectively, and operating according to the fluid pressure within the fluid pressure circuit, a safety apparatus automatically operating in accordance with the state of the fluid pressure detecting apparatus, and an electromagnetic fluid pressure cut-off apparatus disposed within the master cylinder and wheel cylinder fluid circuit in parallel with the brake fluid pressure control apparatus and being controlled by the safety apparatus.

3,827,762

BRAKING SYSTEMS FOR VEHICLES

Andrew Peter Ives, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

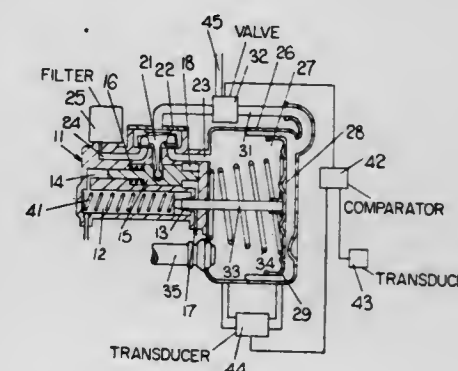
Filed Mar. 7, 1973, Ser. No. 338,945

Claims priority, application Great Britain, Mar. 18, 1972, 12793/72

Int. Cl. B60t 8/06

U.S. Cl. 303-21 F

1 Claim



In a vehicle braking system the brakes of the vehicle are controlled automatically in some circumstances, for example during potential skidding. A vacuum actuator provides servo-assistance in the system, and a comparator receives a signal representing the required braking pressure and a further signal representing actual braking pressure. This latter signal is obtained by measuring the pressure drop across the vacuum actuator. The comparator controls the braking pressure.

3,827,763

CONTROL VALVE ASSEMBLIES FOR HYDRAULIC BRAKE SYSTEMS OF AUTOMOBILES

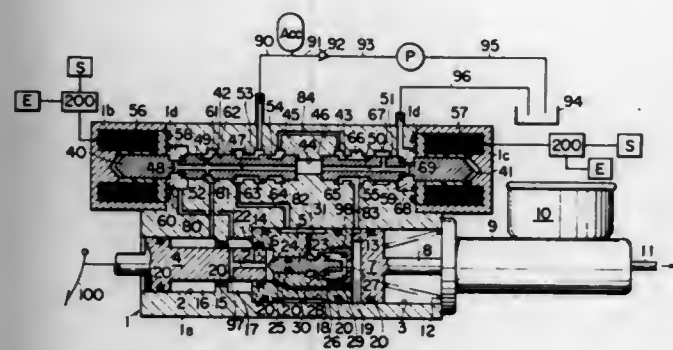
Uchiro Kobashi, Okazaki; Masami Inada, Aichi, and Katsuki Takayama, Chiryu, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Feb. 26, 1973, Ser. No. 335,759

Claims priority, application Japan, Mar. 6, 1972, 47-22973
Int. Cl. B60t 8/12

U.S. Cl. 303—21 F

5 Claims



A control valve for an automotive vehicle having a hydraulic power braking system comprising a valve body, a power piston to apply braking pressure force to the wheel cylinders, a pressurizing chamber in which is received the power cylinder, first valve means to control the braking pressure on the known skid sensing mechanism, and second valve means manually operable by the operator to control the application of the braking pressure from source means. A bypath passage is provided to reduce fluid pressure within the pressurizing chamber independently of the second valve means so that reduction of fluid pressure in the chamber is performed without any influence of varying lift of the second valve means upon or just prior to the locking of the brakes, uniformity of skid preventing operation resulting therefrom.

3,827,764

COMBINED BRAKING AND TRIM-CORRECTION DEVICES FOR ROAD VEHICLES

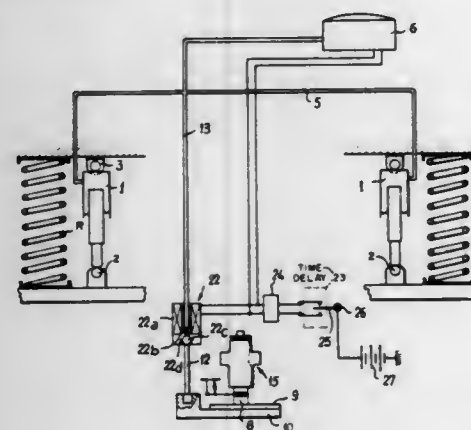
Jean-Louis Giordano, and Michel Lietard, both of Billancourt, France, assignors to Regie Nationale des Usines Renault, Billancourt and Automobiles Peugeot, Paris, both of France

Filed Feb. 5, 1973, Ser. No. 329,470

Claims priority, application France, Feb. 10, 1972, 72.04487
Int. Cl. B60t 8/18

U.S. Cl. 303—22 R

4 Claims



The invention relates to the limiting of braking pressure on a road vehicle comprising a trim-correction device connected in parallel with the suspension springs and intended to compensate for the variations in the load on the vehicle. As, with a trim-correction device, the distance between the wheels and the body remains constant irrespective of the load carried, the invention utilizes as the parameter indicating the excess load

on the vehicle, the over-pressure which then exists in the jacks of the trim-correction device. The braking correction device comprises a pressure-limiting valve controlled by a member responsive to the fluid pressure in the jack cylinders.

3,827,765

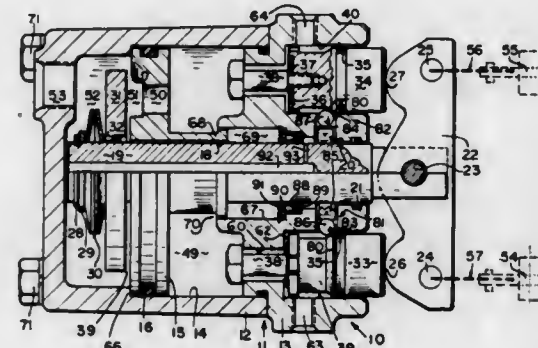
BRAKE VALVE

Royce H. Husted, 711 Lakeside Dr., Wheaton, Ill. 60187
Filed Jan. 29, 1973, Ser. No. 327,761

Int. Cl. B60t 15/06

U.S. Cl. 303—52

14 Claims



A brake valve for generating a right pressure output through a right pressure output port in response to a force input at a right force input, and a left pressure output through a left pressure output port in response to a force input at a left force input point.

3,827,766

FLEXIBLE MEMBRANE BEARING

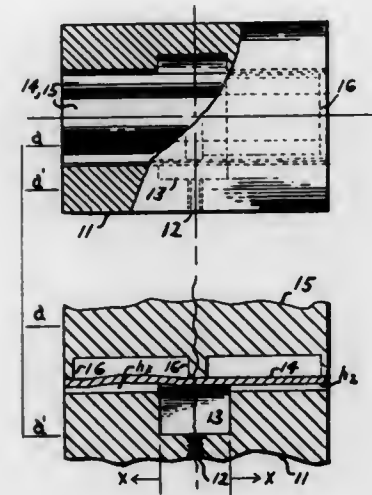
Gordon James Watt, Apt. 106, 245 Unquorua Rd., Fairfield, Conn. 06430

Filed July 6, 1971, Ser. No. 159,608

Int. Cl. F16c 7/04

U.S. Cl. 308—9

4 Claims



A low clearance pressurized fluid bearing with membrane surface suitably supported to allow bending and stretching in the clearance area in such manner to cause bearing action and to improve both load capacity and stiffness by its inherent tendency to compensate deficiencies in flow patterns.

3,827,767

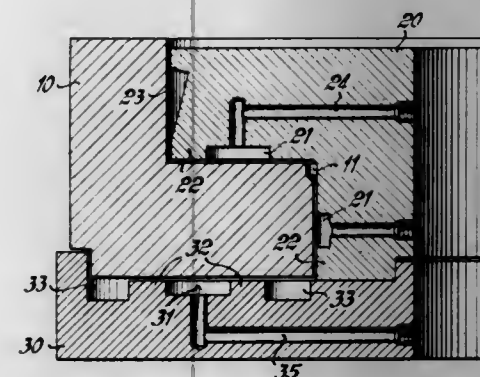
HYDROSTATIC BEARING

Karl-Helmut Sinner, Dortmund-Hochsten, Germany, assignor to Hoesch Werke Aktiengesellschaft, Dortmund, Germany
Filed Jan. 29, 1973, Ser. No. 327,586

Int. Cl. F16c 17/16

U.S. Cl. 308—9

7 Claims



A hydrostatic bearing is constructed as a self-contained unit, including an outer bearing ring, an inner bearing ring, a support ring beneath the bearing rings for supporting the same, a plurality of pressure-oil chambers between the respective rings with these chambers being of different dimensions in dependence upon whether they are to counteract an axial, radial or tilting force component, and oil passages which communicate separately with the chambers for filling the same with oil under pressure.

3,827,768

AXLE JOURNAL STOP DEVICE

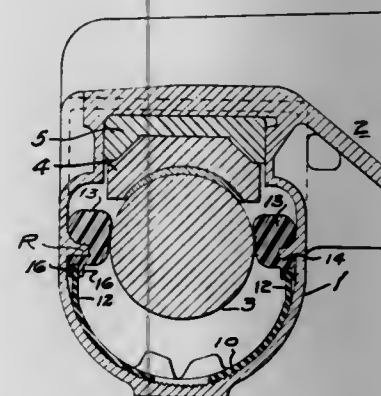
James J. Hennessy, Jr., Chambersburg, and Luther L. Bollinger, Sr., Reading, both of Pa., assignors to Hennessy Products Incorporated, Chambersburg, Pa.

Filed Mar. 5, 1973, Ser. No. 338,356

Int. Cl. F16c 41/00

U.S. Cl. 308—40

5 Claims



A journal stop device adapted to be inserted into a railway truck axle box between the axle journal and the sides of the box to transmit thrusts between the journal and box sides resulting from acceleration or deceleration of the truck movements.

3,827,769

TRACTION MOTOR SUSPENSION BEARING LUBRICATOR

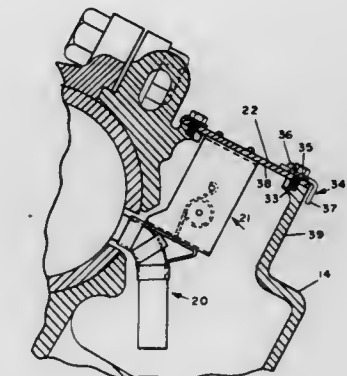
George E. Boller, and Richard J. Renk, both of Winona, Minn., assignors to Gladys Miller, Winona, Minn.

Filed Mar. 26, 1973, Ser. No. 344,769

Int. Cl. F16c 33/66

U.S. Cl. 308—132

5 Claims



A traction motor suspension bearing lubricator having a carrier with a cooperating member to provide for correct registration.

3,827,770

HYDRODYNAMIC COMBINED AXIAL AND RADIAL BEARING

Hansulrich Horler, Zurich, Switzerland, assignor to Brown, Boveri & Company Limited, Baden, Switzerland

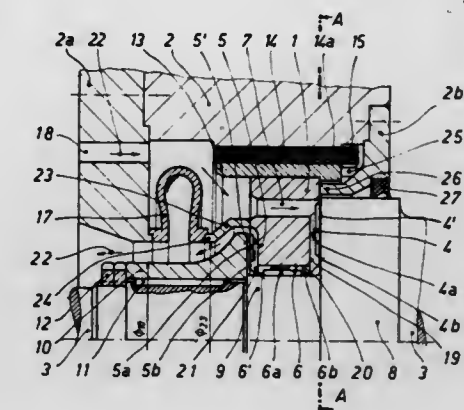
Filed May 23, 1973, Ser. No. 363,111

Claims priority, application Switzerland, June 9, 1972, 8591/72

Int. Cl. F16c 17/00

U.S. Cl. 308—160

6 Claims



A rotatable shaft structure and hydrodynamic combined thrust and radial bearing therefor includes an annular bearing disc surrounding the shaft and supported within the bearing housing in a radially elastic manner between two axially spaced collars located on the shaft. Thrust bearings are provided between each collar and the corresponding side of the bearing disc and a radial bearing is provided between the shaft and the inner periphery of the bearing disc. The bearing disc is spring loaded in the direction of one of the thrust bearings, and initially cool lubricating oil is caused to flow through all three bearings in series, the oil first passing radially inward through the lubricating gap at the thrust bearing against which the bearing disc is spring loaded, thence axially through the radial bearing and finally radially outward through the lubricating gap or the other, non-loaded thrust bearing.

3,827,771 ROLLER BEARING

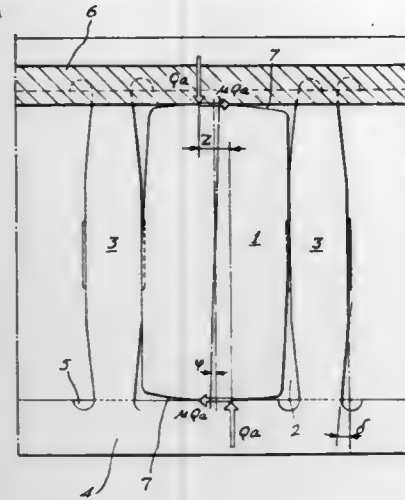
Lars Martin Ingemar Fernlund, Hinderås, Sweden, assignor to SKF Industrial Trading and Development Company B.V., Amsterdam, Netherlands

Filed Sept. 21, 1972, Ser. No. 291,096

Claims priority, application Sweden, Oct. 22, 1971, 13407/71

Int. Cl. F16c 33/30

U.S. Cl. 308—212



A roller bearing assembly comprising inner and outer ring members spaced apart to define an annular space for a plurality of rollers, each of the ring members having a radially directed flange confronting the axial end faces of the rollers, said roller end faces and flange surface confronting said roller end faces being of a predetermined configuration whereby the rollers assume an essentially stable equilibrium condition tilted at a predetermined angle relative to the bearing axis during operation of the bearing under axial load and a cage having a plurality of pockets for the rollers defined in part by axially oriented bars of a configuration so that the rollers can be tilted said predetermined angle and essentially limited only by the contact between said roller end faces of the surface of said flanges confronting and engaging said roller end faces.

3,827,772 MOBILE COMMUNICATION CONSOLE

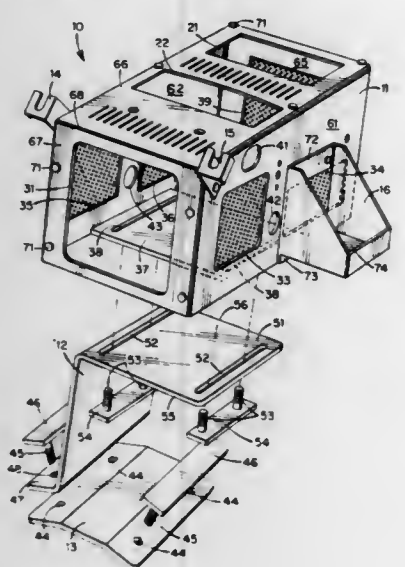
Frederick Mark Johnson, P.O. Box 102, South Weymouth, Mass. 02190

Filed June 20, 1973, Ser. No. 371,857

Int. Cl. B60r 7/04

U.S. Cl. 312—7 R

11 Claims



A communication console for two-way radio equipment used in automobiles. The console provides theft-proof mount-

ing adjacent the driver for radio equipment including controls, speakers, microphones and walkie-talkies. Provisions are made for easy access to the equipment housed within the console.

3,827,773 LOCKER CONSTRUCTION INCORPORATING LOCKING MEANS FOR CYCLES

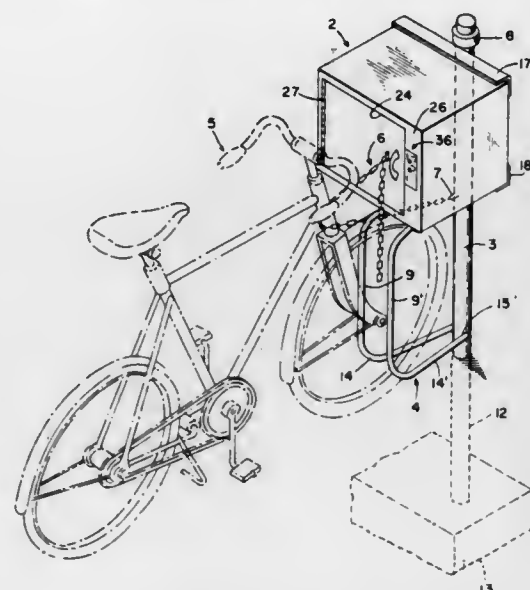
Anthony C. Aiello, 481 Raymond Ave., San Jose, Calif. 95128

Filed Mar. 6, 1972, Ser. No. 231,895

Int. Cl. A47b 81/00; E05b 73/00

U.S. Cl. 312—100

5 Claims



Presented is a locker construction which incorporates a locking mechanism, including a chain or cable, for locking a bicycle or motorcycle to the locker for security purposes. The lock construction for the locker incorporates means for locking one end of the chain or cable to the locker.

3,827,774 TOY DESK

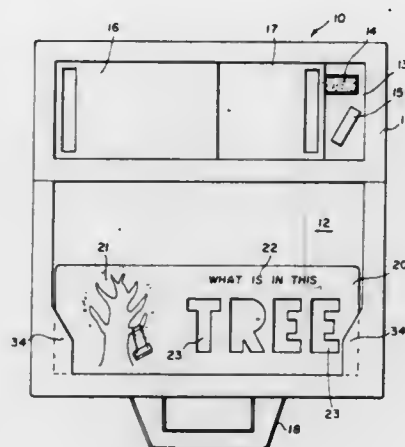
Victor G. Reiling, Jr., East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.

Filed Dec. 6, 1972, Ser. No. 312,684

Int. Cl. A47b 97/04, 27/00, 41/06

U.S. Cl. 312—230

10 Claims



A toy desk has a body with several storage compartments and a magnetic chalkboard on its upper surface. Plastic letters and numbers with closed frontal faces and sides have open backs holding magnets so that the letters and numbers can be magnetically secured to the chalkboard. Several templates storable in a compartment of said desk have picture and message material and through openings shaped to receive selected letters or numbers in an arrangement related to the picture or message. The desk includes means for storing the

letters, preferably in a molded tray shaped to receive the letters, and projections are spaced over the corners of the chalkboard to receive templates to overlie the chalkboard.

3,827,775 HEATING APPLIANCES

Ricardo Ros Arrogante, Estella, Spain, assignor to Industrials Del Hogar, S.A., Navarro, Spain

Continuation of Ser. No. 203,579, Dec. 1, 1971, abandoned.

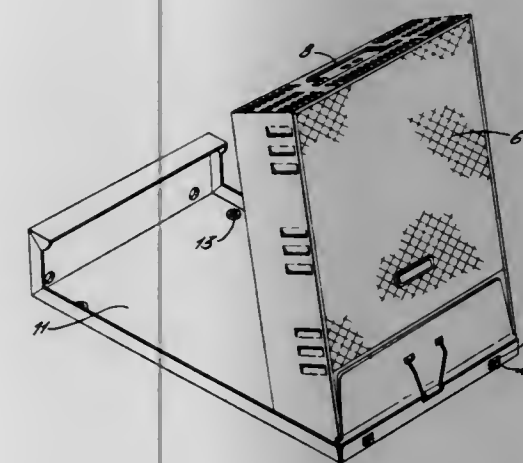
This application Oct. 29, 1973, Ser. No. 410,586

Claims priority, application Spain, Dec. 3, 1970, 163579

Int. Cl. A47b 67/02

U.S. Cl. 312—245

3 Claims



This invention provides a portable heating appliance comprising a hollow housing providing space within for storing a supply of gas therefor, and a heater screen at its front face, being the component parts of the appliance housed in such housing, and a cover for the housing comprising a panel portion and a tray portion, the panel portion and the tray portion each having peripheral flange portions and the construction and arrangement of the appliance being such that the housing and the cover can be secured together to mount the housing in an upright position for use or transportation of the appliance.

3,827,776 METHOD OF FABRICATING A GAS DISCHARGE DISPLAY DEVICE HAVING AN ALKALI METAL ATOMIC LAYER

Norihiko Nakayama, Tarumi; Mitsuoki Osawa, Akashi; Kiyoo Mizuko, Akashi, and Isao Takahashi, Akashi, all of Japan, assignors to Fujitsu Limited, Kanagawa-ken, Japan

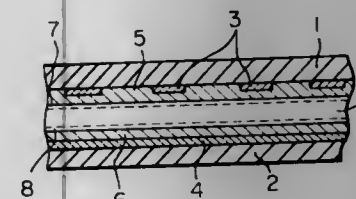
Filed June 14, 1972, Ser. No. 262,480

Claims priority, application Japan, June 21, 1971, 46-44708; Sept. 18, 1971, 46-72862

Int. Cl. H01J 9/38

U.S. Cl. 316—20

2 Claims



A pair of insulating substrates, at least one of which provides a group of electrodes on the inside surface, are posi-

tioned in spaced parallel relation having inside surfaces opposite each other with a gap filled with ionizable gas. The surface of the group of electrodes is covered with a dielectric layer, and this dielectric layer is covered with a material having a high secondary electron emissivity by introducing a fluid which includes alkali metal into the above-mentioned gap. Further, the dielectric layer is composed of a material having small activity with alkali metal.

3,827,777 MICROSCOPE FIELD MARKER

Ethelyn Ford, 8 Capri Ln., Pleasant Hill, Calif. 94530

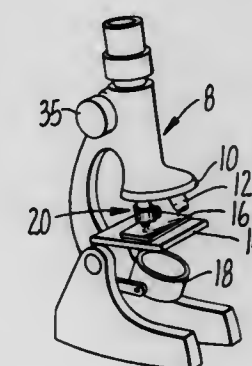
Continuation of Ser. No. 172,064, Aug. 16, 1971, abandoned.

This application June 14, 1973, Ser. No. 370,020

Int. Cl. G02b 21/00

U.S. Cl. 350—81

3 Claims



A field marker for a microscope is provided which can be clipped onto the objective of an ordinary microscope. The field marker has a small rubber stamp thereon impregnated with a suitable dye or ink and when the technician wishes to mark any particular section on a slide or the like, it is only necessary to run the microscope down to make contact with the slide. A small mark is thus left on the slide at a point of interest so that the point can be rapidly relocated.

3,827,778 DUAL IMAGING CONCENTRIC OPTICS

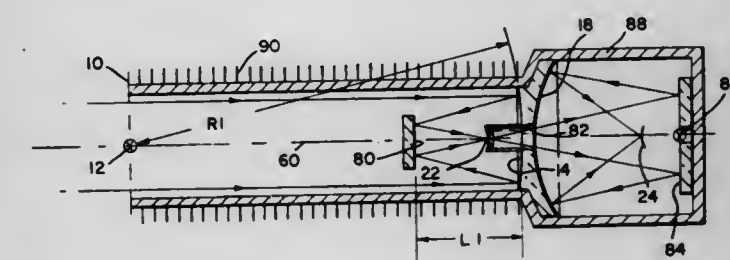
Bryce A. Wheeler, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 13, 1971, Ser. No. 207,294

Int. Cl. G02b 17/06

U.S. Cl. 350—55

24 Claims



An all-mirror optical system using spherical mirrors, planar folding mirrors, and a mirror contoured to correct for spherical aberration.

3,827,779

LENS FOCUSING SYSTEM

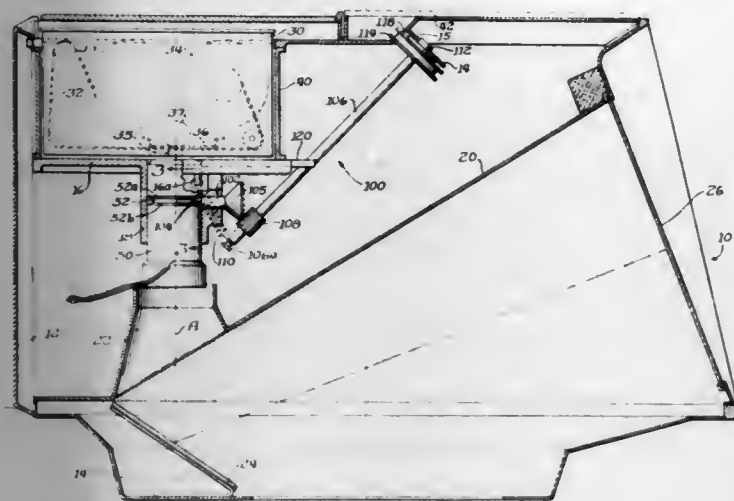
Kenyon A. Hapke, Libertyville; Edwin S. Johnson, Glenview, and Joseph J. Sidlo, North Barrington, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed June 4, 1973, Ser. No. 366,934

Int. Cl. G02b 7/02

U.S. Cl. 350—255

7 Claims



A lens focusing system including eccentric means coupled to shaft means which cooperate to permit the focal length of a lens to be manually adjusted.

3,827,780

STABLE ANIL-TYPE NEMATIC LIQUID CRYSTALS

Mortimer M. Labes, Rosemont, Pa., assignor to Temple University, Philadelphia, Pa.

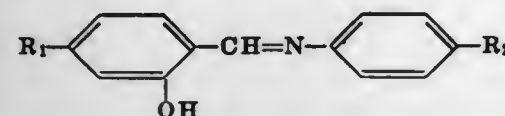
Filed Oct. 14, 1971, Ser. No. 189,315

Int. Cl. C07c 131/00; G02f 1/28

U.S. Cl. 350—160 LC

4 Claims

Stable anil-type nematic liquid crystals are provided of the formula



wherein R_1 and R_2 are each an alkyl, alkoxy, alkylester, aryl, aryloxy, aryloxy, aralkyl, carboxylic acid, halogen, nitro, cyano group or the like. The liquid crystals of this invention, because of the excellent stability, are especially useful in light valves, optical display devices and similar applications which involve the modulation of light.

ERRATUM

For Class 350—189 see:
Patent No. 3,827,798

3,827,781

SUPER TELEPHOTO LENS SYSTEM HAVING A SMALL TELEPHOTO RATIO

Yoshitsugi Ikeda, Tokyo, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Filed Feb. 13, 1973, Ser. No. 332,194

Claims priority, application Japan, Mar. 1, 1972, 47-20608

Int. Cl. G02b 9/34, 13/02

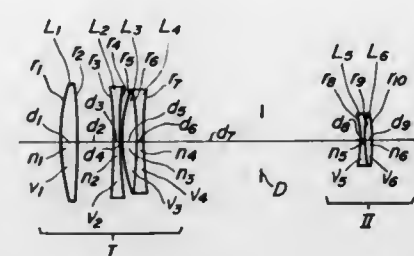
U.S. Cl. 350—220

2 Claims

A super telephoto lens system having a small telephoto ratio, which comprises front lens components consisting of a biconvex lens element, biconcave lens element and positive compound meniscus lens component, and a rear lens component spaced apart from said front lens components by a

large air space inclusive of an iris diaphragm and consisting of a negative compound meniscus lens component, all lens elements being arranged in succession from the side of an object, and which is defined by the following five conditions, i.e.:

1. $f < -f_2$; 4;
2. $0.04f < d_2 < 0.08f$;
3. $0.7 < -n_2 - 1/f_2 < 1.2$;
4. $0.1 < n_4 - n_3$ and $25 < v_3 - v_4$; and
5. $n_6 < n_5$ and $0.015 < -n_6 - n_5/f_6 < 0.05$



where f is a composite focal length of the whole lens system; f_2 is a composite focal length of lens components consisting of the second, third and fourth lens elements; d_2 is an air space between the first biconvex lens element and the second biconcave lens element; n_2, n_3, n_4, n_5 and n_6 are refractive indexes of the second, third, fourth, fifth and sixth lens elements counted from the object side, respectively; v_3 and v_4 are Abbe's numbers of the third and fourth lens elements, respectively; and r_3 and r_6 are radii of curvatures of the front lens surfaces of the second and sixth lens elements, respectively.

3,827,782

REFLECTOR APPARATUS

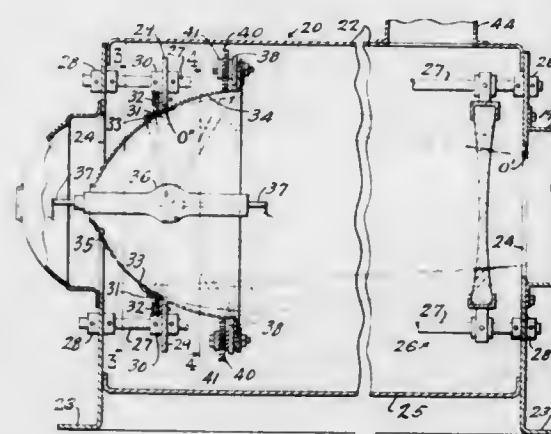
Angelo Boudouris, Sylvania, Ohio, and Geoffrey T. Gray, Lambertville, Mich., assignors to Eprod Incorporated, Toledo, Ohio

Filed Dec. 11, 1972, Ser. No. 313,848

Int. Cl. G02b 5/10

U.S. Cl. 350—295

9 Claims



A method and apparatus for distorting an open end of a reflector into a predetermined shape is disclosed. The reflector surface generally defines a paraboloid of revolution. The reflector apparatus comprises a housing which contains a suspension system for the reflector. The reflector is connected to the suspension system on a resilient mounting device for movement thereupon within the housing. A compression ring having opposing compression screws is located about the periphery of the reflector adjacent its open end. Adjustment of the opposing compression screws against the reflector causes the open end to distort into a predetermined shape, while the resilient mounting device prevents undesirable distortion at the inner surface of the reflector, thereby providing a desired distribution for reflected light.

3,827,783

OPTICAL SHEET MATERIAL

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation-in-part of Ser. No. 56,047, June 24, 1970, Pat.

No. 3,716,445, which is a continuation-in-part of Ser. No.

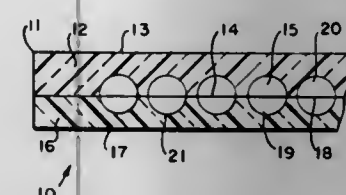
489,654, Sept. 23, 1965, Pat. No. 3,396,639. This application

Jan. 4, 1973, Ser. No. 320,971

Int. Cl. G02b 5/12

U.S. Cl. 350—104

10 Claims



New and improved structures are provided in transparent sheet materials capable of performing a variety of functions in optical systems. The sheet materials contain a plurality of lenses or lens formations disposed or formed between the surfaces of the sheet which may serve to reflect or focus light directed through the sheet.

In one form, lens formations are embossed or molded as a plurality of cavities between the surfaces of the sheet.

In another form, cavities between the sheet surfaces contain optical lenses which are made of a transparent material having a higher or lower refractive index than the index of refraction of the material comprising the sheet itself.

3,827,784

SIMPLE, BONDED GRAPHITE COUNTER ELECTRODE FOR ELECTROCHROMIC DEVICES

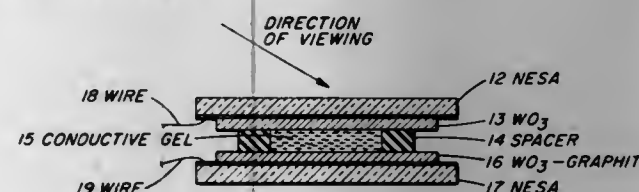
Robert Domenico Giglia, Rye, N.Y., and Richard Howard Clasen, West Redding, Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 9, 1971, Ser. No. 206,419

Int. Cl. G02f 1/36

U.S. Cl. 350—160 P

7 Claims



Method for forming a counter-electrode or imaging area in an electro-optical data display and imaging device, and the electrode and imaging areas formed. An electrochromic data display and imaging device may be formed by sandwich arrangement of the imaging area, the counter-electrode area with a suitable layer between. The device exhibits superior electrochromic reversability and improved speed and cell life over prolonged coloration and erase cycles.

3,827,785

GLASS LENS HAVING REDUCED CHROMATIC ABERRATION AND REFRACTIVE INDEX GRADIENT

Kazuo Matsushita, Kobe; Koichi Nishizawa, Itami, and Minoru Toyama, Amagasaki, all of Japan, assignors to Nippon Selfoc Co., Ltd., Tokyo, Japan

Filed Dec. 22, 1972, Ser. No. 317,687

Claims priority, application Japan, Dec. 25, 1971, 47-3143

Int. Cl. G02b 3/00, 5/14

U.S. Cl. 350—175 GN

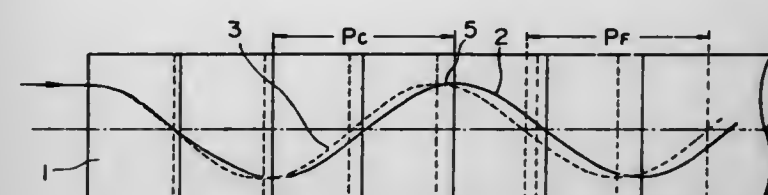
6 Claims

A glass lens having a reduced chromatic aberration and a refractive index gradient such that its refractive index is expressed by the following equation

$$N = N_0 (1 - ar^2)$$

wherein N is the refractive index at a distance r from the central axis of the lens in a cross section perpendicular to the central axis, N_0 is the refractive index at the central axis, and a is a positive constant;

wherein the composition of the glass lens at its central axis is 2-50mol% of Cs_2O , 30-98 mol% of SiO_2 and 0-30 mol% of B_2O_3 with the proviso that $(\text{SiO}_2 + \text{B}_2\text{O}_3)$ is 50-98 mol%, and optionally other ingredients, the concentration of cesium ions



in the lens gradually decreasing from the central axis of the lens to its peripheral surface to provide said refractive index gradient, said glass lens has a diameter of 0.2 to 5 mm, the difference between the refractive index of the peripheral surface of the lens and N_0 is at least 0.003, and $|dP|/P$ is less than 0.05.

wherein P is $\pi\sqrt{2}a$, $|AP|$ is the absolute value of the difference between the P for C line light (P_c) and the P for F line light (P_f), P is P value for D line light.

3,827,786

HIGH-SPEED VARIFOCAL OBJECTIVE SYSTEM

Karl Macher, Bad Kreuznach, Germany, assignor to Jos. Schneider & Co. Optische Werke, Bad Kreuznach, Germany

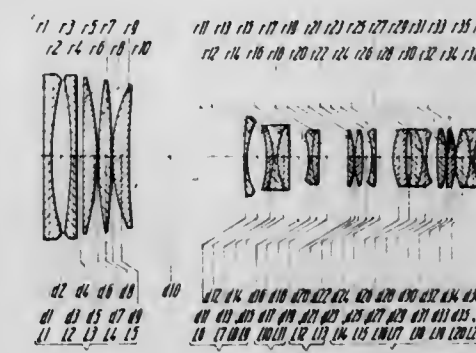
Filed Jan. 31, 1973, Ser. No. 328,846

Claims priority, application Germany, Feb. 1, 1972, 2204553

Int. Cl. G02b 15/18

U.S. Cl. 350—186

10 Claims



A varifocal objective system with a relative aperture of 1:2 and a varifocal ratio of 10:1 consists of a six-member basic objective and a four-component vario attachment, the latter being composed of two axially movable negative components bracketed by two positive components. The first component, which is limited axially shiftable for focusing purposes, includes two negative menisci with confronting concave surfaces followed by three positive singlets. The second component consists of a negative meniscus with rearwardly facing concavity, followed by a negative triplet. The third component is a negative doublet. The fourth component consists of two air-spaced positive singlets. The first member of the basic objective is a negative meniscus with forwardly facing concavity.

3,827,787

ARRANGEMENT FOR ELIMINATING INTERFERENCE REFLECTIONS IN A LIGHT DEVIATING DEVICE

Guy Ripart, Le Plessis Robinson, France, assignor to Compagnie Generale D'Electricite, Paris, France

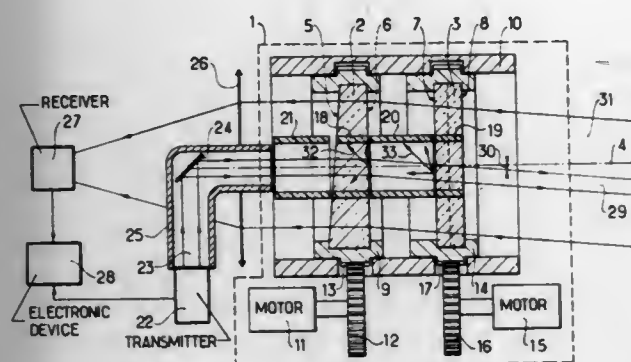
Filed Jan. 22, 1973, Ser. No. 325,681

Claims priority, application France, Jan. 21, 1972, 72.02086

Int. Cl. G02f 1/34

U.S. Cl. 350—285

6 Claims



Device for deviating light comprising two optical prisms driven in a rotating movement about a same axis, each of these prisms having an opaque sleeve crossing it from one face to the other and surrounding the rotating axis, and a method for producing prisms for the deviating device, consisting more particularly in positioning an opaque substance in a cylindrical groove formed in a transparent plate, and in dividing the plate in two parts along a transversal plane.

3,827,788

ONE-WAY MIRROR PERISCOPE REAR VISION SYSTEM

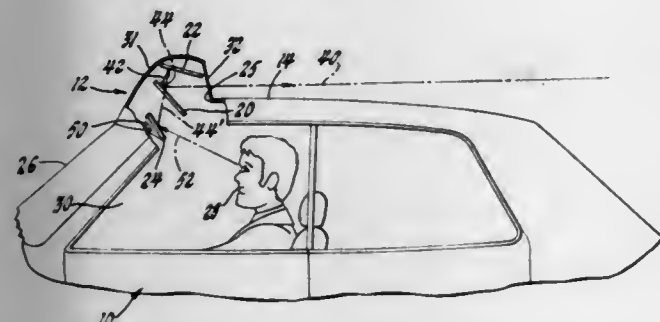
David L. Clark, Grosse Pointe Woods, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 30, 1973, Ser. No. 346,652

Int. Cl. G02b 5/08

U.S. Cl. 350—302

2 Claims



A periscope rear vision system for viewing over the roof of a motor vehicle includes three mirrors, one of which is a one-way mirror and two of which are conventional plane mirrors. The one-way mirror located above the roof receives rearward images for redirection upwardly to one of the plane mirrors also located above the vehicle roof. This mirror reflects the images downwardly with partial transmission through the one-way mirror and an opening in the roof to the other plane mirror located in the vehicle interior and redirection therefrom to the driver.

3,827,789

MONITORING DEVICES

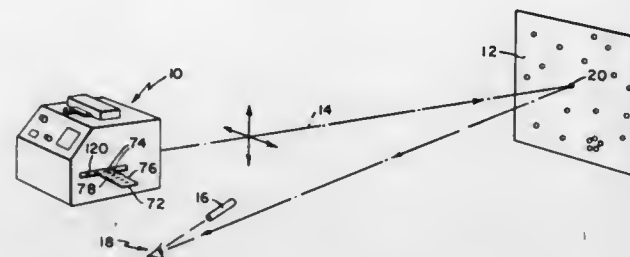
Stanley F. Molner, Morristown, N.J., and Joel S. Newman, Framingham, Mass., assignors to Biometrics, Inc., Cambridge, Mass.

Continuation-in-part of Ser. No. 104,858, Jan. 8, 1971, abandoned. This application Sept. 5, 1972, Ser. No. 286,422

Int. Cl. A61b 3/02

U.S. Cl. 351—23

21 Claims



A method and apparatus for measuring a subject's visual field by presenting a target consisting of a spot of light at a series of selected locations within the subject's visual field and monitoring and interpreting his resulting eye movements and positions. The technique makes use of the tendency of the subject's eyes to respond to the sudden appearance of the dot of light by fixating on that target within a relatively short time after the target has been presented to him. The apparatus employed to measure the subject's visual field includes a projector which presents the light-dot targets in a known sequence on a screen before the subject, and simultaneously makes a permanent photographic image of those light-dot targets which the subject sees as determined by the eye movement monitor and its associated logic circuitry. The permanent photograph shows the viewed light dots seen by the subject in substantially the same general arrangement as presented to him. The voids of the photograph represent those points not seen by the subject and thus map his blind spots. Alternatively, a photographic image of those light-dot targets which the subject was unable to see also may be made to provide a complementary representation of the subject's blind spots.

3,827,790

SPECTACLE HOLDER

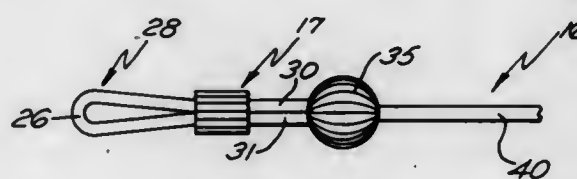
Ronald A. Wenzel, Norfolk, Mass., assignor to The Hilsinger Corporation, Plainville, Mass.

Filed Apr. 26, 1973, Ser. No. 354,771

Int. Cl. G02c 5/00; F16g 11/14

U.S. Cl. 351—123

4 Claims



A flexible member adapted to be attached to the ear engaging portions of the temples of a spectacle by means of elastic loops at the ends of the device with a means for adjusting the encircling size of the elastic loops.

3,827,791

OPTICAL PANORAMIC PROJECTION APPARATUS

Richard A. Mecklenborg, Binghamton, N.Y., assignor to The Singer Company, Binghamton, N.Y.

Filed Aug. 10, 1972, Ser. No. 279,527

Int. Cl. G03b 37/00

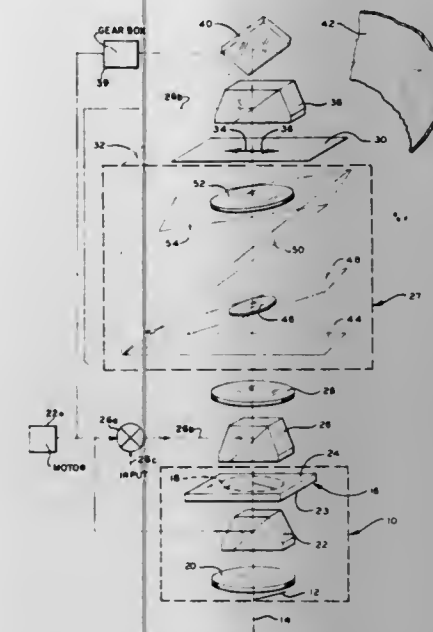
U.S. Cl. 352—69

7 Claims

In the projection of a transparent orthophoto on to a cylindrical screen, a mercury capillary lamp provides a line of light

which is focused on the orthophoto. One end of the line passes through an axis of the orthophoto and the line of light being rotated about the axis. Line images emanating from the orthophoto are transmitted through a Scheimpflug stage

stereoscopic mode with the aid of polarizing filters or color filters. The system includes means by which the specimen under examination can be viewed by stereo projection, and means by which stereo photomicrography on black-and-white or color



which provides magnified line images which are directed to a mirror and reflected therefrom on to the screen. The magnification of a magnified line image is related to its location with respect to the Scheimpflug stage.

3,827,792

RESILIENT TIRE AND WHEEL ASSEMBLY

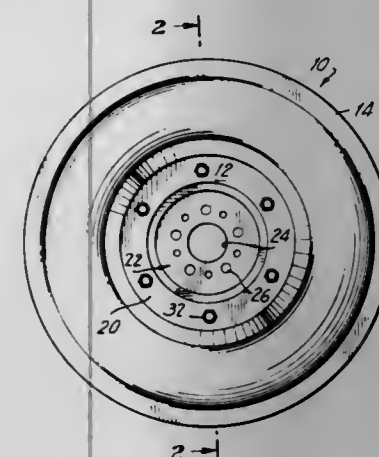
Jesse R. Hollins, 1 Chester Dr., Great Neck, N.Y. 11021

Filed Mar. 24, 1972, Ser. No. 237,649

Int. Cl. B60c 7/08, 7/24, 19/00

U.S. Cl. 152—319

3 Claims



An improved resilient tire combination comprising a wheel assembly which is adapted to be mounted on a vehicle wheel hub. The complete tire is formed with an inner core and an outer carcass where interengaging cavities and projections prevent relative rotation between said inner core and outer carcass with bolts provided for securing the complete tire to said wheel assembly.

3,827,793

STEREOSCOPIC MICROSCOPY

Leslie Peter Dudley, Los Angeles, Calif., assignor to Dudley Optical Laboratories, Inc., Beverly Hills, Calif.

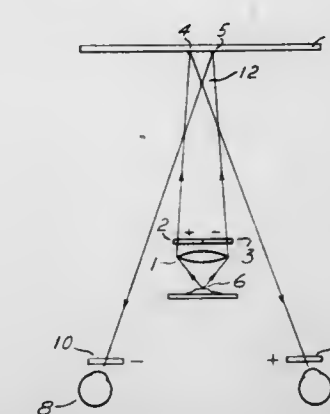
Filed Nov. 3, 1972, Ser. No. 303,493

Int. Cl. G03b 21/00

U.S. Cl. 353—8

6 Claims

An improved system is provided for converting both monocular and binocular non-stereoscopic microscopes to the



film can be easily and effectively accomplished. The system also includes improved means for illuminating opaque specimens for stereo projection or stereo photomicrography by reflected light.

3,827,794

AUDIOVISUAL DISC PROJECTOR

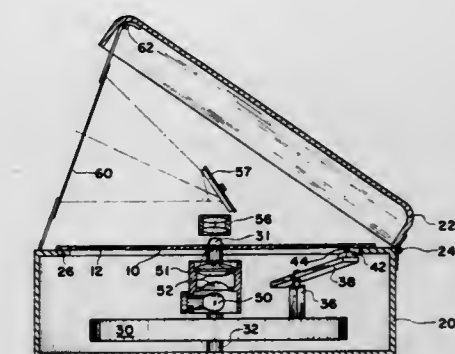
Panayotis C. Dimitracopoulos, P.O. Box 458, Montreal, Quebec, Canada

Filed Nov. 6, 1972, Ser. No. 304,202

Int. Cl. G03b 31/06; G11b 3/40

U.S. Cl. 353—18

9 Claims



An audiovisual disc projector, accepting for audiovisual reproduction audiovisual discs having a stationary spiral sound track surrounding a stationary ring of projectable images, said disc projector including a rotating member carrying a sound transducer for the reproduction of the audio information of the sound track and a stationary projection-light source secured to a shaft passing through the turntable bearing.

3,827,795

SELF-CONTAINED FRONT PROJECTION DISPLAY CABINET

Paul B. Hinds, 123 Browncroft Blvd., Rochester, N.Y. 14609

Filed Apr. 19, 1972, Ser. No. 245,499

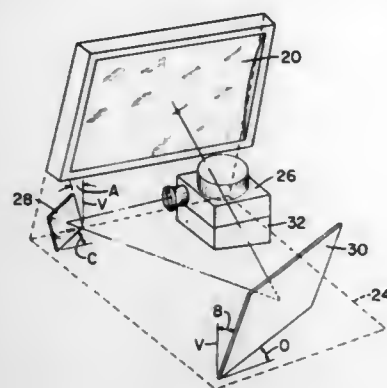
Int. Cl. G03b 21/28

U.S. Cl. 353—77

8 Claims

The display cabinet includes a housing, a viewing window in the front of the housing, a front projection "ideal" screen mounted inside the housing and viewable through the window from a selected viewing area in front of the cabinet, a projector mounted in the housing, and a mirror system mounted in

the housing for folding the projection beam and impinging it upon the screen at an angle different from that at which am-



bient light strikes the screen. The screen is "aimed" to position the image light into the selected viewing area and separate from reflected ambient light.

3,827,796

SLIDE TRAY INDEXING MECHANISM FOR SLIDE PROJECTORS AND THE LIKE

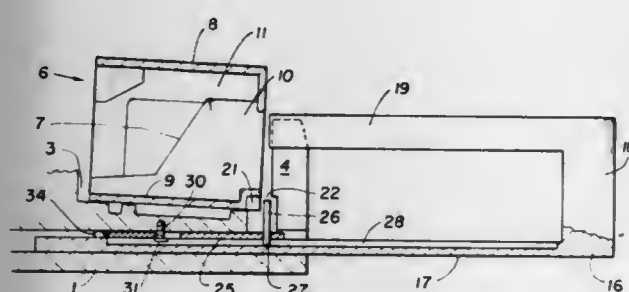
Jean-Paul Erchoff, Belsele, Belgium, assignor to GAF Corporation, New York, N.Y.

Filed Jan. 29, 1973, Ser. No. 327,801

Int. Cl. G03b 23/04

U.S. Cl. 353—116

21 Claims



A reversible slide tray indexing mechanism is provided which comprises an indexing lever slidably and pivotably mounted on the base of a slide projector having a pawl for sequential engagement with a rack of indexing projections formed on the periphery of a slide tray, and an actuating member for imparting the required movement thereto. The slide carrier of the projector is provided with a camway in operative engagement with said actuating member for transversely moving said pawl out of engagement with the rack of indexing projections and permitting pivotal movement thereof into alignment with the next projection of the indexing rack upon withdrawal of the slide carrier from the projector, and transversely moving said pawl into engagement with said next projection and pivotally moving said lever to advance the slide tray to the next position by transporting the same through an extent corresponding to the distance between two adjacent projections on the rack upon insertion of the slide carrier into the projector. Forward and reverse operation is controlled by means of a slidable bracket in engagement with the indexing lever to selectively bias the same for pivotal movement in the desired direction.

3,827,797

OVERHEAD PROJECTOR APPARATUS

Robert B. Eaves, 1395 Varnum Dr., Wayne, Pa. 19087

Filed Apr. 2, 1973, Ser. No. 347,392

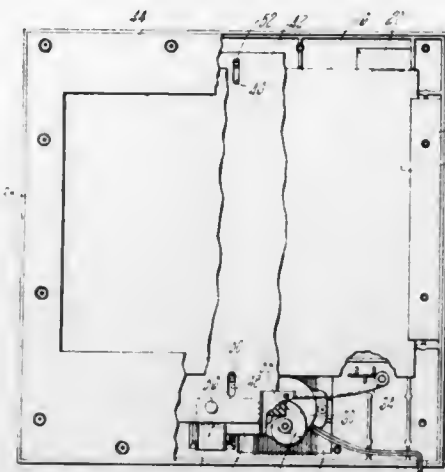
Int. Cl. G03b 21/00; G09f 13/34

U.S. Cl. 353—122

10 Claims

An adapter or attachment mechanism is presented for use in a standard overhead projector whereby displays having the il-

lusion of motion can be projected. The adapter has a transparent display platform which houses a movable dot patterned activator sheet and has a dot patterned art sheet on the platform, with this assembly being positioned over the normal



light table or display deck of an overhead projector. Transmission of light through the adapter assembly coincidentally with movement of the activator sheet result in the projection of a display having the illusion of motion.

3,827,798

OPTICAL ELEMENT OF REDUCED THICKNESS

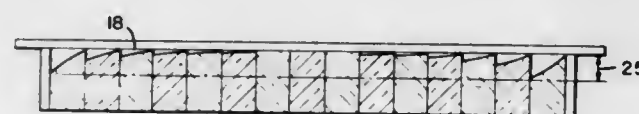
Luis W. Alvarez, Berkeley, Calif., assignor to Optical Research & Development Corporation, Oakland, Calif.

Division of Ser. No. 131,156, April 5, 1971, Pat. No. 3,739,455. This application Apr. 30, 1973, Ser. No. 355,832

Int. Cl. G02b 3/08

U.S. Cl. 350—189

5 Claims



An optical element of reduced thickness is formed by a mosaic of discrete lens faces, the lens faces together deflecting light in a manner equivalent to a conventional optical element of much greater thickness. Process and apparatus for the production of the lens element is included.

3,827,799

DEVICE FOR PREVENTING DEVELOPMENT OF NON-IMAGE MARGINAL PORTIONS OF A PHOTORECEPTOR IN ELECTROPHOTOGRAPHIC COPYING APPARATUS

Yutaka Koizumi, Yokohama, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Apr. 5, 1973, Ser. No. 348,228

Claims priority, application Japan, Apr. 17, 1972, 47-37745

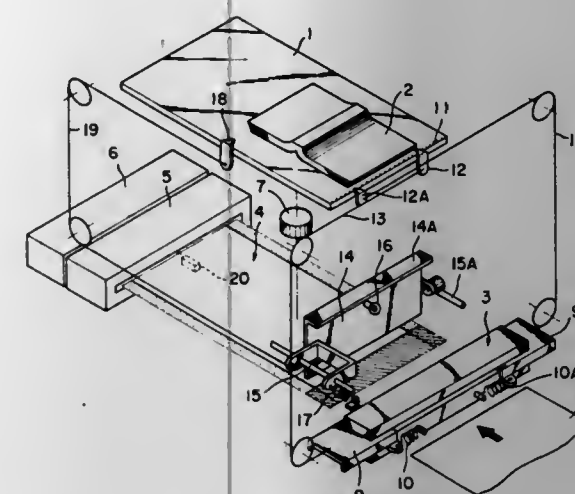
Int. Cl. G03g 15/02, 15/04

U.S. Cl. 355—3 R

5 Claims

In an electrophotographic copying apparatus, a device for preventing the charging device from charging selected marginal portions of a photoreceptor, to thereby prevent staining of these selected marginal portions when the charged part of the photoreceptor is exposed to the image of an original, and this image is later developed. Charging of the selected marginal portions of the photoreceptor is prevented by means of plates which are moved with respect to the charging device by manually moving indicators disposed along the length and

width of the rest plate that supports an original for copying. Thus, only that portion of the photoreceptor which cor-



responds to the selected size of the original is charged, while the marginal portions of the photoreceptor which would surround the projected image of the original are not charged.

3,827,800

APPARATUS FOR TRANSFERRING ELECTROSTATIC LATENT IMAGES IN ELECTROPHOTOGRAPHIC COPIERS OF IMAGE TRANSFER TYPE

Susumu Tanaka, Sakai; Yuji Enoguchi, Higashi-Osaka, and Takao Fujiwara, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

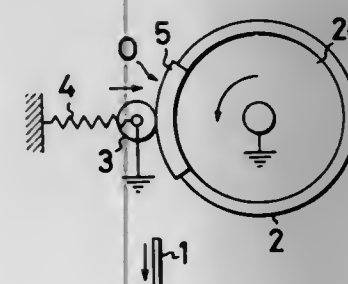
Filed Mar. 7, 1973, Ser. No. 338,784

Claims priority, application Japan, Mar. 15, 1972, 47-26760

Int. Cl. G03g 15/18

U.S. Cl. 355—3 R

8 Claims



An apparatus comprising a photosensitive element to be driven for charging and exposure to form an electrostatic latent image on its surface and having a grounded electroconductive backing on its rear face, a transfer roller adapted to bring the dielectric surface of copy paper into intimate contact with the surface of the photosensitive element and to ground the electroconductive backing of the paper for electrical connection with the conductive backing of the photosensitive element, disconnecting means for breaking electrical connection between the roller and the conductive backing of the element through grounding while the paper is not positioned between the element and the roller, and means for grounding the conductive backing of the paper after the paper has passed through a transfer station, so as to prevent discharge due to the breakdown of air gap between the transfer roller and the photosensitive element for the protection of the charge retaining surface of the element. The transfer roller has means for selectively breaking the electrical connection between the two backings for use with copy papers of varying sizes.

3,827,801

ELECTROPHOTOGRAPHIC COPIER OF IMAGE TRANSFER TYPE

Susumu Tanaka, Sakai; Yuji Enoguchi, Higashi-Osaka, and Takao Fujiwara, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

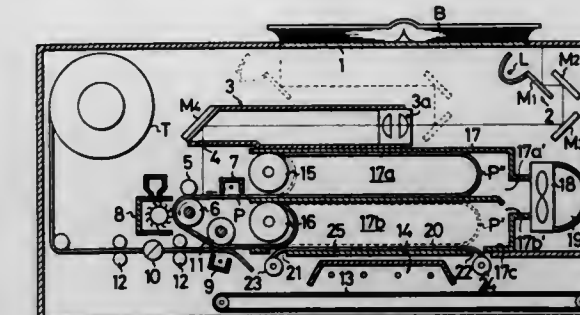
Filed Mar. 7, 1973, Ser. No. 338,782

Claims priority, application Japan, Mar. 16, 1972, 47-31636

Int. Cl. G03g 15/00

U.S. Cl. 355—15

9 Claims



An image transfer type electrostatic copier includes a rectangular box open at one end and connected to a suction fan at its other end and has a pair of longitudinally spaced slits formed in a wide wall thereof which is separated by a removable wall section. A cleaner belt extends from a storage roll through one slit along the inside face of the box wall through the other slit to a take-up roll. A photosensitive web is sucked into the box and traverses a looped path which extends along the cleaner belt under the influence of the reduced pressure in the box. The web, is driven and charged, exposed to a scanned image, has toner applied and the toned image is transferred to copy paper.

3,827,802

MICROFILM CODING APPARATUS

Josef Pfeiffer, Unterhaching; Wilfried Hofmann, and Karl-Heinz Dietrich, both of Munich, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

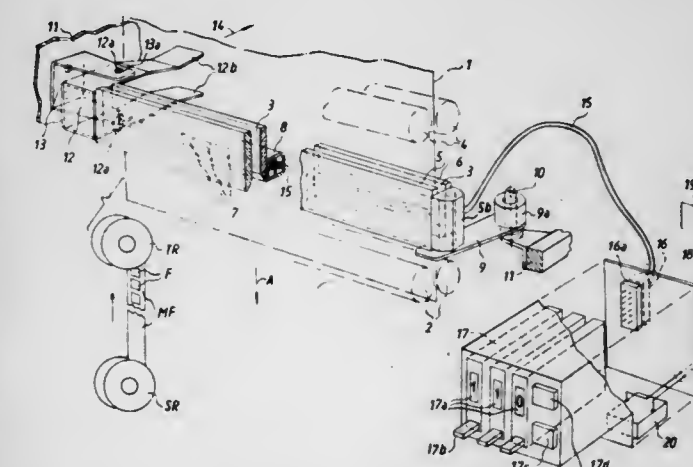
Division of Ser. No. 243,201, April 12, 1972, Pat. No. 3,750,553. This application Feb. 7, 1973, Ser. No. 330,382

Claims priority, application Germany, Apr. 17, 1971, 2118732; Dec. 4, 1971, 2160211

Int. Cl. G03b 17/24

U.S. Cl. 335—41

13 Claims



A microfilming apparatus wherein one of two transparent plates which define the image plane for originals carries a row of enclosed electric lamps serving to encode information on microfilm during exposure of successive originals onto successive microfilm frames. The encoded information facilitates the finding of selected microfilm frames. The plates are movable from operative to exposed positions to be accessible for cleaning. The number and distribution of lamps which light up to

encode information on microfilm is controlled by a programming unit which can be actuated by hand or automatically, either in response to detection of successive originals in the image plane or in response to detection of signal generating sheets which are fed into the image plane alternately with successive originals. A detector scans the thickness and/or the conductivity of signal generating sheets and causes the programming unit to change the number and/or distribution of lamps which are lighted simultaneously or substantially simultaneously with the exposure of successive originals onto the microfilm.

3,827,803

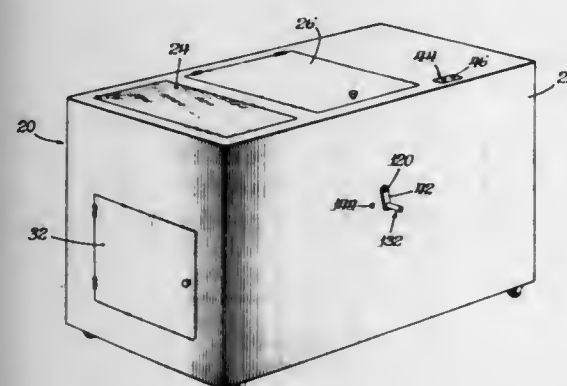
COPIER-DUPPLICATOR MACHINE

Loren E. Shellfo, Palatine, and Henry A. Mathisen, Northbrook, both of Ill., assignors to Addressograph-Multi-graph Corporation, Mount Prospect, Ill.

Division of Ser. No. 134,846, April 16, 1971, which is a division of Ser. No. 735,402, June 7, 1968. This application Mar. 12, 1973, Ser. No. 339,756

Int. Cl. G03g 15/00

U.S. Cl. 355-3 R



A copier-duplicator includes a master preparing section for uniformly charging and then exposing a photoelectrostatic master to provide a latent image on the master. An adjustable optical system permits the size of the image to be changed to provide copies of different sizes, and a controlled illumination source removes the charge from the unused area of the master to avoid spurious powder transfer to the copies. The prepared master is clamped on a rotating cylinder, and the image is developed by powder and transferred to copy sheets by a pressure roller as many times as required to produce the desired number of copies.

3,827,804

COLOR SEPARATION FOR DISCRIMINATION IN PATTERN RECOGNITION SYSTEMS

Melvin N. Miller, Wynnewood; Marshall S. Levine, Wayne, and Melvin E. Partin, Montgomeryville, all of Pa., assignors to Geometric Data Corporation, Wayne, Pa.

Filed Oct. 16, 1972, Ser. No. 298,062

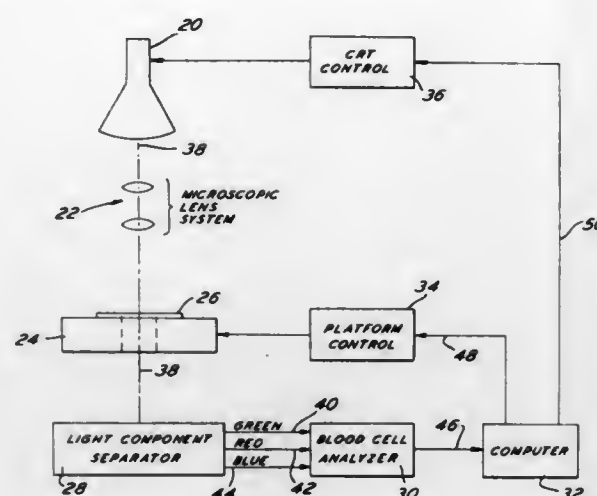
Int. Cl. G01n 15/02

U.S. Cl. 356-39

6 Claims

A color separation system is provided for use in combination with a pattern recognition system, which is particularly useful in blood cell analysis. The color separation means include filtering means for transmitting from a field having a plurality of patterns light in a plurality of spectral bands. Photomultiplier means are responsive to the filtering means

for providing a plurality of electrical signals each of which varies in accordance with the light intensity in one of the spectral



3,827,805

SYSTEM FOR CONTROLLING CENTRIFUGAL FORCES TO PRODUCE CELLULAR MONOLAYERS

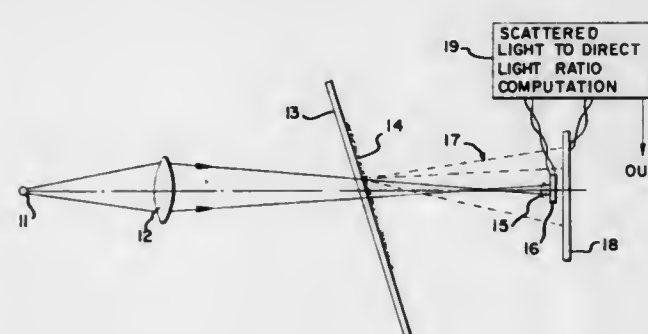
Gerald R. Mansfield; Charles H. Rogers, and Kevin J. Sullivan, all of Raleigh, N.C., assignors to Corning Glass Works, Corning, N.Y.

Filed May 24, 1973, Ser. No. 363,434

Int. Cl. G01n 21/00, 21/24

U.S. Cl. 356-73

10 Claims



A control system for a slide centrifuge includes a source of light imaged through the slide. A direct light detector and a scattered light detector detect the light. The ratio of the outputs of the two detectors is a signal which is proportional to the spacing of the cells on the slide. The centrifuge motor is stopped when equality occurs between this ratio signal and a decaying signal.

ERRATUM

For Class 356-85 see:
Patent No. 3,827,675

3,827,806

DEVICE FOR FACILITATING THE ADJUSTMENT OF AN OPTICAL SYSTEM

Lars-Erik Skagerlund, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Continuation of Ser. No. 814,928, April 10, 1969, abandoned.

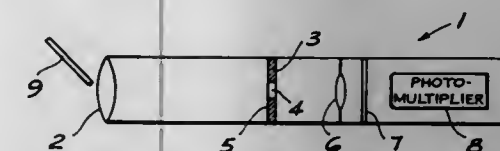
This application Oct. 26, 1971, Ser. No. 192,150

Claims priority, application Sweden, Apr. 18, 1968, 5205/68

Int. Cl. G01b 11/26

U.S. Cl. 356-138

3 Claims



An optical system for the receiver section of a laser range finder comprising an objective, a diaphragm with a very small aperture, an ocular and a photomultiplier immediately behind the ocular. The diaphragm is at right angles to the optical axis of the surface and is provided with a reflective coating on that surface which faces the objective.

3,827,807

STAR SCANNER

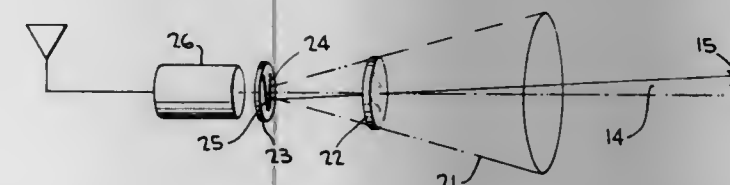
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention by; Richard L. Gutshall, 4170 Judson Dr.; Randall T. McConaughy, 7810 Durham Way, both of Boulder, Colo., and Frank A. Volpe, 557 Beach Dr., Annapolis, Md.

Filed Sept. 29, 1972, Ser. No. 293,725

Int. Cl. G01b 11/26

U.S. Cl. 356-141

3 Claims



A star scanner on a spin stabilized spacecraft includes a reticle with a pair of slits having different separations as a function of the spacecraft vertical plane, to form a "V" slit. The time between a star image crossing one of the slits relative to a reference telemetry time provides an indication of azimuth angle. The time between the image crossing the two slits provides an indication of elevation angle of the star. If a star cluster is detected such that two stars pass the slits in less time than normally required for a single star to cross the two slits, an indication of the cluster occurrence is derived. Means are provided to prevent effective detection of large celestial bodies, such as the sun or moon.

3,827,808

METHOD AND APPARATUS FOR MEASURING THE OPACITY OF SHEET MATERIAL IN WHICH THE TRANSMITTANCE SIGNAL IS COMPENSATED FOR THE REFLECTIVITY OF THE MATERIAL

Boong Y. Cho, Columbus, Ohio, assignor to Industrial Nucleonics Corporation, Columbus, Ohio

Filed May 9, 1973, Ser. No. 358,606

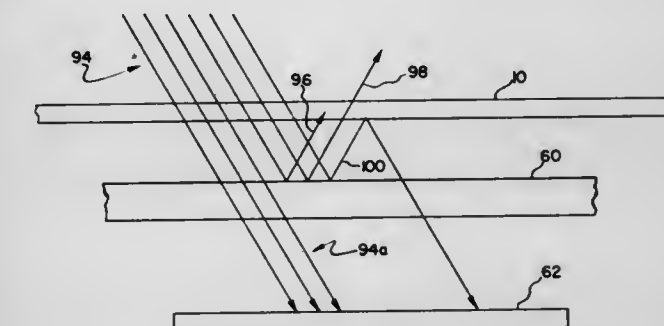
Int. Cl. G01n 21/18, 21/22, 21/30

U.S. Cl. 356-199

31 Claims

Specifically disclosed is a method and apparatus for measuring the opacity of sheet material, more particularly for measuring the opacity of paper according to the TAPPI contrast

ratio definition. A moving sheet of paper from a paper making machine or coater is passed through the gap between a light source and a photodetector. The light transmitted through the paper is passed through a window of opal glass and a bandpass filter before it is received by the photodetector. The opal glass window constitutes a partial reflector having an effective reflectivity between about 20 and 70 percent. This produces multiple reflections between the opal glass and the paper next to it, with sufficient magnitude to compensate the transmittance measurement for the reflectivity of the paper, and thereby automatically corrects the instrument for changes in



the composition of the paper. Because of the bandpass filter, the photodetector responds substantially only to light in the visible portion of the spectrum. According to another disclosed arrangement wherein the opal glass window is not used, the instrument is compensated by the use of a second photodetector responsive to light reflected from the side of the paper where the light source is located. Signals from the two detectors are then combined in a simple computer arrangement to obtain a signal which is compensated for the reflectivity of the paper. The compensated signal provided by either of the disclosed arrangements is correlated with opacity in conformance with the TAPPI standard.

3,827,809

CIRCUITS FOR DERIVING A COMMON OUTPUT SIGNAL FROM A PLURALITY OF AMPLIFIERS IN APPARATUS FOR DETECTING BLEMISHES IN SHEET MATERIAL

Paul Nash, 44 Westbourne Ter., London, England

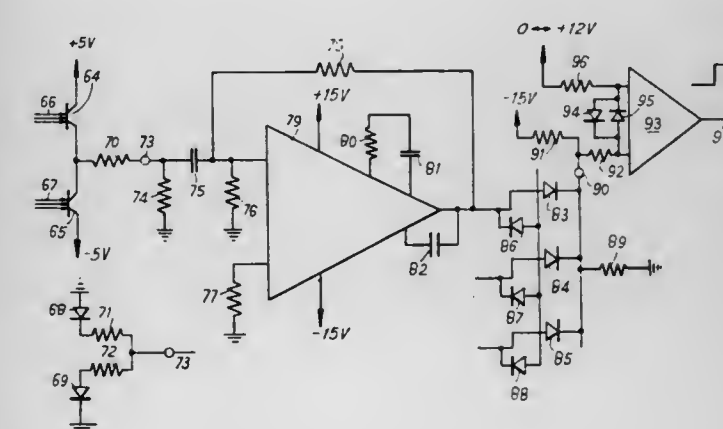
Filed May 11, 1973, Ser. No. 359,511

Claims priority, application Great Britain, May 12, 1972, 22393/72; May 19, 1972, 23711/72

Int. Cl. G01n 21/16, 21/32, 21/30

U.S. Cl. 356-200

15 Claims



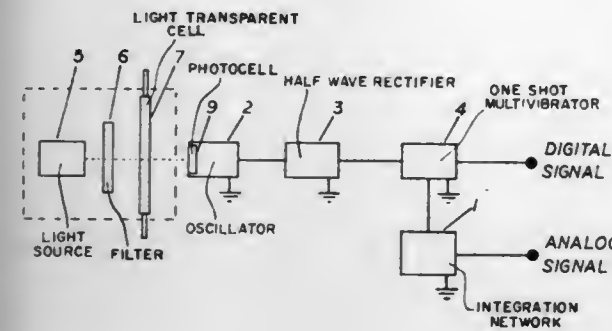
A circuit for combining the outputs of several amplifiers, through an array of diodes, so that the combined output has a noise content whose amplitude is less than that of the individual amplifier outputs. The circuit is described as part of an inspection system for detecting blemishes in sheet material flowing past a series of photo-sensitive devices, the amplifiers receiving the outputs of the photo-sensitive devices.

3,827,810 OPTICAL MONITOR

Jorge G. Codina, Hartsdale, N.Y., assignor to Combined Sciences Corporation

Filed Jan. 8, 1973, Ser. No. 321,960
Int. Cl. G01n 21/26

U.S. Cl. 356—201



An optical monitor in which liquid to be analyzed flows through a light transparent cell. First means passes a light beam of selected bandwidth through the cell, the beam being attenuated to an extent dependent upon the light absorption characteristic of the liquid. A photocell device is responsive to the attenuated beam, the resistance of the device varying with the amount of attenuation. An oscillator is coupled to the device to produce an attenuating signal, the signal frequency varying with changes in the resistance of the device whereby the frequency is a measure of the characteristic.

3,827,811 AN OPTICAL MEASURING DEVICE EMPLOYING A DIAPHRAGM WITH REFLECTING SURFACES

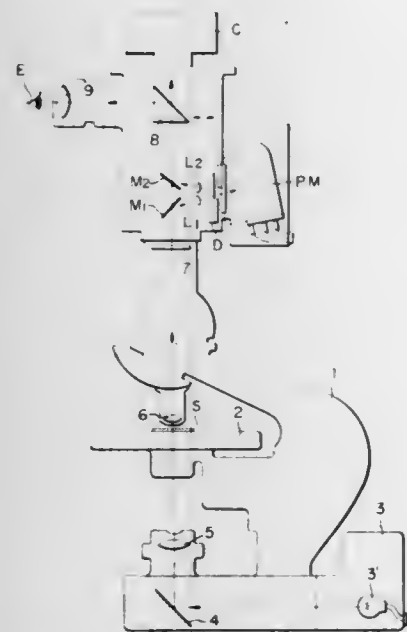
Yoshio Kato, Yokohama, and Yutaka Ogiwara, Niiza, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Mar. 7, 1973, Ser. No. 338,769

Claims priority, application Japan, Mar. 15, 1972, 47-25782; Mar. 15, 1972, 47-30339

Int. Cl. G01j 1/42; G01n 21/22

U.S. Cl. 356—225



An optical measuring device employs an objective lens and an adjustable diaphragm disposed in a focal plane of the lens. The diaphragm has a portion formed as a reflecting surface so that part of the light from the object focused by the lens on the diaphragm passes through the aperture, while the remaining light is reflected by the reflecting surface. Measuring means is disposed behind the diaphragm to receive and measure the

light passing through the aperture, and a viewing optical system receives the light reflected by the reflecting surface of the diaphragm.

5 Claims

3,827,812 METHOD OF AND APPARATUS FOR TESTING THE CONDITION OF BOTTLES

Helmut Heimann, Wuppertal-Barmen, Germany, assignor to Wickeler-Kupper-Braverei KGaA, Wuppertal-Barmen, Germany

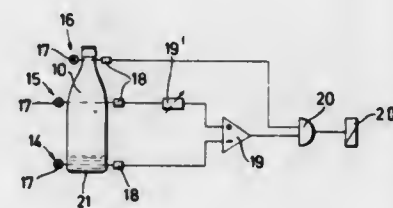
Filed Feb. 8, 1973, Ser. No. 330,827

Claims priority, application Germany, Feb. 9, 1972, 2206054

Int. Cl. G01n 21/16, 21/32

U.S. Cl. 356—240

11 Claims



Apparatus for testing the condition of a bottle includes first and second scanner devices for transmitting light beams through the bottle respectively in the vicinity of the bottom of the bottle and at another level at which the cross-section of the bottle is about the same as in the vicinity of the bottom of the bottle. The respective light beams are then sensed by photocells which transmit their respective signals to an amplifier for comparing the electrical signals and generating a further signal when the electrical signals differ by a predetermined amount. The further signal is utilized to actuate a device for ejecting bottles partially filled with liquid such as lye which cause the light transmission of the two light beams to differ. A sensing device is also provided for assuring that the attitude of the bottle is appropriate before testing.

3,827,813 AUTOMATIC FILLING RULING PEN WITH AUXILIARY CONTROL VALVE

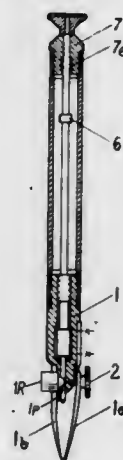
Leon K. Stryczek, P.O. Box 134, Greenpoint, New York, N.Y. 11222

Filed Apr. 14, 1971, Ser. No. 133,834

Int. Cl. B43k 5/10

U.S. Cl. 401—151

3 Claims



A ruling pen having a pair of relatively adjustable blades at one end of a pen barrel for drawing lines of variable width, a chamber above the blades, a capillary channel communicating between this chamber and the space between the blades for delivering ink thereto, and a stem extending axially through the barrel or handle for manipulation to control the ink flow to the blades. The stem carries a pair of axially spaced pistons

which are receivable within a cylindrical passage axially extending over a distance greater than the spacing between the pistons and interposed between the aforementioned chamber having an ink reservoir. An auxiliary valve normally blocking the capillary channel is mechanically displaced by a needle carried by the stem below both pistons.

ERRATUM

For Class 403—113 see:
Patent No. 3,827,735

3,827,814 DEVICE FOR A QUICK CONNECTION OF TRACTION ELEMENTS

Jean Laurent, Saint Germain-en-laye, and Claude Duconge, Le Vesinet, both of France, assignors to Institut Français Du Pétrole Des Carburants Et Lubrifiants, Rueil-Malmaison (Hauts-de-Seine), France

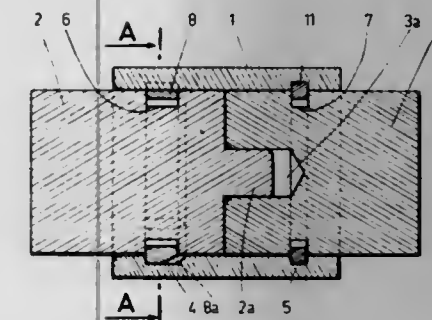
Filed Sept. 24, 1971, Ser. No. 183,376

Claims priority, application France, Oct. 1, 1970, 70.35617

Int. Cl. F16b 7/00

U.S. Cl. 403—301

9 Claims



Device for connecting end portions of two tubular elements through a connecting sleeve by securing the end portion of each element to said sleeve, comprising a deformable ring which, in its expanded position, locks said element against a translation motion by engagement into facing slots of the element and the sleeve and whose peripheral wall has recesses adapted to co-operate with internal bosses provided in the slot of the sleeve so as to compress said ring by rotation of the sleeve with respect to the element.

ERRATUM

For Class 403—165 see:
Patent No. 3,827,820

3,827,815 SPRING CLIPS

John Strange, Cardiff, England, assignor to Firth Cleveland Fastenings Limited, Pontypridd, Glamorgan, Great Britain

Filed July 11, 1972, Ser. No. 270,783

Claims priority, application Great Britain, July 12, 1971, 32534/71

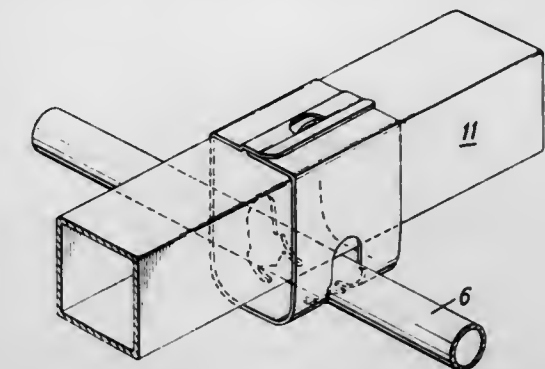
Int. Cl. F16b 7/04

U.S. Cl. 403—397

5 Claims

A clip of resilient material, such as a strip of heat treated, high carbon steel, has inwardly directed terminal portions extending from the ends of two limbs which together form a substantially U-shaped structure. The limbs have aligned apertures and the terminal portions have mutually engageable fastening means, so that, when closed, the clip defines a

frame-like structure which tightly and resiliently embraces and grips two bars, rods or like elongate members transversely



of, e.g., at right angles to, each other. A typical application of the clip is an assembly of such elongate members defining a television aerial system.

3,827,816 COUPLING DEVICE

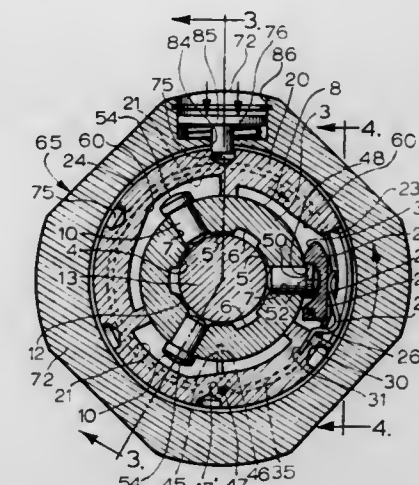
William H. Knapp, Naperville; Elmer M. Kesi, Downers Grove, and Robert C. Miner, Clarendon Hills, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Oct. 20, 1972, Ser. No. 299,475

Int. Cl. F16b 7/00

U.S. Cl. 403—322

10 Claims



A shielded automatic drive shaft knuckle coupler having a hub with a splined shaft-admitting bore and radial openings mounting detent pins intersecting the bore, the detent pins being held in locked position by a cam ring which is rotatable about the hub to release position whereat a releasable latch engages one of the pins. The latch is released by the engaged pin when said pin is moved out of the bore during insertion or withdrawal of the shaft to which the knuckle is coupled or to be coupled.

3,827,817 ROADWAY JOINT SEAL ASSEMBLY AND END DAM SECTION

Daniel E. Czernik, Hinsdale, Ill., assignor to Felt Products Mfg. Co., Skokie, Ill.

Filed Apr. 7, 1972, Ser. No. 242,087

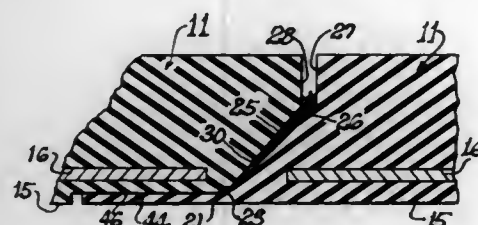
Int. Cl. E01c 11/12

U.S. Cl. 404—67

4 Claims

An end dam assembly for sealing a gap between adjacent roadway or deck slabs. Elongate end dam sections are assembled in an end-to-end array. One of the end faces of a section inclines at a predetermined angle to the vertical, and the other end face inclines at an angle slightly different from the predetermined angle so that when two like dam sections and one of each of the faces are butted together, a channel open at

the top and converging downwardly is formed by the opposed end faces. The inclined portions of the opposed faces may terminate below the upper surface of an end dam section, with



the end faces each including a vertical portion extending upwardly from the inclined portion to the upper surfaces of the adjacent end dam section.

3,827,818 CONCRETE TILE

Johannes Hubertus Ruyters, Roosendaal, Netherlands, assignor to Rubberfabriek "Indiana" N.V., Roosendaal, Netherlands

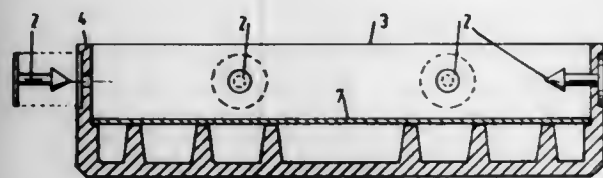
Filed Jan. 2, 1973, Ser. No. 320,689

Claims priority, application Netherlands, Nov. 21, 1972, 7215753

Int. Cl. E04f 13/08

U.S. Cl. 404—33

11 Claims



Concrete tile in which a rubber or synthetic-resin cover plate is anchored and provided in the side facing the tile with ridges forming hollow spaces with the tile and in which the anchorage is formed by anchor elements of a hard material inserted into the side rims of the cover layer.

3,827,819 EARTH AND ROAD ROLLER

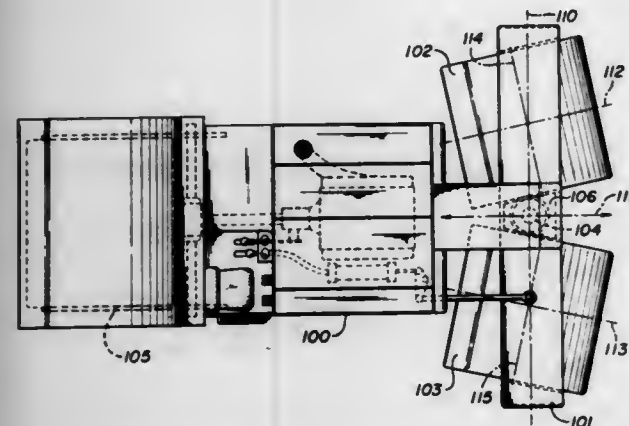
Hartley P. Dermond, 1385 Cumberland Rd., South Venice, Fla. 33595

Filed Feb. 23, 1972, Ser. No. 228,526

Int. Cl. E01c 19/23

U.S. Cl. 404—126

2 Claims



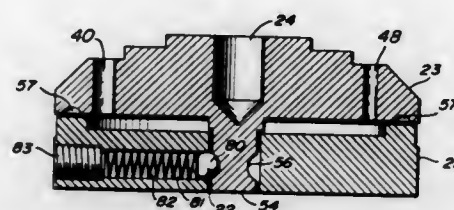
A roller for treating earth and pavement surfaces having a pair of drums skewed from the direction of roller travel, the skewed drums being skewed so as to have opposite and approximately equal effects on the steering of the roller.

3,827,820 DRILL DISPENSING CONTAINER

John T. Hoffman, 1604 E. Greenleaf St., Allentown, Pa. 18103
Division of Ser. No. 173,418, Aug. 20, 1971, Pat. No. 3,727,771. This application Jan. 29, 1973, Ser. No. 327,646
Int. Cl. B65d 85/20

U.S. Cl. 403—165

1 Claim



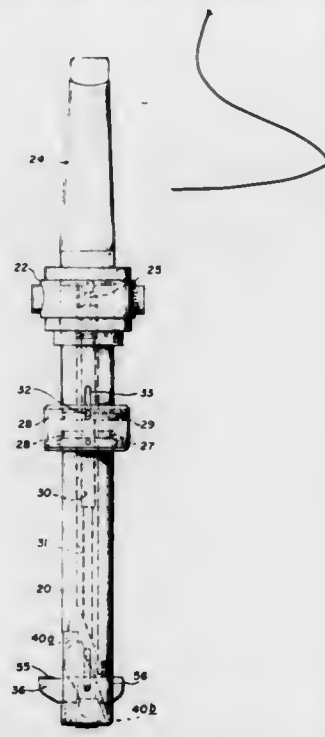
A drill dispensing container with base plate having a central shaft receiving hole and holder with depending shaft for rotary motion therewithin. The plate has an axial alignment mark and three spring-loaded ball bearings radially disposed to the mark. The plate has axial cylindrical ball receiving pockets with partially covering lips for limiting bearing travel, and has a concentric recess forming an external rim of sufficient depth that extending bearings do not pass the plane thereof. The holder has through drill-receiving apertures axially disposed therewithin about three concentric circles which are staggered so that no two apertures are aligned along a common holder radius. The holder includes indicia for values of drills carried therewithin, each being radially co-aligned with its corresponding aperture. Indexing means positively co-align the indicia to the mark. Axial shaft motion with respect to the plate is restricted via a circumferential shaft groove restrained by a spring-biased bearing directed thereagainst, the bearing being housed within a radial aperture engaging with the hole. A set screw directs the bearing against the groove, permitting rotation, and restricting axial shaft motion with respect to the plate. The container is indexed via a separate spring loaded bearing disposed on the rim engaging within one of several indentations on the holder surface which faces the plate. The indentations are circularly located having its center at the holder axis, and are at least equal to the total through apertures.

3,827,821 AXIALLY ACTUATED BACK SPOT FACING TOOL

Henry F. Swenson, 22 Holmehill Ln., Roseland, N.J. 07068
Filed Apr. 9, 1973, Ser. No. 348,924
Int. Cl. B23b 51/00, 51/06

U.S. Cl. 408—59

10 Claims



This invention pertains to a back spot facing tool whose cutting blade is pivotally mounted on a spindle body and is axi-

ally actuated by a plunger rod so as to be moved to either a cutting or a concealed condition in response to either a manual manipulation or to a hydraulic actuation of this rod. The back spot facing cutting blade is mounted with its retaining pivot point offset so that one side of the blade in a cutting condition extends a greater distance from the spindle body causing a greater pressure to be exerted on this blade cutting portion than on the opposite side blade cutting portion. The blade portion developing the greater pressure is supported by an adjustable set screw which is adjusted to provide means to establish the exact face angle of back spot face cutting desired by the tool. A precise grinding fixture is also disclosed and carries the blade at a determined condition to its support surface so as to establish the desired cutting blade angles.

3,827,822 GUIDED TOOL

David B. Converse, 41 Brookwood St., East Orange, N.J. 07017

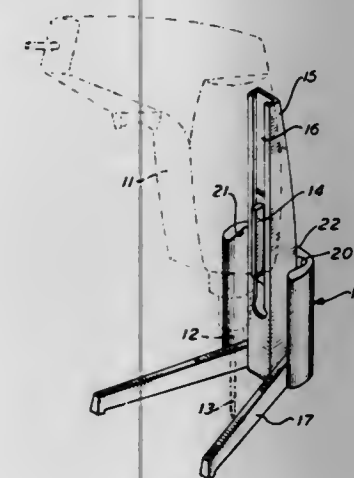
Continuation of Ser. No. 267,929, June 29, 1972, abandoned.

This application Jan. 14, 1974, Ser. No. 433,257

Int. Cl. B23b 45/14

U.S. Cl. 408—110

1 Claim



A guided tool for controlling the attack of a tool against a work face wherein a keyway slidably mates with a key on a tool housing, so that the tool is guided toward a work piece in a predetermined attitude.

3,827,823 CUTTING TOOL ADJUSTMENT DEVICES

Francois G. Lhomme, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt and Automobiles Peugeot, Paris, both of, France

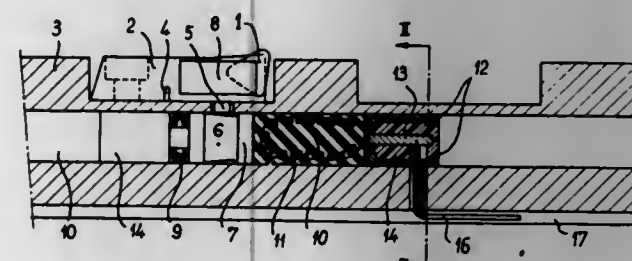
Filed Jan. 22, 1973, Ser. No. 325,344

Claims priority, application France, Jan. 28, 1972, 72.02908

Int. Cl. B23b 29/034; B26d 1/12; B23q 3/00

U.S. Cl. 408—158

7 Claims



This device for adjusting through a moderate range of positions each tool insert of a multiple-tool assembly under the control of a pusher comprises a pressure member consisting of a ramp formed in a piston and responsive to the expansion of a member in which an electric heating resistance is embedded.

in the specific case of a bore machining bar comprising a plurality of insert tools, the tool carriers are disposed in cavities communicating with an axial hole of the bar enclosing the piston, the expansion member and its resistance, all the lead-in wires of the various resistances being sealed in longitudinal external grooves formed on the surface of said bar.

3,827,824 TOY MIXER

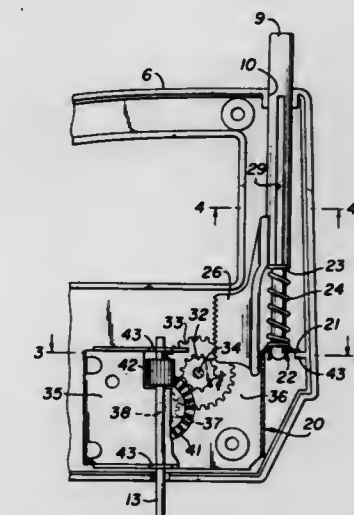
Gerald A. Waak, Manitowoc, Wis., assignor to Aluminum Specialty Company, Manitowoc, Wis.

Filed Sept. 11, 1972, Ser. No. 287,762

Int. Cl. A47j 43/10, 43/07; A63h 3/52

U.S. Cl. 416—69

2 Claims



A toy food mixer has a pair of mixer elements extending from a hand-held housing containing a spring action driving mechanism operated by a push button at the top of the housing.

3,827,825 AXIAL FLOW FAN ASSEMBLY

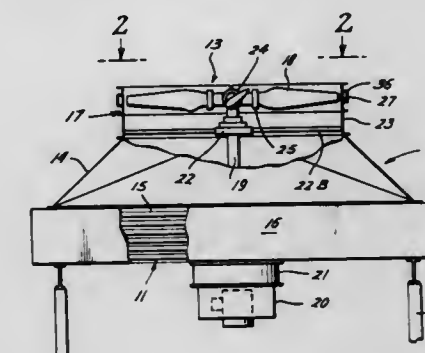
Kelly V. Shipes, Houston, Tex., assignor to Hudson Products Corporation, Houston, Tex.

Filed May 29, 1973, Ser. No. 364,951

Int. Cl. F01d 25/24, 25/26

U.S. Cl. 415—219

6 Claims



An axial flow fan assembly wherein the ring in which the fan rotates comprises a cylindrical body having a box-shaped stiffening ring about its outer circumference.

3,827,826 FLEXIBLE BLADED FAN WITH STRENGTHENED LEADING EDGE

Karl H. Strick, Chatham, Ontario, Canada, assignor to Foram Corporation, East Providence, R.I.

Filed Aug. 20, 1973, Ser. No. 390,010

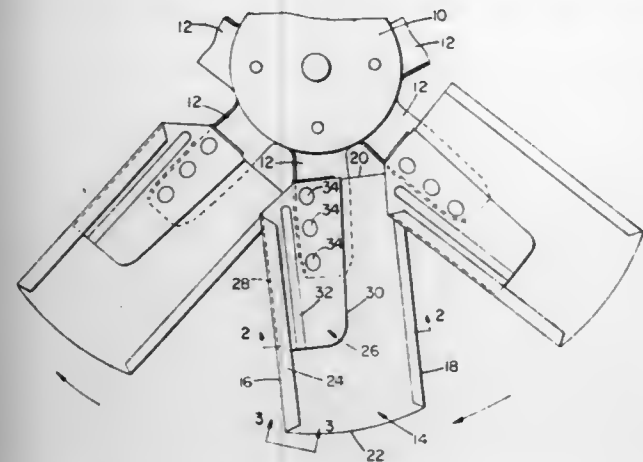
Int. Cl. F04d 29/36

U.S. Cl. 416—132

4 Claims

A flexible bladed automotive cooling fan having a reinforcing member on the upstream side of the blade, the reinforcing

member radially spaced inwardly from the tip of the blade a distance in the range of 25-50 percent of the radial extent of



the blade and the blade reversely bent continuously along its leading edge overlying the reinforcing member at an inner portion of the reverse bend.

3,827,827

LIQUID FLOW VALVE SYSTEM

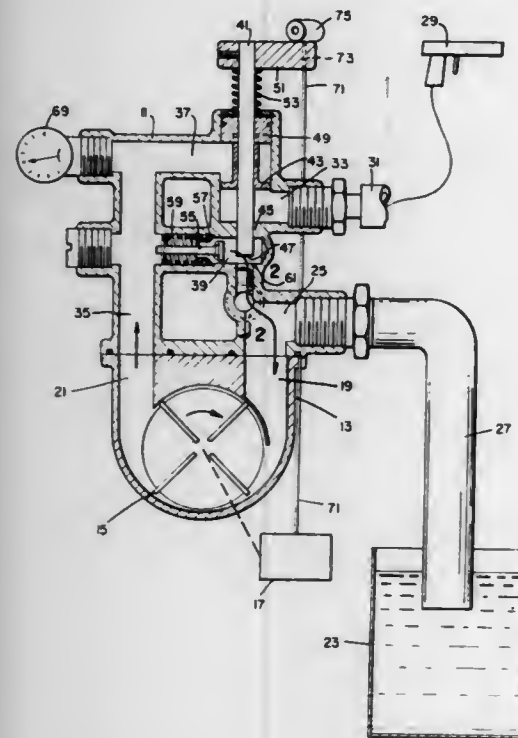
Raymond Roger Hill, 11 White Cottage Rd., Angwin, Calif. 94508

Filed July 6, 1972, Ser. No. 269,494

Int. Cl. F04b 49/08

U.S. Cl. 417-28

14 Claims



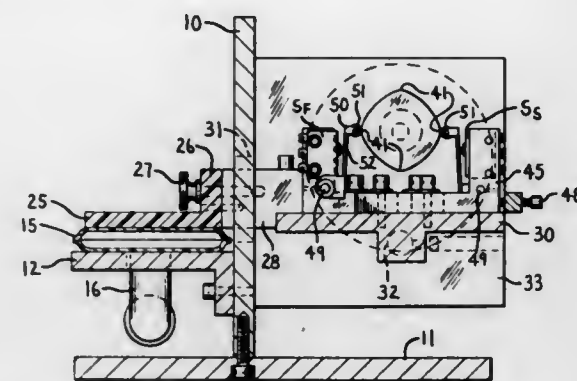
A system of distributing liquid flow to either a primary outlet opening or a secondary outlet opening. Each outlet opening has a valve for opening and closing a fluid passage thereto, the two outlet valves being mechanically connected so that when one is open the other is closed. The two mechanically connected valves are ordinarily resiliently urged so that the primary outlet opening is closed and the secondary outlet opening is open to allow fluid to flow therethrough. When the primary outlet opening is open to the atmosphere in order to obtain a liquid flow therefrom, the valve assembly moves under fluid pressure to open the primary outlet and close the secondary outlet. One application of this assembly disclosed herein is for a portable pumping assembly wherein the secondary outlet opening serves as a liquid bypass to the inlet of the pump when a liquid flow through the primary outlet opening is not desired.

3,827,828
FLUID PUMP CONTROL SYSTEM
Miles Lowell Edwards, 13191 Sandhurst Pl., Santa Ana, Calif. 92705

Filed Dec. 26, 1972, Ser. No. 318,520
Int. Cl. F04b 49/06

U.S. Cl. 417-43

4 Claims



This device controls the amount of blood flow in an extracorporeal blood circuit of a patient requiring long term perfusion to prevent the excessive blood damage as is likely to occur in the usual heart-lung machines employed during surgery if it were to be used for an extended time. The device regulates the speed of the blood pump in accordance with rate of flow of blood from the body so that the pump does not impose a back pressure on the blood supply by running too slowly and does not create suction pressure on the body by running too fast. The speed of the blood pump is controlled by a potentiometer having a slider contact driven in opposite directions by a reversible motor. A constant speed rotating cam intermittently actuates one or the other, or both, of a pair of switches on opposite sides of the cam. One switch energizes the potentiometer motor for rotation in one direction and the other switch energizes the potentiometer motor for rotation in the opposite direction. The switches are shifted relative to the cam by a platen bearing against a tubular bladder in the blood inlet to the pump. As the bladder expands, the pump is speeded up and as the bladder contracts, the pump is slowed down.

In addition to normal adjustment of pump speed to comply with normal small variations in blood flow, an emergency safeguard is provided which causes the pump to stop immediately in case the blood supply is abruptly interrupted such as would occur if the blood supply tubing were suddenly closed by a kink or by an attendant stepping on it. If the blood pump were to continue to operate when the bladder is empty, the pump could draw fatal air bubbles into the blood stream.

3,827,829

SPUTTER-ION PUMP

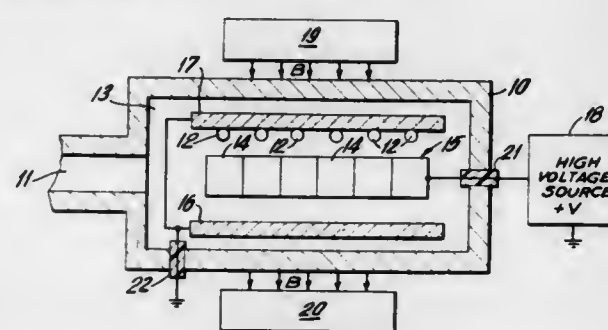
Theodore K. Tom, Sunnyvale, Calif., assignor to Veeco Instruments Inc., Plainview, N.Y.

Filed Apr. 3, 1972, Ser. No. 240,451

Int. Cl. F04b 37/02

U.S. Cl. 417-49

6 Claims



In a sputter-ion pump employing a high vapor pressure electrode, burn out of the high vapor pressure electrode is

eliminated and the inert gas pumping ability of the ion pump is significantly improved by controlling the effective area of the high vapor pressure electrode surface facing the discharge so as to modulate the intensity of the ion beam arriving at the high vapor pressure surface.

3,827,830

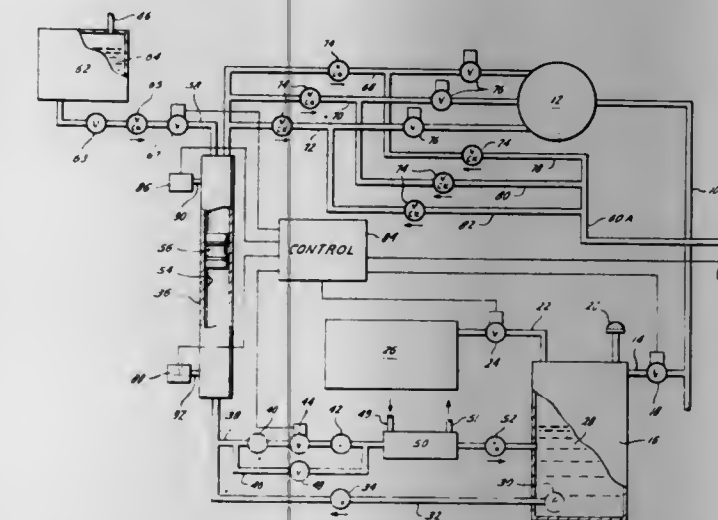
INTENSIFIER SYSTEM

Robert Eldon Van Horn, 2308 W. Coronado, Orange, Tex. 77630

Filed May 3, 1972, Ser. No. 249,958

Int. Cl. F04b 17/00; C08d 3/04

U.S. Cl. 417-225



An intensifier system for supplying catalyst to a polyolefin reactor wherein the pressure of the olefin is applied to a vessel containing a hydraulic fluid with a pump submerged in the hydraulic fluid, and the pump pressurizes one end of a free piston cylinder to force catalyst from the other end of the cylinder into the reactor. An identical system supplies catalyst to the reactor while the first system is being recharged. Recharging of the system is accomplished by relieving the pressure in the vessel to a low pressure, and applying an intermediate pressure to force catalyst from a catalyst storage container into the catalyst end of the free piston cylinder, thereby causing the hydraulic fluid to flow from the cylinder back into the vessel.

3,827,831

CONTROL FOR RADIAL TYPE PUMPS OR THE LIKE

Raydon Ayers Lines, 2 Rasp Ave., Medindie, Australia (5081)

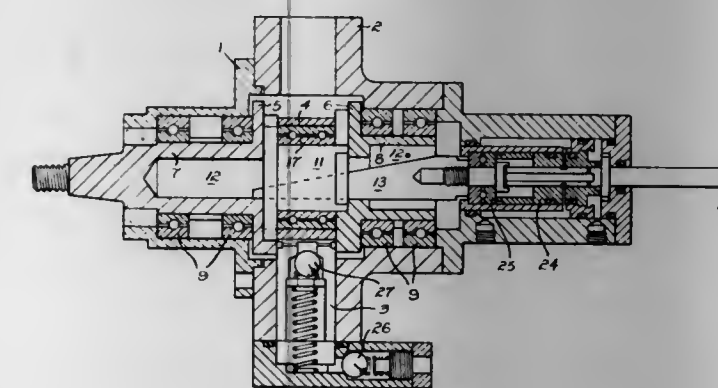
Filed May 15, 1972, Ser. No. 252,998

Int. Cl. F04b 1/04, 49/00

U.S. Cl. 417-273

6 Claims U.S. Cl. 417-482

1 Claim



A pump comprising cylinders arranged around a hollow housing carrying a drive shaft having a radially adjustable member on it which is displaced by a wedge to vary the eccentricity of a sleeve which engages the pistons in said cylinders to

vary the pumping capacity, the wedge being positioned in the shaft and having means to move it axially in the shaft to give the said volumetric variation.

3,827,832

MEANS FOR REDUCING FUEL DELIVERY OF FUEL INJECTION PUMPS IN THE LOW RPM RANGE

Werner Faupel, Gerlingen, and Karl Zibold, Stuttgart-Vaihingen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

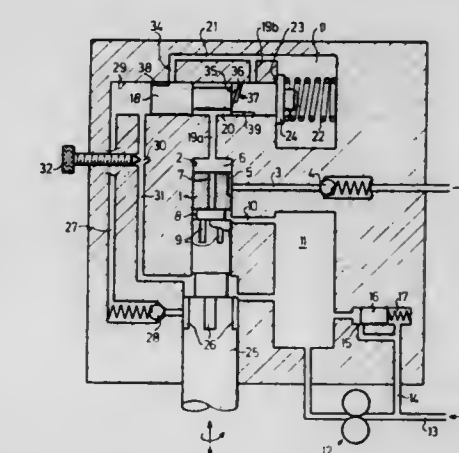
Filed Oct. 18, 1972, Ser. No. 298,761

Claims priority, application Germany, Oct. 19, 1971, 2151884; July 14, 1972, 2234557

Int. Cl. F02m 59/34

U.S. Cl. 417-289

9 Claims



In a fuel injection pump in which the fuel quantities delivered for injection are controlled by bypassing one part of the fuel from the pump work chamber during the pressure strokes of the pump piston by a control edge of a slidable member that controls a bypass channel in an rpm-dependent manner, for reducing the delivered fuel quantities in the low rpm range at any load condition, said bypass channel is first opened by a throttle and subsequently opened by said control edge.

3,827,833

ROTOR COOLING DEVICE IN AN OSCILLATION TYPE COMPRESSOR

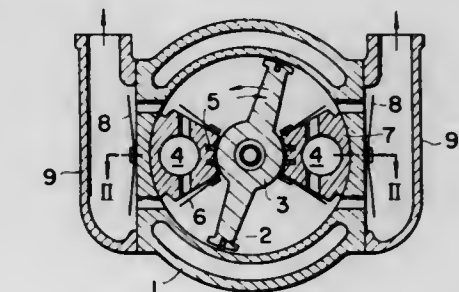
Nozomu Jinkawa, Akashi, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Kobe-shi, Hyogo, Japan

Continuation of Ser. No. 231,932, March 6, 1972, abandoned.

This application Dec. 3, 1973, Ser. No. 421,183

Claims priority, application Japan, Mar. 4, 1971, 46-13884

Int. Cl. F04c 21/00



A rotor cooling device for an oscillation type compressor, wherein one end of the rotor is extended axially along the axis of rotation thereof. The extended portion of the rotor is surrounded by a housing in which a cooling liquid injection means and a cooling liquid discharging means are provided. The rotor is provided with an axial hole in the central portion thereof through which cooling liquid is supplied from said injection means and discharged by the discharging means for cooling the rotor.

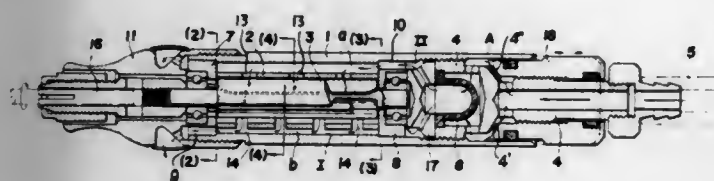
3,827,834

SMALL DIAMETER CYLINDRICAL AIR MOTOR FOR DRIVING GRINDERS AND THE LIKE
Masakazu Kakimoto, 78, Azaooshima Oozaasda, Nishinochi,
Aichi-gun, Aichi-ken, Japan

Filed July 25, 1972, Ser. No. 274,905

Claims priority, application Japan, Feb. 19, 1972, 47-17424
Int. Cl. F01c 21/00; F04c 15/00, 29/00
U.S. Cl. 418-15

9 Claims



The air motor has substantially the size of a standard fountain pen and includes an extruded outer cylindrical casing formed with a circular cross-section eccentric inner surface which has annular grooves in its forward part and a smooth surface, substantially coincident with the bases of the grooves, in its rear part. The grooves constitute air supply and exhaust passages, a retainer groove and a pin groove. A front retainer closes the forward end of the casing and has a tongue projecting into the retainer groove to maintain a predetermined angular orientation in the casing, and a rear retainer is seated against the ribs defining the grooves in the forward portion of the casing and has a tongue projecting into the retainer groove to maintain a relative angular orientation with respect to the front retainer. A motor cylinder is mounted in the casing between the two retainers and has air supply and exhaust ports communicating with the air supply and exhaust passages, respectively. A vane type rotor is rotatably supported in the two retainers, through bearings, and is eccentric to the motor cylinder. The forward end of the rotor is formed with a shaft by means of which a grinder or another tool can be secured to the rotor. The portion of the casing rearwardly of the rear retainer constitutes an air supply and control chamber in which there is an air filter means, and the air passing through the filter means flows through supply passages in the rear retainer into the air supply passage. A connection is provided at the rear of the casing for connecting the air motor to a source of air under pressure, and a manually operable grip threaded on this connection controls the supply of air under pressure to the supply and control chamber. In a modification of the air motor, the exhaust air flows rearwardly along the exterior surface of the motor cylinder and through sound absorbing means to exhaust ports leading to the atmosphere or to an exhaust line.

3,827,835

LOW SPEED ROTARY FLUID APPARATUS WITH ELASTIC SEALING LINER

Yasuo Higuchi, Komaki, and Yoshio Mitsumura, Gifu, both of Japan, assignors to Chukyo Electric Co. Ltd., Komaki-shi, Aichi-ken, Japan

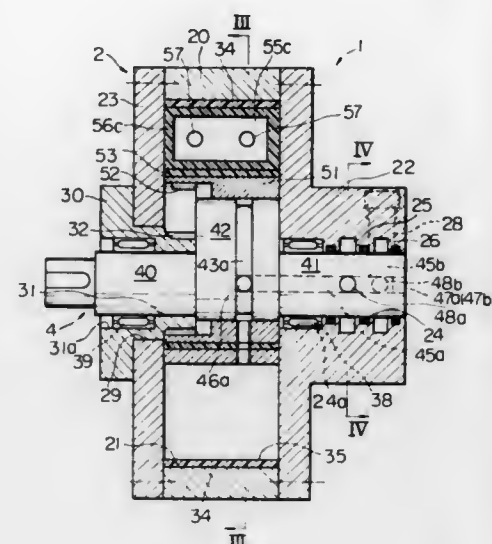
Filed Nov. 29, 1972, Ser. No. 310,267

Claims priority, application Japan, Dec. 3, 1971, 46-97186
Int. Cl. F01c 21/00; F04c 15/00, 29/00
U.S. Cl. 418-56

6 Claims

In a fluid apparatus for low speed continuous rotation having a rotor rotatable continuously within a cylinder, a tubular seal material of synthetic resin such, for example, as fluorine resin is fitted into the cylinder in contact with the inner periphery of the cylinder, the seal material is compressed axially by a pair of end covers closing the ends of the cylinder, and the movable rotor is provided with a square packing in contact with the inner peripheral surface of the seal material

and the inner surfaces of the end covers. The seal material and the square packing cooperate with each other to provide



complete sealing at corners of the contact surface within the cylinder preventing internal leakage of fluid within the cylinder.

3,827,836

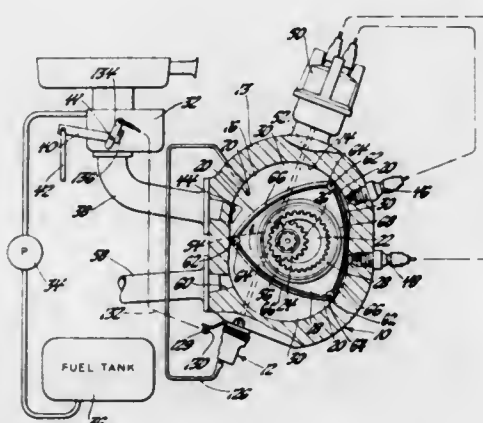
METERING PUMP

Elias W. Schelbe, Grand Rapids, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 14, 1973, Ser. No. 360,328

Int. Cl. F01d 1/36; F03b 5/00
U.S. Cl. 418-88

12 Claims



An internal combustion rotary engine is provided with an oil metering pump having an engine driven rotor with a cylindrical surface and a pressure control member with a cylindrical surface that is eccentric to the other cylindrical surface and cooperates therewith to provide an annular chamber of varying radial size with an inlet passage supplying oil to this chamber and an outlet port in the pressure control member that is movable about the chamber to receive pressure that increases with increasing rotor speed and also with decreasing radial size of the chamber and the rotor member also having a timing port for intermittently delivering fluid from the outlet port to an outlet passage to effect oil metering for engine seal lubrication at a rate which increases with increasing engine speed and also with increasing throttle opening.

3,827,837

HOT-GAS ENGINE

Konstantin Pattas, Winterbach, and Hans-Peter Glathe, Neustadt, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

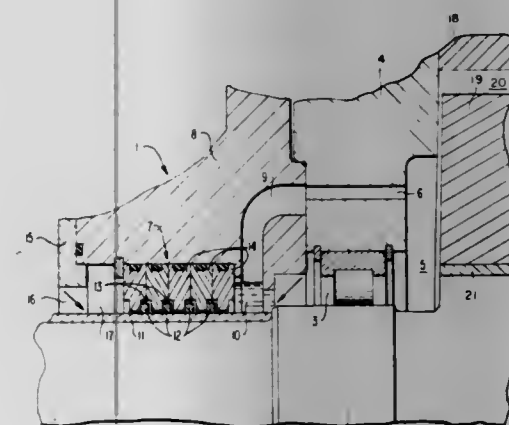
Filed Nov. 27, 1972, Ser. No. 309,922

Claims priority, application Germany, Nov. 27, 1971, U.S. Cl. 425-34
2158964

Int. Cl. F01c 19/00

U.S. Cl. 418-104

12 Claims



A hot-gas engine constructed as rotary piston engine of trochoidal type which includes a piston supported on an eccentric of an eccentric shaft which together with a housing casing and with lateral housing parts arranged on both sides of the housing casing forms working chambers for the working medium; the eccentric space is thereby filled with the working medium under pressure while the eccentric shaft is sealed off on the outside of the bearing support by a labyrinth seal and a liquid seal.

3,827,838

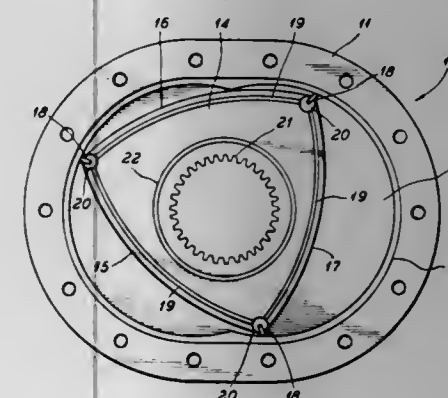
OIL SEAL FOR ROTARY PISTON ENGINES

Herbert F. Prasse, Town & Country, Mo., assignor to Ramsey Corporation, St. Louis, Mo.

Filed Jan. 5, 1973, Ser. No. 321,445

Int. Cl. F04c 27/00
U.S. Cl. 418-142

16 Claims



An oil seal for rotary piston engines wherein the oil control seal is received in a piston groove and has a secondary seal in an axial end face groove in the oil control seal, the secondary seal urged against the back wall of the piston groove by a spring.

3,827,839

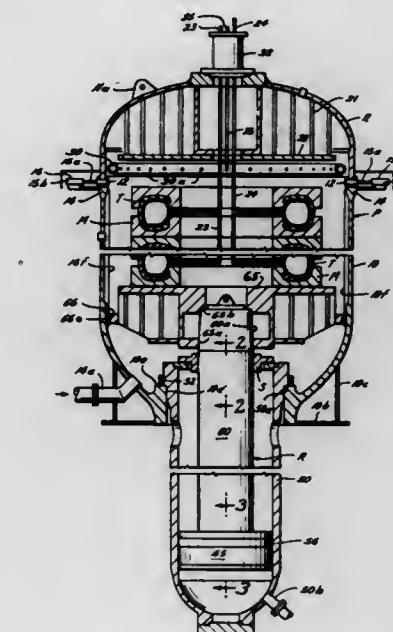
VULCANIZING PRESS FOR RUBBER PRODUCTS

Raymond E. Pechacek, and Henry J. Clay, both of Houston, Tex., assignors to Hahn & Clay, Houston, Tex.

Filed Mar. 9, 1973, Ser. No. 339,861

Int. Cl. B29h 5/20

7 Claims



A vulcanizing press for rubber products such as vehicle tires, wherein a plurality of molds for the rubber products are pressed and held together during vulcanization of the rubber products in a steam chamber by a pressure operated ram which has bearing surfaces at its upper and lower ends and an intermediate floating seal therewith for distributing the bearing loads to only two longitudinally spaced areas while maintaining a seal between the ram and the pressure chamber even when the ram is subjected to horizontal or lateral shifting due to temperature changes, loading or other causes. Additionally, a high pressure seal is located at the lower bearing remote from the heat in the steam chamber and where minimum lateral loading occurs and seal clearance is unnecessary. A safety release is provided on the ram to automatically release the pressure on the ram piston when the lateral forces exceed a predetermined amount.

3,827,840

MOBILE CONCRETE CEILING MOLD PLATFORM

Laurenz Kistler, Chamerstrasse 117, Zug, Switzerland

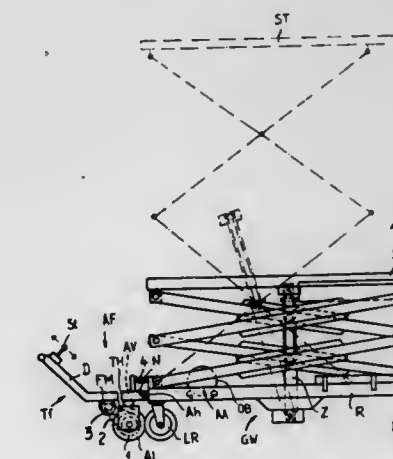
Filed Feb. 8, 1972, Ser. No. 224,480

Claims priority, application Switzerland, Feb. 12, 1971, 2078/71

Int. Cl. E04g 11/36

U.S. Cl. 425-62

4 Claims



A selectively self-propelled cart has mounted thereon an extendable platform which can be extended, for example by a

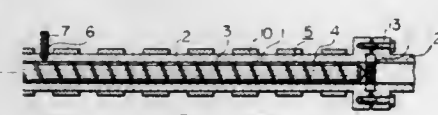
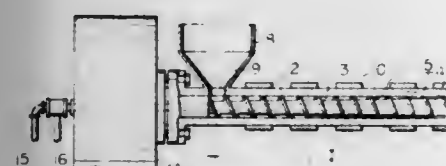
scissor arrangement, to ceiling height to form a support mold for concrete. The cart has a separable drive unit, and both the extension mechanism for the scissors as well as the drive unit are operated by a compressed fluid, each with its separate operating motor or cylinder. The compressed fluid, such as oil is obtained from a pump driven by a self-contained prime mover such as a gasoline engine or a battery supplied electric motor, the prime mover and the pump, or compressor for the operating fluid being removable, and selectively connectable separable either the extension mechanism for the scissors or the separable drive unit for the cart carrying the mold frame.

3,827,841

EXTRUSION APPARATUS FOR USE IN THE PRODUCTION OF THERMOPLASTIC RESIN FOAMS
Isami Kawai, Ageo; Atsuro Nishikawa, Osaka; Akira Iwata, Osaka, and Kohei Sugiyama, Osaka, all of Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan
Filed June 22, 1970, Ser. No. 47,980
Int. Cl. B29d 27/00

U.S. Cl. 425-4 C

6 Claims



An extrusion apparatus including an extruder comprising an extruder barrel, an extruder screw and an injection port for blowing agent and a cooling device connected to the forward end of said extruder, said extruder screw consisting of a compression zone wherein a volume in unit pitch of the screw decreases progressively in the extrusion direction and a metering zone wherein a volume in unit pitch of the screw is 1.6 - 2.0 times a volume in the final unit pitch of the screw in the compression zone and is constant in the extrusion direction, said injection port being provided above the metering zone, and said cooling device consisting of a coolant vessel disposed coaxially with said extruder, a plurality of pipes in said coolant vessel for dividing the flow of resin spaced apart from each other, an adapter for conducting the flow of resin from said extruder to said pipes, and an adapter for gathering the divided flows of resin extruded from said pipes.

3,827,842

DEVICE FOR COOLING EXTRUDED PLASTIC TUBING
Klaus Kneller, Nurensdorf; Jean Trub, Grand-Lancy/Geneve, and Jean Francois Gregoire, Alre/Geneve, all of Switzerland, assignors to Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland
Filed Oct. 10, 1972, Ser. No. 296,087

Claims priority, application Switzerland, Oct. 13, 1971, 14959/71

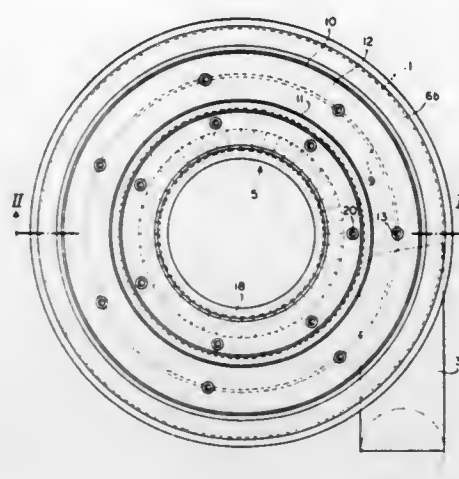
Int. Cl. B29d 23/00; B29c 25/00

U.S. Cl. 425-72

2 Claims

A device for cooling extruded plastic tubing for mounting at the outlet end of an extrusion die and having a spiral (scroll-shaped) tank whose inlet communicates with a source of gaseous fluid such as air to be fed radially and uniformly onto the extruded tubing through an annular passage communicating

with the spiral tank and extending coaxial with the axis of extrusion. The annular passage terminates in an annular slot



forming the fluid outlet directed toward the axis of extrusion. At least two annular baffle plates are arranged in the annular passage for rendering uniform the flow of fluid.

ERRATUM

For Class 425-126 see:
Patent No. 3,827,856

3,827,843

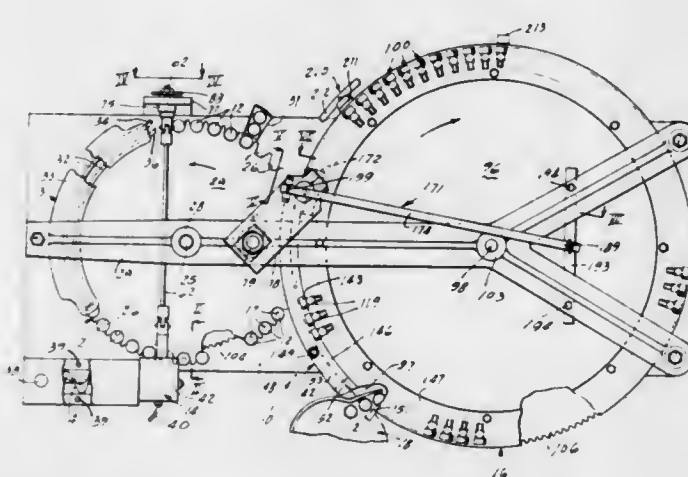
APPARATUS FOR LINING BOTTLE CROWNS WITH THERMOPLASTIC MATERIAL

John H. Blouch, Terre Haute, Ind., assignor to Sycamore Manufacturing Company, Inc., Terre Haute, Ind.
Continuation of Ser. No. 221,096, Jan. 26, 1972, abandoned, Division of Ser. No. 43,513, June 4, 1970, abandoned. This application Aug. 20, 1973, Ser. No. 389,961

Int. Cl. B29c 1/04

U.S. Cl. 425-127

8 Claims



Apparatus for lining closure caps or bottle crowns with thermoplastic material includes conveying the crowns to dispensing means wherein a metered quantity of thermoplastic material, heated to a moldable or plastic state, is deposited into the crown and then transferring the filled crowns to a forming station. In order to mold the material into a sealing gasket configuration a forming member is resiliently driven toward a central portion of the crown to substantially instantaneously squeeze the material between the forming member and the crown wall portion while enabling a portion of the material to flow into an annular space surrounding a periphery of the forming member. The forming member is held under spring pressure in the molding position and for a time interval selected to enable sufficient air cooling to set the material.

3,827,844

APPARATUS FOR MAKING TIRES

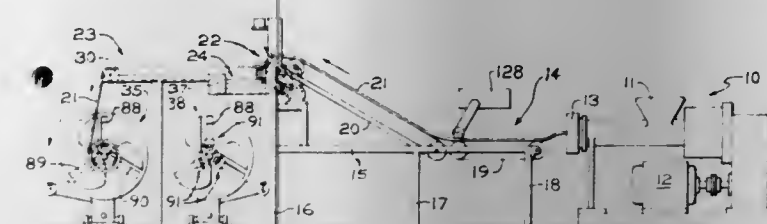
Walter C. Frey, Akron; Claude Mullender, Barberton, and Norman E. Reinhart, Cuyahoga Falls, all of Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

Filed Feb. 5, 1973, Ser. No. 329,716

Int. Cl. B29d 31/00; B29f 3/00

U.S. Cl. 425-142

9 Claims



An apparatus for making solid tires by utilizing an extruder that directs a predetermined length of strip of rubber onto a rotating chuck that supports a rim which is rotated at a preset speed in accordance with the diameter of the rim.

3,827,845

PRESSES

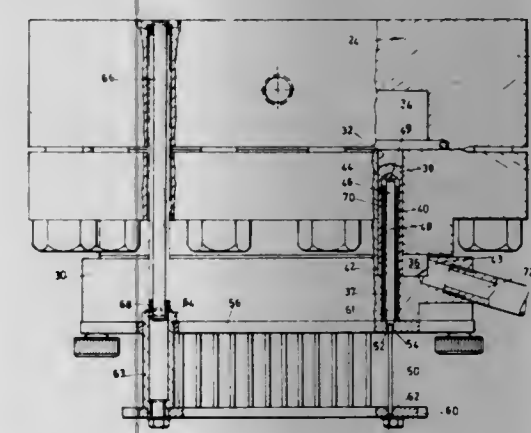
Rofe Arthur Matthews, Johannesburg, South Africa, assignor to AE & CI Limited, Johannesburg, Transvaal, South Africa
Filed Feb. 26, 1973, Ser. No. 336,077

Claims priority, application South Africa, Mar. 29, 1972, 72/2167

Int. Cl. B29c 3/00

U.S. Cl. 425-346

23 Claims



This invention relates to press heads and is concerned with such press heads for use in compacting particulate material into self supporting or substantially self supporting articles. The invention is particularly, but not exclusively, concerned with such press heads for use in the manufacture of elements in the explosives industry as detonator charges and time delay elements.

3,827,846

APPARATUS FOR MAKING CURED TIRE TREAD STRIP

Herold J. Weiler, 1239 Thayer Dr., Asheboro, N.C. 27203, and John E. Weiler, 4808 Balcones Dr., Austin, Tex. 78731

Filed Aug. 22, 1972, Ser. No. 282,850

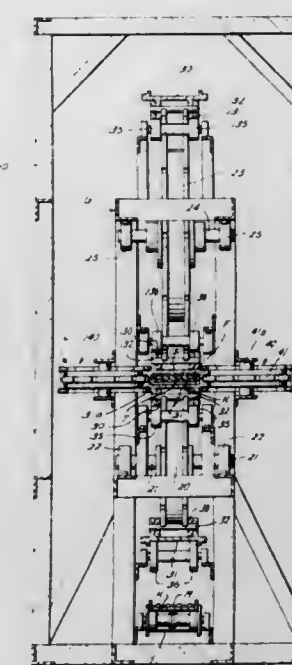
Int. Cl. B29h 5/02, 3/06

U.S. Cl. 425-371

2 Claims

Apparatus for making cured tire tread in strip form continuously, wherein uncured rubber is introduced between endless track molding units having means therewith for confining and molding the rubber in a strip with a predetermined tire tread pattern on one side of the strip, and wherein the uncured rubber is cured while being molded between said molding units and moved therewith to discharge in cured form as a

strip from the apparatus. One of the molding units includes an endless flexible band which cooperates with molds carried by the other molding unit, and preferably having the molds carried by trays which are separable from the rest of the apparatus. The separable trays and molds may be moved in a sequence through the longitudinal reach between the molding units during the molding and curing of the tire tread, then



discharged therefrom, and then returned to the point of entry into such reach for re-use, so that a continuous supply of such trays and molds is always present between the molding units. The molding units are automatically locked together in the area thereof in which the molding and curing take place, so that the pressure of the rubber in the molds is controlled and the rubber is confined conforming to the molds during curing.

3,827,847

APPARATUS FOR FORMING BOX-LIKE ARTICLE AND LID THEREFOR

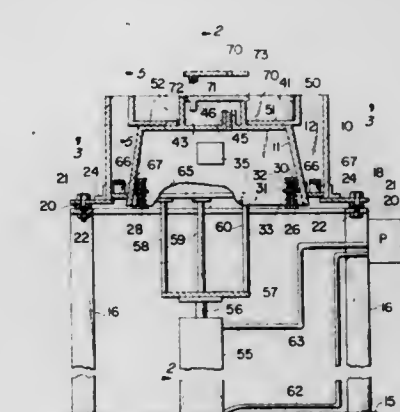
Lumon D. Weaver, P.O. Box 631, Flomaton, Ala. 36441

Filed Feb. 2, 1973, Ser. No. 329,122

Int. Cl. B28b 21/14

U.S. Cl. 425-424

10 Claims



Apparatus for forming in one operation a molded article having box-like sides such as a concrete meter box, and a molded covering lid therefor. A cavity in the shape of connected sides of a box is formed between an inner form and a surrounding outer form. An open top lid form rests on the top of the inner form, its outside surface extending out beyond the top of the inner form to define a shoulder and an upper extension of the cavity. The cavity and the lid form are filled with a settable material and vibrated. A power unit then raises the box-like article by engaging a pallet beneath the article at the

bottom of the cavity, the box-like article being capable of carrying the lid form upwardly with it by engagement of the finished article with the shoulder of the lid form.

3,827,848

MOLDING PRESSES

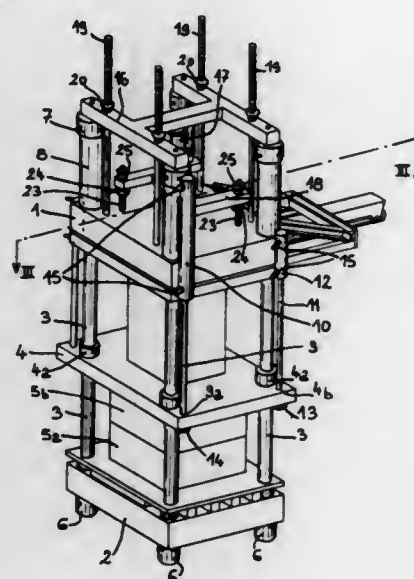
Henry Massonnet, Nurieux (Ain), France

Filed Oct. 16, 1972, Ser. No. 297,673

Claims priority, application France, Oct. 29, 1971, 71.39880

Int. Cl. B29c 3/00

U.S. Cl. 425-406



In an injection press of the vertical type, the locking platen is made in two parts which form a locking jack, the movable member of which is connected to a track. A movable balk member suspended from a fixed guide can be brought to a position beneath the said movable member of the locking jack in order to lock the moving plate of the press. Alignment of the track and of the guide is effected by the co-operation of the oblique ends of these two elements.

3,827,849

COMBUSTION CONTROL APPARATUS

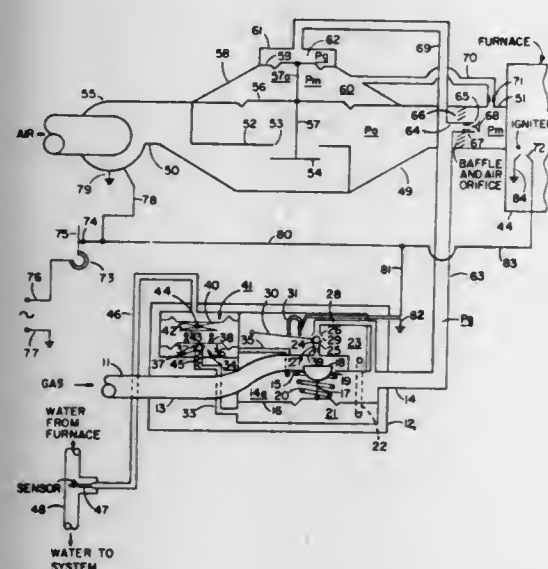
Lorne W. Nelson, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 20, 1971, Ser. No. 209,612

Int. Cl. F23h 1/02

U.S. Cl. 431-90

10 Claims



Combustion control apparatus wherein a thermostat controls the operation of a combustion air blower and a modulating type of gas valve, a heat load sensor modulates the gas

flow, and means responsive to the rate of gas flow and air flow adjusts the air flow to maintain a constant fuel/air ratio for the combustion mixture.

3,827,850

PHOTOFLASH LAMP COATING

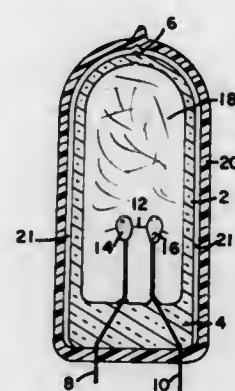
John W. Shaffer, and John J. Vetere, both of Williamsport, Pa., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed Aug. 6, 1973, Ser. No. 386,202

Int. Cl. F21k 5/02

6 Claims U.S. Cl. 431-94

9 Claims



A photoflash lamp having a protective coating over its glass envelope comprising a vacuum-formed thermoplastic sleeve with longitudinally extending ribs disposed between the plastic sleeve and glass envelope for reducing stress levels in the formed sleeve and for providing thermally insulating air gaps between the sleeve and envelope.

3,827,851

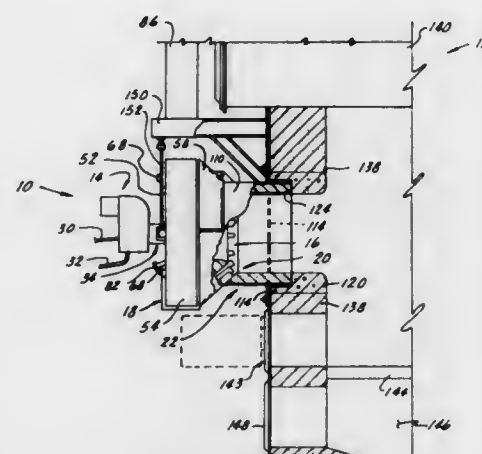
COMBINATION, OIL, GAS, AND/OR SOLID BURNER
Dale E. Walker, Winfield, Kans., assignor to Peabody Gordon-Platt, Inc., Winfield, Kans.

Filed Oct. 3, 1972, Ser. No. 294,620

Int. Cl. F23c 5/28

U.S. Cl. 431-175

7 Claims



A burner that is adapted to burn oil, gas, and/or solid fuels has an inner oil and/or gas burner, a primary combustion chamber in coaxial relation with the conventional burner, a passageway surrounding the primary combustion chamber in flow communication therewith and a source of oxygen containing gas and source of combustible particulate solid material, and a conduit in communication with the passageway and mountable in a furnace wall. The burner is adapted in operation to burn oil and/or gas fuels in the combustion chamber, and simultaneously or alone burn combustible particulate solid material passed through the passageway into the combustion chamber's outlet.

3,827,852

AUTOMATIC CIGARETTE LIGHTER

Pierre Chevallier, Sainte-Foys-les-Lyons, France, assignor to Etablissements Genoud & Cie and Societe Anonyme, both of Venissieux, France

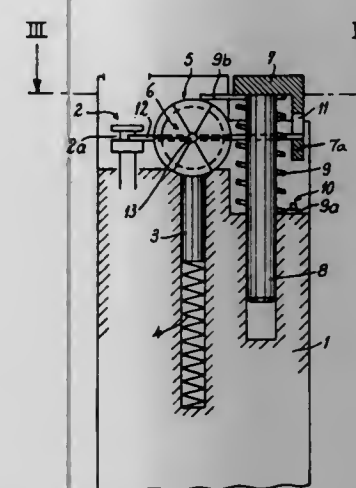
Filed Dec. 21, 1972, Ser. No. 317,254

Claims priority, application France, Jan. 7, 1972, 72.00871

Int. Cl. F23f 1/04

U.S. Cl. 431-254

4 Claims



In this automatic cigarette lighter a restoring spring for an operating key or pushbutton is also adapted, with an upper, straight end disposed under the head of the operating member to act as a pawl for actuating a ratchet associated with a serrated sparking wheel, this spring end having its maximum flexibility in the normal position of the operating member and its maximum rigidity in the depressed position of that member. In a lighter operating on gaseous fuel a notch is formed in the operating member and engaged with play by one arm of a two-armed lever connected to a burner and valve assembly, the upper and lower ends of that notch controlling the opening and the closing, respectively, of the burner valve.

3,827,853

CIGARETTE LIGHTER WITH PIVOTING CONTROL MEMBER

Pierre Chevallier, Sainte-Foy-Les-Lyon, France, assignor to Etablissements Genoud & Cie and Societe Anonyme, both of Venissieux, France

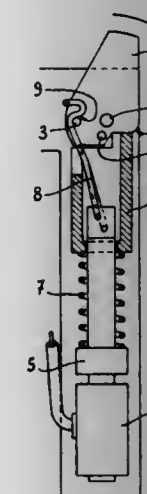
Filed Apr. 5, 1973, Ser. No. 348,108

Claims priority, application France, Apr. 14, 1972, 72.13881

Int. Cl. F23q 2/16

U.S. Cl. 431-255

7 Claims



A cigarette lighter with an ignition circuit including a piezoelectric crystal is actuated by a key pivotally supported on a housing wall for manual swinging in a predetermined

direction from a normal position. The key carries two pairs of studs projecting from opposite sides thereof, the studs on each side being eccentrically disposed in angularly offset relationship as seen in the direction of swing. A striker confronting the piezoelectric crystal, urged toward the latter by a compression spring, is tied to a wire link having a hook-shaped extremity which straddles the key and engages the first pair of studs in the normal position. When the key is swung into its working position, these first studs initially entrain the link to compress the spring; toward the end of the swing, the second pair of studs bear upon the link and deflect it out of engagement with the first studs whereby the spring expands and drives the striker against the crystal.

3,827,854

AUTOMATIC METAL PROTECTING APPARATUS AND METHOD

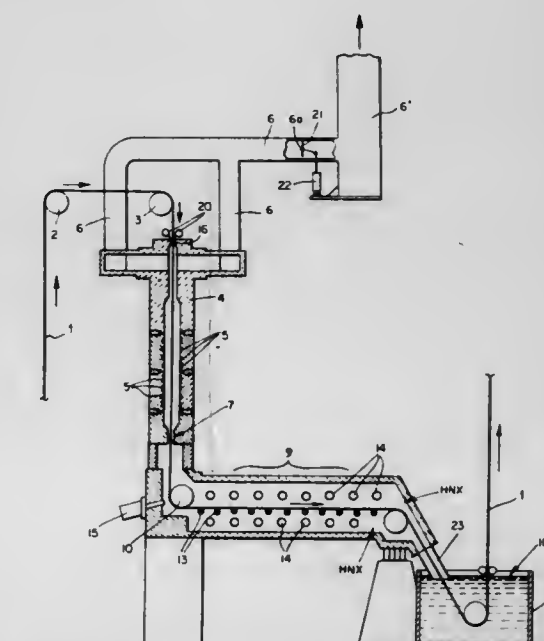
William E. Gildersleeve, 44 Taylor Rd., Conshohocken, Pa. 19428

Filed Oct. 26, 1973, Ser. No. 410,220

Int. Cl. F27b 9/28

U.S. Cl. 432-19

19 Claims



When a metal strip passing through a furnace is overheated, the furnace is automatically shut down in a special way to prevent outside air from rushing in to cause strip oxidation in critical furnace areas. The fuel-air mixture in the furnace is gradually reduced to a low rate which is substantially above zero, and then continues at that low rate for a definite period of time. Also, a non-oxidizing gas such as nitrogen is gradually introduced into the furnace at a gradually increasing rate, reaching its full flow after a definite period of time, while maintaining positive pressure in the furnace chamber. The nitrogen flows for a definite period of time at full volume, and then the gas-air fuel mixture is cut off, still maintaining positive pressure in the furnace chamber. This avoids leakage of air into the furnace; further, exhaust stack dampers, which are initially open, as required automatically to maintain positive furnace pressure, are gradually and automatically brought to a closed position to assist in preventing outside air from being drawn into the furnace chamber.

3,827,855

TONER FIXING METHOD AND APPARATUS

David Edward Blake, Woodside, Calif., assignor to Electroprint, Inc., Palo Alto, Calif.

Filed Oct. 12, 1971, Ser. No. 188,315

Int. Cl. F27b 9/14

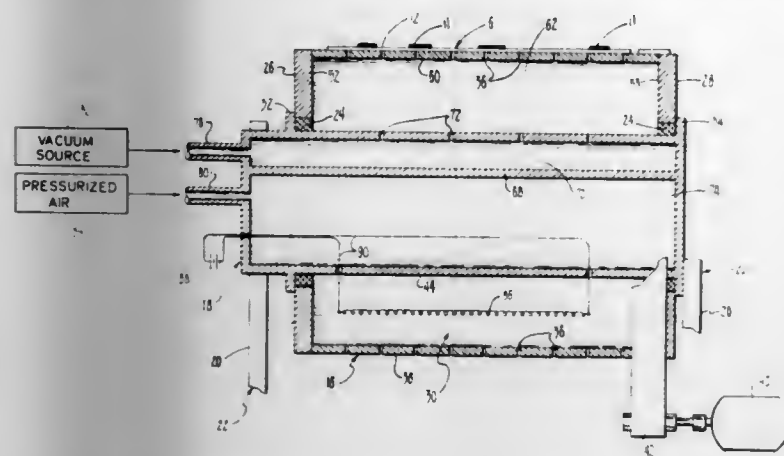
U.S. Cl. 432-60

11 Claims

Toner applied to paper sheets in electrostatic copying machines is fixed by wrapping the sheet about a heated drum

with the toner disposed on the side of the sheet facing away from the drum. The sheet is moved into intimate contact with the drum by providing a multiplicity of passageways from the drum exterior to its interior and applying a vacuum to thereby draw the sheet against the drum. After the sheet has been retained on the drum for a sufficient length of time to fix the

monomer probes, and ball point pens, having inserts at the ends thereof. The inserts are automatically loaded, by vibrating the same into pockets and then lifting them out of the pockets into suction tubes which pass through a horizontal transfer plate into nests in a vertical transfer plate. Vacuum is employed to maintain the inserts in the nests during movement of the vertical transfer plate to positions adjacent the



toner a pressurized gas is applied to the passageways to blow the paper sheet off the drum. To minimize air flow while the passageways are vacuumized such passageways can be applied to only a portion of the drum circumference equal in length to the length of the paper. The drum rotation is then indexed to correspond to the copy cycle.

3,827,856

APPARATUS FOR LOADING INSERTS ONTO INSERT RECEIVING SEATS OF A MOLD

Roger D. Van De Walker, and Blair E. Howe, both of Costa Mesa, Calif., assignors to California Injection Molding Co., Inc., Costa Mesa, Calif.

Division of Ser. No. 79,191, Oct. 8, 1970, Pat. No. 3,719,396.

This application Nov. 24, 1972, Ser. No. 309,519

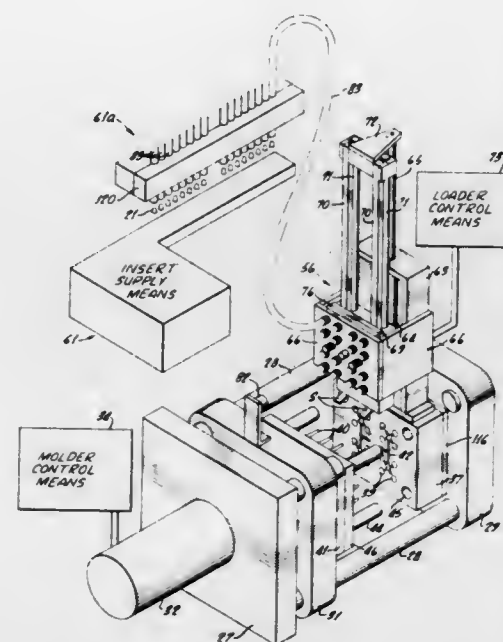
Int. Cl. B29f 1/10

U.S. Cl. 425—126 R

8 Claims

A method and apparatus for mass-manufacturing elongated hollow plastic objects, such as covers for electronic ther-

distal ends of hollow core pins through which air is sucked. The vacuum in the vertical transfer plate is then converted to pressure to cause the inserts to fly across the air gaps to the core pin ends, following which the inserts are maintained on such ends by suction. The mold is then closed to cause the inserts to engage spring-biased plungers, following which the plastic is injected.



3,827,857

METHOD OF CLEANING THICK COVERING TEXTILE MATERIALS AND COMPOSITE CLEANING PAD THEREFOR

Paul A. Boulus, 2450 Apricot Lane, Augusta, Ga. 30904

No Drawing. Continuation-in-part of abandoned application Ser. No. 112,430, Feb. 3, 1971. This application Mar. 26, 1973, Ser. No. 344,893

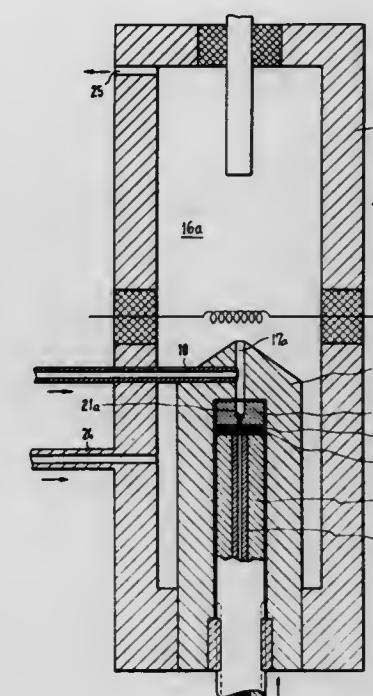
Int. Cl. B08b 3/00

U.S. Cl. 8—137

26 Claims

Thick covering textile materials are cleaned by depositing a textile-cleaning composition prepared from 10–30% by weight of a detergent, 0.5–5.0% by weight of a volatile solvent, 35–65% by weight of an absorptive pulverulent solid, and water on the surface of the thick covering textile material; covering the textile-cleaning composition and said thick textile material with a first porous absorptive pad and a second vapor-impermeable covering so that the first pad and the second covering permit the textile-cleaning composition to penetrate into said thick textile material; leaving said textile-cleaning composition, said first pad, and said second covering in place on said thick textile material until cleaning is complete; and removing said first pad and said second covering from said thick textile material. A composite cleaning pad may be used in the practice of this invention.

separating column under supercritical conditions to subcritical conditions before burning at the burner nozzle, is in the form of one or more diaphragms disposed im-



3,827,858

DURABLE-PRESS COTTON TEXTILES AND METHOD OF MAKING SAME

Geoffrey A. Byrne, Haddington, Scotland, and Jett C. Arthur, Jr., Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Apr. 27, 1972, Ser. No. 248,180

Int. Cl. C08f 1/24, 3/46; D06m 13/20

U.S. Cl. 8—184

2 Claims

Durable-press cotton textiles are prepared by a chemical process wherein methacrylic acid is grafted onto the textile and the grafted textile is subsequently crosslinked with dimethyloldihydroxyethyleneurea (DMDHEU) without the use of the usual catalysts such as zinc nitrate. The textile is dried to a moisture content of about 0.5%, irradiated in an inert atmosphere to a dosage of 0.5–1 megarad, immersed in a solution of methacrylic acid, methanol and water, washed, dried then immersed in a solution of DMDHEU, water and a wetting agent, dried and cured at 160° C.

mediately upstream of the burner nozzle outlet and having central bores whose diameters are in the range from 2 to 10 microns.

3,827,860

BLOOD OXYGENATION DEVICE

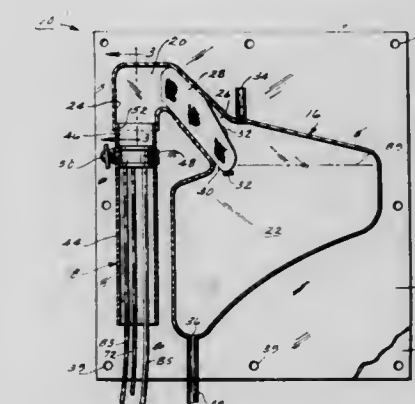
Norbert W. Burlis, University City, Mo., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed June 15, 1972, Ser. No. 263,049

Int. Cl. A61m 1/03

U.S. Cl. 23—258.5

15 Claims



3,827,859

FLAME IONIZATION DETECTOR FOR SUPERCRITICAL FLUID CHROMATOGRAPHY

Otto Vitzthum, Bremen, Peter Hubert, Bremen-Lesum, and Manfred Barthels, Bremen, Germany, assignors to Hag Aktiengesellschaft, Bremen, Germany

Filed Nov. 28, 1972, Ser. No. 310,166

Claims priority, application Germany, Nov. 30, 1971, P 21 59 339.5

Int. Cl. G01n 31/08, 31/12

U.S. Cl. 23—254 EF

5 Claims

A flame ionization detector for use with supercritical fluid chromatography apparatus wherein the reducing valve which transforms the test gas coming from the

A bubble oxygenation device which includes a cylindrical oxygenator chamber connected in series with a defoaming chamber and a settling chamber, and an oxygen disperser member for delivering oxygen and venous blood to the oxygenator chamber, the disperser member being slidable in the oxygenator to control the oxygenation capacity thereof.

3,827,861

DEVICE FOR THERMAL AFTERBURNING OF EXHAUST AIRKurt Zenkner, Hertzstr. 12, Ettlingen, Germany
Filed June 1, 1971, Ser. No. 148,710

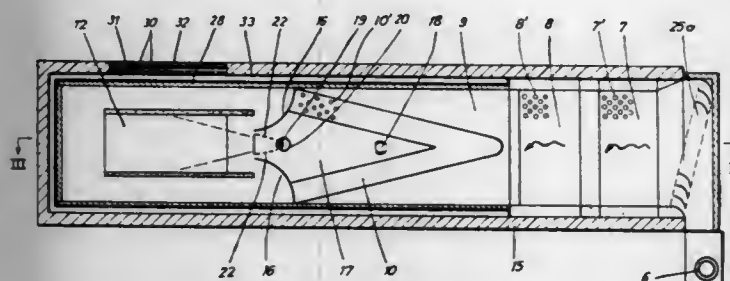
Claims priority, application Germany, May 29, 1970,

P 20 26 237.7

Int. Cl. F23g 7/06

U.S. Cl. 23—277 C

8 Claims



For the thermal afterburning of exhaust air from an industrial plant, such as a drying chamber, which air contains oxidizable foreign bodies, fluid particles or gases, the exhaust air is passed through a pair of heat exchangers in series, then through a burner while supplying air to the burner, and the resultant high combustion gases are led back outside the burning zone in a direction opposite to the original flow direction through the heat exchangers in heat exchange relation with the incoming exhaust air.

3,827,862

AIR CURTAIN DEVICE INCORPORATING ULTRAVIOLET LIGHT

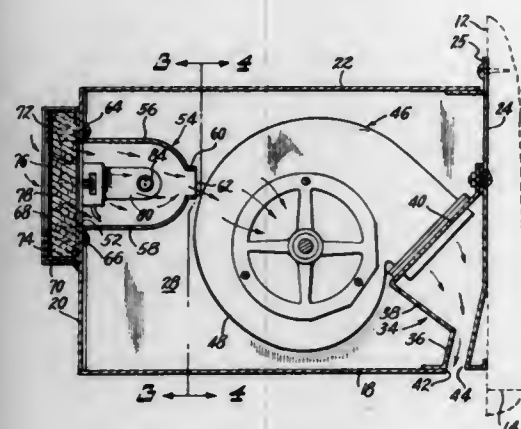
Sigmund F. Berlant, 6023 Ward Lane, P.O. Box 762, Levittown, Pa. 19058

Filed Aug. 10, 1972, Ser. No. 279,330

Int. Cl. A61l 9/00; F24f 9/00

U.S. Cl. 21—74 R

1 Claim



An air curtain device has plural blower assemblies within a housing discharging air into a plenum chamber and thereafter outwardly in a laterally elongated continuous stream. The housing has an air intake upstream of the blowers with an internal air inlet guide having an ultraviolet light source therein to treat and decontaminate air as drawn into the device.

3,827,863

THERMAL AND ABRASION RESISTANT SINTERED ALLOY

Kentaro Takahashi, Ohmiya, Minoru Hasegawa, Saitama, and Kaoru Nara, Kawaguchi, Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed Sept. 5, 1972, Ser. No. 286,393

Claims priority, application Japan, Sept. 2, 1971, 46/66,981

Int. Cl. B22f 1/00

U.S. Cl. 29—182

1 Claim

An alloy prepared by molding a powdery composition comprising 0.6 to 2% of carbon, 1 to 3% of nickel, 10

to 15% of chromium, 0.3 to 1.5% of molybdenum, 5 to 15% of cobalt and 3 to 7% of tungsten, by weight, and the balance being iron, and then sintering the molded composition has large thermal resistance and abrasion resistance.

3,827,864

COMPOSITE EXTRUSION

Tomiyoshi Kanai and Shunta Ushioda, Tochigi, Japan, assignors to Showa Aluminium Kabushiki Kaisha, Osaka, Japan

Filed Feb. 22, 1972, Ser. No. 227,961

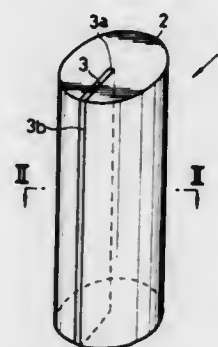
Claims priority, application Japan, Feb. 23, 1971,

46/8,798, 46/8,799, 46/8,800

Int. Cl. B21c 37/00

U.S. Cl. 29—191.6

12 Claims



A composite extrusion comprises a base metal member made of pure aluminum or aluminum alloy which assures a beautiful finish when treated by anodic oxidation and an embedded metal member embedded in the base metal member and made of an aluminum alloy of good machinability. The embedded metal member is positioned in one part generally of the peripheral face of the base metal member to be machined and extends throughout the entire length of the base metal member.

3,827,865

FIBERED METAL POWDERS

Richard W. Douglass, Needham, Mass., assignor to Norton Company, Worcester, Mass.

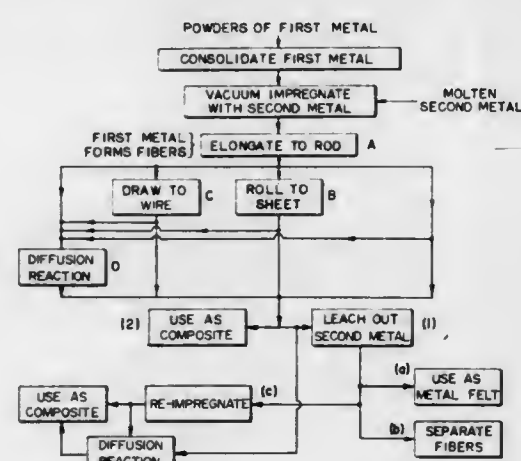
Application Mar. 13, 1969, Ser. No. 807,129, which is a continuation of application Ser. No. 626,773, Mar. 29, 1967, both now abandoned. Divided and this application July 30, 1970, Ser. No. 59,555

The portion of the term of the patent subsequent to Aug. 1, 1989, has been disclaimed

Int. Cl. B22f 3/26

U.S. Cl. 29—192

1 Claim



Hard metal powder compacts are sintered and impregnated with a softer metal. The compacts are reduced to rod, wire or sheet. In the process fine fibers of the hard metal powder are formed.

3,827,866

SURFACE TREATED STEEL PLATE

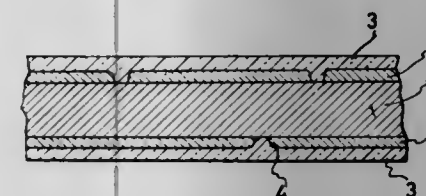
Hiromu Uchida and Osamu Yanabu, Himeji, Japan, assignors to Nippon Steel Corporation

Continuation of abandoned application Ser. No. 625,421, Mar. 23, 1967. This application Jan. 26, 1971, Ser. No. 109,938

Int. Cl. B32b 15/00

U.S. Cl. 29—195

10 Claims



This invention relates to the surface treatment of steel plates or sheets and discloses a novel steel sheet structure, wherein the steel sheet is first electrolytically surface coated with a metallic chromium layer of a thickness not exceeding about 0.1 micron and is then electrolytically plated with a chromate film of a thickness not exceeding 0.1 mg./dm.². The chromium layer thickness should preferably not be less than 0.0016 micron. The inventive steel sheet constitutes a superior can stock and may be provided with a top coat of organic composition.

3,827,867

PRODUCTION OF METHANE AND AROMATICS

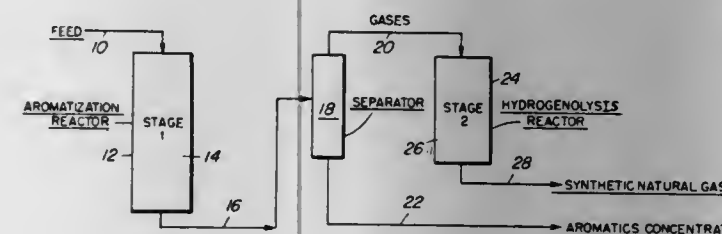
Heinz Heinemann, Princeton, N.J., and Paul B. Weisz, Lower Makefield Township, Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 16, 1972, Ser. No. 307,306

Int. Cl. C10g 11/28

U.S. Cl. 48—211

10 Claims



A combined aromatization and light gas hydrogenolysis whereby naphtha or light gas hydrocarbons are initially aromatized in contact with a ZSM-5 type of synthetic aluminosilicate zeolite molecular sieve under specified conditions to produce a product at least 30 weight percent of which is a mixture of aromatic hydrocarbons, and the remainder of which is a gaseous mixture of hydrogen and lower molecular weight hydrocarbons. The gaseous mixture is characterized by an atom ratio of about 1 carbon atom to 4 hydrogen atoms. This gas is contacted with a hydrogenolysis catalyst, such as nickel, at a temperature of about 525 to 1000° F. and a pressure of about 0 to 200 p.s.i.g. to convert at least most, and preferably substantially all of the hydrogen and the carbon in the hydrocarbon components to a synthetic natural gas which is thermally and physically compatible with natural gas.

3,827,868

CLEANSER COMPOSITIONS CONTAINING BOTH OXIDIZING AND REDUCING AGENTS

Richard L. Burke, Madison, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 668,669, Sept. 18, 1967. This application Oct. 4, 1971, Ser. No. 186,552

The portion of the term of the patent subsequent to Aug. 28, 1990, has been disclaimed

Int. Cl. C09c 1/68; C09g 1/02

U.S. Cl. 51—308

9 Claims

This disclosure relates to solid abrasive cleansing compositions having particular utility as both a tea stain and aluminum pot mark remover from hard surfaces such as porcelain, comprising an oxidant capable of oxidizing the metal in a practical time such as the metallic ions ferric, stannous, cupric and mercuric, a reductant such as sodium hypophosphite cuprous chloride, and an abrasive, said composition having a pH of less than 2. Additives such as detergents, perfumes, fillers, colorants, etc. may be included provided they do not adversely effect the stain removing properties of the composition. Although aluminum pot marks are most often encountered in normal household cleaning, said cleansers are effective against other metallic stains such as iron, tin, magnesium, etc.

3,827,869

PRODUCTION OF FOAMED SILICATE MOLDINGS WHERE THE FOAMABLE COMPOSITION IS GELLED PRIOR TO FOAMING

Wulf von Bonin, Leverkusen, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Feb. 15, 1973, Ser. No. 332,828

Claims priority, application Germany, Mar. 7, 1972, P 22 10 837.8

Int. Cl. C03b 19/08

U.S. Cl. 65—22

9 Claims

The present invention relates to a process for the production of foaming moldings having a silicate skeleton which comprises mixing in aqueous solution containing a water soluble silicate, a gelling agent and a foaming agent which liberates a volatile substance above about 70° C., converting said mixture into a gel and then foaming said gel by heating it above 70° C. It is preferred to use as silicate solution a sodium waterglass solution, as gelling agent chloroformic acid esters and as foaming agents petrol, light petrol or petrol ether.

3,827,870

METHOD AND APPARATUS FOR COATING GLASSWARE

Clement V. Fogelberg and John M. Kujava, Arvada, Colo., assignors to Columbine Glass Company, Wheat Ridge, Colo.

Filed June 25, 1973, Ser. No. 373,325

Int. Cl. C03c 17/10

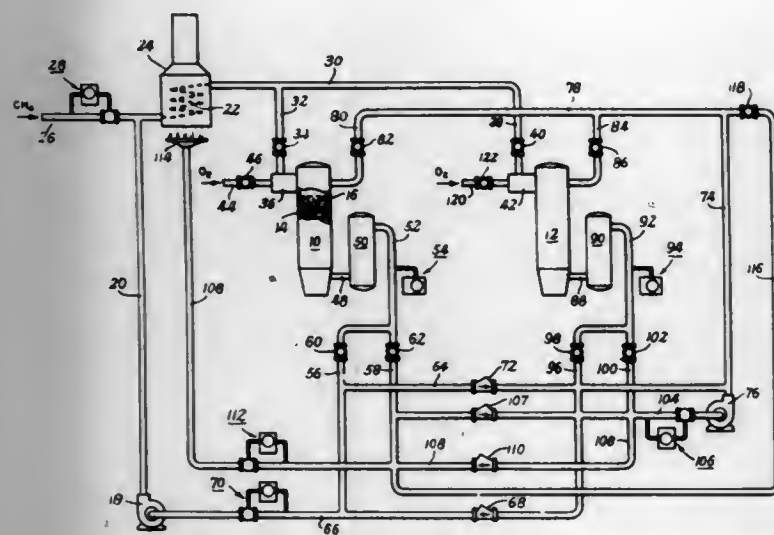
U.S. Cl. 65—60

11 Claims

This invention pertains to a method and apparatus for "hot-end" treating and coating of newly formed glassware surfaces by exposing such surfaces to hydrolyzable and pyrolytically degradable metallic halide treatment gases wherein, as the result of the corrosive waste products produced by hydrolyzation and degradation of such gases, a flame is utilized to induce flow of such waste products through a duct to a proper disposal area. The improvement in the method and apparatus being, contrary to the

dioxide, 14 to 50% hydrogen and 10 to 60% methane, reducing gas is continuously transferred from one of said circuits to the other and continuously removed from the other of said circuits. A reduction plant having a high

yield of sponge iron per hour per cubic foot of reduction space is achieved, at relatively low capital outlay and the plant can be easily scaled up from say 20 tons per day to 1,200 tons per day.



yield of sponge iron per hour per cubic foot of reduction space is achieved, at relatively low capital outlay and the plant can be easily scaled up from say 20 tons per day to 1,200 tons per day.

3,827,880 INCLUSION OF HYDROBORACITE IN ADDITIVE COMPOSITION AND USE THEREOF IN STEEL REFINING

Henry Edward Greeson, South Nutfield, England, assignor to British Steel Corporation, London, and Borax Consolidated Limited, London, England
No Drawing. Filed Dec. 7, 1972, Ser. No. 312,835
Claims priority, application Great Britain, Dec. 7, 1971, 56,883/71

Int. Cl. C21b 3/04; C21c 7/00; C22b 9/10
U.S. Cl. 75-53

Certain boron-containing compounds have been proposed for use as additives in basic oxygen steelmaking to accelerate the dissolution rate of lime in the slag. It has been found that the complex boron compound hydroboracite, available as an ore, shows surprisingly improved properties over the boron ores previously proposed. Hydroboracite may be used either to increase lime dissolution rate or to promote slag fluidity, may be used in basic oxygen steelmaking or electric arc steelmaking, and may be added in admixture with fluorspar and/or lime.

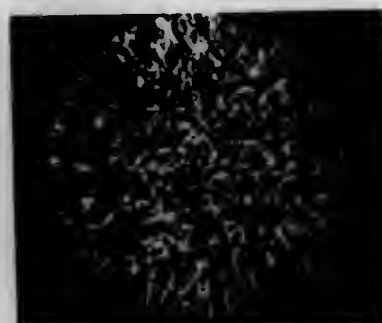
3,827,881 GRAIN REFINEMENT OF ALUMINUM ALLOY CASTINGS

Enrique C. Chia, Carrollton, Ga., assignor to Southwire Company, Carrollton, Ga.
Filed Feb. 24, 1972, Ser. No. 228,824

Int. Cl. C22c 1/06

U.S. Cl. 75-138

7 Claims



This invention relates to a method of producing a finer and more equiaxed cast grain structure in aluminum alloys

3,827,882 HIGH LEAD ALUMINIUM ALLOY

Kenneth Lloyd, Chesham and Anthony Dennis Michael, London, England, assignors to The Glacier Metal Company Limited.

No Drawing. Continuation of application Ser. No. 807,425, Mar. 14, 1969. This application Sept. 24, 1971, Ser. No. 183,705

Claims priority, application Great Britain Mar. 15, 1968, 12,785/68

Int. Cl. C22c 21/00

U.S. Cl. 75-138 3 Claims
This invention is a bearing alloy for acting as a lining on a steel backing. Good bearing properties are given by having a high percentage, preferably between 10% and 12% by weight, of lead in aluminium. Strength can be given by some silicon and some calcium improves the solubility of the lead in the aluminium and up to 1% of lithium may be added to globularize the lead in the aluminium.

3,827,883 ELECTRICAL CONTACT MATERIAL

Lloyd F. Neely, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis Ind.

No Drawing. Filed Oct. 24, 1972, Ser. No. 299,697

Int. Cl. C22c 5/00, 27/00

U.S. Cl. 75-153 14 Claims
An electrical contact material consisting essentially of tungsten or its carbides, a metal of high electrical conductivity such as silver or copper, and magnesium oxide. Tungsten or its carbides are used to provide the contact material with a high melting temperature constituent. The silver or copper is used to provide the contact material with a constituent of high electrical conductivity. The magnesium oxide constituent is used to provide the contact material with improved arc erosion resistance and improved arc interruption characteristics when compared to the same characteristics of a contact material consisting essentially of tungsten or its carbides, and silver or copper. The tungsten or its carbides with silver or copper type contact material of the present invention consists essentially of 90 to 10 weight percent silver or copper, 0.25 to 7 weight percent magnesium oxide, the remainder essentially tungsten or carbides.

The presence of small amounts of impurity elements is not believed to play a critical role in the invention. It is to be understood that the invention contemplates the possibility of the addition of other elements to electrical contact material as long as such additives do not have a harmful effect on the function of the magnesium oxide in the contact material.

3,827,884 TIN BASED WHITE METAL BEARING ALLOYS PRODUCING GOOD BOND WITH BACKING MATERIAL

Nobukazu Morisaki, Nagoya, Japan, assignor to Daido Metal Company, Nagoya, Japan
Continuation-in-part of abandoned application Ser. No. 78,546, Oct. 6, 1970. This application Nov. 6, 1972, Ser. No. 303,837

The portion of the term of the patent subsequent to Feb. 16, 1988, has been disclaimed

Claims priority, application Japan, July 15, 1970, 45/61,420

Int. Cl. C22c 13/00

U.S. Cl. 75-175 A 1 Claim
A tin based white metal bearing alloy having a high elongation and capable of producing a good bond with

a backing material, which is composed of 1.0-2.9% by weight of copper, 5.0-13.0% by weight of antimony, 0.1-1.5% by weight of cadmium, 0.001-0.1% by weight of beryllium, 0.005-0.2% by weight of chromium and the remainder consisting of tin.

4-hydroxy-6-methyl-1,3,3a,7-tetraazindene and at least one of a particular group of quaternary ammonium compounds.

3,827,887

STORAGE STABILITY OF NONSILVER PHOTOSENSITIVE SYSTEMS BY INCORPORATING THEREIN CERTAIN ORGANIC N-OXIDES

Andrew C. Hazy, Mentor, John E. Shirey, Bedford Heights, and Lothar Ramins, Cleveland, Ohio, assignors to Horizons Incorporated, a Division of Horizons Research Incorporated, Cleveland, Ohio

No Drawing. Filed Oct. 10, 1972, Ser. No. 295,834

Int. Cl. G03c 1/52, 5/24

U.S. Cl. 96-480 P 14 Claims

Storage stability, especially resistance to atmospheric moisture of non-silver photosensitive compositions such as those described in U.S. 3,481,739 and similar non-silver free radical compositions, is improved by the addition thereto of certain organic nitrogen compounds containing an N→O group.

3,827,888

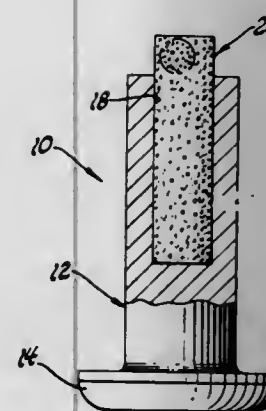
APPARATUS AND PROCESS FOR COMBINING CHEMICALLY COMPATIBLE SOLUTIONS

James P. Terwilliger, Anthony D. Gingello and John R. Tinney, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 6, 1972, Ser. No. 231,841

Int. Cl. B01f 7/08; G03c 1/02, 1/28

U.S. Cl. 96-107 4 Claims



A tire stud and the method of making same. The tire stud includes an elongated metal body having a head at one end and a shank extending from the head with a cavity extending into the shank toward the head. In making the completed stud, the body is disposed in a bore having a shank receiving portion and a smaller portion which is generally of the same cross sectional area as the cavity and which extends upwardly from the cavity to an opening. Material is disposed through the opening to fill the cavity and at least a part of the smaller portion of the bore above the cavity. These materials include particles made of carbon grains sintered together by a binder such as cobalt and an additional filler metal powder. The filler metal powder is melted so as to fill the spaces between the particles and thereafter solidifies to form a composite of the particles bonded together by the filler material.

3,827,886

LIGHT-SENSITIVE SILVER HALIDE PHOTOGRAPHIC MATERIALS

Masao Ishihara, Teruhide Haga, Hiroshi Horiuchi, Hisashi Yamaguchi and Osakazu Sugino, Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

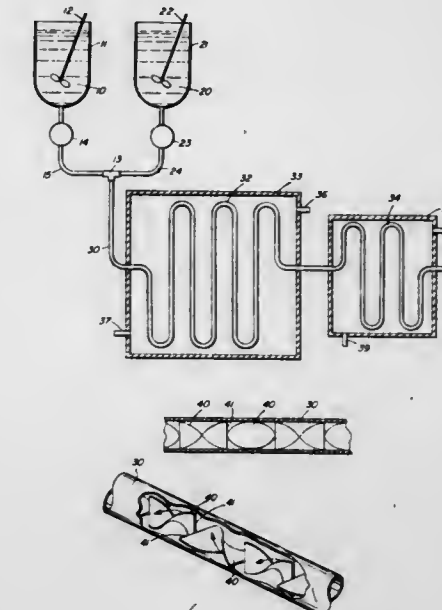
No Drawing. Continuation of application Ser. No. 52,760, July 6, 1970. This application July 3, 1972, Ser. No. 268,754

Claims priority, application Japan, July 9, 1969, 44/53,767

Int. Cl. G03c 1/06, 1/34, 5/26

U.S. Cl. 96-50 R 3 Claims

A method of preventing fog during rapid development of a light-sensitive silver halide emulsion at elevated temperatures by developing said emulsion in the presence of



An apparatus and process are disclosed in which an emulsion and an addenda sensitizer solution are directed as separate flows to a common junction where the flows are intermixed into a common flow upon coming into contact. The common flow of emulsion and addenda sensitizer solution is then moved through an extended path which includes means for heating the emulsion to a predetermined temperature and maintaining it at said temperature for a predetermined period of time and means for cooling the common flow very rapidly, thereby finishing the emulsion and providing an emulsion of uniform sensitization. While the emulsion is being moved through the conduit which forms and defines the extended path, it is being mixed continuously by a continuous series of

elements arranged within and throughout the full length of the conduit from the common junction to an outlet located beyond the cooling means.

3,827,889

THERMALLY DEVELOPABLE LIGHT SENSITIVE MATERIAL

Kinji Ohkubo, Takao Masuda, and Junpei Noguchi, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Continuation of abandoned application Ser. No. 643,828, June 6, 1967. This application Oct. 8, 1971, Ser. No. 187,844

Claims priority, application Japan, June 6, 1966, 41/36,387

Int. Cl. G03c 1/02

U.S. Cl. 96—114.1 4 Claims

In a thermally developable light-sensitive paper composed of a silver salt of benzotriazole, a light-sensitive silver halide, a reducing agent, such as, hydroquinone and an organic acid, such as, an aliphatic monocarboxylic acid, the preservability of images can be improved by using 1-ascrobic acid, its esters, furoin, benzoin, dihydroxy acetone, etc., as a reducing agent. According to the paper used, a negative and a positive copy can be obtained from the same material.

3,827,890

PROCESS FOR THE PREPARATION OF PHOTOGRAPHIC SILVER SALT EMULSIONS

Wilhelm Saleck, Schildgen, Gerhard Balle, Cologne, and Wolfgang Himmelmann, Opladen, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 21, 1972, Ser. No. 308,565

Claims priority, application Germany, Nov. 24, 1971, P 21 58 196.4

Int. Cl. G03c 1/72, 1/04

U.S. Cl. 96—114 5 Claims

Photographic silver salt gelatin emulsions are made by precipitating the silver salt in the presence of gelatin, flocculation and washing the flocculate, with an aqueous solution of a polymer containing disulfonimide groups.

3,827,891

HIGH ADHESION METALLIZING COMPOSITIONS

John R. Larry, Wilmington, Del.
(396 Dansworth Road, Youngstown, N.Y. 14174)

No Drawing. Continuation of application Ser. No. 186,383, Oct. 4, 1971, which is a continuation-in-part of application Ser. No. 146,799, May 25, 1971, which in turn is a continuation-in-part of application Ser. No. 99,318, Dec. 17, 1970, all now abandoned. This application June 11, 1973, Ser. No. 369,116

Int. Cl. C09d 5/24

U.S. Cl. 106—1 10 Claims

Metallizing compositions comprising noble metal(s) and, in particular, inorganic binder which contains a glass composed of 30–50% PbO, 30–40% SiO₂, 2–8% Al₂O₃, 2–8% B₂O₃, 2–15% CaO, 0.5–5% TiO₂ and ZrO₂. These compositions are applied to a dielectric substrate and used in the electronic industry to form highly dense films which exhibit good solderability, good solder leach resistance, good initial adhesion and good thermal aged adhesion.

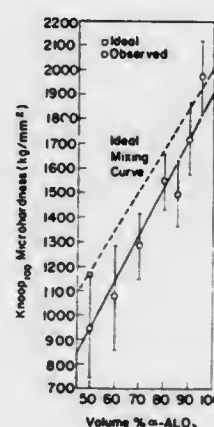
3,827,892

MICA BASED, CERAMIC COMPOSITE MATERIAL

James W. McCauley, Wakefield, Mass., assignor to the United States of America as represented by the Secretary of the Army

Filed May 7, 1973, Ser. No. 357,571

Int. Cl. B32b 5/16; C04b 33/26; F16k 31/12
U.S. Cl. 106—46 2 Claims



The use of synthetic, fluorine containing micas, by hot-pressing as a second phase incorporation into a ceramic body in an amount of 5 to 50% by volume to produce a novel particulate dispersion or a dispersed micro-laminate thereby enhancing the properties of the ceramic materials.

3,827,893

SILICATE BODIES

Helmuth E. Meissner, Painted Post, and Stanley D. Stookey, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 45,907, June 12, 1970. This application Feb. 22, 1972, Ser. No. 228,299

Int. Cl. C04b 35/16

U.S. Cl. 106—74 15 Claims

This invention relates to the discovery that when certain esters or inorganic salts which hydrolyze to weak acids are added to true solutions, colloidal solutions, and suspensions of soluble silicates containing more than 1 mole of silica per liter and having a pH greater than about 10, a reaction will take place wherein the pH will be reduced and the silica will polymerize into a network structure. The reacted body may then be fired below the softening point of the polymerized product to form a glass article having a geometry similar to that of the original body or may be treated so as to form a self-supporting, monolithic porous body which, if desired, can be consolidated by heat to a glassy body.

3,827,894

CEMENTITIOUS COATING CONTAINING NON-ABRASIVE FILLER

Howard C. Hansen, 926 E. Hermosa Drive,
Tempe, Ariz. 85281

No Drawing. Filed Dec. 13, 1972, Ser. No. 314,863

Int. Cl. C04b 7/08

U.S. Cl. 106—90 11 Claims

A protective coating for concrete, slate and gravel covered roof structures prepared from a preferred mixture comprising: white cement, white waterproof cement, non-abrasive fillers, a whitening agent, a setting agent, a binder, and water.

3,827,895

MOD-WALL CONCRETE

William Leo Copeland, 3405 Marks St.,
Shreveport, La. 71103

No Drawing. Filed Mar. 27, 1972, Ser. No. 238,659

Int. Cl. C04b 7/04

U.S. Cl. 106—99 6 Claims

A concrete composition developed to provide a material of construction which can be utilized to build essentially all types of structures, including houses, office buildings, and the like, which is capable of being wet mixed and subsequently molded into convenient and useful shapes. The composition has great strength, excellent shrink resistance properties, is shock resistant, and provides good insulation for structures, and is adapted for use with suitable molds to form the entire wall, slab and roof structure of a house or other building in a single pouring.

3,827,896

METHOD OF PRODUCING CLINKER OF ALUMINA CEMENT

Vyacheslav Ivanovich Avdjukov, pereulok Druzhby, 13a, kv. 48, and Boris Nikolaevich Lebedev, ulitsa Furmanova 51, kv. 23, both of Alma-Ata, U.S.S.R.

No Drawing. Filed Nov. 1, 1972, Ser. No. 302,819

Int. Cl. C04b 7/32

U.S. Cl. 106—104 3 Claims

The method comprises the preparation of an aluminocalcium batch suitable for use in making alumina cement by firing aluminosilicate starting material with calcium chloride, with subsequent treatment of the resulting sintered product with sulphuric acid and precipitation of said aluminocalcium mixture from said solution with calcium-containing inorganic substances.

3,827,897

PROCESS OF OBTAINING A DRY AND POWDERY MIXTURE OF HYDRATED LIME AND PLASTER

Philippe Dumont, Stockay, Belgium, assignor to Carriere et Fours a Chaux Dumont-Wautier, La Mailleue, Belgium

Filed May 31, 1972, Ser. No. 258,287

Claims priority, application Great Britain, June 9, 1971, 19,725/71

Int. Cl. C04b 11/06

U.S. Cl. 106—110 3 Claims

For obtaining a building material containing hydrated lime and plaster, quicklime is reacted with synthetic gypsum, such as phosphogypsum which is a byproduct of the manufacture of phosphoric acid, the reaction taking place without external heating in a reaction zone in which a water saturated atmosphere is maintained.

3,827,898

METHOD OF REDUCING THE RATE OF OXIDATIVE DEGRADATION OF CELLULOSE ETHER

Thomas J. Podlas, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Apr. 6, 1973, Ser. No. 348,837

Int. Cl. C08b 21/26, 27/64

U.S. Cl. 106—194 11 Claims

The rate of degradation of non-ionic cellulose ethers under the influence of a persulfate oxidizing agent is re-

duced and regulated by the addition of small amounts of a divalent manganese compound into a solution of the ether and the oxidizer.

3,827,899

MODIFIED MICROCRYSTALLINE CELLULOSE DISPERSION

Amnon Dov Zirlin, Haifa, Israel, assignor to Centre for Industrial Research (CIR) Ltd., Haifa, Israel

No Drawing. Filed July 27, 1972, Ser. No. 275,776

Claims priority, application Israel, Sept. 28, 1971, 37,810/71

Int. Cl. C08b 25/00, 27/18

U.S. Cl. 106—208 4 Claims

A modified microcrystalline cellulose is obtained by the interaction of microcrystalline cellulose with guar gum in an aqueous medium. This modified microcrystalline cellulose functions simultaneously as a body enhancer, cloudifier and suspending agent in acidic soft drinks and prevents the settling of the pulp particles present in the soft drinks and/or the formation of the "ring" in the upper layer of the drinks.

3,827,900

ANTISTAT AND BINDER FOR GLASS FIBERS

A. Carey Williams, P.O. Box 16347, Bel Air Station,
Mobile, Ala. 36616

No Drawing. Filed July 31, 1972, Ser. No. 276,314

Int. Cl. C09k 3/16

U.S. Cl. 106—287 S 11 Claims

A process for reducing the static charge and binding glass fibers is disclosed, wherein the glass fibers are contacted with a composition comprising an alkylene polyol, such as an alkylene glycol, a lower alkanol, a polybasic acid, and a silicate compound. The composition is applied to siliceous fibres, especially glass fibers, in either loose or blanket form, to reduce the static charge thereon and to function as a binder for the fibers. Glass fibers treated by the composition of the present invention are useful in various applications such as for blown insulation.

3,827,901

CALCIUM-ALUMINUM-SILICATE EXTENDER PIGMENT

Thomas S. Griffin, Webster Groves, and Kenneth W. Heywood, Overland, Mo., assignors to N L Industries, Inc., New York, N.Y.

No Drawing. Filed July 24, 1972, Ser. No. 274,271

Int. Cl. C09c 1/02, 1/28, 1/40

U.S. Cl. 106—306 1 Claim

This invention relates to a new composition of matter which is useful as a pigment composition for the paper industry. The composition is water insoluble and comprises an intimate mixture of titanium dioxide and a calcium-aluminum-silicate composition in which the amount of titanium dioxide employed is from 0.6 to 4 parts for each part of the calcium-aluminum-silicate composition. The calcium-aluminum-silicate composition is water insoluble and contains the constituents in the amounts indicated (all amounts are expressed by weight):

Constituents:	Parts by weight
CaO	1
Al ₂ O ₃	0.8–1.2
SiO ₂	12–16
H ₂ O	2–4

3,827,902 PROCESS FOR PREPARING PIGMENT COMPOSITIONS

Siegfried Schwerin, Hofheim, Taunus, Reinhold Denbel, Altenhain, Taunus, and Thilo Thilenius, Sulzbach, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed May 1, 1972, Ser. No. 249,205
Claims priority, application Germany, May 3, 1971, P 21 21 673.9
Int. Cl. C09b 67/00

U.S. Cl. 106—308 N 9 Claims
An aqueous suspension of a pigment is heated with an alkyl alkylene amine of the formula



or a salt thereof, wherein R represents a substituted or unsubstituted phenyl, n is an integer from 1 to 10, x is an integer from 2 to 10 and y is an integer from 1 to 5. The resulting pigment compositions are particularly suitable for preparing printing inks which have the advantage of being non-blotting when printed on thin and inferior paper. The pigment compositions also have excellent rheological properties and tinctorial strength.

3,827,903 METHOD OF FORMING A DIFFUSED METAL CODED STEEL PRODUCT

Robert M. Hudson, Churchill Borough, Allegheny County, Paul E. Perry, Tarentum Borough, Allegheny County, and Clair J. Warning, Plum Borough, Allegheny County, Pa., assignors to United States Steel Corporation
No Drawing. Filed June 1, 1971, Ser. No. 149,064
Int. Cl. C23c 3/04

U.S. Cl. 117—1 4 Claims
A coded product consisting of a steel substrate, an identification metal diffused onto the surface of the substrate, and in some cases a protective overlay.

3,827,904 THERMAL STABILIZATION OF POLYBENZ- IMIDAZOLE FIBER FABRICS

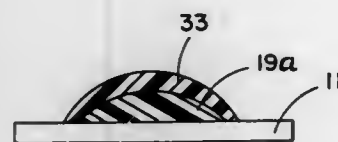
John Skelton, Sharon, Mass., and W. Denney Freeston, Jr., Doraville, Ga., assignors to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed Feb. 28, 1973, Ser. No. 336,584
Int. Cl. B29d 7/22

U.S. Cl. 117—7 1 Claim
A process for producing a thermally stable polybenzimidazole fiber fabric by treating the scoured clean relaxed fabric with a silicone emulsion and then holding the fabric at fixed length and with dimensions while exposing it to a temperature of about 950° F.

3,827,905 DEVELOPMENT ENHANCEMENT OF ELECTROSTATIC IMAGES

Walter Roth, La Jolla, Calif., assignor to Diagnostic Instruments, Inc.
Filed July 9, 1971, Ser. No. 161,227
Int. Cl. C03g 13/08, 13/22

U.S. Cl. 117—17.5 17 Claims



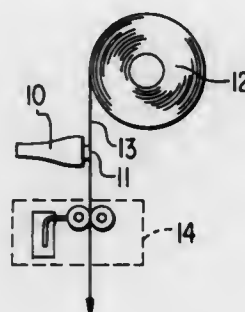
A process of enhancing the development of latent electrostatic images on a substrate which comprises contacting the latent image with a powdered pigmented, fusible

and polarizable developer material having an induced electrostatic charge such that it will be attracted to the surface of the substrate. After the powder particles are preferably fixed or fused on the substrate, it is heated to a temperature in excess of the glass transition temperature of the fused powder particles thereon and subjected to an induced electric field to polarize the particles into electrets. The electrets are then contacted by additional electrostatically charged powder particles in the same manner as was the original latent electrostatic image so that the developed image density is enhanced due to the additional powder particles attracted to the substrate.

3,827,906 METHOD FOR DEVELOPING AN ELECTROSTATIC LATENT IMAGE

Masamichi Sato and Yasuo Tamai, Asahi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Mar. 17, 1972, Ser. No. 235,480
Claims priority, application Japan, Mar. 17, 1971, 46/14,843
Int. Cl. G03g 13/10

U.S. Cl. 117—37 LE 5 Claims



A method for developing an electrostatic latent image on a photoconductive surface comprising applying a liquid developer material using a porous material to said electrostatic latent image on said photoconductive surface, the improvement comprising applying said liquid developer material to said photoconductive surface using said porous material by keeping at least a portion of said porous material in contact with a reservoir of said liquid developer material and contacting said photoconductive surface containing said electrostatic latent image thereon with another portion of said porous material and the improvement further comprising said liquid developer being a suspension of a graft pigment in an insulating liquid is disclosed.

3,827,907 PRODUCTION OF TEXTILE MATERIALS WITH IMPROVED FLAME RETARDANCE

Robert Bruce LeBlanc, Wickford, R.I., assignor to Cotton, Incorporated, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 220,453, Jan. 24, 1972. This application Nov. 20, 1972, Ser. No. 307,796
Int. Cl. B44d 1/44

U.S. Cl. 117—62.1 16 Claims
The flame retardant properties of textile materials which have been reacted with phosphorus-containing compounds or salts thereof, are improved by an after-treatment of the textile material with a salt of a heavy metal, for example, titanium tetrachloride. The treatment not only imparts increased flame retardance to treated textile materials but protects the imparted flame retardance against subsequent impairment by ion exchange with calcium and other elements in water. Consequently, the treatment extends the effective life of flame retardance over a large number of launderings. The treatment is applicable to cellulosic fibers, e.g., cotton or rayon, as well as to wool, silk and other natural and man-made fibers.

3,827,908 METHOD FOR IMPROVING PHOTORESIST ADHERENCE

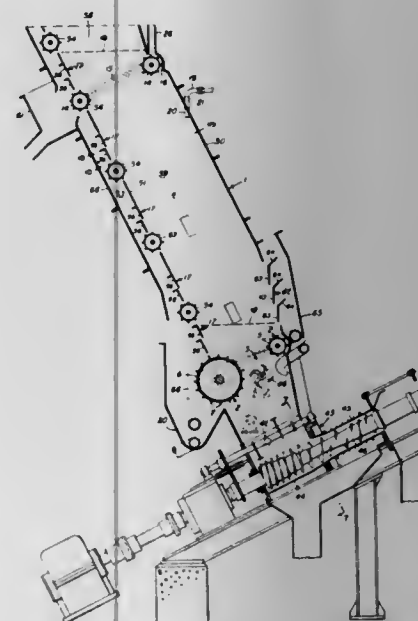
Claude Johnson, Jr., Yorktown Heights, and Myron D. Palmer, Pleasant Valley, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
No Drawing. Filed Dec. 11, 1972, Ser. No. 314,050
Int. Cl. B44c 1/18; B44d 1/52

U.S. Cl. 117—201 7 Claims
A process for improving the adhesion of a photoresist material to the oxide surface of a semiconductor substrate is disclosed. The method comprises adding 1-hydroxyethyl, 2-alkylimidazolines to phenol formaldehyde resins having diazo-ketone sensitizers.

3,827,909 APPARATUS FOR EXTRACTING JUICE FROM SUGAR CANE

John Farmer, Honolulu, Hawaii, assignor to Ward Foods, Inc., New York, N.Y.
Filed June 23, 1971, Ser. No. 155,725
Int. Cl. C13d 1/02

U.S. Cl. 127—3 32 Claims



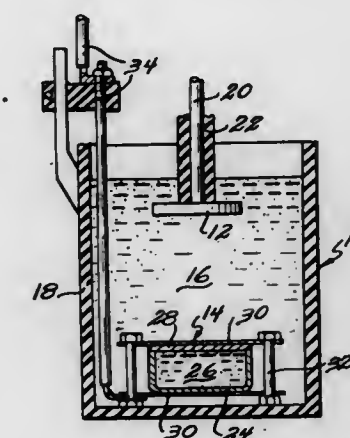
Apparatus for extracting juice from sugar cane has one or more downwardly discharging hoppers through which disintegrated cane or bagasse moves by gravity as a column. The bagasse column is subjected within the hopper to diluent liquid for extracting juice by rinsing and displacement, and roll means acting externally on the column control the rate of discharge of the bagasse, while restraining discharge of liquid therewith, and usually will feed the bagasse to a process for extracting additional juice and reducing its liquid content prior to further processing. A screening device at the inlet end of the hopper receives bagasse in the form of a slurry from an associated mixing tank and drains off both slurry liquid and mud and sand before the bagasse is introduced as a solid into the hopper.

3,827,910 HOMOGENEOUS CATHODE MIXTURES FOR SECONDARY ELECTROCHEMICAL POWER- PRODUCING CELLS

Elton J. Cairns, Lisle, Hiroshi Shimotake, Hinsdale, and Jan R. Selman, Wheaton, Ill., assignors to The United States of America as represented by the United States Atomic Energy Commission
Filed Nov. 30, 1972, Ser. No. 311,048
Int. Cl. H01m 35/02

U.S. Cl. 136—6 LF 15 Claims
This invention consists of a secondary, electrochemical power-producing cell having an anode containing a molten

alkali metal of low electronegativity, an electrolyte containing alkali-metal ions, and a novel cathode containing a reactant comprising a chalcogen wherein the cathode comprises a substantially homogeneous mixture of the re-



actant, a porous substrate material impregnable by the reactant, electrolyte, and an electronically-conducting material.

3,827,911 PREPARATION OF NICKEL ELECTRODES

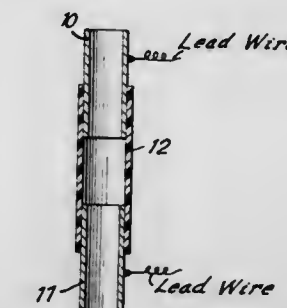
David F. Pickett, Dayton, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed Feb. 21, 1973, Ser. No. 334,503
Int. Cl. H01m 43/04

U.S. Cl. 136—24 6 Claims
A method of preparing nickel electrodes is provided in which a porous nickel plaque, positioned between two nickel sheets, is immersed in an alcoholic solution of nickel nitrate or a mixture of nickel nitrate and cobalt nitrate. After connecting the plaque to the negative pole and the sheets to the positive pole of a power source, a direct current is passed through the solution for a time sufficient to convert the nitrate, which has impregnated pores of the plaque, to the corresponding hydroxide. A nickel electrode so prepared is particularly useful as the positive electrode in nickel-cadmium batteries.

3,827,912 MAGNETOPOLYPYRILE TUBULAR BATTERY AND METHOD OF MAKING SAME

Donald S. Justice, 1816 N. Queens Lane, Arlington, Va. 22201
Filed Mar. 30, 1971, Ser. No. 129,347
Int. Cl. H01m 1/00

U.S. Cl. 136—83 R 12 Claims



A three-sixteenths inch inside diameter tube of one-half inch length suitable as an anode and a tubular cathode of the same dimension are joined by tubular insulation to form an electric cell. These cells are similarly joined to form a battery. The battery may be electrically connected to increase its voltage and amperage so that a 3 foot battery would be very slim and a 8 inch diameter cylinder

would house well over 100 such batteries. In this method and at light weight a quick and conservative experimental instrument is at hand for eventual use as a power pack in an electric car.

3,827,913

SOLID ELECTROLYTE POWER SOURCE

Alexander Duane Butherus, Murray Hill, and James Charles Phillips, Summit, N.J., and Bruno Scrosati, Rome, Italy, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 8, 1972, Ser. No. 250,930

Int. Cl. H01m 11/00

U.S. Cl. 136—83 R

8 Claims

A solid electrolyte battery is disclosed, in which the electrolyte is a member of the class of materials represented by the compositional formula $A_xMg_{(6-x)}E_6$ where A is Ca, Ba or Sr, E is S or Se and x ranges from 0.8 to 1.2. In these electrolytes the transported ion is magnesium. The preferred material of the class is $Ba_xMg_{(6-x)}Se_6$. Cells containing this material together with a metallic magnesium negative electrode and an iodine containing positive electrode exhibit an open circuit voltage of approximately 1.7 volts.

3,827,914

ACTIVATOR FOR A RESERVE ELECTRIC CELL, AS IN A FLASHLIGHT

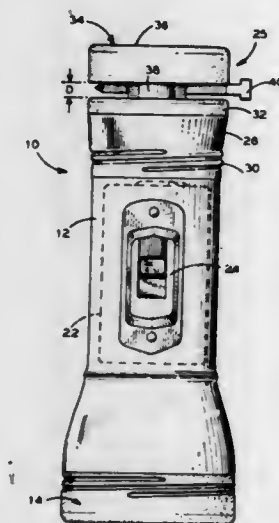
Gordon E. Kaye, Garrison, N.Y., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Filed Mar. 5, 1973, Ser. No. 338,001

Int. Cl. H01m 1/00, 21/00

U.S. Cl. 136—113

8 Claims



An activator for a cell of the reserve type is made separable and detachable from the cell or the utilization device in which the cell is incorporated, which for the present purpose is shown as a flashlight. The mechanism may be reused, as desired, for controlling subsequent reserve cells after the immediate cell has served its purpose. The activator is provided with a detent pin to prevent undesirable operation of the activator by casual external forces, and thus provides a reserve cell with restraining protection to prevent undesired activation of the cell until such activation is desired, and then the detent can be easily manually released and the activator can be manually operated, either by direct hand pressure or by reaction pressure against a stationary surface.

about 10 mils and a halogen-inert bonding agent bonding the particles together into an integral non-conductive mass which essentially retains the porosity of the particles; and an anodic electrode having a coating of such electrically nonconductive particles on the electroplating surface of the electrode.

3,827,916

LOW TEMPERATURE MERCURY OXIDE-ZINC BATTERY

Franklin G. Fagan, Jr., Ossining, N.Y., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Sept 1, 1972, Ser. No. 285,763

Int. Cl. H01m 21/06

U.S. Cl. 136—20

8 Claims

A mercury oxide-zinc cell with a single or double anode structure between two concentric annular depolarizer cylinders, with interposed separator and absorbent layers as pre-wound tubes, essentially as two cell-pairs, back to back, to provide maximum exposed electrode surface areas of the depolarizer cylinders relative to the anode; with the anode or anodes being relatively thin and having about 65% porosity, and the cathode depolarizer cylinders being relatively thick of maximum attainable density; with an electrolyte having a composition of about seven molar KOH with about 2% Zinc Oxide; and with an absorbent consisting of a non-woven mat of polyamide (nylon) fibers; with the two cell-pairs having equal energy capacities so both will be exhausted in equal time periods.

3,827,915

IN A BATTERY, A HALOGEN RETENTION VENT MEANS

Ralph Zito, Jr., Westford, Mass., assignor to The Zito Company, Inc., Derry, N.H.

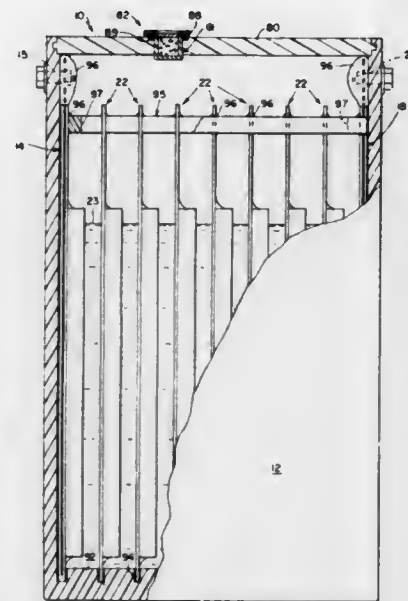
Original application Feb. 3, 1971, Ser. No. 112,254, now Patent No. 3,719,526. Divided and this application Oct. 30, 1972, Ser. No. 302,260

Int. Cl. H01m 1/06

U.S. Cl. 136—179

2 Claims

Electrode structures for a rechargeable metal halide battery include: a cathodic electrode comprising a halogen-inert electroconductive layer and bonded to one of the major surfaces thereof, a halogen-entrapment structure comprising a halogen-adsorbent layer and a surface layer comprising porous, electrically non-conductive halogen-inert, electrolyte-inert, and halogen non-adsorbent particles, having an average largest dimension less than



3,827,917

ALUMINUM ELECTRICAL CONDUCTOR AND PROCESS FOR MAKING THE SAME

Paul P. Zeigler, Oakland, and Sidney G. Roberts, Livermore, Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

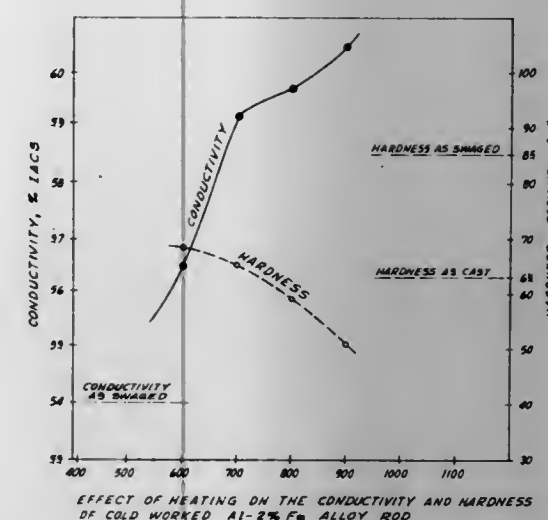
Continuation-in-part of abandoned application Ser. No. 834,333, June 18, 1969. This application May 12, 1971, Ser. No. 142,505

Int. Cl. C22f 1/04

U.S. Cl. 148—2

13 Claims

This disclosure relates to alloys of aluminum suitable for use as electrical conductors. The alloys contain from in excess of 1% to about 3% by weight iron and are treated so that the particle size and distribution of the intermediate phases containing iron are controlled whereby



these iron constituent particles impart strength, ductility and resistance to softening at elevated temperatures to the aluminum without prohibitively degrading its conductivity.

3,827,918

ELECTRICAL CONDUCTORS WITH CHROMATE SOLDER BARRIER AND METHOD OF FORMING

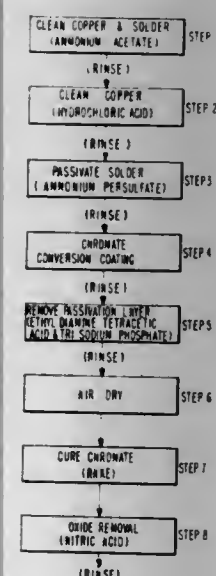
Thomas J. Ameen, Endicott, and Nimrod N. Mesley, Endwell, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 25, 1972, Ser. No. 256,735

Int. Cl. B44d 1/18; C23f 7/26

U.S. Cl. 117—6.2

17 Claims



Printed circuit conductors are selectively coated with a chromate conversion film to confine molten solder to

selected areas during reflow and thereby prevent wicking. Methods of application allow immersion coating of the chromate, either with or without solidified solder present in the selected areas. With solder present, a passivation layer is formed on the solder to prevent chromate deposition, and without the presence of solder a removable protective resist is applied to prevent chromating on the selected areas. The chromate conversion coating withstands successive flux applications and reheating for repetitive assembly and disassembly of the solder joints without allowing solder runback.

3,827,919

BERYLLIUM SURFACE TREATMENT

Robert F. Keating, Syosset, N.Y., assignor to Sun Chemical Corporation, New York, N.Y.

No Drawing. Filed Nov. 29, 1971, Ser. No. 203,025

Int. Cl. C23f 11/00

U.S. Cl. 148—6.16

14 Claims

Beryllium surfaces are treated in a two step process to remove corrosion products and prevent future corrosion. The process comprises a corrosion removal treatment which utilizes an oxalic acid solution containing a surfactant such as a linear alkyl aryl sulfonic acid and a passivation treatment which utilizes a solution containing phosphoric acid, hexavalent chromium ions and a surfactant such as a linear alkyl aryl sulfonic acid. The presence of the surfactant in both solutions reduces the surface tension so that the solutions penetrate the porous structure of the beryllium surface resulting in effective corrosion removal and prevention of future corrosion.

3,827,920

METHOD FOR FORMING A WEAR-RESISTANT SURFACE ON A METAL ARTICLE

Yasunori Shimoda, Tachikawa, and Kojiro Taniguchi, Iruma, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Aug. 8, 1972, Ser. No. 278,758

Claims priority, application Japan, Aug. 9, 1971, 46/60,440

Int. Cl. C23c 7/00, 9/00, 11/14

U.S. Cl. 148—15.5

5 Claims

A method is disclosed by which a metal workpiece is coated with a wear-resistant layer which is metallurgically bonded to the surface of the base metal and which is superior in abrasion-resistant ability to the coatings which are formed by prior art methods, wherein the method comprises applying a coating of a self-fluxing alloy on the surface of the base metal and subjecting the coating to nitriding treatment or to nitriding and carburizing treatment.

3,827,921

METHOD OF MAKING A COMPOSITE ALLOY

Oleg D. Sherby, Palo Alto, Irvin C. Huseby, Sunnyvale, and Robert Whalen, East Palo Alto, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Continuation of abandoned application Ser. No. 230,396, Feb. 29, 1972. This application Feb. 26, 1973, Ser. No. 355,268

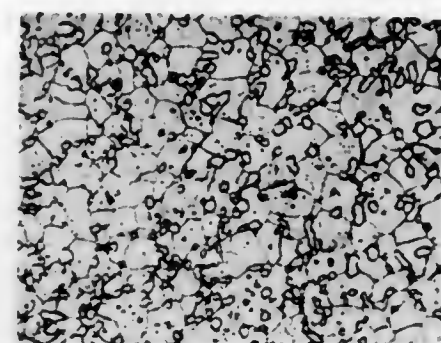
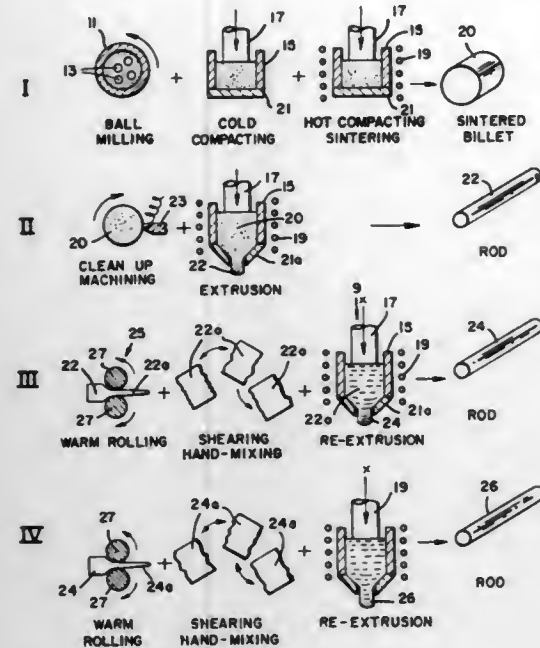
Int. Cl. C22f 1/04

U.S. Cl. 148—11.5 R

1 Claim

A magnesium-boron composite is made by mechanically mixing magnesium powders with about twenty-five percent

by volume boron powders. The mixed powders are processed by cold pressing, hot pressing, sintering, extruding, rolling, re-extruding, re-rolling, and re-extruding again.



The balance is substantially iron and carburized at 1725° F., hardened and tempered.

3,827,924

HIGH-STRENGTH ROLLED STEEL SHEETS

Hiroshi Takechi, Kisarazu, and Hiroaki Masui, Minoru Kawaharada, and Motoaki Sugiyama, Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed May 19, 1972, Ser. No. 255,019

Claims priority, application Japan, May 21, 1971, 46/34,625; Feb. 12, 1972, 47/14,321

Int. Cl. C22c 29/00

U.S. Cl. 148—36

2 Claims

A high-strength rolled steel sheet of chemical composition comprising:

C: 0.02–0.10%, Si ≤ 0.7%, Mn: 0.01–0.70%,
P: 0.05–0.25%, Al: 0.005–0.100%

with the balance being iron and unavoidable impurities.

3,827,925

METHOD OF JOINING THE WALLS OF A DOUBLE-WALLED VESSEL

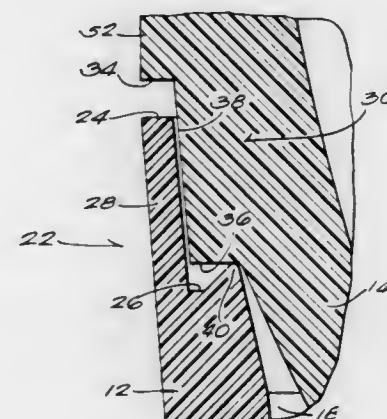
David Douglas, 1119 Lincoln Blvd., Manitowoc, Wis. 54220

Filed Oct. 6, 1972, Ser. No. 295,602

Int. Cl. B32b 31/20

U.S. Cl. 156—73

5 Claims



A sealed joint between otherwise spaced apart inner liner and outer jacket of a double-walled, i.e. insulated, vessel is formed by sonic welding. One wall, the liner or

the jacket, is provided with a shoulder defining two relatively spaced but commonly facing surfaces which, in assembly, are positioned in opposed relationship with a similar shoulder and similarly arranged surfaces on the other wall. A projection on one shoulder engages an opposed surface and functions to hold the opposed surfaces of the two walls apart initially. The liner and jacket are subjected to sonic vibrations and the projection directs the energy of the sonic vibrations to the area of limited engagement between it and the surface it engages. The projection and surface contacted thereby liquify and fuse. As liquification and fusion progresses the opposed surfaces are moved together with the sonic vibrations being continued until after the surfaces of one wall should engage and fuse with those of the other to thereby seal the space between the liner and jacket with two concentric welds.

3,827,926

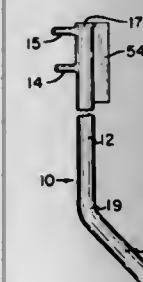
METHOD FOR MOLDING A NASAL CANNULA

Harold R. Havstad, Lakewood, Calif., assignor to Hudson Oxygen Therapy Sales Co.
Original application Mar. 22, 1971, Ser. No. 126,452, now Patent No. 3,731,900. Divided and this application Feb. 9, 1973, Ser. No. 330,963

Int. Cl. B28b 1/24

U.S. Cl. 156—242

1 Claim



A flexible nasal cannula having improved characteristics is produced in a mold cavity incorporating a forming means comprising a transverse core having straight upper portions and a lower portion extending at an angle from the upper portion and a nipple core portion comprising a pair of rod-like extensions located toward the upper end of the upper portion and which extend substantially perpendicular to its axis. In a molding process, the forming means is maintained in spacial relation within a mold cavity, a thermoplastic material is flowed within the cavity around the forming means, cooled sufficiently to set the material and thereafter the cannula is removed from the forming means.

3,827,927

METHOD OF BONDING USING IMPROVED POLYIMIDE ADHESIVES

Hyman R. Lubowitz, Hawthorne, Calif., assignor to TRW Inc., Redondo Beach, Calif.

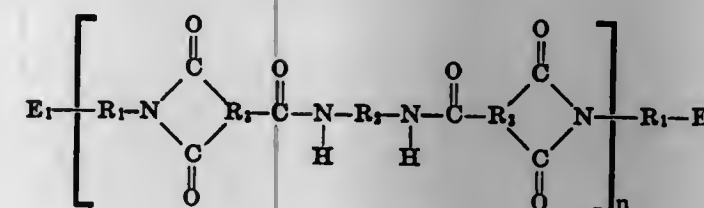
No Drawing. Filed Dec. 30, 1971, Ser. No. 214,432

Int. Cl. C09j 5/00; B32b 27/34

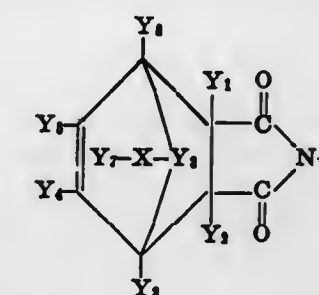
U.S. Cl. 156—331

5 Claims

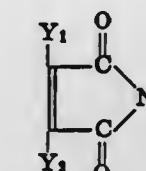
High temperature adhesives are formed by pyrolytically polymerizing compounds of the general formula



where: E₁ and E₂ are individually selected from the class consisting of



and



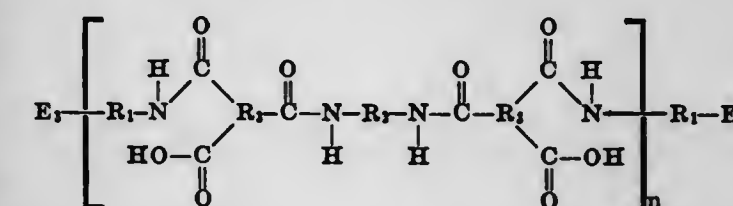
where: X is a member of the class consisting of carbon, oxygen, sulfur, and carbonyl Y₁–Y₆; and Y₇ and Y₈ when present, are individually selected from the class consisting of hydrogen, aromatic groups, substituted aromatic groups, saturated or unsaturated hydrocarbon groups having from 1 to 6 carbon atoms, alkyl ethers, aryl ethers, halogens, and nitro groups;

R₁ and R₂ are individually selected from the class consisting of aromatic groups, substituted aromatic groups, saturated and unsaturated hydrocarbon groups, saturated and unsaturated heterocyclic groups, and mixtures thereof;

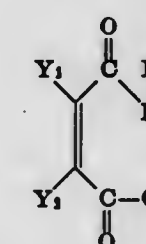
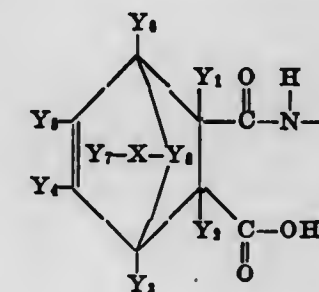
R₃ is selected from the class consisting of substituted aromatic groups, unsubstituted aromatic groups, saturated cyclic groups, unsaturated cyclic groups, saturated heterocyclic groups, and unsaturated heterocyclic groups, and

n is one or more for a single prepolymer and statistically greater than 0 for a mixture.

The adhesives may also be formed by pyrolytically polymerizing the novel amic-acid precursors of said prepolymers which are characterized by the formula



where: E₃ and E₄ are individually selected from the class consisting of



where:

X₁, Y₁–Y₆ and Y₇ and Y₈ are defined as defined above; and R₁, R₂, and R₃ and n are as described above.

3,827,928

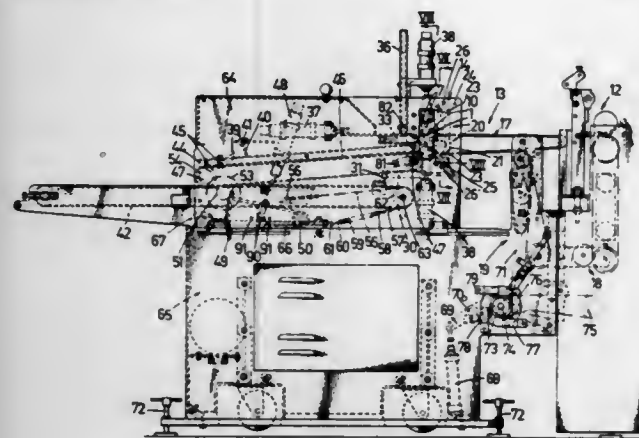
METHOD FOR MANUFACTURING SHOPPING BAGS AND DEVICE FOR THE WORKING THEREOF

Edouard Louis van de Gent, Meise, Belgium, assignor to Printex, Neder-over-Heembeek, Belgium
Filed Oct. 19, 1971, Ser. No. 190,562

Claims priority, application Belgium, Oct. 20, 1970, 95,332

Int. Cl. B31b 19/74; B32b 31/20

U.S. Cl. 156—423



Method for manufacturing shopping bags from sealable plastic material with two handles, in particular bags provided with side bellows, which comprises spreading apart the walls of the bag, introducing inside the bag the handle portions to be welded onto the said walls along a direction opposite to the bag movement direction, bringing the walls of the bag into contacting relationship with the handles, simultaneously welding the handles and releasing the bag provided with its handles in the bag movement direction, the device for working such method which comprises feeding means for the bags with a stepwise movement so as to bring one by one the bag opening directed along the feeding direction, under sealing jaws for on the one hand, spreading the bag walls from one another adjacent the opening thereof and on the other hand, releasing said walls, and means for simultaneously introducing inside the bag, those parts of both handles which are to be joined to the inner sides of the bag walls.

3,827,929

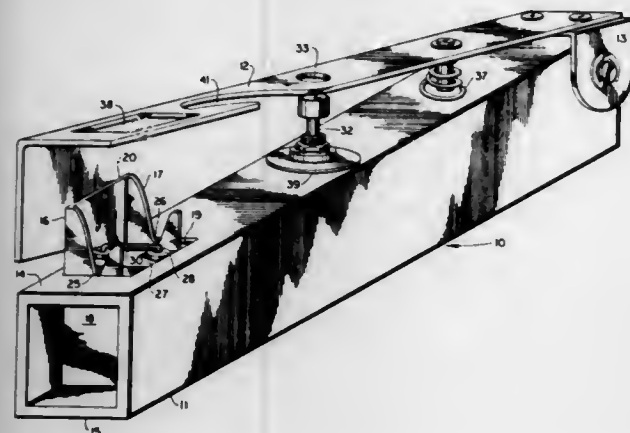
APPARATUS FOR JOINING THERMOPLASTIC MATERIAL

D. Wayne Bledsoe, 1928 Dug Gap Road, Dalton, Ga. 30720, and R. Alton Cadenhead, P.O. Box 810, Fitzgerald, Ga. 31750

Filed Sept. 1, 1972, Ser. No. 285,901

Int. Cl. B65h 69/06, 69/08

U.S. Cl. 156—502



The apparatus includes supports which position and hold ends of thermoplastic yarn or similar material, and

includes a heating element which melts the thermoplastic material to join the yarn ends at the point of heating. Clamping apparatus maintains the yarn ends in position on the heating element. The yarn ends are aligned side-by-side during the joining operation, and the joint can be straightened and smoothed before the melted yarn material cools to its original linear relationship.

3,827,930

PRODUCTION OF POLYURETHANE FILM/SPLIT LEATHER LAMINATE

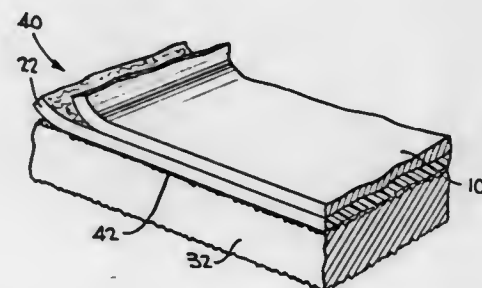
Robert G. Sutton, Philadelphia, Pa., assignor to Norwood Industries, Inc., Malvern, Pa.

Application Mar. 9, 1970, Ser. No. 17,572, now Patent No. 3,713,938, which is a continuation-in-part of applications Ser. No. 659,101, Aug. 8, 1967, and Ser. No. 737,116, June 14, 1968. Divided and this application Oct. 20, 1971, Ser. No. 191,039

Int. Cl. B32b 3/10

U.S. Cl. 161—64

3 Claims



Production of laminated articles by casting and drying a layer of a fully-reacted polyurethane material on a release treated carrier in a manner to form a moisture-vapor-permeable and moisture-impermeable film, one or more hides of split leather being bonded to the supported film through a moisture vapor-permeable tie-coat of a compatible adhesive, and the carrier then being removed. The resultant split leather/polyurethane film product has the appearance and other properties of top-grain leather.

3,827,931

SHOCK-PROOF NYLON CARPET SYSTEM

Ronald Edward Rothwell, Colonial Heights, Va., and Cipriano Cipriani, Morristown, N.J., assignors to Allied Chemical Corporation, Morristown, N.J.

No Drawing. Filed July 19, 1972, Ser. No. 273,064

Int. Cl. D03d 27/00

U.S. Cl. 161—67

13 Claims

A shock-proof carpet system having a face yarn of textured nylon containing up to about twelve weight percent of an internal additive selected from ethylene oxide condensation products, a primary backing of jute or spunbonded synthetic material with or without metal fibers woven into the said backing, a tuft-locking latex made electrically conductive by the additive of up to about ten weight percent of an antistatic material and/or having a fine gauge metallic film, screen, or a mat of metal fibers imbedded therein, and a standard secondary backing.

3,827,932

POLYACRYLONITRILE SYNTHETIC FIBER AND A PROCESS OF MANUFACTURING THE SAME

Zen-ichi Orito, Nagoya, Hiroshi Sugimoto, Kyoto, Minoru Uchida, Hajime Sahara, and Masatoshi Takesue, Nagoya, and Kiyoharu Nishida, Kariya, Japan, assignors to Mitsubishi Rayon Company Limited, Tokyo, Japan

Filed July 13, 1971, Ser. No. 162,121

Int. Cl. D02g 3/02, 3/24; D06m 3/18

U.S. Cl. 161—172

7 Claims

An acrylonitrile synthetic fiber having a fur-like configuration, touch and feeling to the hand, is composed of

a thicker middle portion and finer tapering portions which extend from the thicker middle portion and have a length longer than ten times the average diameter of the



thicker middle portion and an average diameter shorter than half of the average diameter of the thicker middle portion, and have numerous asymmetrical ridges on its surface.

3,827,933

FILLED POLYMETHYL METHACRYLATE ARTICLE AND A PROCESS FOR ITS MANUFACTURE

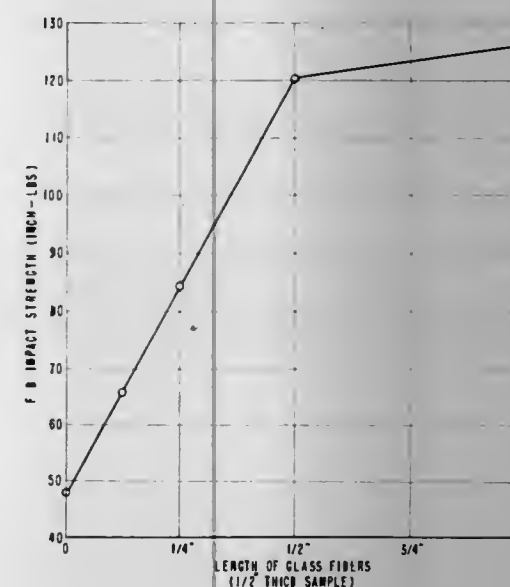
Ray B. Duggins, Chadds Ford, Pa., and Henry C. Miller, Wilmington, and Eustachios Vassiliou, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 3, 1972, Ser. No. 240,650

Int. Cl. C08f 45/10

U.S. Cl. 161—176

16 Claims



Disclosed herein is a filled polymethyl methacrylate article which, by virtue of the fact that it contains 50 to 80 percent by weight of particulate hydrate of alumina and 4 to 20 percent by weight of glass filaments preferably disposed within the article in discrete bundles aligned parallel to the plane of the article, is weather resistant, fire resistant and tough.

3,827,934

PROCESS FOR PRODUCING HIGH STRENGTH, HIGH YIELD HARDWOOD PULP

Michael B. Ringley, Charleston Heights, and Pauli O. Wendell, Charleston, S.C., assignors to Westvaco Corporation, New York, N.Y.

Filed June 28, 1971, Ser. No. 157,418

Int. Cl. D21c 3/26

U.S. Cl. 162—28

1 Claim

High strength, high yield hardwood pulps are produced by partially fiberizing hardwood fibers during digestion, removing digestion chemicals from the fibers by applying sufficient mechanical force to the fibers to separate said fibers and thereafter washing said fibers and further refining said fibers at a rate sufficient to cause fiberization along the fiber surfaces by interfiber friction without substantially fracturing said fibers. The hardwood pulp produced has a William slowness of less than 18 seconds for a 3-gram sample, a 200 ml. K number of at least 500 and a dirt level of less than 4.0.

3,827,935

APPARATUS FOR IN-CORE INSTRUMENTATION OF PRESSURIZED WATER REACTORS

Wolf Gruner, Hans-Peter Schabert, and Franz Schubert, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

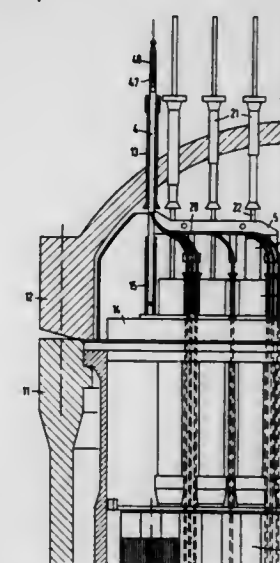
Filed Oct. 7, 1970, Ser. No. 78,669

Claims priority, application Germany, Oct. 24, 1969, P 19 53 605.1

Int. Cl. G21c 17/10

U.S. Cl. 176—19 R

13 Claims



A nuclear reactor of the pressured water type is equipped with in-core instrumentation apparatus which has vertically displaceable instrumentation shafts passing from above through the head cover of the reactor pressure vessel. Yoke structures extend horizontally from each instrumentation shaft in the space between the cover and the core assembly. Finger-like groups of rigid instrument guide tubes for respective measuring probes extend from each yoke downwardly into the core assembly.

3,827,936

PROCESS FOR PREPARING CYCLIC ADENOSINE MONOPHOSPHATE

Yoshiaki Shimizu, Toshio Tatano, Yoshiyuki Akiyama, and Akira Yamaguchi, Shizuoka, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed Oct. 1, 1971, Ser. No. 194,688

Claims priority, application Japan, Nov. 2, 1970, 45/95,876

Int. Cl. C12d 13/06

U.S. Cl. 195—28 N

14 Claims

The present invention relates to a process for preparing cyclic adenosine monophosphate (hereinafter design-

nated as "cyc-AMP") in good yield. More particularly, the present invention relates to a process for preparing cyc-AMP (i.e. adenosine-2', 3'-phosphate) by way of enzymatic synthesis in which the adenosine phosphate, such as adenosine monophosphate (hereinafter designated as "AMP"), adenosine diphosphate (hereinafter designated as "ADP"), adenosine triphosphate (hereinafter designated as "ATP") etc. is reacted with an enzyme substrate obtained by fermentation of a microorganism having an adenylcyclase-activity, and characterized in that the reaction is carried out in the presence of at least one chelating agent.

3,827,937

METHOD OF PRODUCING PULLULAN

Koso Kato and Makoto Shiosaka, Okayama, Japan, assignors to Hayashibara Biochemical Laboratories, Incorporated, Okayama-ken, Japan
No Drawing. Filed Oct. 2, 1972, Ser. No. 294,167
Claims priority, application Japan, Oct. 11, 1971, 46/79,413

Int. Cl. C12b 1/00

U.S. Cl. 195—31 P

8 Claims

Pullulan is produced by aerobic, microbial fermentation of starch hydrolyzate having a dextrose equivalent (D.E.) of 20-70 in yields superior to those achieved heretofore by fermentation of sucrose or glucose, which are more costly carbon sources.

3,827,938

ENZYME PRODUCTS

Knud Aunstrup, Farum, and Otto Andresen, Maalov, Denmark, assignors to Novo Terapeutisk Laboratorium A/S, Bagsvaerd, Denmark

Filed May 15, 1972, Ser. No. 253,461

Claims priority, application Great Britain, May 28, 1971, 18,201/71

Int. Cl. C12d 13/10

U.S. Cl. 195—62

3 Claims

An alkaline proteolytic enzyme obtained by submerged aerobic cultivation of the microorganism *Bacillus firmus* NRS 783.

3,827,939

PROCESS FOR MAKING A PROTEASE FOR FOODSTUFFS

Tatsuro Tanaka, Kyoto, Masaki Terada and Mitsumune Takatsu, Osaka, and Shobei Otani, Hyogo, Japan, assignors to Nissin Shokuhin Kaisha, Ltd., Takatsuki, Osaka, Japan

Filed Feb. 22, 1972, Ser. No. 228,072

Claims priority, application Japan, June 23, 1970, 45/56,360; Aug. 13, 1970, 45/71,043

Int. Cl. C12d 13/10

U.S. Cl. 195—66 R

1 Claim

An improved method for making protein-containing foodstuffs is provided through the treatment of the protein with a protease which allows a breakdown of the protein into simpler peptide units. A method for obtaining the novel protease of the invention is provided by culturing the microorganism *Streptomyces tanakasis* sp. 4680.

3,827,940

PREPARATION OF α -1,6-GLUCOSIDASE

Kaname Sugimoto, Mamoru Hirao, and Kazuo Masuda, Okayama, Japan, assignors to Hayashibara Company, Okayama-shi, Okayama, Japan

Continuation of abandoned application Ser. No. 810,293, Mar. 25, 1969. This application Mar. 23, 1972, Ser. No. 237,578

Claims priority, application Japan, Apr. 1, 1968, 43/21,364

Int. Cl. C07g 7/028

U.S. Cl. 195—66 R

4 Claims

α -1,6-glucosidases which are capable of selectively hydrolyzing the α -1,6-glucoside bonds of starch and

which have high heat resistance and activity are produced from strains of bacteria belonging to the genus *Agrobacterium*, *Azotobacter*, *Bacillus*, *Erwinia*, *Lactobacillus*, *Leuconostoc*, *Micrococcus*, *Mycobacterium*, *Nocardia*, *Pediococcus*, *Sarcina*, *Serratia*, *Staphylococcus* and *Streptococcus*.

3,827,941

MICROBIAL CONVERSION OF 11-ACETYL-ERYTHROMYCIN B TO ERYTHROMYCIN B

Robert John Theriault, Kenosha, Wis., and William Leonard Kohl, Spring Grove, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,061

Int. Cl. C12b 1/00

U.S. Cl. 195—80

1 Claim

Covers a method of performing the microbial conversion of 11-acetylerythromycin B to erythromycin B.

3,827,942

BLOOD AGAR CULTURE MEDIUM

Alice Marie Janik, Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Nov. 13, 1972, Ser. No. 305,976

Int. Cl. C12k 1/10

U.S. Cl. 195—100

10 Claims

A blood agar bacteriological culture medium having improved storage life is formed from a solidified aqueous mixture of agar, tryptose, polyvinylpyrrolidone, sodium chloride or sorbitol and blood the cells of which have been pretreated with a mixture of adenine and inosine. This culture medium can be placed in a petri dish to form a pre-poured culture plate or it can be formed on a suitable substrate and partially dehydrated to form a rehydratable culture pad.

3,827,943

CULTURE APPARATUS

George Forbes Mann, London, England, assignor to Burroughs Wellcome Co., Research Triangle Park, N.C.

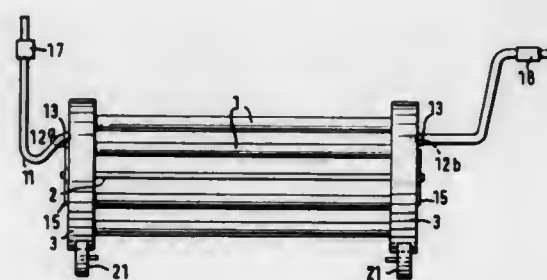
Filed Sept. 9, 1971, Ser. No. 179,032

Claims priority, application Great Britain, Sept. 17, 1970, 44,432/70

Int. Cl. C12b 1/04

U.S. Cl. 195—127

10 Claims



A culture vessel, comprising a plurality of parallel culture tubes of substantially uniform length mounted around a centrally positioned supporting member by manifold plates at each of its two ends exerting axial pressure on the tubes to seal the ends thereof, the two plates (a) having communicating channels, which are adapted to interconnect all the tubes and are provided with a common inlet/outlet first opening on one of the end-plates which can be connected to a service tube equipped with flow controlling means, and a common second opening on the other end-plate which can be used with a filter tube, (b) being mounted on the supporting member and (c) being adapted to locate and hold the tubes to form a sealed vessel capable of being detached from general supporting means and being rolled by driving means, and its use in the cultivation of microbiological material in liquid suspension.

3,827,944

WAX CRYSTAL GROWTH CONTROL IN OIL DEWAXING PLANTS

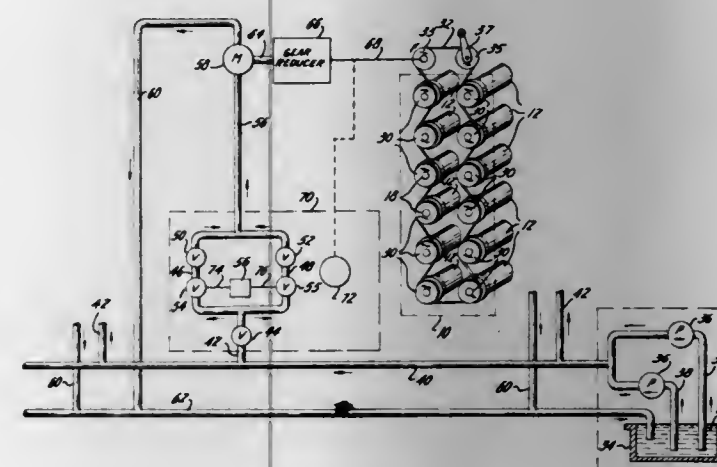
Rino L. Godino, Livingston, and Oliver Morfit, Green Village, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.

Filed May 24, 1973, Ser. No. 363,707

Int. Cl. C10g 43/00; B01d 9/04

U.S. Cl. 196—14.5

12 Claims



The rate of wax crystal growth in an oil dewaxer having cooled pipes through which the oil is flowed and in which scrapers are rotated to remove the wax, is controlled to assure efficient filter operation downstream. The scrapers are rotated at a comparatively slow rotational speed for a given period of time to provide for optimum growth rate of wax crystals and then automatically rotated at a higher rate of speed to clean the interior of the pipe so that the wax can continue to crystallize.

3,827,945

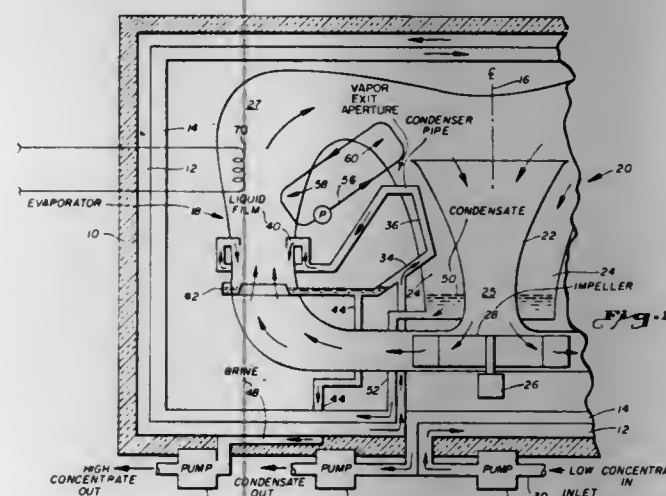
DISTILLATION APPARATUS

James D. Wixson, 902 Marine St., Boulder, Colo. 80302
Original application Aug. 6, 1969, Ser. No. 850,325, now Patent No. 3,637,465. Divided and this application Jan. 24, 1972, Ser. No. 220,391

Int. Cl. B01d 3/00, 3/08, 3/28

U.S. Cl. 202—177

8 Claims



The invention relates to purification of liquids by distillation. Processes of this nature have long been known. One well known example is the conversion of sea water to fresh water by distillation. The purpose of the invention is to accomplish the distillation with maximum efficiency. As is well known, in distilling a liquid the impure liquid is heated so as to vaporize the portion of the liquid sought to be recovered, thereby separating the material to be recovered from the material to be rejected by virtue

of the fact that they exist in different phases. Having separated the components by phase the vapor is then transferred to another region where its temperature is lowered so that it condenses in a region separate from the impure mixture and thus is recovered.

3,827,946

METHOD FOR THE DISPOSAL OF COMBUSTIBLE AND DILUTE AQUEOUS WASTES

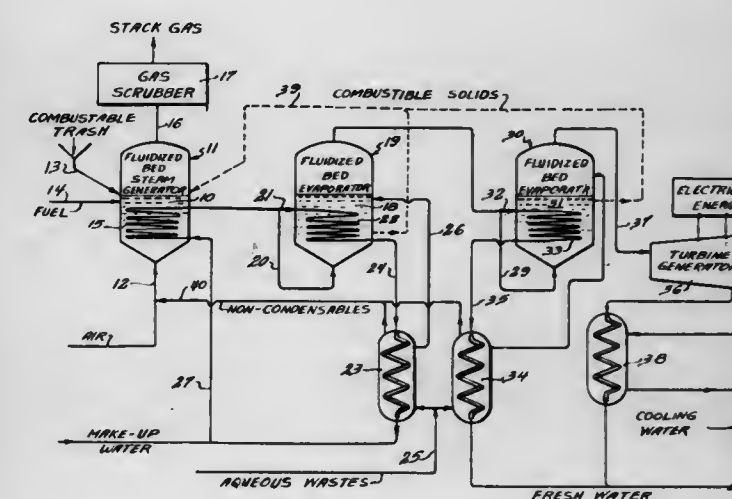
Earl S. Grimmatt and Philip E. Lamont, Idaho Falls, Idaho, assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed June 5, 1972, Ser. No. 259,797

Int. Cl. B01d 3/00

U.S. Cl. 203—10

2 Claims



A method for the disposal of combustible and dilute aqueous wastes in which potable water and useful power are produced. Combustible waste, together if necessary with conventional fuel, is burned in a fluidized-bed steam generator; the steam thus produced is used to evaporate dilute aqueous wastes in the first stage of a two-stage fluidized-bed evaporator; the steam in the first stage is used to evaporate dilute aqueous wastes in the second stage of the two-stage fluidized-bed steam generator; the steam produced in the second stage is used to generate power; and the spent steam from the first and second fluidized-bed evaporators is condensed as potable water.

3,827,947

PURIFICATION OF 3,5-XYLENOL BY EXTRACTIVE DISTILLATION

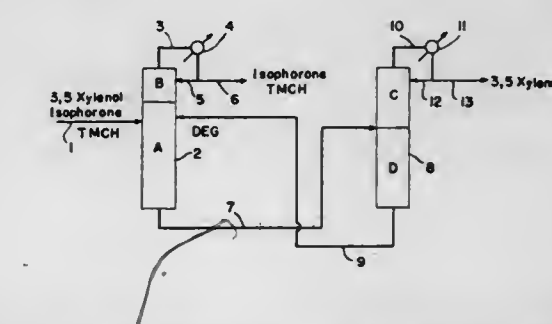
Frank W. Melpolder, Wallingford, Pa., Edward G. Guetens, Glendora, N.J., and Walter A. Mameniskis, Drexel Hill, Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Feb. 28, 1973, Ser. No. 336,858

Int. Cl. B01d 3/40; C07c 37/38

U.S. Cl. 203—64

5 Claims



Method for the separation of isophorone and other impurities from 3,5-xyleneol by extractive distillation with hydroxylated solvents, in particular diethylene glycol.

3,827,948

METHOD FOR DETECTING CANCER TISSUE BY POLAROGRAPH

Shun-ichi Hata, Yokohama, Japan, assignor to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan
Filed July 9, 1973, Ser. No. 377,437
Claims priority, application Japan, July 27, 1972, 47/74,635
Int. Cl. G01n 27/48

U.S. Cl. 204—1 T

10 Claims

A method for detecting a cancer tissue by measuring a polarographic wave in the range of from -1.0 to -2.0 v. vs. S.C.E. on an extract of a suspected tissue at a pH value of from 5 to 7 in the presence of an alkali metal halide to determine the presence of a polarographic wave at around -1.90 to -1.95 v. vs. S.C.E. which is a characteristic of the cancer tissue is disclosed.

3,827,949

ANODIC OXIDE PASSIVATED PLANAR ALUMINUM METALLURGY SYSTEM AND METHOD OF PRODUCING

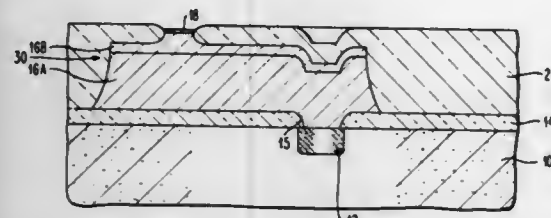
Valeria Platter and Geraldine C. Schwartz, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 29, 1972, Ser. No. 239,082

Int. Cl. C23b 5/48; H01l 11/00

U.S. Cl. 204—15

10 Claims



A method of fabricating an anodic oxide passivated aluminum interconnection metallurgy system on a semiconductor material having an overlying insulating layer by depositing a layer of aluminum on this substrate, anodizing the aluminum layer to form a surface layer of Al_2O_3 , depositing, exposing, and developing a photoresist layer on the surface of the Al_2O_3 layer which overlies the desired metallurgy pattern, removing the exposed portions of the Al_2O_3 layer, anodizing the exposed aluminum in an anodizing bath to produce a porous Al_2O_3 layer.

3,827,950

METHOD FOR ANODIC OXIDATION OF THE INTERIOR SURFACE OF A HOLLOW NIOBIUM BODY PROVIDED WITH AT LEAST ONE OPENING

Heinrich Diepers, Erlangen-Bruck, and Otto Schmidt and Reinhard Kress, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

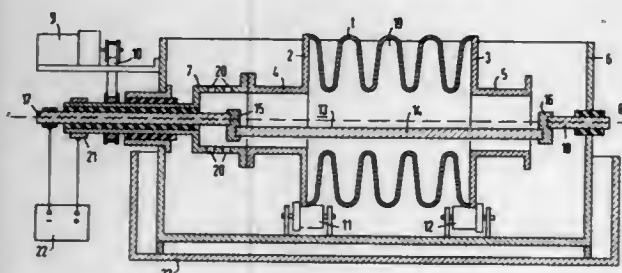
Filed Sept. 15, 1972, Ser. No. 289,547

Claims priority, application Germany, Sept. 18, 1971, P 21 46 785.6

Int. Cl. C23b 5/56, 5/78

U.S. Cl. 204—26

9 Claims



The invention relates to a method for the anodic oxidation of the interior surface of a hollow niobium body

provided with at least one opening. In order to avoid the usually occurring disturbing effects of the gases produced at the cathode during the polishing of the niobium layer, the hollow niobium body, according to the invention, is immersed only partially in the electrolyte and is arranged rotatably about an axis extending through the opening in such a manner that in any position of the niobium body a vapor space exists which is connected with the external environment through the opening between the electrolyte level and all parts of the interior surface of the niobium body situated above the electrolyte level, and that, as the niobium body rotates, the individual parts of its interior surface are successively immersed in the electrolyte, but no part of the interior surface remains continually in the electrolyte.

The cathode is introduced into the hollow niobium body through the opening and is disposed in the electrolyte in such a manner that the portion of the electrolyte through which gases formed at the cathode, during the passage of current, rise to the surface of the electrolyte, is remote from the immersed portions of the interior surface of the hollow niobium body.

During the oxidation process the hollow niobium body is continuously rotated about the axis of rotation. The anodic oxidation of the surfaces of hollow niobium bodies by the present process improves the properties thereof. The process is particularly adapted for use in polishing cavity resonators, particle separators and cable sleeves.

3,827,951

CONTINUOUS FORMING OF ANODES FOR CAPACITORS

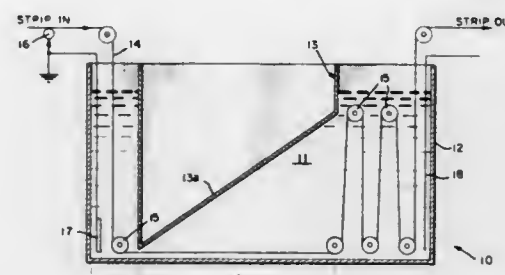
Milton Kallianides, Brockton, and Gerhard P. Klein, Manchester, Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Application Feb. 19, 1971, Ser. No. 117,023, now Patent No. 3,736,237, which is a division of application Ser. No. 880,487, Dec. 10, 1969, now Patent No. 3,616,425, which in turn is a continuation of abandoned application Ser. No. 670,723, Sept. 26, 1967. Divided and this application May 22, 1972, Ser. No. 255,894

Int. Cl. B01k 3/00; C23b 9/00

U.S. Cl. 204—28

4 Claims



A tank for an electrolyte is functionally divided into three sections for the continuous generation of anodic oxide on an endless moving strip passing through the tank.

3,827,952

ALUMINUM ALLOY ARCHITECTURAL SHEET PRODUCT AND METHOD FOR PRODUCING

Edmund C. Franz, Pittsburgh, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

No Drawing. Filed Sept. 20, 1972, Ser. No. 290,653

Int. Cl. C23b 9/02; C22f 1/04

U.S. Cl. 204—29

12 Claims

Improved aluminum alloy sheet containing silicon, copper and chromium in controlled amounts and having a high purity aluminum base is capable of producing integrally colored anodic coatings and is highly formable. The integral coatings can range in color from gold through bronze shades to a true black. The alloy has im-

proved corrosion resistance and is highly suited for architectural applications. The production of the alloy sheet product includes a high temperature homogenization together with controlled hot and warm rolling practices to achieve a fine internal structure.

3,827,953

PROCESS FOR COATING REFRACTORY METALS WITH OXIDATION-RESISTANT METALS

Charles W. Haldeman, Lexington, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Aug. 19, 1969, Ser. No. 851,258

Int. Cl. C23b 5/52

U.S. Cl. 204—37 R

7 Claims

A nonadherent electroplate of porous spongy platinum is electrodeposited upon a tungsten surface. This material is then fused in an abnormal glow-discharge furnace or tube to produce a melted layer of coating on the surface and a solid solution bond between the two metals.

3,827,954

ELECTRODEPOSITION OF METALLIC BORIDE COATINGS

Frank X. McCawley, Cheverly, Md., Charlie Wyche, Washington, D.C., and David Schlain, Greenbelt, Md., assignors to the United States of America as represented by the Secretary of the Interior

No Drawing. Continuation-in-part of application Ser. No. 816,020, Apr. 14, 1969, now Patent No. 3,697,390. This application Aug. 17, 1972, Ser. No. 281,353. The portion of the term of the patent subsequent to Oct. 10, 1989, has been disclaimed

Int. Cl. C23b 5/00

U.S. Cl. 204—39

9 Claims

Titanium diboride is electroplated on conductive substrates from a fused, borate-type bath. Use of a titanium diboride anode allows increased plating rates, enhances bath stability and decreases bath conditioning time compared to use of a titanium metal anode.

3,827,955

CLEANING WASTE GASES CONTAINING HYDROGEN FLUORIDES FROM AN ELECTROLYTIC FURNACE FOR ALUMINUM PRODUCTION

Marcel Bahri, Duvnas, and Kurt Carlsson, Vaxjo, Sweden, assignors to AB Svenska Flaktfabriken, Nacka, Sweden

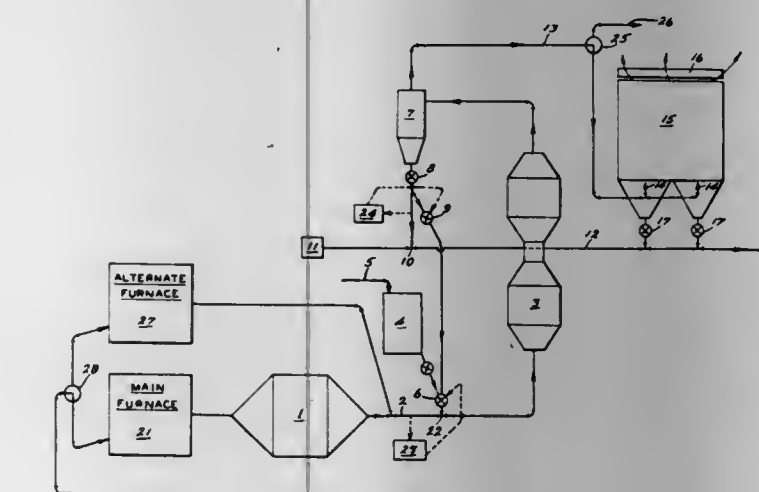
Filed Sept. 29, 1972, Ser. No. 293,496

Claims priority, application Sweden, Oct. 27, 1971, 13,676/71

Int. Cl. C22d 3/12, 3/02

U.S. Cl. 204—67

6 Claims



Alumina is injected into the waste gases in an amount controlled according to the concentration of hydrogen fluoride therein. The gases are caused to flow turbulently through a reactor and then through separators so that the

alumina (and adsorbed hydrogen fluoride) may be directed into the furnaces and the cleansed gases may be discharged.

3,827,956

PHOTOPOLYMERIZABLE PIGMENTED VEHICLES CONTAINING CHLOROSULFONATED OR α -HALOALKYLATED BENZANTHRONE INITIATORS

Vincent Daniel McGinniss, Middleburgh Heights, Ohio, assignor to SCM Corporation, Cleveland, Ohio
No Drawing. Filed Jan. 12, 1973, Ser. No. 323,087

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.23

9 Claims

Photopolymerization of ethylenically unsaturated organic compounds utilizing photosensitive catalysts of the halogenated polynuclear ketone type is disclosed. Rapid polymerization or cure is observed even in the presence of organic and inorganic pigments.

3,827,957

PHOTOPOLYMERIZABLE PIGMENTED VEHICLES CONTAINING CHLOROSULFONATED OR α -HALOALKYLATED POLYNUCLEAR KETONE INITIATORS

Vincent Daniel McGinniss, Middleburgh Heights, Ohio, assignor to SCM Corporation, Cleveland, Ohio
No Drawing. Filed Jan. 12, 1973, Ser. No. 323,031

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.23

8 Claims

Photopolymerization of ethylenically unsaturated organic compounds utilizing photosensitive catalysts of the halogenated polynuclear ketone type is disclosed. Rapid polymerization or cure is observed even in the presence of organic and inorganic pigments.

3,827,958

PHOTOPOLYMERIZABLE PIGMENTED VEHICLES CONTAINING CHLOROSULFONATED OR α -HALOALKYLATED FLUORENONE INITIATORS

Vincent Daniel McGinniss, Middleburgh Heights, Ohio, assignor to SCM Corporation, Cleveland, Ohio
No Drawing. Filed Jan. 12, 1973, Ser. No. 323,088

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.23

9 Claims

Photopolymerization of ethylenically unsaturated organic compounds utilizing photosensitive catalysts of the halogenated polynuclear ketone type is disclosed. Rapid polymerization or cure is observed even in the presence of organic and inorganic pigments.

3,827,959

PROCESS FOR PHOTOPOLYMERIZATION WITH CARBONYLATED PHENYL NUCLEAR SULFONYL CHLORIDE SENSITIZER

Vincent Daniel McGinniss, Middleburgh Heights, Ohio, assignor to SCM Corporation, Cleveland, Ohio
No Drawing. Filed Jan. 12, 1973, Ser. No. 323,032

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.24

4 Claims

U.V. polymerization of a photopolymerizable vehicle is improved by incorporating into the vehicle about 0.5–5% by weight of a carbonylated phenyl nuclear sulfonyl chloride.

3,827,960

PROCESS FOR PHOTOPOLYMERIZATION WITH CARBONYLATED POLYNUCLEAR SULFONYL CHLORIDE SENSITIZERS

Vincent Daniel McGinniss, Middleburgh Heights, Ohio, assignor to SCM Corporation, Cleveland, Ohio
No Drawing. Filed Jan. 12, 1973, Ser. No. 323,086

Int. Cl. C08d 1/00; C08f 1/16

U.S. Cl. 204—159.24

7 Claims

U.V. polymerization of a photopolymerizable vehicle is improved by incorporating into the vehicle about 0.5–5% by weight of a carbonylated polynuclear sulfonyl chloride.

3,827,961 METHOD FOR PURIFYING IONICALLY CONDUCTING SOLUTIONS

Denis Doniat, Moillesulaz, Augusto Porta, Troinex, Geneva, and Jacques Mosetti, Grand-Lancy, Geneva, Switzerland, assignors to Battelle Memorial Institute, Carouge, Geneva, Switzerland

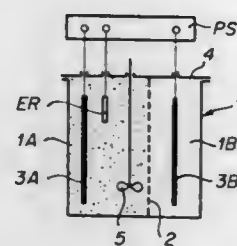
Filed Aug. 31, 1971, Ser. No. 176,572

Claims priority, application Switzerland, Sept. 15, 1970, 13,661/70

Int. Cl. B01k 5/00

U.S. Cl. 204—180 R

4 Claims



For purifying ionically conducting solutions by electroadsorption, two collector electrodes separated by a porous partition are used to produce an electrical field in the solution to be purified. At least on one side of the partition, the solution is brought into contact with particles of an adsorbent, electrically conducting material for adsorbing at least one constituent of the solution. Relative movement of the solution with respect to the corresponding electrode provides simultaneous electrical contact between the electrode, the solution and the particles. The electrode is at a given potential with respect to the solution and brings the adsorbent particles to the same potential so as to provide electroadsorption of the constituent.

3,827,962

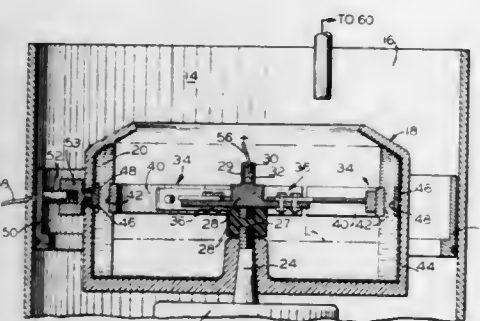
APPARATUS FOR ELECTRODEPOSITION OF METALS UNDER THE INFLUENCE OF A CENTRIFUGAL FORCE FIELD

Iqbal Ahmad, 18 Barney Road, Elnora, N.Y. 12065
Original application Jan. 21, 1969, Ser. No. 792,683.
Divided and this application June 1, 1971, Ser. No. 148,947

Int. Cl. C23b 5/68

U.S. Cl. 204—212

3 Claims



This invention relates to the electrodeposition of metals and alloys and provides process and apparatus for depositing metals under the influence of centrifugal force to increase the efficiency of the operation and produce metal deposits of superior quality respective to density and modulus of elasticity.

3,827,963 REFLECTIVITY-RESPONSIVE CONTROL SYSTEM FOR ELECTROLYTIC FINISHING APPARATUS

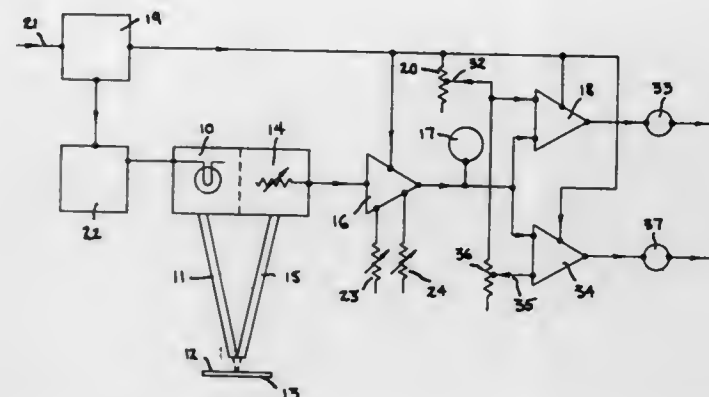
Norman F. Callahan, Stevenson, Conn., assignor to Electrometallurgical Sales, Division of the Gilbert Tramer Co., Cleveland, Ohio

Filed Jan. 2, 1973, Ser. No. 320,519

Int. Cl. B01k 3/00; C23b 9/02

U.S. Cl. 204—228

11 Claims



In connection with apparatus for anodizing aluminum or electroplating metals and the like, the work-piece which is to be subjected to the electrolysis is held or clamped in a fixture in the electrolytic bath so as to have a regulated light beam focused upon it during the process of electrolysis. The intensity of the light reflected from the work-piece is sensed by a transducer in the form of a photo-electric cell which converts it into an electrical current whose voltage is amplified and fed to an electrical comparator, in the form of a potentiometer, which monitors the changing voltage as the electrolysis of the work-piece proceeds. A target voltage for the comparator is established by one of several alternative means, and when balance is achieved between the target voltage and the transduced reflected light voltage, a process-arrest circuit is actuated or energized which can directly terminate the electrolytic process or can activate a signal by means of which an operator can be alerted to terminate the electrolysis. In one modification of the control system which is particularly useful in the control of anodizing procedures, a second comparator device is used which achieves balance before the target voltage is achieved and acts to switch the electrolysis process from a current mode to a voltage mode to minimize halo effect.

3,827,964

APPARATUS FOR REMOVAL OF CONTAMINANTS FROM WASTES

Katsuhiko Okubo, 9-12, 6-chome, Higashi-Mukonjima, Sumida-ku, and Atsuyuki Ueno, 454, 1-chome, Soshigaya, Setagaya-ku, both of Tokyo, Japan

Original application Nov. 23, 1971, Ser. No. 201,399, now Patent No. 3,764,499. Divided and this application Apr. 23, 1973, Ser. No. 353,542

Claims priority, application Japan, Nov. 26, 1970, 45/104,213

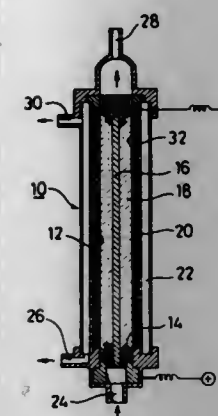
Int. Cl. B01k 3/10

U.S. Cl. 204—257

10 Claims

An electrolytic cell is partitioned by a membrane into two electrolytic chambers which are filled with electric conductors in a granular or fibrous form with positive and negative major electrodes respectively thereby to form an anode chamber and a cathode chamber in abutting

relation through the membrane. The anode chamber or the cathode chamber filled with the granular or fibrous



holding an inert gas at a low pressure. An annular conduit surrounds the cathode arrangement and gas can be supplied through said conduit into said chamber by means of a port arrangement which extends around said cathode so as to have an even distribution of gas about the cathode axis.

3,827,967

THERMAL CRACKING OF HYDROCARBONS

Cornelis Nap, Adriaan van Haarlem, and Emile O. H. M. Ruempol, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Aug. 30, 1973, Ser. No. 392,892

Int. Cl. C07r 3/30; C10g 9/16, 23/00

U.S. Cl. 208—48 R 4 Claims
In the thermal cracking of hydrocarbons the formation of coke deposits and concomitant carburization of iron containing reaction zone surfaces is retarded by carrying out the thermal cracking operation in a reactor wherein the walls of the reactor in contact with the process flow have been coated with a protective overlayer of a metal selected from the class consisting of aluminum and aluminum alloys melting below 1250° C., said coating preferably having interspersed therein a catalytic anti-coke deposition substance made up of a mixture of iron (III) oxide, chromium (III) oxide and potassium carbonate. The protective overlayer or coating employed in the process of the invention is applied to the walls of the reactor in particulate form in admixture with a soldering flux which liquefies at temperatures below the melting point of the particulate metal and catalyst mixture; the reactor walls are maintained at a temperature at which the soldering flux is liquid for a time sufficient to dissolve a substantial portion of the metal oxide present on the reactor wall surface and the reactor walls are then heated to a temperature sufficient to melt the particulate metal which on cooling and removal of the excess flux forms the protective overlayer of the invention.

3,827,965 ELECTROCHEMICAL DRILLING APPARATUS

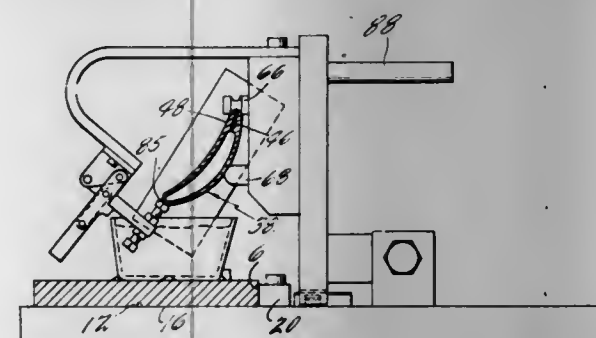
Laurance R. Andrews, Agawam, Mass., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 2, 1973, Ser. No. 328,997

Int. Cl. B23p 1/02

U.S. Cl. 204—297 R

10 Claims



A fixture for holding a workpiece during an electrochemical drilling operation which is loaded by a mechanism that properly locates the workpiece in the fixture.

3,827,966

SPUTTERING APPARATUS

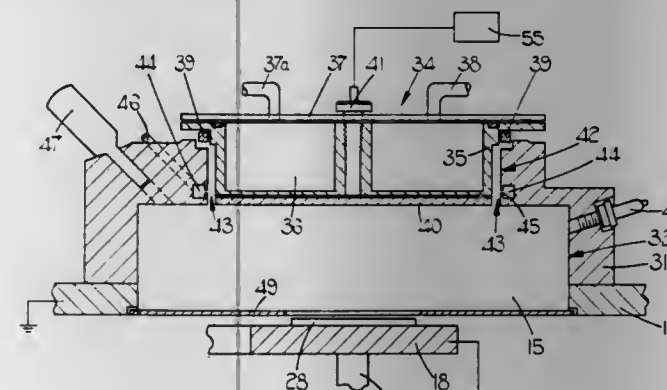
Victor Needham, Balsall Common, England, assignor to Lucas Aerospace Limited, Birmingham, England
Filed Dec. 29, 1972, Ser. No. 319,389

Claims priority, application Great Britain, Dec. 29, 1971, 60,502/71

Int. Cl. C23c 15/00

U.S. Cl. 204—298

3 Claims



A sputtering apparatus has a cathode arrangement of circular cross section which extends into a chamber for

3,827,968 AROMATIZATION PROCESS

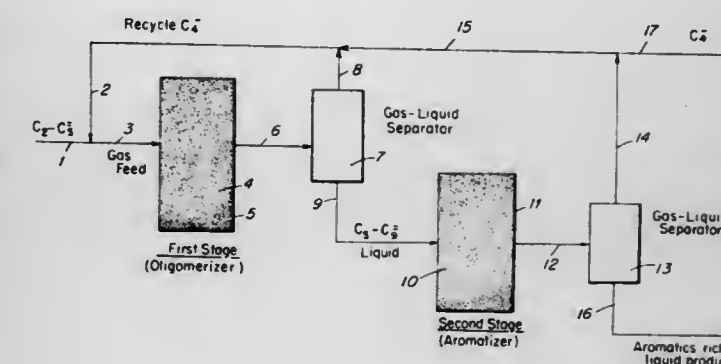
Edwin N. Givens, Pitman, Charles J. Plank, Woodbury, and Edward J. Rosinski, Deptford, N.J., assignors to Mobil Oil Corporation

Filed Jan. 11, 1973, Ser. No. 322,812

Int. Cl. C07c 5/30; C10g 39/00

U.S. Cl. 208—49

6 Claims



In a recently discovered process, a feed of olefins, naphthenes or a mixture of these with or without paraffins and/or aromatics are aromatized in good yields by contact, in the absence of added hydrogen, with a ZSM-5 type of zeolite catalyst at elevated temperatures, relatively low space velocities, and generally severe conditions. There is disclosed here an improvement in this process obtained by first oligomerizing the olefin content of the feed to higher molecular weight olefins by contacting such with

a ZSM-5 type of zeolite catalyst under much milder conditions than the aforesaid aromatization conditions and then, if desired, feeding the liquid product of this oligomerization to an aromatization stage. Both stages are operated in the absence of added hydrogen.

3,827,969

CONVERSION OF PARAFFINS

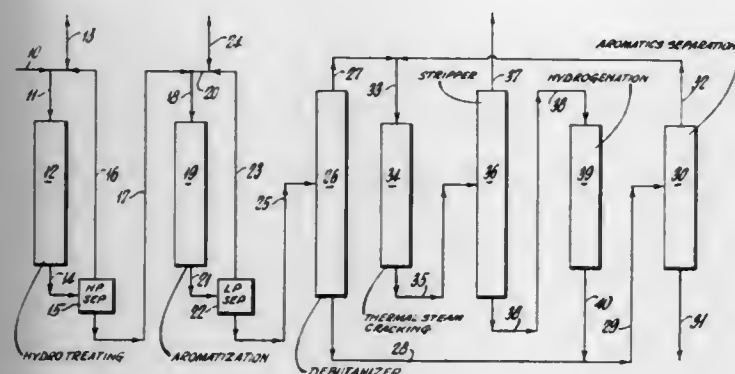
Raymond F. Wilson and Reese A. Peck, Fishkill, and Li C. Mih, Beacon, N.Y., assignors to Texaco Inc., New York, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,568

Int. Cl. C10g 23/00, 35/04, 39/00

U.S. Cl. 208—89

10 Claims



Paraffinic gasoline blending components may be upgraded by aromatization, recovery of aromatics, and thermally steam cracking the remaining paraffins to yield as total product, an olefin fraction and an aromatic fraction.

3,827,970

JET FUEL PROCESS

Gary Z. Whitten, Lafayette, and Donald H. Rowe, Walnut Creek, Calif., assignors to Shell Oil Company, Houston, Tex.

No Drawing. Filed Nov. 11, 1971, Ser. No. 197,970

Int. Cl. C10g 13/00, 37/04

U.S. Cl. 208—93

5 Claims

A process for producing an improved Jet A or Jet A-1 aviation turbine fuel having increased API gravity and smoke point and reduced aromatics content by separating a full boiling range jet fuel into (a) a light fraction boiling from about 290° F. to about 400° F., (b) a middle fraction boiling from about 400° F. to about 480° F., and (c) a heavy fraction boiling from about 480° F. up to about 550° F.; then combining fractions (a) and (c) to obtain an improved full boiling range jet fuel. Optionally fraction (b) may be treated for removal or conversion of naphtho-aromatic compounds and then combined with fractions (a) and (c) to increase both volume and quantity of the jet fuel.

3,827,971

REFORMING WITH PLATINUM-LEAD CATALYST

Naoya Kominami, Tokyo, and Toshiyuki Iwaisako and Kusuo Ohki, Saitama, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Kita-ku, Osaka, Japan

Continuation-in-part of application Ser. No. 6,948, Jan. 29, 1970. This application Nov. 18, 1971, Ser. No. 200,023

Int. Cl. C10g 35/06; B01j 11/78

U.S. Cl. 208—139

4 Claims

Method of producing aromatic hydrocarbons which comprises hydroforming a hydrocarbon at a temperature from 300° C. to 650° C. over a catalyst comprising platinum and lead and prepared by first impregnating a carrier with platinum and thereafter with lead.

3,827,972
METHOD OF PRODUCING AROMATIC HYDROCARBONS

Naoya Kominami, Tokyo, and Toshiyuki Iwaisako and Kusuo Ohki, Saitama-ken, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

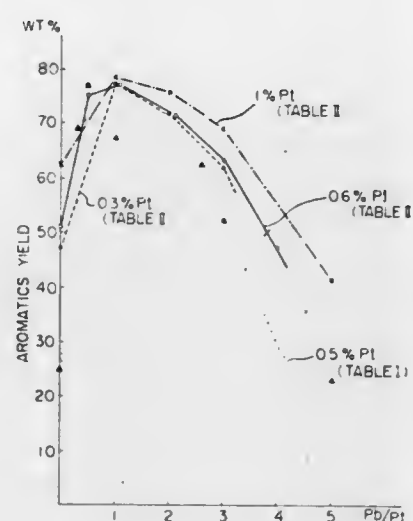
Continuation-in-part of application Ser. No. 6,948, Jan. 29, 1970. This application Nov. 18, 1971, Ser. No. 200,064

Claims priority, application Japan, Feb. 10, 1969, 44/9,488; Aug. 28, 1969, 44/67,617; Dec. 25, 1969, 44/103,817

Int. Cl. C10g 35/06

U.S. Cl. 208—139

8 Claims



Method of producing aromatic hydrocarbons which comprises hydroforming a hydrocarbon at a temperature from 300° C. to 650° C. over a catalyst comprising platinum and lead prepared by an impregnation procedure.

3,827,973

REFORMING WITH A COPRECIPITATED PLATINUM-LEAD CATALYST

Naoya Kominami, Tokyo, and Toshiyuki Iwaisako and Kusuo Ohki, Saitama, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Kita-ku, Osaka, Japan

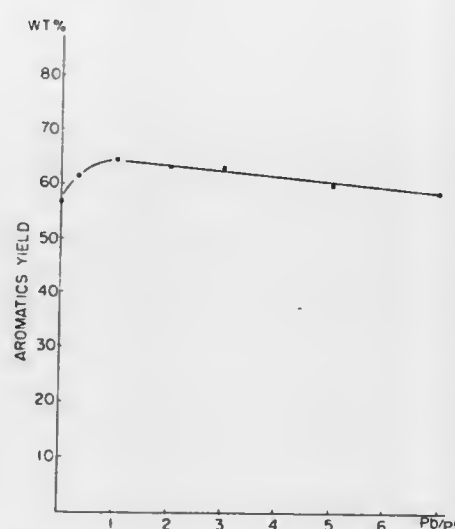
Continuation-in-part of application Ser. No. 6,948, Jan. 29, 1970. This application Nov. 18, 1971, Ser. No. 200,071

Claims priority, application Japan, Feb. 10, 1969, 44/9,488; Aug. 28, 1969, 44/67,617; Dec. 25, 1969, 44/103,817

Int. Cl. C10g 35/06

U.S. Cl. 208—139

10 Claims



Method of producing aromatic hydrocarbons which comprises hydroforming a hydrocarbon at a temperature

from 300° C. to 650° C. over a catalyst comprising platinum and lead and prepared by a coprecipitation procedure.

3,827,974

PROCESS FOR THE PURIFICATION OF LIGHT PARAFFINIC PETROLEUM DISTILLATES

Raymond M. Cahen, Woluwe St. Pierre, Henri R. Debus, Meise, and Rene L. Aga, Grimbergen, Belgium, assignors to Labofina S.A.

No Drawing. Filed Oct. 18, 1971, Ser. No. 190,386

Claims priority, application Belgium, Feb. 5, 1971, 99,431

Int. Cl. C10g 23/02, 23/04

U.S. Cl. 208—143

5 Claims

A continuous process for the purification of light paraffinic fraction boiling in the range of 25° to 100° C. and containing as major portion straight chain paraffins, branched paraffins and cycloparaffins and as a minor portion an impurity selected from the group consisting of aromatic hydrocarbons, sulphur-containing compounds, nitrogen-containing compounds, and other non-hydrocarbon impurities, and mixtures thereof, the sulphur content being no greater than 500 p.p.m., said process comprising:

hydrogenating said light paraffinic fraction at a temperature in the range of 150 to 375° C., under a partial pressure of hydrogen of 10 to 100 kg./cm.², at a space velocity of 0.5 to 20 v./v./h. and a hydrogen to hydrocarbon ratio of 100 to 3,000 Nm.³/m.³, in the presence of a hydrogenating catalyst containing between 0.1 and 2% of platinum on a silica-alumina carrier, silica being in major quantity, and at least 30% of the platinum being distributed on the catalyst surface which is accessible to the reactants,

fractionating the products of the hydrogenation to separate the hydrogenated sulphur- and nitrogen-containing compounds and to recover a paraffinic fraction substantially containing only paraffinic hydrocarbons with an increased content of cycloparaffins.

3,827,975

PROCESS FOR THE REGENERATION OF A HAEMODIALYSIS LIQUID

Jean Bizot, Morangis, and Andre Sausse, Sceaux, France, assignors to Rhone-Poulenc S.A., Paris, France

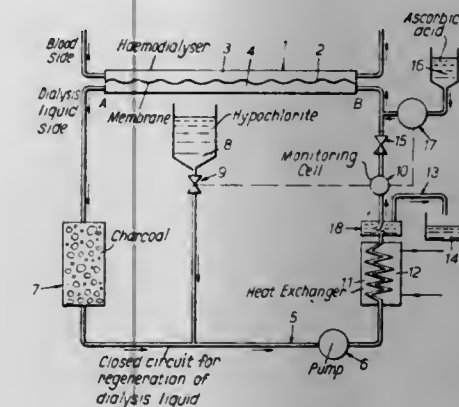
Filed Dec. 14, 1972, Ser. No. 314,672

Claims priority, application France, Dec. 14, 1971, 71,448,67

Int. Cl. B01d 13/00, 31/00

U.S. Cl. 210—22

14 Claims



Dialysis liquid which has passed through a haemodialyser, is regenerated by addition of sodium hypochlorite. This can degrade urea and other nitrogenous impurities without producing by-products incompatible in a dialysing liquid for use in haemodialysis. A dialysis liquid of relatively small volume can thus be circulated in closed circuit through a haemodialyser.

3,827,976

PROCESS FOR CLEANING REVERSE OSMOSIS MEMBRANES

Regis R. Stana, Murrysville, Pa., and Joseph Markind, Moorestown, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 11, 1972, Ser. No. 270,773

Int. Cl. B01d 13/00

U.S. Cl. 210—23

9 Claims



A process for cleaning reverse osmosis membranes which have been contaminated with water insoluble foulants comprises the steps of (A) contacting the reverse osmosis membrane, under pressure, with a cleaning solution containing, per liter of water, about 0.25–2.5 ml. of an organic non-ionic surfactant, about 20–75 grams of at least one salt selected from Na₂SO₄, K₂SO₄ and NaCl, and at least one mineral acid selected from hydrochloric and sulfuric acid in an amount effective to provide a cleaning solution having a pH between about 1.5–4.0 (B) releasing the pressure on the reverse osmosis membrane, and (C) flushing the solution from the membrane.

3,827,977

COMPOSITION FOR INHIBITING SCALE FORMATION IN OIL WELL BRINES

Leon H. Miles, Plano, and Graham E. King, Dallas, Tex., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Application Nov. 25, 1969, Ser. No. 879,919, now Patent No. 3,704,750, which is a continuation-in-part of abandoned application Ser. No. 789,927, Jan. 8, 1969. Divided and this application Oct. 2, 1972, Ser. No. 294,249

Int. Cl. C10m 5/12

U.S. Cl. 252—8.55 B

9 Claims

A method for introducing an inhibitor, e.g., an inhibitor against scale formation, into oil well brines is disclosed. This method comprises introducing into the porous reservoir structure, i.e., oil-bearing formation adjacent to the bore of an oil well a relatively water or brine insoluble polyvalent metal salt of the inhibitor, e.g., polyacrylic acid and/or hydrolyzed polyacrylamide, the polyacrylic acid having a molecular weight range of about 17,000 to 50,000, and the hydrolyzed polyacrylamide having from about 10% to 50% unhydrolyzed amide groups and a molecular weight of about 1,000 to 8,000, in which the metal is selected from the group consisting of alkaline earth metals, Zn⁺⁺, Cu⁺⁺, Pb⁺⁺, Fe⁺⁺⁺, Cr⁺⁺⁺, and Al⁺⁺⁺. The method comprises in situ formation of the relatively water or brine insoluble polyvalent metal salt of the inhibitor e.g., polyacrylic acid and/or hydrolyzed polyacrylamide, in the reservoir structure by introducing into the porous structure a water-soluble salt of the inhibitor, e.g., the sodium salt of the polyacrylic acid and/or hydrolyzed polyacrylamide, and a water-soluble salt of the polyvalent metal in a strongly acidic, aqueous solution. In the in situ method the strong acid in solution initially inhibits reaction of the salts but is dissipated by the fluids in the oil-bearing formation and neutralized by the formation rock to allow reaction and formation of the desired water-insoluble metal salt of polyacrylic acid and/or hydrolyzed polyacrylamide in the formation.

3,827,978 PACKER FLUID FOR DRILLING AND COMPLETING A WELL

Leon H. Miles, Plano, Tex., assignor to Atlantic Richfield Company, New York, N.Y.
No Drawing. Original application Dec. 14, 1970, Ser. No. 98,163, now Patent No. 3,700,050. Divided and this application Aug. 9, 1972, Ser. No. 279,088
Int. Cl. E21b 43/00

U.S. Cl. 252—8.55 R 10 Claims
A method for drilling and/or producing a well through a permafrost zone which employs a thermally insulated packer fluid which contains at least one of hollow shapes such as glass spheres, halogenated ethane, or halogenated ethylene.

3,827,979 OVERBASING MANGANESE COMPOUNDS WITH PROMOTERS AND COPROMOTERS

Alfred B. Plotrowski, Woodbury, and Harry J. Andress, Jr., Pitman, N.J., assignors to Mobil Oil Corporation
No Drawing. Filed May 3, 1971, Ser. No. 139,940
Int. Cl. C10m 1/40, 3/34; C10l 1/24

U.S. Cl. 252—33 28 Claims
Certain compounds containing acid functions are overbased with manganese by carbonating a system containing the acid, a promoter and a copromoter. Among the acids contemplated are tall oil, sulfonic acids and carboxylic acids such as naphthenic acid.

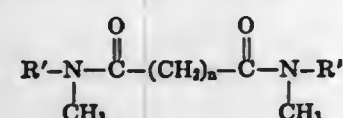
Organic fluid compositions, as those from lubricants and liquid hydrocarbon fuels, containing the overbased products have improved properties. As examples, the products act to improve combustion and as smoke suppressants in residual fuels, and also to provide detergency properties to lubricating oils.

3,827,980 TERTIARY DIAMIDE BASED GREASE

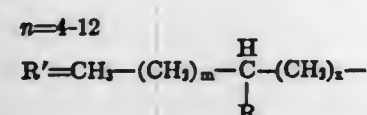
Robert M. Thompson, Wilmington, Del., and Alfred F. Talbot, Wallingford, Pa., assignors to Sun Research and Development Co., Philadelphia, Pa.

No Drawing. Filed Oct. 2, 1972, Ser. No. 293,983
Int. Cl. C10m 7/34

U.S. Cl. 252—28 9 Claims
Novel grease compositions containing major amounts of liquid tertiary diamides having the following structural formula:



wherein



wherein

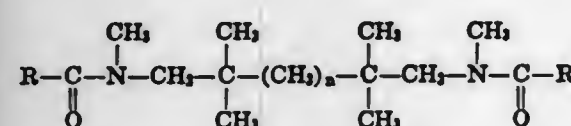
R=H, alkyl radical having C₁-C₅,
m=2-8,
x=1-5

are disclosed. These greases are useful in a high and/or low temperature environment.

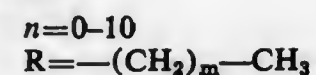
3,827,981 TERTIARY DIAMIDE LUBRICANTS

Robert M. Thompson, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.
No Drawing. Filed Oct. 2, 1972, Ser. No. 293,982
Int. Cl. C10m 3/30

U.S. Cl. 252—51.5 A 9 Claims
Novel synthetic lubricants containing a major amount of tertiary diamides having the following structural formula:



wherein



wherein m=4-12

are disclosed. These lubricants have low pour points and positive viscosity indexes.

3,827,982 MOLDABLE LEAD COMPOSITION

William Cornellus Hall, Albany Turnpike, Central Valley, N.Y. 10917, and John Merriam Peterson, Toleman Road, Rock Tavern, N.Y. 12575

No Drawing. Continuation-in-part of abandoned application Ser. No. 406,561, Oct. 26, 1964. This application Dec. 15, 1970, Ser. No. 98,459

Int. Cl. C04b 35/68, 43/00; E04b 1/74
U.S. Cl. 252—62 28 Claims
Dry lead powder is mixed with water. Substantially all free water is removed from the wet composition to produce a self-supporting lead composition. This composition can be used as a matrix into which aggregates are dispersed.

3,827,983 METHOD AND COMPOSITIONS FOR CLEANING OVENS AND THE LIKE

Harry Ian Mitchell, Rochdale, and Kenneth Tomlinson, Bramhall, England, assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Original application July 30, 1970, Ser. No. 59,753, now Patent No. 3,679,993. Divided and this application June 7, 1972, Ser. No. 260,700

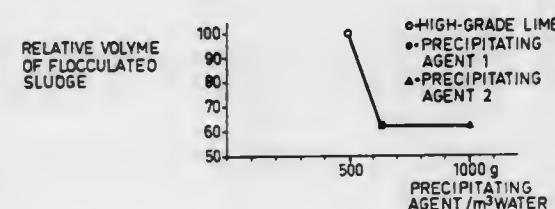
The portion of the term of the patent subsequent to June 27, 1989, has been disclaimed
Int. Cl. C11d 9/12

U.S. Cl. 252—89 16 Claims
A composition for the pre-treatment of surfaces which are subjected to heat and liable to soiling by baked on organic deposits comprising a hydrolyzing amount of an alkali metal bicarbonate, an aqueous vehicle therefor and a surface active agent.

3,827,984 PRECIPITATING AGENT FOR WATER PURIFICATION PROCESSES, AND A METHOD OF PREPARING SAME

Kjell Gunnar Kåwe Kåwert, Skövde, Sweden, assignor to Aktiebolaget Gullhogens Bruk, Skövde, Sweden
Filed June 1, 1972, Ser. No. 258,613
Int. Cl. B01j 13/00; C02b 1/16, 5/02

U.S. Cl. 252—179 2 Claims



The present invention relates to an agent for purification of water by precipitation, and a method for preparing this precipitating agent. The water shall be purified to such an extent that raw water becomes potable and suitable for cooking and food preparing, and sewage must be cleansed so that it can be released into recipients without causing harm or inconvenience. The substances to be removed are primarily iron, manganese, aluminium and various phosphates, but the water may also contain copper, lead and mercury. The precipitating agent according to the invention comprises a mixture of minerals which after a previous burning have different solubility products, which mixture has a mole ratio of 1.0-5.0 between

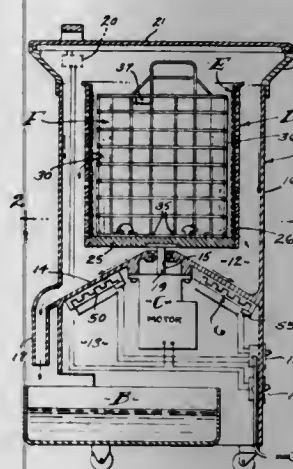
basic and acid oxides, and a content of 5-40% SiO₂, 5-15% Al₂O₃, 3-12% Fe₂O₃, 15-70% CaO and 0.1-20% MgO in an ignited sample. In the preparation of the precipitating agent the starting materials are blended in such proportion and burnt at such temperature that sufficient mineral formation is obtained and so that the burnt mixture contains minerals of different solubility products has a mole ratio between basic and acid oxides of 1.0-5.0 and the above mentioned analysis data. The product is subsequently ground to a powder having a fineness of 10-20% by weight greater than 60 μm. and 0-2% by weight greater than 90 μm.

3,827,985 GREASE EXTRACTOR

Michael De Haan, Sherman Oaks, and Lawrence Cohen, Los Angeles, Calif. (both of 1610 Meadows Drive, Portland, Oreg. 97034)

Filed Oct. 16, 1972, Ser. No. 297,744
Int. Cl. B01d 21/26

U.S. Cl. 210—179 13 Claims



A heated centrifuge with removable filtering baskets for the processing of batches of grease laden materials in order to extract said grease therefrom. The centrifuge is motor driven at moderate speeds when used for the intended purpose of removing excess grease from prepared foods, and loose or foreign particles are separated from the grease and which is reclaimed at moderate temperatures while assuring immediate flow and collection within a basin.

3,827,986 TECHNETIUM-99m GENERATORS

John Cecil Charlton and Dermot Lyons, Amersham, England, assignors to The Radiochemical Centre Limited, Amersham, Buckinghamshire, England

No Drawing. Filed Aug. 4, 1972, Ser. No. 278,082
Claims priority, application Great Britain, Aug. 6, 1971, 37,167/71

Int. Cl. C01f 13/00
U.S. Cl. 252—301.1 R 9 Claims
Yields of technetium-99m, obtained by elution from generators comprising molybdenum-99 adsorbed on an ion-exchange material, are improved by incorporating a hydrated electron scavenger, particularly nitrate or nitrite ion, at low concentration in the aqueous fluid of the generator and/or in the eluant.

3,827,987 REFORMING PROCESS

Ralph V. Green, Charleston, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 24, 1971, Ser. No. 127,845
Int. Cl. C01b 2/00

U.S. Cl. 252—373 2 Claims
In the manufacture of ammonia or hydrogen, natural gas is reformed with steam over a nickel catalyst in the

tubes of a reformer to produce hydrogen and carbon monoxide. If hydrogen is added to the steam-natural gas mixture fed to the reformer, catalyst, catalyst tube life, and plant utility will be improved.

3,827,988 Pt-Pb CATALYST COMPOSITIONS

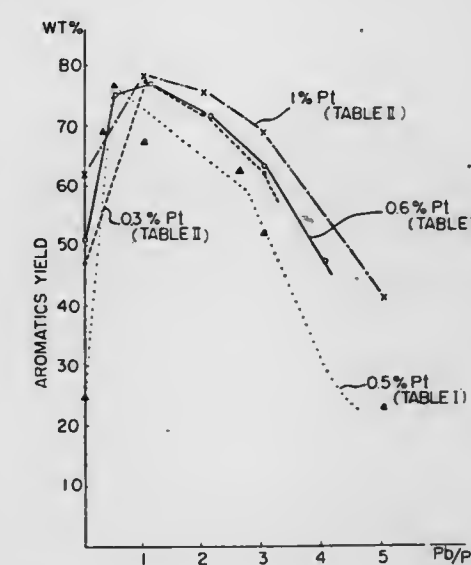
Naoya Kominami, Tokyo, and Toshiyuki Iwalsako and Kusuo Ohki, Saitama, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of application Ser. No. 6,948, Jan. 29, 1970. This application Nov. 18, 1971, Ser. No. 200,065

Claims priority, application Japan, Feb. 10, 1969, 44/9,488; Aug. 28, 1969, 44/67,617; Dec. 25, 1969, 44/103,817

Int. Cl. B01j 11/78 15 Claims

U.S. Cl. 252—441



Pt-Pb catalyst compositions containing specified amounts of Pt and Pb in specified ratios and prepared by particular impregnation procedures are effective hydroforming catalysts.

3,827,989 IMPREGNATED CHEMICAL SEPARATION PARTICLES

Charles D. Scott, Oak Ridge, Tenn., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Nov. 13, 1972, Ser. No. 306,062
Int. Cl. C08f 33/08

U.S. Cl. 260—2.1 E 5 Claims
Particles, such as ion exchange and selective sorbents useful in chemical separation processes, having a continuous phase throughout the entire particle and an impermeable impregnant in the central portion of the particle, and a method for producing the particle.

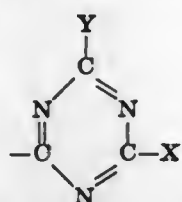
3,827,990 IMPREGNATION OF POLYSTYRENE WITH TRICHLOROFLUOROMETHANE

Harold Austin Wright, Murrysville, Pa., assignor to Arco Polymers, Inc., Pittsburgh, Pa.

No Drawing. Filed Dec. 26, 1972, Ser. No. 318,470
Int. Cl. C08j 1/26

U.S. Cl. 260—2.5 B 5 Claims
A process has been developed for impregnating polystyrene particles with trichlorofluoromethane (Freon 11) using selected non-ionic surfactants dispersed in the blowing agent rather than in the water phase as is customary. Suitable surfactants are, for example, polyoxyethylene (20) sorbitan monolaurate, polyoxyethylene (23) lauryl ether, polyoxyethylene (20) monolaurate, polyoxyethylene (20) nonylphenol, and mixtures of these with an equal amount of a di-tertiary acetylenic glycol.

where R₇ is alkyl of 1 to 18 carbon atoms, benzyl or phenyl or the group



The compounds are useful to stabilize vulcanized and vulcanizable natural and synthetic rubber compositions.

3,828,003

FLAME RESISTANT POLYMER COMPOSITIONS
Shingo Yamazaki, Daito, Akira Takemura and Kazumi Kojima, Amagasaki, Masato Nishimura, Daito, Teruo Tsuchida, Toyonaka, and Tadashi Yonemoto, Amagasaki, Japan, assignors to Nippon Oils and Fats Company Limited, Tokyo, Japan

Continuation-in-part of abandoned application Ser. No. 192,033, Oct. 26, 1971. This application Jan. 26, 1973, Ser. No. 326,800

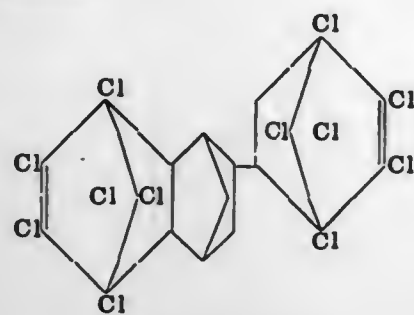
Claims priority, application Japan, Oct. 26, 1970, 45/94,096

Int. Cl. C09k 3/28

U.S. Cl. 260—45.75 B

4 Claims

Flame resistant polymer composition which comprises a flammable polymer and an amount effective for flame retarding of a chlorine-containing compound having the following structure:



3,828,004

STABILIZATION OF POLYMERS OF UNSATURATED HYDROCARBONS

Richard J. Dauksys, Bellbrook, Ohio
(49 Nuthatch Knob Road, Glastonbury, Conn. 06033)
No Drawing. Filed Apr. 2, 1973, Ser. No. 347,243

Int. Cl. C08f 45/56

U.S. Cl. 260—45.75 R

7 Claims

The ultraviolet light stability of polymers of unsaturated hydrocarbons is improved by immersing the polymers in a solution of osmium tetroxide and sodium iodate. After exposure to ultraviolet light, the polymers so treated retain their mechanical properties to a substantial degree, and crazing or cracking of the polymers is virtually eliminated.

3,828,005

TREATMENT OF TEXTILES WITH GLYCIDOL-MODIFIED POLYURETHANES

Allen G. Pittman, 5340 Barrett Ave., El Cerrito, Calif. 94530; William L. Wasley, 1819 Thousand Oaks Blvd. 94707; and Carlton C. Jones, 66 El Cammino Real 94705, both of Berkeley, Calif.

No Drawing. Original application Jan. 14, 1972, Ser. No. 217,963. Divided and this application Apr. 2, 1973, Ser. No. 347,085

Int. Cl. C08g 22/16

U.S. Cl. 260—77.5 MA

6 Claims

Polyurethanes containing isocyanate groups are reacted with glycidol to prepare glycidol-modified polyurethanes useful for application to textile materials to improve their properties, e.g., to impart shrink resistance. Typical example: A polyether polyurethane containing free NCO groups is reacted with glycidol to yield a glycidol-modified polymer which is formed into an emulsion and applied to a textile material. The treated textile may be di-

rectly cured or the curing operation may be delayed until the fabric is manufactured into a finished garment.

3,828,006

POLYESTERS PREPARED FROM BISPHENOLS AND ISOPROPYLIDENE BIS(p-PHENYLENE-OXY)DIACETYL CHLORIDE

Robert J. Thomas, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 6, 1973, Ser. No. 385,913

Int. Cl. C08g 17/08

U.S. Cl. 260—47 C

4 Claims

Bisphenol and halogenated bisphenol polyesters of bisacid A2 can be molded into hard transparent solid articles. The polyesters are readily made by reacting the bisacid chloride with the bisphenol in an organic solvent solution and in the presence of an HCl scavenger.

3,828,007

PROCESS OF REACTING ISOCYANATE OR ISOTHIOCYANATE AND COMPOSITIONS THEREFOR

Peter E. Throckmorton and William J. McKillip, Worthington, Ohio, and Robert C. Slagel, Pittsburgh, Pa., assignors to Ashland Oil, Inc., Columbus, Ohio

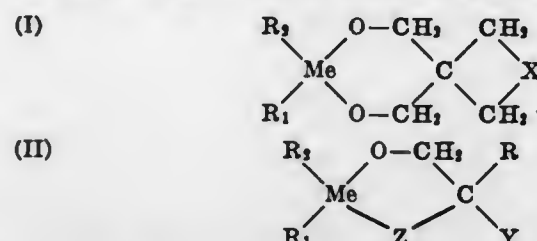
No Drawing. Filed Feb. 18, 1972, Ser. No. 227,618

Int. Cl. C08g 22/00, 22/04

U.S. Cl. 260—75 NB

18 Claims

An organic compound containing isocyanate and/or isothiocyanate group is reacted with substance having reactive hydrogen as determined by the Zerewitinoff method in contact with a catalytic amount of organometallic compound having one of the following structural formulas:



wherein Me is a Group IV-A metal; X is O, S, or CH₂; Y is either NO₂, NH₂, OH, CF₃ or CH₂OH; Z is OCH₂, or is NH, or OCH₂ when Y is CH₂OH; R is an alkyl group; and each R₁ and R₂ individually is alkyl, aryl, cycloalkyl, aralkyl, and alkaryl.

3,828,008

ELECTROCONDUCTIVE HIGH POLYMER COMPOSITION

Isao Shinohara, Eishun Tsuchida, and Katsuhiko Mizoguchi, Tokyo, Japan, assignors to Nippon Electric Company Limited, Tokyo-to, Japan

No Drawing. Filed July 20, 1972, Ser. No. 273,370

Claims priority, application Japan, July 20, 1971, 46/53,601

Int. Cl. C08f 27/04, 27/08

U.S. Cl. 260—78.4 N

21 Claims

A high polymer composition comprising a salt constituted from an integral type of polycation polymer containing, in its principal repeating unit, a quaternized nitrogen and a heterocyclic ring, an anion radical of a tetracyano compound and a neutral tetracyano compound, in an appropriate amount such that the electroconductivity is greater than 10⁻⁷ Ω cm⁻¹ is prepared, and is found to possess excellent chemical, physical and electrical properties.

3,828,009

CATIONIC DYEABLE POLYAMIDE OF IMPROVED PHYSICAL PROPERTIES

Robert Alden Lofquist, Richmond, Va., assignor to Allied Chemical Corporation, Morristown, N.J.

No Drawing. Filed Sept. 6, 1972, Ser. No. 286,629

Int. Cl. C08g 20/18

U.S. Cl. 260—78 L

5 Claims

A cationic-dyeable polyamide, polymerized from ω-aminocarboxylic acids or their lactams, of improved phys-

ical properties can be made by using from 0.30 to 0.85 mole percent (based on the polyamide) of the sodium salt of a diacid such as 5-sulfoisophthalic acid and 0.10 to 0.65 mole percent of an N-sulfoalkyl alkyldiamine such as N-(4-sulfoethyl)hexamethylenediamine, or N-(2-sulfoethyl)m-xylylenediamine. A polyamide results containing the respectively same number of sulfo groups, but with less diluent and consequently having a higher melting point. The diacid can be a sulfonate derivative of a phthalic acid, or of fluorene, etc. The diamine can be a sulfonate derivative of hexamethylenediamine, metaxylylenediamine, etc. The use of the combination of additives eliminates the necessity of adding a diamine or dicarboxylic acid to achieve full polymerization.

3,828,010

WATER-DISSIPATABLE POLYESTERAMIDES

Burns Davis, David R. Fagerburg, and Charles J. Kibler, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed June 4, 1973, Ser. No. 367,029

Int. Cl. C08g 20/30

U.S. Cl. 260—75 N

9 Claims

Water-dissipatable polyesteramides derived from monomer components which include at least one aliphatic dicarboxylic acid selected from adipic acid, pimelic acid and suberic acid, at least one diol selected from aliphatic diols containing 2 to 4 carbon atoms and polyethylene glycols, and at least one oxypropyldiamine. These polymers are useful as adhesives, coating materials, films, packaging materials and other products which can be dissolved, dispersed or otherwise dissipated in cold water, hot water or aqueous solutions.

3,828,011

PROCESS FOR PRODUCING ADDITION HOMO- AND CO-POLYMERS FROM EPISULPHIDES

Arnaldo Roggero, Alessandro Mazzel, and Antonio Proni, San Donato Milanese, Italy, assignors to Snam Progetti, S.p.A., San Donato Milanese, Italy

No Drawing. Filed May 24, 1972, Ser. No. 256,291

Claims priority, application Italy, May 24, 1971, 24,897/71

Int. Cl. C08g 23/00

U.S. Cl. 260—79

14 Claims

A process is disclosed for producing a new series of addition homo- and co-polymers from monomers such as episulphides, with alkali metal halide catalysts (e.g. LiI) in a polar solvent balanced between donor strength and dielectric constant (e.g. hexamethylphosphoramide) with a catalyst monomer mole ratio ranging from 0.001% to 20% and at a temperature in the range from -20 to 20° C.

3,828,012

METHOD FOR PREPARING RESINS IN POWDER OR GRANULAR FORM FROM AQUEOUS POLYMER LATICES

Peter Joseph Arndt, Jugenheim, Hans-Dieter Blitz, Darmstadt-Arheilgen, Klaus Huebner, Ober-Ramstadt-Eiche, Wilhelm Krall and Hans-Joachim Kurth, Darmstadt, Manfred Mueller, Rosdorf, and Horst Pennewiss, Darmstadt-Neu-Kranichstein, Germany, assignors to Rohm GmbH, Darmstadt, Germany

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,484

Claims priority, application Germany, Oct. 6, 1971, P 21 49 820.4

Int. Cl. C08f 3/64, 15/18

U.S. Cl. 260—80.73

8 Claims

Method of preparing powders or granules of a synthetic organic resin by dispersing an aqueous polymer latex containing the resin in an organic liquid substantially immiscible with water and not dissolving the resin, removing water from the dispersion by distillation, and separating the resin from the remaining organic liquid.

3,828,013

CHEMICAL PROCESS FOR PREPARING ODORLESS TASTE-FREE ACRYLONITRILE/AROMATIC OLEFIN COPOLYMERS

Eric Nield, Watton-at-Stone, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed May 17, 1972, Ser. No. 254,113

Claims priority, application Great Britain, May 17, 1971, 15,265/71

Int. Cl. C08f 15/02

U.S. Cl. 260—85.5 R

6 Claims

A process is provided for the polymerisation of acrylonitrile and at least one aromatic olefine in which a substantially odourless and taste-free copolymer of acrylonitrile, containing 50 to 95% molar of units derived from acrylonitrile and 50 to 5% molar of units derived from at least one aromatic olefine, is obtained with randomly distributed units of aromatic olefine in a polymerisation mixture containing acrylonitrile and aromatic olefine and at least one alkane thiol of low volatility while adding monomer feed containing aromatic olefine and at least one alkane thiol of high volatility at a rate determined by the rate of polymerisation.

3,828,014

HIGH SHRINKAGE THREADS, YARN AND FIBERS FROM ACRYLONITRILE POLYMERS

Horst Wieden, Alfred Nogaj, and Herbert Marzolph, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Application Apr. 5, 1971, Ser. No. 131,490, now Patent No. 3,739,054, which is a continuation of abandoned application Ser. No. 755,797, Aug. 28, 1968.

Divided and this application June 12, 1973, Ser. No. 369,148

Claims priority, application Germany, Sept. 7, 1967, F 53,436

Int. Cl. C08f 3/76, 15/02, 15/22

U.S. Cl. 260—85.5 R

7 Claims

This invention relates to high shrinkage threads, yarn and fibers from acrylonitrile polymers or copolymers containing at least 50% by weight of polymerized acrylonitrile and mixtures thereof, wherein the thread or yarn produced by the dry spinning process is exposed to elevated temperatures in the presence of steam and is then stretched and dried. The spun thread or yarn obtained by the dry spinning process may be contacted with saturated steam under pressure.

3,828,015

METHOD FOR PREPARING BRANCHED COPOLYMERS OF ETHYLENE WITH VINYL ORGANO-SILICON MONOMERS

Sergel Mikhailovich Samollov, Simonovsky val 8, kv. 60; Vladimir Ivanovich Ivanov, ulitsa Novatorov 40, korpus 8, kv. 41; Galina Vladimirovna Zambrovskaya, ulitsa Zemlyachki 36, kv. 20; Oleg Nikolaevich Tsvetkov, ulitsa Sakhalinskaya 6, korpus 1, kv. 256; Viktor Nikolaevich Monastyrsky, ulitsa Vasilievskaya 9, kv. 62; Evgeny Ivanovich Bepalov, ulitsa Kievskaya 20, kv. 15; Boris Vasilievich Gryaznov, Jurievsky pereulok 22, korpus 1, kv. 73; and Boris Vladimirovich Molchanov, Pogonny proezd 3a, kv. 14, all of Moscow, U.S.S.R.

No Drawing. Filed Mar. 5, 1973, Ser. No. 338,223

Claims priority, application U.S.S.R., Mar. 3, 1972, 1756116

Int. Cl. C08f 15/04

U.S. Cl. 260—88.1 R

15 Claims

Branched copolymers of ethylene with vinyl organo-silicon monomers having the general formula



wherein R¹ is CH₃, R² is CH₃, C₂H₅ or phenyl, n is 0 or 1. The copolymers contain units which are expressed by the formulas



The copolymers are prepared by copolymerizing a reaction mixture containing ethylene and the above named vinyl organosilicon monomers at a temperature from 50 to 280° C. under a pressure from 100 to 3500 atm. in the presence of initiators of free-radical polymerization.

3,828,016

POLYMERIZATION OF VINYLPIRIDINE IN THE PRESENCE OF SMALL PARTICLES OF ZIEGLER CATALYZED POLYOLEFINS OR POLYSTYRENE
Robert Bacskai, Kensington, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Dec. 30, 1969, Ser. No. 889,304
Int. Cl. C08f 7/12, 15/02

U.S. Cl. 260—88.3 R 4 Claims
Vinylpyridine is polymerized in aqueous suspension in the presence of small solid particles of polyolefin.

3,828,017

PROCESS FOR ISOLATING PROTEINS USING LIQUID FLUOROCARBONS AND LOW DENSITY HYDROCARBON SOLVENTS

John W. Finley and Earl Hautala, Martinez, Calif., and Charles E. Walker, Valley City, N. Dak., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Mar. 16, 1973, Ser. No. 342,119
Int. Cl. A23j 1/12, 1/14

U.S. Cl. 260—112 G 7 Claims
Cereal or other protein-containing material is ground and mixed with a liquid fluorocarbon whose density is adjusted to 1.35 to 1.45. The resulting slurry is centrifuged, whereby to produce a protein fraction floating on the surface of the liquid, a bottom phase composed mainly of starch, and an intermediate fluorocarbon phase containing fat. The protein phase can be easily separated from the remainder, dried, and used as a dietary supplement or the like. The starch and fat components can also be readily separated from the centrifuged slurry.

3,828,018

N^ε-[6-(CARBOBENZYLXYAMINO)HEXANOYL]-L-LYSINE COMPOUNDS

Linneaus C. Dorman, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 25, 1972, Ser. No. 291,814
Int. Cl. C07c 103/52; C08h 1/00

U.S. Cl. 260—112.5 10 Claims
Dipeptides of 6-(carbobenzylxyamino)hexanoic acid and N^ε-(substituted carbobenzylxy) - L - lysines, useful as bronchial dilators.

3,828,019

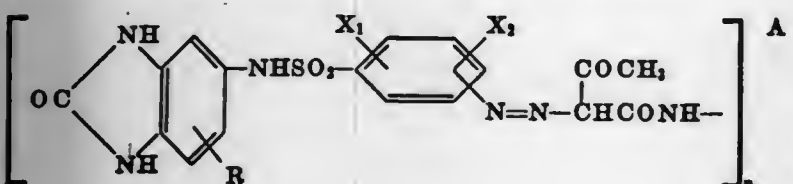
WATER-INSOLUBLE BENZIMIDAZOLONE-(5)-SULFONAMIDOPHENYLENE - AZO - ARYL DYE STUFFS

Peter Junker, Niederhochstadt, Taunus, Joachim Ribka, Offenbach am Main, and Walter Kunstmann, Neuenhain, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Sept. 6, 1972, Ser. No. 286,770
Claims priority, application Germany, Sept. 8, 1971, P 21 44 907.0

Int. Cl. C09b 33/16, 29/36

U.S. Cl. 260—157 4 Claims
The present invention relates to novel water-insoluble mono- and disazo dyestuffs of the general formula



wherein X₁ and X₂ may be identical or different and represent a hydrogen atom, a lower alkyl or alkoxy group having preferably 1 to 4 carbon atoms, or a halogen atom, preferably a chlorine or bromine atom, and R is a hydrogen or halogen atom, preferably a chlorine or bromine atom, a methyl, ethyl, methoxy or ethoxy group, n represents the numbers 1 or 2 and A an optionally substituted radical, preferably of the benzene, naphthalene or benzimidazolone series of n=1, and of the benzene or diphenyl series if n=2.

These dyestuffs may be used for dyeing or printing lacquers, polymers or textile materials. They show a good fastness to light, to weather and to migration. Furthermore, they are fast to heat, have a high tinctorial strength and show in many cases pure shades. They are resistant to the influence of chemical products, especially solvents, acids and alkalis.

3,828,020

ALKOXYALKYLAMINO SALTS OF DISAZO ACID DYES

Arnold Tartter, Lambsheim, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 21, 1972, Ser. No. 282,341
Claims priority, application Germany, Aug. 27, 1971, P 21 42 939.0

Int. Cl. C09b 31/06

U.S. Cl. 260—191 4 Claims
Sulfonic acid group-containing disazo coupling products of aminoazobenzenes and β-naphtholsulfonic acids in the form of their salts with aliphatic amines containing ether linkages. The salts are useful for coloring printing inks and particularly for coloring polypropylene.

3,828,021

GENTAMICIN C₁ DERIVATIVES

Thomas R. Beattie, North Plainfield, William V. Ruyle, Scotch Plains, Tsung-Ying Shen and Gordon L. Walford, Westfield, and Edward Walton, Scotch Plains, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed June 14, 1972, Ser. No. 262,821
Int. Cl. C07c 129/18

U.S. Cl. 260—210 AB 20 Claims
New aminoglycoside antibiotics of the gentamicin family are described, having different functional groups on the C-2 position of the garosamine moiety. The compounds exhibit antibacterial activity against both gram-positive and gram-negative infections.

3,828,022

10,11-ANHYDROERYTHROMYCINS

John Solomon Tadanier, Chicago, and Jerry Roy Martin, Waukegan, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

No Drawing. Filed June 15, 1972, Ser. No. 263,051
Int. Cl. C07c 129/18

U.S. Cl. 260—210 E 6 Claims
Covers 10,11-anhydroerythromycins which are useful as antibiotics.

3,828,023

PROCESS FOR PREPARING CYCLIC OLIGOMERS OF N-SUBSTITUTED AZIRIDINES

Sally P. Cornier, Sanford, and Charles E. Wymore, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 13, 1971, Ser. No. 180,235
Int. Cl. C07d 53/00

U.S. Cl. 260—239 BC 9 Claims
Cyclic oligomers of N-alkylaziridines and N-aralkylaziridines are prepared by contacting the N-substituted aziridine monomer with an alkylaluminum catalyst at a

temperature sufficient to cause reaction. For example, the cyclic tetramer of N-ethylaziridine was prepared in high yields by contacting N-ethylaziridine with triisobutylaluminum at 140°–150° C. for 20 hours under autogenous pressure.

3,828,024

POLY(AZIRIDINE)S

David S. Breslow, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 100,509, Dec. 21, 1970. This application June 29, 1972, Ser. No. 267,326

Int. Cl. C07d 23/06

U.S. Cl. 260—239 E 5 Claims
The bis(aziridinyl) compounds containing electron withdrawing groups in the aziridinyl rings are described. Typical electron withdrawing groups are carboalkoxy, aroyl, cyano, aryl, and substituted aryl groups. These compounds are useful as cross-linking agents for polymers containing ethylenic unsaturation.

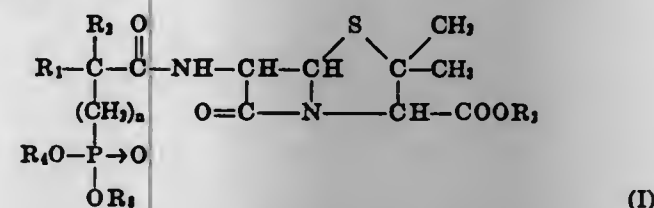
3,828,025

PHOSPHONO SUBSTITUTED ACYLPENICILLINS

Ernest S. Hamanaka, Groton, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Nov. 4, 1970, Ser. No. 87,018
Int. Cl. C07d 99/16

U.S. Cl. 260—239.1 11 Claims
Broad spectrum antibacterial agents; namely, α-(phosphonoalkyl) and α-(ω-phosphonocycloalkyl) penicillins of the formula



and the non-toxic cationic salts thereof wherein

R₁ is hydrogen, lower alkyl, phenyl and substituted phenyl wherein the substituent is lower alkyl, lower alkoxy, chloro, bromo, fluoro and trifluoromethyl;

R₂ is hydrogen;

R₃ and R₄ together with the carbon atom to which they are attached are alicyclic of from 3 to 7 carbon atoms;

R₅ is hydrogen and acyloxy lower alkyl wherein the acyloxy moiety is lower alkanoyloxy, benzoyloxy and substituted benzoyloxy wherein the substituent is chloro, bromo, fluoro, lower alkyl, lower alkoxy and trifluoromethyl;

n is 0 or an integer from 1 to 8;

each of R₄ and R₅ is hydrogen, lower alkyl, substituted lower alkyl wherein the substituent is lower alkoxy and fluoro; phenyl and substituted phenyl wherein the substituent is chloro, bromo, fluoro, lower alkyl, lower alkoxy and trifluoromethyl.

3,828,026

PROCESS FOR THE TEMPORARY PROTECTION OF CARBOXYL GROUPS

Robert Burns Woodward, 12 Oxford St., Cambridge, Mass. 02138

No Drawing. Continuation of application Ser. No. 856,457, Sept. 9, 1969, which is a continuation-in-part of application Ser. No. 573,800, Aug. 22, 1966, both now abandoned. This application June 1, 1972, Ser. No. 258,616

Claims priority, application Switzerland, Sept. 10, 1965, 12,623/65; Dec. 9, 1965, 16,970/65, 16,974/65, 16,976/65, 16,979/65, 16,980/65, 16,981/65

Int. Cl. C07d 99/16, 99/24

U.S. Cl. 260—239.1 6 Claims
The present invention concerns the temporary protection of a carboxyl group by esterifying the corresponding

carboxylic acid with a 2,2,2-trihaloethanol, particularly 2,2,2-trichloroethanol, and subsequently splitting the ester grouping by treatment with a chemical reducing agent.

3,828,027

PROCESS FOR PREPARING BENZODIAZEPINE DERIVATIVES

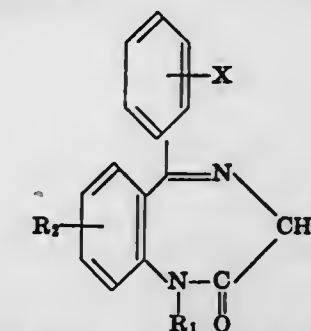
Hisao Yamamoto and Shigeo Inaba, Nishinomiya-shi, Tadashi Okamoto, Ashiya-shi, Toshiyuki Hirohashi, Kobe, Kikuo Ishizumi, Minoo-shi, Michihiko Yamamoto, Takarazuka-shi, Isamu Maruyama, Minoo-shi, Kazuo Mori, Kobe, and Tsuyoshi Kobayashi, Minoo-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed Sept. 16, 1968, Ser. No. 762,341
Claims priority, application Japan, Sept. 22, 1967, 42/60,952; Sept. 27, 1967, 42/62,424, 42/62,425, 42/62,426, 42/62,427, 42/62,428, 42/62,429, 42/62,630; Oct. 9, 1967, 42/65,102, 42/65,104; Oct. 18, 1967, 42/67,354; Nov. 2, 1967, 42/70,794, 42/70,796, 42/70,798; Nov. 6, 1967, 42/71,598; Nov. 8, 1967, 42/72,078; Dec. 9, 1967, 42/79,166; Dec. 15, 1967, 42/80,514; Dec. 21, 1967, 42/82,273; Jan. 10, 1968, 43/1,501

The portion of the term of the patent subsequent to Jan. 26, 1988, has been disclaimed

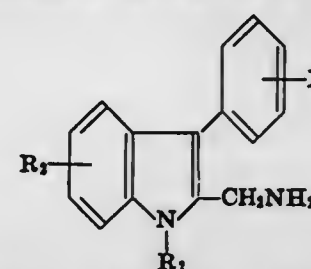
Int. Cl. C07d 53/06

U.S. Cl. 260—239.3 D 5 Claims
The process for producing benzodiazepine derivatives useful for tranquilizer,



wherein R₁ is hydrogen, C₁–C₃ alkyl group or C₄–C₇ cyclohexylmethyl group and R₂ is hydrogen or halogens and X is halogens.

2-Amino-methylindole derivatives or their salts



wherein R₁, R₂ and X respectively have the same meanings as above is allowed to react with an appropriate oxidizing agent, such as for example, chromium trioxide.

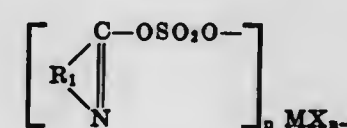
3,828,028

PROCESS FOR PREPARING LACTAM COMPLEXES

Mitsuo Masaki, Chiba, and Kiyoshi Fukui, Jyun'ichiro Kita, and Izuhiko Uchida, Ichihara, Japan, assignors to Ube Industries Ltd., Yamaguchi-ken, Japan

No Drawing. Filed Apr. 24, 1972, Ser. No. 247,009
Int. Cl. C07d 41/06

U.S. Cl. 260—239.3 R 6 Claims
An improved process for producing a lactam complex which may be readily converted to a corresponding lactam from an alicyclic ketoxime complex by reacting said ketoxime complex with a lactime-O-sulfonic acid metal compound, as a rearrangement reagent, of the following formula (2)



(2)

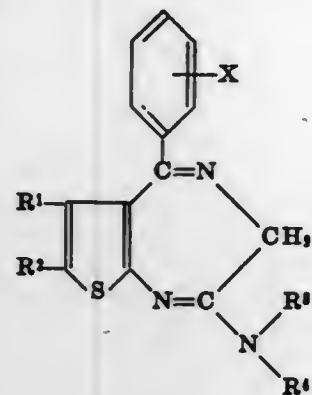
3,828,039
2-AMINO-THIENO[2,3-c][1,4]DIAZEPINE
COMPOUNDS

Michio Nakanishi, Oita, and Tetsuya Tahara, Kazuhiko Araki, and Masami Shiroy, Yoshitomi-machi, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

No Drawing. Filed Apr. 12, 1972, Ser. No. 243,435
Claims priority, application Japan, Apr. 14, 1971, 46/24,013

Int. Cl. A61k 27/00; C07d 63/12, 63/14

U.S. Cl. 260—247.1 16 Claims
2-amino-thieno[2,3-c][1,4]diazepine compounds of the general formula:



wherein X is H, halogen, methyl, methoxy or trifluoromethyl; each of R¹ and R² is H or C₁₋₄ alkyl, or R¹ and R² combinedly form —(CH₂)₄—; and —N(R³)(R⁴) is amino, alkyl- or dialkyl-amino (alkyl being C₁₋₄ alkyl), 1-pyrrolidinyl, piperidino, morpholino or 4-methyl-1-piperazinyl; and pharmaceutically acceptable acid addition salts thereof, are useful as psychotropics.

3,828,040

ANTHRAQUINONE REACTIVE DYESTUFFS

Hans-Samuel Blen, Burscheid, Wolfgang Harms, Leverkusen, Reinhold Schmitz, Blecher, and Heinrich Leister, Cologne-Stammheim, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of application Ser. No. 684,931, Nov. 22, 1967. This application July 17, 1970, Ser. No. 64,007

Claims priority, application Germany, Nov. 30, 1966, F 50,802

Int. Cl. C07d 51/36, 55/48

U.S. Cl. 260—249 6 Claims
Anthraquinone reactive dyestuffs consisting of 1,4,5-triamino anthraquinones wherein the 1 and 4 - amino groups are substituted by sulfoarylene, sulfoaralkylene or sulfatoalkylene radicals and the 5-amino group is substituted by a reactive group. The dyestuffs are especially suitable for use in dyeing hydroxyl or nitrogen containing textile materials, especially natural and regenerated cellulose, wool, silk, synthetic polyamide and polyurethane fibers thereby yielding dyeings of excellent fastness properties.

3,828,041

6-SUBSTITUTED 3-NITROIMIDAZO[1,2-b]PYRIDAZINES AND METHOD OF PREPARING SAME

Andrew Stephen Tomcufek, Old Tappan, N.J., and Patrick Thomas Izzo and Paul Frank Fabio, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of abandoned applications Ser. No. 118,508, Feb. 24, 1971, and Ser. No. 118,510, Feb. 24, 1971. This application Sept. 28, 1972, Ser. No. 293,234

Int. Cl. C07d 51/04

U.S. Cl. 260—250 AC 10 Claims
The preparation of 6-substituted oxo, thio or amino-3-nitroimidazo[1,2-b]pyridazines which may have a substituent in the 2-position are described. One method is the nitration in the 3-position of the substituted imidazo[1,2-b]pyridazine to give the desired product. Other meth-

ods are described. The compounds are useful for their anti-protozoal activity particularly as anti-amebic and anti-trichomonal agents.

3,828,042

PRODUCTION OF 3-SUBSTITUTED- AND 1,3-DI-SUBSTITUTED - 2,4(1H,3H) - QUINAZOLINE-DIONES, AND THE 2,4 THIO AND DITHIO ANALOGUES THEREOF

George F. Schlaudecker, Toledo, and Richard L. Jacobs, Perrysburg, Ohio, assignors to The Sherwin-Williams Company, Cleveland, Ohio

No Drawing. Continuation of application Ser. No. 656,691, July 28, 1967, which is a continuation-in-part of application Ser. No. 554,354, June 1, 1966, which in turn is a continuation-in-part of application Ser. No. 464,190, June 15, 1965, all now abandoned. This application Sept. 12, 1969, Ser. No. 860,159

Int. Cl. C07d 51/48

U.S. Cl. 260—251 QA 14 Claims
An improved method for the production of 3-substituted- and 1,3-disubstituted - 2,4(1H,3H) - quinazolinones and the 2,4 thio and dithio analogous¹ thereof which involves the steps of mixing (in the absence of an HCl absorber) phosgene or thiophosgene with certain o-amino-N-substituted benzamides, o-amino-N-substituted thiobenzamides, o-substituted amino-N-substituted benzamides or o-substituted amino-N-substituted thiobenzamides, and heating the resulting reaction mixture to a temperature sufficiently high to cause evolution of HCl, but sufficiently low that decomposition does not occur.

3,828,043

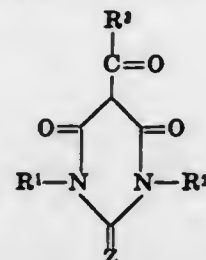
5-ACYL BARBITURIC ACID DERIVATIVES

Ian Trevor Kay, Finchampstead, Frederick Charles Peacock, Ascot, and Wilson Shaw Waring, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed June 22, 1971, Ser. No. 155,645
Claims priority, application Great Britain, July 2, 1970, 32,098/70

Int. Cl. C07d 51/20

U.S. Cl. 260—257 5 Claims
A compound having the formula:



wherein R¹ and R² represent hydrogen, alkyl of up to 6 carbon atoms, allyl, cyclohexyl, phenyl, benzyl, phenylallyl or furyl-allyl, R³ represents alkyl of up to 6 carbon atoms, allyl, cyclohexyl, phenyl, benzyl, phenylallyl or furyl-allyl, and Z represents an oxygen or sulphur atom provided that Z is sulphur when both R¹ and R² are hydrogen, methyl or ethyl and R³ is methyl. The compounds are useful in combatting plant pests.

3,828,044

5-(3,4,5-TRIMETHOXYBENZYL)-BARBITURIC ACIDS

Berislav Gluncic and Nedjeljko Kujundzic, Zagreb, Yugoslavia, assignors to PLIVA, Pharmaceutical and Chemical Works, Zagreb, Yugoslavia

No Drawing. Filed Apr. 5, 1972, Ser. No. 241,435
Claims priority, application Yugoslavia, Feb. 5, 1971, 263/71

Int. Cl. C07d 51/20

U.S. Cl. 260—257 3 Claims
The invention disclosed provides 5-(3,4,5-Trimethoxybenzyl)-barbituric acid, substituted derivatives thereof and a process for their preparation.

3,828,045

DIGLYCIDYL ETHERS OF FIVE AND SIX MEMBERED N-HETEROCYCLIC COMPOUNDS

Hans Batzer, Arlesheim, Juergen Habermeler, Allschwil, and Daniel Porret, Binningen, Switzerland, assignors to Ciba-Gelgy AG, Basel, Switzerland

No Drawing. Filed Jan. 26, 1971, Ser. No. 109,953

Claims priority, application Switzerland, Jan. 30, 1970, 1,347/70

The portion of the term of the patent subsequent to Dec. 21, 1988, has been disclaimed

Int. Cl. C07d 51/30, 49/32

U.S. Cl. 260—260 5 Claims

New diglycidyl ethers of mononuclear, five-membered or six-membered, unsubstituted or substituted N-heterocyclic compounds with two NH groups in the molecule, containing butene oxide as an adduct, produced by reaction of mononuclear, five-membered or six-membered, unsubstituted or substituted N-heterocyclic compounds, for example hydantoin, barbituric acid, uracil, dihydrouracil, parabanic acid and the corresponding derivatives, with butene oxide, for example 1,2-butene oxide, to give monoalcohols or dialcohols, and subsequent glycidylation of the OH groups or of the OH group and the NH group to give the corresponding glycidyl ethers.

3,828,046

[4-(5,10 - DIHYDRO-4H-BENZO[5,6]CYCLOHEPTA [1,2-b]THIEN-4-YL) - 1-PIPERAZINYL-ALKYL]-3-ALKYL-2-IMIDAZOLIDINONES

Guenther Doerhoefer, Allschwil, Switzerland, assignor to Ciba-Gelgy Corporation, Ardsley, N.Y.

Filed June 8, 1972, Ser. No. 260,877

Claims priority, application Switzerland, June 17, 1971, 8,822/71

Int. Cl. C07d 51/70

U.S. Cl. 260—268 TR 23 Claims

Compounds of the class of [4-(5,10-dihydro-4H-benzo[5,6]cyclohepta[1,2-b]thien - 4 - yl) - 1-piperazinyl-alkyl]-3-alkyl-2-imidazolidinones, their 5-methyl substituted and their 7-chloro- or 8-chloro-substituted derivatives as well as their pharmaceutically acceptable acid addition salts exhibit pharmacological activities directed to the central nervous system as it is shown by standard pharmacological test methods on animals. The results obtained render these compounds suitable for use as sedatives, hypnotics and tranquilizers for the treatment of sleep disturbances and states of tension and agitation.

3,828,047

PHENOXYETHYL N-PHENYL-N-PHENOXYETHYL-PIPERAZINYLETHYL CARBAMATE

Franklin W. Abbate, North Haven, and William J. Farrissey, Jr., Northford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application Mar. 2, 1970, Ser. No. 15,925, now Patent No. 3,719,680, dated Mar. 6, 1973. Divided and this application Dec. 13, 1972, Ser. No. 314,610

Int. Cl. C07d 51/70

U.S. Cl. 260—268 R 1 Claim

Phenoxyethyl N - phenyl-N-phenoxyethylpiperazinylethylcarbamate is prepared in good yield by reacting at an elevated temperature an appropriate N-hydrocarbylcarbamate with triethylenediamine or an N-hydrocarbylcarbamate, triethylenediamine. The N-piperazinyl derivative so-formed is useful as catalysts in the manufacture of polyurethanes, in the preparation of acid-soluble and acid-dyeable polyurethanes.

3,828,048

ALKYLSULFONIC DERIVATIVES OF QUININE ALKALOIDS

Rene Tixier, Paris, France, assignor to Societe Generale de Reserches et d'Applications Scientifiques (Sogeras)

No Drawing. Filed Oct. 14, 1971, Ser. No. 189,106

Claims priority, application Great Britain, Oct. 14, 1970, 48,926/70

Int. Cl. C07d 43/24

U.S. Cl. 260—284 3 Claims

Quinine alkaloids such as quinine, quinidine, hydroquinidine and quinicine are reacted with an alkane sultone, such as propane sultone or butane sultone, to form an internal sulfonate which has more acceptable pharmacological properties, especially a reduced toxicity.

3,828,049

DIASTEREOMERS OF α-HYDRAZINO - β-(3,4-DISUBSTITUTED PHENYL)ALKANOIC ACID DERIVATIVES

Sandor Karady, Elizabeth, Seemon H. Pines, Murray Hill, Manuel G. Ly, Edison, and Meyer Slettinger, North Plainfield, N.J., assignors to Merck & Co. Inc., Rahway, N.J.

No Drawing. Original application June 24, 1970, Ser. No. 49,542, now Patent No. 3,718,674. Divided and this application Nov. 15, 1971, Ser. No. 199,061

Int. Cl. C07d 43/32

U.S. Cl. 260—284 4 Claims

Diastereomers of and a method of resolving α-hydrazino-β-(substituted or unsubstituted phenyl)alkanoic acid derivatives.

3,828,050

3-ALKOXY-14-ACYLOXYDIHYDROMORPHINONE DERIVATIVES

William Roger Buckett, Lanark, Scotland, and Hans Harold Bosman, Epe, Netherlands, assignors to Akzona Incorporated, Asheville, N.C.

No Drawing. Continuation-in-part of abandoned application Ser. No. 35,881, May 8, 1970. This application Aug. 7, 1972, Ser. No. 278,240

Claims priority, application Great Britain, May 16, 1969, 25,025/69

Int. Cl. C07d 43/28

U.S. Cl. 260—285 4 Claims

The invention relates to novel 3-alkoxy, 14-valeryloxy or caproyloxy-dihydronormorphinone derivatives, which at the nitrogen atom are substituted with a cyclopropylmethyl or cyclobutylmethyl radical, and their acid addition salts; these compounds show very useful properties in that they exert a surprisingly improved analgesic activity besides tranquilizing, cough suppressing and anti-convulsant properties, without inducing depressing respiration.

3,828,051

PROCESS FOR PRODUCING PYRIDINE BASES

Yasuo Kusunoki and Hiroshi Okasaki, Kitakyushu, Japan, assignors to Nippon Steel Chemical Co., Ltd., Tokyo, Japan

No Drawing. Filed Nov. 15, 1971, Ser. No. 199,009

Int. Cl. C07d 31/08

U.S. Cl. 260—290 P 15 Claims

The process claimed is directed to the production of pyridine bases, especially MEP, wherein the content of

α -picoline and, if desired, β -picoline are greatly increased. To increase the α -picoline content, paraldehyde is reacted in an ammoniacal alkaline environment, in the presence or absence of oxygen, with NH_3 and a copper compound. If also β -picoline is desired, a trioxane is added to the reaction. The reactivity of the copper is maintained substantially unabated if the reaction is carried out in the presence of oxygen or an oxygenous gas. Optimum production of α -picoline is achieved by using copper acetate and either methanol or ethanol. Paraldehyde may be used as an extracting solvent to improve the process. Typical operational parameters are 150–280° C. and 20–150 kg./cm.² pressure in the liquid phase.

3,828,052

ACYL HYDRAZONES OF 2,2,6,6-TETRAMETHYL-PIPERIDINE-4-ONES

Brian Holt, Royton, Donald Richard Randell, Stockport, and James Jack, Bramhall, England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Sept. 20, 1971, Ser. No. 182,181

Int. Cl. C07d 29/30

U.S. Cl. 260—293.62 25 Claims

Acyl hydrazone derivatives of 2,2,6,6-tetramethylpiperidine-4-one are stabilizers of organic materials. They are prepared by reacting a corresponding acid hydrazide with triar .onamine.

3,828,053

LOWER-ALKYL- β -OXO-4-PIPERIDINE-N-BENZOYLPROPIONATES

Felix E. Granchelli, Arlington, Mass., assignor to Beecham Group Limited, Brentford, England

No Drawing. Continuation of abandoned application Ser. No. 873,080, Oct. 31, 1969. This application Aug. 17, 1971, Ser. No. 172,582

Int. Cl. C07d 29/24

U.S. Cl. 260—293.77 2 Claims

Benzopyran-5-ols having anti-depressant and analgesic properties are prepared from corresponding coumarin intermediates via the new β -keto ester ethyl- β -oxo-4-piperidine-N-benzoylpropionate obtained from N-benzoyl-isonipecotinyl tert. butyl ethyl malonate. The benzopyran-5-ols can be hydrogenated to the corresponding pyran ring-saturated dihydro-pyrans lacking the double bond in the 3–4 position.

3,828,054

N-ACYL AND N-PYRIDYLCARBONYL OR SULFONYL MONO- OR DI-SUBSTITUTED SULFAMOYL BENZENESULFONAMIDES

James M. Sprague, Gwynedd Valley, and Carl Ziegler, Glenside, Pa., assignors to Merck & Co. Inc., Rahway, N.J.

No Drawing. Original application Sept. 26, 1969, Ser. No. 870,380, now Patent No. 3,709,917, dated Jan. 9, 1973. Divided and this application Oct. 4, 1972, Ser. No. 295,075

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 F 4 Claims

N-Acyl and N-organosulfonyl mono-substituted or di-substituted sulfamoylbenzenesulfonamides and salts thereof wherein the benzene ring may be substituted by halo, alkyl, trihalo lower alkyl, nitro, cyano, carboxy or a hydrocarbylene moiety. The products are prepared by either of two routes: (1) by treating a mono- or di-substituted

sulfamoylbenzenesulfonamide with an acyl halide (or organosulfonyl halide) or with a carboxylic acid anhydride (or organosulfonic acid anhydride), or (2) by treating a mono- or di-substituted sulfamoylbenzenesulfonyl halide with a salt of an acyl (or organosulfonyl) amide. The products are useful in the treatment of gout and gouty arthritis.

3,828,055

HETEROCYCLIC AMIDES OF 4-HYDROXY-2H-1-BENZOTHIOPYRAN-3-CARBOXYLIC ACID 1,1-DIOXIDE

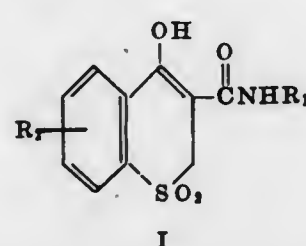
Harold Zinnes, Rockaway, and Neil A. Lindo, Chatham, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Continuation-in-part of application Ser. No. 248,509, Apr. 28, 1972, now Patent No. 3,769,292, dated Oct. 30, 1973. This application Feb. 20, 1973, Ser. No. 333,842

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 C 6 Claims

Compounds of the formula:



wherein R_1 is an aromatic heterocyclic group and R_2 is hydrogen, alkyl, aralkyl, alkoxy, halogen, cyano, nitro, trifluoromethyl, etc., are disclosed. These compounds are useful as antiinflammatory agents.

3,828,056

[2-(2-METHYL-5-NITRO-1-IMIDAZOLYL)ETHYL] HETEROARYLOXY ETHERS

Eunice M. Kreider, Chicago, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Sept. 11, 1972, Ser. No. 288,111

Int. Cl. C07d 31/42

U.S. Cl. 260—296 R 3 Claims

Heteroaryloxy ethers of 1-(2-hydroxyethyl)-5-nitroimidazole are herein described. These compounds are potent anti-microbial agents. They are prepared by the reaction of a heteroaromatic alcohol with 1-(2-chloroethyl)-2-methyl-5-nitroimidazole in aprotic polar solvents in the presence of base and sodium or potassium iodide.

3,828,057

AMINO DERIVATIVES OF PYRAZOLOPYRIDINE KETONES

Theodor Denzel, Nurnberg, and Hans Hoehn, Tegernheim, Germany, assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 146,812, May 25, 1971. This application Sept. 26, 1972, Ser. No. 292,363

Int. Cl. C07d 31/42

U.S. Cl. 260—296 H 10 Claims

New amino derivatives of pyrazolo[3,4-b]pyridine-5-ketones as well as their salts are useful as central nervous system depressants. These compounds also increase the intracellular concentration of adenosine-3',5'-cyclic monophosphate.

3,828,058

PROCESS FOR THE MANUFACTURE OF 1,1'-DI-SUBSTITUTED-4,4'-BIPYRIDYLUM SALTS

John Francis Cairns, John Edward Colchester, and John Hubert Entwisle, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Mar. 27, 1969, Ser. No. 811,248

Claims priority, application Great Britain, Apr. 5, 1968, 16,474/68

Int. Cl. C07d 31/42

U.S. Cl. 260—296 D 14 Claims

A process for the manufacture of 1,1'-disubstituted-4,4'-bipyridylum salts which comprises treating the corresponding 1,1'-disubstituted-1,1',4,4'-tetrahydro-4,4'-bipyridyl with a salt of a metal capable of existing in at least two valency states wherein the metal is in a higher valency state and the redox potential of the metal salt in water between different valency states of the metal is more positive than —1.48 volts as compared with the saturated calomel electrode.

3,828,059

CERTAIN 1,2-BENZISOTHIAZOLE-1,1-DIOXIDES

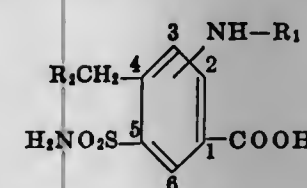
Peter Werner Felt, Gentofte, and Ole Bent Tvaermose Nielsen, Vanlose, Denmark, assignors to Lovens Kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark

No Drawing. Original application June 16, 1971, Ser. No. 153,879, now Patent No. 3,758,522, dated Sept. 11, 1973. Divided and this application Sept. 13, 1972, Ser. No. 288,763

Int. Cl. C07d 91/06

U.S. Cl. 260—301 4 Claims

The invention relates to a series of new compounds, their salts and esters and to methods for the preparation of the compounds having the general formula:



in which the NH-R_1 group can be in the 2- or 3-position, R_1 represents an aliphatic radical with from 3 to 8 carbon atoms in the chain, or a mononuclear aromatically or a mononuclear heterocyclically substituted methyl or ethyl group, and R_2 represents an unsubstituted or substituted phenyl group.

The compounds of the invention possess pronounced diuretic and saluretic activities.

3,828,060

HETEROCYCLIC NITROGEN- AND SULFUR-CONTAINING OPTICAL BRIGHTENER COMPOUNDS

Warren I. Lyness, Mount Healthy, Ronald T. Amel, Springfield, and Gary E. Booth, Oxford, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Continuation of application Ser. No. 846,601, July 31, 1969, now Patent No. 3,711,474, dated Jan. 16, 1973. This application Nov. 9, 1972, Ser. No. 305,208

Int. Cl. C07d 91/04, 91/24

U.S. Cl. 260—301 2 Claims

Optical brightener compounds defined as 2-benzisothiazolonyl-S-dioxide compounds, *o*-disulfonylimidinyld compounds and benzisothiazolonyl-S-dioxide compounds. The optical activity of these compounds can be employed to advantage in the optical brightening of a wide variety of natural and synthetic materials. They are useful in the brightening of fabrics and find application in the preparation of laundry detergent compositions and hypochlorite bleach-containing compositions.

3,828,061

MULTI-STEP PROCESS FOR PREPARING 2,3,5,6-TETRAHYDROIMIDAZO[2,1-b]THIAZOLES

Asbjorn Baklien, Kingsbury, Victoria, and Jan Kolm, Kew, Victoria, Australia, assignors to ICI Australia Limited, Melbourne, Victoria, Australia

No Drawing. Original application July 14, 1966, Ser. No. 565,092, now Patent No. 3,759,937. Divided and this application Apr. 3, 1972, Ser. No. 240,773

Claims priority, application Australia, July 19, 1965, 61,653/65; July 26, 1965, 61,931/65; Aug. 31, 1965, 63,415/65; Sept. 8, 1965, 63,786/65

Int. Cl. C07d 99/10

U.S. Cl. 260—306.7 7 Claims

Process for preparing certain 2,3,5,6-tetrahydroimidazo[2,1-b]thiazoles which includes reacting certain aziridines with thiourea or thiocyanic acid and ring-closing the product so obtained.

3,828,062

PROCESS FOR THE PREPARATION OF DES A-9 β -STEROIDS

Andor Furst, Basel, Ludwig Labler, Allschwil, Werner Meler, Bottmingen, and Peter Muller, John William Scott, and Erich Widmer, Arlesheim, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Apr. 14, 1971, Ser. No. 134,091

Claims priority, application Switzerland, May 21, 1970, 7,498/70

Int. Cl. C07d 85/00

U.S. Cl. 260—307 H 17 Claims

DesA-9 β -steroids are produced by the hydrogenation of desA- Δ^9 -steroids using a palladium catalyst in the presence of hydrobromic acid. These compounds are useful intermediates for the preparation of hormonally active 9 β ,10 α -steroids.

3,828,063

BENZISOXAZOLO(THIONO)PHOSPHORIC (PHOSPHONIC) ACID ESTERS

Walter Lorenz, Wuppertal-Cronenberg, Horst Böhagen, Haan, Rhineland, and Ingeborg Hammann and Wolfgang Behrenz, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

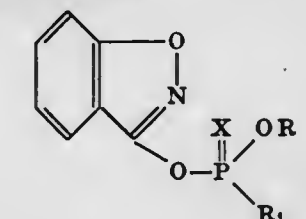
No Drawing. Filed June 9, 1971, Ser. No. 151,515

Claims priority, application Germany, June 26, 1970, P 20 31 750.4

Int. Cl. C07d 85/48

U.S. Cl. 260—307 D 2 Claims

Benzisoxazolo(thiono)phosphoric(phosphonic) acid esters of the general formula



in which

R is a lower alkyl radical,
 R_1 is a lower alkyl or alkoxy radical, and
 X is an oxygen or sulfur atom,

which possess insecticidal, acaricidal, nematocidal and, in some cases, fungicidal properties.

3,828,064

METHOD OF PREPARING 1,5-DISUBSTITUTED-2-NITROIMIDAZOLES

John Martin, Wayland, and Francis Johnson, Newton Lower Falls, Mass., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Oct. 25, 1972, Ser. No. 300,742

Int. Cl. C07d 49/36

U.S. Cl. 260—309 2 Claims

Various 1,5-disubstituted-2-nitroimidazoles are prepared by reacting a 1,5-disubstituted-2-haloimidazole in an organic solvent with an alkyl or aryl lithium compound

at a temperature between minus 75° and minus 30° C. and thereafter contacting the mixture with a solution of dinitrogen tetroxide followed by isolation of the desired product.

3,828,065
2-METHYL-5-NITRO-1-(2-PHENYLTHIOETHYL)
IMIDAZOLES

Eunice M. Kreider, Chicago, Ill., assignor to G. D. Searle & Co., Chicago, Ill.
No Drawing. Filed Dec. 11, 1972, Ser. No. 314,132
Int. Cl. C07d 49/36

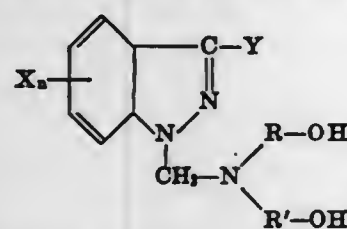
U.S. Cl. 260—309 10 Claims
The present invention is concerned with 2-methyl-5-nitro-1-(2-phenylthioethyl)imidazoles. These compounds are prepared by the condensation of substituted thiophenols with 1-(2-chloroethyl)-5-nitro-2-methylimidazole in the presence of base in a polar solvent. The compounds of this invention are anti-protozoal agents.

3,828,066
DIGLYCIDYLMIDAZOLIDONES
Daniel Porret, Binningen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed Dec. 29, 1972, Ser. No. 319,961
Claims priority, application Switzerland, Jan. 5, 1972, 108/72

Int. Cl. C07d 49/30, 49/34
U.S. Cl. 260—309.6 2 Claims
Diglycidylhexahydrobenzimidazolone and diglycidyl-tetrahydrobenzimidazolone. These compounds can be used by curing with amines or anhydrides, to manufacture casting resins, electrical resins, sintering powders and compression moulding compositions.

3,828,067
N-(INDAZOLYL-N'-METHYL) DIALKANOLAMINES
Pasquale P. Minierl, Woodside, N.Y., assignor to Tenneco Chemicals, Inc.
No Drawing. Filed Nov. 20, 1972, Ser. No. 308,156
Int. Cl. C07d 49/18

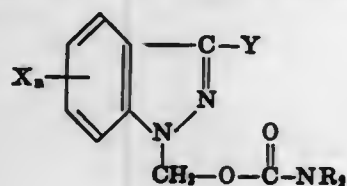
U.S. Cl. 260—310 C 3 Claims
Compounds that have the structural formula



wherein X represents halogen, nitro, amino, acetamino, or (halobenzylidene)amino; Y represents hydrogen or halogen; R and R' each represents an alkylene group having 1 to 8 carbon atoms; and n represents a number in the range of 0 to 3 are used to control the growth of fungi and bacteria. Illustrative of these compounds is N-(3-chloroindazolyl-N'-methyl)diethanolamine.

3,828,068
[(SUBSTITUTED INDAZOLYL)-N'-METHYL] CARBAMATES
Pasquale P. Minierl, Woodside, N.Y., assignor to Tenneco Chemicals, Inc.
No Drawing. Continuation-in-part of applications Ser. No. 141,999, May 10, 1971, now Patent No. 3,741,979, and Ser. No. 247,084, Apr. 24, 1972. This application Nov. 29, 1972, Ser. No. 310,670
Int. Cl. C07d 49/18

U.S. Cl. 260—310 C 3 Claims
Compounds that have the structural formula

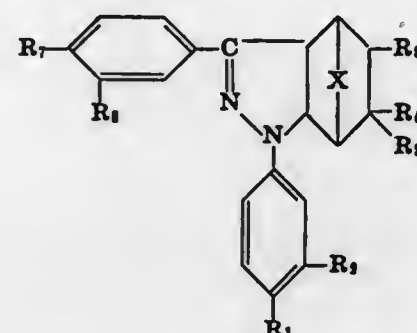


wherein X represents halogen, nitro, amino, acetamino, or (halobenzylidene)amino; n represents an integer in the range of 0 to 3; each R represents hydrogen, lower alkyl, phenyl, halophenyl, or nitrophenyl; when n is 0, Y represents halogen; and when n is 1 to 3, Y represents hydrogen or halogen are used to control the growth of fungi and bacteria. Illustrative of these compounds is (3-chloroindazolyl-N'-methyl)N-methylcarbamate.

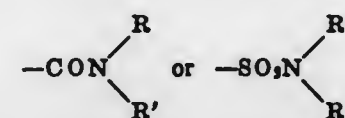
3,828,069
1,3-DIARYLHEXAHYDROINDAZOLE DERIVATIVES AS OPTICAL BRIGHTENERS

Mauro Stagi, Allschwil, Switzerland, assignor to Ciba-Geigy AG., Basel, Switzerland
No Drawing. Filed Apr. 5, 1972, Ser. No. 241,385
Claims priority, application Switzerland, Apr. 19, 1971, 5,632/71

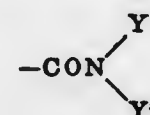
Int. Cl. C07d 49/10
U.S. Cl. 260—310 D 2 Claims
The present invention relates to new 1,3-diaryl-3a,4,5,6,7,7a-hexahydroindazoles, which are useful as optical brighteners for high molecular organic materials. Said compounds are of the formula



or positional isomers of R₃ and R₄ with R₅, wherein R₁ represents trifluoromethyl, nitrile, a —COOR,



radical, wherein R and R' independently of one another represent hydrogen, or alkyl containing 1-4 carbon atoms and optionally substituted by hydroxyl, alkoxy, amino, sulphonic acid or carboxylic acid, or R and R' together with the nitrogen represent pyrrolidino or optionally methyl-substituted morpholino or piperidino, or the —SO₂R'' radical, wherein R'' represents alkyl with 1 to 4 carbon atoms optionally substituted by hydroxyl, alkoxy, amino, sulphonic acid or carboxylic acid, or represents alkenyl with 2 to 4 C atoms or aryl, R₂ denotes hydrogen, chlorine or alkyl containing 1 to 3 carbon atoms, R₃, R₄ and R₅ independently of one another denote hydrogen, nitrile, alkyl possessing 1 to 4 carbon atoms, a —COOY or



radical, wherein Y and Y' independently of one another represent hydrogen or alkyl with 1 to 4 carbon atoms optionally substituted by hydroxyl, or Y and Y' together with the nitrogen represent pyrrolidino or optionally methyl-substituted piperidino or morpholino, or R₄ and R₅ together denote a fused benzene ring optionally containing non-chromophoric substituents, R₆ and R₇ independently of one another denote hydrogen, halogen up

to atomic number 35 or alkyl possessing 1 to 4 carbon atoms and X denotes —CH₂—, —O— or —NZ—, wherein Z represents alkyl with 1 to 4 carbon atoms.

3,828,070

AMINOETHANESULFONYL DERIVATIVES AND THEIR PRODUCTION

Shun-ichi Naito, 35 Murasakina Kamitoridacho, Kita-ku, Kyoto, Japan

No Drawing. Original application July 19, 1971, Ser. No. 164,007, now Patent No. 3,743,647. Divided and this application Dec. 26, 1972, Ser. No. 318,555

Claims priority, application Japan, Aug. 27, 1970, 45/75,350, 45/75,351, 45/75,352; Dec. 18, 1970, 45/114,446, 45/114,447

Int. Cl. C07d 27/56
U.S. Cl. 260—326.12 R 2 Claims

Aminoethanesulfonyl derivatives having a general formula R—SO₂CH₂CH₂Y where R is selected from a group consisting of thiazolyl-2-amino, 1-pyrrolyl, 4-methylpiperazyl, and 1-indolyl and Y is NH₂ or, when R is thiazolyl-2-amino, said Y may be nicotinoylamino as well as manufacture methods thereof were disclosed.

3,828,071

CATALYTIC OXIDATION OF ARYLMETHANE COMPOUNDS

Hellmut Kast, Hans Baumann, and Udo Mayer, Ludwigshafen, and Andreas Oberlinner, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed July 28, 1972, Ser. No. 276,108
Claims priority, application Germany, Aug. 4, 1971, P 21 38 931.1; Oct. 22, 1971, P 21 52 703.7; May 29, 1972, P 22 26 039.5; June 2, 1972, P 22 26 936.9

Int. Cl. C07d 27/56
U.S. Cl. 260—326.15 5 Claims

A process for the catalytic oxidation of p-amino-substituted di-(hetero)-arylmethane and tri-(hetero)-arylmethane compounds with oxygen in the presence of a quinone and a catalyst containing a heavy metal in complex form. The process is eminently suitable for the production of p-amino-substituted diarylketones and basic dyes avoiding the usual pollution problems.

3,828,072

PROCESS FOR PREPARING COMPOUNDS OF THE BENZOTHIOXANTHENE SERIES

Ernst Spietschka, Oberauroff, Taunus, and Josef Landler, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 10, 1972, Ser. No. 270,188
Claims priority, application Germany, July 10, 1971, P 21 34 517.5

Int. Cl. C07d 65/17
U.S. Cl. 260—328 5 Claims

Process for preparing compounds of the benzothioxanthene series, wherein compounds of the 1-(2'-amino-phenylmercapto)-naphthalene series or of the 1-phenylmercapto-8-aminonaphthalene series are reacted in tertiary amines with compounds yielding nitrosyl groups and the diazonium compounds so obtained are heated. This process is suited for all compounds which contain the

benzothioxanthene ring, independently of their substituents. The products obtained by this process have a markedly higher purity and are obtained in a higher yield as compared to other processes.

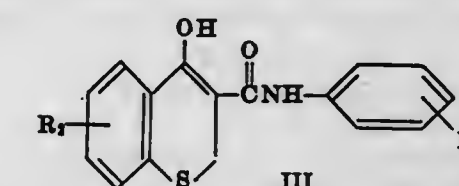
3,828,073

4-HYDROXY - 2H - 1 - BENZOTHIOPYRAN-3-CARBOXAMIDES AND THEIR CORRESPONDING S-OXIDES

Harold Zinnes, Rockaway, and Neil A. Lindo, Chatham, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Mar. 23, 1973, Ser. No. 344,381
Int. Cl. A61k 27/00; C07d 65/14

U.S. Cl. 260—327 TH 3 Claims
Compounds having the following structural formula are disclosed:



In the above formula R₁ and R₂ are hydrogen, alkyl, aryl, aralkyl, alkoxy, halogen, cyano, nitro, trifluoromethyl and the like. Also disclosed are their corresponding S-oxides. These compounds are useful as anti-inflammatory agents.

3,828,074

PROCESS FOR THE PRODUCTION OF 3-THIENYLACETIC ACID

John Kirby Quick, Redhill, Kenneth Richardson, Ashington, and Kenneth Utting, Lower Kingswood, England, assignors to Beecham Group Limited, Brentford, Middlesex, England

No Drawing. Filed Nov. 24, 1971, Ser. No. 201,998
Claims priority, application Great Britain, Nov. 25, 1970, 55,971/70

Int. Cl. C07d 63/12
U.S. Cl. 260—332.2 A 15 Claims

Thiophene is converted into 3-thienylacetic acid or an alkyl ester thereof via (a) 2,5-dichlorothiophene, (b) 2,5-dichloro-3-chloromethylthiophene, (c) the novel 2,5-dichloro-3-cyanomethylthiophene and (d) either 3-cyanomethylthiophene or the novel 2,5-dichloro-3-thienylacetic acid or an alkyl ester thereof. The produced 3-thienylacetic acid or an alkyl ester thereof can be further converted into 3-thienylmalonic acid which in turn may be converted to α-carboxy - 3 - thienylmethylpenicillin or an ester thereof.

3,828,075

SYNTHESIS OF 1,5-DIMETHYL-6,8-DIOXABICYCLO[3.2.1]OCTANE

Hans K. Dietl, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 8, 1972, Ser. No. 278,841
Int. Cl. C07d 13/04

U.S. Cl. 260—340.9 3 Claims

1,5-Dimethyl-6,8-dioxabicyclo[3.2.1]octane is prepared by reacting 2-methyl-1-heptene-6-one with a peracid or peroxide.

3,828,076

3-(3-SUBSTITUTED AMINO-2-HYDROXYPROPOXY)-2-SUBSTITUTED-4-PYRANONES

Burton Kendall Wasson, Valois, Quebec, and Clarence Stanley Rooney, Beaconsfield, Quebec, Canada, assignors to Merck Sharp & Dohme (I.A.) Corporation, Rahway, N.J.

No Drawing. Filed Mar. 15, 1973, Ser. No. 341,422

Int. Cl. C07d 7/16

U.S. Cl. 260—345.9 3 Claims

3 - (3 - Substituted amino-2-hydroxypropoxy)-2-substituted-4-pyranone products possessing β -adrenergic blocking properties are described. Products are made by reaction of 3-hydroxy-2-substituted-4-pyranone with an epihalohydrin and the epoxide formed reacted with the appropriate substituted amine.

3,828,077

PRODUCTION OF 2,3-DIHYDROFURAN

Gerhard P. Nowack and Marvin M. Johnson, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Aug. 27, 1971, Ser. No. 175,704

Int. Cl. C07d 5/08

U.S. Cl. 260—346.1 R 5 Claims

Furans are selectively hydrogenated to mixtures comprising tetrahydrofuran (THF) and significant amounts of 2,3-dihydrofurans by contact with hydrogen and a ruthenium catalyst in the presence of an organic nitrogen compound which functions as a reaction modifier.

3,828,078

4-AMINO-3-(HALO, NITRO OR TRIFLUOROMETHYL) - 5 - TRIFLUOROMETHYL BENZENESULFONAMIDES

Helmut H. Mrozik, Matawan, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Apr. 19, 1971, Ser. No. 135,433, now abandoned. Divided and this application Jan. 26, 1973, Ser. No. 326,653

Int. Cl. C07c 143/80

U.S. Cl. 260—397.7 R 4 Claims

This invention relates to a novel method for the treatment of parasitic diseases and the compositions used in said treatment. More specifically this invention relates to benzenesulfonamides substituted at the 3, 4, and 5 positions of the benzene ring and to the use of such compounds for the treatment of mature and immature liver fluke infections.

3,828,079

4-AMINO-3,5-(TRIFLUOROMETHYL OR BROMO) BENZENE SULFONAMIDES

Helmut H. Mrozik, Matawan, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Apr. 19, 1971, Ser. No. 135,474. Divided and this application Jan. 30, 1973, Ser. No. 327,557

Int. Cl. C07c 143/80

U.S. Cl. 260—397.7 R 5 Claims

Novel substituted benzenesulfonamides are useful as agents for the treatment of both mature and immature liver fluke infections. The benzenesulfonamide is substituted on the sulfonamide nitrogen with loweralkoxy, substituted loweralkyl and heterocyclic in which the sulfonamide nitrogen is included in the heterocyclic ring. The benzene ring is variously substituted at the 3- and 5-positions and unsubstituted or substituted with an amino group at the 4-position. Compositions containing these compounds for the treatment of mature and immature liver fluke infestation are also disclosed.

3,828,080

ANDROSTANE - 17 β - CARBOXYLIC ACIDS AND PROCESSES FOR THE PREPARATION THEREOF

Gordon Hanley Philipps, Wembley, and Peter John May, North Harrow, England, assignors to Glaxo Laboratories Limited, Greenford, Middlesex, England

No Drawing. Filed Jan. 20, 1972, Ser. No. 219,574

Int. Cl. C07c 169/52

U.S. Cl. 260—397.1 23 Claims

The specification describes new androstane compounds having anti-inflammatory activity. The new androstanes described in the specification have an esterified 17 β -carboxylic acid grouping wherein the alcohol residue comprises a lower alkyl group; a lower alkyl group substituted by either at least one halogen atom or a lower alkoxy-carbonyl group; or a (C₂₋₄) lower alkyl group substituted by a lower alkoxy group. The 17 α -grouping of these androstanes is an esterified hydroxy group comprising a formyl, C₂₋₄ alkanoyl or benzoyl group.

3,828,081

STEROIDYL-ESTRATRIENES

Alberto Ercoli, Milan, Rinaldo Gardi, Carate Brianza, and Romano Vitali, Casatenovo, Italy, assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 129,634, Mar. 30, 1971. This application Jan. 31, 1973, Ser. No. 328,208

Int. Cl. C07c 169/60

U.S. Cl. 260—397.2 21 Claims

Biologically active disteroidyl ethers consisting of two steroid nuclei joined together by an oxygen bridge are prepared by reacting a 17-hydroxy estratriene with an enol ether or an acetal of a 3-ketosteroid of the androstane, gonane, cholestane or pregnane series and their 19-nor derivatives. The reaction is carried out under anhydrous conditions and in the presence of an acid catalyst, at a temperature higher than 70° C.

3,828,082

INSECT MOULTING HORMONES, AND METHOD FOR THEIR PREPARATION AND USE

Luigi Canonica, Milan, Bruno Danielli, Cesano Maderno, and Giorgio Ferrari, Milan, Italy, assignors to Dauten S.A., Roveredo, Switzerland

Filed Jan. 14, 1972, Ser. No. 217,842

Claims priority, application Italy, Jan. 18, 1971, 19,466/71; July 29, 1971, 7,806/71

Int. Cl. C07c 169/60

U.S. Cl. 260—397.25 6 Claims



A biological insecticide, based on insect moulting hormones, is disclosed, the active hormonal principle being extracted from the seeds of Kaladana plants: the latter are a vegetable species belonging to the Convolvulaceae

family, Ipomaea section, genus Calonyction (Choisy) Hallier f. A method is described for carrying out the extraction of the active principle, which is a crystalline mixture of crustecdysone, makisterone A, ecdysone and a newly discovered chemical species, which has been called muristerone herein. The hormones in question are used at concentrations of at least 0.1% of active principle, to control various agricultural pests such as *Doryphora decemlineata*, *Pieris brassicae*, and others.

3,828,083

NOVEL 6 α ,16 α -DIMETHYL STEROIDS

Klaus Kieslich, Ulrich Kerb, Klaus Mengel, and Amadeo Domenico, Berlin, Germany, assignors to Schering Aktiengesellschaft

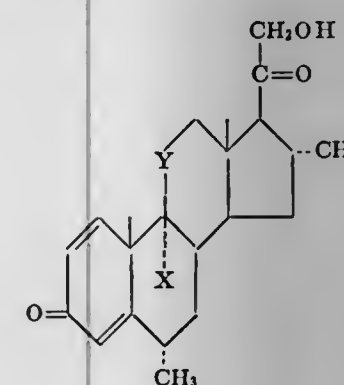
No Drawing. Filed Nov. 23, 1971, Ser. No. 201,546

Claims priority, application Germany, Nov. 28, 1970, P 20 59 310.6

Int. Cl. C07c 169/32

U.S. Cl. 260—397.45 12 Claims

6 α ,16 α -Dimethyl steroids of the formula



wherein X is a halogen atom and Y is β -halomethylene in which the halogen atom has the same or a lower atomic weight than X, β -hydroxymethylene or carbonyl, and 21-esters thereof possess a high ratio of anti-inflammatory activity to thymolytic side-effects.

3,828,084

PHOSPHOSULFURIZED SURFACE ACTIVE MATERIALS AND METHOD OF PRODUCING SAME

Harry Kaplan, Westfield, and John Papalos, Kearney, N.J., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed Dec. 29, 1971, Ser. No. 213,815

Int. Cl. C07f 9/08; C08h 9/00

U.S. Cl. 260—399 9 Claims

A phosphosulfurized composition comprising the product of the reaction of a compound containing the equivalent of about .25 to about 4.0 moles P₂S₅ with about 1 to about 5 moles of a nonionic surface active agent in the presence of 0 to 5% by weight of water and about .01 to about 5.0 of a phosphorous containing acid and a method of making same.

3,828,085

NOVEL AMIDOAMINE OXIDES

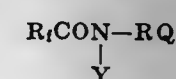
Alson K. Price, Eggertsville, and Abraham N. Fenster, Getzville, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed July 9, 1970, Ser. No. 53,705

Int. Cl. C07c 103/30

U.S. Cl. 260—404.5 10 Claims

Amidoamine oxides of the formula



wherein R₁ is a perfluoroalkyl group or a polyfluoroisooalkoxyalkyl group; Y is hydrogen or a lower alkyl group; R is a lower alkylene radical or a direct bond between nitrogen and a carbon in Q and Q is selected from certain aliphatic cycloaliphatic and heterocyclic aromatic radicals containing an amine oxide group. These compounds are useful as surface active agents in liquid and solid fire-fighting compositions, in drug compositions suitable for injection into the blood stream of mammals, and in artificial blood compositions.

3,828,086

METALLIC DIBASIC FATTY SOAP BASED GREASES

Harold E. Kenney, Jenkintown, and Edward T. Donahue, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed July 25, 1972, Ser. No. 275,009

Int. Cl. C08h 17/36

U.S. Cl. 260—413 4 Claims

Monohydroxy fatty acids or esters are cyanoethylated and the cyanoethoxy fatty derivative is treated with dilute hydrogen peroxide in a weakly basic medium to convert the cyano group to an amide function which is then hydrolyzed to the dibasic acid. The dibasic acid is reacted with an appropriate metallic base such as lithium, sodium and calcium to make the dibasic soap which is dispersed in a petroleum oil base or a synthetic base oil of the diester type to form a grease.

3,828,087

SILOXANE POLYMERS FOR SOIL-REPELLENT AND SOIL-RELEASE TEXTILE FINISHES

Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Application June 28, 1971, Ser. No. 157,759, now Patent No. 3,809,783, which is a division of application Ser. No. 38,899, May 19, 1970, now Patent No. 3,639,156. Divided and this application Mar 7, 1972, Ser. No. 232,513

Int. Cl. C07f 7/08

U.S. Cl. 260—448.2 B 2 Claims

Fluorocarbon silanes are copolymerized with silanes which contain two or more alkyleneoxy groups. The copolymers are useful for application to fibrous materials to provide both soil repellency and soil releasability.

3,828,088

METHOD FOR THE PREPARATION OF 2-ACETAMIDOETHYL(4-CHLOROPHENYL) - α - HALO-ACETATE

Richard F. Shuman, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed July 13, 1972, Ser. No. 271,448

Int. Cl. C07c 119/20

U.S. Cl. 260—453 R 9 Claims

A method for preparing the intermediate 2-acetamidoethyl 4-chlorophenyl- α -haloacetate which is useful in preparing 2-acetamidoethyl (3-trifluoromethylphenoxy) (4-chlorophenyl)acetate. The process comprises treating 4-chlorophenyl- α -haloacetonitrile with 2-acetamidoethanol in the presence of an acid to form an imino intermediate which is then hydrolyzed to afford the intermediate 2-acetamidoethyl 4-chlorophenyl- α -haloacetate. This intermediate may be treated with 3-trifluoromethylphenol in the presence of a base, to afford 2-acetamidoethyl (3-trifluoromethylphenoxy) (4-chlorophenyl)acetate, a hypcholesterolemic and hypolipemic agent which effective-

ly reduces the concentration of cholesterol, triglycerides and other lipids in blood serum.

3,828,089

PREPARATION OF AROMATIC ISOCYANATES IN FIXED BED REACTOR

Philip D. Hammond, North Haven, Conn., John A. Scott, Joliet, Ill., and William M. Clarke, North Haven, and William I. Denton, Cheshire, Conn., assignors to Olin Corporation

Filed Dec. 1, 1972, Ser. No. 311,055

Int. Cl. C07c 119/04

U.S. Cl. 260—453 PC

12 Claims

Aromatic isocyanates are produced directly from aromatic nitro compounds in a continuous process in which carbon monoxide and aromatic nitro compounds are reacted in a fixed bed reactor in the presence of a solvent and soluble catalyst.

3,828,090

ALKYLSULFONIC ACID ESTERS OF 1,3,2- OXAZAPHOSPHA-CYCLIC COMPOUNDS

Herbert Arnold, Heidelberg, Friedrich Bourseaux, Brackwede, Jürgen Potel, Gadderbaum, and Norbert Brock, Uerentrup, Germany, assignors to Asta-Werke Aktiengesellschaft, Chemische Fabrik, Brackwede, Westphalia, Germany

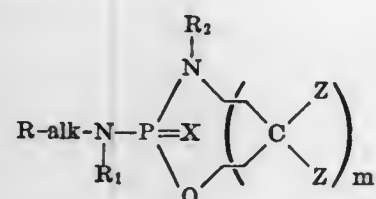
No Drawing. Filed Feb. 10, 1972, Ser. No. 225,273
Claims priority, application Germany, Feb. 19, 1971,
P 21 07 936,7; Jan. 14, 1972, P 22 01 675,7

Int. Cl. C07d 105/02, 143/00

U.S. Cl. 260—456 A

4 Claims

New alkyl sulfonic acid esters of 1,3,2-oxazaphosphacyclic compounds of formula I



These new compounds produce a high immunosuppressing activity in humans.

3,828,091

2-ARYL-3-ALIPHATICTHIOACRYLONITRILES

Jerry G. Strong, Westfield, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Sept. 25, 1970, Ser. No. 75,756

Int. Cl. C07c 121/70

U.S. Cl. 260—465 F

11 Claims

2-Aryl-3-aliphaticthioacrylonitriles form a new class of herbicides. They are effective as both pre-emergence and post-emergence herbicides. They are highly effective against Crabgrass, Yellow Foxtail grass, Johnson grass, Barnyard grass and Turnip (representative of weedy mustards). These compounds are readily synthesized by reacting an appropriate mercaptan with an appropriate acrylonitrile in the presence of an organic solvent which azeotropes with water and a suitable acid catalyst.

3,828,092

PROCESS FOR PRODUCING ALKYL ESTERS OF ω -CYANO-ACIDS

Pierre Chabardes, Pierre Gandilhon, and Charles Grard, Lyon, and Michel Thiers, La Cote par Brignais, Rhone, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed June 26, 1967, Ser. No. 649,033
Claims priority, application France, July 13, 1966,
69,417

Int. Cl. C07c 121/02

U.S. Cl. 260—465,4

4 Claims

Alkyl ω -cyano-valerates and 5-cyano-penten-4-ates are prepared by a process which comprises heating a mixture of acrylonitrile and an alkyl acrylate under hydrogen pressure in the presence of a ruthenium compound as catalyst.

BENZOYLPHENYLACETIC ACIDS AND RELATED COMPOUNDS

David Edmund Bays and Roy Vivian Foster, London, England, assignors to Allen & Hanburys Limited, London, England

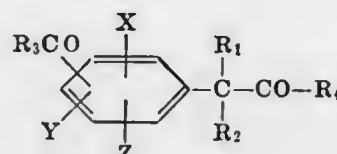
No Drawing. Filed July 25, 1968, Ser. No. 747,435
Claims priority, application Great Britain, July 31, 1967,
35,166/67

Int. Cl. C07c 65/20, 69/76

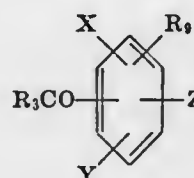
U.S. Cl. 260—469

9 Claims

Novel phenylacetic derivatives are provided of the general formula



in which R₁, R₂, R₃ and R₄ are as defined herein, specifically wherein R₁ and R₂ which may be the same or different, represent a hydrogen atom or an alkyl radical containing 1-6 carbon atoms, which may be substituted by an aryl group, R₃ represents a cycloalkyl radical containing from 3-9 carbon atoms or an aryl radical which may be substituted by 1 or more halogen atoms or an alkyl, nitro, hydroxy, alkoxy, phenyl or trifluoromethyl group, or by a group —NR₅R₆ in which R₅ and R₆ which may be the same or different, represent a hydrogen atom or an alkyl radical containing from 1-6 carbon atoms, R₄ is a hydroxy, aryloxy or lower alkoxy group containing 1-6 carbon atoms, which may be substituted by an aryl radical or an amine group —NR₇R₈ or R₄ may be —NR₇R₈ in which R₇ and R₈, which may be the same or different, represent a hydrogen atom or an hydroxy group and an alkyl group containing 1-6 carbon atoms or an arylalkyl or aryl group, or R₇ and R₈ together may form a heterocyclic ring which may contain additional hetero atoms; X, Y and Z may the same or different and represent a hydrogen or halogen atom, a lower alkyl, hydroxy, lower alkoxy or amino group with the following provisos, that (a) when R₁, R₂, X, Y and Z are hydrogen, R₃ is phenyl and R₄ is hydroxyl then the group R₃CO must be meta oriented to the group —CR₁R₂COR₄; (b) when R₃CO is para oriented to the group CR₁R₂COR₄, R₁, R₂, X, Y and Z are hydrogen and R₃ is phenyl, then R₄ may not be a hydroxy, methoxy or primary amino group and (c) when Z is a methoxy group in the 2-position to the group —CR₁R₂COR₄ and X, Y, R₁ and R₂ are hydrogen and R₃ is phenyl then the group R₃CO may not be in the 5-position, and pharmaceutically acceptable salts thereof. These have anti-inflammatory or analgetic activity. The invention also provides a process for the production of these compounds from a ketone of the structure:



It also provides pharmaceutical compositions including phenylacetic derivatives.

3,828,094

SUBSTITUTED UREIDOPHENYLGUANIDINES

Arno Widdig, Blecher, Engelbert Kuhle, Bergisch Gladbach, Ferdinand Grewe, Burscheid, and Helmut Kaspers, Hans Scheinplug, and Paul-Ernst Frohberger, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft

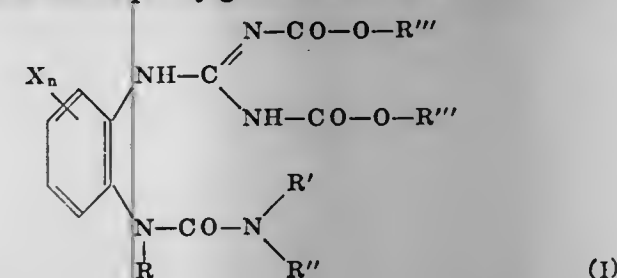
No Drawing. Filed Oct. 22, 1970, Ser. No. 83,147
Claims priority, application Germany, Nov. 6, 1969,
P 19 55 750,7

Int. Cl. C07c 125/06

U.S. Cl. 260—471 C

11 Claims

Substituted ureidophenylguanidines of the formula



in which

X stands for halogen, lower alkyl or lower alkoxy,

n stands for 0, 1 or 2,

R and R' stand for hydrogen or lower alkyl,

R'' stands for hydrogen, cycloalkyl, alkylsulfonyl with up to 18 carbon atoms, di-lower alkylamino, or optionally substituted alkyl with up to 18 carbon atoms, aralkyl, phenyl, acyl with up to 18 carbon atoms, aroyl or arylsulfonyl, or

R' and R'' jointly with the connecting nitrogen atom stand for a heterocyclic ring with 4 to 7 ring carbon atoms, the ring possibly containing oxygen or sulfur as further hetero atoms, and

R''' stands for alkyl with up to 12 carbon atoms, which possess fungicidal properties.

3,828,095

AMINOALCOHOLS DERIVED FROM ORTHO- TRANS-HYDROXY-CINNAMIC ACIDS AND ESTERS

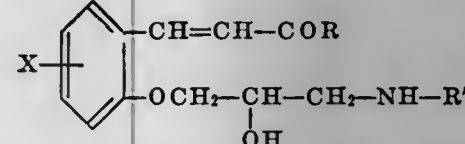
Eugene Boschetti, Venissieux, Darius Molho, Boulogne-sur-Seine, and Louis Fontaine, Lyon, France, assignors to Lipha, Lyonnaise Industrielle Pharmaceutique
No Drawing. Filed Apr. 5, 1972, Ser. No. 241,381
Claims priority, application France, Apr. 9, 1971,
7112668

Int. Cl. C07c 101/18

U.S. Cl. 260—471 R

10 Claims

Compounds represented by the formula



in which R is an optionally substituted hydroxy, alkoxy or amino radical, R' is a branched alkyl radical and X is hydrogen or a halogen. The compounds have a strong blocking activity on the B-sympathetic receptors in man, particularly in the treatment of chest angina and tachyarrhythmia.

3,828,096

2-ALKOXYCARBONYL-3-ARYL-PROPYLAMINES

Joseph A. Meschino, North Wales, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Application June 9, 1969, Ser. No. 850,280, now abandoned, which is a division of application Ser. No. 596,100, Nov. 22, 1966, now Patent No. 3,483,186. Divided and this application May 4, 1972, Ser. No. 255,891

Int. Cl. C07c 101/04

U.S. Cl. 260—471 A

2 Claims

The compounds herein are derivatives of 4,5-dihydro-3H-2-benzazepine and 2,3,4,5-tetrahydro-1H-2-benz-

azepine, useful as hypotensives; and novel intermediates used in the preparation thereof.

3,828,097

PROCESS FOR THE PREPARATION OF CHLOROUS ACID

Joseph Callera, Rochester, N.Y., assignor to Chemical Generators, Inc., Rochester, N.Y.

No Drawing. Filed Oct. 27, 1972, Ser. No. 301,329

Int. Cl. C01b 11/02, 11/08

U.S. Cl. 423—472

6 Claims

A process of preparing chlorous acid is disclosed. An aqueous solution of the chlorate of an alkali metal or alkaline earth metal and the nitrate of an alkali metal or alkaline earth metal is flowed through a cation exchange resin, the active sites of which are occupied by hydrogen. The eluate is in the form of a chlorous acid solution.

3,828,098

SULFUR SUBSTITUTED BIS(POLYFLUORO- ALKOXYALKYL CARBOXYLIC ACIDS) AND DERIVATIVES THEREOF

Kenneth B. Gilleo, Buffalo, Edward S. Jones, Williams-ville, and Edward G. Tajkowski, Amherst, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Oct. 2, 1972, Ser. No. 294,139

Int. Cl. C07c 149/12

U.S. Cl. 260—481 R

18 Claims

Dicarboxylic acids, their alkali metal salts and lower alkyl esters which contain two polyfluoroalkoxyalkyl carboxy moieties joined by a —S— or a —S—alkylene—S— crosslink. These compounds are useful as surfactants, as water repellent agents, as corrosion resistant agents and dropwise condensation promoters.

3,828,099

PROCESS FOR SEPARATING METHACROLEIN

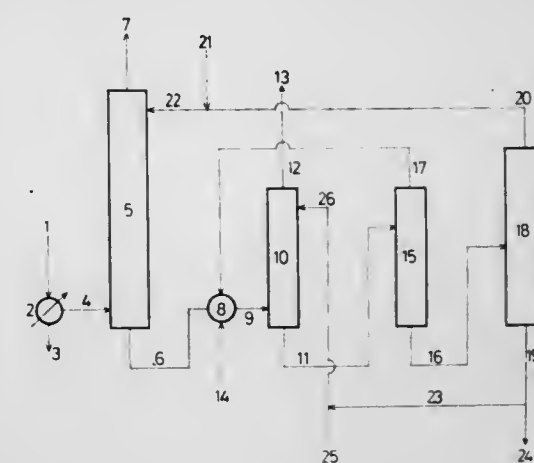
Ryozi Sato and Yoshio Ito, Yokohama, Japan, assignors to The Japanese Geon Co., Ltd., Tokyo, Japan
Filed Mar. 2, 1971, Ser. No. 120,276

Claims priority, application Japan, Mar. 4, 1970,
45/17,983

Int. Cl. C07c 47/20

U.S. Cl. 260—601 R

9 Claims



A method for separating methacrolein from a gaseous mixture thereof by absorbing the methacrolein with an organic solvent and then extracting the organic solvent from the resulting solution with water.

3,828,100

CYCLOALIPHATIC POLYTHIOLS

Richard A. Hickner and Edward W. Goss, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

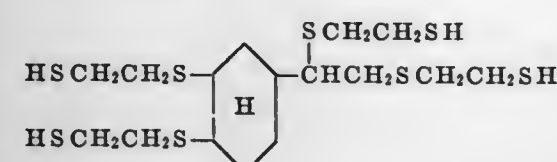
No Drawing. Filed Apr. 18, 1972, Ser. No. 245,185

Int. Cl. C07c 149/26

U.S. Cl. 260—609 D

4 Claims

Exemplary of the cycloaliphatic polythiols of this invention is the compound



The polythiols are useful in curing polyepoxide resins.

ERRATUM

For Class 423—472 see:
Patent No. 3,828,097

3,828,101

METHOD OF PREPARATION OF FERRITE CATALYSTS

Edward J. Miklas, Houston, Tex., assignor to Petro-Tex Chemical Corporation, Houston, Tex.

No Drawing. Filed Aug. 26, 1971, Ser. No. 175,381

Int. Cl. C01g 49/00

U.S. Cl. 423—594

11 Claims

Improved catalysts for dehydrogenation can be prepared by coprecipitating the metal containing catalysts from a solution of metal ions in the presence of a low molecular weight polyhydric material such as pentaerythritol. The result of having the polyhydric material present is that the precipitate has the form of a gelatinous precipitate of improved processability. The catalyst itself is more active in dehydrogenations and physically stronger than comparable catalyst prepared by conventional methods.

3,828,102

METHOD OF PREPARATION OF TRITIUM-LABELLED PROTEINS

Pierre Fromageot, Le Chesnay, Lam Thanh Hung, Orsay, and Jean-Louis Morgat, Paris, France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Sept. 19, 1972, Ser. No. 290,316

Claims priority, application France, Oct. 1, 1971, 7135529

Int. Cl. A61k 27/04

U.S. Cl. 424—1

12 Claims

The protein to be labelled is protected by complexing with a specific bonding protein so as to form a stable and soluble complex which is subjected to halogenation followed by tritiation, the tritiated complex being then dissociated from the resultant mixture. The tritium-labelled protein and the tritium-labelled bonding protein are extracted successively and selectively.

ERRATUM

For Class 424—4 see:
Patent No. 3,827,841

3,828,103

INDIRECT HEMAGGLUTINATION TEST WITH SIMULTANEOUS ABSORPTION OF HETEROLOGOUS ANTIBODIES

Koichiro Fujita, Tokyo, Japan, assignor to Fujizoki Pharmaceutical Co., Ltd., Tokyo, Japan

No Drawing. Filed Nov. 4, 1970, Ser. No. 87,014

Claims priority, application Japan, Nov. 10, 1969, 44/89,314

Int. Cl. G01n 1/00, 29/00, 33/16

U.S. Cl. 424—12

3 Claims

An indirect hemagglutination test is provided herein whereby an antigen is adsorbed onto erythrocytes of animal origin and agglutination of the antigen-sensitized erythrocytes is induced by the action of an antibody specific to the adsorbed antigens, said method characterized in that the heterologous agglutinins present in the serum to be tested and which might react with the homologous red blood cells used as the antigen carrier are removed by use of a solution of decomposed red blood-cell membranes of the animal red blood cells. The present invention also provides for a reagent composed essentially of the aforementioned solution in conjunction with the erythrocytes containing the antigens adsorbed thereupon.

3,828,104

AEROSOL SPACE DEODORANT EMPLOYING CERTAIN ORGANIC PEROXIDES

James Douglass Barnhurst, Millington, and Adolph Renold, Somerset, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 818,042, Apr. 21, 1969, which is a continuation-in-part of application Ser. No. 552,404, May 24, 1966, both now abandoned. This application Oct. 26, 1971, Ser. No. 192,609

Int. Cl. A61l 13/00

U.S. Cl. 424—45

10 Claims

Deodorant compositions comprising a normally gaseous, liquefied propellant said composition containing as a critical ingredient an organic peroxide having a half-life of at least 10 hours at 100° C.

3,828,105

HAIRDRESSING COMPOSITION AND PROCESS FOR PREPARATION THEREOF

Marina Saurano, Montreuil-sous-Bois, France, assignor to Societe Alexandre, Paris, France

No Drawing. Filed Nov. 4, 1971, Ser. No. 195,806

Int. Cl. A61k 7/00

U.S. Cl. 424—70

2 Claims

A hair treatment composition comprising as essential ingredients a mixture of natural beef marrow extract and 1.8 to 2.2% by weight of cetyl ricinoleate. The beef marrow extract is produced by heating a kneaded mixture of marrow and water and separating a light yellow fraction arising upon solidification of a solid mass from the mixture, the light yellow fraction constituting the extract.

3,828,106

NOVEL ORAL PHARMACEUTICAL DOSAGE FORM

Harry W. Rudel, New York, N.Y., assignor to Biological Concepts, Inc., New York, N.Y.

No Drawing. Filed Jan. 3, 1972, Ser. No. 215,208

Int. Cl. A61k 17/00

U.S. Cl. 424—239

12 Claims

A pharmaceutical preparation suitable for oral administration comprises an active therapeutic ingredient in solid solution with a steroidal lipid, together with a pharmaceutically acceptable carrier for said mixture. The therapeutic ingredient may be, for example, a natural steroid hormone, and the lipid may be a sterol. The preparation may be provided in unit dosage forms such as tablets, lozenges, capsules, and the like.

ELECTRICAL

3,828,107

PLASMA SMELTING FURNACE

Sadaie Sone, Kuwana, Japan, assignor to Daido Seiko Kabushiki Kaisha, Nagoya-shi, Japan

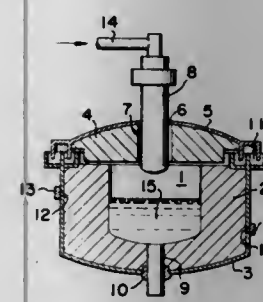
Filed May 12, 1971, Ser. No. 142,614

Claims priority, application Japan, May 19, 1970, 45-42218

Int. Cl. F27b 3/00

U.S. Cl. 13—1

5 Claims



The present invention discloses a plasma smelting furnace which is formed by enclosing the outside of a refractory which forms the smelting chamber with a metallic plate completely and the smelting chamber is sealed against the outer atmosphere, and further characterized by the fact that the air in the inner space enclosed by the metallic plate is substituted by inert gas.

3,828,108

BINARY ORGAN AND CODING SYSTEM FOR OPERATING SAME

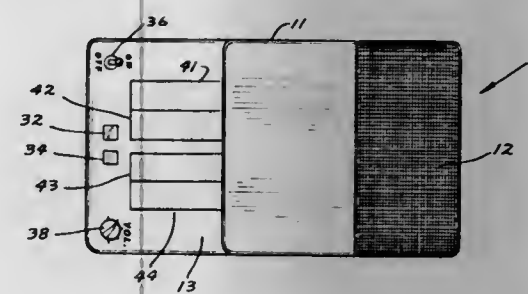
Floyd G. Thompson, 423 Thomas Ave., Minneapolis, Minn. 55405

Filed Mar. 22, 1972, Ser. No. 237,181

Int. Cl. G10h 1/00, 5/00

U.S. Cl. 84—1.01

4 Claims



A tone generating oscillator selectively generates any one of the twelve tones of the musical scale upon activation of a unique combination of four keys. Other keys are provided for generating the selected note in a higher or a lower octave. Each of the tones is assigned a particular character consisting of a graphical representation of the utilization of one or more of the four keys; and, in a particular musical theme, these characters are displayed in the sequence in which the tones they represent occur in said theme.

3,828,109

CHORUS GENERATOR FOR ELECTRONIC MUSICAL INSTRUMENT

Eugene S. Morez, Bensenville, Ill., assignor to Chicago Musical Instrument Co., Chicago, Ill.

Filed Feb. 20, 1973, Ser. No. 333,985

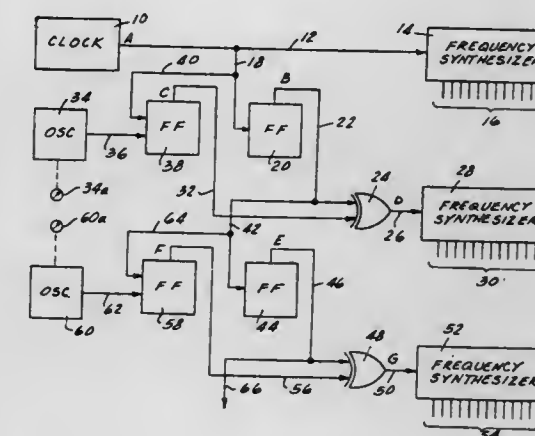
Int. Cl. G10h 1/00

U.S. Cl. 84—1.01

11 Claims

An electronic musical instrument has a plurality of frequency synthesizers for separately generating the musical tones of each octave. Each of the frequency synthesizers is supplied

with a train of clock pulses having a pulse repetition rate which is a multiple of the frequency of the highest musical tone generated by such frequency synthesizer. The pulse train applied to the frequency synthesizers for the highest octave is derived from a clock pulse source, and the pulse train applied to each of the other frequency synthesizers is derived from the pulse train supplied to the frequency synthesizer for the next



3,828,111

ELECTRICAL CONNECTION, IN PARTICULAR, FOR CONNECTING TWO COOLED CONDUCTORS DISPOSED IN A VACUUM

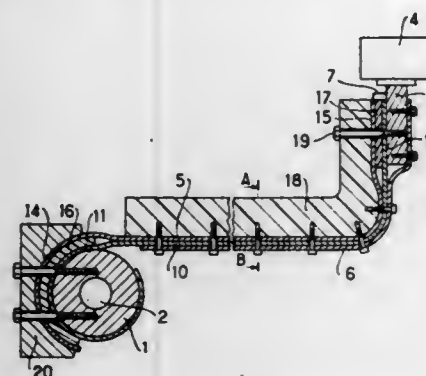
Michel Berthet, Gif-sur-Yvette, France, assignor to Compagnie Generale D'Electricite, Paris, France

Filed Oct. 3, 1972, Ser. No. 281,610

Int. Cl. H01v 11/00

U.S. Cl. 174-15 C

13 Claims



An electrical connection for connecting two cooled conductors disposed in a vacuum, comprising a superconductor junction placed in the vacuum, the ends of which are soldered respectively to the conductors, a stabilizing element which is a good conductor of heat and electricity at normal temperature, integral with the middle part of said junction and thermally isolated from this junction at the level of the ends and means for attaching said junction and said stabilizing element to a rigid isolating support.

3,828,112

COMPOSITE HOSE FOR CONDUCTIVE FLUID

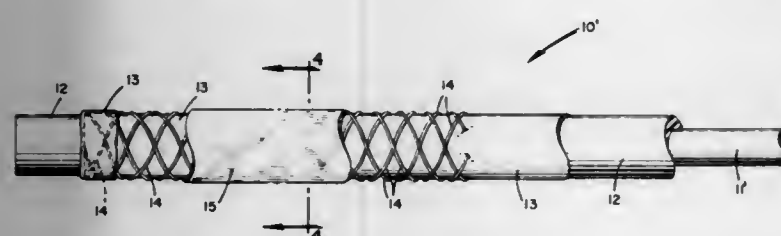
Hans A. Johansen, Mantua; Dewey E. Whittaker, Ravenna, and Larry R. Phillippi, Mantua, all of Ohio, assignors to Samuel Moore & Company, Mantua, Ohio

Filed Mar. 14, 1973, Ser. No. 341,137

Int. Cl. F16l 11/12

U.S. Cl. 174-47

9 Claims



A composite hose particularly advantageous for use in conveying an electrical conductive paint in an electrostatic paint spray system has a synthetic resinous core tube such as nylon which is resistant to chemical attack by the paint, a contiguous substantially non-porous layer of synthetic resin which insulates the core tube against leakage of static charge therefrom, an extrusion or tape of semi-conductive synthetic resin containing particles of an electrical conductor dispersed uniformly therein lying in intimate contact about the insulating layer, a braided electrical conductor wound in electrical contact about the semi-conductive layer and an abrasion resistant sheath about the braid.

3,828,113

UNITARY ELECTRICAL RECEPTACLES

Richard Curtis Bourne, 1609 S. 23rd St., Lincoln, Nebr. 68502

Filed July 6, 1973, Ser. No. 377,094

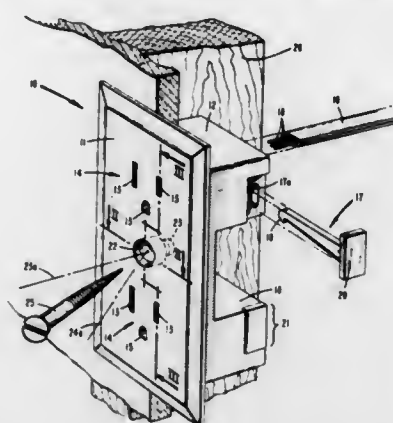
Int. Cl. H02g 3/18

U.S. Cl. 174-55

14 Claims

A unitary electrical receptacle or switch for installation after finishing of the surface in which it is to appear, which

comprises internal electrical conductors for such a receptacle or switch enclosed by electrically insulating material which is formed into a housing portion and a cover plate portion, with openings in said housing portion for insertion of distribution cable to make the desired electrical contact with the internal conductors, openings in the cover plate portion for insertion of a plug into the receptacle or for protrusion of switching



means from switches, and through-holes for connecting the unitary receptacle or switch to a structural member. Means may also be included for firmly connecting the distribution cable to such a receptacle or switch.

The housing portion may be designed to straddle a structural member. The flanges formed by the cover plate portion overhanging the housing portion may be provided with shoulders adapted to the thickness of various surfacing materials.

3,828,114

SYNTHETIC RESIN SLEEVE WITH EMBEDDED STRESS CONTROL SCREEN FOR HIGH-VOLTAGE CABLES

Paolo G. Priaroggia, Milan, and Gabriele Maschio, Monza, both of Italy, assignors to Industrie Pirelli Societa per Azioni, Milan, Italy

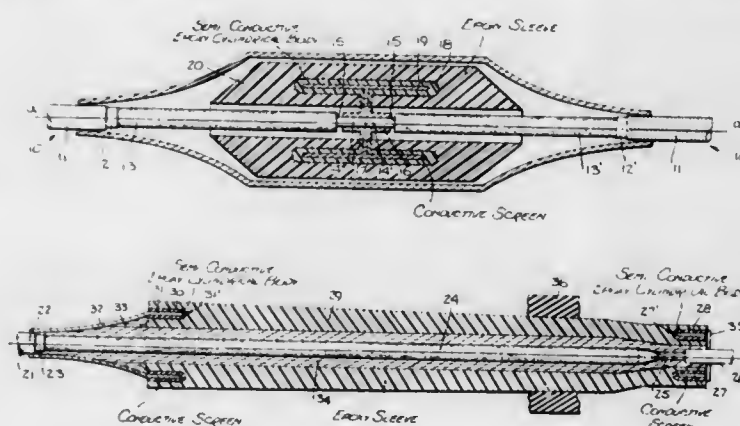
Filed Feb. 15, 1973, Ser. No. 332,689

Claims priority, application Italy, Mar. 14, 1972, 21795/72

Int. Cl. H02g 15/02, 15/08

U.S. Cl. 174-73 R

8 Claims



A sleeve of epoxy resin for use in a joint between high voltage electric cables or in a sealing end for such a cable, the sleeve having embedded therein, around the part of the cable to be electrically screened, a conductive screen embedded in semi-conductive, epoxy resin.

3,828,115

HIGH VOLTAGE CABLE HAVING HIGH SIC INSULATION LAYER BETWEEN LOW SIC INSULATION LAYERS AND TERMINAL CONSTRUCTION THEREOF

Andrew Hvizd, Jr., Oxford, Conn., assignor to The Kerite Company, Seymour, Conn.

Filed July 27, 1973, Ser. No. 383,323

Int. Cl. H01b 9/00, 7/02; H02g 15/02

U.S. Cl. 174-73 R

10 Claims

The number of voids in the insulation of high voltage cable is significantly reduced by utilizing a multiple layer construc-

tion and therefore, the dielectric strength thereof is optimized by minimizing ionization therein. A field refraction barrier is disposed within the insulation to relax the electrical stress concentrations which would otherwise be encountered due to surface impurities at the interfacial boundaries of the multiple



layer construction. In cables having an electric shield coaxially arranged about a load conductor, this field refraction barrier disperses the voltage gradient therebetween at terminations and splices and therefore, stress relief cones can be omitted therefrom in many instances.

3,828,116

INFLATABLE CORONA RING AND CABLE TERMINATION METHOD EMPLOYING SAME

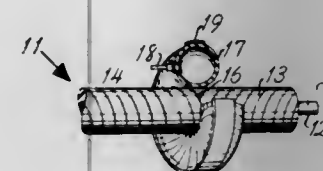
Martin S. Lonow, Spring Valley, N.Y., assignor to The Anaconda Company, New York, N.Y.

Filed Sept. 28, 1973, Ser. No. 401,784

Int. Cl. H02g 15/02; G01r 31/20; H01t 19/02

U.S. Cl. 174-73 R

5 Claims



To terminate high voltage cables for testing, an inflatable tubular annulus such as the inner tube of a tire, but with a corona resistant outer surface, is applied as a corona ring at the line where the shielding is cut from the cable insulation.

3,828,117

LIQUID-TIGHT SWIVEL COUPLER FOR ELECTRICAL CONDUIT

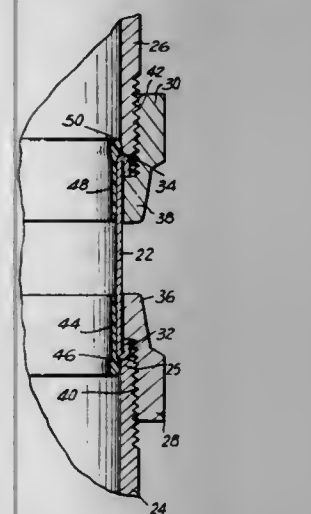
Jonah Eidelberg, 8 Clafford Ln., Huntington Station, N.Y. 11746; Thomas Mooney, 40 W. Cliff Dr., Mount Sinai, N.Y. 11766, and John J. Brett, Marion Ave., Glen Ellyn, Ill. 60137

Continuation-in-part of Ser. No. 90,496, Nov. 18, 1970, Pat. No. 3,710,911. This application Jan. 16, 1973, Ser. No. 324,089

Int. Cl. H02g 3/06; F16l 19/00

U.S. Cl. 174-84 S

2 Claims



A swivel coupler for connecting a pair of rigid electrical conduits especially in a confined space, includes a tubular

body member with an inner sleeve of rigid plastic material, which protrudes slightly beyond the ends of the body. A pair of nuts are slidably mounted on the outer peripheral surface of the tubular body between outwardly directed radial flanges adjacent opposite ends of the body and which thread a corresponding conduit. A method of fabricating the coupling is to reverse opposite body ends 180° to abut the outer peripheral surface of the body, have one end with an outside diameter smaller than the inside diameter of the nuts, position the nuts back to back on the body, and then enlarge the reduced end of the body to its normal diameter or larger.

3,828,118

ELECTRICAL FEEDTHROUGH ASSEMBLIES FOR CONTAINMENT STRUCTURES HAVING SPECIALLY CONTROLLED ENVIRONMENTS AND METHOD OF MAKING

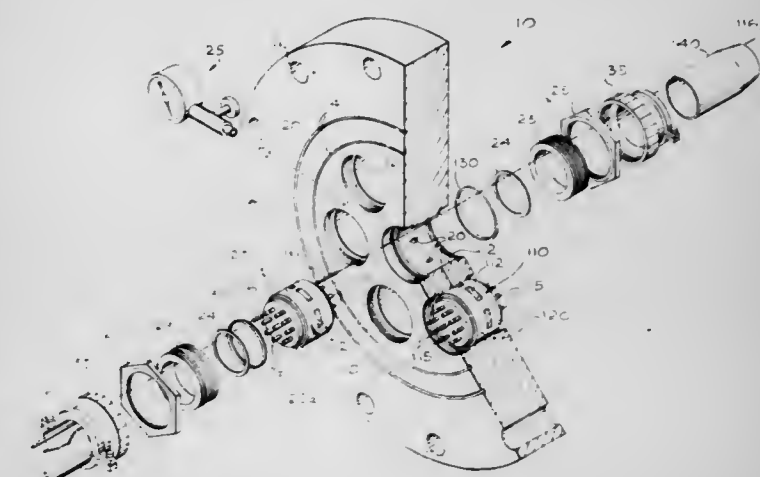
James A. Bushek, Woodland Hills, and David K. Sorensen, Westlake Village, both of Calif., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Apr. 6, 1972, Ser. No. 241,722

Int. Cl. G21c 13/02; H01b 17/26

U.S. Cl. 174-11 R

18 Claims



A construction and method of making a hermetically sealed electrical feedthrough assembly particularly useful for providing electrical connections to and from a containment structure having a specially controlled environment. The feedthrough assembly construction and method of making provide a resultant assembly which achieves the desired electrical performance, while also being able to maintain the integrity of the controlled environment of the containment structure over long periods of time under widely varying environments and for both normal and emergency conditions. The feedthrough assembly includes a header plate containing feedthrough modules employing a specially chosen and designed cast epoxy sealing system which provides for hermetic sealing of each module to the header plate while also permitting each module to be readily mounted and removed. Continuous and simultaneous pressure testing of the integrity of both the inner and outer sealing of each module is made possible by the provision of internal manifolding ports within the header plate which communicate with each other as well as with a porous reticular dielectric preform provided in each module. The porous reticular dielectric preform serves to support the module feedthrough contacts during casting, and afterwards, because it is porous, permits simultaneous pressure testing of the integrity of the sealing of the feedthrough contacts within the modules along with the testing of the integrity of the sealing of the module mountings to the header plate. Each feedthrough module additionally has a construction which provides substantially rigid electrical and mechanical coupling between input and output conductors so as to eliminate the need for insulated wires within the assembly.

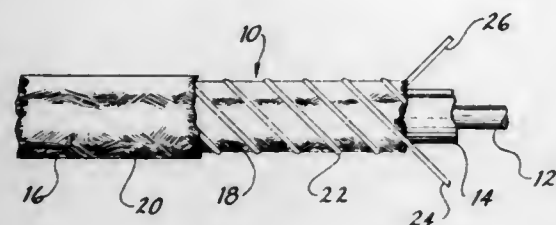
3,828,119

HIGH TEMPERATURE RESISTANT ELECTRICAL CONDUCTOR, AND METHOD OF PRODUCING SAME
Joe Allen Warburton, and Henry Lewis Wilson, both of Chelmsford, Mass., assignors to General Electric Company, New York, N.Y.

Filed Sept. 21, 1973, Ser. No. 399,470
Int. Cl. H01b 7/00

U.S. Cl. 174-121 A

21 Claims



A heat resistant insulated electrical wire comprising a metallic conductor, a polymeric organic insulation surrounding the conductor and an overlying covering of a composite body of heat resistant carded staple fiber. The composite body of carded fiber covering the polymeric insulation is impregnated with a bonding agent and comprises at least two layers of carded fiber slivers with an intermediate strand matrix of heat shrunk organic filaments contracted around the inner layer of sliver of carded fiber about the polymeric insulation and thereby firmly gripping the polymeric insulation and securely affixing the bonded composite body of carded staple fiber to the insulated conductor. The disclosure also includes a method of producing the electrical wire product.

3,828,120

FLEXIBLE FLAT POWER CABLE

Theodore E. Hansen, Grant, Ind., assignor to The Anaconda Company, New York, N.Y.

Filed Oct. 23, 1973, Ser. No. 408,718
Int. Cl. H01b 7/08

U.S. Cl. 174-117 FF

4 Claims



A flat power cable has flattened conductors with their long sections transverse to the long section of a cable. The conductors have a rope lay of six strands instead of the usual seven.

3,828,121

COLOR SIGNAL PRODUCING SYSTEM UTILIZING SPATIAL COLOR ENCODING AND COMB FILTERING
Jay Jerome Brandinger, Trenton; Dalton Harold Pritchard, Princeton, both of N.J.; Gordon Lyle Fredendall, and Alfred Christian Schroeder, both of Southampton, Pa., assignors to RCA Corporation, New York, N.Y.

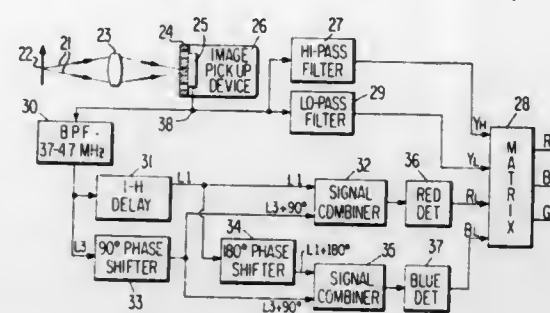
Filed Feb. 11, 1970, Ser. No. 10,320
Int. Cl. H04n 9/06

U.S. Cl. 178-5.4 ST

14 Claims

Colored light from a scene is spatially encoded onto a photosensitive surface by a striped spatial color encoding filter assembly including first and second superimposed encoding gratings having equal pitch encoding stripes disposed such that the stripes of the respective gratings are at substantially equal and opposite angles measured from a reference line in the plane of the filter. Scanning of the encoded image on the photosensitive surface produces a composite signal including first and second carrier wave components representative of

first and second colors and having substantially the same frequency during a scanning interval. The carrier wave com-



ponents are separated by comb filter apparatus for producing separate color representative signals.

3,828,122

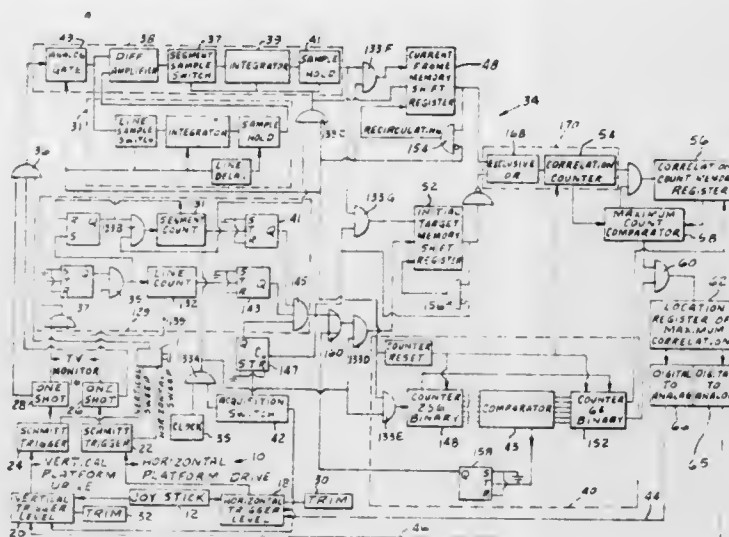
TV AREA CORRELATION TRACKER

Walter J. McPhee, and Richard D. Sondergard, both of Mishawaka, Ind., assignors to The Bendix Corporation, South Bend, Ind.

Continuation-in-part of Ser. No. 76,520, Sept. 29, 1970. This application Sept. 11, 1972, Ser. No. 287,940
Int. Cl. G01s 5/16; H04n 7/18

U.S. Cl. 178-6.8

2 Claims



A means for tracking a target using a television monitoring system. A joy stick type control is used to position a rectangle of sampled video on a television monitor over a desired target. After pushing a target acquisition switch, the target is maintained within the rectangle by comparing a digital representation of the video signal for the rectangle with a smaller reference rectangle of the initially sampled video. The part of the larger rectangle that has the highest correlation with the reference rectangle is assumed to be the location of the target. Therefore, a feedback loop is used to reposition the larger rectangle until the point of maximum correlation is located at the center thereof. This comparison is made for each frame of video information of the television system. Simultaneously with the repositioning of the larger rectangle to centrally enclose the desired target, a camera of the television system is tending to reposition itself to locate the rectangle of sampled video within the center of the field of view. The physical repositioning of the camera is much slower than the electronic repositioning of the larger rectangle over the reference rectangle. The control loop that is used to maintain the target within the center of the field of view may be used to direct a missile or other conventional weapon toward the target.

3,828,123

REGULATED H.V. POWER ENERGY FOR A TELEVISION RECEIVER

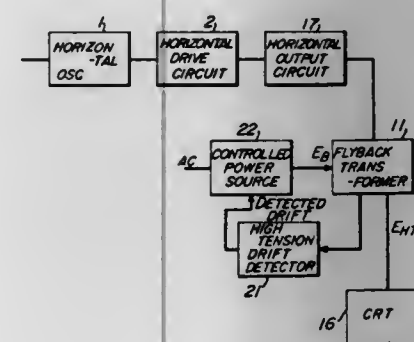
Kohei Sato, Ikeda, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 31, 1972, Ser. No. 222,192

Claims priority, application Japan, Feb. 4, 1971, 46-4396
Int. Cl. H04n 3/18, 5/44

U.S. Cl. 178-7.3 R

9 Claims



A television receiver in which a d.c. voltage applied from a controlled power source to a flyback transformer is controlled by a feedback circuit which feeds back a signal responsive to a drift of the high-tension output of the flyback transformer to the controlled power source so as to continuously maintain the high-tension output of the flyback transformer at a predetermined setting.

3,828,124

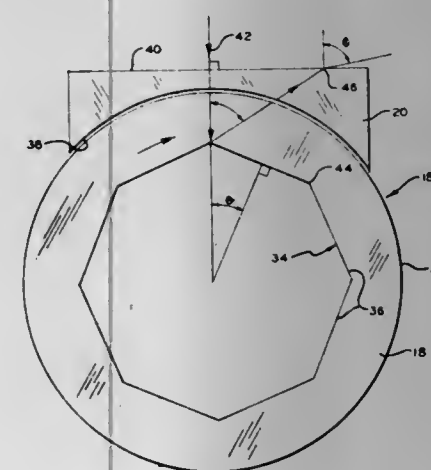
DECREASED ROTATION RATE SCANNING DEVICE

Richard C. Baum, Vestal, N.Y., assignor to The Singer Company, Binghamton, N.Y.

Continuation-in-part of Ser. No. 254,217, May 17, 1972, abandoned. This application Mar. 16, 1973, Ser. No. 342,044
Int. Cl. G02b 17/00; G02f 1/34; H04n 3/08

U.S. Cl. 178-7.6

8 Claims



For use in a laser television projector or the like, a scanning system employing a rotary scanner which permits large angles to be scanned with reduced scanner rotational speeds. The rotary scanner is a hollow cylinder of refractive material having reflective internal surfaces defining a prism. A stationary refractor member surrounds a portion of the hollow cylinder and has a complementary curved surface in close proximity to the cylindrical outer surface thereof. The beam to be deflected passes through the refractor member before and after deflection by the reflective surfaces; thus the deflection angle is increased by refraction as the beam exits from the refractor into the surrounding air.

3,828,125

TELEVISION SYSTEMS

Donald Frederick Fagan, Flackwell Heath, and Rodney Barker Hale, St. Albans, both of England, assignors to Movelarm Limited, Iver, Buckinghamshire, England

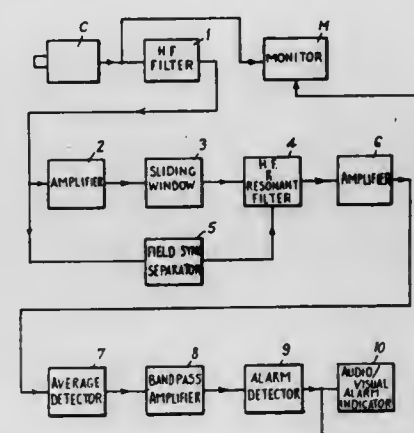
Filed Nov. 16, 1972, Ser. No. 307,068

Claims priority, application Great Britain, Nov. 16, 1971, 53251/71

U.S. Cl. 178-6.8

Int. Cl. H04n 7/18

5 Claims



A television system is provided for the surveillance of premises or areas to be kept under watch, as a security precaution against intruders, etc. The system operates to provide an indication or alarm upon movement occurring in the area under surveillance. More specifically the system includes a television camera for viewing a normally static scene and means for detecting a change in the camera output video signal caused by a change in the scene, together with means responsive to the detected change for operating an alarm device or switching a television monitor to reproduce the camera output video signal.

3,828,126

REAL TIME INTERFEROMETRY

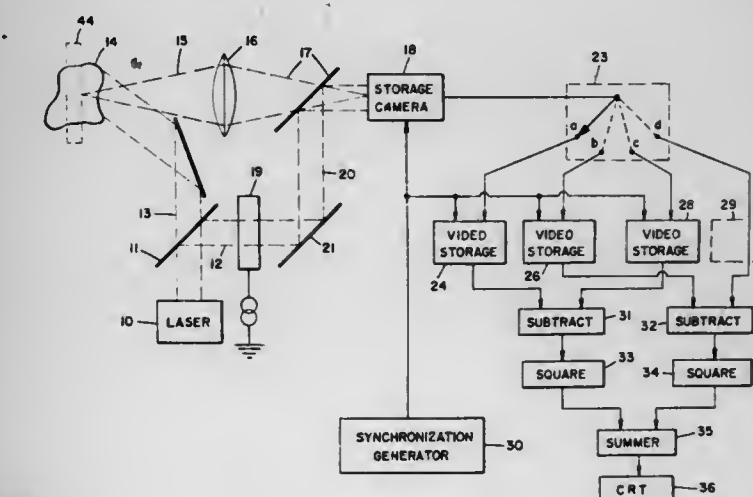
S. David Ramsey, Jr., Palo Alto, Calif., assignor to American Express Investment Management Company, San Francisco, Calif.

Filed Apr. 13, 1973, Ser. No. 351,077

Int. Cl. G01b 9/02; H04n 5/76, 7/18

U.S. Cl. 178-6.8

40 Claims



A real time holographic interferometer for measuring deformation of objects. Four independent holographic interference patterns are formed with on-axis object and reference beams. The first two interference patterns are of the object in a first physical state, e.g., in its first state of stress, or of a reference plane, and the second two interference patterns are of the object in a second physical state, e.g., in its second state of stress. The phase of the reference beam is shifted 90° for each exposure. A storage-type television camera is employed for

generating output signals that contain information from the four interference patterns. The first three output signals of the camera are stored in video recorders and are retrieved synchronously with the fourth camera output signals. Two signal pairs each consisting of a signal of the first and second states of stress of the object are combined and subtracted to form difference signals which are thereafter electronically squared and summed to generate a processed signal that contains the desired deformation information. The processed signal is utilized such as for driving a cathode ray tube.

3,828,127

DISPLAY DEVICE WITH AMBIENT LIGHT GRATICULE ILLUMINATOR

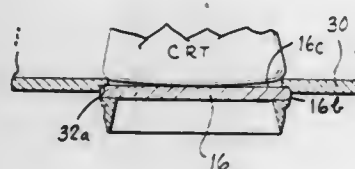
Joseph L. Lehmann, Sarasota, Fla., assignor to Weston Instruments, Inc., Newark, N.J.

Filed May 9, 1973, Ser. No. 358,650

Int. Cl. G02b 27/34; H01j 29/34

U.S. Cl. 178-7.84

7 Claims



A device including a CRT is fitted with a graticule plate which provides grid lines that remain clear and retain proper contrast both when the CRT screen is observed directly through the graticule plate and when the CRT screen is photographed by a conventionally mounted CRT camera. The graticule plate does not need internal illumination, but is mounted outside the front face of the CRT device to admit ambient light through its side walls.

3,828,128

MANUAL INPUT DEVICE FOR DATA-PROCESSING SYSTEM AND THE LIKE

Jurgen Dethloff, Elbchaussee 239, Hamburg, and Wilfried de Beauclair, Am Oberfeld 13, Darmstadt, both of Germany

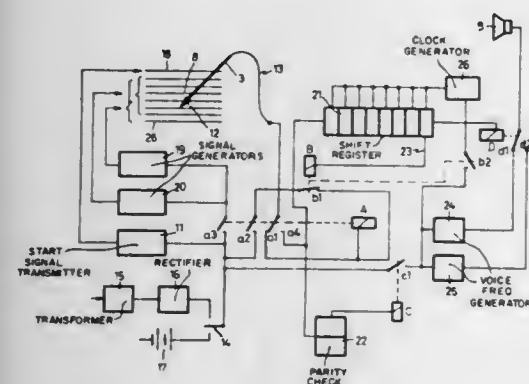
Filed Apr. 18, 1972, Ser. No. 245,170

Claims priority, application Germany, Apr. 20, 1971, 2119124

Int. Cl. H04n 1/00

U.S. Cl. 178-18

17 Claims



The device includes a data carrier having plural character fields, and a plurality of electrical leads extend in spaced, uniplanar parallel relation longitudinally across all of the character fields. First and second signal voltage generators generate two different respective signal voltages representing the binary code 0 and 1. A predetermined number of the leads are divided into first and second leads connected, respectively, to the first and second signal generators. The relative positions of the predetermined number of leads are interchanged, transversely of each field and transversely of the leads, so that, in each character field, the first and second leads are arranged

in a different respective order transversely of the associated field to define a respective binary code characteristic of only the associated character field. An electrically conductive code detector or, preferably an electrically conductive stylus, is galvanically engageable directly and discretely with all the first and second leads in a character field to scan the same in a bit-serial sequence to provide, at the output of the code detector, a binary coded data signal respective to the scanned character field. One of the leads is a "start" lead and another lead is a "stop" lead. When a control switch is closed, the start lead is energized with a d.c. voltage, and activates the first and second signal generators, as well as connecting the code detector, such as the stylus, to a shift register and a parity check in the form of a binary counter. When the "stop" lead is contacted by the code detector, it deactivates the first and second signal generators and, if the number of 1 pulses is equal to a predetermined number, the parity check effects actuation of first and second voice frequency generators and a clock generator is activated to read out the shift register to selectively supply the voice frequency generator signals to a loud-speaker or the like in accordance with the scanned binary code.

3,828,129

POLYCHROME TELEVISION RECORDING AND PLAYBACK SYSTEM

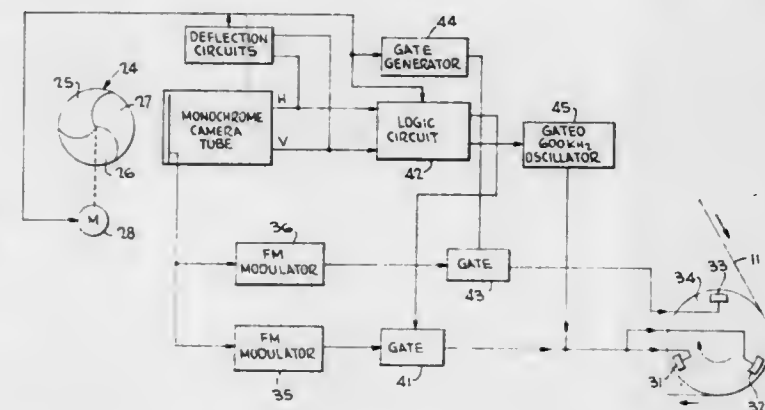
George Bruck, Riaz, Switzerland; Yves C. Faroudja, Sunnyvale, and Philip Smaller, Palo Alto, both of Calif., assignors to Avco Corporation

Filed July 5, 1972, Ser. No. 269,103

Int. Cl. H04n 9/02

U.S. Cl. 178-5.4 CD

13 Claims



ponents of one of the two branched signals, and a combining circuit for combining the other of the two branched signals with the generated higher harmonic components to provide a combined voice signal having an improved speech quality realized by increasing the higher harmonic components of the band-limited voice signal. The higher harmonic generator comprises a cascade combination of an instantaneous compressor and a level range expander having reciprocal power characteristics of the compression ratio of the instantaneous compressor.

3,828,134

DEVICE FOR CHANGING PITCH OF AN AUDIO SIGNAL TO IMPROVE INTELLIGIBILITY

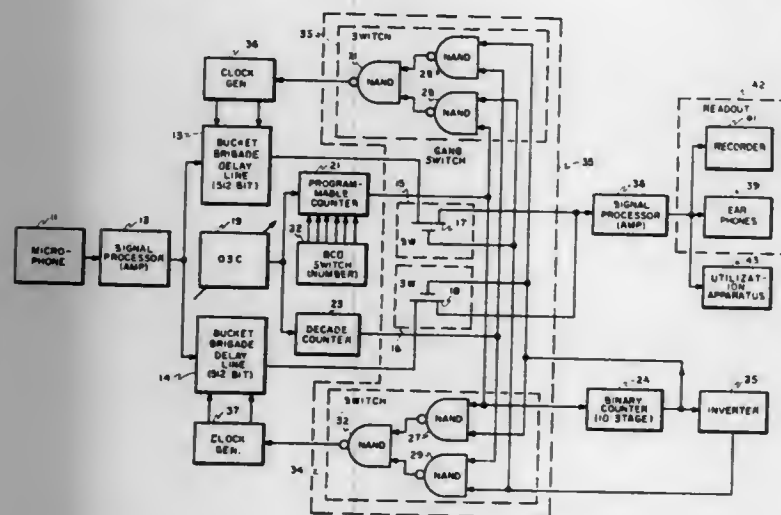
Clella Dildy, Jr., Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 9, 1973, Ser. No. 377,878

Int. Cl. G101 1/00

U.S. Cl. 179-1 SA

19 Claims



A helium speech decoder of the pitch scaler type is disclosed as including a pair of bucket brigade analog delay lines which are timely loaded with the electrical signal equivalent of human voice signals that are effectively supplied thereto by an electroacoustical transducer.

The respective frequencies of signals unloaded by said bucket brigade delay lines are controlled by a pair of clock generators which drive said bucket brigade delay lines at different predetermined frequencies in response to the output signals from oscillator driven Number programmed and decade counters. The timely and alternate loading (and unloading) of said bucket brigade delay lines is effected by a binary counter, the state of which changes periodically in response to the aforesaid Number programmed counter in such manner as to acutate and alternate switch means in order to properly effect the driving of said pair of clock generators and, hence, shift said bucket brigade delay lines at their predetermined respective frequencies, as well as effect the timely unloading thereof in synchronism with the alternation thereof. The unloaded signals from said bucket brigade delay lines are then indicated by any suitable readout apparatus and/or otherwise used by any other compatible utilization apparatus.

3,828,135

ARRANGEMENT FOR ASSEMBLING AN INITIAL ENTRY IN A BILLING BUFFER

Richard A. Padgett, Lombard, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Jan. 2, 1973, Ser. No. 320,214

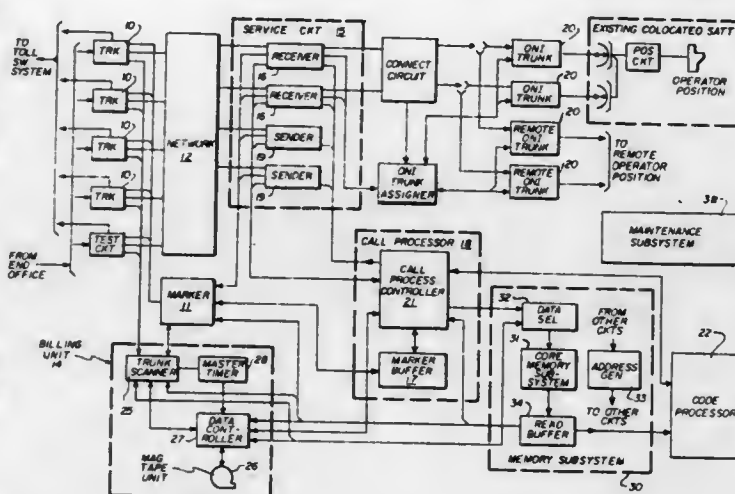
Int. Cl. H04m 15/10

U.S. Cl. 179-7 R

2 Claims

In the described centralized automatic message accounting system, a multi-entry format formed of an initial entry, an answer entry and a disconnect entry is used to record call

records. The data comprising the initial entry is accumulated in two different parts of the system, with some data being stored in a call processor call store and some data being stored



3,828,136

TIME DIVISION TELEPHONE SWITCHING EXCHANGE

Aldo Perna, Varese, and Giuseppe Valbonesi, Villaggio Lucana Vighignolo, both of Italy, assignors to Societa Italiana Telecomunicazioni Siemens s.p.a., Milan, Italy

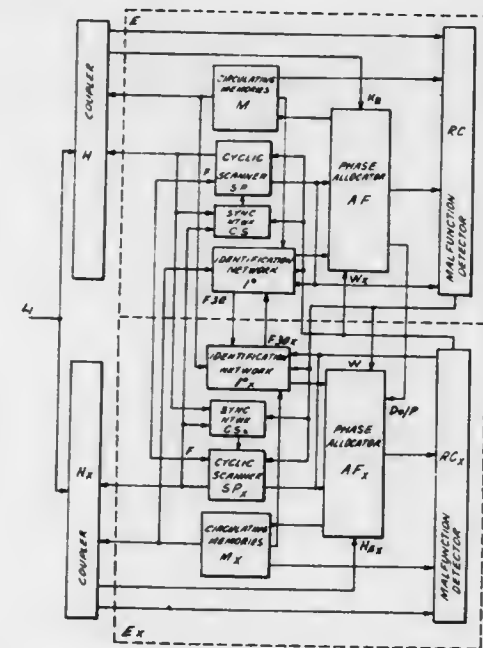
Filed June 15, 1972, Ser. No. 263,124

Claims priority, application Italy, June 18, 1971, 26040/71

Int. Cl. H04j 3/14

U.S. Cl. 179-15 BF

2 Claims



A TDM telephone exchange serving a multiplicity of subscriber lines has a primary and a secondary processor each including a caller memory, a responder memory and a monitoring memory, stepped in synchronism through a multiplicity of phases including service phases for the establishment of a connection and conversation phases for enabling communication between two subscribers. The associated subscriber lines are periodically scanned in successive memory cycles; the address of any such subscriber found to be in the process of initiating the call, if not yet entered in a phase of the caller or the responder memory of either processor as determined during a service phase, is entered in the first available conversation phase of either caller memory whereupon the address of the called subscriber is registered in the corresponding phase of the associated responder memory to let the conversation proceed under the control of appropriate entries in the monitoring memory of the same processor. If the first vacant phases

of the two caller memories coincide, preference is given to the memory of the first processor. If a fault develops in either processor, the other one is used on all calls. With subscriber lines arranged in groups along common branches of two main signal paths, entry in a vacant phase of either caller memory is possible only if the concurrent phases of the caller and responder memories of the other processor do not carry the address of another subscriber of the same group; otherwise, the address of the new caller is transferred to the next available phase not subject to this restriction.

3,828,137

DIGITAL COMMUNICATION SYSTEM

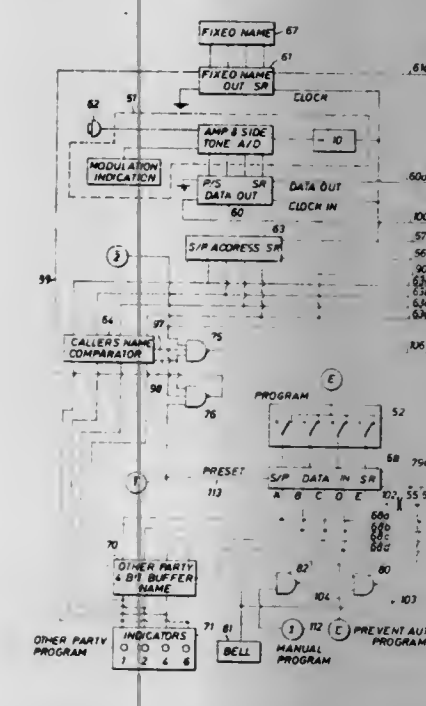
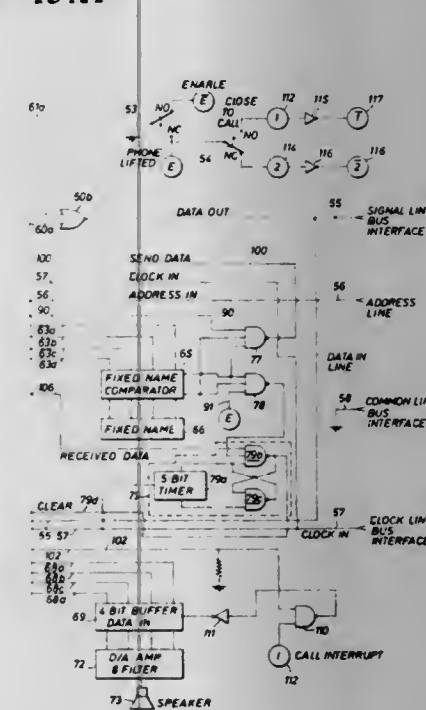
Leo G. Monford, Jr., Texas City, Tex., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 28, 1972, Ser. No. 310,034

Int. Cl. H04j 3/12

U.S. Cl. 179-15 AT

12 Claims



A digital communication system for parallel operation of 16 or more transceiver units with the use of only four interconnecting wires. A remote synchronization circuit produces unit address control words sequentially in data frames of 16 words. Means are provided in each transceiver unit to decode calling signals and to transmit calling and data signals. The transceivers communicate with each other over one data line. The

synchronization unit communicates the address control information to the transceiver units over an address line and further provides the timing information over a clock line. A reference voltage level or ground line completes the interconnecting four wire hookup.

3,828,138

COHERENT RECEIVER EMPLOYING NONLINEAR COHERENCE DETECTION FOR CARRIER TRACKING

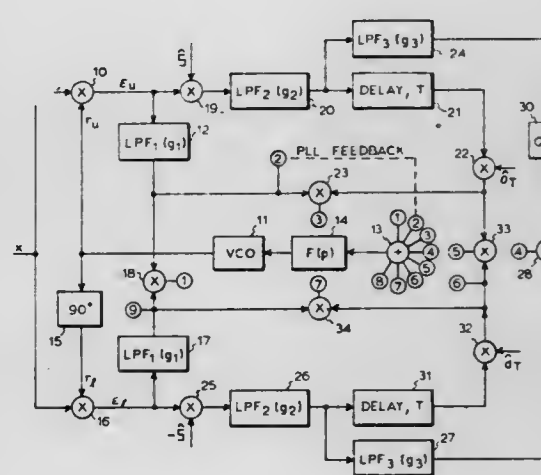
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention by; William C. Lindsey, Pasadena, and Marvin K. Simon, La Canada, both of Calif.

Filed May 10, 1973, Ser. No. 359,039

Int. Cl. H04b 1/06

U.S. Cl. 179-15 BC

4 Claims



The concept of nonlinear coherence employed in carrier tracking to improve telecommunications efficiency is disclosed. A generic tracking loop for a coherent receiver is shown having seven principle feedback signals which may be selectively added and applied to a voltage controlled oscillator to produce a reference signal that is phase coherent with a received carrier. An eighth feedback signal whose nonrandom components are coherent with the phase detected and filtered carrier may also be added to exploit the sideband power of the received signal. A ninth feedback signal whose nonrandom components are also coherent with the quadrature phase detected and filtered carrier could be additionally or alternatively included in the composite feedback signal to the voltage controlled oscillator.

3,828,139

DISCONNECT CIRCUIT FOR TELEPHONE SYSTEMS

Charles W. Chambers, Jr., Amherst, Ohio, assignor to Lorain Products Corporation, Lorain, Ohio

Filed Oct. 24, 1972, Ser. No. 299,924

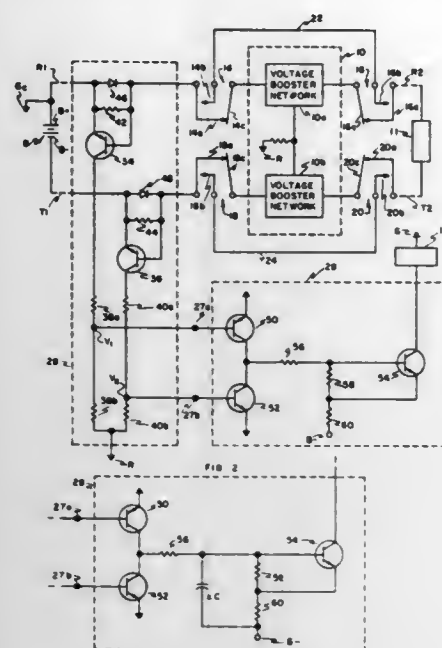
Int. Cl. H04m 3/24; H04b 3/46

U.S. Cl. 179-16 F

14 Claims

A circuit for automatically disconnecting circuitry such as voltage booster circuitry from a subscriber line to prevent such circuitry from interfering with the measurement of voltage and current on that line. The circuit includes booster disconnect switches which, in a first operative state, connect the voltage booster circuitry in aiding relationship to current flow through the subscriber line and which, in a second operative state, disconnect the voltage booster circuitry from the line and substitute therefore one or more current bypass conductors. A control circuit responsive to both the voltage across and current through the line controls the disconnect switches, as required, to establish the first operative state

thereof when the subscriber line is being used by a subscriber and to establish the second operative state thereof when the

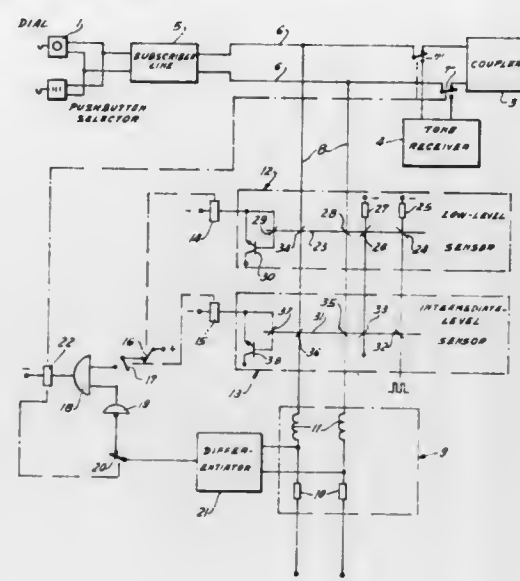


3,828,141
SYSTEM FOR DETECTING DIAL-GENERATED AND PUSHBUTTON-GENERATED SELECTION PULSES
Franco De Marco, and Carlo A. Manghi, both of Milan, Italy, assignors to Societa Italiana Telecomunicazioni SIEMENS S. p. A., Milan, Italy

Filed June 20, 1972, Ser. No. 264,494
Claims priority, application Italy, June 22, 1971, 7241/71
Int. Cl. H04m 1/50

U.S. Cl. 179—84 VF

7 Claims



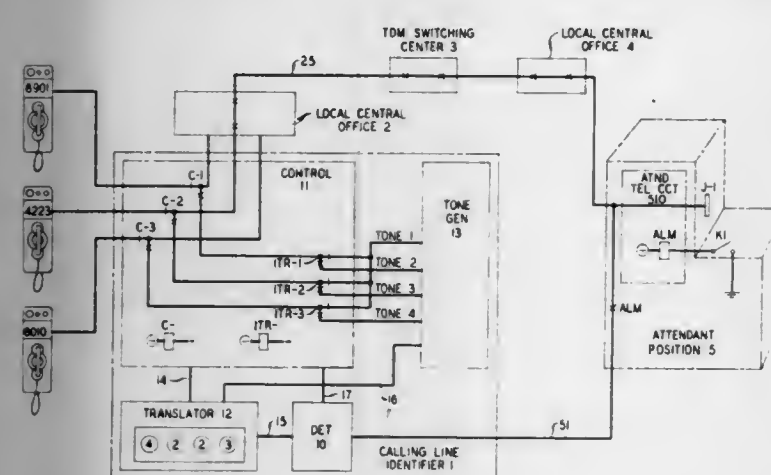
subscriber line is being tested in either a high voltage-low current mode or a low voltage-high current mode.

3,828,140
CALLING LINE IDENTIFICATION SYSTEM
Leslie Lewis Blane, Rumson; Kenneth Charles Bottonari, Madison Township, and Edward Earl Lewis, Middletown, all of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Dec. 22, 1972, Ser. No. 317,635
Int. Cl. H04m 1/56

U.S. Cl. 179—18 FH

15 Claims



A calling line identification system arranged for identifying calling ones of a number of telephone stations connectable through the telephone switching network with remotely located called telephone stations. A called party starts the identification sequence by coupling the incoming transmission path of a calling telephone station with the calling line identification system and transmitting an initiate identity signal thereto. The initiate identity signal enables the calling line identification system to sequentially remove groups of the telephone stations from across their line facilities and simultaneously apply bursts of distinctive tone signals to each opened line facility. Ones of the tone signals received over the incoming transmission path enable the calling line identification system to effect an identity of an anonymous calling telephone station connected with the remote called telephone station.

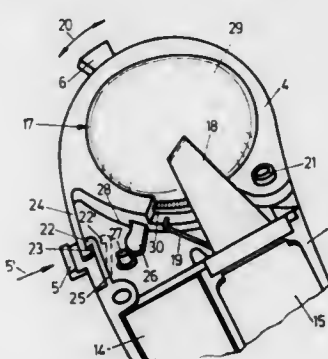
In order to discriminate between true and spurious key signals in a telephone system in which a d-c subscriber line is independently closable by separate hook switches in series with a dial-type and a pushbutton-type digit selector, an exchange serving this line includes a low-level current sensor and an intermediate-level current sensor working into a coincidence circuit. In the presence of an output from the intermediate-level sensor with simultaneous absence of an output from the low-level sensor, the coincidence circuit connects the line wires across a voice-frequency tone receiver unless a transient condition is simultaneously indicated by the output of a differentiator connected across a pair of resistors in a branch circuit containing the two level sensors. A relay actuated by the output of the coincidence circuit disables the differentiator upon the detection of a key signal.

3,828,142
ELECTRICAL HEARING AID
Gerhard Buttner, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany
Filed Apr. 18, 1973, Ser. No. 352,179
Claims priority, application Germany, Apr. 24, 1972, 2219970

Int. Cl. H04r 25/00

U.S. Cl. 179—107 R

2 Claims



An electrical hearing aid is operated by the current of a current source provided in the casing of the hearing aid in a holder movable therein to exchange the source. The operating current is switched on and off by the movement of the holder

and the closing or opening of contacts. An element effective between the holder and the casing snaps in rest locations in the switched on and switched off positions of the holder. The invention is particularly characterized by the provision of a closing device located between the holder and the casing and movable in and out to limit the movement of the holder at most to the switching operation and at least to an opening which just about prevents the removal of the battery.

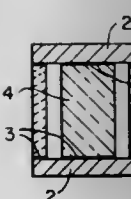
3,828,143
PIEZOELECTRIC END CAPPED CYLINDER ASSEMBLY FOR USE TO THE RADIAL-MODE RESONANCE FREQUENCY

Allan C. Tims, and Theodore A. Henriquez, both of Orlando, Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed June 21, 1972, Ser. No. 265,042

Int. Cl. H04r 17/00

U.S. Cl. 179—110 A

3 Claims



A cylindrical end capped piezoelectric transducer element provided with a concentrically mounted interior post cemented to the end caps. The structure prevents resonance of the end caps to thus provide uniform, relatively flat response to the radial mode resonance frequency.

3,828,144
VIBRATION ABSORBING SUPPORT FOR LOUDSPEAKER VOICE COIL BOBBIN
Isao Yamamuro, and Akio Obuchi, both of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

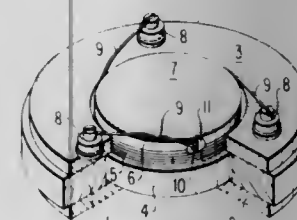
Filed June 14, 1973, Ser. No. 370,107

Claims priority, application Japan, June 20, 1972, 47-72178

Int. Cl. H04r 9/04

U.S. Cl. 179—115.5 VC

8 Claims



The suspension wires extending tangentially to the outer periphery of the coil bobbin which is positioned within a cylindrical air gap of the magnetic circuit of a loudspeaker partially defined by an annular magnetic plate forming a portion of that circuit and a cylindrical pole centered within the plate, are fixed at their outer end to the magnetic plate and are fixed at their inner end to the periphery of the bobbin by vibration absorbing members. The vibration absorbing members may comprise silicone rubber blocks having grooved outer surfaces to receive ends of the wires.

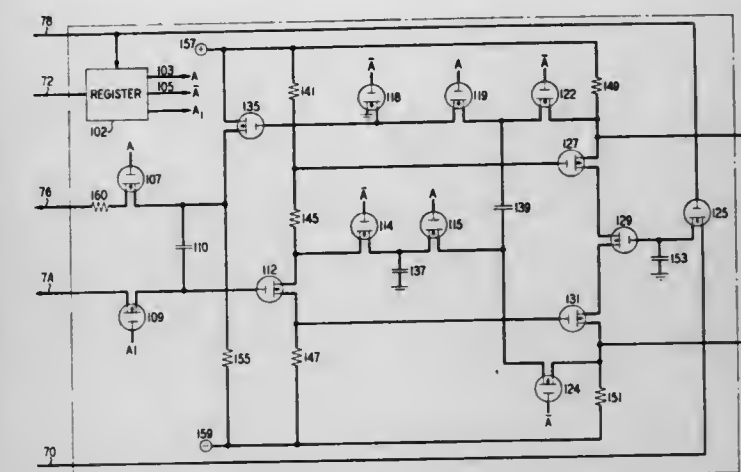
3,828,145
COMMUNICATION SYSTEM HYBRID BALANCE ARRANGEMENT

Robert Lawrence Carbrey, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Mar. 21, 1973, Ser. No. 343,272

Int. Cl. H04m 1/58

U.S. Cl. 179—170 NC

21 Claims



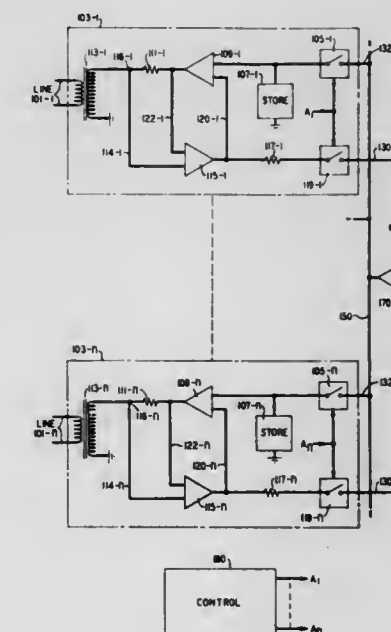
A time division communication system wherein a plurality of time slots occurs in repetitive frames includes a plurality of lines, an incoming time division bus and an outgoing time division bus. Each line has an associated hybrid circuit that comprises balancing apparatus for minimizing the portion of the incoming bus signal returned to the outgoing bus through the hybrid circuit. Adjustment of the balance for a selected hybrid is done during the plurality of time frames in a predetermined time interval. The polarities of the incoming signal to the hybrid and the outgoing signal from the hybrid are detected in each frame. A first type signal is generated when the detected polarities are the same and a second type signal is generated when the detected polarities are different. Responsive to the sequence of first and second type signals, a control signal is produced which is applied to the balancing apparatus of the selected hybrid circuit.

3,828,146
TIME DIVISION CONFERENCE HYBRID CIRCUIT
Theras Gordon Lewis, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Mar. 22, 1973, Ser. No. 343,825

Int. Cl. H04m 1/58

U.S. Cl. 179—170 NC

6 Claims



In a time division communication system a conference connection among a plurality of stations is established utilizing

station associated hybrid circuits connected to an incoming common bus and an outgoing common bus in an assigned conference time slot. It is required that each station receive the outgoing signals of the other conferenced stations but not its own outgoing signal while only the station's own outgoing signal is applied to the outgoing bus in the assigned time slot. Each hybrid circuit stores the sum of the conferenced signals received from the incoming bus in the assigned time slot. The associated station's own outgoing signal in the stored conference signal is canceled by a signal derived from the station outgoing signal in a first difference amplifier so that only the signals from the other conferenced stations are applied to the associated station. The other conferenced station outgoing signals appearing at the associated station are prevented from returning to the outgoing bus through cancellation of said other station signals by a signal derived from the first amplifier output in a second difference amplifier whereby only the associated station's own outgoing signal is applied to the outgoing bus in the assigned time slot.

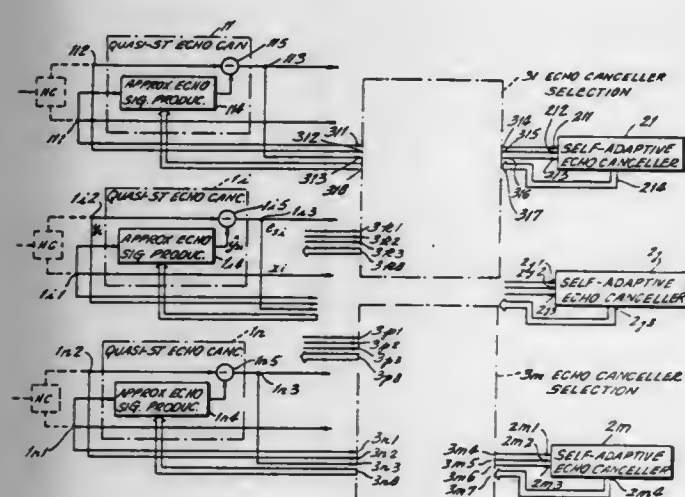
3,828,147

ECHO CANCELLER ARRANGEMENT COMPRISING QUASI-STATIC ECHO CANCELLERS AND A SMALLER NUMBER OF SELF-ADAPTIVE ECHO CANCELLERS
Kazuo Ochiai; Takashi Araseki, and Yasuo Kato, all of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Continuation-in-part of Ser. No. 279,468, Aug. 10, 1972, abandoned. This application Feb. 20, 1973, Ser. No. 333,469
Claims priority, application Japan, Feb. 18, 1972, 47-16500
Int. Cl. H04b 3/20

U.S. Cl. 179—170.2

7 Claims



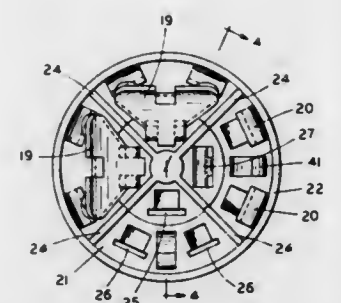
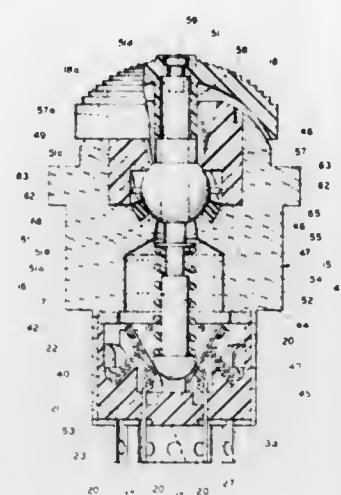
An echo canceller arrangement for a plurality of channels comprises an equal plurality of quasi-static echo cancellers for the respective channels and a smaller number of self-adaptive echo cancellers which are coupled with a group of quasi-static echo cancellers for an equal smaller number of selected channels. Channel selection is successively varied in such a manner that various groups of all quasi-static echo cancellers are successively coupled with the self-adaptive echo cancellers. One of the echo path models retained by each self-adaptive echo canceller and by the quasi-static echo canceller coupled with the last-mentioned self-adaptive echo canceller is rewritten with reference to the other when the above-mentioned other model gives a significantly worse approximation of the characteristics of the concerned actual echo path than the above-mentioned one model.

3,828,148
MULTI-POSITION ELECTRICAL SWITCH AND SPRING BIASING MEANS FOR UNIVERSAL-TYPE ACTUATOR
John O. Roeser, Arlington Heights, Ill., assignor to Otto Engineering, Inc., Carpentersville, Ill.

Continuation-in-part of Ser. No. 290,482, Sept. 20, 1972, abandoned. This application Apr. 20, 1973, Ser. No. 352,900
Int. Cl. H01h 25/04, 21/80

U.S. Cl. 200—6 A

23 Claims



A multi-position electrical switch assembly with an elongated actuator means contains resilient means normally biasing the actuator means to a center off position. The actuator means is pivotally movable between a center off position to a plurality of switch on positions whereby a selected switch is actuated. The interior of the casing is hermetically sealed by an O-ring disposed below the equatorial line of the actuator means ball and socket joint of the housing.

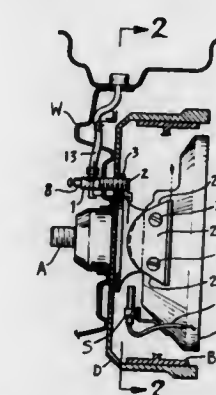
3,828,149
MECHANICALLY-RESETTING TIRE DEFLATION SIGNALLING SYSTEM

Harry C. Winther, Glen Mills, Pa., assignor to Walter J. Winther; Charles R. Winther; William J. Winther and Shirley M. Winther, part interest to each

Filed Feb. 15, 1973, Ser. No. 332,775
Int. Cl. H01h 35/00

U.S. Cl. 200—61.25

4 Claims



Apparatus including a pressure differential responsive valve for connection with the interior of a vehicle tire and an actua-

tor responsive thereto for energizing a signalling circuit or the like on loss of tire pressure, combined with a camming device for resetting the actuator after the tire pressure has been restored to a predetermined value, together with visual signalling means carried by the vehicle wheel affording indication of deflation independently of the signalling circuit.

3,828,150

WHEEL SPEED SENSOR FOR AN ANTI-SKID VEHICLE BRAKING SYSTEM

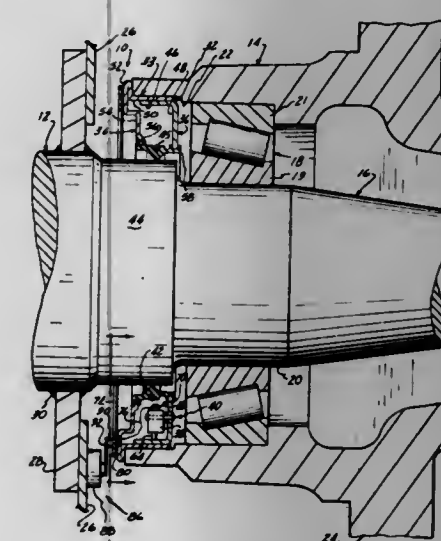
Harold C. Hubbard, Lansing, Mich., and Joseph J. Strbik, Tinley Park, Ill., assignors to Motor Wheel Corporation, Lansing, Mich.

Continuation of Ser. No. 210,761, Dec. 22, 1971, abandoned. This application Sept. 18, 1972, Ser. No. 289,946

Int. Cl. B60t 8/12

U.S. Cl. 200—61.46

16 Claims



A wheel speed sensor for controlling an anti-skid vehicle braking system wherein the sensor is associated with a wheel hub mounted for rotation on a spindle. The sensor has a housing received on the hub with a switch pivotally mounted therein. One of the contacts of the switch is connected to an electrically conductive ring carried by the housing for rotation therewith and adapted to engage a brush assembly mounted in fixed relation to the spindle.

3,828,151

SNAP SWITCH ACTUATOR

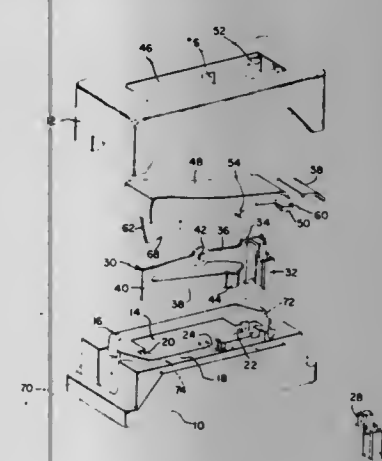
Edward Dennman Bunnell, Palm Harbor, and Stuart L. Parsons, Belleair-Beach, both of Fla., assignors to AMP Incorporated, Harrisburg, Pa.

Filed May 25, 1973, Ser. No. 364,156

Int. Cl. H01h 13/36

U.S. Cl. 200—67 DA

11 Claims



A method and apparatus for actuating a contact carrying snap-over center spring member in an electrical switching device is disclosed. The spring member includes a stressed

contact carrying arm which assumes either of two oppositely directed, bowed rest positions and at least one stressing arm crimped to be shorter than the contact carrying arm. The spring member is mounted in cantilever fashion with the contact positioned for cooperative interaction with a fixed contact. The actuator includes camming means acting in the plane of the spring against an area near the free end of the contact carrying arm of the spring to force it from one bowed rest position to its opposite bowed position.

3,828,152

REGULATOR FOR CENTRALIZED REFRIGERATING
Pierre Charmeil, Montreuil, and Michel Debieuvre, Nogent-Marne, both of France, assignors to S.A.R.L. "Constructions Isothermiques Bontami," Vincennes, France

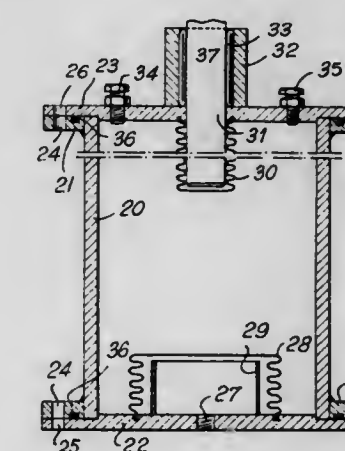
Filed Apr. 17, 1972, Ser. No. 244,580

Claims priority, application France, Apr. 23, 1971, 71.14522

Int. Cl. H01h 35/40

U.S. Cl. 200—83

9 Claims



A pressure or flow regulator for food refrigeration systems and installations for distributing fluid under pressure.

The regulator is particularly intended for centralized refrigeration systems having a group of compressors mounted in parallel and delivering fluid refrigerant to refrigerated cabinets which are periodically defrosted. The regulator has two interconnected bellows in an enclosure filled with a fluid having a low coefficient of expansion. One of the bellows is deformable by changes in pressure at the low pressure side of the compressors, and resulting deformations in this bellows are transmitted by the fluid in the enclosure to the other bellows, which actuates micro-contacts controlling the starting or stopping of the compressors.

3,828,153

PAPER WIDTH-RESPONSIVE SWITCH APPARATUS FOR PRINTERS

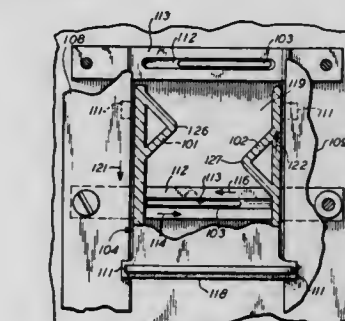
Arthur A. Hagstrom, Hoffman Estates, and Takeshi Yamashita, Chicago, both of Ill., assignors to Teletype Corporation, Skokie, Ill.

Filed Feb. 8, 1973, Ser. No. 330,550

Int. Cl. H01h 15/00

U.S. Cl. 200—153 LA

6 Claims



A system for adjusting a printer to accommodate different widths of paper includes a fixed sprocket wheel and a slidable

sprocket wheel for engaging perforations in the margin of the paper. The slidable sprocket wheel is positively coupled to a slidable trolley which has a pair of opposed but spaced cams projecting therein which operate individually and sequentially on a row of switches by shifting followers projecting from each individual switch.

The present system is disclosed as being used with an electrostatic raster printer in which a series of nozzles direct streams of ink onto a sheet of paper to thereby print on the paper. The streams of ink are controlled by the switches to convert to a non-printing, or "gun-down," mode sequentially as the switches are shifted to the first condition. As the switches are shifted to the second condition, the streams of ink are converted sequentially to a printing mode. In this way, those streams of ink which will impinge upon the paper are retained in a printing mode and those streams of ink which will miss the edge or margin of the paper will be placed in a non-printing or gun-down mode.

3,828,154

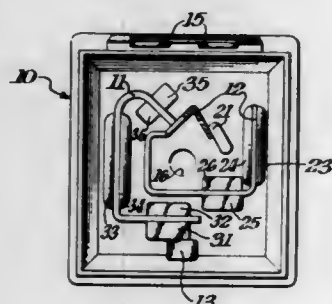
VARIABLE ELECTRONIC COMPONENT SWITCH
John H. Fabricius, Stamford, and John P. Maher, North Adams, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Continuation-in-part of Ser. No. 260,293, June 6, 1972, Pat. No. 3,760,321. This application Feb. 26, 1973, Ser. No. 335,617

Int. Cl. H01h 21/82

U.S. Cl. 200—153 LB

1 Claim



In a variable network loudness and/or tone control, a mechanism is disclosed for use as an "off-on" switch. The switch is actuated by rotating the same shaft that controls the loudness or volume.

3,828,155

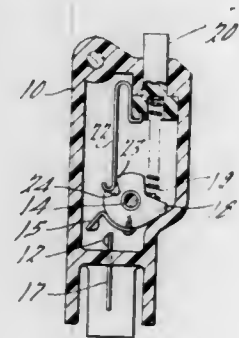
MOMENTARILY CLOSING SWITCH APPARATUS
Arnold G. Adams, Troy, Mich., assignor to Theodore E. Fidler, Birmingham, Mich.

Filed Mar. 29, 1973, Ser. No. 345,978

Int. Cl. H01h 13/52

U.S. Cl. 200—160

7 Claims



A switch apparatus for momentarily closing its contacts to complete a circuit with motion in one direction having at least one fixed contact, a rocker arm, at least one moving contact on the rocker arm, a pawl for moving the rocker arm to swing the moving contact against the fixed contact, an actuator for moving the pawl and spring means resiliently displaceably urging the rocker arm and the actuator-pawl to their unactuated

positions with the contacts open. The actuator-pawl moves the rocker arm to move the movable contact against the fixed contact to close a circuit. A cam engages the pawl immediately after the pawl has moved the rocker arm to close the contacts. The cam then moves the pawl off the rocker arm whereupon the spring means reversely move the rocker arm opening the contacts with the actuator-pawl still in the actuated position.

3,828,156

WELDING MACHINE

John Arthur Fuls, Hemel Hempstead, England, assignor to Rolls-Royce (1971) Limited, London, England

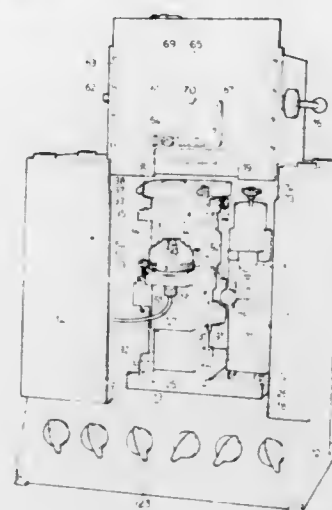
Filed July 13, 1973, Ser. No. 378,814

Claims priority, application Great Britain, July 20, 1972, 33901/72

Int. Cl. B23k 9/00

U.S. Cl. 219—60 A

4 Claims



A machine for use in the welding of a pipe to a pipe-end fitting comprising several carriages, mounted on a main frame, and capable of receiving a pipe and a pipe-end fitting and aligning them in an abutting relationship one to the other and relative to an orbital welding head which is mounted from one of the carriage means. The machine is particularly adapted for batch work in that after setting up for the welding of the first assembly repetitive work can then be carried out with a reduced number of setting up adjustments for subsequent welding of assemblies.

3,828,157

METHOD OF SEAMING WIRE CLOTH

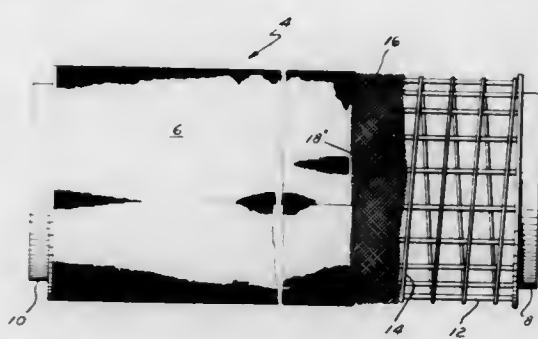
David G. Minick, Westfield, Mass., assignor to The Sinclair Company, Holyoke, Mass.

Filed Feb. 26, 1973, Ser. No. 335,889

Int. Cl. B23k 31/06

U.S. Cl. 219—67

5 Claims



Method of seaming metal wire fabric or screen of fine mesh onto a cylindrical support structure, such as a dandy roll or cylinder mould by securing to the structure a first metal wire cloth under layment at least along the seaming site of the fabric. The fine mesh fabric is then wrapped around the structure and tensioned with its ends held in registered, abutting relationship. The fine wire fabric is spot welded along and adjacent its abutting edges to the metal cloth. The welding pulses are controlled as to both shape and number to fuse the two

wire materials together without overheating various gauges of metal fabric.

3,828,158

METHOD OF TESTING SPIRAL-WELDED SEAL TUBES
Adalbert Sablotny, Rehdeicke, Germany, assignor to Hoesch Aktiengesellschaft, Dortmund, Germany

Division of Ser. No. 72,882, Sept. 16, 1970, Pat. No.

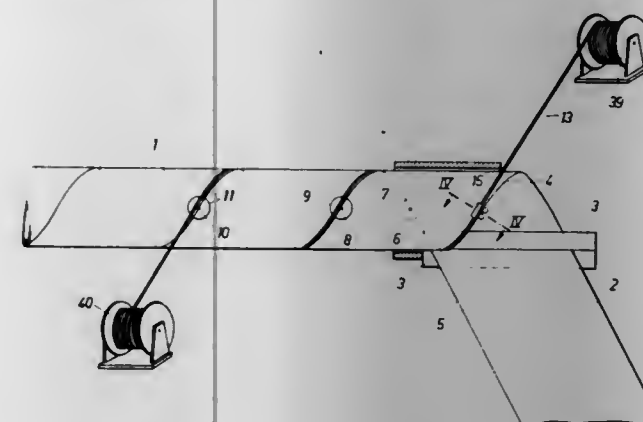
3,696,226, which is a division of Ser. No. 769,579, Oct. 22, 1968, Pat. No. 3,557,335. This application July 12, 1972, Ser. No. 271,240

Claims priority, application Germany, Oct. 27, 1967, 1652938

Int. Cl. B23k 1/18

U.S. Cl. 219—62

1 Claim



Method of producing or testing with a welding or testing instrument welded spiral-seamed tubes formed of a steel band, which comprises rolling a steel band in a continuous spiral so as to form a rotating tube-shaped body; placing on the steel band at a constant spacing from an edge of the steel band extending toward a given welding location thereon, a premagnetized tape containing a ferromagnetic material adhering to the steel band and carrying a marking line disposed parallel to the edge of the steel band; sensing the marking line and regulating in accordance therewith the orientation of at least one of the welding and testing instruments with respect to the edge of the steel band so that the instrument and the given welding location are momentarily in registry as the tube-shaped body rotates; and withdrawing the premagnetized tape from the steel band after the steel band edge of the tube-shaped body has rotated past a second one of the instruments in the travel direction of the steel band edge; and apparatus for carrying out the method.

3,828,159

LASER CUTTING SURFACE

Robert M. Zoot, West Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

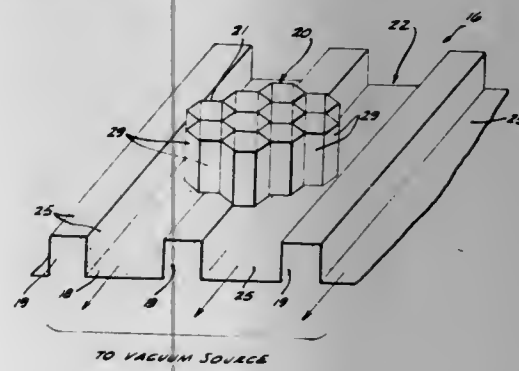
Continuation of Ser. No. 3,665, Jan. 19, 1970, abandoned.

This application Oct. 8, 1971, Ser. No. 187,712

Int. Cl. B23k 27/00

U.S. Cl. 219—121 LM

9 Claims



A table surface upon which a workpiece is placed to be cut by a laser beam is constructed in a manner not to be affected

by the laser beam and to eliminate adverse effects to the workpiece which can be caused by the setting up of standing waves and/or stray reflections from the table surface.

3,828,160

ELECTRODE HOLDER WITH POWER DISCONNECT

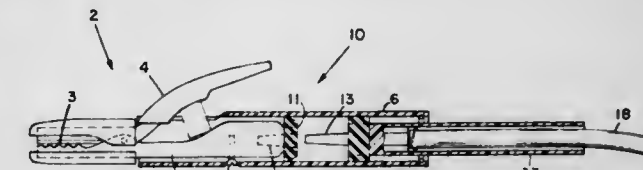
William S. Greer, San Antonio, Tex., assignor to Courtenay W. McAlpin, San Antonio, Tex., a part interest

Filed Mar. 22, 1973, Ser. No. 343,700

Int. Cl. B23k 9/28

U.S. Cl. 219—141

1 Claim



An electrode holder has a plug and socket type of electrical connection mounted inside the insulated handle portion of the electrode. The plug and socket are mounted for relative sliding movement inside the handle.

3,828,161

FOR HEATING FLUIDS BY MEANS OF GAS PERMEABLE HEAT GENERATING MEMBERS

Takeshi Yamaguchi, Tokyo, Japan, assignor to Ernest K. Cleland, Milwaukee, Wis.

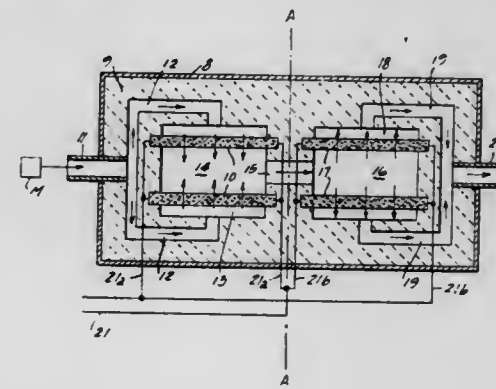
Filed June 6, 1972, Ser. No. 260,133

Claims priority, application Japan, July 20, 1971, 46-54014

Int. Cl. H05b 3/12; F24h 3/04

U.S. Cl. 219—382

4 Claims



Apparatus for heating a fluid has first and second heating chambers each having an inlet and an outlet. At least one passage connects the first heating chamber to its inlet and a fluid-permeable electrically energized heat generating member is interposed between each said passages and the first heating chamber. The outlet from the first chamber leads to the inlet of the second chamber. At least one passage connects the second heating chamber to its inlet. A fluid-permeable electrically energized heat generating member is interposed between each of said passages and the second heating chamber.

3,828,162

METHOD FOR HEATING CORROSIVE GASES WITH ARC HEATER

Calvin B. Holden, Doylestown, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 35,004, May 6, 1970, Pat. No. 3,743,781, which is a division of Ser. No. 683,839, Nov. 17, 1967, Pat. No.

3,558,274, which is a continuation-in-part of Ser. No. 400,644, Oct. 1, 1964, abandoned. This application Sept. 28, 1972, Ser.

No. 293,182

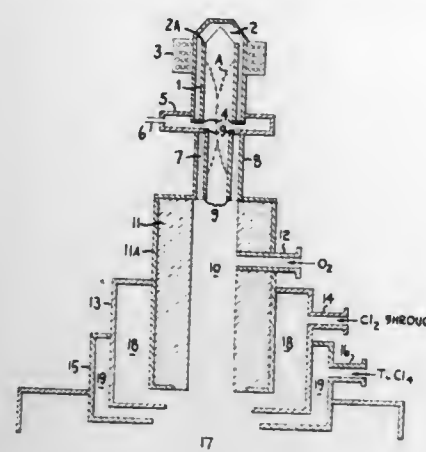
Int. Cl. H05b 7/18

U.S. Cl. 219—383

10 Claims

Corrosive gases, such as air, oxygen, carbon monoxide and carbon dioxide, are heated in an electric arc gas heater by

passing the gas to be heated through the arc heater and in contact with an electric arc established between the cathode and anode electrodes thereof. At least one electrode contains less



than about 0.0005 volume percent of voids of at least 0.019 inch in any dimension in the area of the electrode eroded by arc operation. Ultrasonic testing is used to determine the void content of the electrodes.

3,828,163 ELECTRIC OVEN

Keizo Amagami, Neyagawa; Toshii Tsugeki, Takatsuki; Yasuo Ogo, Kawanishi; Yoshinori Mitani, Minoo; Hiromitsu Ueda, Ibaragi; Takeo Nishida, Ikeda, and Atsuo Ono, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

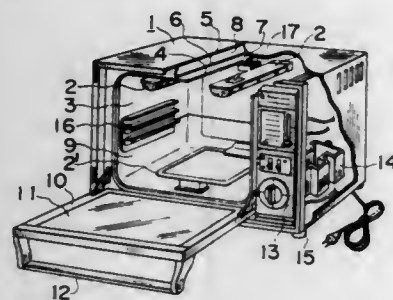
Filed Jan. 29, 1973, Ser. No. 327,471

Claims priority, application Japan, Feb. 31, 1972, 47-11639

Int. Cl. F27d 11/02

U.S. Cl. 219-413

12 Claims



An electric oven convenient for general purposes capable of selectively performing the convection heating in which the variational temperature width is very small and foods can be cooked with no scorching, the infrared radiation heating in which the temperature fluctuation is large and scorching is formed on the cooked foods, and the fermenting heating for raising bread with yeast, the oven comprises a controlling means including a thyristor, etc. and a combination of a gate circuit means for said thyristor and a temperature detecting means.

3,828,164 COOKING DEVICE WITH AN ELECTRICAL TEMPERATURE CONTROL

Karl Fischer, Am Gansberg, and Wolfgang Niehaus, both of Oberderdingen, Germany, assignors to said Fischer, by said Niehaus

Filed Nov. 21, 1972, Ser. No. 308,507

Claims priority, application Germany, Dec. 10, 1971, 2161371

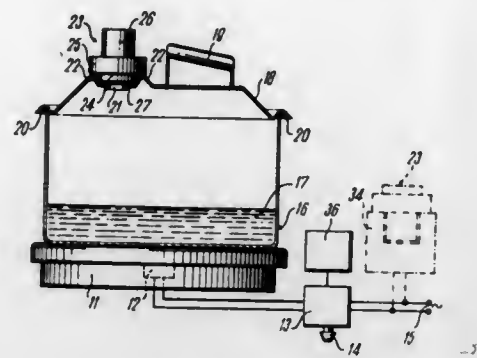
Int. Cl. F27d 11/02

U.S. Cl. 219-431

12 Claims

A regulator for an electric or gas hot plate comprises a freely movable control unit which is fixed to or can be placed

upon a pan lid. The control unit includes a battery powered radio transmitter which transmits a signal when steam rises in the pan and is condensed in the control unit, the latter including a thermally responsive switch for switching on the trans-



mitter. The signal is received by a receiver which controls a power switch for the hot plate. The battery can be a rechargeable accumulator which can be re-charged via an inductive coupling and a rectifier.

3,828,165 GOLF BALL WARMING OVEN

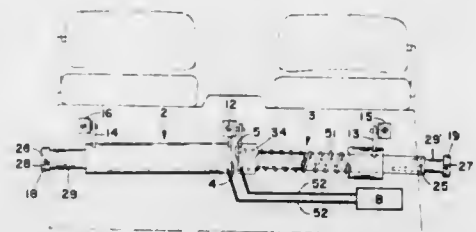
Joseph M. Collins, 3115 Tawny Oak Dr., San Antonio, Tex. 78230

Filed Mar. 27, 1973, Ser. No. 345,351

Int. Cl. H05b 3/06

U.S. Cl. 219-521

6 Claims



A golf ball warming oven is constructed of a tubular housing surrounded by an insulating cover. The oven is mounted over the exhaust manifold on a gas powered golf cart. For use on electric powered golf carts, the electric resistance coils are wrapped around the housing underneath the insulated cover.

3,828,166 CASH REGISTER INTENDED FOR SAFE AND FAST OPERATION DURING RECEIPTION AND ISSUE OF BANKNOTES AND COMPARABLE DOCUMENTS

Sven Lissol Johansson, and Leif Lundblad, both of Stockholm, Sweden, assignors to Norob System AB, Stockholm, Sweden

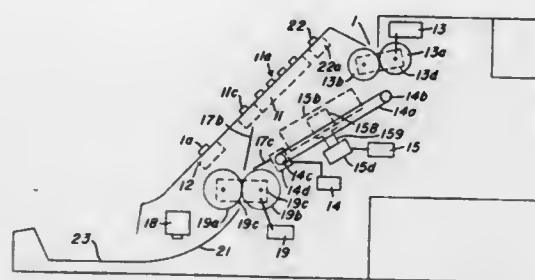
Filed Sept. 11, 1972, Ser. No. 287,685

Claims priority, application Sweden, Sept. 14, 1971, 11613/71

Int. Cl. G07g 1/00, 3/00; G07d 1/00

U.S. Cl. 235-7 A

5 Claims



A cash register for safe and fast handling of exact amounts of banknotes. Motive operated conveyors feed documents into and one at a time from a banknote bundle storing compartment for each banknote denomination. A keyboard con-

trol effects the discrete delivery as well as provides safety controls for alarm conditions.

3,828,167 DETECTOR FOR SELF-CLOCKING DATA WITH VARIABLE DIGIT PERIODS

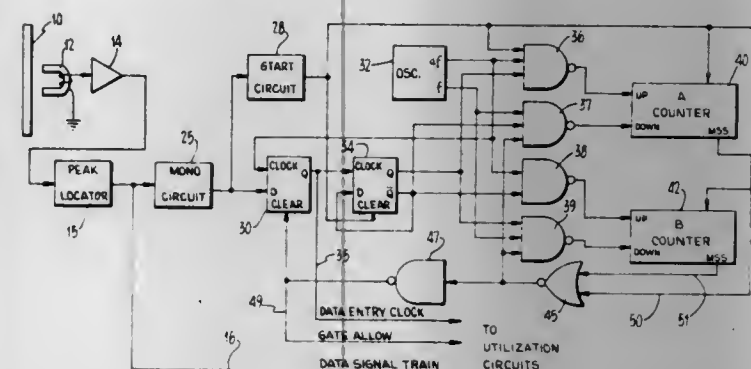
William C. Goldfarb, Ithaca, N.Y., assignor to The Singer Company, New York, N.Y.

Filed Oct. 10, 1972, Ser. No. 296,467

Int. Cl. G11b 5/00

U.S. Cl. 235-61.11 A

13 Claims



A data detector for eliminating spurious pulses from a train of self-clocking data signals capable of operation over an extremely wide range of digit intervals. Deletion period circuitry including a pair of reversible counters operated simultaneously in opposite directions for establishing successive deletion periods as a function of the actual length of the most recent digit interval.

3,828,168 CONTROLLED VELOCITY DRIVE

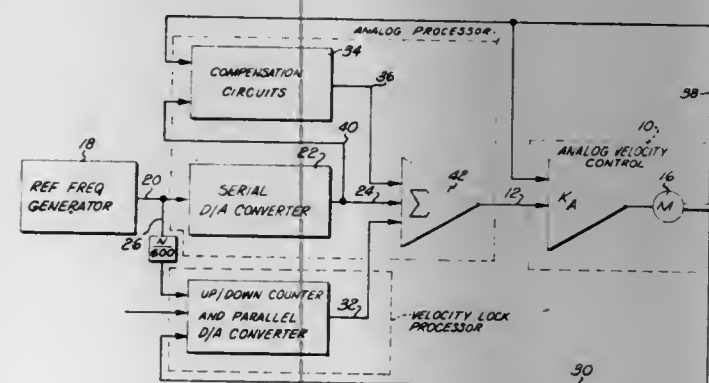
Gerald F. O'Callaghan, Kenosha, and Donald D. Woelz, Milwaukee, both of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed Mar. 31, 1972, Ser. No. 240,221

Int. Cl. H02p 5/00

U.S. Cl. 235-150.1

56 Claims



A control for a controlled velocity drive having a driven load includes a generator for generating a reference pulse train wherein each pulse is indicative of a desired incremental position of the load and the frequency of the pulses is indicative of a desired velocity of the load, first sensing means for sensing the actual position and velocity of the load and generating a second pulse train wherein each pulse is indicative of an actual incremental position of the load and the frequency of the pulses is indicative of the actual velocity of the load, and an up-down counter for digitally summing the pulses of the reference pulse train and the pulses of the second pulse train and generating a position error signal. The control system further includes means for converting the reference pulse train to an analog base velocity signal which has a magnitude indicative of the desired velocity of the load and second sensing means for sensing the actual velocity of the load and generating an analog velocity signal indicative thereof. A com-

pensation circuit is provided responsive to the analog velocity signal and the analog base velocity signal to provide a compensation signal which is summed with the base velocity signal and the position error signal to provide an analog control signal. The control signal is directed to and cooperates with an analog velocity control for controlling the velocity of the load so the actual velocity of the load precisely follows the desired velocity and a zero average error in velocity results.

3,828,169 APPARATUS FOR DIGITAL FREQUENCY MULTIPLICATION

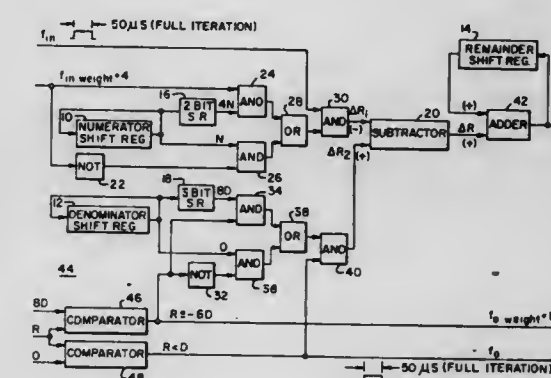
Francis A. Fluet, Clarence, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 26, 1973, Ser. No. 410,134

Int. Cl. G06j 1/02

U.S. Cl. 235-150.31

5 Claims



Apparatus for digital frequency multiplication having a first AND logic gate adapted to receive an input pulse train having a frequency f_{in} , each pulse width defining one iteration. A numerator shift register with digital contents N, is connected to the input of the first AND logic gate, the latter gate, when enabled by the signal f_{in} , having the digital output N. A denominator shift register, having digital contents D, is connected to the input of a second AND logic gate. An accumulator register coupled to the outputs of both AND gates, having digital contents R, is applied to a comparator, which compares the contents R with a datum level. The comparator delivers an output signal f_o when $R < \text{datum level}$ and also delivers an enabling signal to the second AND logic gate which then has output D, the contents of the accumulator register becoming:

$$R_{n+1} = R_n - N + D$$

where R_n = the contents of the accumulator register at the nth iteration where $n = 0, 1, 2, 3, \dots, n$ and

R_{n+1} = the contents of the accumulator register at the (n+1)th iteration; and

$$f_o = N/D f_{in}$$

Flexibility is provided by enabling N and D to be weighted to thereby vary f_o using the same apparatus.

3,828,170 COMFORT LEVEL MEASURING DEVICE

Richard A. Lee, Warren, and William F. Lins, East Detroit, both of Mich., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 27, 1972, Ser. No. 318,956

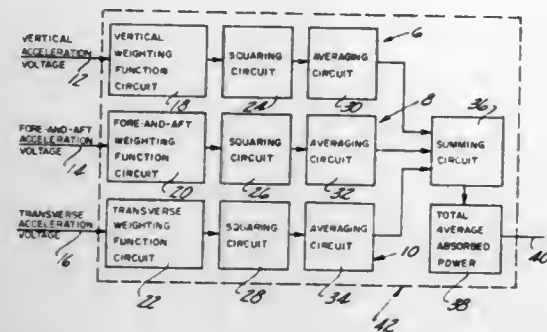
Int. Cl. G06g 7/60; G01p 15/00

U.S. Cl. 235-151.3

12 Claims

An objective means to determine the comfort level of vibrations to which human beings must be subjected. The device is one or more absorbed power measuring circuits connected to receive one or more voltage signals from an accelerometer mounted on the seat supporting the human being. Each ab-

sorbed power measuring circuit comprises a weighting function circuit, a squaring circuit, and an averaging circuit in se-



ries, with the output summed and metered to give total average absorbed power for the human on the seat.

3,828,171

PROCESS APPARATUS CONTROL SYSTEM FOR OPTIMIZING OBJECTIVE VARIABLE QUALITY

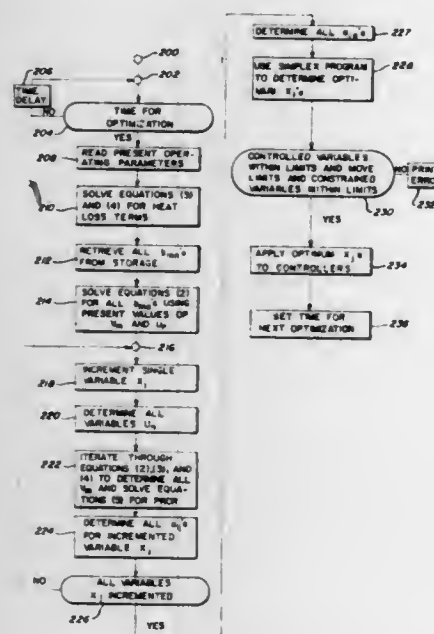
Donald E. Griffin, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 14, 1972, Ser. No. 280,535

Int. Cl. C10g 13/00; G05b 15/02

U.S. Cl. 235—151.12

10 Claims



A procedure for on-line optimization of the operation of a petroleum catalytic cracking apparatus through control of six operational variables is disclosed using a linear model centered on the present operating condition of the apparatus. Minimum and/or maximum limits are placed on the controlled variables and certain other variables representing operational parameters of the apparatus and move limits are imposed on the controlled variables. The linear model is updated each time the optimization procedure is performed and the simplex technique is used to determine the values of the controlled variables required for optimization.

3,828,172

REPLENISHMENT CONTROLLER FOR PHOTOGRAPHIC PROCESSORS

Edward R. Schickler, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 4, 1973, Ser. No. 366,904

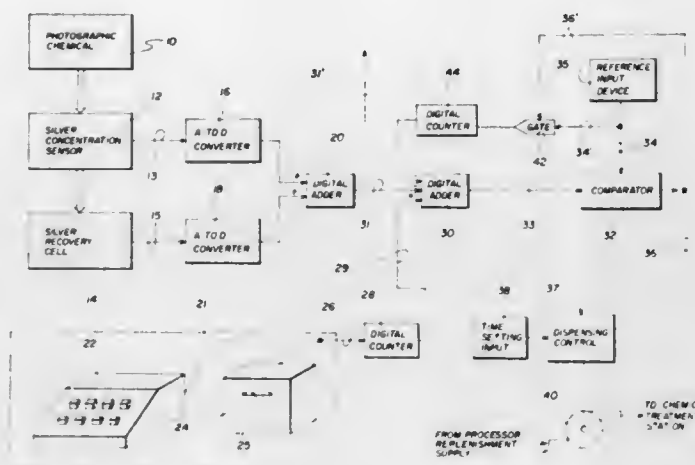
Int. Cl. G03d 3/06

U.S. Cl. 235—151.12

4 Claims

Control of chemical replenishment in a photographic processor is provided based on a calculation of the amount of image silver in the processed photographic product. To accomplish such control, an accounting is maintained of (1) the

silver entering the processor in the product and of (2) the silver removed from the product during the fixing step as determined by a sensing device. From a determination of the difference between the entering and the removed silver, a de-



mand signal is established which is representative of the image silver fixed during processing. Dispensing of fresh processing chemicals is performed responsive to the demand signal, thus providing replenishment related to the amount of processed image silver.

3,828,173

GRAIN ANALYSIS COMPUTER CIRCUIT

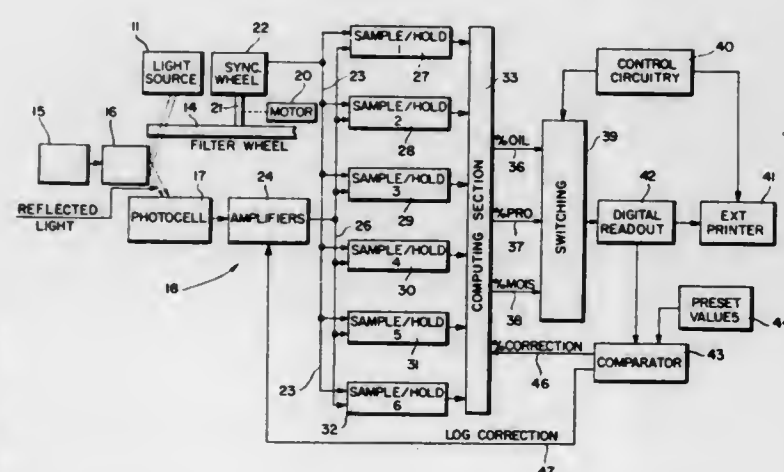
John T. Knepler, Auburn, Ill., assignor to Dickey-John Corporation, Auburn, Ill.

Filed Aug. 1, 1972, Ser. No. 277,056

Int. Cl. G06g 7/24, 7/48

U.S. Cl. 235—151.35

11 Claims



A grain analysis computer has a quartz-iodide lamp to provide infrared radiation which is directed through a lens and toward the surface of a quantity of ground grain which is to be analyzed. The infrared radiation passes through selected filters so that only a specific frequency of radiation impinges upon the grain sample, this specific frequency thus providing a reflected radiation signal which corresponds to a specific constituent of the grain sample being analyzed. A plurality of pulse signals is generated by a photocell, each pulse signal corresponding to the output of a given filter element and having an amplitude corresponding to the quantity of the constituent being measured. These pulses are applied to a signal storage circuit and a signal computing circuit to provide a direct readout in terms of per cent of the constituent being analyzed. A reference standard element is automatically positioned in light-receiving relation with the light source through the filters so that before each test is made the circuit is automatically adjusted.

3,828,174

NUMERICAL DATA INPUT APPARATUS

Tadahiko Nakamura, and Yoshinori Tanaka, both of Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan

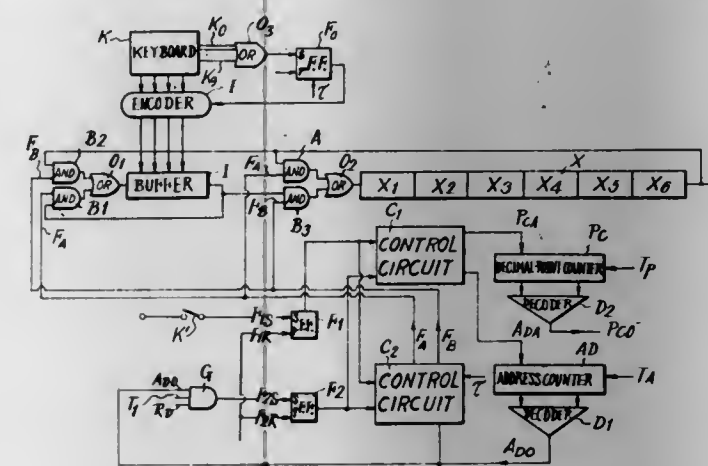
Filed Mar. 5, 1973, Ser. No. 338,390

Claims priority, application Japan, Mar. 9, 1972, 47-28854[U]

Int. Cl. G06f 5/00

U.S. Cl. 235—156

4 Claims



A numerical data input apparatus stores a numerical data signal supplied thereto in a register with a decimal-point fixed at a predetermined place in the register when the input signal is composed of digits all of which can be stored with the position of the decimal-point fixed in the register, but the input signal is stored in the register with its decimal-point shifted automatically from the predetermined place in the register when the input signal is composed of digits some of which would cause an overflow or underflow if the decimal point was kept at the predetermined place in the register.

3,828,175

METHOD AND APPARATUS FOR DIVISION EMPLOYING TABLE-LOOKUP AND FUNCTIONAL ITERATION

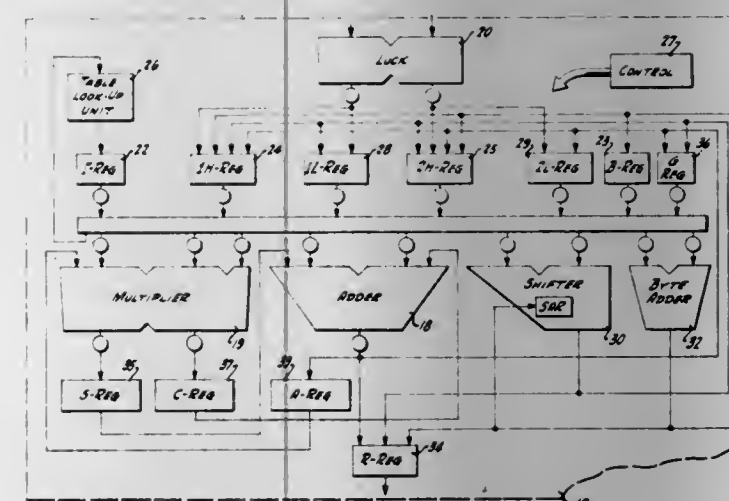
Gene M. Amdahl, Saratoga, and Michael R. Clements, Santa Clara, both of Calif., assignors to Amdahl Corporation, Sunnyvale, Calif.

Filed Oct. 30, 1972, Ser. No. 302,223

Int. Cl. G06f 7/52

U.S. Cl. 235—164

7 Claims



Disclosed is a divide method and a divide apparatus for use in a data processing system. A given dividend, No, and a given divisor, Do, are used to calculate a quotient Q. The quotient Q consists of the quotient bytes Q(0), Q(1), ..., Q(i), Q(i+1), ..., Q(n-1). The quotient bytes Q(i) are formed in successive iterations of the equation

$$[Q(i)](dp)+r(i)=Q(i+1), r(i+1)$$

were (dp) is the iteration multiplier and $r(i)$ is the i^{th} truncated remainder resulting after truncating the $Q(i)$ byte from the previous iteration. The iteration multiplier (dp) equals $1-(D)$ (Dp)⁻¹ where (Dp)⁻¹ is an approximate reciprocal divisor. The value of (Dp) is made greater than D using a table lookup approximation of D and employing an initial calculation sequence thereby insuring that only summations are required in the iterations.

3,828,176

SAFE UNDERWATER LIGHTING SYSTEM FOR AQUARIUMS

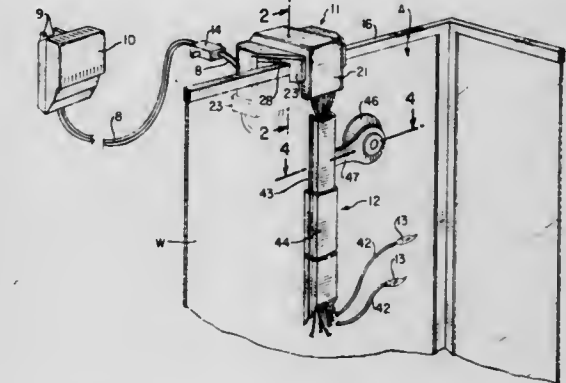
Marvin A. Goldman, and Jerome N. Goldman, both of Great Neck, N.Y., assignors to Penn-Plax Plastics, Inc., Jamaica, N.Y.

Filed Aug. 9, 1973, Ser. No. 386,988

Int. Cl. F21v 33/00

U.S. Cl. 240—2 LC

9 Claims



Disclosed herein is a lighting system for use within an aquarium for the purposes of safely illuminating and decorating the same. The new system includes a wall mounted transformer for reducing normal household current, i.e., 110-120 volt 60 cycle AC to 3-3.5 volt 60 cycle AC; a special low voltage terminal box means adapted to be self supporting on the upper edge of an aquarium wall; conductor means interconnecting the transformer and the terminal box means and having interposed therein a single "on-off" switch; a plurality of submersible miniaturized incandescent lamps each having a pair of elongated conductors projecting therefrom which conductors are adapted to be connected to a pair of terminals in the terminal box means for being energized by low voltage; and a telescoping channel means for retaining the lamp energizing conductors against the side of an aquarium wall. By virtue of the reduction of the voltage available at the terminal box to three volts, the system is totally safe and harmless. In the event of the accidental submersion of the terminal box or in the event of any other accidental shorting across the lamp terminals, the applied voltage is absolutely harmless and will not exceed 3-3.5 volts. Moreover, since the lamps are operated submerged in water, they are constantly cooled during operation, causing their effective life spans to be greatly increased, thereby substantially reducing the need for replacement.

3,828,177

ILLUMINATED FISH LURE

John R. Day, 39 Pigeon Hill St., Rockport, Mass. 01966

Filed May 16, 1973, Ser. No. 360,840

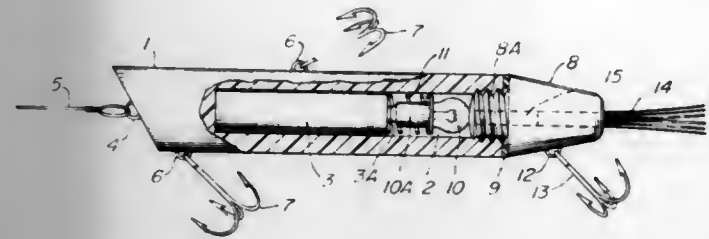
Int. Cl. F21l 1/00

U.S. Cl. 240—6.4 F

4 Claims

An artificial fish lure having a watertight housing containing an electrical battery and a bulb which provide a source of illumination in the housing. A bundle of optical fibers extends into the housing and has its inner end close to the light source. The optical fibers conduct light out of the housing and the lu-

minous outer ends of the fibers are spaced apart to give the aspect of a plurality of separated luminous spots. Various



means can be employed to cause the luminous spots to be held in a desired pattern.

3,828,178

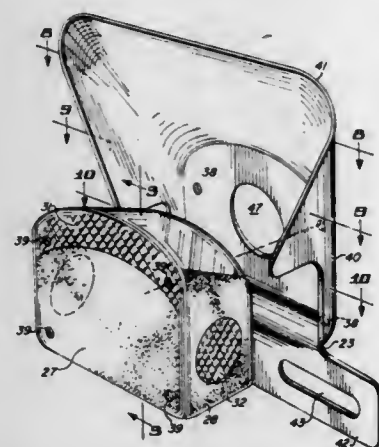
TAILLIGHT ASSEMBLY

Quentin D. Bickel, 204 S. Papago Cir., Tempe, Ariz. 85281
Filed Sept. 18, 1973, Ser. No. 398,441

Int. Cl. B60q 1/30

U.S. Cl. 240—7.1 R

1 Claim



A taillight assembly for a vehicle has a translucent enclosure having red light transmitting front, side and top areas and a white light transmitting bottom area. The front area has a reflector thereon. A reflective hood extends upwardly forward over the enclosure.

3,828,179

HYDRAULIC SYSTEM FOR AUTOMATICALLY ADJUSTING THE POSITIONS OF HEADLIGHTS OF AN AUTOMOBILE

Steffen Straub, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Mar. 1, 1973, Ser. No. 337,108

Claims priority, application Germany, Mar. 14, 1972, 2212131

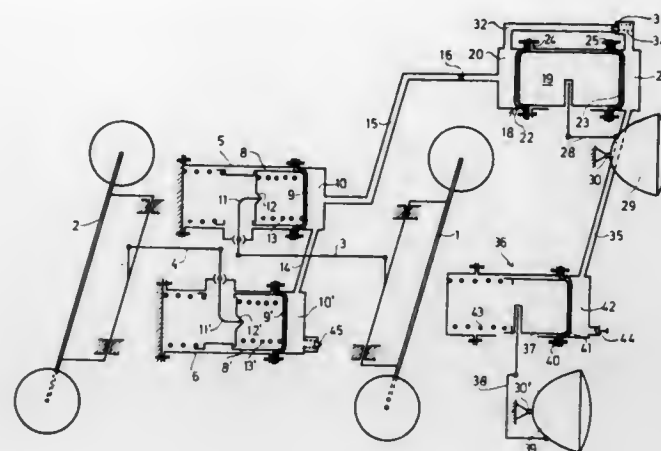
Int. Cl. B60q 1/10

U.S. Cl. 240—7.1 LJ

8 Claims

What follows is the description of an improved hydraulic system for automatically adjusting the positions of headlights of an automobile. The hydraulic system includes two component hydraulic systems, the first of which is provided with a mechanical linkage structure associated with spring-suspended parts at the front and rear of the automobile, two measuring cylinders having pistons displaceable therein and connected to the linkage structure, and a conduit which connects the two measuring cylinders with one another and with the work space of a common working cylinder of the hydraulic system. The second component system is provided with a second working cylinder having a piston displaceable therein and a work space which is connected by a conduit to the common working cylinder, as well as a pair of headlight position adjusting linkages connected to the pistons of the two working cylinders on the one hand and adapted for mechanical connection to pivotally mounted headlights of the automobile, on

the other hand. This hydraulic system is improved by providing it with a fill-up valve in one, and a vent valve in the other of the component systems, and with a hydraulic conduit inter-



connecting the two systems in which conduit there is interposed a shut-off structure which can be opened in the direction of liquid flow from the fill-up valve to the vent valve, while the entire hydraulic system is being filled.

3,828,180

LIGHTING FIXTURE

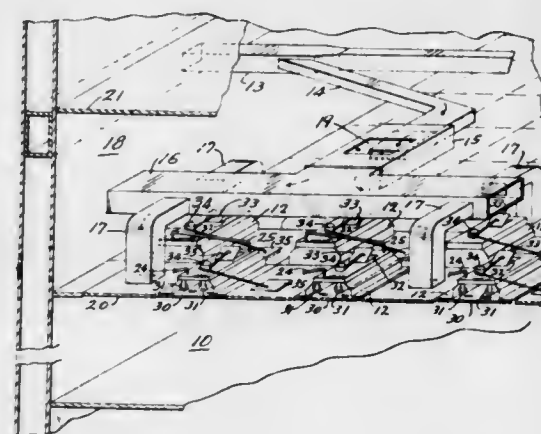
Gershon Meckler, 2750 Ridge Valley Rd., Atlanta, Ga. 30327

Filed Nov. 20, 1972, Ser. No. 308,170

Int. Cl. F21v 29/00; F24f 3/00

U.S. Cl. 240—9 A

3 Claims



A lighting fixture is disclosed. The lighting fixture comprises a top and side and end walls, means for supporting a light source in the fixture to emit light from a light-emitting side thereof, and conduit means operatively associated with the fixture so that a heat transfer fluid circulated therethrough is in heat transfer relationship with the fixture. The fixture has a path including at least one opening therein through which air can flow from the exterior on the light-emitting side to the interior, and to the exterior opposite the light-emitting side, and a damper movable between an open position and a closed position, and effective in the closed position, but ineffective in the open position, to prevent the flow of air from the interior of the fixture to the exterior opposite the light-emitting side. The fixture also includes means responsive to the temperature of the lighting fixture, and effective to move the damper toward an open position when the fixture temperature exceeds a control temperature, and to move the damper toward a closed position when the fixture temperature is below a control temperature.

3,828,181

ADJUSTABLE UNIVERSAL TROUBLE LIGHT SUPPORT

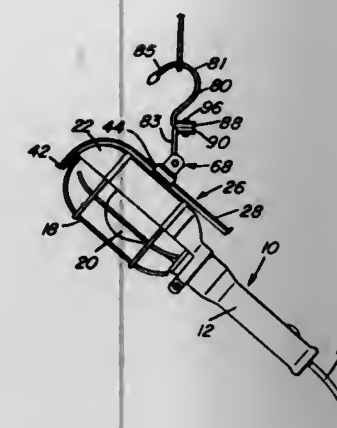
Charles M. Goodwin, Rt. No. 2, Mount Vernon, Ohio 43050

Filed Sept. 10, 1973, Ser. No. 395,559

Int. Cl. F21v 15/00, 21/00

U.S. Cl. 240—54 A

11 Claims



An elongated track having one curved end is provided for support from the outer surface of the light shield of a conventional drop light with the curved portion of the track curving over the outer curved portion of the shield of the drop light. A slide is mounted on the track for adjustable positioning therealong and the slide and track include coacting structure operative to releasably secure the slide in adjusted positions along the track. A mount is pivotally supported from the slide for frictionally resisted rotation about a first axis transverse to the slide and extending between the slide and shield. A support arm is pivotally supported at one end to the mount for frictionally resisted oscillation about a second axis extending at generally right angles relative to the first mentioned axis and the other end of the support arm has a laterally opening hook thereon. The support arm includes opposite end sections with adjacent ends and remote ends and the adjacent ends include right angularly disposed side-by-side integral eye portions pivotally secured together for rotation of the outer end section of the support arm and the hook supported therefrom for rotation about an axis generally paralleling the longitudinal extent of the support arm.

3,828,182

STAR TYPE ORNAMENTAL STRUCTURE

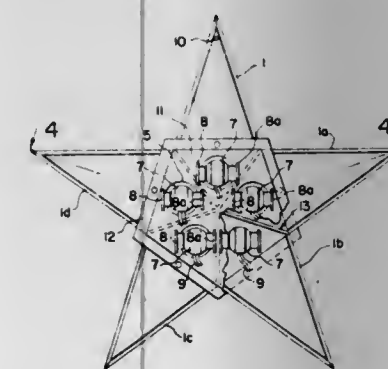
Joseph Semonovich, 5551 Grasmere Ave., Maple Heights, Ohio 44137

Filed Apr. 27, 1973, Ser. No. 355,263

Int. Cl. F21f 1/00; A47g 33/02

U.S. Cl. 240—10 S

8 Claims



An ornamental structure preferably in the shape of a star which consists of a plurality of triangularly-shaped apices formed of plastic material, such as plexiglas, which glows under the influence of light. The triangular plastic apices are connected together by removable bolts extending through mating flanges on opposed canisters. One or both of the canisters may have an opening to receive an electrical light bulb having a contact on its inner end which engages a contact on the holder

when the light bulb is threaded in place and electrical conductors lead from the contact on the holder to a source of electrical energy. A spring holder is provided to receive shrubbery or a branch of a tree to hold the structure in an upright position. An aperture is also provided in one of the apices to suspend the structure from a support, such as a window sill. The holder for the bulbs is provided with spring clips which may be inserted through an opening in one of the canisters when compressed and engages the edges of the opening to hold the light bulb in place when the pressure is released. Dividers may also be provided to form a plurality of compartments, each of which receives a light bulb and in addition a series of pairs of triangularly-shaped plastic apices may be held in place by oppositely disposed canisters between which a divider is inserted to provide a pair of compartments, each of which has a light bulb therein and each of which is preferably of a color different from the other.

3,828,183

INDIRECT LIGHTING FIXTURE

Knut Arenhold, K-Kehl A/Rhine, Germany, assignor to Melude S.A., Fribourg, Switzerland

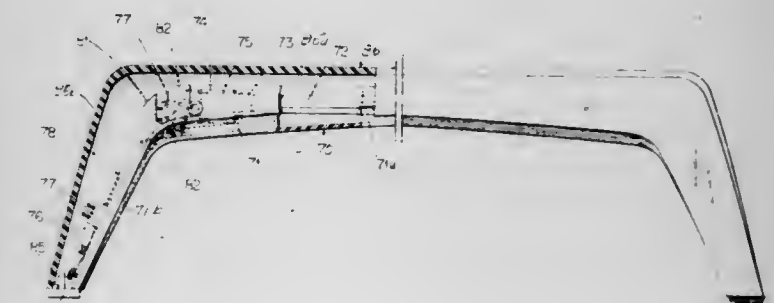
Continuation-in-part of Ser. No. 808,954, March 20, 1969, abandoned. This application Sept. 10, 1971, Ser. No. 179,310

Claims priority, application France, Mar. 29, 1968, 68.146435; July 8, 1968, 68.158328; Sept. 17, 1968, 68.166411; Nov. 22, 1968, 68.174995

Int. Cl. H05b 33/02

U.S. Cl. 240—51.11 R

10 Claims



A lighting fixture comprises a chassis and a cover. The chassis comprises an inner support member having a generally rectangular central portion and end portions extending angularly from the central portions. Provisions are made for mounting one or more fluorescent light tubes on the side of the central portion opposite that from which said end portions extend. The cover which similarly has a central portion and inclined end portions fits over the chassis with the light tubes between the cover and the inner support member. The cover has side flanges extending in the direction of the chassis and the inner supporting member has angular side flanges received between the side flanges of the cover.

3,828,184

IONIZATION CHAMBER WITH A POROUS ANODE

Joseph D. Lupton, 2653 Henderson Rd., Tucker, Ga. 30084

Filed Mar. 8, 1972, Ser. No. 232,721

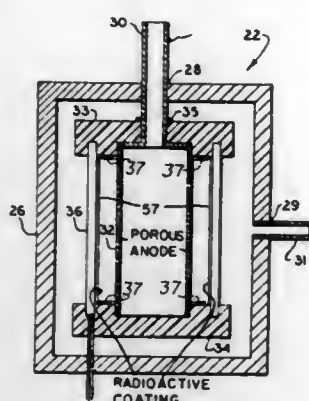
Int. Cl. H01j 39/26

U.S. Cl. 250—83.6 FT

19 Claims

An Ionization Detector analyses a flowing fluid stream for a specific gas or gases. The recirculation of gases between electrodes is eliminated, and the gas between the anode and cathode is not restrained. The anode is made of a porous, electrically conductive material and the cathode is a beta emitting foil positioned adjacent to, but physically and electrically isolated from, the anode. The detector will function with or without an added cell voltage. The response of the detector to

the water of aqueous solutions is so limited in duration that a characteristic response from organic substances can be ob-



tained even when the substance is introduced in an aqueous solution to the chromatographic column.

3,828,185

MODULATED LIGHT COMMUNICATION SYSTEM

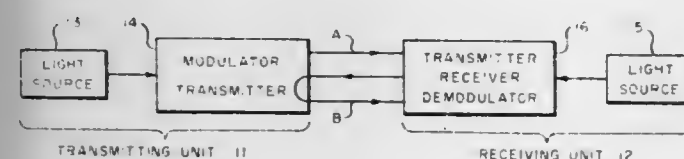
John M. Vandling, Pleasantville, N.Y., assignor to The Singer Company, New York, N.Y.

Filed Dec. 1, 1960, Ser. No. 73,151

Int. Cl. H04b 9/00

U.S. Cl. 250—199

35 Claims



35. A transmitter-receiver for a communication system, comprising, an electrical source of light, a power supply for said source, means for varying the amount of power furnished to said source in accordance with a signal whereby the light emitted by said source is modulated, a concave mirror, a partly transparent and partly reflective mask interposed in the light path between said source and said concave mirror whereby a portion of the light from said source is transmitted through said mask to said mirror and reflected in a beam directed to a remote point, and photosensitive means for generating a signal in accordance with the variations of the intensity of light incident thereon, said photosensitive means being positioned to receive light from said remote point after reflection by said concave mirror and said mask.

3,828,186

APPARATUS FOR INTENSIFYING RADIATION IMAGES

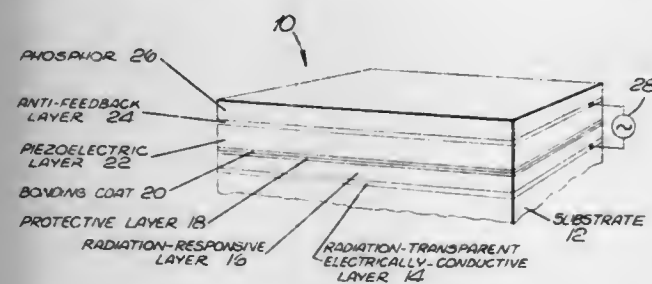
Arthur J. Grolitzer, Tarzana, Calif., assignor to Vocon, Inc., Los Angeles, Calif.

Filed Aug. 9, 1972, Ser. No. 278,894

Int. Cl. H01j 31/50

U.S. Cl. 250—213 R

8 Claims



A radiation-responsive layer preferably of cesium fluoride is bonded to an electrically-conductive radiation-transparent layer of material which is also utilized as an electrode. A piezoelectric polarized ferroelectric ceramic layer preferably

of lead zirconate titanate is bonded to the radiation-responsive layer. An output device such as a visible-light emitting phosphor is bonded along with a radiation-opaque electrical conductive layer, also used as an electrode, to the piezoelectric layer. A source of electrical potential is connected between the two electrodes to thereby apply an electrical potential across the piezoelectric layer and the radiation-sensitive layer.

In the manufacture of the apparatus, the cesium fluoride layer is formed by vacuum deposition from a metallic cesium source in a boron trifluoride atmosphere while bleeding in small amounts of boron trifluoride to maintain a substantially constant atmospheric level thereof during evaporation. The piezoelectric layer is formed by vacuum deposition of lead zirconate titanate in an atmosphere containing trimethylamine, dimethylamine, argon and oxygen upon a bonding coat deposited on the previously-deposited cesium fluoride layer while retaining the substrate heated. During the deposition process, the trimethylamine and dimethylamine are thermally cracked thereby to provide carbon as a dopant for the lead zirconate titanate layer.

3,828,187

COHERENT-OPTICAL IMAGE CONVERTER

Gerhard Winzer, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

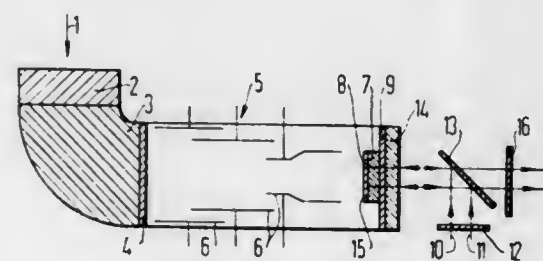
Filed June 12, 1973, Ser. No. 369,157

Claims priority, application Germany, June 30, 1972, 2232247

Int. Cl. H01j 31/50

U.S. Cl. 250—213 VT

4 Claims



An image converter tube for direct time conversion of an incoherent image into a coherent image with a photo cathode, an electron optic and a transparent planar anode which is arranged on a viewing screen. An electro-optical crystalline coating is arranged on the anode and is provided with a dielectric mirror coating and with a device for the external illumination of the electro-optical crystalline coating with a plane-polarized laser light beam. The light beam, after passing through the crystalline layer is rotated in its direction of polarization and after passing through a subsequent analyzer is intensity modulated. The cathode is a planar photo cathode on which the incoherent image may be formed, which for all image points is directly and in parallel transferable onto the electro-optical crystalline coating.

3,828,188

ROTATIONAL POSITION SENSOR

Jerry Matula, Culver City, Calif., assignor to Pertec Corporation, Los Angeles, Calif.

Filed Feb. 12, 1973, Ser. No. 331,371

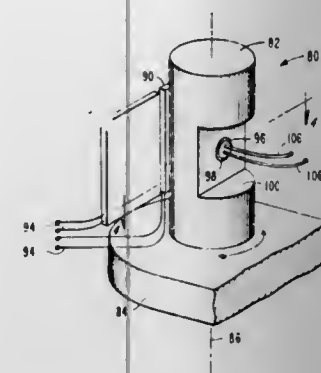
Int. Cl. G01d 5/34; G08b 21/00

U.S. Cl. 250—231 SE

16 Claims

A rotational position sensor is disclosed in which the beam from a light emitting diode mounted on a rotatable element is directed onto a pair of adjacent photocells. The portion of the beam falling upon each of the photocells determines the photocell output signal. The output signals are combined to form a signal which varies generally linearly with the rotational position of the element upon which the light emitting diode is mounted. The photocells are disposed in relatively

close relation to one another, and the light emitting diode is disposed relatively close to each of the photocells and a short distance from the axis of rotation of the element. By use of ap-



propriate masks the size of the beam from the light emitting diode can be varied so as to provide linear response over varying angular ranges of movement of the rotatable element.

3,828,189

LOGGING TECHNIQUE FOR ASSAYING FOR URANIUM IN ROCK FORMATIONS

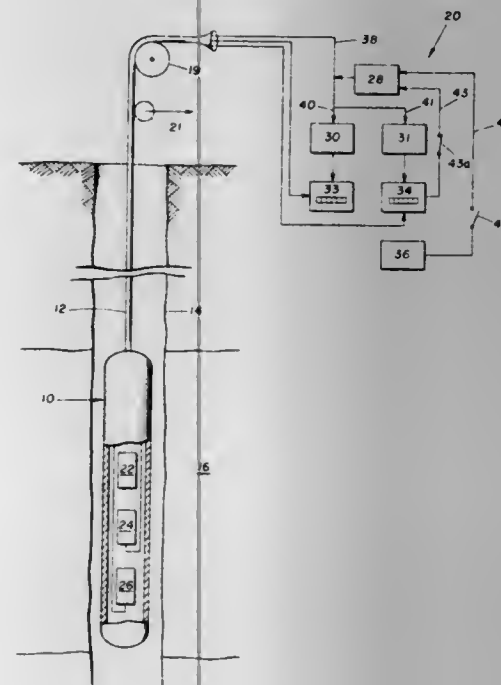
Wyatt W. Givens, Dallas, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,612

Int. Cl. G01t 1/16

U.S. Cl. 250—253

16 Claims



Disclosed is a uranium exploration technique for determining the uranium content of a formation traversed by a borehole. A delayed fission neutron assay log is obtained by irradiating the formation with repetitive bursts of fast neutrons and detecting delayed neutrons resulting from neutron fission of uranium at time intervals between the fast neutron bursts and after dissipation of the neutrons originating in the bursts. In addition, a response log is obtained by irradiating the formation with a source of fast neutrons whereby the neutrons from this source are moderated in the formation to lower energy levels and are subject to absorption. Secondary radiation attendant to these lower energy neutrons is recorded in order to obtain a log representative of the response of the formation to moderation and absorption of the neutrons. The two logs thus obtained are correlated in order to determine a corrected value of uranium content of the formation.

3,828,190

DETECTOR ASSEMBLY

Erik B. Dahlin, Saratoga, and Robert C. Hill, Santa Clara, both of Calif., assignors to Measorex Corporation, Santa Clara, Calif.

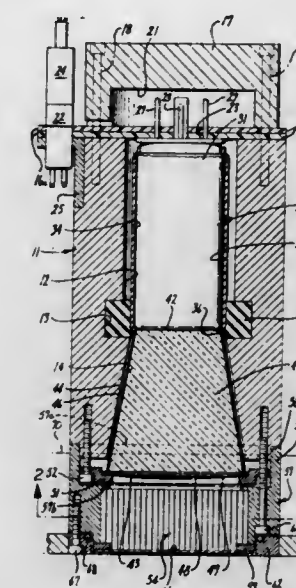
Continuation of Ser. No. 791,915, Jan. 17, 1969, abandoned.

This application Sept. 23, 1971, Ser. No. 183,263

Int. Cl. G01t 1/20

U.S. Cl. 250—308

4 Claims



Detector assembly for detecting radiation which has been directed at a sheet of material which has a honeycomb structure for collimating the radiation to thereby minimize sensitivity of the detector assembly to the position of the sheet relative to the detector assembly.

3,828,191

GAS HANDLING SYSTEM FOR

ELECTRONRADIOGRAPHY IMAGING CHAMBER

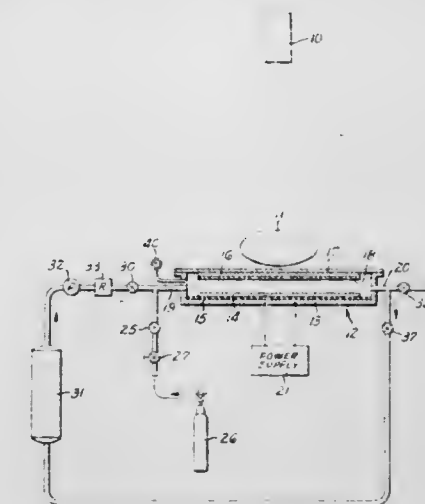
James Richard Eiseke, Mission Hills; Arthur Lee Morsell, Tarzana; Eric Phillip Muntz, Pasadena, and Murray Samuel Welkowsky, Los Angeles, all of Calif., assignors to Xonics, Inc., Van Nuys, Calif.

Filed May 2, 1973, Ser. No. 356,609

Int. Cl. G03b 41/16

U.S. Cl. 250—315

10 Claims



Process and apparatus for providing imaging gas under pressure to the imaging chamber of an electronradiographic system. A pump for providing imaging gas under pressure to the imaging chamber, a source of carbon dioxide gas under pressure for flushing air from the chamber to exhaust and for flushing imaging gas from the chamber to a recovery reservoir, which reservoir includes a supply of lime for reacting with the carbon dioxide gas, leaving the imaging gas for recycling to the imaging chamber.

3,828,192

SPHERICAL SEGMENT ELECTRODE IMAGING CHAMBER

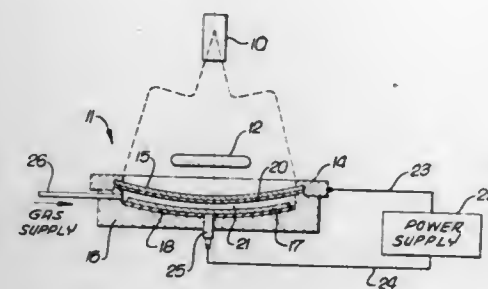
Arthur Lee Morsell, Tarzana, Calif., assignor to Xonics, Inc., Van Nuys, Calif.

Filed Aug. 31, 1973, Ser. No. 393,419

Int. Cl. G03b 17/26

U.S. Cl. 250-315

8 Claims



An imaging chamber for an electron radiography system, including spaced spherical electrodes defining a gas gap therebetween. An arrangement for clamping the receptor sheet and stretching it to a spherical configuration against one of the electrodes. A plurality of clamp strips disposed about one electrode and spring loaded toward the other electrode, with the other electrode being moveable toward the first electrode to clamp the receptor sheet at the clamp strips and then move the clamp strips against the spring load to stretch the clamped receptor sheet.

3,828,193

METHOD AND APPARATUS FOR DETECTING PARTIALLY-FILLED OR ABSENT CONTAINERS IN A SEALED SHIPPING CARTON

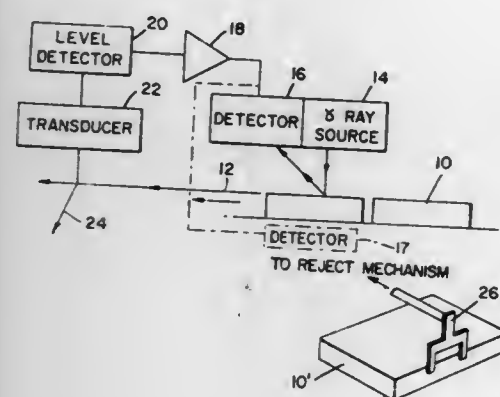
Lloyd A. Nelson, Fremont, Mich., assignor to Gerber Products Company, Fremont, Mich.

Continuation-in-part of Ser. No. 122,880, March 10, 1971, abandoned. This application Aug. 11, 1971, Ser. No. 172,354

Int. Cl. G01n 23/10

U.S. Cl. 250-360

14 Claims



A non-destructive method and apparatus for determining the presence of broken or missing containers in a sealed opaque shipping case, including a source of γ -rays directed at the case, means for detecting variations in γ -ray radiation at a fixed point as the case passes between the γ -ray source and the detecting means, and means responsive to the variations for isolating any shipping case found to contain broken or missing containers.

Mechanism and process for opening an X-ray film cassette in an illuminated environment. The mechanism has detents for releasing spring retainers of a conventional cassette and a hold-down to hold the cassette closed until after a surrounding housing has been rendered light tight. An elevating mechanism when actuated, lifts the forward portion of the

3,828,194

X-RAY DIAGNOSING APPARATUS WITH A REGULATING DEVICE FOR THE X-RAY TUBE VOLTAGE

Hans Grasser, Sack, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

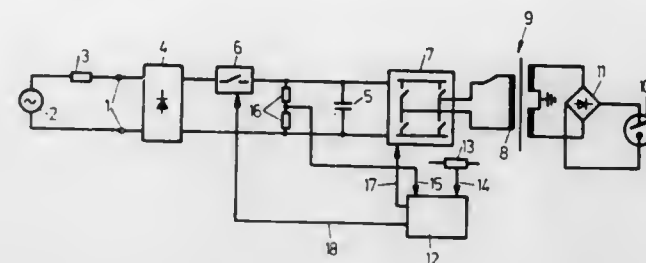
Filed May 3, 1973, Ser. No. 356,753

Claims priority, application Germany, May 12, 1972, 2223371

U.S. Cl. 250-408

Int. Cl. H05g 1/34

3 Claims



An X-ray diagnosing apparatus has a regulating device for the X-ray tube voltage. The invention is particularly characterized by the provision of a feed device for the X-ray tube which includes a condenser and a comparison member for voltage corresponding to the actual value of the X-ray tube voltage and a voltage incorporating the required value of the X-ray tube voltage. Switching means are located in front of the condenser for interrupting the charging of the condenser when an upper condenser voltage is reached. Switching means are located behind the condenser for switching off the X-ray tube when a lower limit of the condenser voltage is reached. These switching means are operable by the comparison member which actuates them to again switch on the condenser and the X-ray tube when a condenser voltage is reached which is close to the condenser voltage corresponding to the required value of the X-ray tube voltage.

3,828,195

CASSETTE UNLOADER

James L. Snarr, Cleveland Heights, Ohio, assignor to Picker Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 882,131, Dec. 4, 1969, abandoned. This application Mar. 21, 1972, Ser. No. 236,747

Int. Cl. G01n 23/04

U.S. Cl. 250-468

12 Claims



hold-down, allowing the cassette cover plate to drop open and the leading edge of a film to drop. The mechanism thereafter elevates the trailing portion of the hold-down, releasing the film and allowing it to be gravity fed to a processor.

3,828,196

X-RAY PHOTOGRAPHING DEVICE

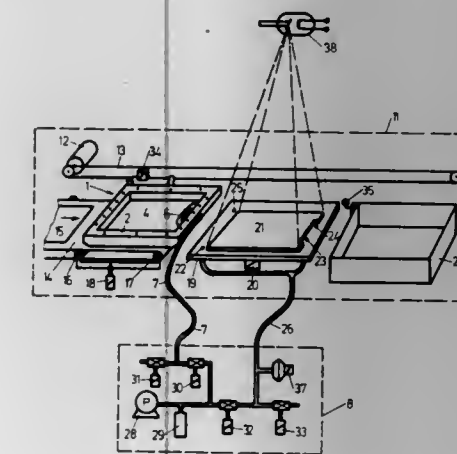
Norbert Mika; Rudolf Schuldreich, and Helmut Berger, all of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Filed Mar. 8, 1973, Ser. No. 328,145

Int. Cl. G03b 41/16

U.S. Cl. 250-468

7 Claims



An X-ray photographing device has a transporting device for sheet films for transporting individual loose film sheets from a ready position protected from rays to a photographing position and from the photographing position to a delivery location protected from rays. The invention is particularly characterized by the provision of a film carriage having at least one suction cup for holding the film sheets and connected to a pressure actuating system.

3,828,197

RADIOACTIVE WASTE STORAGE

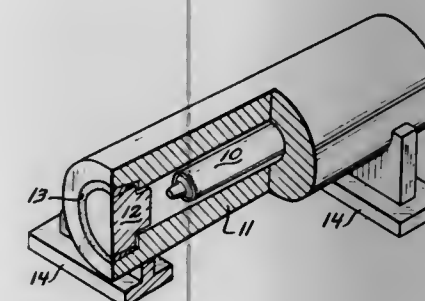
Allan L. Boldt, Kennewick, Wash., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Apr. 17, 1973, Ser. No. 351,911

Int. Cl. G21f 9/00

U.S. Cl. 250-506

7 Claims



High-level radioactive wastes are stored in a heavy walled metal cask which is stored in the open where natural convection of air over the cask removes the decay heat. If the waste is solely from plutonium-recycle pressurized-water reactors, the high neutron dose rate around the cask must be reduced by surrounding the cask in its storage position with crushed graphite or placing cooling fins on the cask and employing neutron shielding material such as polyethylene between the fins.

3,828,198

DEVICE FOR FORMING AND PROCESSING VELOCITY SIGNALS IN VEHICLES

Hans-Jorg Florus, Goppingen; Horst Grossner, Geradstetten, and Gerhard Osswald, Donzdorf, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

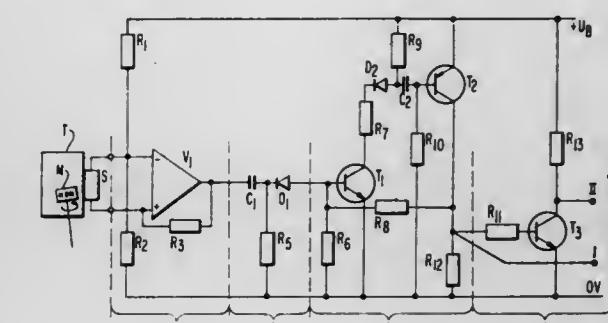
Filed Jan. 26, 1973, Ser. No. 327,168

Claims priority, application Germany, Jan. 25, 1972, 2203320

U.S. Cl. 307-120

Int. Cl. H01h 35/00

25 Claims



A system for producing and processing velocity signals in vehicles, especially in motor vehicles, in which a sensor is present that serves for producing a signal having a frequency proportional to the vehicle velocity; this frequency signal is fed to a following basic circuit which converts this frequency signal into rectangular pulses of both constant on and constant off time; as many switching stages for different velocity thresholds as desired can thereby be connected to this basic circuit.

3,828,199

TIMING SYSTEM HAVING A HIGH SPEED AND A LOW SPEED GEAR TRAIN

Yutaka Sakai, Takatsuki, and Kazuya Kimura, Neyagawa, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

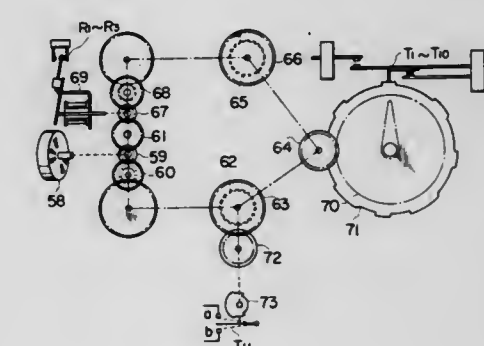
Filed Nov. 1, 1972, Ser. No. 302,911

Claims priority, application Japan, Nov. 5, 1971, 46-88580; June 20, 1972, 47-62153

U.S. Cl. 307-141

Int. Cl. H01h 43/12

8 Claims



A timing system for the programed control of washing, rinsing, draining and other processes in fully automatic clothing washing machines, dish washing machines and the like in which means are provided for executing a plurality of programs by suitably omitting some processes of a fundamental program.

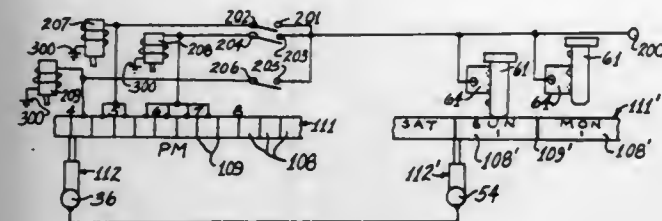
3,828,200 **PROGRAMMING TIMER WITH SERIES CONNECTED SWITCHES**

Martin E. Gerry, 13452 Wirthrope St., Santa Ana, Calif. 92705

Filed June 27, 1973, Ser. No. 374,111
Int. Cl. H01h 43/20

U.S. Cl. 307-141.8

11 Claims



A programming timer for periodically controlling external devices which are connected thereto. This timer includes two commutators and indicators for selection of the period during the day, and the day of the week, during which the external devices are to be periodically activated. The timer and day indicators are driven by a synchronous motor and these indicators also act as contactors to provide power to the external devices for activating same.

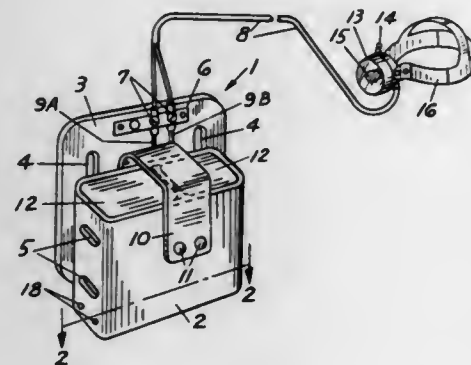
3,828,201 **PORTABLE POWER PACKAGE**

Harry E. Allen, Sr., 25 Crape Myrtle St., Shreveport, La. 71106

Filed May 23, 1973, Ser. No. 363,094
Int. Cl. H02j 7/00

U.S. Cl. 307-150

5 Claims



A portable power supply which may be strapped to the body or carried by hand, including a carrying case adapted to receive batteries and appropriate electrical connections, the case further including a switch which aids in converting from 6 to 12 volt power. The package output may be typically adapted to power a head lamp, which lamp or other output is typically connected to the carrying case by a cord of sufficient length to allow freedom of movement of the output with respect to the carrying case.

3,828,202 **LOGIC CIRCUIT USING A CURRENT SWITCH TO COMPENSATE FOR SIGNAL DETERIORATION**

Herbert Stopper, Orchard Lake, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Division of Ser. No. 159,990, July 6, 1971, Pat. No. 3,746,885. This application Feb. 20, 1973, Ser. No. 333,705

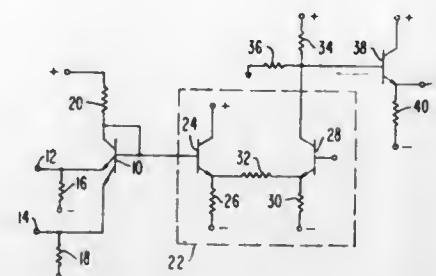
Int. Cl. H03k 19/24, 19/30, 5/08

U.S. Cl. 307-218

10 Claims

An improved logic circuit comprising an input semiconductor, an output semiconductor and a current switch connected therebetween to compensate for signal deterioration in the logic circuit. The input semiconductor is biased to remain un-

saturated in response to a binary signal swing at an input terminal. In an AND gate, the input semiconductor is a multi-



emitter transistor; in an OR gate, the input semiconductor is a plurality of transistors.

3,828,203

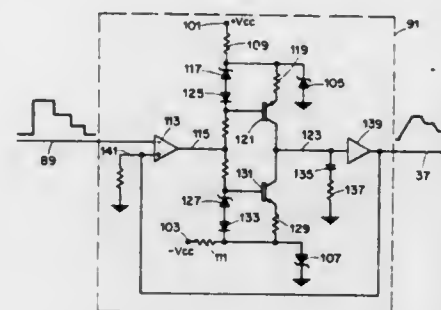
RAMPED-STEP SIGNAL GENERATING CIRCUIT
Ross A. Belson, Natick, and Gastor A. Palombo, Chelmsford, both of Mass., assignors to Honeywell, Inc., Minneapolis, Minn.

Continuation of Ser. No. 202,031, Nov. 24, 1971, abandoned, which is a division of Ser. No. 22,235, March 24, 1970, Pat. No. 3,644,806. This application July 12, 1973, Ser. No. 378,466

Int. Cl. H03k 3/00, 4/00, 5/00

U.S. Cl. 307-228

9 Claims



A high speed incremental web transport system especially suited for a high speed printer application includes two motors with velocity feedback driven from a common controller in accordance with a computer originated movement request. Incremental position transducers allow precise repetitive spacing and positional stability of the motor shafts. Differential tension to be created during printing periods is obtained by controlling motor current. Synchronization control for skip type movements prevents a build-up of positional error.

3,828,204

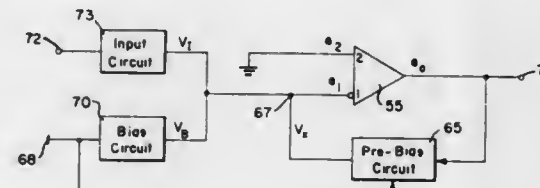
SENSITIVE PULSE THRESHOLD DETECTOR
Robert P. Farnsworth, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 16, 1973, Ser. No. 351,686

Int. Cl. H03k 5/20, 17/58; H03f 1/02

U.S. Cl. 307-235 R

25 Claims



A sensitive pulse detector which in one embodiment incorporates a tunnel diode is disclosed. The tunnel diode prior to the application of a gate pulse of a selected duration during which an input pulse may be received is pre-biased in the absence of the gate pulse so that the current passing

therethrough is equal to its peak current, with the diode being maintained in its low voltage state. The application of the gate pulse produces a current bias which reduces the diode current from its peak current value by a known value. Switching to the high voltage state takes place only if, an input current produced in response to an input pulse, raises the diode current above the peak current value. In another embodiment incorporating an amplifier, the latter's offset voltage is automatically compensated for to enable pulse detection independent of the offset voltage. In yet another embodiment, pulse detection is accomplished with a regenerative voltage circuit pre-biased to one of its trigger points.

3,828,205 **MEMORY CIRCUIT**

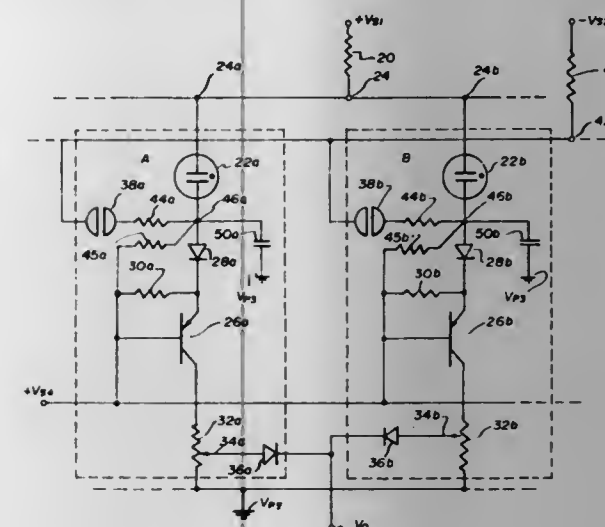
John G. Konopka, Mundelein, Ill., assignor to Warwick Electronics Inc., Chicago, Ill.

Continuation-in-part of Ser. No. 189,637, Oct. 15, 1971, Pat. No. 3,746,886. This application May 17, 1973, Ser. No. 361,023

Int. Cl. H03k 3/37; G11c 11/28

U.S. Cl. 307-238

12 Claims



A triggered neon lamp memory circuit selectively produces control voltages for an electrically tuned receiver. Each stage comprises a neon lamp and a control voltage potentiometer in series with a common source of sustaining potential. In one embodiment, when the neon lamp of a given stage is triggered by manually actuating a touch contact, a series transistor is turned on to effectively couple a fixed voltage to the potentiometer. When the neon lamp turns off, the transistor turns off to remove the fixed voltage from the potentiometer while also raising the voltage at one terminal of the neon lamp to reduce the voltage thereacross to substantially below trigger potential. In another embodiment, when the neon lamp of a given stage is triggered, a diode coupled to a reference potential clamps the voltage across the potentiometer to a fixed value.

3,828,206 **HIGH SPEED DRIVING CIRCUIT FOR PRODUCING TWO IN-PHASE AND TWO OUT-OF-PHASE SIGNALS**

Borys Zuk, New Brunswick, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 12, 1973, Ser. No. 340,297

Claims priority, application Great Britain, Mar. 15, 1972, 11970/72

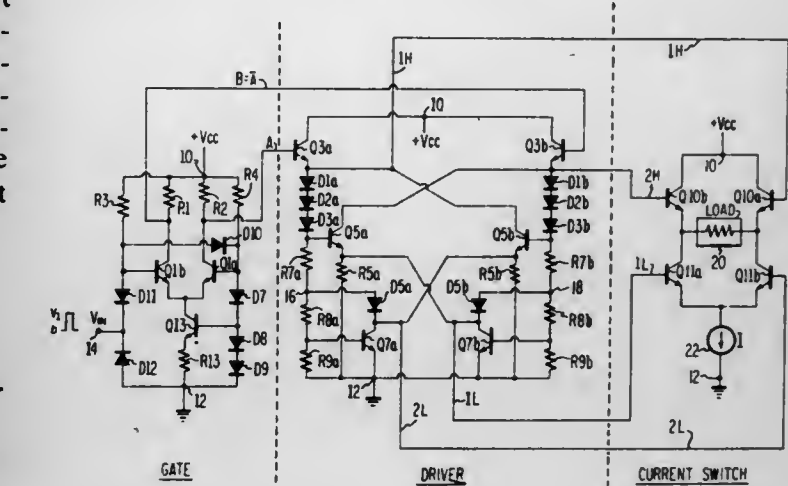
Int. Cl. H03k 17/66

U.S. Cl. 307-254

14 Claims

The circuit includes four transistors, each transistor being connected at its emitter to a different one of four switches arranged in a bridge configuration. The four transistors are paired, each pair including a first transistor connected at its emitter to the collector of the second transistor. The conduc-

tion of the first transistor of one pair and of the second transistor of the other pair is controlled by the same signal and the conduction of the second transistor of said one pair and



the first transistor of the other pair is controlled by the complement of said signal. The two transistors of each pair produce complementary signals at their emitters and conduct current for all signal conditions.

3,828,207 **BOOST CIRCUIT FOR SATURATING OUTPUT STAGES OF HIGH POWER AMPLIFIERS**

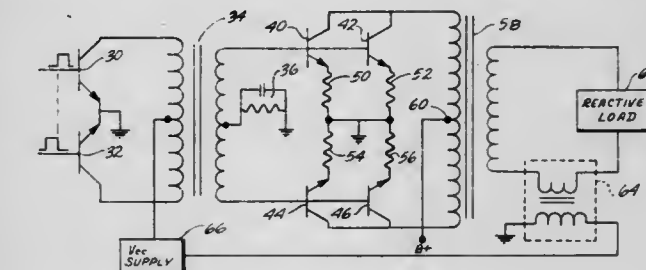
Benjamin Chandler Shaw, Granada Hills, Calif., assignor to The Bendix Corporation, North Hollywood, Calif.

Filed June 6, 1973, Ser. No. 367,676

Int. Cl. H03k 17/60

U.S. Cl. 307-254

5 Claims



A high power, high efficiency transistor amplifier is disclosed having an input drive signal in the form of a square wave with a square wave or saturated voltage output. This amplifier drives a tuned or reactive load with the result that the output current wave form is sinusoidal or some form other than a square wave. A current transformer or other current sensing device is connected into the output circuit, and a portion of the output current is fed back to the input in such sense that resulting sinusoidal voltage pulses are added to each square wave input pulse. Where the output transistors are connected in push-pull in a grounded emitter configuration, resistors are normally connected in the emitter circuit. A sinusoidal voltage is developed across these resistors which subtracts from the input drive square wave voltage pulses. This results in a degradation in the drive signal which may cause the output transistors to drop out of saturation which then causes them to try to deliver excessive power with resulting danger of burning them out. By feeding back a sinusoidal voltage which is added to the base drive, saturation is maintained throughout the length of the drive pulse. In another embodiment a plurality of identical amplifiers are connected into a common output such that their square wave voltage output signals are displaced slightly in time and algebraically added to produce a sine wave synthesis output signal across the load which, in this case, may be either reactive or resistive. A similar current sensing or voltage sensing device connected into the load circuit provides a similar feedback signal to each amplifier to assure saturation.

3,828,208

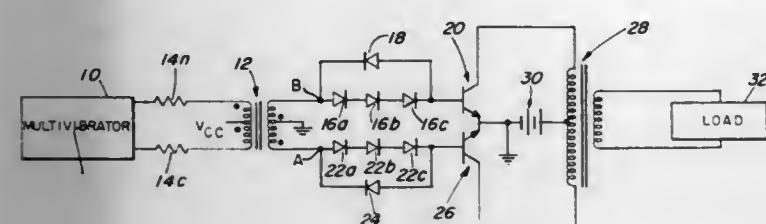
DRIVER CIRCUIT USING DIODES TO CONTROL THE MINORITY CARRIER STORAGE EFFECT IN SWITCHED TRANSISTORS

John J. Kelleher, Tewksbury, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Jan. 31, 1972, Ser. No. 222,170
Int. Cl. H03k 1/00

U.S. Cl. 307—270

2 Claims



An improved driver circuit for a pair of switching transistors in a DC-DC converter or a DC-AC inverter is shown. The illustrated circuit includes a switchable constant current source coupled through a transformer and semiconductor diodes to the switching transistors. The diodes are arranged so that, as long as minority carrier current flows in either one of the switching transistors, the other is prevented from responding to a switching signal from the constant current source.

3,828,209

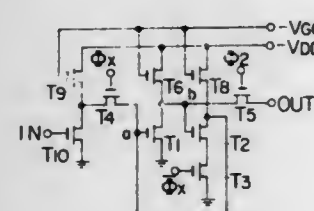
FLIP-FLOP CIRCUIT

Hiroto Kawagoe, and Kosei Nomiya, both of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 29, 1973, Ser. No. 327,699
Int. Cl. H03k 17/00

U.S. Cl. 307—279

10 Claims



A static flip-flop circuit constructed of field-effect transistors, wherein a static section comprises a field-effect transistor which allows an information to be held during its conductive state and a new information to be written during its non-conductive state and which dispenses with a transfer gate otherwise included in a feedback path of such static section, so that the likelihood of an erroneous operation attributable to charge sharing is eliminated.

3,828,210

TEMPERATURE COMPENSATED MOUNTING STRUCTURE FOR COUPLED RESONATOR CRYSTALS

Corwin E. Livenick, Hickory Hills; Stanley Malinowski, Park Ridge, and Robert D. Vann, Elmhurst, all of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

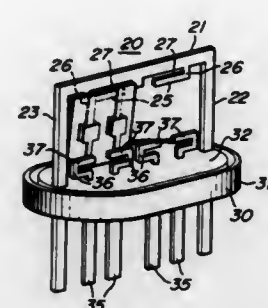
Filed Jan. 22, 1973, Ser. No. 325,300
Int. Cl. H01v 7/00

U.S. Cl. 310—9.1

6 Claims

A mounting structure for one or more coupled resonator crystal plates with each plate having a number of electrodes, and pairs of the electrodes forming a resonant structure, includes a conductive frame member having portions which are secured to one of the electrodes from separate pairs of electrodes. A number of mounting means are each connected to separate ones of the other electrodes of the pairs of electrodes. The mounting members have a bend formed therein for resiliently supporting the crystal plates and allowing ex-

pansion and contraction of the crystal plates with temperature variations. The frame member and mounting members are



3,828,211

TUBULAR INDUCTOR STRUCTURE FOR LINEAR MOTORS

Joseph Laronze, Tassin La Demi-Lune, France, assignor to BBC Brown Boveri & Company Limited, Baden, Switzerland

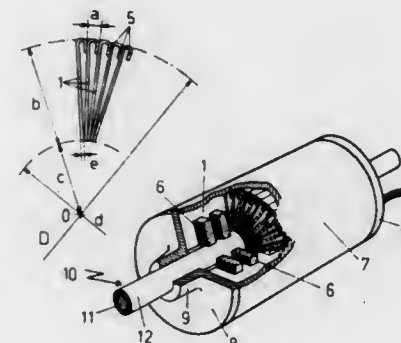
Filed July 23, 1973, Ser. No. 381,448

Claims priority, application France, July 28, 1972, 72.27956

Int. Cl. H02k 41/02

U.S. Cl. 310—13

15 Claims



An annular cylindrical inductor component of an electric motor of the linear type which comprises an annular assembly of radially extending and essentially flat sheets of a ferro-magnetic material. The inner edge portions of the assembled sheets which form a cylindrical opening within which the motor armature is mounted for sliding movement are provided with longitudinally spaced notches which form cylindrical recesses within which the motor windings are located and the radially outer portions of the sheets are deformed in a direction perpendicular to the plane of the sheet to establish longitudinally extending spaces between adjacently contacting sheets. The deformations along the radially outer portions of the sheets can be established by a double-bending operation or these portions of the sheets can be provided with single or double ribs. Also, non-deformed sheets can be located between sheets which are deformed and which extend radially outward beyond the deformed sheets thus to function as cooling fins. The outer portions of the sheets may also be notched to establish one or more longitudinally spaced peripheral grooves within which a strand of solder, or ferrule or wire binding is located so as to bind the sheets together. Bearings for supporting the rotor can be mounted at the radially inner portion of the sheet assembly or these can be carried by end-plates secured to the opposite ends of the sheet assembly.

3,828,212

ASSEMBLY OF ALTERNATOR MAGNET BLOCKS WITH ENGINE FLYWHEEL

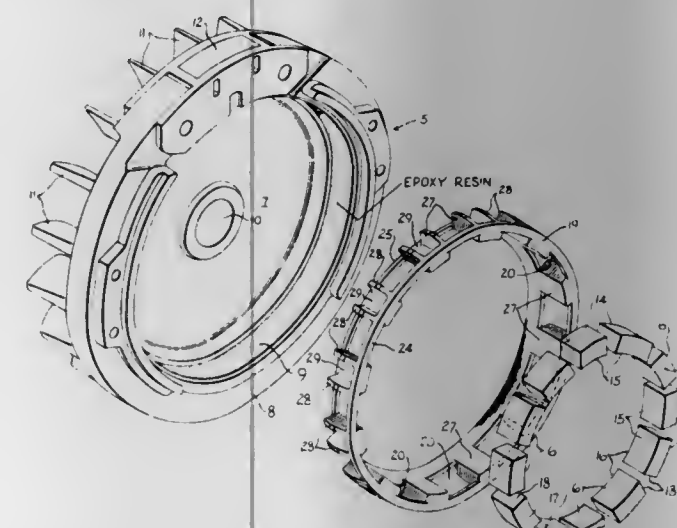
Joseph R. Harkness, Germantown; John D. Santi, West Allis, and Leo J. Lechtenberg, Elm Grove, all of Wis., assignors to Briggs & Stratton Corporation, Wauwatosa, Wis.

Division of Ser. No. 181,025, Sept. 16, 1971. This application Dec. 12, 1973, Ser. No. 424,184

Int. Cl. H02k 21/22

U.S. Cl. 310—153

6 Claims



To secure magnet blocks for an alternator in a cup-shaped flywheel, the inner surface of the flywheel side wall is coated with epoxy and an annular cage is axially inserted into the well in the flywheel. The cage cooperates with inner flywheel surfaces to define radially inwardly opening pockets, into each of which a block is inserted. A tool is disclosed for forcing the blocks radially outwardly to desired positions in which they are held by a fixture while the epoxy is cured.

3,828,213

STATOR FOR LOW-INERTIA DC MACHINES

Seizi Yamashita, and Kazuo Onishi, both of Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

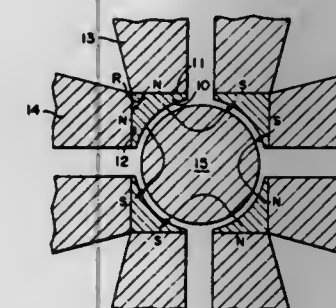
Filed May 23, 1973, Ser. No. 362,966

Claims priority, application Japan, June 5, 1972, 47-55038; Aug. 30, 1972, 47-86218

Int. Cl. H02k 1/06

U.S. Cl. 310—254

3 Claims



This invention relates to a stator which forms the magnetic circuit of a DC machine, and provides a stator for a low inertia motor particularly adapted for the capstan driving of computers, in which the cross-sectional area of magnets is increased, whereby the interpole leakage flux is minimized and the effective flux density between the poles and the armature is increased and further the flux density is made largest at the contacting surface with the pole.

925 O.G.—10

3,828,214

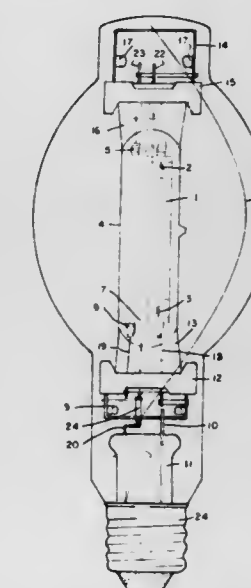
PLASMA ENSHROUDED ELECTRIC DISCHARGE DEVICE

William M. Keefe, Rockport; W. Calvin Gungl, Danvers, and Albert W. Olson, Rockport, all of Mass., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed Aug. 30, 1973, Ser. No. 393,022
Int. Cl. H01j 61/22

U.S. Cl. 313—1

9 Claims



The arc tube of a high intensity discharge lamp is disposed within a second arc tube which has a filling that is more easily startable than that of the first arc tube. A discharge struck between the electrodes of the second arc tube aids in starting a discharge between the electrodes of the first arc tube.

3,828,215

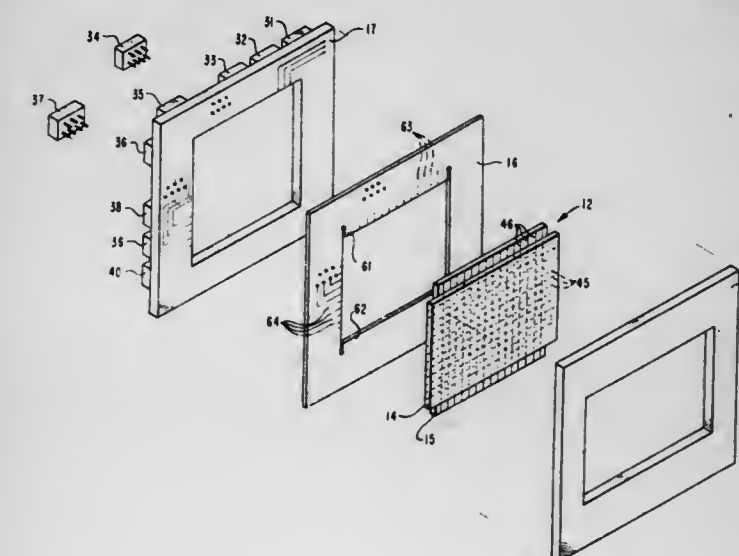
INTEGRATED PACKAGING ARRANGEMENT FOR GAS PANEL DISPLAY DEVICE

Malvin S. Bilsback, Woodstock, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1972, Ser. No. 267,926
Int. Cl. H01j 5/50

U.S. Cl. 313—50

15 Claims



A display device includes a gas panel, at least one circuit board, and an interconnecting flexible sheet. The gas panel preferably includes a pair of glass plates fused together with a chamber therebetween filled with an illuminable gas. Parallel electrical conductors on one of the glass plates are disposed horizontally on one side of the illuminable gas; and parallel electrical conductors on the opposing glass plate are disposed vertically with the horizontal conductors being disposed orthogonally with respect to the vertical conductors. Conductors are disposed on the flexible sheet, and they are connected between electrical circuit components on the circuit board

and the vertical and horizontal conductors of the gas panel. The gas panel and the one or more circuit boards may be secured together as a compact unit, or they may be separated to permit cooling air to flow therebetween in which event apertures may be provided in the flexible sheet to facilitate air flow.

3,828,216

COLOR DISPLAY TUBE WITH ELONGATED PHOSPHOR DOTS AND SHADOW MASK APERTURES

Yuzo Fuse, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 114,981, Feb. 12, 1971, abandoned.

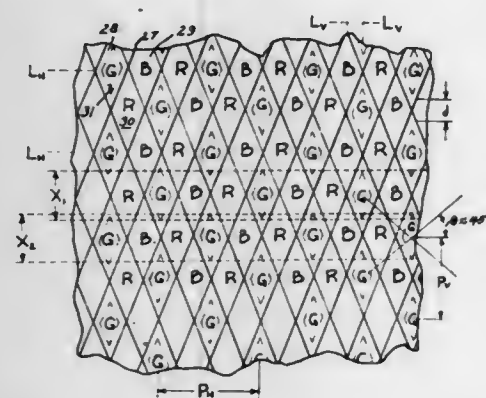
This application Jan. 16, 1973, Ser. No. 324,133

Claims priority, application Japan, Feb. 14, 1970, 45-12886

Int. Cl. H01j 29/06, 29/32

U.S. Cl. 313-403

6 Claims



A shadow mask tube having elongated apertures arranged in rows with the ends of apertures in each row extending between apertures in the next row to improve light emission and eliminate moire patterns caused by scanning non-emissive areas.

3,828,217

SELF BALANCING ROTARY ANODE ARRANGEMENT FOR X-RAY TUBES

Johann Ebersberger, Markt Erlbach, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

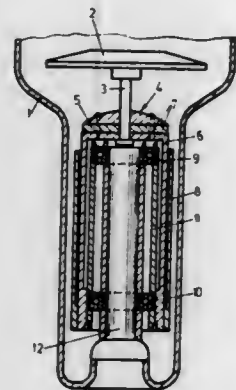
Filed May 3, 1973, Ser. No. 356,754

Claims priority, application Germany, May 26, 1972, 2225806

Int. Cl. F16f 15/12; H01j 1/44, 35/10

U.S. Cl. 313-149

5 Claims



A rotary anode arrangement for X-ray tubes wherein the anode plate and the driving rotor are connected with each other and are also connected with the connection of both outer rings of two bearings spaced from each other. Their inner rings lie upon a shaft constituting the rotary axis and located in a tubular piston. The invention is particularly characterized in that the driving rotor as well as the connection to the anode plate extend along the spacing between the two bearings and are fixed to the connection of the two bearings close to the edge of the bearing distant from the

plate. At least a part of the connection between the plate and the attachment to the bearings consists of a tube with thin walls which constitutes a resilient element for selected sizes.

3,828,218

MULTI-POSITION CHARACTER DISPLAY PANEL

Richard Byrd Fehnel, Basking Ridge, N.J., assignor to Burroughs Corporation, Detroit, Mich.

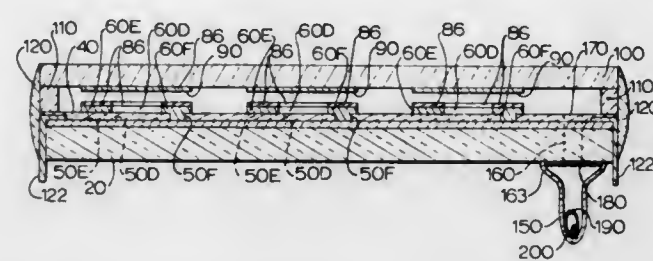
Continuation of Ser. No. 224,069, Feb. 7, 1972. This

application June 15, 1973, Ser. No. 370,533

Int. Cl. H01j 19/72

U.S. Cl. 313-177

21 Claims



The display panel is gas-filled and includes a base plate on which a plurality of groups of cathodes and their conductors are formed, each group of cathodes being operable to display a character. The panel also includes a face plate, spaced from the base plate, and carrying transparent conductive anodes, each associated with one group of cathodes. The panel includes a tubulation secured to the base plate through which gas and mercury vapor are introduced into the panel through a hole in the panel base plate. A fine mesh nickel screen is disposed in the tubulation adjacent to the hole in the base plate to prevent an excess of free mercury from entering the panel and, at the same time, to provide a source of mercury by way of the mercury which amalgamates with the screen.

3,828,219

VOLTAGE SURGE DISSIPATOR

Christ J. Dumas, Forest View, and Stephen S. Simovits, Jr.,

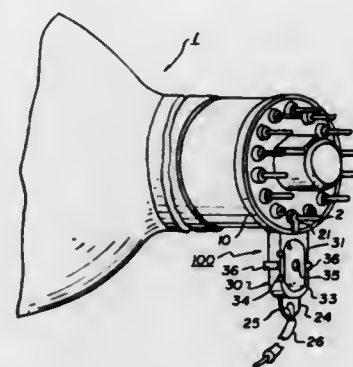
Woodridge, both of Ill., assignors to American Plasticraft Company, Chicago, Ill.

Filed Sept. 7, 1972, Ser. No. 286,967

Int. Cl. H01j 17/00, 21/00

U.S. Cl. 313-325

27 Claims



A transient voltage surge dissipating assembly for dissipating surges of high voltage electrical energy occurring at the terminal pins of an electron tube. The apparatus has a precisely formed air dielectric spark gap defined between an electrical connector coupled to a terminal pin of the electron tube and ground such that any over-voltage surges occurring at the terminal pins are precluded from arcing to an adjacent terminal pin, but are dissipated to ground through the spark gap assembly. The apparatus is adapted to be coupled to any individual terminal pin of an electron tube to provide protection to the tube and associated circuitry. Arcing between the terminal pins and any components is thereby eliminated preventing damage to the tube or associated electronic components.

3,828,220

APPARATUS FOR CONTROLLING THE INTENSITY OF VEHICLE HEADLAMPS

Ronald Leslie Moore, Ascot, and Dennis Geoffrey Wallace Mace, Camberley, both of England, assignors to The Secretary of State for the Environment in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Continuation-in-part of Ser. No. 87,105, Nov. 5, 1970,

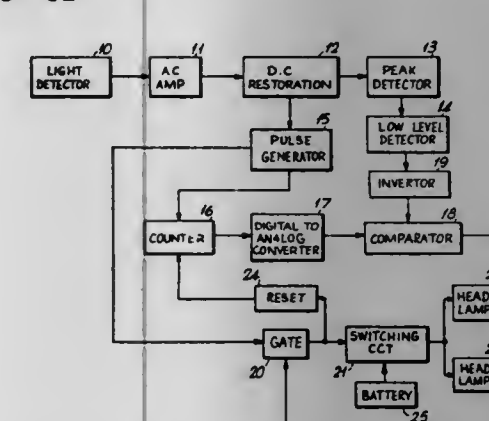
abandoned. This application Nov. 20, 1972, Ser. No. 307,833

Claims priority, application Great Britain, Nov. 6, 1969, 54521/69

U.S. Cl. 315-82

Int. Cl. B60q 1/08

12 Claims



Apparatus for controlling the intensity of light from the dip filaments of vehicle headlights in accordance with the intensity of street lighting is described. Signals from a light sensor on the vehicle are processed to remove any constant intensity component due to daylight for example so that the resultant signal depends only on a cyclically variable component due to the cyclic variation in the intensity of street lighting supplied from an a.c. supply. When a vehicle passes between street lamps the amplitude of the said variable component varies, and for this reason means are provided to control the electrical supply to the dip filaments so that the intensity of light from these filaments is inversely proportional to minima in the amplitude of the variable component. In the embodiments specifically described the supply is disconnected from the filaments for fixed periods, the repetition frequency of the periods being varied to satisfy the above mentioned condition.

3,828,221

BALLAST CIRCUIT FOR A PLURALITY OF LAMPS

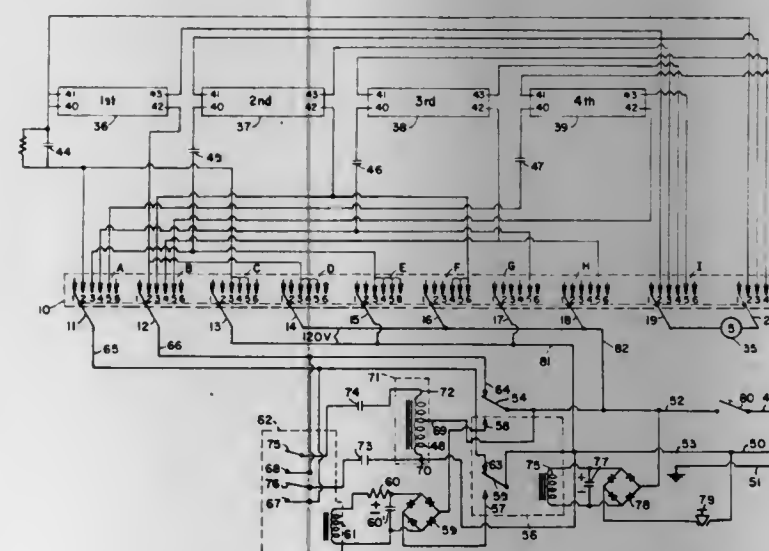
Joseph Spiteri, Erie, Pa., assignor to Rem Research, Inc., Erie, Pa.

Filed Aug. 29, 1972, Ser. No. 284,568

Int. Cl. H05b 37/00

U.S. Cl. 315-161

6 Claims



A circuit for lighting a plurality of lamps requiring a temporary starting voltage and an operating voltage of a different

value than the starting voltage. The starting voltage source is switched completely out of the line during operation. An impedance device is provided in series with the lamps which is preferably a capacitor. Since the starting voltage is turned on for only a short period of time, the starting voltage source may be of a small power output requirement compared with the main power source.

3,828,222

FLASH LAMP CIRCUIT

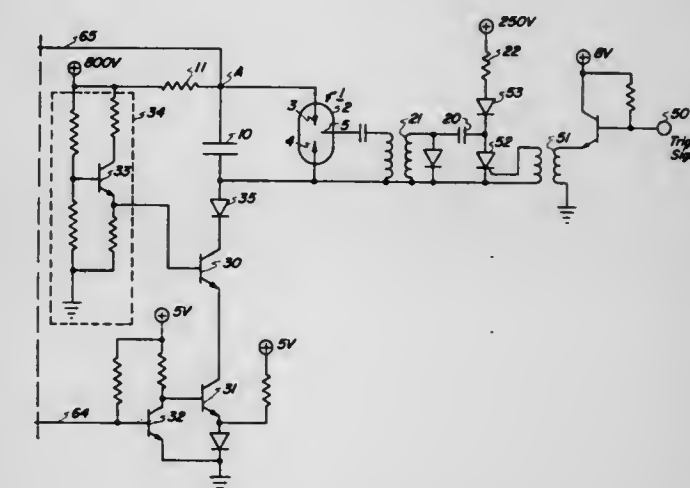
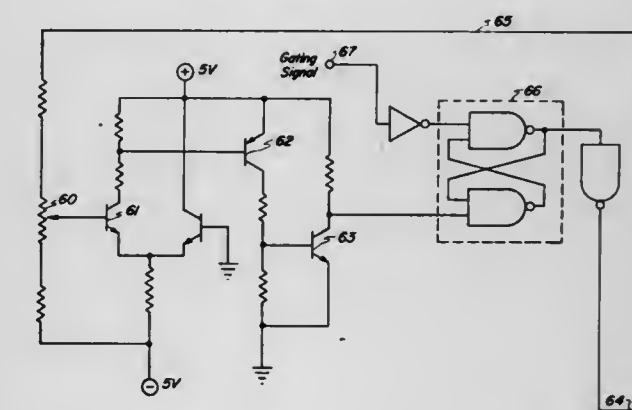
Lawrence J. Mason, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Feb. 20, 1973, Ser. No. 333,826

Int. Cl. H05b 37/00

U.S. Cl. 315-241 P

3 Claims



Circuitry for firing a flash lamp. Gating means in the charging path of the storage and trigger capacitors is selectively enabled only when these capacitors are to be charged. The gating means is disabled upon the terminating of charging. The disablement of the gating means before flashing allows the lamp to deionize before the re-application of power thereto.

3,828,223

PROCESS AND APPARATUS FOR VARYING THE POSITION OF THE ARC ROOT IN A PLASMA ARC SUITABLE FOR PRODUCING TITANIUM DIOXIDE PIGMENTS

George William New, Teesside, England, assignor to British Titan Limited, Billingham, England

Filed Aug. 30, 1972, Ser. No. 284,889

Claims priority, application Great Britain, Nov. 2, 1971, 50823/71

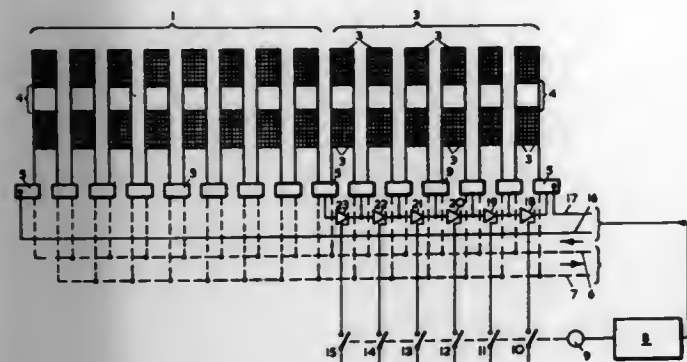
Int. Cl. H05b 41/16

U.S. Cl. 315-267

13 Claims

An improved device and processes for prolonging the operating life of electrodes, for example in the production of TiO₂, comprising the provision around the electrode of a field

coil consisting of a primary coil and a number of secondary coils and means to divert power from one or more of the coils normally energizes a vital relay which maintains its back contacts open to deactivate the service brake control ap-



secondary coils to the remaining coils while maintaining the flux strength of the magnetic field in the remaining coils thus varying the position of the arc root on the electrode surface.

3,828,224

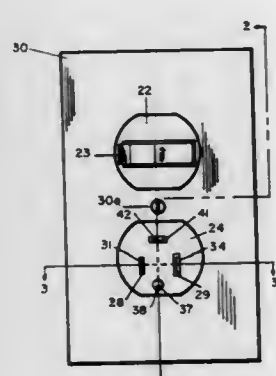
SWITCH WITH RECEPTACLE AND SWITCH SHUNT MEANS

Stephen J. Hulshizer, 14 Cedar Hill Rd., Lansdale, Pa. 19440
Filed Mar. 5, 1973, Ser. No. 337,831

Int. Cl. H02b 1/04

U.S. Cl. 317-112

14 Claims



An electrical unit, system or circuit includes a conventional switch and a novel outlet receptacle having, in addition to the usual pair of slots with contacts, a third slot with a contact which is electrically connected to a switch contact whereby an external connection from the latter slot and one of the pair of slots will complete the circuit as though the switch had been closed. Novel electrical devices are designed to establish this external connection.

3,828,225

FAIL-SAFE VEHICLE-CARRIED ANTI-COLLISION PROTECTION RECEIVER

Reed H. Grundy, Murrysville, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

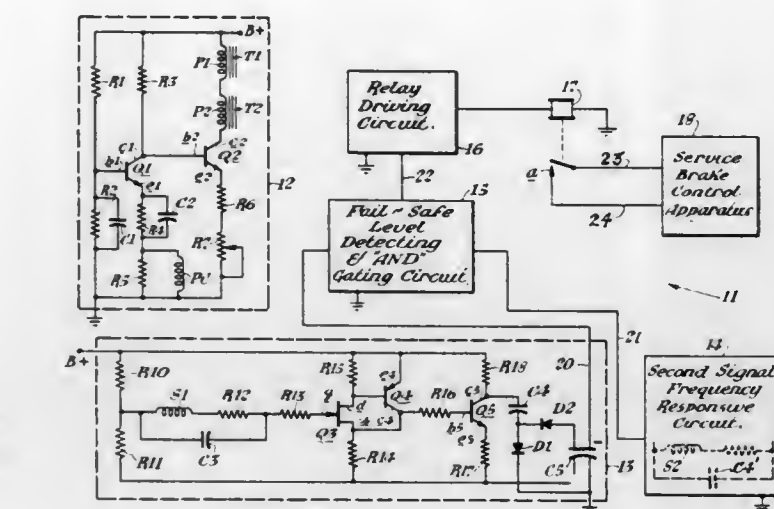
Filed Sept. 18, 1972, Ser. No. 289,768

Int. Cl. H01h 47/20

U.S. Cl. 317-147

10 Claims

This disclosure relates to a fail-safe vehicle-carried anti-collision receiver for automatically applying and releasing the service brakes to control the movement of a vehicle. The receiver includes an electromagnetic inductive coil for normally picking up two a.c. signals from the wayside as the vehicle moves along its route of travel. The a.c. signals are amplified by a preamplifier and are individually transformer coupled to a pair of signal frequency responsive circuits each of which includes an amplifier and a rectifier. Each of the rectified d.c. output signals of the signal frequency responsive circuits is coupled to a separate input of an amplitude level detecting and logic circuit. The detecting and logic circuit produces a.c. oscillations which are amplified and rectified by a relay driving circuit. The rectified output of the relay driving



paratus when and only when the presence and level of both of the d.c. input signals to the detecting and logic circuit are produced due to the reception of the two a.c. input signals.

3,828,226

EXPOSURE OVERRIDE CONTROL

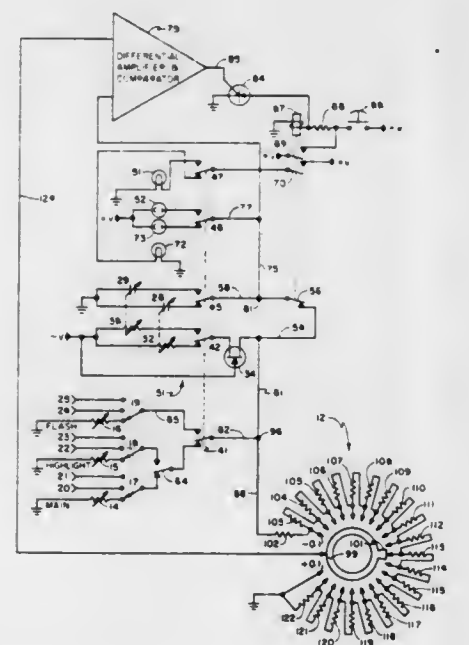
George Pamlenyi, St. Paul, Minn., assignor to Chesley F. Carlson, Co., Minneapolis, Minn.

Filed Dec. 20, 1972, Ser. No. 316,672

Int. Cl. H01h 47/24

U.S. Cl. 317-124

11 Claims



Apparatus for use with continuous tone and halftone photographic processes which modifies the various timing cycles of the photographic lamps to compensate for variations of the chemical activity level, emulsion speed of the film utilized and temperature shifts of the chemistry. The apparatus as disclosed is logarithmically variable so that if control measurements of system density indicate a shift in operating conditions the error can be directly set on the apparatus. Manipulation of the apparatus shifts the set point of all timing cycles and thus enables the operator with one setting to proportionately vary the timing cycle for each photographic lamp used in the photographic process.

3,828,227

SOLID TANTALUM CAPACITOR WITH END CAP TERMINALS

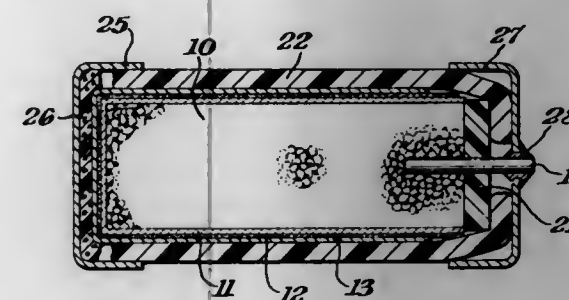
Richard J. Millard, Kennebunk, and David R. Poat, Wells, both of Maine, assignors to Sprague Electric Company, North Adams, Mass.

Filed Apr. 9, 1973, Ser. No. 349,146

Int. Cl. H01g 9/00

U.S. Cl. 317-230

5 Claims



A solid tantalum electrolytic capacitor is described, having a protective TEFLON sleeve sealed at either end by two solderable metal end caps each serving as one of the capacitor terminals. This capacitor is thus suitable for flush mounting by reflow soldering to a hybrid integrated circuit substrate.

3,828,228

MICROWAVE TRANSISTOR PACKAGE

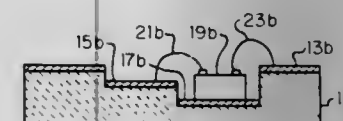
Roger W. Wong, Santa Clara, and Ronald D. Stewart, Ben Lomond, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 5, 1973, Ser. No. 337,965

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

3 Claims



A package for containing a microwave transistor chip is constructed so that a surface on which the transistor chip is to be mounted is recessed below a metallized surface which serves as an electrical ground. By means of this construction, a mounted transistor chip will be positioned with its top surface just below the plane of the electrical ground surface. Thus, the leads which connect the transistor to the electrical ground surface may be very short, thereby reducing the occurrence of package parasitics, and in particular minimizing the spurious common emitter inductance. According to one embodiment of the invention, a cap is used which is in electrical contact with the electrical ground surface of the package, the cap having a recessed inner portion to assure that no contact is made between the cap and any leads which are bonded to the transistor chip and the package.

3,828,229

LEADLESS SEMICONDUCTOR DEVICE FOR HIGH POWER USE

Shinzo Anazawa, Shoichi, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

Continuation of Ser. No. 259,206, June 2, 1972, abandoned.

This application June 4, 1973, Ser. No. 366,275

Claims priority, application Japan, June 10, 1971, 46-41582

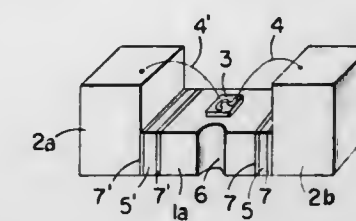
Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

4 Claims

A leadless semiconductor device includes an electrically conductive substrate to which a semiconductor element is

fixed. The substrate is insulated from a pair of conductive wall members by means of insulating material arranged inter-



mediate the ends of the substrate and the wall members. The semiconductor element electrodes are electrically connected to the wall members.

3,828,230

FIELD EFFECT SEMICONDUCTOR DEVICE HAVING AN UNSATURATED TRIODE VACUUM TUBE CHARACTERISTICS

Jun-Ichi Nishizawa, and Takeshi Terasaki, both of Sendai, Japan, assignors to Zaidan Hojin Hondotai Kenkyn Shin-kokai, Sendai-ken, Japan

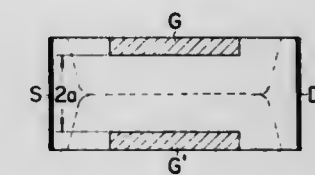
Filed July 28, 1972, Ser. No. 276,102

Claims priority, application Japan, July 31, 1972, 46-57768

Int. Cl. H01c 7/14

U.S. Cl. 357-22

12 Claims



A field effect transistor comprises a semiconductor channel, a source and a drain electrode formed at the opposite ends of the channel and a gate electrode provided on the side of the channel. The channel has a small impurity density and therefore the depletion layer extending from the gate goes deep into the channel even in the absence of a gate voltage. The drain current will not flow where the drain voltage is below a certain threshold voltage, and will flow where the drain voltage is above the threshold voltage exhibiting a linear resistance characteristic. This drain-current to drain-voltage characteristic simulates the anode-current to anode-voltage characteristic of the triode vacuum tube very closely.

3,828,231

LIGHT AMPLIFIER USING A SEMICONDUCTOR

Takaya Yamamoto, Yokohama, Japan, assignor to Kokusai Den Shin Denwa Kabushiki Kaisha, Tokyo-to, Japan

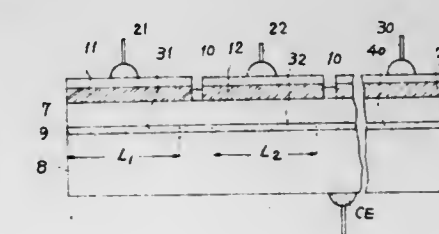
Filed Dec. 18, 1972, Ser. No. 315,834

Claims priority, application Japan, Dec. 20, 1971, 46-102627

Int. Cl. H01l 15/00

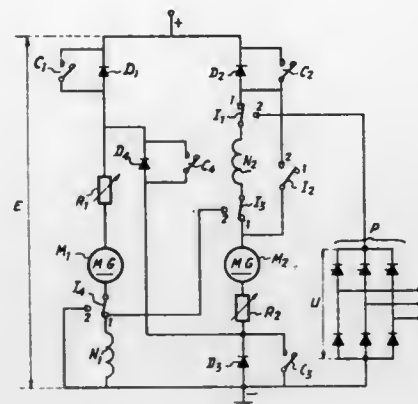
U.S. Cl. 357-30

3 Claims



A light amplifier using a semiconductor, in which an elongated single semiconductor PN junction is used for amplifying

an input light injected at an input face provided at one end of the PN junction along the junction plane of the PN junction. The semiconductor PN junction is driven by bias signals applied at a common ohmic electrode and a plurality of ohmic electrodes respectively provided at opposite sides of the PN junction with respect to the junction plane. A plurality of the ohmic electrodes are sequentially arranged overlying the PN junction in a longitudinal direction and are electrically isolated from one another, so that a plurality of discrete regions are provided in the PN junction corresponding to the respective electrodes. Two adjacent regions are employed as one unitary region and are driven by predetermined different forward bias currents to bias one of the two regions as an amplifying region and the other of the two regions as a saturable absorbing region. The amplifying region is disposed at the input side while the saturable absorbing region is disposed at the output side in each unitary region. The respective unitary regions are connected in cascade to provide a plurality of the unitary regions.



3,828,232

SEMICONDUCTOR TARGET

Yashuhiro Horiike, Tokyo; Shunji Shirouzu, Kanagawa-ken; Shigeo Tsuji, Fujisawa, and Nozomu Harada, Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Company, Ltd.

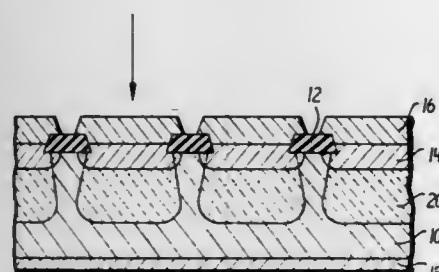
Filed Feb. 28, 1973, Ser. No. 336,452

Claims priority, application Japan, Feb. 28, 1972, 47-19704; Feb. 28, 1972, 47-19705; Feb. 28, 1972, 47-19706

Int. Cl. H01L 15/00

U.S. Cl. 357-89, 357-90, 357-14

7 Claims



A semiconductor target comprises a semiconductor substrate and a diode array patterned on the substrate. Diodes are isolated from each other by an insulating film. A p-n junction plane of the diodes is designed to lie over the boundary plane of the substrate and the insulating film.

3,828,233

SWITCHING ENABLING TWO ELECTRICAL MACHINES TO MOTOR OR REGENERATE WITH THEIR ARMATURES IN PARALLEL OR IN SERIES

Michel Brulard, Clamart, France, assignor to Jeumont Schneider, Puteaux, France

Filed July 27, 1973, Ser. No. 383,402

Claims priority, application France, July 31, 1972, 72.27495

Int. Cl. H02P 3/00

U.S. Cl. 318-87

5 Claims

System enabling two d.c. machines to change over rapidly from operation as series wound motors to operation as independently excited generators regenerating to a main power supply. The system mainly comprises a four-pole changeover

and disconnecting switch which connects inductors in series either with their respective armature or with an auxiliary

power supply, and four diodes shunted by four contactors. Of use in electric driving vehicles and locomotives for regenerative braking to the main power supply.

3,828,234

MOTOR SPEED CONTROL SYSTEM

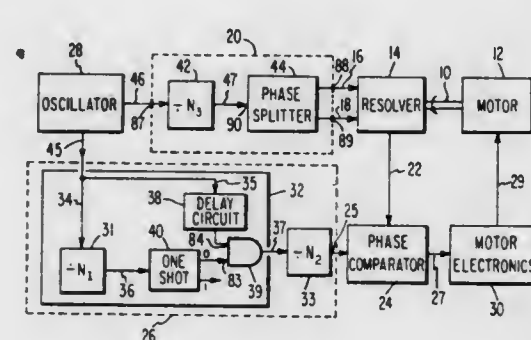
Edwin Allen Goldberg, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed May 14, 1973, Ser. No. 359,900

Int. Cl. H02P 5/16

U.S. Cl. 318-314

5 Claims



The speed of a motor is controlled by utilizing an error signal from a phase comparator as the motor energizing source. The phase comparator error signal is a result of a phase comparison between a motor related signal and a reference signal having a phase which varies in a predetermined manner as a function of time.

3,828,235

VARIABLE DUTY CYCLE TRACTION MOTOR CONTROL PROVIDING CONTROLLED PLUGGING

Raymond G. Price, Franklin, and Frederick A. Stich, Milwaukee, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Apr. 9, 1973, Ser. No. 349,562

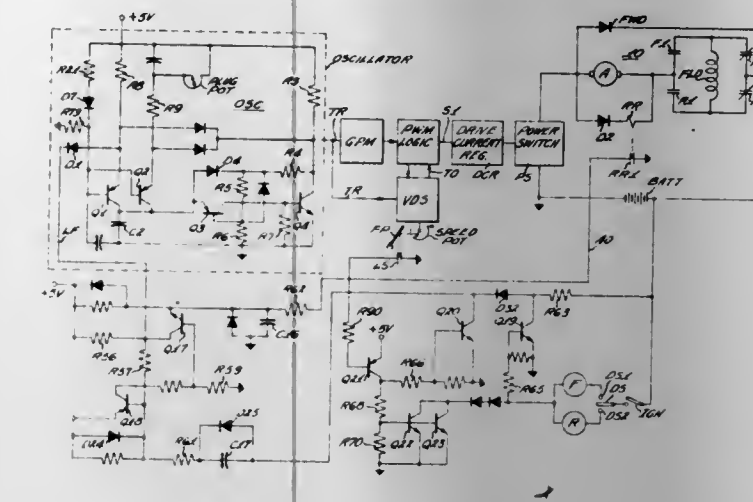
Int. Cl. H02P 3/10

U.S. Cl. 318-373

25 Claims

A vehicle driven by a reversible electric traction motor controlled by variable duty cycle current pulses from a battery reduces the frequency of oscillator triggering pulses when the direction selection lever is reversed and the motor is being driven as a generator in order to reduce field excitation and provide smooth plugging when vehicle direction is reversed

but does not change triggering pulse frequency if the motor is driven as a generator when the vehicle is rolling backward



down a ramp and full tractive power is required. A plugging potentiometer permits setting the maximum severity of plugging.

3,828,236

LINEAR MOTOR ACCELERATION CONTROL SYSTEM

David E. Close, Denver, Colo., assignor to Transportation Technology, Inc., Denver, Colo.

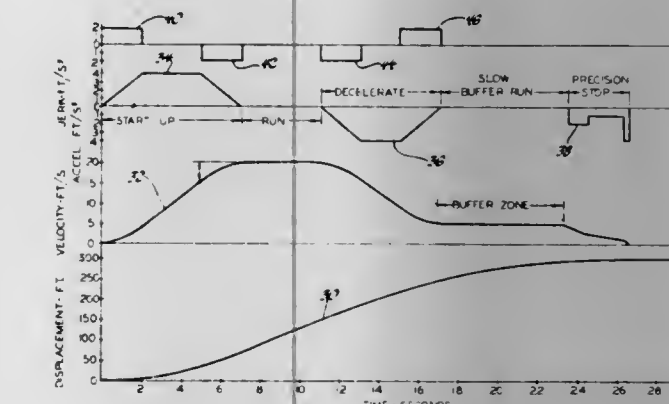
Continuation of Ser. No. 150,611, June 7, 1971, abandoned.

This application Jan. 22, 1973, Ser. No. 325,794

Int. Cl. G05b 13/00

U.S. Cl. 318-561

6 Claims



A control system for programming and executing the displacement characteristics of a transit vehicle propelled by one or more linear motors. Computers are provided for planning speed change points to operate within the program without exceeding maximum acceleration and jerk limits. A precision stop function is carried out in an adaptive manner by control of motor thrust.

3,828,237

FUEL-AIR RATIO CONTROLLER

Wen H. Ko, Cleveland Heights; James R. Knodel, Parma, and Chih Piao Hung, Berea, all of Ohio, assignors to North American Manufacturing Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 354,338, April 25, 1973, abandoned. This application July 11, 1973, Ser. No. 378,249

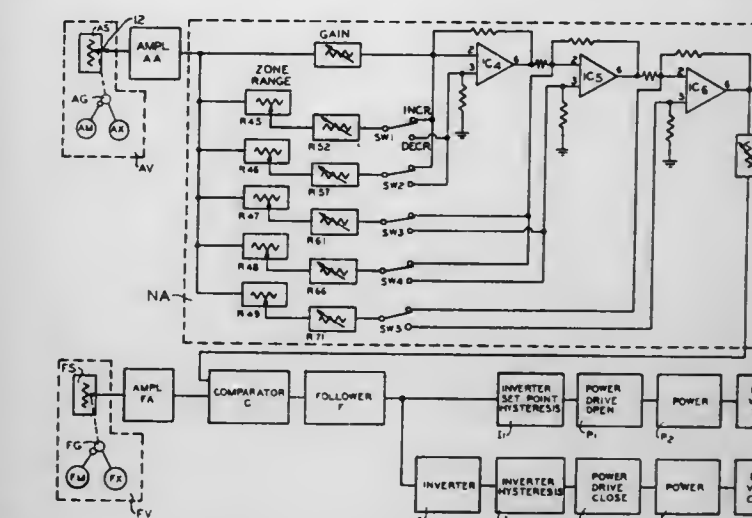
Int. Cl. G05b 11/01

U.S. Cl. 318-619

10 Claims

An electronic valve characterizer for fuel-air ratio control wherein the primary valve may be arbitrarily set and the secondary valve or valves are actuated by a slave motor or motors to a predetermined ratio of fuel to air for any setting of the primary valve. The primary and secondary valves are each controlled by motor-actuated valves, each having a slide wire and a slide. The secondary slide is set to operate at a speed in excess of the primary slide. The signal from the primary slide

is passed through an amplifier having adjustable rates of amplification in each of a series of adjustable sectors of the movement of the primary slide. The amplified signal is compared



with an amplified secondary slide signal and the secondary motor energize to bring the amplified secondary slide signal into general equality with the amplified primary slide signal.

3,828,238

NUMERICALLY CONTROLLED MACHINE TOOL INCLUDING BACKLASH ELIMINATION

Kengo Kobayashi, Kawasaki, and Mitsuo Manabe, Tokyo, both of Japan, assignors to Funitzu Limited, Kanagawa-ken, Japan

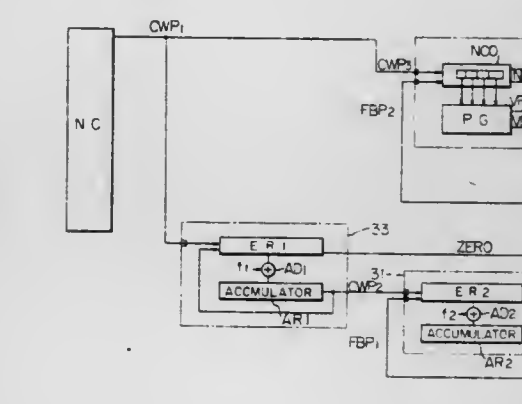
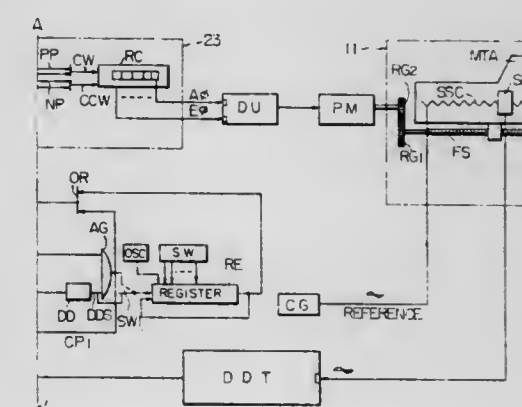
Filed Apr. 20, 1972, Ser. No. 245,885

Claims priority, application Japan, Apr. 22, 1971, 46-26372

Int. Cl. G05b 11/01

U.S. Cl. 318-630

5 Claims



A method of numerically controlling a machine through a servo system, a movable part of the machine being controlled in its displacement to a desired position according to a command pulse train, in which method the gain of the servo system is momentarily heightened when a change of direction

of movement of the movable part of the machine is required during the control operation, so that the mechanical backlash of the machine is rapidly taken up to shorten dead time in the control operation.

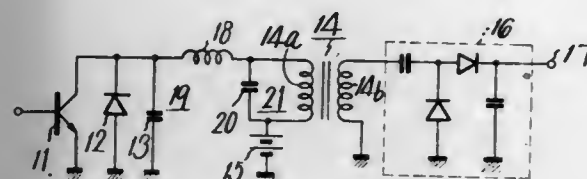
3,828,239

HIGH DC VOLTAGE GENERATING CIRCUIT

Tamiji Nagai, Kanagawa-ken, and Hiroshi Sahara, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jan. 19, 1973, Ser. No. 325,150
Claims priority, application Japan, Jan. 27, 1972, 47-10145
Int. Cl. H02m 3/32; H01j

U.S. Cl. 321—2

8 Claims



A high DC voltage generating circuit is provided with an impedance element connecting a switching element with the primary winding of a fly-back transformer, and a capacitive element is connected to the primary winding of the fly-back transformer to form a resonance circuit therewith, so that the fly-back transformer delivers, as its output, a sinusoidal high voltage which is subjected to a voltage doubler rectification to provide a high DC voltage with improved regulation.

3,828,240

MONOLITHIC INTEGRABLE SERIES STABILIZATION CIRCUIT FOR GENERATING A CONSTANT LOW VOLTAGE OUTPUT

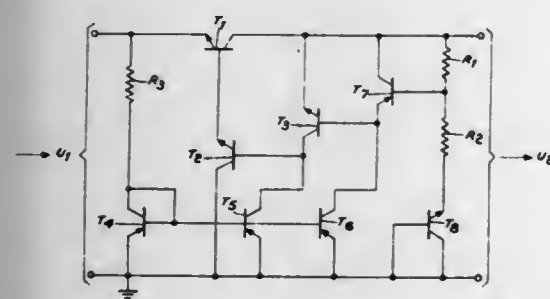
Hans Keller, Gundelfingen, Germany, and Henry M. Kleinman, Boca Raton, Fla., assignors to ITT Industries, Inc., New York, N.Y.

Filed June 26, 1973, Ser. No. 373,696

Int. Cl. G05f 1/58

U.S. Cl. 323—22 T

4 Claims



A series stabilization circuit for generating a regulated voltage in the order of one volt. In order to reduce variations in the output voltage due to changes in temperature, the reference voltage used is a combination of the outputs of two reference voltage sources. The first reference source has a negative coefficient of voltage such that its output will decrease when temperatures increase. The second reference source has a positive coefficient of voltage such that its output will increase as temperature increases thereby resulting in a balanced overall reference voltage.

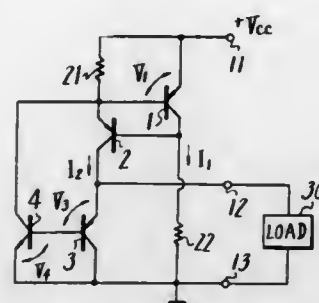
3,828,241
REGULATED VOLTAGE SUPPLY CIRCUIT WHICH COMPENSATES FOR TEMPERATURE AND INPUT VOLTAGE VARIATIONS

Tetsuya Horichi, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 383,569, July 30, 1971, abandoned. This application Oct. 10, 1973, Ser. No. 405,039
Claims priority, application Japan, Aug. 7, 1972, 47-78888
Int. Cl. G05f 5/00

U.S. Cl. 323—22 T

8 Claims



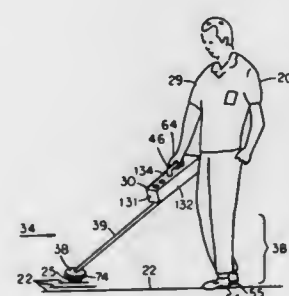
A regulated voltage supply circuit including first, second and third transistors of one conductivity type and a fourth transistor of the opposite conductivity type connected in a specific configuration. The emitter-collector path of the second transistor and the emitter-collector path of the third transistor are connected in series between the first and second voltage terminals of a voltage supply source. The emitter-collector path of the first transistor is connected between the first and second voltage terminals in parallel with the series connected emitter-collector paths of the second and third transistors. The base and collector electrodes of the first transistor are connected to the emitter and base electrodes of the second transistor respectively and the first and second transistors form a first degenerative feedback circuit for the regulation of the supply voltage. The base electrodes of the third and fourth transistors are connected to each other and the collector and emitter electrodes of the fourth transistor are connected to the emitter electrode of the second transistor and the second voltage terminal respectively. The third and fourth transistors form a second degenerative feedback circuit for the regulation of the supply voltage and a desirably regulated or stabilized DC voltage is obtained from the collector of the second transistor.

3,828,242
ELECTROMAGNETIC INDUCTION EXPLORATION GUIDE ASSEMBLY

Robert M. Vann, 2906 S. Woodland, Amarillo, Tex. 79103
Filed July 18, 1972, Ser. No. 272,984
Int. Cl. G01v 3/08

U.S. Cl. 324—3

5 Claims



An externally smooth and convex and axially symmetrical and resilient, abrasion resistant and electro-magnetically transparent ground contacting coil guide assembly is firmly attached to the search or exploring coil of a metal and mineral detector to provide constant spacing and orientation of that coil relative to the mass of ground to be explored.

3,828,243

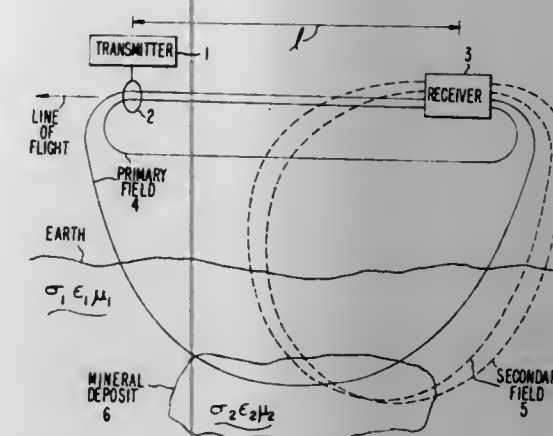
APPARATUS AND METHOD FOR ELECTROMAGNETIC GEOPHYSICAL EXPLORATION

Stanley H. Ward, Salt Lake City, Utah, assignor to Varian Associates, Palo Alto, Calif.

Continuation-in-part of Ser. No. 725,605, May 1, 1968, abandoned. This application Aug. 30, 1971, Ser. No. 175,905
Int. Cl. G01n 27/78; G01v 3/16

U.S. Cl. 324—0.5 R

7 Claims



The frequency range, particularly at lower frequencies and sensitivity of conventional electromagnetic geophysical exploration apparatus is improved by provision of an optically pumped alkali-vapor magnetometer in place of the conventional induction coil receiver. The magnetometer provides a frequency modulated output precession signal as a function of the intensity of a time-varying secondary magnetic field produced by a time-varying primary magnetic field. The magnetometer output is substantially independent of the frequency of the magnetic field being measured over the frequency range of primary interest. The time-varying primary magnetic field is also used to develop a reference signal which when combined with a signal from the magnetometer results in the development of the in-phase and quadrature components of the time-varying secondary magnetic field for use in determining the parameters of conductivity, permittivity and permeability of geophysical bodies under investigation.

3,828,244

COAXIAL LINE TO MICROWAVE COUPLER

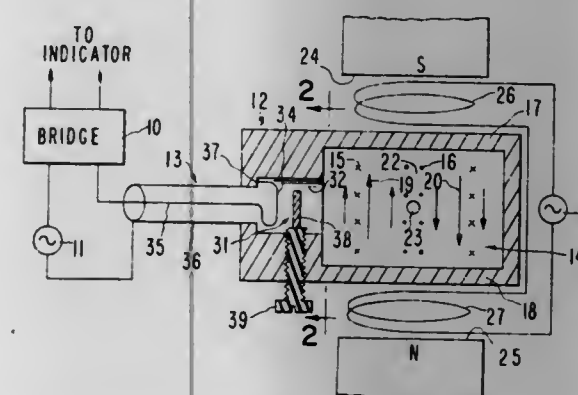
James Stewart Hyde, Menlo Park, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed June 14, 1973, Ser. No. 370,177

Int. Cl. G01n 27/78

U.S. Cl. 324—0.5 R

4 Claims



A variable microwave coupler between a coaxial line and an EPR microwave cavity. A housing includes the resonant cavity as well as a section dimensioned to be a waveguide. Energy from the coaxial line is coupled into this section. The section is dimensioned to be a waveguide beyond cutoff and it has an opening into the resonant cavity. A planar loop located in the section is connected to be excited by the energy in the line. The loop is rigidly positioned so that its plane is substantially

at right angles to a microwave magnetic field in the cavity. A microwave energy radiator is positioned in the section to be inductively coupled with the microwave energy from the loop. The radiator is positioned in the section, adjacent an intersection between the section and cavity, to electromagnetically radiate the energy inductively coupled to it into the cavity. Inductive coupling between the loop and the radiator is selectively controlled to vary the amount of energy electromagnetically radiated by the radiator into the cavity.

3,828,245

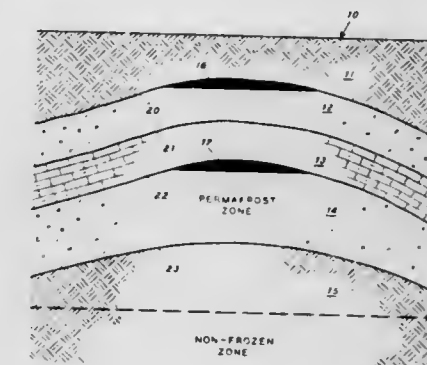
METHOD OF MAPPING BEDDING INTERFACES IN A PERMAFROST ZONE OF AN EARTH FORMATION BY ELECTROMAGNETIC RADIATION

Robert R. Unterberger, Fullerton, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 626,085, March 27, 1967, abandoned. This application Oct. 4, 1971, Ser. No. 186,377
Int. Cl. G01v 3/12, 3/16

U.S. Cl. 324—6

2 Claims



A method for accurately and quickly mapping the location of bedding interfaces in the permafrost zone of an earth formation from a movable vehicle, say an aircraft, by transmitting electromagnetic radiation through the permafrost zone from a known geographic position on or above the permafrost's surface, detecting a portion of energy reflected from each bedding interface of the permafrost zone and recording the two-way travel time of the energy reflected from each of the bedding interfaces so as to indicate distance — and hence location — of each bedding interface with respect to the known location of the electromagnetic radiation system.

3,828,246
SPARK TESTER

Charles Maynard, 2202 River Rd., Constance, Ky. 41009

Filed Aug. 9, 1973, Ser. No. 386,989

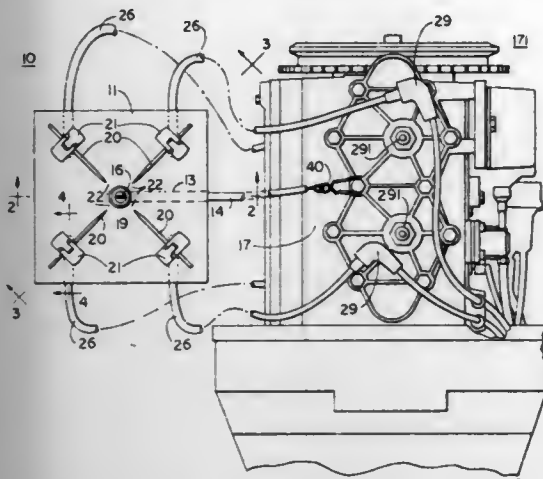
Int. Cl. G01r 13/42

U.S. Cl. 324—18

6 Claims

A spark tester having a base plate of insulating material. A central post carries a sharp edged disc electrode. Clamps surround the post and carry needle-pointed radially extending electrodes. Fasteners for the post and clamps extend into upright sockets in the base plate. Transverse bores intersect

the upright sockets. Fasteners for the clamps engage cable conductors in associated transverse bores with cable insula-



tion extending into the transverse bores. A ground wire extends into the transverse bore associated with the post to ground the disc electrode.

3,828,247

TESTING A FUEL INJECTION VALVE

Kalus Kirsch, Rennau, and Werner Grotewold, Flechwolf, both of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

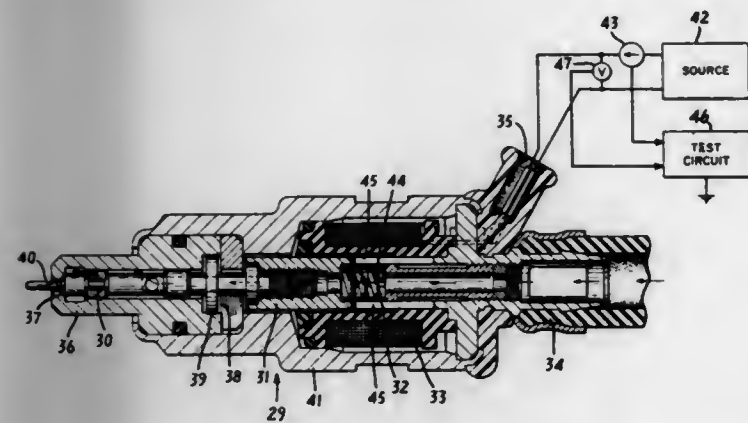
Filed June 25, 1973, Ser. No. 372,942

Claims priority, application Germany, June 28, 1972, 2231630

Int. Cl. G01r 31/02

U.S. Cl. 324—28 R

15 Claims



An electromagnetic device such as a fuel-injection valve is tested by monitoring the variation in the impedance of the electric coil of the device as it operates. The change in impedance of a properly-operating device can be converted into a generally decaying voltage signal with a series of small voltage peaks. An inoperative device will not produce these voltage peaks. The voltage peaks are converted into pulses and then counted. If more than two pulses are detected the device is operating properly.

3,828,248

APPARATUS FOR MEASURING A PREDETERMINED CHARACTERISTIC OF MOVING SHEET MATERIAL WHICH ACCOMMODATES BOTH TILTING AND CHANGES IN THICKNESS AND VERTICAL LOCATION OF THE MATERIAL

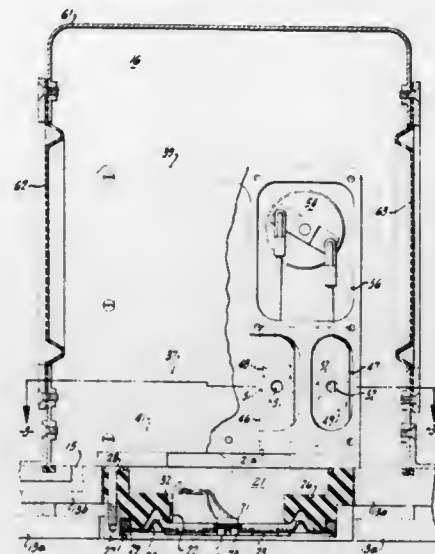
Gunnar Wennerberg, 1641 Poppy Way, San Jose, Calif. 95129
Continuation-in-part of Ser. No. 105,350, Jan. 14, 1971, abandoned. This application Apr. 21, 1972, Ser. No. 246,188
Int. Cl. G01r 33/00

U.S. Cl. 324—34 TK

18 Claims

Apparatus for sensing the thickness of sheet materials such as paper is in the form of a gauge having opposed rubber

diaphragms which are actuated into mutual engagement with the moving sheet material by associated air pumps. Mounted on the diaphragms are magnetic circuit means which include a ferrite core and an inductive coil whose inductance is affected



3,828,249

SELF-CORRECTING PHASE MEASURING BRIDGE

Karl Alber, and Volker Seifert, both of Bremen, Germany, assignors to U.S. Philips Corporation, New York, N.Y.

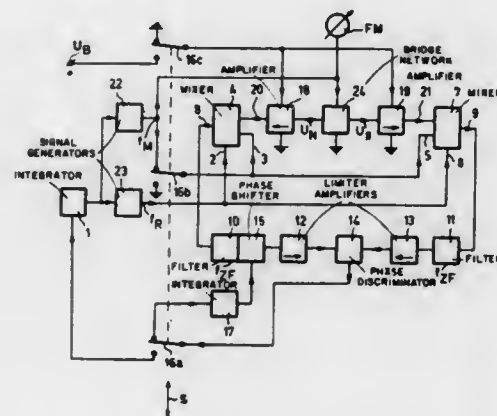
Filed Feb. 12, 1973, Ser. No. 331,779

Claims priority, application Germany, Feb. 18, 1972, 2207551

Int. Cl. G01r 27/00, 23/00

U.S. Cl. 324—57 R

7 Claims



A self-correcting phase measuring bridge is described in which the phase-correction process, apart from the phase balancing process serving for the frequency measurement, is performed fully automatically. Mechanical switches and mechanical adjusting elements for correction purposes are not required.

3,828,250

ELECTROSTATIC CHARGE MEASURING DEVICE

Rudolf G. Buser, Wall, and Helmuth M. Kaunzinger, Neptune, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 2, 1973, Ser. No. 376,022

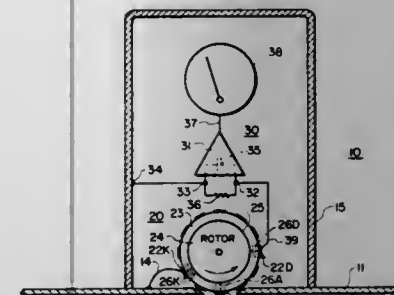
Int. Cl. G01r 31/02

U.S. Cl. 324—72

6 Claims

This disclosure relates to field strength meters and particularly to meters for detecting and indicating the strength of an electrostatic field in the vicinity of an aircraft. More particu-

larly, this invention relates to a device that uses the inverse of the Van der Graaf generator principle for charging a series of plates, successively, to the potential of a given area of the



outer surface of an aircraft and carrying the charged plates within the metal shell of the aircraft to measure the charge on the plates, which is proportional to the electrostatic charge on the adjacent surface of the aircraft.

3,828,251

PORTABLE MICROWAVE RADIATION SENSING AND MEASURING DEVICE

Robert F. Webb, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

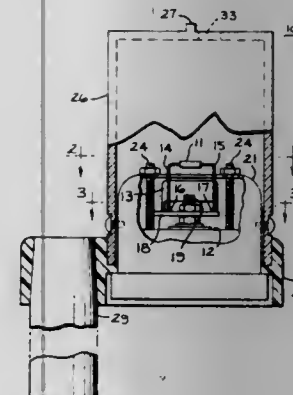
Continuation of Ser. No. 252,626, May 12, 1972, abandoned.

This application Oct. 23, 1973, Ser. No. 408,444

Int. Cl. G01r 23/04

U.S. Cl. 324—72

3 Claims



A portable device for sensing and measuring microwave energy includes an RF diode to sense the electric field of the microwaves and to convert it into direct current which is readily measured and indicated by a current meter. The device also includes a metal radiation shield interposed between the detector diode and the meter to insure that the current measured is due only to that microwave energy incident upon the diode. The diode is mounted within a radiation permeable protective casing which is shaped so as to locate the detector diode at a uniformly fixed distance and orientation with respect to the surface being measured for radiation leakage. The case may also be adapted to accept an elongated handle so that measurements may be made without placing the operator in the field of any possible leakage of radiation.

3,828,252

METER WITH AUDIBLE READ-OUT

Heinz Wolff, London, England, assignor to W. Winter Limited, Edmunds, Suffolk, England

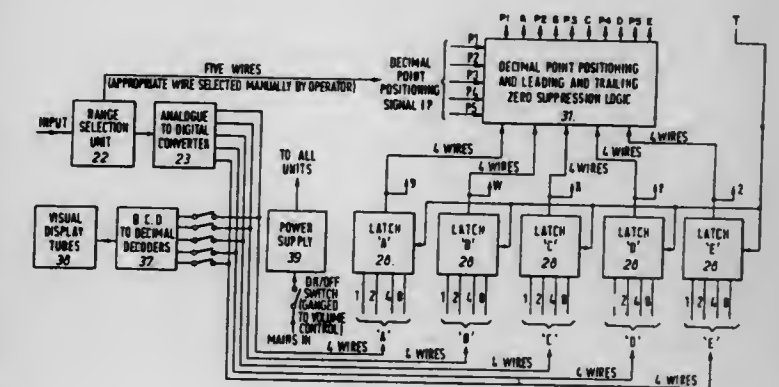
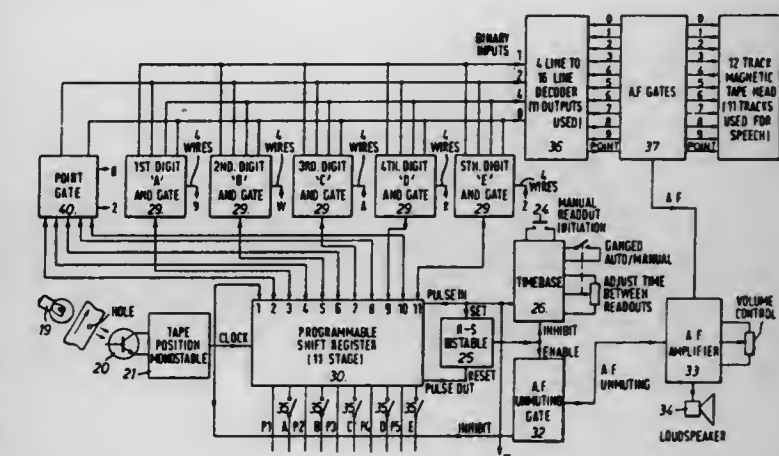
Filed Nov. 28, 1972, Ser. No. 309,953

Claims priority, application Great Britain, Nov. 29, 1971, 55229/71

Int. Cl. G01r 17/06, 13/00

U.S. Cl. 324—99 D

5 Claims



A meter with means for audible read-out including a plurality of words to be audibly read out, these words being recorded on a magnetic medium, and electronic means to select the appropriate words, and to synchronize the read-out.

3,828,253

QUANTIZED INDICATION ARRANGEMENT

Chiharu Mori, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

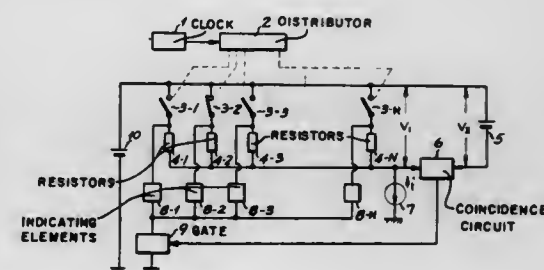
Filed Sept. 7, 1972, Ser. No. 286,988

Claims priority, application Japan, Sept. 11, 1971, 46-70510

Int. Cl. G01r 17/06; G01j 1/44

U.S. Cl. 324—99 D

9 Claims



A quantized indicating unit. A controllable constant current source is connected in a circuit path for current flow. A plurality of parallel resistors are provided, together with means for selectively coupling any one of the resistors into the path for current flow. A scanner sequentially scans through a sequence of states. A coupling means responds to each dif-

ferent one of the states for coupling at least one different resistor into the current path, thereby causing, for each of the states, a signal on the coupled resistor corresponding to the amount of the current flow and to the coupled resistor. A source of reference signals is provided, together with a comparing circuit for comparing the signal with the reference signal. An indicating element is provided for each of the resistors. A gate is coupled to the scanner and the comparing means and is responsive to a correspondence detected by the comparing means for switching an indicating element into an indicating condition, which element corresponds to the resistor that is coupled into the current path.

3,828,254

MAGNETIC GAUGE CIRCUIT

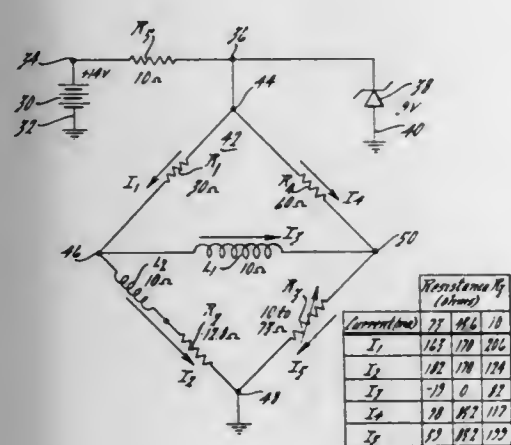
James F. Burgett, Garden City, Mich., and Lawrence J. Vanderberg, Hendersonville, N.C., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 6, 1973, Ser. No. 386,268

Int. Cl. G01r 17/10, 11/30

U.S. Cl. 324-101

7 Claims



An electrical bridge magnetic gauge circuit includes a magnetic gauge having at least two coils for producing magnetic fluxes and having movable indicating means responsive to the vector resultant of the magnetic fluxes. The gauge coils are connected in a four-terminal bridge circuit. One of the coils is connected across opposite terminals of the bridge circuit, and the other coil is connected between adjacent bridge terminals. A variable resistance, responsive to a variable parameter to be indicated by the movable indicating means of the gauge, is also connected between adjacent bridge terminals. Changes in the variable resistance causes an increase in the current in one of the gauge coils and a simultaneous decrease in the current in the other gauge coil. Preferably, the current in one of the gauge coils reverses in direction as the variable resistance is varied between its minimum and maximum values.

3,828,255

ELECTRIC METER WITH LOGARITHMICALLY INDICATING DIGITAL READER

Eberhard Schuon, Eningen, Germany, assignor to Wandel u. Goltermann, Reutlingen, Germany

Filed Aug. 7, 1972, Ser. No. 278,640

Claims priority, application Germany, Aug. 5, 1971, 2139126

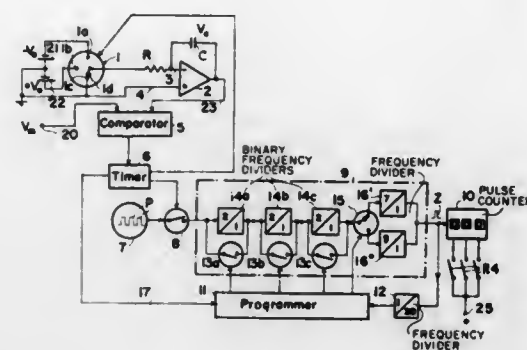
Int. Cl. G01r 15/10, 17/06

U.S. Cl. 324-132

10 Claims

A variable voltage to be logarithmically indicated is fed to an input of an operational amplifier acting as a constant-current source in charging or discharging a capacitor at a constant rate determined by the magnitude of that voltage. The time required for the capacitor to charge or discharge from a reference potential to a potential equal or proportional to the

variable voltage (or vice versa) is measured by a digital counter to which the output of a constant-frequency pulse generator is supplied, during the charging or discharging interval, through a binary frequency divider with a multiplicity of cascaded binary stages which are progressively cut in or out by a programmer responding to a predetermined number of pulses



3,828,256

SELF CONTAINED TEST PROBE EMPLOYING HIGH INPUT IMPEDANCE

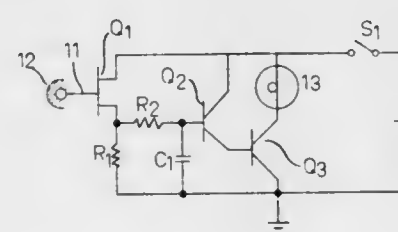
Ching-Chung Liu, No. 69 Tung Shan St., Hsin Chu, China /Taiwan

Filed May 13, 1971, Ser. No. 143,255

Int. Cl. G01r 19/16, 31/02

U.S. Cl. 324-133

4 Claims



An apparatus for detecting the conduction state of a conductor without touching the conductor with a probe, in which a circuit connected to the probe and operating an indicator means, has a high input impedance in order to readily detect and employ advantageously any stray capacitance between the conductor and the probe.

3,828,257

VHF-UHF VARACTOR TUNING SYSTEM INCORPORATING AUTOMATIC FREQUENCY CONTROL WITH EQUALIZATION

Jeffrey A. Puskas, Glendale Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Aug. 10, 1972, Ser. No. 279,610

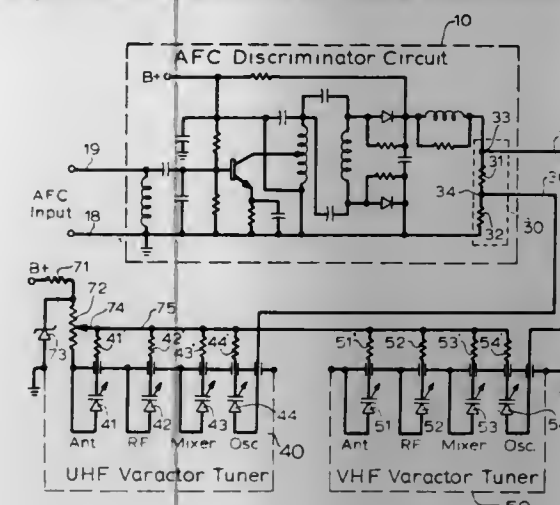
Int. Cl. H04b 1/16

U.S. Cl. 325-418

3 Claims

A VHF and UHF tuning system, comprising VHF and UHF varactor tuners, has an unbalanced AFC discriminator with a voltage divider across its output. The high voltage terminal of the divider is connected to the anode of the VHF tuner heterodyne oscillator varactor and the low voltage terminal is connected to the anode of the UHF tuner heterodyne oscilla-

tor varactor. A tuning voltage is applied independently of the AFC voltage to the cathodes of all tuning system varactors. As change over successive short measuring intervals which integrator is reset to zero at the end of each interval and also in-



a result, only the tuner heterodyne oscillators are controlled by the discriminator and automatic AFC equalization is provided by the voltage divider.

3,828,258

SIGNAL DURATION SENSING CIRCUIT

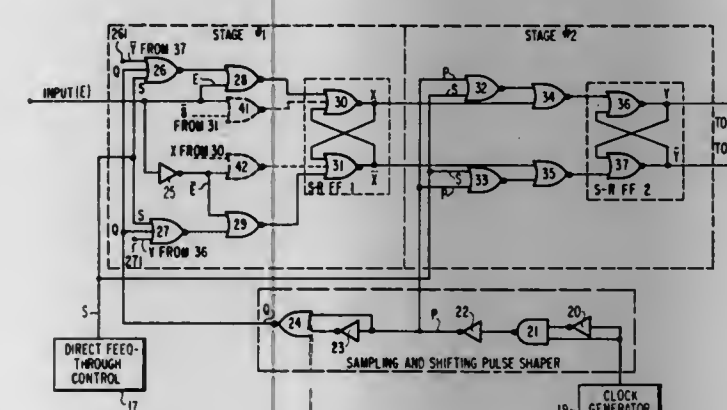
Vernon Elton Hills, Hightstown, and Leesui Wu, Cherry Hill, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 23, 1973, Ser. No. 344,298

Int. Cl. H03k 5/20

U.S. Cl. 328-111

10 Claims



A circuit for producing output levels having a first or a second binary significance in response to input signals having a first or a second value, respectively, for a period greater than T. The circuit includes means for sampling and storing the input signal in response to a sampling pulse followed in a time T by a shift pulse. The circuit also includes means feeding back the output of the circuit to its input for preventing any input signal whose duration is less than T from altering the state of the output. The circuit also includes means for overriding the sampling, shifting and feedback controls for passing all input signals to the output of the circuit with very little delay.

3,828,259

PEAK DETECTOR

Lothar H. Riethmuller, Oberuhldingen; Richard Sponholz, Mulhofen; Hans Kiefer, and Ernst Spreitzhofer, both of Nubdorf, all of Germany, assignors to Bodenseewerk Perkin-Elmer & Co., GmbH, Uberlingen/Bodensee, Germany

Filed Feb. 7, 1973, Ser. No. 330,242

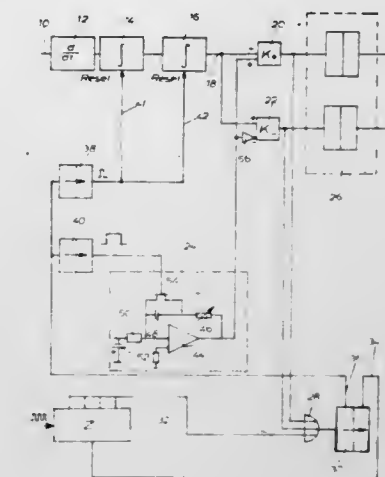
Claims priority, application Germany, Feb. 17, 1972, 2207315

Int. Cl. H03k 5/153, 17/30

U.S. Cl. 328-151

8 Claims

A known peak detector for detection of peaks in an input signal includes a signal integrator for integrating the signal



cludes a comparator for comparing the integrator output with a reference quantity. In the disclosed device the reference quantity rises with time in each of the measuring intervals. Since the contribution of a base line shift yields a linearly rising integrator output, the comparator is therefore less sensitive to such base line shifts. Preferably the reference quantity starts at a non-zero constant level and then rises linearly during the later portion of the measuring interval. The comparators therefore do not mistake either noise (which is typically in the form of very short fluctuations so as to yield a sudden moderate plateau in the integrator output) or base line drift (which causes a linearly rising integrator output) for a true peak in the input signal, since the integral of the beginning of a true peak having constantly increasing slope will be a quadratically rising signal (so that it crosses the reference quantity straight line signal before the end of the measuring interval).

3,828,260

HEMATOCRIT MEASURING APPARATUS

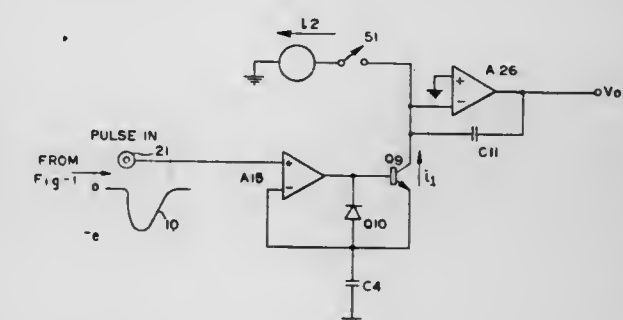
Raymond D. Underwood, Saratoga, Calif., assignor to Royco Instruments, Inc., Menlo Park, Calif.

Filed Apr. 2, 1973, Ser. No. 346,876

Int. Cl. G01n 27/02; H03k 5/153

U.S. Cl. 328-151

1 Claim



A hemocrit measuring apparatus processes pulses whose amplitude represents blood cell volume by a two stage analog storage process where peak pulse amplitudes are sequentially detected by the first stage and thereafter summed in the second stage. Noise immunity is also provided by a pulse height discriminator which enables the transfer between stages.

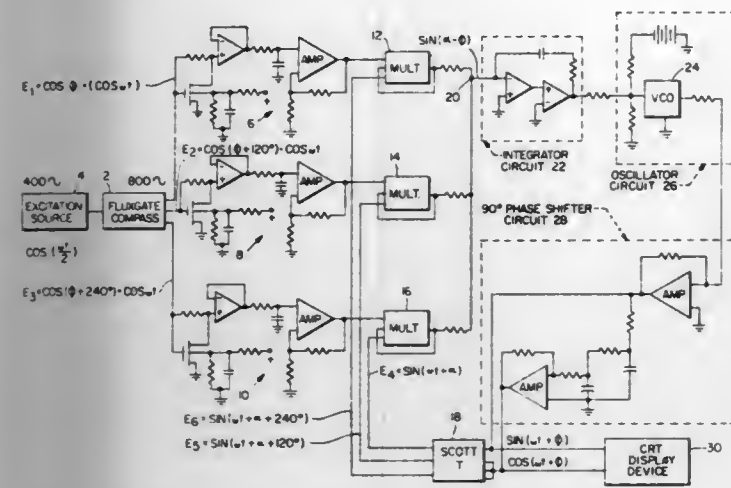
3,828,261

SOLID STATE COMPASS FOLLOWER

Donald C. Glynn, West Lake Village; Andrew M. Chao, Monterey Park, and George E. Carter, Panorama City, all of Calif., assignors to The Bendix Corporation, Teterboro, N.J.
Filed Dec. 29, 1972, Ser. No. 319,424
Int. Cl. H03b 3/04

U.S. Cl. 328—155

5 Claims



In a compass display system, a compass follower for insuring that true north is always at the top of the display. Solid state equipment is provided for correlating the compass outputs with a reference signal and for operating on the correlated output in a phase locked loop. An auxiliary loop is provided in which the compass follower output is phase locked to an external reference to render said output independent of compass excitation.

3,828,262

DEVICE FOR THE AUTOMATIC ADJUSTMENT OF THE AMPLITUDE OF SIGNALS

Francois Jean Trocqueme, Landorthe, France, assignor to Entreprise De Recherches D'Activites Petrolieres Elf, Paris, France

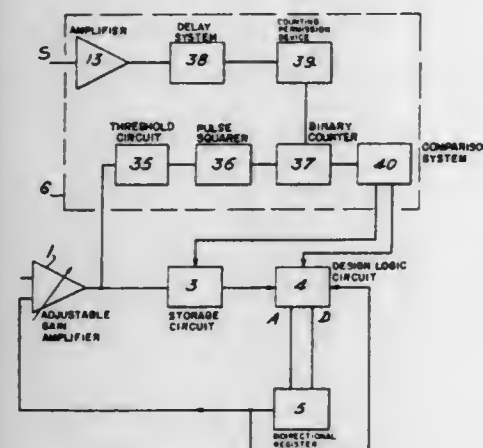
Filed Apr. 16, 1973, Ser. No. 351,560

Claims priority, application France, Apr. 20, 1972, 72.14006

Int. Cl. H03k 5/20

U.S. Cl. 328—175

8 Claims



Automatic adjustment of amplitude is carried out on any predetermined half-wave of a recurrent analog signal by means of a device comprising a variable-gain amplifier, a storage circuit for indicating the amplitude of each output signal of the amplifier, a decision logic circuit which assumes a logical state A if the indicated amplitude does not attain a lower threshold level or a logical state D if the indicated amplitude exceeds an upper threshold level, a bidirectional register and a synchronization and control logic system in which means placed at the output of the amplifier eliminate signals

smaller in amplitude than a predetermined value and transmit signals to a counter, the state of which is compared with two series of pre-indicated numbers by means of a comparator having outputs connected to the storage circuit and the decision logic circuit.

3,828,263

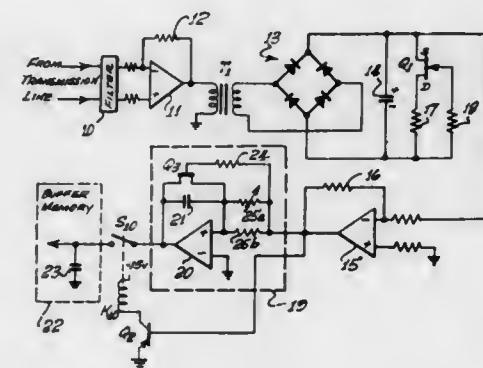
DEMOMULATOR FOR FREQUENCY-BURST-DURATION MODULATED SIGNALS

Robert W. Blumenkamp, Palo Alto, Calif., assignor to Physics International Company, San Leandro, Calif.
Continuation-in-part of Ser. No. 169,988, Aug. 9, 1971, Pat. No. 3,754,215. This application June 12, 1973, Ser. No. 369,170

Int. Cl. H03k 9/08

U.S. Cl. 329—106

12 Claims



A demodulator for frequency-burst-duration modulated signals is disclosed comprising a full-wave rectifier and a filter capacitor coupled to an input bandpass filter. A differential amplifier connected to the filter capacitor produces an output signal of predetermined amplitude while a charge is stored in the capacitor above a predetermined minimum. A field-effect transistor shunts the filter capacitor until the rectifier produces a voltage output which tends to charge the capacitor in response to a frequency burst, and again shunts the capacitor for fast discharge at the end of a frequency burst.

3,828,264

DEVICE FOR OPTICAL AMPLIFICATION OF A COHERENT SIGNAL

Wolfgang Friedl, Neckargemund, and Claus Aberle, Mannheim, both of Germany, assignors to Eltro GmbH & Co., Heidelberg, Germany

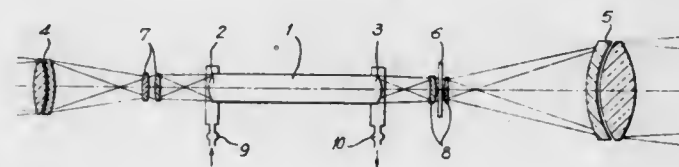
Filed Dec. 29, 1974, Ser. No. 319,856

Claims priority, application Germany, Dec. 29, 1971, 2165270

Int. Cl. H01s 1/02

U.S. Cl. 330—4.3

5 Claims



A device for optical amplification of a coherent signal comprising a laser composed of a bundle of fibres which are individually pumped simultaneously. The fibres are constituted as gradient fibres. An objective is located behind the bundle and a frequency filter is secured to the bundle and mounted at the Fourier plane of the objective. An auto-collimator may be provided for the amplified coherent light beams.

3,828,265

LOW FREQUENCY POWER AMPLIFIER

Aldo Romano, Milan, Italy, assignor to ATE Componenti Elettronici S.p.A., Milan, Italy

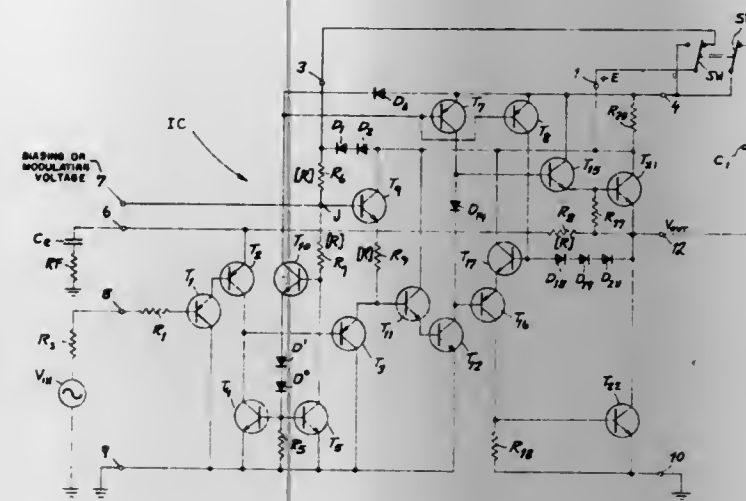
Filed Feb. 4, 1972, Ser. No. 223,614

Claims priority, application Italy, Feb. 5, 1971, 20194/71

Int. Cl. H03f 3/18

U.S. Cl. 330—17

19 Claims



A power amplifier for low-frequency oscillations, realizable by integrated-circuit technique, comprises a number of cascaded transistors forming a high-impedance input stage, an intermediate or driver stage and a balanced power stage feeding a central output terminal 12. A control transistor T_2 constituting part of a composite input transistor T_1 , T_2 has its collector grounded through a current-limiting transistor T_4 paired with an identical transistor T_3 producing an image current which duplicates the collector current of the control transistor T_2 and passes through a voltage divider composed of a pair of resistors R_6 , R_7 each of the same magnitude as a feedback resistor R_8 inserted between the output terminal 12 and the emitter of transistor T_2 . A controlled transistor T_3 at the entrance of the intermediate stage, of the same conductivity type (PNP) as the control transistor T_2 and substantially identical therewith, has its base connected to the collector of transistor T_2 and has its emitter energized through an ancillary transistor T_9 of opposite conductivity type whose base is tied to the junction of resistors R_6 and R_7 . The emitters of transistors T_9 and T_3 are interconnected via a further resistor R_9 of the same magnitude; with the bases of twin transistors T_4 and T_5 jointly connected to a d-c supply terminal 1 through a biasing transistor T_{10} and a low resistance (e.g. diodes D' , D'') equaling the overall emitter/base resistance of composite transistor T_1 , T_2 , this arrangement stabilizes the means voltage of output terminal 12 at substantially half the voltage of the ungrounded supply terminal 4.

3,828,266

SIGNAL CONTROL CIRCUIT

Takashi Okada, Yamato; Yoshiaki Ogawara, Tokyo, and Masashi Takeda, Isehara, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 28, 1973, Ser. No. 336,820

Claims priority, application Japan, Mar. 2, 1972, 47-21878; July 22, 1972, 47-73587; Aug. 14, 1972, 47-81264

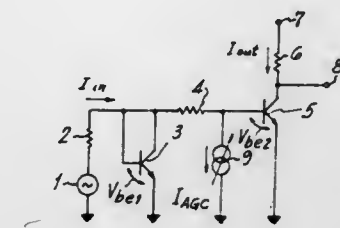
Int. Cl. H03g 3/30

U.S. Cl. 330—29

11 Claims

A signal control circuit which includes an amplifying transistor connected to an input circuit to receive an input signal. A constant reference bias voltage is produced across a diode connected to the input circuit and signals are connected

from the input circuit to the transistor by a resistor. A controllable impedance is connected at a point between the resistor



and the transistor so that by controlling the impedance the current gain of the amplifier is linearly controlled over a wide range.

3,828,267

MUTING CIRCUIT

Katsuaki Tsurushima, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan

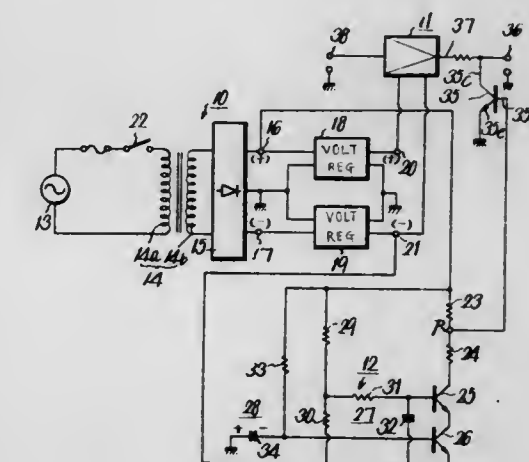
Filed May 15, 1973, Ser. No. 360,460

Claims priority, application Japan, May 27, 1972, 47-62497

Int. Cl. H03g 3/30

U.S. Cl. 330—29

11 Claims



A voltage dividing circuit including first and second transistors connected in series is connected between a first output terminal of one polarity of a bridge rectifier circuit and a second output terminal of the opposite polarity of a voltage regulator connected to the bridge rectifier circuit. A first time constant circuit is connected between the base of a first one of the transistors and the first output terminal and a second time constant circuit is connected between the base electrode of the second transistor and the circuit ground. A muting transistor is connected in shunt with the signal transmission line and its base is connected between the first output terminal and the first transistor. When power is applied to the circuit by the closing of a power switch the first transistor is initially made non-conductive during a predetermined period by the operation of the first time constant circuit so that the base electrode of the muting transistor is supplied with a muting signal to make it conductive and thereby mute signals on the transmission line. When power to the circuit is interrupted, as by the opening of the power switch, the second transistor is made non-conductive by the second time constant circuit for a predetermined time so that power stored in the voltage regulating circuit is supplied to the base electrode of the muting transistor to thereby again mute signals on the transmission line.

3,828,268

DIFFERENTIAL AMPLIFIER HAVING INCREASED BANDWIDTH

Tomoyuki Nishio, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

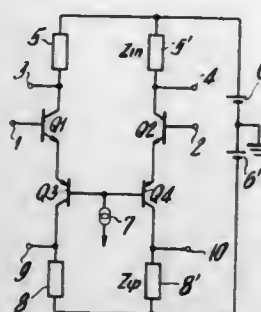
Filed Sept. 6, 1972, Ser. No. 286,760

Claims priority, application Japan, Sept. 7, 1971, 46-68539

Int. Cl. H03f 3/68

U.S. Cl. 330-30 D

5 Claims



A differential amplifier is disclosed which includes a first pair of transistors of one conductivity type having impedance elements connected to their collectors. A second pair of transistors of an opposite conductivity type has emitters connected respectively to the emitters of the first pair of transistors and impedance elements connected to their collectors. A first output signal having a relatively high-frequency component is derived from the collector of one of the first pair of transistors, and a second output signal having a relatively low-frequency component is derived from the collector of one of the second pair of transistors.

3,828,269

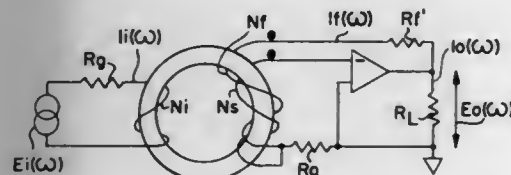
CURRENT FOLLOWER AMPLIFIER

Ralph S. Norton, 4 Debra Pl., Syosset, N.Y. 11791

Filed Nov. 22, 1972, Ser. No. 308,747

Int. Cl. H03f 1/36

U.S. Cl. 330-97



A linear broad band current follower amplifier in which the input and output impedances are isolated includes a magnetic core on which are wound inductively coupled input, sense and feedback windings. An input signal is applied to the input winding, the sense winding is connected to a quadrature amplifier circuit input, and the feedback winding is connected to the amplifier circuit output in a sense that the MMF produced by the feedback winding opposes the MMF produced by the input winding. The feedback winding is connected in series with a resistor across the amplifier input so that in addition to the MMF inverse feedback there is dc inverse feedback in the amplifier circuit.

3,828,270

CIRCUIT FOR ACCURATELY CONTROLLING THE AMPLITUDE OF A TRANSMITTER

Martin Ebisch, Hohenschaeftlarn, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

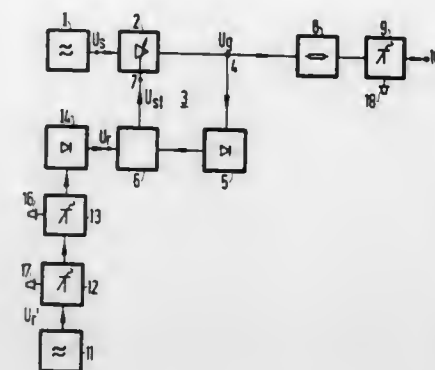
Filed Sept. 11, 1972, Ser. No. 288,046

Claims priority, application Germany, Sept. 17, 1971, 2146690

U.S. Cl. 330-130

Int. Cl. H03g 3/22

5 Claims



A circuit and system for controlling the amplitude of a transmitter wherein a variable gain amplifier receives the output of the transmitter and is controlled by a differential amplifier which receives inputs from a pair of rectifiers. One of the rectifiers receives a signal from the variable gain amplifier and the other rectifier receives an input from a low frequency oscillator whose output is supplied to the rectifier through a pair of variable attenuators which allow accurate adjustment of the input to the rectifier. One of the variable attenuators may change the amplitude of the signal in relatively large steps and the other variable attenuator accomplishes fine settings.

3,828,271

CLOCK AND SECTOR MARK GENERATOR FOR ROTATING STORAGE UNITS

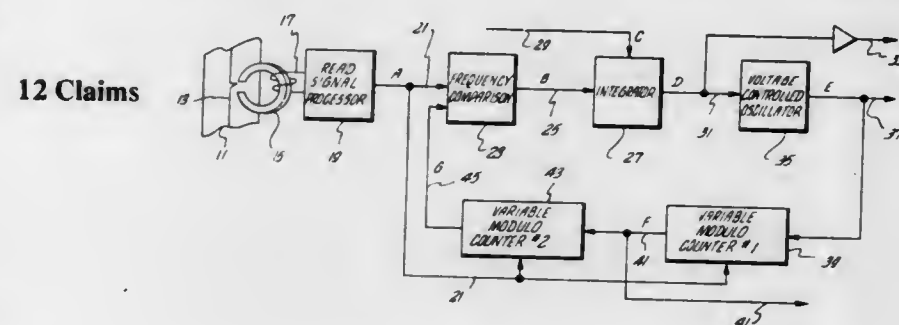
Francis J. Schwanauer, Agoura, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Filed July 27, 1973, Ser. No. 383,162

Int. Cl. H03b 3/04; H03k 1/16

U.S. Cl. 331-1 A

10 Claims



In a rotating storage unit such as a disk pack drive wherein encoded data is recorded on concentric tracks on the disk, the clock signal that times the data as it is recorded on a track or times the data as it is read from a track, along with sector indications, is accurately synthesized from the occurrence of a once-per-revolution signal (index signal) which is slaved to the rotational speed variations of the disk. This index signal may be recorded on the disk. The index signal synchronizes a voltage controlled oscillator to generate the clock pulses. These clock pulses are divided down by a variable modulo counter to produce sector indicating signals. These sector indicating signals are divided down to a once-per-revolution signal that is compared in time of occurrence to the index signal from the disk. The time difference between these two signals generates a control signal that regulates the voltage controlled oscillator.

3,828,272

tone generator for selective call transmitter

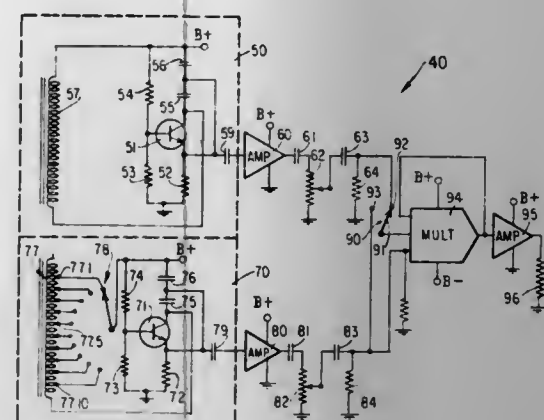
Keith H. Wycoff, P.O. Box 308, Lexington, Nebr. 68850

Filed Nov. 15, 1972, Ser. No. 306,859

Int. Cl. H03b 21/00

U.S. Cl. 331-40

5 Claims



The tone generator includes a first oscillator to generate a first signal of a fixed frequency and a second oscillator which is variable to generate a second signal of a selected frequency. A multiplier receives the signals and provides a pair of tones having frequencies respectively equal to the sum of and difference between their frequencies. A switch may be provided so that both inputs to the multiplier are received from the variable frequency oscillator, in which case the output of the multiplier will be a single tone having a frequency twice that of the signal produced by the variable frequency oscillator. In either event, the tones are modulated on an RF wave.

3,828,273

CONDITION-RESPONSIVE CONTROL CIRCUIT INCLUDING PULSE-ENERGIZED OSCILLATOR AND AMPLIFIER

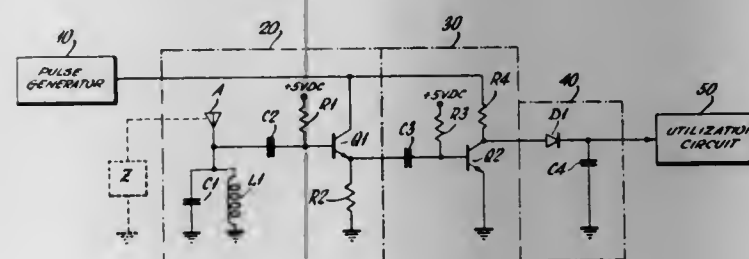
Carl E. Atkins, Montclair, N.J., assignor to Wagner Electric Corporation, Parsippany, N.J.

Filed July 23, 1973, Ser. No. 381,573

Int. Cl. G08b 13/26; H03b 5/12

U.S. Cl. 331-65

12 Claims



A pulse-energized, DC-biased oscillator/amplifier which responds to the coupling of an external impedance comprising either a substantial capacitive or resistive component to the tank circuit of the oscillator by attenuating the oscillations developed therein in response to each energizing pulse. The amplifier is pulse-energized contemporaneously with the oscillator, and its output is detected to develop a voltage for controlling a utilization circuit.

3,828,274

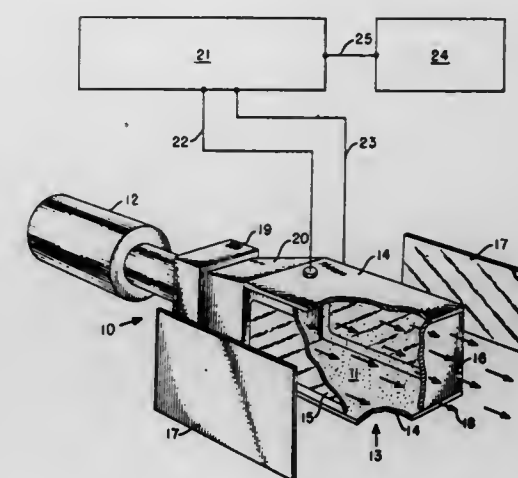
ELECTRON BEAM-PUMPED GAS LASER SYSTEM

Barton Krawetz, Livermore, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Continuation of Ser. No. 40,037, May 25, 1970. This application Nov. 5, 1971, Ser. No. 196,076

U.S. Cl. 331-94.5

4 Claims



A high power electron beam-initiated electrical-discharge gas laser system including a gaseous lasing medium placed in an optical cavity contained in a vessel having two large electrodes electrically insulated from each other; and a charged particle accelerator directing an electron beam through the gaseous medium perpendicular or parallel to the optical path. The system is capable of producing pulses having a total energy content on the order of about 20,000 joules, with the energy released or delivered in 0.5 μ sec., giving a power rating on the order of about 10^4 megawatts.

3,828,275

POLARIZED MULTIFREQUENCY LASER OSCILLATOR FOR HOLOGRAPHIC CONTOURING

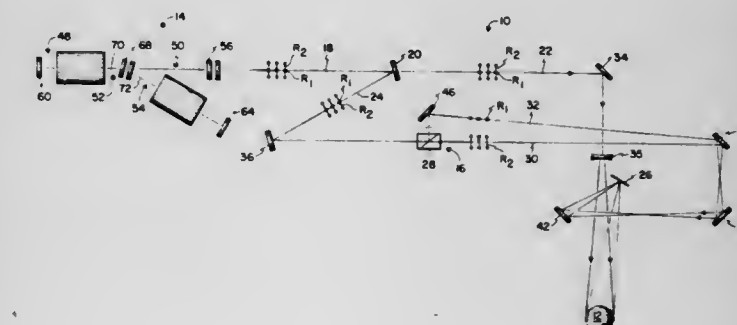
Lee O. Heflinger, Torrance, and Ralph F. Wuerker, Palos Verdes Estates, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Nov. 30, 1972, Ser. No. 310,867

Int. Cl. H01s 3/02

U.S. Cl. 331-94.5

35 Claims



A multifrequency coherent light beam is generated containing two optical frequencies which may be polarized in different directions to permit separation of the two frequencies by a polarization beam splitter. The two frequencies may be generated simultaneously or consecutively. Contour holograms are recorded by splitting the polarized multifrequency coherent beam into a scene beam containing both optical frequencies and two separate reference beams each comprising one of the frequencies and directing each reference beam

to the holographic recording medium at the optimum reference beam angle for the respective reference beam frequency.

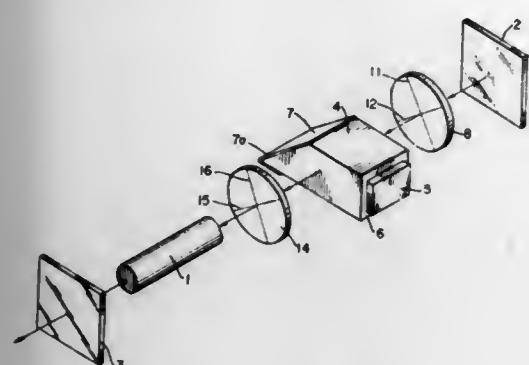
3,828,276

HIGH EFFICIENCY ACOUSTO-OPTICAL Q-SWITCH
Martin G. Cohen, Huntington, N.Y., assignor to Quantronix Corporation, Smithtown, N.Y.

Filed May 25, 1973, Ser. No. 363,994
Int. Cl. H01s 3/11

U.S. Cl. 331-94.5 Q

8 Claims



In a solid state, Q-switched laser oscillator of the type in which the laser medium emits unpolarized light and the acousto-optical Q-switch exhibits strong optical polarization dependence, a first quarter-wave plate disposed within the optical cavity between the Q-switch and one cavity mirror for causing the polarization components of the light beam resolved along the fast and slow axes of the quarter-wave plate to rotate 90° between successive passages through the Q-switch so that the light which was less strongly scattered during one passage through the Q-switch is more strongly scattered during the next passage through the Q-switch, and a second quarter-wave plate disposed within the optical cavity on the other side of the Q-switch for nullifying the effect of the first quarter-wave plate when the Q-switch is turned off so as to leave the polarization components of the laser oscillation unperturbed.

This invention relates to laser Q-switches, and, more particularly, to acousto-optical Q-switches for solid state laser media of the type which inherently produce unpolarized light.

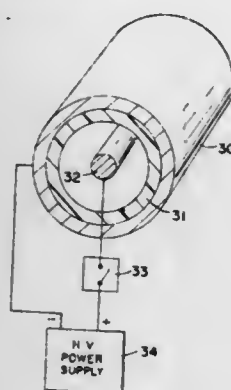
3,828,277

INTEGRAL CAPACITOR LATERAL DISCHARGE LASER
William F. Otto, and Richard D. Milton, both of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Continuation-in-part of Ser. No. 212,526, Dec. 27, 1971, abandoned. This application July 3, 1973, Ser. No. 376,261

Int. Cl. H01s 3/09

U.S. Cl. 331-94.5 PE

3 Claims



A high pressure gas laser is described in which uniform electrical field distribution is obtained for lateral discharge in the

gas by employing a capacitor formed within the laser cavity. The laser may be a parallelepiped with capacitor plates forming two opposite sides of the parallelepiped. One of the plates is coated with a ceramic dielectric. Alternatively, the laser may be a conductive circular cylinder with a center electrode, and with a ceramic dielectric coating on the inside of the cylinder. A high voltage source is connected to the laser. Emission occurs when the capacitor charges to a high enough voltage to discharge through the gas. For better charge distribution, the coating may be covered by a resistive layer, or may have a mosaic of isolated conductors thereon.

3,828,278

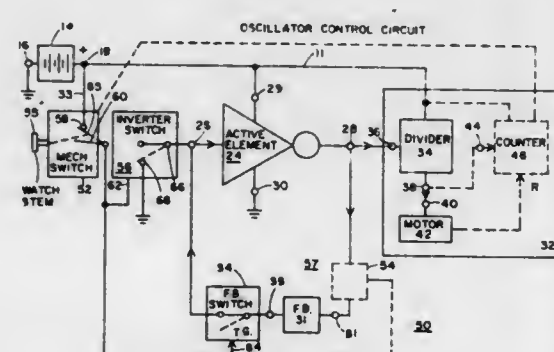
CONTROL CIRCUIT FOR DISABLING MOS OSCILLATOR

Lynn T. Rees, Mesa, Ariz., assignor to Motorola, Inc., Chicago, Ill.

Filed July 13, 1973, Ser. No. 379,045
Int. Cl. H03b 5/36

U.S. Cl. 331-116 R

9 Claims



The oscillator control mechanism renders the active element of an oscillator inoperative in response to the closure and operative in response to the opening of a mechanical or solid state control switch. In addition to the control switch, the mechanism includes solid state feedback and inverter switches which are controlled by signals conducted by the control switch. The inverter switch is rendered conductive and the feedback switch is rendered nonconductive to disable the oscillator. Alternatively, the inverter switch is rendered nonconductive and the feedback switch is rendered conductive to enable the oscillator. The mechanism requires no switches to be connected between the power terminals of the active element and the power supply so that the oscillator can be operated by a power supply voltage of small magnitude.

3,828,279

DATA HANDLING SYSTEM EMPLOYING TIME MODULATION

James P. Labarber, Santa Ana; Ross A. Shade, Newport Beach, and William H. Terbrack, Santa Ana, all of Calif., assignors to J. D. Wrather, Jr., Beverly Hills, Calif.

Continuation of Ser. No. 861,785, Sept. 29, 1969, abandoned. This application Oct. 13, 1972, Ser. No. 300,401

Int. Cl. H03k 7/06

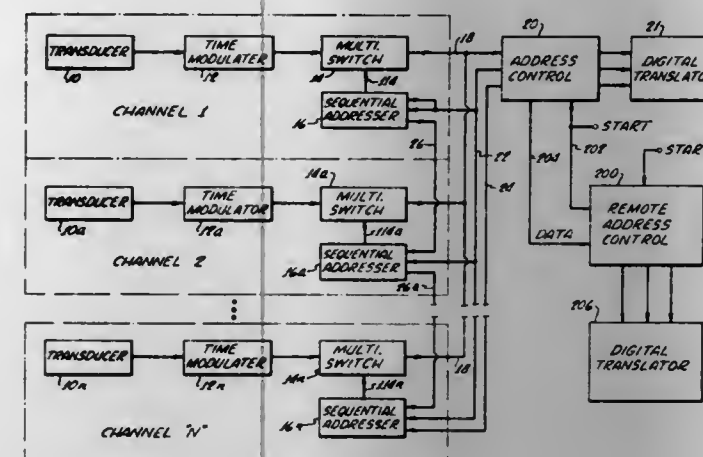
U.S. Cl. 332-2

14 Claims

Each of a number of substantially conventional transducers is packaged together with a modulator to provide an output having a period that is linearly related to the analog input or condition sensed by the transducer. A multiplexer switch is included in each package and a number of channels of combined transducer modulator and multiplexer switches are arranged to be addressed in a selected order for sequential readout as determined by operation of an address controller. The address controller receives data in sequence from the multiplexer switches of the several time modulators and generates a gate signal having a duration equal to the duration of a number of consecutive chronologically contiguous data periods from each one of the transducer-time modulator channels. The gate signal allows a number of fixed frequency, high

repetition rate clock pulses to be passed to a pulse counter and memory circuit which thus provides a digital representation and storage of the analog or condition inputs to the several transducers.

A unique time modulator comprising a modified, free-running multivibrator receiving an input through an im-



pedance conversion circuit from the sensing transducer has each half cycle duration linearly related to such input. A power supply in common with the transducer is employed by the modulator in such a manner that fluctuations of the power supply cause variations in the transducer output that are compensated by concomitant variations of the modulator.

3,828,280

COMPRESSORS, EXPANDERS AND NOISE REDUCTION SYSTEMS

Ray Milton Dolby, London, England, assignor to Dolby Laboratories Inc., New York, N.Y.

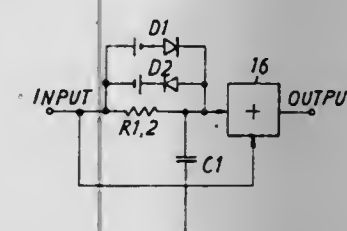
Filed May 1, 1973, Ser. No. 356,126

Claims priority, application Great Britain, May 2, 1972, 20406/72

Int. Cl. H04b 1/64

U.S. Cl. 333-14

39 Claims



The invention provides signal compressors, expanders and noise reduction systems. In the compressor, a linearly treated signal component has combined therewith in opposition a non-linearly treated signal component which is however linear with respect to dynamic range above a threshold. Below the threshold the non-linearly treated component has a gain which falls as the signal level falls. The expander is complementary to the compressor; the two signal components combine additively. The compressors and expanders are useful in video, audio and other circuits for effecting noise reduction.

3,828,281

IMPEDANCE SIMULATING CIRCUIT FOR TRANSMISSION LINES

Charles W. Chambers, Jr., Amherst, Ohio, assignor to Lorain Products Corporation, Lorain, Ohio

Filed Feb. 26, 1973, Ser. No. 335,488

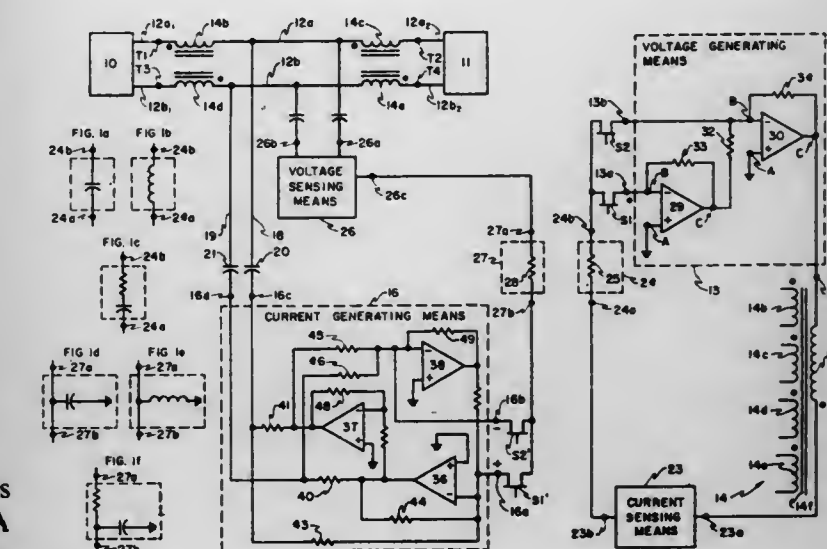
Int. Cl. H03h 11/00

U.S. Cl. 333-17

15 Claims

A circuit for simulating the presence of positive or negative impedances in shunt or in series with a transmission line. A

voltage generating circuit generates an impedance simulating voltage and introduces that voltage in series with the transmission line. A current generating circuit generates an impedance simulating current and introduces that current in shunt with the transmission line. Current feedback circuitry controls the voltage generating circuitry in accordance with the amplitude



of the signal current in the transmission line to simulate either a positive or negative series impedance. Voltage feedback circuitry controls the current generating circuitry in accordance with the signal voltage across the transmission line to simulate either a positive or negative shunt impedance. Circuitry is also provided to afford these simulated impedances in the presence of echo suppressing and impedance matching characteristics.

3,828,282

VARIABLE WAVEGUIDE IMPEDANCE FOR MEASUREMENT AND CALIBRATION OF AN ACTIVE MICROWAVE ELEMENT

Gyorgy Geza Endersz, Alvsjo, Sweden, assignor to Telefonaktiebolaget L N Ericsson, Stockholm, Sweden

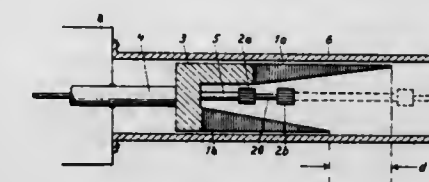
Filed Mar. 8, 1973, Ser. No. 339,143

Claims priority, application Sweden, Mar. 21, 1972, 3622/72

Int. Cl. H01p 1/26, 1/28; H03h 7/38

U.S. Cl. 333-22 R

9 Claims



A variable waveguide impedance for the measurement of an active microwave element, for example in order to obtain a value of the figure of merit of the element, comprises a non-reflecting terminator consisting of two pyramidal parts mounted on a yoke which in turn is mounted on a first hollow shaft, and a short-circuit device consisting of two metallic cylinders mounted on a second shaft. The second shaft is displaceable and lockable in the first shaft and the whole impedance device is arranged in a waveguide section in relation to which the impedance can be displaced by means of the first shaft. The active microwave element is connected to the waveguide section in order to establish a microwave field in the same.

3,828,283

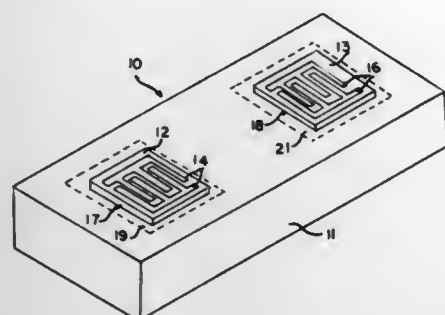
METHOD FOR IMPROVING SEMICONDUCTOR SURFACE WAVE TRANSDUCER EFFICIENCY

Michael R. Daniel, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 24, 1973, Ser. No. 382,265

U.S. Cl. 333—30 R

10 Claims



An improved semiconductor surface wave transducer and method for improving the efficiency of a surface wave transducer comprising a semiconductor substrate upon which is deposited a thin piezoelectric film which has deposited or fabricated thereon at least one interdigital electrode grid. The method comprises increasing the carrier concentration of the semiconductor substrate to provide at least a plane of electrical conductivity underlying the piezoelectric film and electrode grid having a resistivity of less than 1.0 ohms-cm at 20°C.

3,828,284

MICROWAVE DEVICE INCLUDING INDIUM-JOINED QUARTZ WINDOW CLOSING OFF HERMETIC CHAMBER

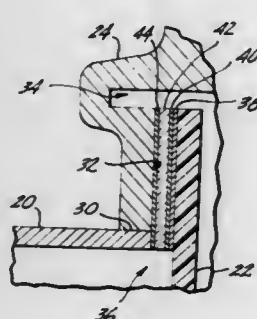
Thomas B. Hutchins, IV, 310 N.W. Brynwood, Portland, Oreg. 97229

Filed Mar. 1, 1973, Ser. No. 336,990

Int. Cl. H01p 1/08

U.S. Cl. 333—98 P

3 Claims



A microwave device including an hermetic chamber which is at least partially defined by an electrically conductive wave guide, and by a quartz glass window that is hermetically joined to the wave guide through a sealing medium including indium.

3,828,285

ELECTRONIC TUNER

Kanji Yokoyama, and Hiroshi Miwa, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 5, 1972, Ser. No. 312,288

Claims priority, application Japan, Dec. 6, 1971, 46-97871

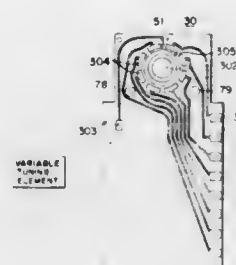
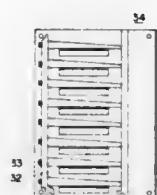
Int. Cl. H03j 5/04

U.S. Cl. 334—14

4 Claims

An electronic tuner in which a resonant frequency is changed by changing the voltage applied to a variable tuning element, and in which there is provided a base metal, on the face and back of which are attached a band change-over

switch base plate and a resonant voltage change-over switch base plate respectively, these base plates are provided with a



3,828,286

MINIATURE RELAY

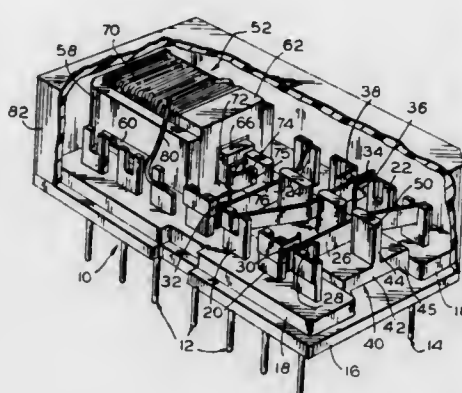
James B. Bain, Gresham, Oreg., assignor to Datron Systems, Inc., Parsippany, N.J.

Filed July 5, 1973, Ser. No. 376,739

Int. Cl. H01h 45/04

U.S. Cl. 335—126

16 Claims



A miniature relay is formed upon a dual in-line plug adapted to be received by a mating integrating circuit socket. The plug comprises a flat plastic header provided with a pair of spaced parallel bosses between which an actuator slide is moved by a solenoid plunger. Multiple reed contacts extend across the header between rows of connecting pins, and through slots between upstanding posts forming a part of the actuator slide.

3,828,287

DEFLECTION YOKE MOUNTING MEANS

Charles E. Torsch, Geneva, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Nov. 23, 1973, Ser. No. 418,439

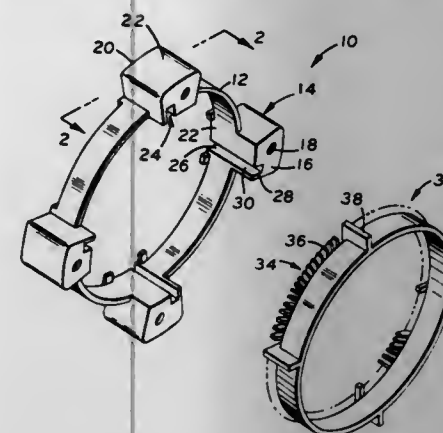
Int. Cl. H01f 7/00

U.S. Cl. 335—210

6 Claims

An annular yoke retainer ring for integrally mounting a deflection yoke upon a cathode ray tube comprises a circumferential wall surrounding a yoke with the wall being provided with a plurality of hollow pockets having an interior wall formed with a groove for receiving positioning members extending from the yoke. The pockets are completely enclosed

on four sides and one end so that an adhesive dispensed thereinto cannot contaminate the yoke positioned interiorly



thereof. The hollow pockets receive extending members positioned on the rear wall of the cathode ray tube and are bonded thereto by means of the adhesive dispensed therein.

3,828,288

MAGNETIC ACTUATOR DEVICE

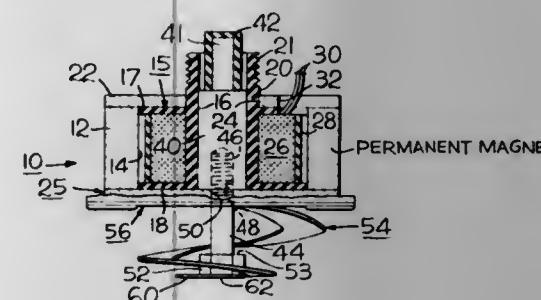
Donald R. Boyd, Waukesha, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed May 29, 1973, Ser. No. 365,025

Int. Cl. H01f 7/08

U.S. Cl. 335—234

15 Claims



There is provided in accordance with an embodiment of the invention a magnetic actuator device comprising an annular-shaped permanent magnet having magnetic pole pieces in contact with the opposite axial ends of the permanent magnet. A bobbin member of a nonmagnetic electrically insulating material such as nylon is coaxially and concentrically positioned within the central opening of the annular permanent magnet. A trip coil connected to an electrical signal source is positioned on the hollow cylindrical hub of the bobbin. A cylindrical plunger or armature of magnetic material is positioned for axial linear sliding movement in the hollow hub of the bobbin. The forward end of the plunger carries a colored stud member which projects forwardly of the front pole piece and serves by its position as an indicator of whether the magnetic actuator device is in tripped or untripped condition. The rearwardly facing end of the magnetic plunger carries a non-magnetic spindle which projects rearwardly through the rear pole piece and bears against a spiral spring mounted on the rear or outer surface of the rear pole piece. Normally, the magnetic actuator device is in a magnetically latched condition in which the rearwardly facing end of the plunger bears against the inner face of the rear pole piece, with the armature being held in this magnetically latched position against the force of the spring by the magnetic flux from the permanent magnet passing through the magnetic plunger. Upon the receipt of a momentary electrical signal pulse on the coil, a magnetomotive force with resulting magnetic flux is set up by the coil which opposes the magnetic flux of the permanent magnet to a sufficient extent to permit the spring to rapidly move the plunger to its forward or tripped position, thereby causing the signal indicator carried by the plunger to be pro-

jected forwardly to a position in which it indicates that the magnetic actuator device has been tripped. The linear movement of the plunger to tripped position upon the receipt of a trip signal on the coil may also be used to actuate a suitable switch, such as a microswitch, positioned contiguous the magnetic actuator device. The magnetic actuator device may be reset after tripping by manually pushing the plunger rearwardly against the spring force until it magnetically latches against the inner surface of the rear pole piece.

3,828,289

COMBINED CURRENT AND TEMPERATURE SENSITIVE FUSE ASSEMBLY

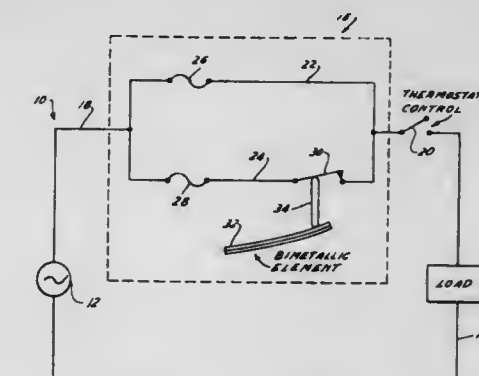
Colin D. Hickling, Woodstock, N.Y., assignor to American Thermostat Corporation, South Cairo, N.Y.

Filed July 23, 1973, Ser. No. 381,893

Int. Cl. H01h 85/00

U.S. Cl. 337—5

8 Claims



A combined current and temperature sensitive fuse assembly of a given current and temperature rating for installation between an electric source and an electric load comprises a pair of electrical paths in parallel, each electrical path having in series a fuse rated for half of the fuse assembly current rating and one of the electrical paths having a mechanical switch in series for interrupting the current flow through the one electrical path. Heat sensitive means, such as a bimetallic element, control the status of the switch in response to fluctuations in temperature relative to the fuse assembly temperature rating, so that an excessive rise in temperature will cause the heat sensitive means to open the switch and thus cause the total current flow to pass through the other electrical path, thereby blowing its fuse. Upon subsequent lowering of the ambient temperature, the switch is closed so that the total current now flows through the one electrical path and blows its fuse, thus completely isolating the electric load from the electric source.

3,828,290

OVERVOLTAGE PROTECTOR HOLDER AND HOUSING

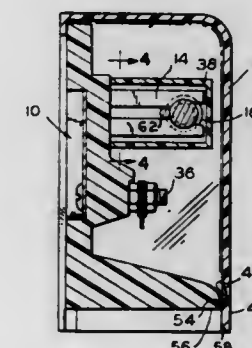
Chester J. Kawiecki, Santa Barbara, Calif., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill.

Filed Dec. 20, 1972, Ser. No. 316,737

Int. Cl. H01h 85/02

U.S. Cl. 337—186

13 Claims



An overvoltage protection apparatus is described including an improved housing containing the overvoltage protection

device and a separate holder member within which such device is secured. The housing includes a cover member and base member of a tapered shape so that the cover member is freed from such base member after it slides along a guide slot only about one-third the length of such base member. A concealed tamper-proof lock means is provided on the top portion of the cover and base member, including a notch and a cooperating lock projection which lock the cover in its closed position. The holder member is a hollow box of transparent plastic insulating material for holding the overvoltage protection device to enable it to be easily inserted into and removed out of engagement with electrical contacts on the base member while reducing the danger of electrical shock.

3,828,291

PROTECTOR FOR ELECTRIC CIRCUIT

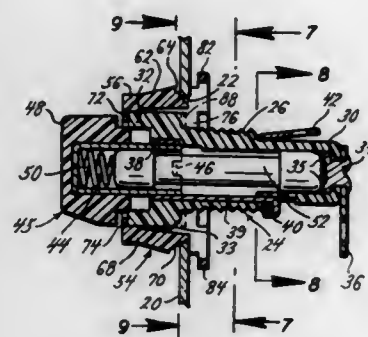
Angelo Urani, St. Louis, Md., assignor to McGraw-Edison Company, Elgin, Ill.

Filed June 14, 1973, Ser. No. 370,148

Int. Cl. H01h 85/02

U.S. Cl. 337-201

19 Claims



A mounting, for a front-mounted fuseholder, has a generally-annular body portion which permits the front portion of that front-mounted fuseholder to be telescoped rearwardly into it, and also has inwardly-extending lips that can be spread apart as that front portion is telescoped rearwardly into that generally-annular body portion but that subsequently move toward each other to hold that front portion within that generally-annular body portion. Thereafter, that mounting and that front-mounted fuseholder can be telescoped forwardly, from a point rearwardly of a panel, into position within an opening in that panel. That mounting has fingers that are bendable to permit that mounting to be moved forwardly into position within that opening but that subsequently prevent accidental movement of that mounting rearwardly of that panel.

3,828,292

TEMPERATURE COMPENSATING THERMAL RELAY

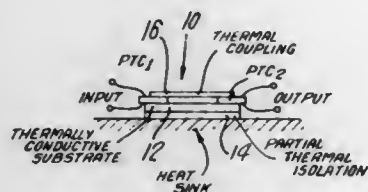
David H. Grossman, Mount Royal, Quebec, and Charles T. Plough, Beaconsfield, Quebec, both of Canada, assignors to Multi-State Devices Ltd., Dorval, Quebec, Canada

Filed Aug. 3, 1973, Ser. No. 385,239

Int. Cl. H01h 37/02

U.S. Cl. 337-417

7 Claims



A temperature compensating thermal relay comprises an input heater element mounted on a heat storage device and adapted to be connected to a source of control signals, a temperature dependent output resistance element mounted on the same heat storage device as the heater element but which may

be electrically isolated therefrom, and adapted to be connected in an electrical output circuit which is controlled by the control signal but with a predetermined delay with respect to both the turning on and the turning off of the control signal depending on the mass of the storage device. The heat storage device is provided with partial thermal isolation with respect to the ambient so as to permit to vary by different amounts depending on the ambient temperature the time delay between the tuning on of the control signal and operation of the controlled circuit and the time delay between turning off of the control signal and operation of the controlled circuit.

3,828,293

TEMPERATURE DEPENDANT START SWITCH

Edwin H. Land, 163 Brattle St., Cambridge, Mass. 02138, and David V. Cronin, 7 Hampshire Rd., Peabody, Mass. 01960

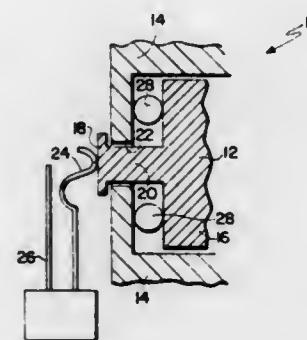
Division of Ser. No. 318,228, Dec. 26, 1972. This application

Nov. 21, 1973, Ser. No. 418,060

Int. Cl. H01h

U.S. Cl. 337-417

12 Claims



An exposure actuation system, preferably including an electric start switch for a photographic camera including a movable actuator button which is operative to initiate a photographic exposure only at predetermined temperatures. Depression of the movable actuator button is operative to move one electrical spring contact into electrical engagement with another spring contact for closing appropriate camera shutter circuitry. In a preferred embodiment, a liquid-filled elastic member is interposed in the path of movement of the actuator button. Should the photographic camera be subjected to temperatures below the freezing point of the liquid, the liquid freezes and prevents depression of the actuator button.

3,828,294

ACCELERATION TRANSDUCER HAVING SEMICONDUCTIVE PIEZORESISTIVE ELEMENT

Kosaku Baba, Yokohama; Kiyoshi Wazawa, Tokyo, and Akio Hosaka, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Kanagawa-ku, Yokohama City, Japan

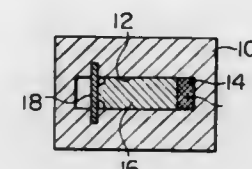
Filed Apr. 10, 1972, Ser. No. 242,429

Claims priority, application Japan, Aug. 2, 1971, 46-69025

Int. Cl. H01c 7/16

U.S. Cl. 338-43

4 Claims



An acceleration transducer comprising a semiconductive plate having therein at least one piezoresistive element. The semiconductive plate is strained by a force exerted by a weight which is adapted to be movable according to an acceleration applied to the transducer. Due to the strain of the semiconductive plate, the element is varied in proportion to the

amount of strain thereof. The variation of the resistivity of the element is therefore proportional to the magnitude of the acceleration applied to the transducer and utilized as an acceleration signal. The acceleration transducer is simple and compact in construction and has improved temperature and frequency characteristics.

3,828,295

MOISTURE IMPERVIOUS IMPACT SHIELD FOR A TRANSDUCER AND METHOD OF MAKING THE SAME

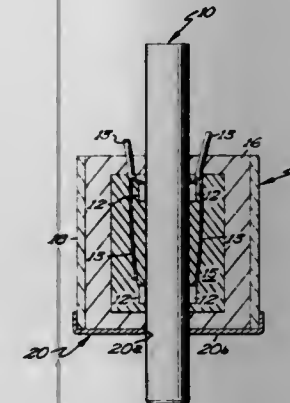
Richard S. Bradley, Fairmont, Minn., assignor to Weigh-Tronix, Incorporated, Armstrong, Iowa

Filed July 12, 1973, Ser. No. 378,709

Int. Cl. G01b 7/16

U.S. Cl. 338-6

5 Claims



A moisture impervious impact shield is provided for a transducer including an elastically deformable bar having a plurality of electrical strain gauges mounted thereon for measuring the elastic deformation of the bar. The method employed in making the moisture impervious impact shield comprises forming and bonding an inner sleeve to and covering that portion of the bar to which the strain gauge is attached. This sleeve is formed of a foamed material, preferably silicone-rubber foam, which has a low bulk modulus, and therefore does not affect the transducer bar during elastic deformation thereof. An intermediate sleeve is then formed of a moisture impervious material, preferably silicone rubber and encases the inner sleeve. An outer metallic sleeve surrounds and is bonded to the intermediate sleeve and protects the electrical strain gauges against impact-type damage.

3,828,296

SHEATHED ELECTRIC HEATER ELEMENTS

Herbert Louis Eiselstein, and James Crombie Hosier, both of Hinton, W. Va., assignors to The International Nickel Company, Inc., New York, N.Y.

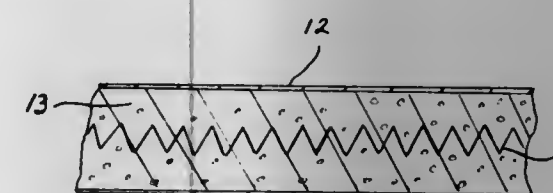
Continuation-in-part of Ser. No. 56,977, July 21, 1970, Pat. No. 3,729,308. This application Jan. 18, 1973, Ser. No.

324,656

Int. Cl. H01c 1/02

U.S. Cl. 338-234

9 Claims



Sheathed electric heater elements wherein the sheathing is made of an alloy including specially proportioned amounts of nickel (about 15 percent to about 23 percent), chromium (about 17 percent to about 23 percent), silicon (about 0.3 percent to about 1.5 percent) and cerium (an effective amount up to about 0.05 percent) to assure high oxidation resistance and good corrosion resistance.

3,828,297

ELECTRICAL ADAPTER

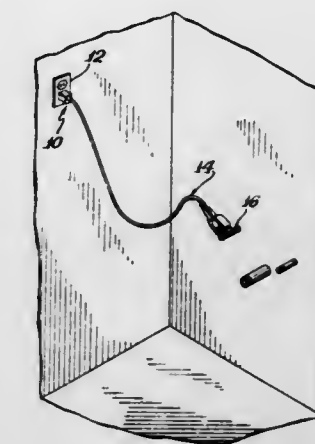
Philip J. Hoza, III, 688 Cherry St., Winnetka, Ill. 60093

Filed Jan. 3, 1972, Ser. No. 215,056

Int. Cl. H01r 3/06

U.S. Cl. 339-14 R

7 Claims



A grounding adapter having an insulating body member including a pair of male-female electric contact blades and a female ground receptacle. A lead wire connects with the ground receptacle and has a free end extending beyond the body member with an alligator clip secured to the free end. The body member has a peripheral groove around which the lead wire can be wrapped and retained therein by clipping the alligator clip to the body member.

3,828,298

ELECTRICAL TERMINAL FOR A BRAIDED SHIELD ON A COAXIAL CABLE

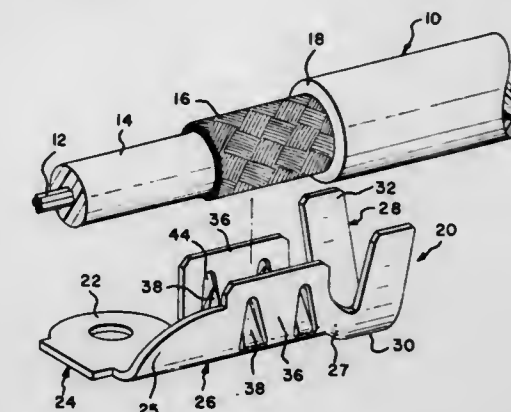
William Ludlow Schumacher, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Jan. 22, 1973, Ser. No. 325,705

Int. Cl. H01r 3/06

U.S. Cl. 339-14 R

2 Claims



The present invention discloses an electrical terminal for grounding the braided shield on a coaxial cable. The terminal has beveled, inwardly projecting lances on each sidewall of the ferrule forming portion which separates the strands of and slides behind the braided shield so as to lace the shield between the sidewalls and lances to provide mechanical support and electrical contact.

3,828,299

LAMP-RETAINING CONTACT

George E. Johnson, Bronxville, and Walter Newman, Forest Hills, both of N.Y., assignors to Leviton Manufacturing Co., Inc., Brooklyn, N.Y.

Filed Sept. 21, 1972, Ser. No. 290,989

Int. Cl. H01r 33/08

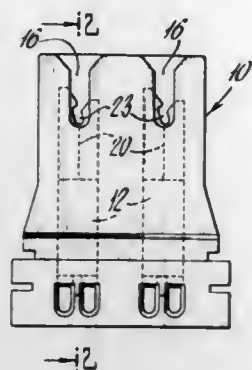
U.S. Cl. 339-53

4 Claims

A lampholder for a fluorescent lamp has spaced contacts for receiving and making electrical connections to the contact

pins of the lamp with a push-in movement of the lamp.

The contacts are mounted in a housing of insulating material and each contact is slit to form a set of spring fingers which resiliently engage with one of the contact pins of the lamp. The opposing edges of the spring fingers contain an enlarged



opening in which the contact pin of the lamp is seated and held. The enlarged opening is angularly disposed relative to the slit in the contact and is offset at one end to hold the contact pin between the spring fingers and prevent accidental displacement of the pin from engagement with the contact.

3,828,300

TERMINALS OF ELECTRICAL EQUIPMENT AND RIBBON-LIKE LEADS

Giuseppe Codrino, Via Slazione Quattordio, Alessandria, Italy

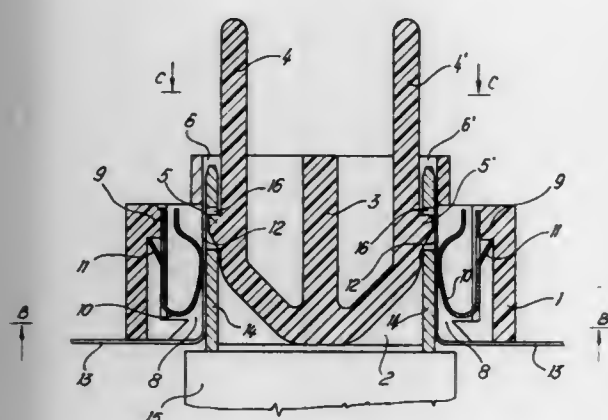
Filed Mar. 8, 1973, Ser. No. 339,105

Claims priority, application Italy, July 14, 1972, 27012/72

Int. Cl. H01r 13/54

U.S. Cl. 339-74 R

4 Claims



A multi-way adapter, suitable for electrical connection between the segment terminals of the electrical equipment and flexible ribbon-like leads, wherein there is provided a box-shaped body of parallelepiped configuration, consisting of plastic material, having a median cavity and one or more side cavities, disposed parallel to said cavity, the latter showing in the central portion a partition wall parallel to the axis of the cavity itself and from the ends of which depart upwardly two flexible, parallel arms, provided with a step relief, being beveled on the lower part — 7 — and arranged at their outer face, said box-shaped body being further provided at the longitudinal walls of the median cavity and slots with recesses having an embossed reference portion and on which there are disposed spring elements, being shaped so as to exert a pressure in direction of the adjacent slots, said springs permitting the contact between the terminals of the ribbon-like leads and terminals of the electrical equipment, both inserted into the side slots and into those built on the sides of the two arms of the partition wall.

3,828,301 PLUG CONNECTOR FOR ELECTRICALLY INTERCONNECTING ORTHOGONAL CONDUCTORS

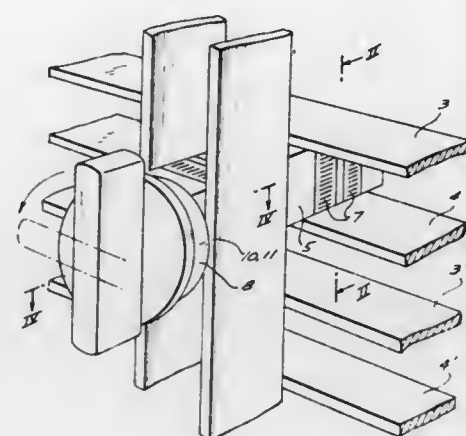
Rudolf Neidecker, Basel, Switzerland, assignor to Multi-Contact AG, Basel, Switzerland

Filed Feb. 26, 1973, Ser. No. 336,033

Int. Cl. A01r 13/54

U.S. Cl. 339-75 M

13 Claims



A plug for selectively connecting mutually orthogonal conductors forming a crossbar array has a square cross-section and is split axially into two sections which can be spread apart by a rotatable rod passing axially between the sections and formed at one or more locations along its length with non-circular formations such that rotation of the rod cams the two sections diagonally apart and into tight engagement with the inner walls of a passage formed by at least two orthogonal conductors of the cross bar array. The handle can only be rotated to spread the sections when the plug is pushed all the way into the hole.

3,828,302

ELECTRICAL CONNECTOR AND MOUNTING MEANS

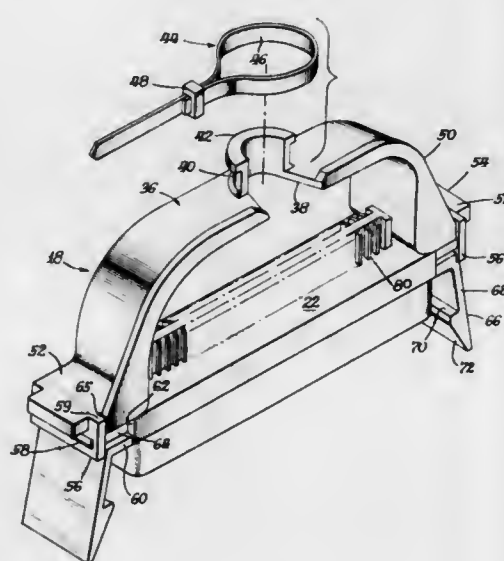
Edward A. Cieniawa, Hickory Hills, and Vincent J. Palecek, Cicero, both of Ill., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Sept. 13, 1972, Ser. No. 288,753

Int. Cl. E05c 13/58

U.S. Cl. 339-91 R

14 Claims



Electrical connector and mounting means therefor. The mounting means includes a container or "can" in which a first part of the connector is placed, and a shell or cable housing including the second part of the connector, the latter holding a cable the conductors of which are secured to the second part of the connector. The shell is an integral plastic piece and includes latching means and a strain relief collar for holding the

cable. The shell is fitted to the container in a simple direct, snap-on movement, in which the connector parts are mated, and the shell latched to the container.

3,828,303 COAXIAL CONNECTOR

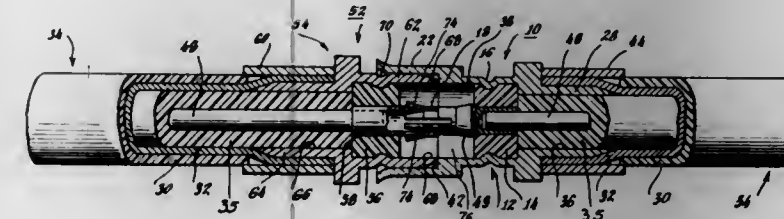
Norbert J. Sladek, Fairfield; Pasquale Ralph Petti, Waterbury, and William Max Erich Zerlin, Newtown, all of Conn., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Sept. 28, 1972, Ser. No. 292,856

Int. Cl. H01r 17/12

U.S. Cl. 339-177 R

7 Claims



This invention relates to a simple, field installable, low cost, miniature, push-pull, quick connect/disconnect electrical connector system having a VSWR (voltage standing wave ratio) of less than 1.35 for all signal frequencies from 0.1 to 6 GHz useful for interconnecting coaxial cables having a characteristic impedance in the range of 50 ohms. The connector system is made up of a plug member and a jack member each comprising but three basic parts. The first part of each member is comprised of an integral tubular member of relatively soft electrically conductive material. The second part of each member is in turn comprised of a dielectric insert which is held in its respective tubular member by staking or rolling a reduced section of its tubular member's wall. The front portion of the jack member fits into the front portion of the plug member and through the action of an internal shoulder within the plug member a predetermined spacing between the dielectric inserts held by the plug and jack members is established when the members are fully mated. Each dielectric insert is in turn bored to receive one of two matable pin-like electrical contacts each of which comprises the third part of its respective connector member. Each contact has a hollow rear portion which may be crimped to the center conductor of a respective coaxial cable and thereafter inserted into the bore of its respective insert and retained therein. The outer conductor of each coaxial cable may be crimped around a reduced section of the rear portion of each connector by means of a crimping ferrule. The aforesaid fixed spacing between the dielectric inserts acts to produce a high impedance relative to the impedance afforded by the dielectric inserts to effect the afore-referenced VSWR of less than 1.35 for signal frequencies between 0.1 and 6 GHz.

3,828,304 SLIDE-ON RF CONNECTOR

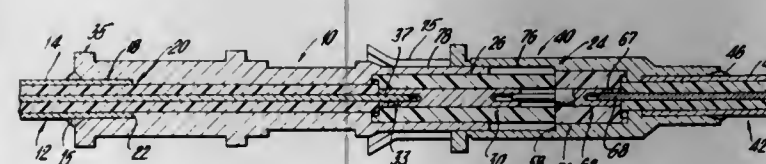
Donald J. Winn, New Haven, Conn., assignor to Phelps Dodge Industries, Inc., New York, N.Y.

Filed Dec. 6, 1972, Ser. No. 312,687

Int. Cl. H01r 17/06

U.S. Cl. 339-177 R

2 Claims



A slide-on connector including a plug and jack for electrically connecting the ends of two radio frequency coaxial ca-

bles to minimize radio frequency (RF) current leakage when fully butted and slightly unbutted.

3,828,305 TERMINAL CONNECTOR AND METHOD OF ATTACHING SAME TO COAXIAL CABLE

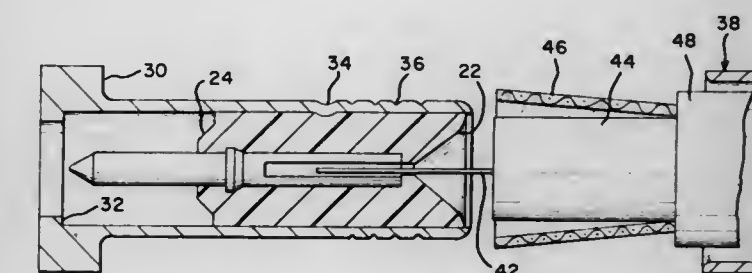
Richard Shure Hogendobler, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 30, 1973, Ser. No. 346,541

Int. Cl. H01r 17/04, 11/08

U.S. Cl. 339-177 R

6 Claims



A coaxial cable terminal connector is disclosed along with a method of securing the terminal to the prepared end of a cable with a single crimping operation. The terminal includes a center contact one end of which is slotted and inserted into an axial bore of a dielectric member. The contact and member are placed in an inner ferrule member and positioned therein when the center contact of a stripped coaxial cable is inserted into the other end of the bore until a portion of the dielectric sleeve of the cable is also within the inner ferrule. An outer ferrule surrounds the inner ferrule with the cable shielding therebetween. A single crimping operation both reduces the circular section of the terminal to secure the shielding between the ferrules and transmits sufficient force to encompassingly engage the center contact with the center conductor.

3,828,306 HIGHWAY DISTRESS SYSTEM

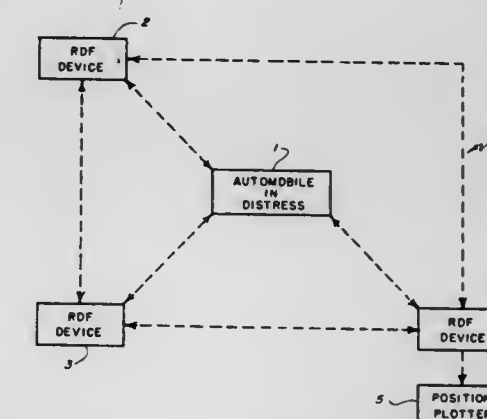
Paul Angeloni, P.O. Box 33, Poland, Maine 04104

Filed Jan. 8, 1973, Ser. No. 321,818

Int. Cl. G08g 1/12

U.S. Cl. 340-32

3 Claims



A system for noting the existence of a distress-condition of an automobile (or other vehicle) and for locating the automobile relative to monitoring stations. The system employs a transmitter in the vehicle in distress, which is adapted to send a multi-directional signal indicative of the nature of the trouble to a limited geographical area around the vehicle. A plurality of radio direction finder stations in said region position the vehicle in difficulty and the vehicle driver is notified of that fact and is given any other pertinent information. The portion of the system on the vehicle has both a transmitter and a receiver which are automatically rendered effective as al-

ternate conditions of system operation, thereby to send out distress information and to receive related information as alternate situations.

3,828,307

AUTOMATIC TRAFFIC CONTROL SYSTEM

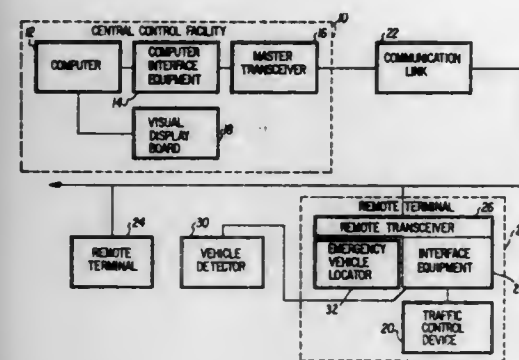
Ernest Timmons Hungerford, Atlanta, Ga., assignor to Georgia Tech Research Institute, Atlanta, Ga.

Filed June 29, 1971, Ser. No. 157,871

Int. Cl. G08g 1/08

U.S. Cl. 340—35

33 Claims



An automated control system is disclosed that is particularly adapted for use in regulating urban traffic flow. The system includes a central control facility linked with a plurality of remote terminals over a unitary communication channel, which is preferably equivalent to a voice grade, non-compensated telephone line. The central control facility includes a computer coupled through interface equipment with a master transceiver. The master transceiver couples the computer and interface equipment with the communication channel. Each of the remote terminals, which are coupled to the communication channel in parallel, party line fashion, includes a remote transceiver coupled through interface equipment to a traffic control device, such as a signal light. An emergency vehicle locator may also be included in each remote terminal. Vehicle detectors may be coupled to the communication channel through the remote terminals or through separate remote transceivers to provide a measure of traffic flow parameters.

3,828,308

OPERATION INDICATING DEVICE FOR HYDRAULIC BRAKE SYSTEM

Ikuya Kobayashi, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan

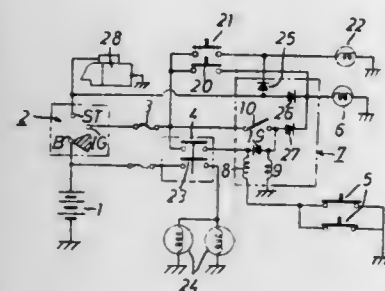
Filed May 3, 1972, Ser. No. 249,769

Claims priority, application Japan, Oct. 13, 1971, 46-80792

Int. Cl. B60q 1/00

U.S. Cl. 340—52 C

4 Claims



An indicating device to alarm a vehicle driver of trouble with a hydraulic brake system of a vehicle. The indicating device comprises a closed-type pressure switch to be opened in response to line pressure of a certain value yielded within the hydraulic brake system, an open type brake switch to be closed in response to stepping on a brake pedal of the vehicle after the pressure switch is opened, a relay device including a

first coil thereof energized by the closing of the brake switch with the pressure switch remaining extraordinarily closed, and a second coil thereof wound in an opposite direction against the first coil on an iron core on which the first coil is wound so as to operate a bi-stable contact device, and a pilot lamp, located on an instrument panel of the vehicle, being then connected to an electric current source through a key switch of the vehicle and the contact device when both of the pressure and brake switches are closed.

3,828,309

APPARATUS FOR DETECTING THE INTERNAL PRESSURE OF A TIRE

Hiroyuki Yamasaki, Kyoto, and Masaaki Kaida, Tokyo, both of Japan, assignors to Omron Tateisi, Electronics Co., Kyoto and Bridgestone Fire Co., Ltd., Tokyo, both of Japan

Fire Co., Ltd., Tokyo, both of Japan

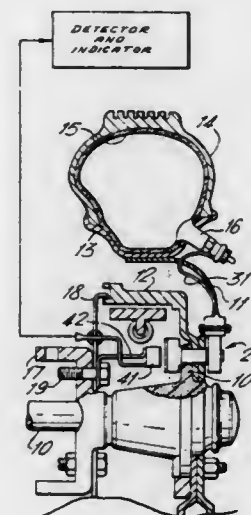
Filed Dec. 20, 1972, Ser. No. 316,908

Claims priority, application Japan, Dec. 27, 1971, 46-105246

Int. Cl. B60c 23/02

U.S. Cl. 340—58

12 Claims



Apparatus for detecting the internal pressure of a tire, wherein a magnetic member is attached to a wheel of a vehicle for simultaneous rotation therewith and a coil is mounted on the chassis of the vehicle so that as the wheel rotates, the magnetic member passes by the coil for a voltage to be induced in the coil by electromagnetic induction. There is provided means operable in response to the tire pressure to change the position of the magnetic member relative to the coil, so that when an abnormal drop occurs in the tire pressure, the position of the magnetic member changes with a resulting change in the level or phase of the induced voltage.

3,828,310

BICYCLE THEFT ALARM

Albert J. Miller, Campbell, Calif., assignor to Bike Alarm, Ltd., San Mateo, Calif.

Filed June 5, 1972, Ser. No. 259,752

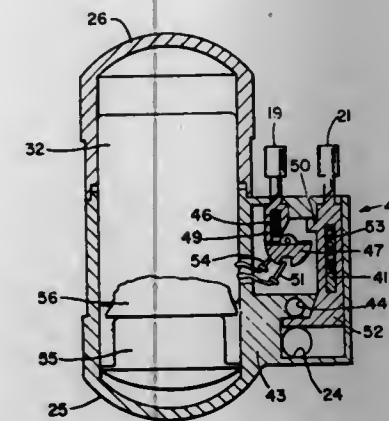
Int. Cl. B60r 25/10

U.S. Cl. 340—65

29 Claims

A theft alarm system for warning of unauthorized use of a bicycle or similar movable article employs a pendulum switch to sense movement of the article. The switch actuates a warning alarm, which continues for a brief period upon each sensed movement. The device clamps to the protected article, and a

padlock passed through an opening in the clamping member prevents loosening or removal of the device. A disarm switch coming data signals to the input terminals. The foregoing abstract is merely a resume of one general application, is not a



to deactivate the device includes a moving arm which must traverse the padlock opening, preventing disarming of the system unless the padlock is first removed.

3,828,311

AMBIENT LIGHT WARNING DEVICE

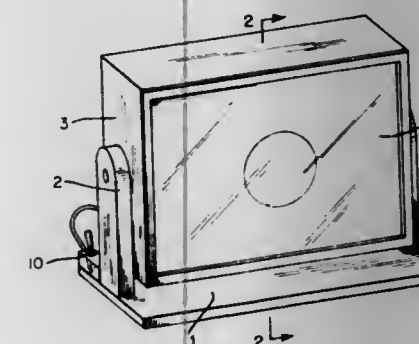
Pai Ping Ching, 30 Hamilton Ave., Staten Island, N.Y.

Filed Sept. 27, 1971, Ser. No. 184,037

Int. Cl. G08b 5/00

U.S. Cl. 340—84

2 Claims



A device acting to warn persons, such as motor vehicle drivers, students and the like studying or reading, and persons under like conditions of insufficient ambient light, that the light is insufficient and should be increased.

3,828,312

DIGITAL DATA CHANGE DETECTOR

Robert Gordon Long, Scarborough, Ontario, Canada, assignor to D.D.I. Communications, Inc., Lewiston, N.Y.

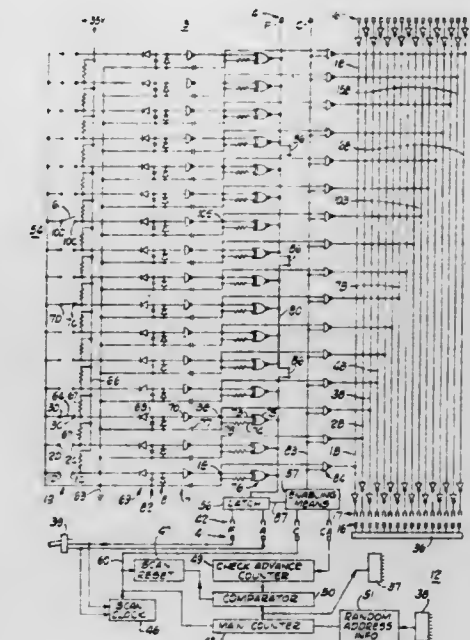
Filed Feb. 20, 1973, Ser. No. 333,443

Int. Cl. G06f 11/00

U.S. Cl. 340—146.1 R

10 Claims

A change detector is disclosed for use on digital data. Incoming data bits are either high or low and are applied to input terminals. From one input terminal the change is applied to a first input of an exclusive OR or NOR gate and this change is applied through a time delay circuit to a second input on that same gate. As a result, the exclusive alternative gate develops an output pulse in accordance with the time delay. A plurality of such input terminals and gates are utilized with the outputs of the gates all connected in parallel and developing an output pulse upon a change in any one of the in-



complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,828,313

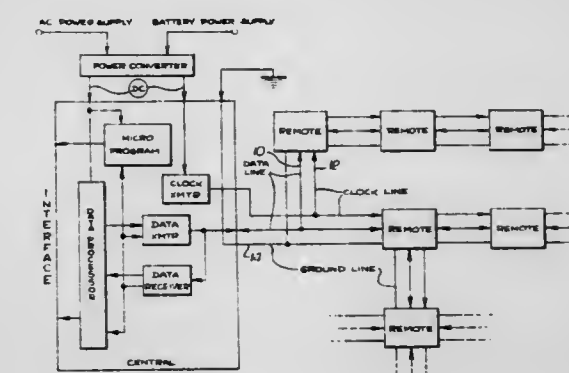
METHOD AND APPARATUS FOR DATA TRANSMISSION
Robert D. Schull, Mission Viejo, and Richard Y. Ichinose, Placentia, both of Calif., assignors to American Multiplex Systems, Inc., Anaheim, Calif.

Continuation-in-part of Ser. No. 182,688, Sept. 22, 1971, abandoned. This application Sept. 12, 1972, Ser. No. 288,414

Int. Cl. H04q 11/00

U.S. Cl. 340—147 SY

18 Claims



Method and apparatus for multiplex data transmission wherein binary address messages in a first waveform are transmitted from a central station through a data line to a plurality of remote terminals and binary response messages indicating the status of parameter points at the remote terminal are transmitted in a second waveform from the remote terminals through the same data line to the central station or other remote terminals. Remote receiver means are provided for differentiating between the two binary message waveforms. A clock signal is generated at the central station for transmission through a clock line to the remote terminals to provide synchronous circuit operation and a power supply for the remote terminals.

3,828,320

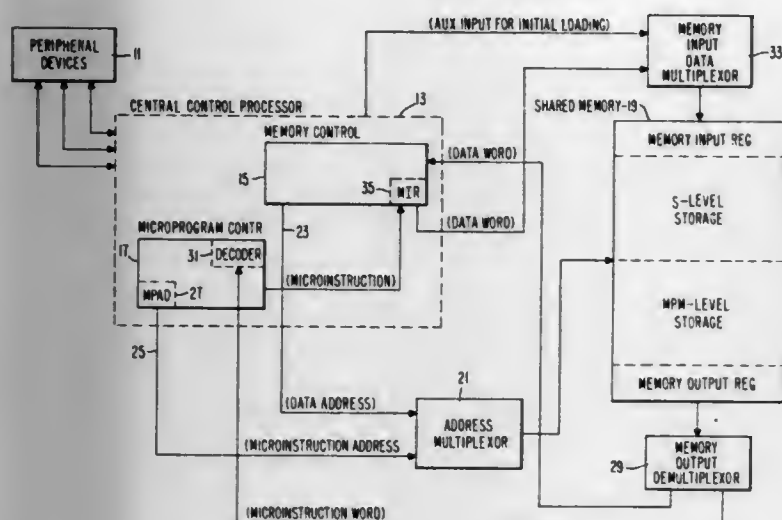
SHARED MEMORY ADDRESSOR

Bernard B. Dinerman, Norristown, and Franklin T. Schroeder, Exton, both of Pa., assignors to Burroughs Corporation, Detroit, Mich.

Filed Dec. 29, 1972, Ser. No. 319,533
Int. Cl. G06f 3/00

U.S. Cl. 340—172.5

4 Claims U.S. Cl. 340—172.5



An access unit for a shared memory for use in a microprogrammable processor is provided utilizing a multiplexing scheme. Two functionally different inputs, one for data, the other for microinstructions are exclusively gated to memory in synchronization with microprogram control timing cycles to permit accessing the memory at separate times via a single channel.

3,828,321

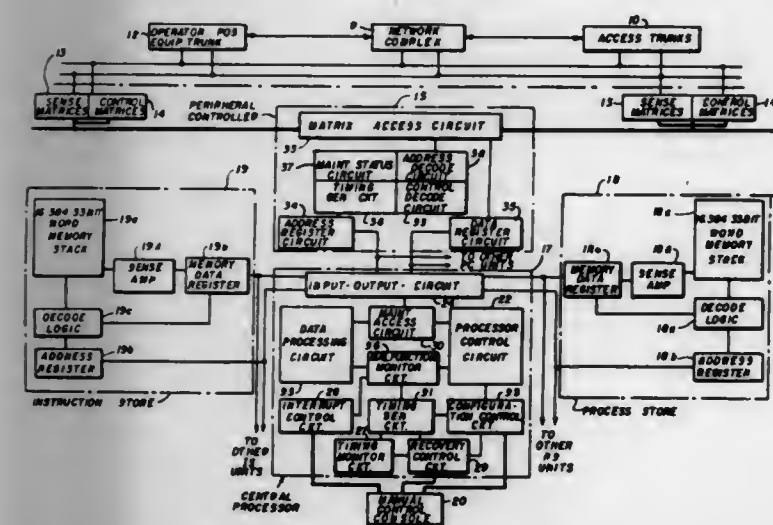
SYSTEM FOR RECONFIGURING CENTRAL PROCESSOR AND INSTRUCTION STORAGE COMBINATIONS

John A. Wilber, Elk Grove Village; Verner K. Rice, Wheaton, and Rolfe E. Buhrke, La Grange Park, all of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Mar. 15, 1973, Ser. No. 341,428
Int. Cl. G06f 11/00, 13/00

U.S. Cl. 340—172.5

11 Claims



A system is disclosed including duplicate copies of central processors and storage means for switching active copies of central processor and primary copies of instruction through all combinations to find a working combination. The reconfiguration may be effected either through a fixed wired recovery control circuit which changes state in predetermined sequence or, alternatively, under program control.

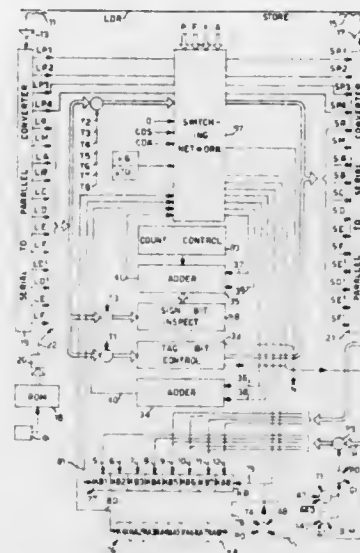
3,828,322

ELECTRONIC COMPUTERS

Giovanni De Sandre, Brugherio; Angelo Subrizi, Ivrea, and Franco Bretti, Are Di Caluso, all of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Torino, Italy

Filed Apr. 24, 1972, Ser. No. 246,735
Int. Cl. G06f 7/06

4 Claims



Disclosed is a technique for controlling the format of a number to be read out of a store register in such a manner that symbols can be interlaced with the number. Two registers are used, one register containing the number and the other, the symbols. The two registers are read into a single register which then contains the appropriate symbol-number combination. Also disclosed are techniques for changing from floating point to fixed point notation and techniques whereby the number of digits which are used in calculations can be limited. Further, a device for reading magnetic cards by means of an improved entrainment technique is disclosed.

3,828,323

DATA RECORDING AND PRINTING APPARATUS

Richard E. Heitman, Acton; Genio R. Arciprete, Lexington; Peter G. Martin, Arlington; Richard C. Norris, Belmont, and Richard A. Brisk, Somerville, all of Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed May 18, 1972, Ser. No. 254,727
Int. Cl. G11c 9/00, 21/00

U.S. Cl. 340—172.5

33 Claims



A word processing system having an input/output electric typewriter, a magnetic tape recorder/player and a shift register buffer memory. A subsidiary memory in the form of a pair of series-connected single character registers are pro-

3,828,325

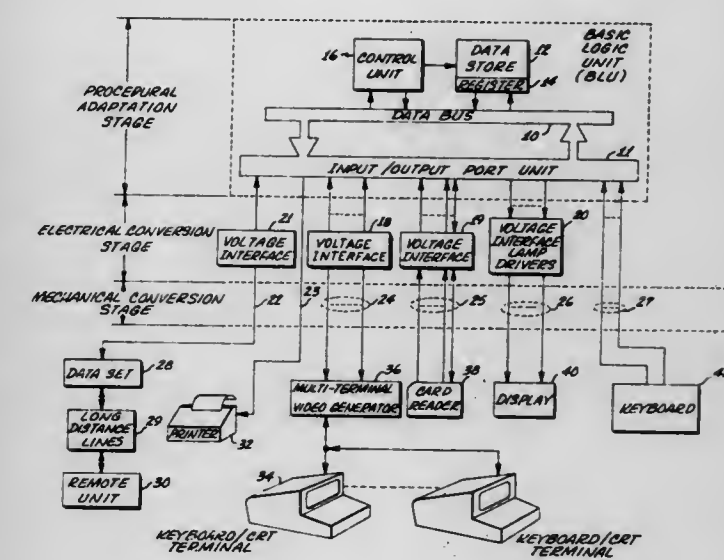
UNIVERSAL INTERFACE SYSTEM USING A CONTROLLER TO ADAPT TO ANY CONNECTING PERIPHERAL DEVICE

John P. Stafford; Allen B. J. Cuccio, both of Oklahoma City, Okla., and J. Arthur Johnson, Syracuse, N.Y., assignors to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Feb. 5, 1973, Ser. No. 329,491
Int. Cl. G06f 3/00, 3/14

U.S. Cl. 340—172.5

16 Claims



A universal interface system includes a number of identical bidirectional input and output port leads, with groups of leads being identified under program control to drive each connecting peripheral device according to the devices' procedural interface requirements. Peripheral devices are serviced at the appropriate time to accept or send data information either serially by activating one port or in parallel by activating the number of port leads required to sample all data bits at one time. Each port is addressed separately and activated for transmitting or receiving data information signals from and to a common data bus. The ports are serviced according to a priority scheme for interrupting the basic controller. Any and all interrupts can be program masked by the controller.

3,828,326

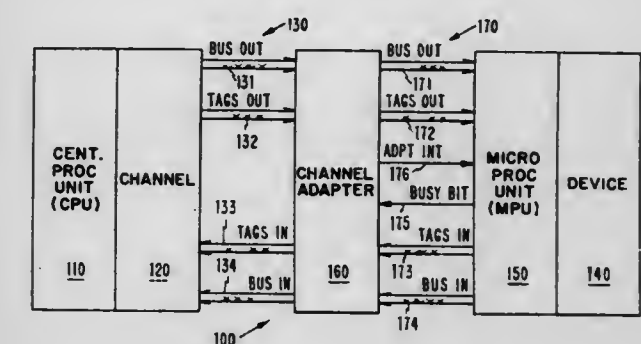
ADAPTER FOR INTERFACING A PROGRAMMABLE CONTROLLER TO A DATA PROCESSOR CHANNEL

Kenneth W. Cash, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 18, 1973, Ser. No. 352,376
Int. Cl. G06f 3/00

U.S. Cl. 340—172.5

9 Claims



A programmable data processing system includes a memory and a stack organized data processor which executes procedures stored in the memory and stacks records of execution of the various procedures into stack storage areas in the memory. Signalling means produce interrupt signals including interrupt signals indicating a system failure. The data processor is responsive to a plurality of time spaced-apart interrupt signals for recursively using a primary interrupt handling procedure. That is, each execution of the primary interrupt handling procedure is interruptible. The record of execution of the primary interrupt handling procedure is stacked into whichever stack area happens to be allocated to the interrupted procedure. In the event of particular types of system failures, each time the data processor attempts to use the primary interrupt handling procedure, an interrupt signal is produced and data processor again attempts to use the primary interrupt handling procedure. An up-down counter records the number of successful and unsuccessfully attempted recursive uses of the primary interrupt handling procedure. After the up-down counter reaches a predetermined count, the data processor terminates attempting to use the primary interrupt handling procedure and begins to execute a secondary interrupt handling procedure.

An adapter interfaces a computer channel to a single controller normally capable of both controlling a device and meeting the channel response requirements. The adapter detects times when the controller cannot communicate with the channel, inhibits this function of the controller, and itself carries out an altered channel communication procedure in simple logic circuits.

3,828,327

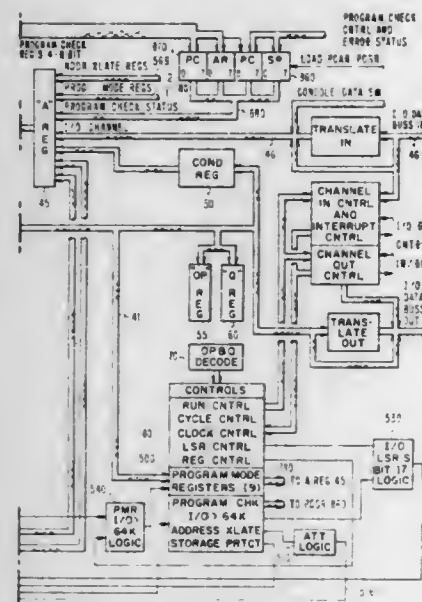
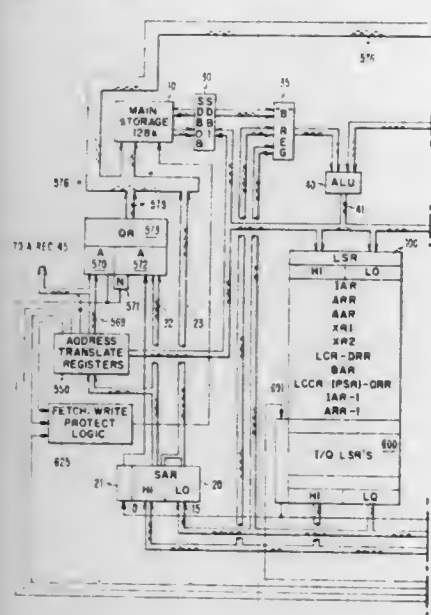
SIMPLIFIED STORAGE PROTECTION AND ADDRESS
TRANSLATION UNDER SYSTEM MODE CONTROL IN A
DATA PROCESSING SYSTEMNeil C. Berglund; John W. Kerr, and Jerome U. Petrie, all of
Rochester, N.Y., assignors to International Business
Machines Corporation, Armonk, N.Y.

Filed Apr. 30, 1973, Ser. No. 356,006

Int. Cl. G06f 9/18, 9/20

U.S. Cl. 340-172.5

22 Claims



Improved mode control is provided for a computer system whereby system mode can change for each asynchronously occurring interrupt. Mode control includes the functions of privileged instructions, masked interrupts, storage protection and address translation for expanded storage. Any combination of these functions can be active at any instant. Each interrupt level can select its own type of addressing control and with respect to any cycle of operation within the interrupt routine.

3,828,328

MAGNETIC THIN FILM MEMORY

Kiyoo Ito, Kodaira, Japan, assignor to Hitachi, Ltd., Tokyo,
Japan

Filed Dec. 29, 1971, Ser. No. 213,250

Claims priority, application Japan, Dec. 29, 1970, 45-
125961

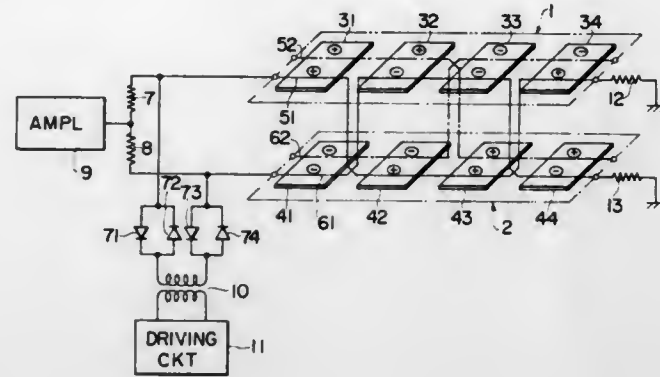
Int. Cl. G11c 7/02

U.S. Cl. 340-174 NC

8 Claims

In the magnetic thin film memory of the one-cross-per-bit type, in which the mutually opposite pair of digit lines com-

prised in a pair of memory arrays each including a plurality of memory planes are connected commonly to a sense amplifier and, during writing of information digit currents with mutually reverse polarities are supplied to the pair of digit lines;



a magnetic thin film memory characterized in that part of the digit lines of one of said memory arrays is disposed to run by way of at least one memory plane of the other memory array.

3,828,329

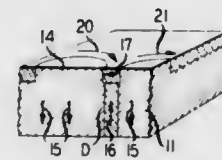
SINGLE WALL DOMAIN PROPAGATION
ARRANGEMENTRobert Frederick Fischer, Livingston; James Clayton North,
and Raymond Wolfe, both of New Providence, all of N.J., as-
signors to Bell Telephone Laboratories Incorporated, Mur-
ray Hill, N.J.

Filed July 24, 1972, Ser. No. 274,443

Int. Cl. G11c 11/14

U.S. Cl. 340-174 TF

9 Claims



A field access, single wall domain propagation arrangement is defined by a pattern of ion implanted regions in a domain supporting layer. Either positive or negative magnetostriction effects result in changing pole patterns for domain movement in response to a magnetic field reorienting in the plane of domain layer.

3,828,330

CYLINDRICAL DOMAIN PROGATION PATTERN

Franz Parzefall, Arget, Germany, assignor to Siemens Aktien-
gesellschaft, Berlin and Munich, Germany

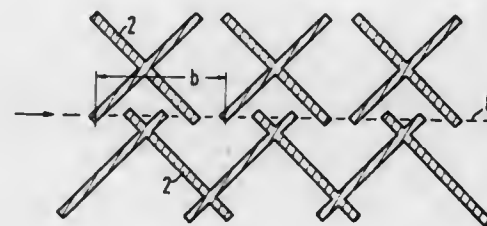
Filed Jan. 19, 1973, Ser. No. 325,154

Claims priority, application Germany, Apr. 7, 1972,
2216864

Int. Cl. G11c 11/14, 19/00

U.S. Cl. 340-174 TF

9 Claims



A magnetic storage device of the so-called cylindrical domain type, employing a layer of magnetic garnet or mag-
netic orthoferrite, has a manipulation pattern composed of a

nickel-iron alloy applied thereto in a predetermined pattern to define paths along which the cylindrical domains may be shifted, under the influence of a magnetic field rotating in the plane of the layer. The pattern is formed of elongate rectangular elements, which are disposed at an angle of 45° relative the direction of the paths taken by the cylindrical domains, and the elongate pattern elements overlap or cross each other, in scissors fashion, allowing the use of a rotating magnetic field of higher frequency.

3,828,331

DEMODULATOR FOR ANGULARLY RELATED SIGNALS
Herman H. Brooks, Goleta, Calif., assignor to Sunstrand Data
Control, Inc., Redmond, Wash.

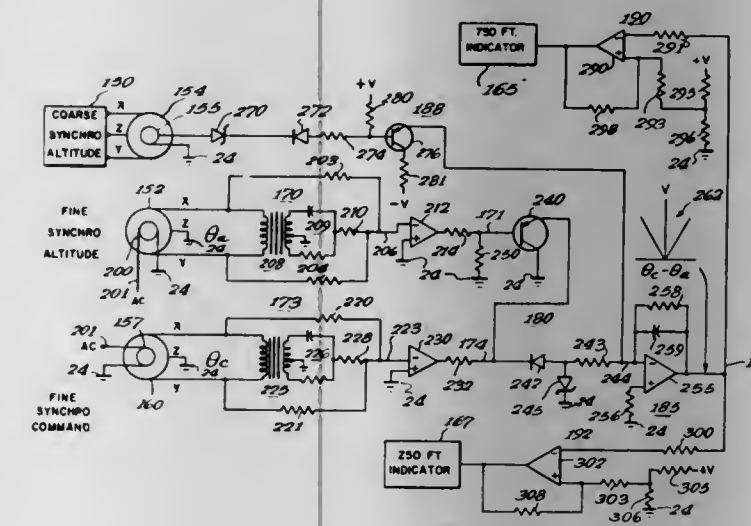
Division of Ser. No. 858,486, Sept. 16, 1969, Pat. No.

3,639,850. This application July 20, 1971, Ser. No. 164,468

Int. Cl. G08c 19/38

U.S. Cl. 340-179

6 Claims



A demodulator for signals angularly related to the position of a rotor of a synchro or resolver uses, in one embodiment, only one transformer in a circuit for subtracting, adding, and phase shifting the signals to produce a single signal phase shifted in proportion to the rotor angle. In another embodiment, a transformerless circuit uses an operational amplifier to derive the phase shifted signal. The phase shifted signal is compared with a reference signal to produce a rectangular wave with a variable duty cycle, which is integrated to produce a DC voltage representing the rotor angle. A pair of the circuits are used in an altitude warning system connected to synchros for the actual altitude and the command altitude of an aircraft. The derived phase shifted signals from both synchros are compared to produce a rectangular wave with a variable duty cycle, which is integrated and compared with voltages representing preselected altitudes to indicate when the aircraft is at those altitudes.

3,828,332

TEMPERATURE RESPONSIVE CIRCUIT HAVING A
HIGH FREQUENCY OUTPUT SIGNALAndre Rekal, Scarborough, Ontario, Canada, assignor to
Honeywell Inc., Minneapolis, Minn.

Filed June 19, 1972, Ser. No. 263,805

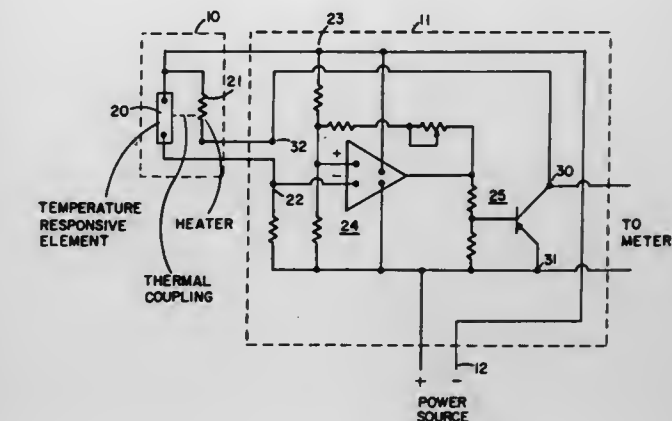
Int. Cl. G08b 21/00; G05d 23/00

U.S. Cl. 340-227 R

2 Claims

A temperature sensing switching circuit producing a high frequency output signal indicative of the ambient temperature of a temperature responsive resistance element, having a large change in resistance over a small change in temperature. The switching circuit controls a feedback heater for artificially

heating the resistance element to produce the small change in temperature to reverse the operation of the switching circuit.



The repeated switching of said switching circuit provides an output signal which has a frequency indicative of the ambient temperature.

3,828,333

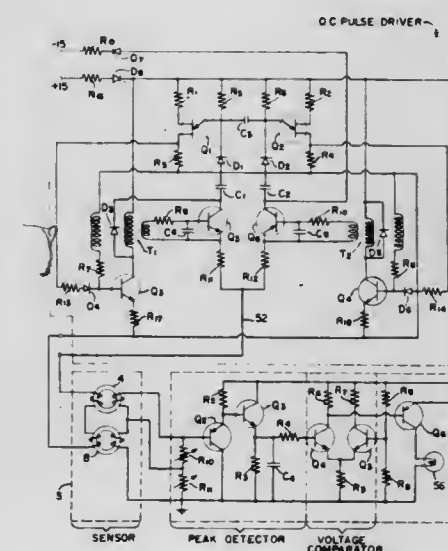
PRESSURE SENSING AND INDICATING SYSTEM
Paul M. Bryant, Aptos, Calif., assignor to International
Technical Industries, Santa Cruz, Calif.

Filed Dec. 16, 1971, Ser. No. 208,650

Int. Cl. G08b 21/00

U.S. Cl. 340-236

3 Claims



A pressure sensing and indicating system for use in conjunction with a vessel pressurized to an initial pressure with a fluid medium and operative to sense and signal the pressure within the vessel includes a pair of transducers for compensating for temperature variations.

3,828,334

SYSTEM FOR REMOTE MONITORING OF TOWER
LIGHTING SYSTEMLeonard M. Wallace, Ames, Iowa, assignor to Iowa State
University Research Foundation, Inc., Ames, Iowa

Filed Apr. 13, 1973, Ser. No. 351,097

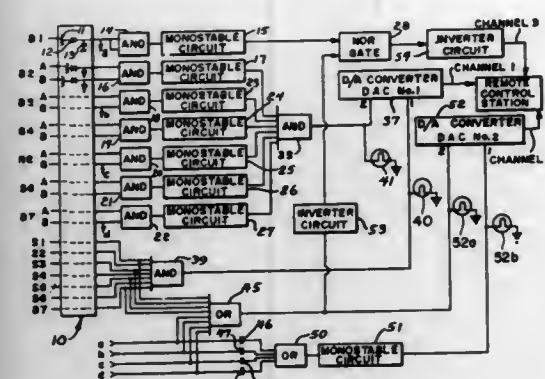
Int. Cl. G08b 21/00

U.S. Cl. 340-251

9 Claims

A tall tower equipped with a plurality of flashing beacon,

lights and continuous obstruction lights is sensed at a remote location for indicating whether all lights are in proper working



order, and if they are not, the system identifies the fault to the remotely located operator.

3,828,335

RADIO-WAVE DETECTOR FOR DISCOVERING THE MOVEMENT OF PERSONS OR OBJECTS IN A CONFINED SPACE

Gaston Raoul Salmel, 15 avenue des Arlantes, Saint-Maur, Val de Marne, France

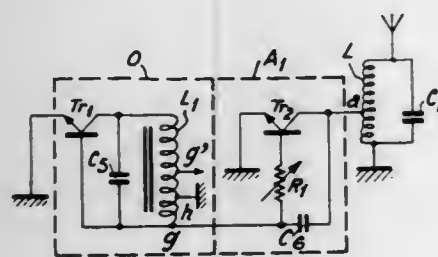
Filed Mar. 15, 1973, Ser. No. 341,744

Claims priority, application France, Mar. 21, 1972, 72.9800

Int. Cl. G08b 13/26

U.S. Cl. 340—258 C

11 Claims



Movements of persons or articles in a monitored space are detected by a change in the effective capacitance between an antenna and an associated counterpoise defining that space, the antenna being energized by an oscillator whose tank circuit is tuned to a predetermined radio frequency f''_e . The oscillator works into a tuned monitoring circuit resonant at a different frequency f_o , a capacitive feedback path extending from a tap on the inductive branch of that circuit to an input of the oscillator for applying thereto a control voltage which shifts its operating frequency from f''_e to a value f_e closer to f_o . This shift in oscillator voltage is reduced by a lowering of the control voltage through a further detuning of the monitoring circuit by a movement to be detected, with resulting change of the operating frequency to a value f'_e between f''_e and f_e whereby the change in output voltage due to such detuning is intensified. A load circuit connected to the monitoring circuit includes a normally de-energized relay whose energization in response to the aforementioned voltage change produces a voltage drop across a supply resistor common to the relay and the oscillator whereby this voltage change is further stepped up.

3,828,336 INTRUSION ALARM SYSTEM WITH IMPROVED AIR TURBULENCE COMPENSATION

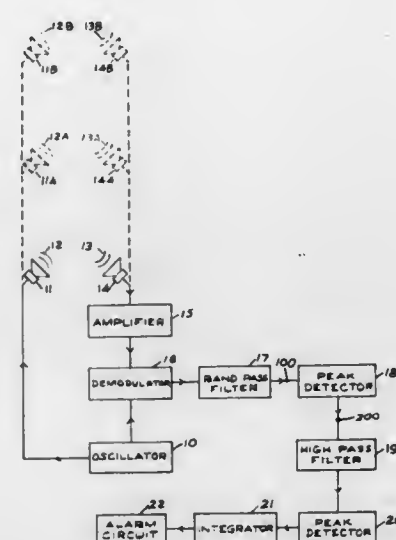
Donald P. Massa, Cohasset, Mass., assignor to Massa Corporation, Hingham, Mass.

Filed July 12, 1973, Ser. No. 378,562

Int. Cl. G08b 13/16

U.S. Cl. 340—258 A

13 Claims



This ultrasonic intrusion alarm system responds to the Doppler shift caused by moving intruders. Instantaneous changes in amplitude are detected by peak detectors. The detected signals are filtered to reduce the sensitivity to low frequency air turbulence.

3,828,337

NOISE REJECTION CIRCUITRY

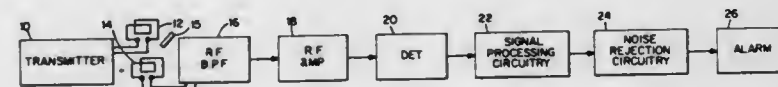
George Jay Lichtblau, 425 E. 63rd St., New York, N.Y. 10021

Filed Aug. 20, 1973, Ser. No. 389,728

Int. Cl. G08b 13/24

U.S. Cl. 340—280

14 Claims



Noise rejection circuitry suitable for detection of a resonant tag in an electronic security system especially adapted for use in retail stores. True signals are distinguished from noise by sensing the absence of one or more pulses in an expected chain of pulses produced by the resonant tag. A parallel noise inhibit function is provided by a staircase generator and comparator which prevent an alarm indication in response to received fast pulse noise.

3,828,338

SAFE

Tomezo Kato, 172 Motoderakaji, Sendai, Japan

Continuation of Ser. No. 877,210, Dec. 22, 1969, abandoned.

This application Feb. 28, 1972, Ser. No. 229,926

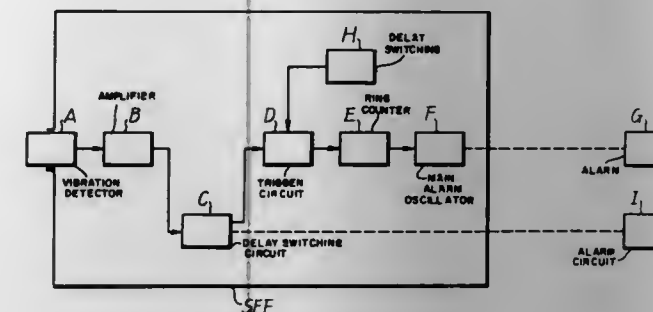
Int. Cl. G08b 13/22

U.S. Cl. 340—261

3 Claims

A safe having means for detecting a vibration caused by an intruder and producing a signal in response to the detected

vibration, electric circuit means operating in response to the vibration when it lasts for more than a certain period of time,



and means actuated by the electric circuit means to raise an alarm.

3,828,339

CRANE OVERLOAD SAFETY DEVICE

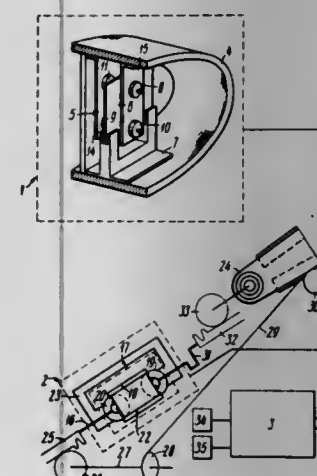
Savely Solomonovich Schedrovitsky, 13 Parkovaya ulitsa, 25, korpus 1, kv. 12; Dmitry Matveevich Mash, Leninskaya ulitsa, 14, kv. 34; Zoya Ivanovna Golovko, Chongrsky bulvar, 22, korpus 2, kv. 50; Leonid Fomich Goncharevich, Dmitrovskoe shosse, 145, korpus 3, kv. 36; Alexei Pavlovich Lebedev, Kursovoi pereulok 1, kv. 58; Jury Mikhailovich Dubrovnikov, Angarskaya ulitsa, 27, kv. 35, all of Moscow, and Nikolai Karlovich Suut, ulitsa Revolutsii, 31, kv. 7, Topki Kemerovskoi oblasti, all of U.S.S.R.

Filed May 14, 1973, Ser. No. 360,026

Int. Cl. G08b 19/00

U.S. Cl. 340—267 C

8 Claims



An overload safety device designed to variable-reach cranes is disclosed, said device comprising a load pick-up and a reach pick-up. The load pick-up has a means for sensing the load being hoisted and the reach pick-up has a means for sensing the reach or operating radius of the crane boom. Each pick-up also has a converter to change the mechanical movement of its respective sensing means into electrical signals. The converter of at least one pick-up has a screen mounted on the respective sensing means and also has primary and secondary coils which are wound on cores installed on one of said sensing means and are positioned so that there is a gap between them for the screen to freely move therein when load and reach changes take place. The primary coils are inserted in the circuit of a sine-wave generator. The secondary coils are wound differentially and connected to a detector.

3,828,340

INTRUSION ALARM ACTUATING APPARATUS

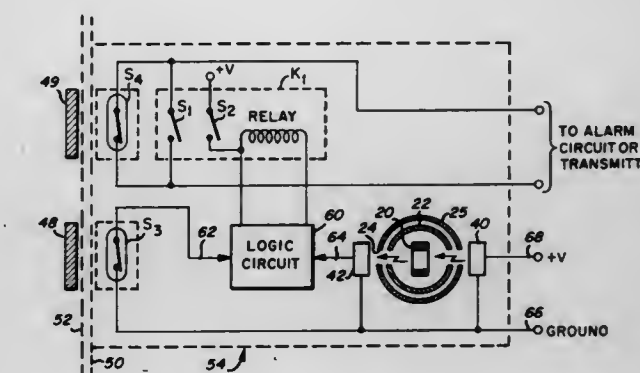
Richard H. Bauer, Jr., Los Altos; David A. Schuldt, Mountain View, and Edward K. Shum, Saratoga, all of Calif., assignors to D-TEK, Mountain View, Calif.

Filed June 15, 1973, Ser. No. 370,378

Int. Cl. G08b 13/08

U.S. Cl. 340—276

10 Claims



A sensing apparatus enclosed in a small attractive housing for attachment to standard door locking hardware or the like and including simple magnetic door closure sensing switches, a photosensitive locking mechanism detector and compact electronic logic circuitry combined in such a manner as to simultaneously detect the door closure and condition of the locking mechanism, and then actuate either an external hard-wired alarm circuit or the radio frequency transmitter of a wireless alarm system should the door be opened without first being unlocked in the normal manner. The alarm system is thus in effect armed and disarmed by the normal locking and unlocking of the door.

3,828,341

ALARM APPARATUS FOR FACILITATING THE DETECTION OF AN UNAUTHORIZED REMOVAL OF PROPERTY

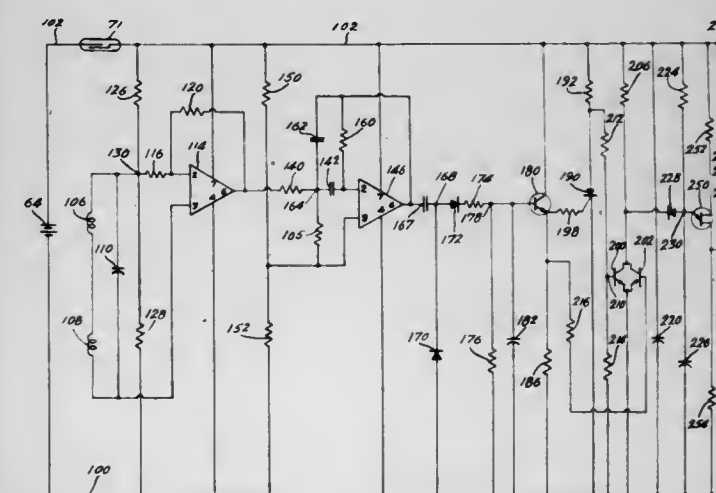
Charles H. Carter, Jr., East Bradford, Chester County, and Stewart M. Newfeld, Philadelphia, both of Pa., assignors to ICI America Inc., Wilmington, Del.

Filed Jan. 20, 1972, Ser. No. 219,349

Int. Cl. G08b 21/00

U.S. Cl. 340—280

7 Claims



An alarm packet of simulated paper currency contains alarm means and alarm-operating circuitry such that, when the packet is removed through an exit irradiated with a local field, the alarm means will thereby be automatically actuated to produce an alarm, as by the release of smoke, tear gas, or staining materials, or by producing alarm sounds, etc. Such a packet is placed with the currency given to a bank robber, and facilitates his apprehension and/or recovery of the loot. The electrical circuitry for actuating the alarm is constructed to prevent operation of the alarm until the packet has been taken

into the local field and removed therefrom, so that it will not operate if the robber lingers in the exit area within the field. Preferably the removal of the packet from the local field initiates a timing cycle for further delaying actuation of the alarm means, and provision is made so that if the packet is returned to the local field at the exit before the timing cycle is completed the alarm means will not be actuated and the timing cycle will be reset. The field is preferably an alternating magnetic near-field radiation having a frequency of less than about 3,200 Hz, the preferred frequency range being about 400 to about 1,600 Hz.

3,828,342

MONITORING AND DISPLAY APPARATUS

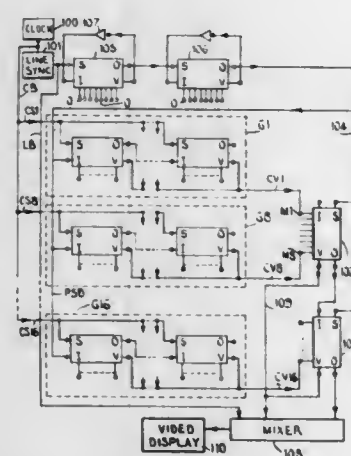
Christopher Philip Burton, Alderley Edge, England, assignor to International Computers Limited, London, England
Filed Feb. 17, 1972, Ser. No. 227,208

Claims priority, application Great Britain, Feb. 17, 1971, 4804/71

Int. Cl. G06f 3/14

U.S. Cl. 340—324 AD

3 Claims



Apparatus is described for displaying, on a display device having a number of spatially separated indicating positions such as a television monitor screen or a matrix of display lamps, the states of a number of elements, each elemental state being primarily indicated by signals applied over one of a number of indicating lines. The lines are connected to display converter modules which are arranged to scan the lines in sequence to produce a composite output signal which is applied to the display device. Where the number of lines is large, the serialisation of the line states may be done in stages, the first stage being the derivation of a separate composite signal from each of a number of groups of lines. The second stage then consists of deriving a final output signal by scanning the first-stage composite signals in turn.

3,828,343

OPERATIONAL METHOD AND APPARATUS FOR THE REPRESENTATION OF CHARACTERS

Heinrich Baumgartner, and Manfred Schultze, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Nov. 30, 1972, Ser. No. 310,764

Claims priority, application Germany, Feb. 29, 1972, 2209573

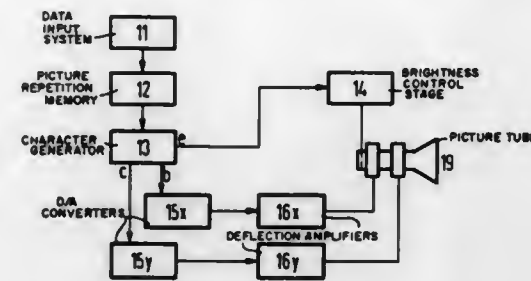
Int. Cl. G06f 3/14

U.S. Cl. 340—324 A

4 Claims

A method and apparatus for the representation of characters which consist of character segments wherein data are fed in the form of data words by a character input system and a read only memory storing character segment data and a deflection unit are employed to cause deflection of a cathode ray, ink jet or the like of a character producing device in accordance with the character segment data, and wherein a bit is stored in a storage cell and its binary value depends on control data which are stored in the read only memory. Address words

are supplied to the read only memory which are formed partially of the words of the character input system and partially of the bit stored in the storage cell. Among the characters which must be represented in a timely succession, those will be represented whose address words are formed of words of the character input system and of the first value of the stored



3,828,344

DOUBLE DENSITY TO NRZ CODE CONVERTER

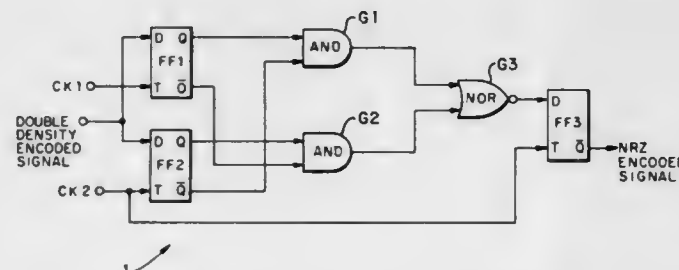
William F. Schwartz, Marlton, and Robert W. Butler, Cherry Hill, both of N.J., assignors to GTE Information Systems, Incorporated, Moorestown, N.J., by said Schwartz

Filed Jan. 2, 1973, Ser. No. 320,454

Int. Cl. H03k 13/24

U.S. Cl. 340—347 DD

6 Claims



A data converting apparatus for converting double density encoded signals to NRZ (non-return-to-zero) encoded signals. A double density encoded signal is gated into a first flip-flop by a first train of clock pulses and also into a second flip-flop by a second train of clock pulses phase displaced with respect to the first train of clock pulses. For each transition in the double density encoded signal from a first level to a second level, for example, from a low level to a high level, a first AND gate coupled to the two flip-flops produces an output pulse. For each transition in the double density encoded signal from the second level to the first level, that is, from the high level to the low level, a second AND gate coupled to the two flip-flops produces an output pulse. The output pulses produced by the two AND gates are inverted and combined by a NOR gate into a single pulse train and applied to a third flip-flop together with the second train of clock pulses. The pulse train applied by the NOR gate to the third flip-flop is delayed by a slight amount with respect to the second train of clock pulses due to propagation delays inherent in the data converting apparatus due to the presence of the first and second flip-flops, the AND gates, and the NOR gate.

The third flip-flop operates to sample the levels of the single pulse train received from the NOR gate at the times of occurrence of the leading edges of successive clock pulses in the second train of clock pulses. Each time that the pulse train received from the NOR gate is low at the time of occurrence of the leading edge of a clock pulse in the second train of clock pulses, the third flip-flop assumes a first state, for exam-

ple a "1" state. Each time that the pulse train received from the NOR gate is high at the time of occurrence of the leading edge of a clock pulse in the second train of clock pulses, the third flip-flop assumes a second state, for example, a "0" state. The switching of the third flip-flop between its two states is determined by the levels of the pulse train received from the NOR gate at the times of occurrence of the leading edges of successive clock pulses in the second train of clock pulses.

3,828,345

AMPLIFIER BUFFERED RESISTANCE NETWORK
DIGITAL TO ANALOG AND ANALOG TO DIGITAL
CONVERTER SYSTEM

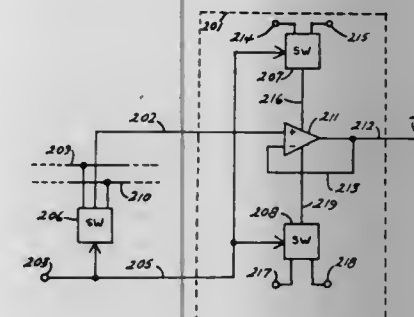
Tenny D. Lode, 3270 Cherryridge Rd., Cherry Hills Village, Colo. 80110

Filed Jan. 4, 1973, Ser. No. 320,933

Int. Cl. H03k 13/04

U.S. Cl. 340—347 DA

6 Claims



Voltage follower amplifiers are used between the voltage switches and the resistor network of an otherwise conventional parallel resistor network digital to analog converter. A principal advantage is that errors due to the internal resistances of the electronic voltage switches are greatly reduced.

3,828,346

PCM TRANSMISSION SYSTEM

Daniel Emile Forster, Suresnes, and Jean Perrault, Loube-ciennes, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

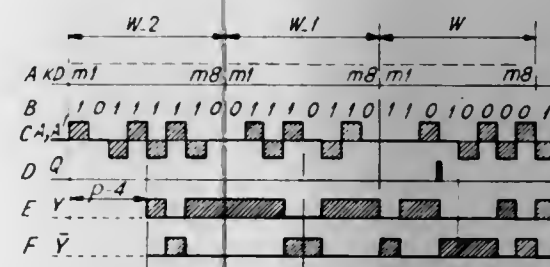
Filed Mar. 14, 1973, Ser. No. 341,221

Claims priority, application France, May 30, 1972, 72.19338

Int. Cl. H04l 15/00; G06f 5/00

U.S. Cl. 340—347 DD

20 Claims



This relates to a PCM transmission system employing alternate polarity (bipolar) transmission having a reduction of disparity. This is accomplished by employing the techniques of U.S. Pat. No. 3,300,774 and copending application Ser. No. 252,112, filed May 10, 1972, now U.S. Pat. No. 3,783,383, issued Jan. 1, 1974. In U.S. Pat. No. 3,300,774 the disparity is reduced by complementing a normal bipolar PCM word if the number of binary 1 bits in a word are less than $n/2$, where n is equal to the number of bits per PCM word. An extra bit is added to the complemented word to indicate to the receiver that the word has been complemented. This extra digit reduced the amount of information bits, or required an in-

crease in transmission rate to maintain the same amount of information bits. This disadvantage was overcome by the above cited copending application by providing two adjacent pulses of the same polarity to indicate a complemented PCM word which is a violation of the alternate polarity rule as found in bipolar PCM. This latter arrangement has the disadvantage that a D.C. component greater than zero is introduced. The present invention overcomes this disadvantage by providing adjacent polarity violations with opposite polarity, for instance, one polarity violation is positive and the next adjacent polarity violation is negative.

3,828,347

ERROR CORRECTION FOR AN INTEGRATING ANALOG
TO DIGITAL CONVERTER

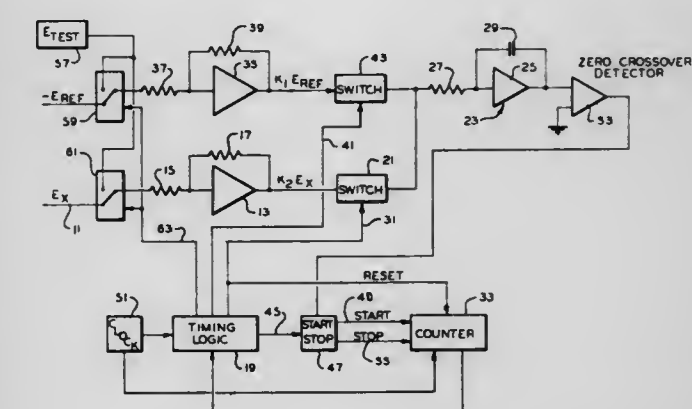
Sidney M. Sacks, Monsey; Arnold J. Brand, Parsippany, and William R. Slump, Glen Rock, all of N.J., assignors to The Singer Company, Little Falls, N.J.

Filed May 24, 1973, Ser. No. 358,171

Int. Cl. H03k 13/00

U.S. Cl. 340—347 AD

7 Claims



An error correction circuit for use in an integrating analog to digital converter in which a test conversion is first made to establish a time period proportional to the error, which time period is then used as the fixed integrating time in a subsequent actual conversion.

3,828,348

SYSTEM FOR MINIMIZING MULTIPLE TIME AROUND
ECHOS IN A COHERENT-ON-RECEIVE-DOPPLER
RADAR

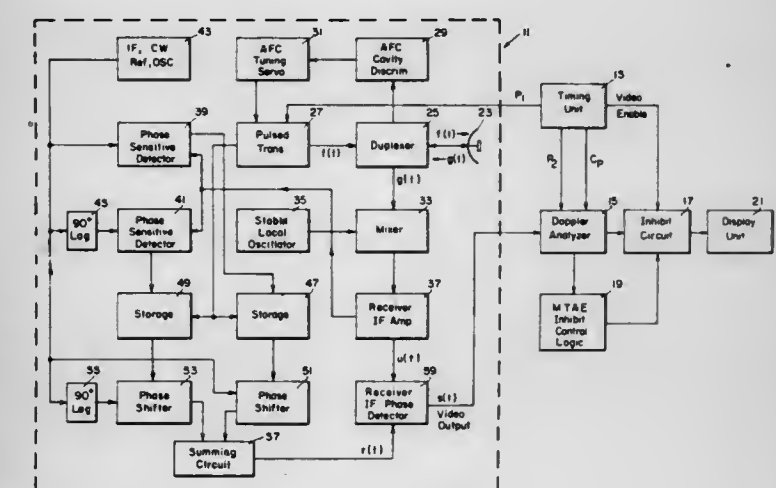
John S. Murray, Jr., Berkeley, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 21, 1971, Ser. No. 191,537

Int. Cl. G01s 9/42

U.S. Cl. 343—7 A

11 Claims



Target returns at the output of the doppler filters of the coherent-on-receive-doppler radar receiver are selectively applied to first and second pluralities of comparators. Those tar-

get returns above a first predetermined threshold level are applied through the first plurality of comparators to an inhibit circuit. Those target returns above a second predetermined threshold level are selectively applied from the second plurality of comparators to a plurality of gate circuits which in turn drive a control circuit to disable the inhibit circuit when a multiple time around target return is sensed and to enable the inhibit circuit to pass coherent moving target returns to a display unit when no multiple time around target return is sensed.

3,828,349

STACKED BEAM RADAR

Bernard Laurenceau, Paris, France, assignor to Thomson-CSF, Paris, France

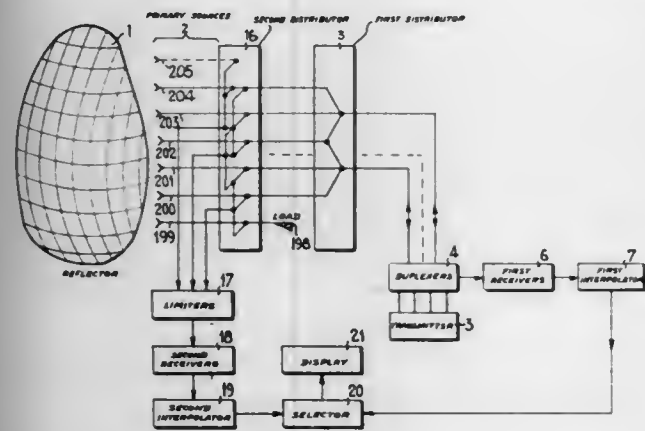
Filed Nov. 17, 1972, Ser. No. 307,555

Claims priority, application France, Dec. 1, 1971, 71.43096

Int. Cl. G01s 9/04

U.S. Cl. 343-12 SB

17 Claims



A stacked-beam radar comprising a vertical array of fixed horn antennas includes a distributor which produces a group of overlapping radiation patterns in the elevational plane. The emitted waves being plane-polarized, the targets encountered by the outgoing beams normally reflect energy which contains cross-polarized components. In order to retrieve the energy of these latter components each horn antenna works into a set of waveguide-type couplers which separate the two modes of polarization to provide a supplementary group of overlapping radiation patterns interspersed with those of the first group.

3,828,350

AUTOMOBILE ANTENNA INSTALLATION

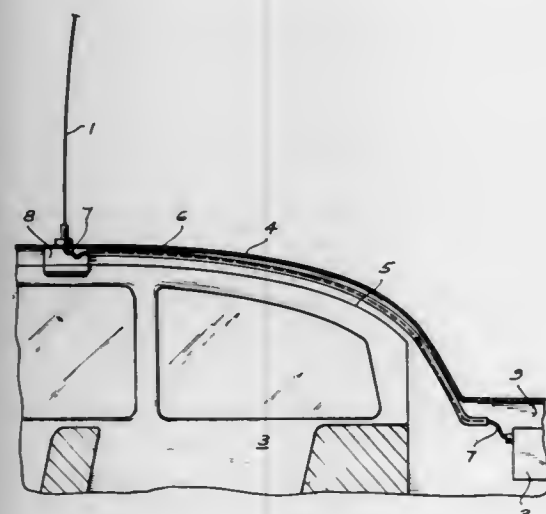
William G. Kastner, St. James, Mo., assignor to The Raymond Lee Organization, New York, N.Y., a part interest

Filed Mar. 27, 1973, Ser. No. 345,261

Int. Cl. H01q 1/32

U.S. Cl. 343-715

2 Claims



An antenna installation for coupling an antenna to radio equipment in a vehicle comprises electrically conductive

metal tubing affixed to the roof between the roof and the head liner of the vehicle, extending between the antenna and the radio equipment and adapted to accommodate an electrical conductor therein.

3,828,351

BROADBAND SPIRAL ANTENNA

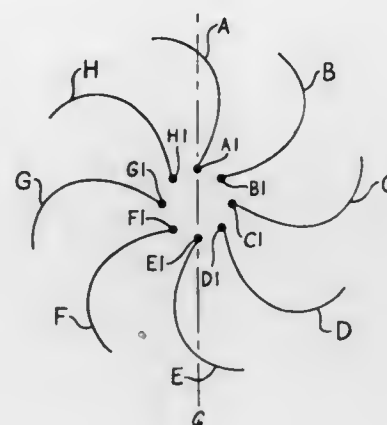
George N. Voronoff, San Francisco, Calif., assignor to Textron Inc., Belmont, Calif.

Filed July 23, 1973, Ser. No. 381,707

Int. Cl. H01q 1/36

U.S. Cl. 343-740

3 Claims



A frequency independent spiral antenna having a plurality of pairs of arms energized with currents equal to the sine of the respective terminal position angles of the arms for substantially removing bandwidth limitations.

3,828,352

ANTENNA SYSTEM EMPLOYING TOROIDAL REFLECTORS

Serge Drabowitch, and Bernard Daveau, both of Paris, France, assignors to Thomson-CSF, Paris, France

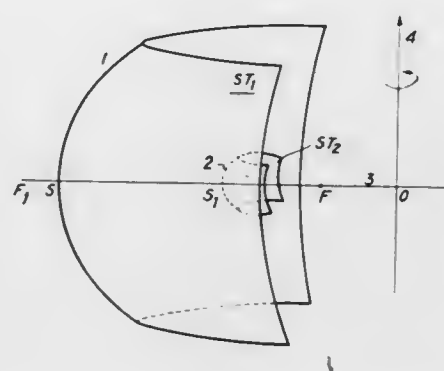
Filed Aug. 3, 1972, Ser. No. 277,670

Claims priority, application France, Aug. 9, 1971, 71.29057

Int. Cl. H01q 19/10

U.S. Cl. 343-837

3 Claims



A microwave antenna consists of two toroidal reflectors turning their concave sides toward a common axis of rotation, i.e., a main reflector farther from that axis and an ancillary reflector closer thereto. The main reflector has a parabolic generatrix with a focal point situated on a point between the axis and the vertex of the ancillary reflector in a common equatorial plane of the two reflectors; the ancillary reflector has a hyperbolic generatrix whose foci substantially coincide with the focal point and with the vertex of the parabolic generatrix.

3,828,353

INTEGRALLY-WOUND ANTENNA HELIX-COILFORM

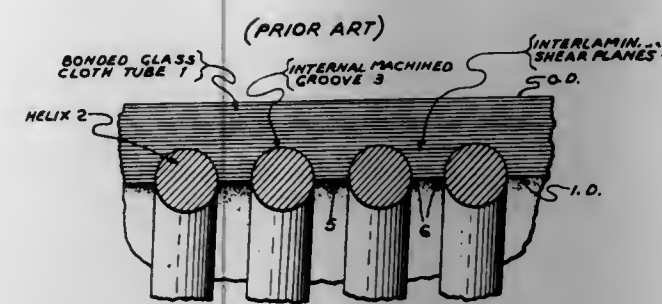
Charles P. Majkrzak, Nutley, and Michael S. Polgar, Oceanport, both of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Feb. 5, 1973, Ser. No. 329,776

Int. Cl. H01q 1/36

U.S. Cl. 343-873

3 Claims



This concerns the fabrication of an integrally-wound helix-coilform assembly for an antenna of, for example, the high voltage and high power tunable helix-cylinder (inductance/capacitance) monopole type. Preassembled on a collapsible, cylindrically-shaped mandrel are a wound helix of controlled pitch, an end coupling to which the helix is affixed at one end, and a binding post securing the other end of the helix wire. After the entire assembly is enclosed in a plastic covering such as teflon shrink tubing or adhesive-backed tape helically wound to a predetermined tension and pattern, cycloaliphatic epoxy resin-saturated glass fibers are wound in a carefully controlled manner over the entire assembly in a predetermined pattern and then cured. The tensioned plastic covering together with the controlled winding of glass fibers provides for the interlaminar shear faces of the coilform structure type to be formed as convolutions between the helix turns, thus giving rise to an integrally-constructed assembly far superior both structurally and electrically.

3,828,354

INK DROP CHARGE COMPENSATION METHOD AND APPARATUS FOR INK DROP PRINTER

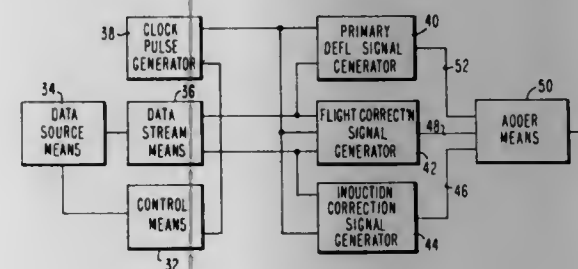
Howard T. Hilton, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 27, 1973, Ser. No. 401,330

Int. Cl. G01d 18/00

U.S. Cl. 346-1

9 Claims



An ink drop printer for correcting drop-to-drop interactions by controlling the charge applied to a drop being formed based on the position to which the drop is to be deflected on the print medium, the charge placed on a selected number of previously formed drops and the charge to be placed on a selected number of drops to be formed.

3,828,355

CONTINUOUS INK-JET RECORDING

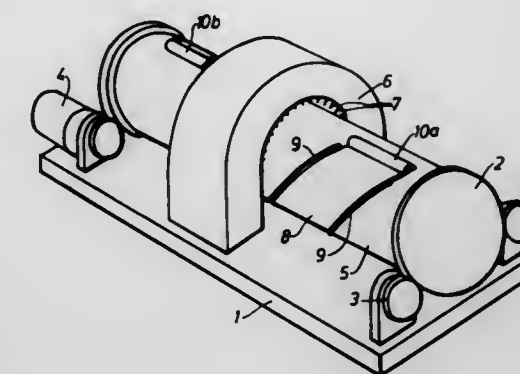
Richard Wick, Munich; Rudolf Meyer, and Klaus Hoffmann, both of Leverkusen, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 18, 1973, Ser. No. 398,334

Claims priority, application Germany, Sept. 23, 1972, 2246797

U.S. Cl. 346-75

20 Claims



The ink-jet recording system comprises a rotor on whose cylindrical surface rests a recording support, and an annular ink-jet nozzle system which is stationary in relation to the rotor. At least one supply roll and one take-up roll for the sheet-form recording support are arranged on the rotor. These rolls are connected to the rotor so that the recording support makes both a rotary and a transitory movement in operation relative to the stationary nozzle system. In a preferred embodiment the rotor in the form of a solid cylinder and the recording support is guided externally over the surface of the rotor. In this embodiment, the stationary annular nozzle system is arranged over the surface of the rotor.

3,828,356

PLURAL CHANNEL RECORDER

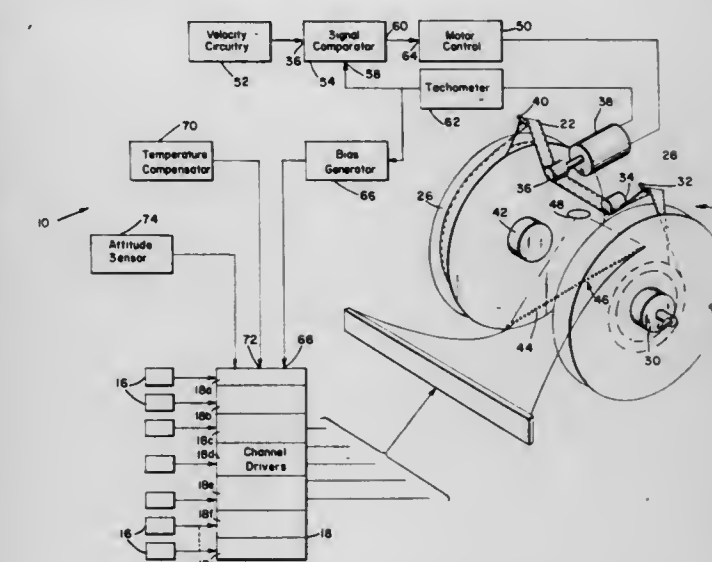
William C. Wiers, Ann Arbor, Mich., assignor to Automation Industries, Inc., Los Angeles, Calif.

Filed Dec. 27, 1971, Ser. No. 211,887

Int. Cl. G01d 9/38

U.S. Cl. 346-108

7 Claims



A nondestructive testing system is disclosed which is adapted to scan a workpiece and generate large quantities of data relating to the characteristics of the workpiece. In addition, a recorder is disclosed for accumulating and storing the large quantities of data generated by the nondestructive testing system. The recorder utilizes a continuously moving photographic film and a plurality of light-emitting diodes for exposing a plurality of channels or tracks of data on the film. A cross-correlator is also disclosed for optically comparing or

correlating the data recorded on the film with preselected references or standards. The cross-correlator includes an optical system which optically performs a spatial Fourier transform of the recorded data, compares or correlates the spatial Fourier transform with a corresponding spatial Fourier transform of the reference or standard and then performs an inverse spatial transform of the results of the comparison.

3,828,357

PULSED DROPLET EJECTING SYSTEM

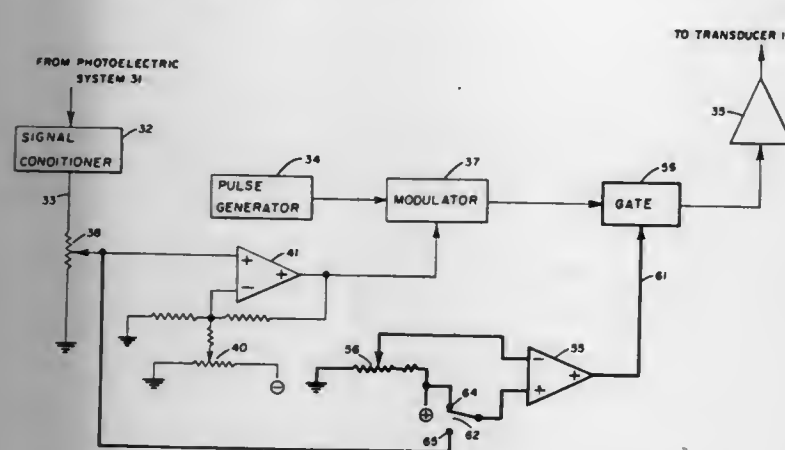
William E. Koebitz, Lyndhurst, Ohio, assignor to Gould Inc., Chicago, Ill.

Filed Mar. 14, 1973, Ser. No. 341,208

Int. Cl. G01d 15/18

U.S. Cl. 346—140

4 Claims



A facsimile system is described which employs a pulsed ink droplet ejecting system as the record marking means. In such a system, undesired droplets are sometimes deposited on record areas that should receive no ink. The cause of this irregularity is explained and circuit modifications are described which eliminate the undesired marking.

3,828,358

EXPOSURE APPARATUS FOR THE DIRECT PHOTOGRAPHIC PRODUCTION OF A PHOSPHOR SCREEN ON THE FACE-PLATE OF A COLOR PICTURE TUBE

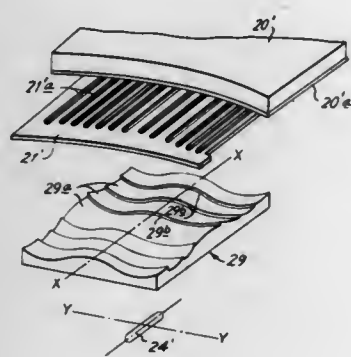
Senri Miyaoka, Fujisawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Nov. 12, 1973, Ser. No. 415,219

Int. Cl. G03b 27/00

U.S. Cl. 354—1

8 Claims



In an exposure apparatus or lighthouse for use in the direct photographic production of a phosphor screen on the face-plate of a color picture tube or kinescope of the type having a mask with apertures therein associated with the phosphor screen, and in which the face-plate and mask are held in predetermined relation to each other during the selective exposure through apertures of the mask of a photosensitive layer on the face-plate by means of light rays passing through a correcting lens from a light source; such light source is linear so that light rays from locations along the light source reach each

selectively exposed portion of the photosensitive layer, and the correcting lens, whose effective surface consists of a plurality of refractive surface sections having discontinuous borderlines, is arranged with such discontinuous borderlines extending at angles to the direction of the linear light source for avoiding the casting of shadows on the photosensitive layer by the discontinuous borderlines.

3,828,359

TEMPLATE FOR A GRAPHIC FORMING DEVICE

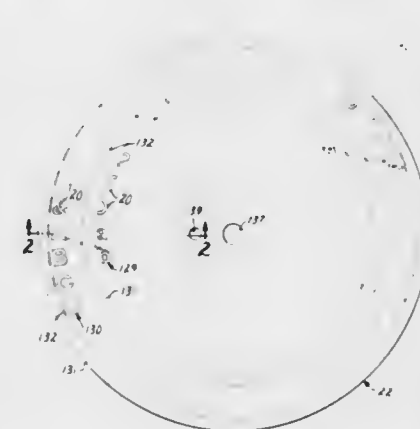
Peter J. Vogelgesang, Roseville; Jerry L. Alexander, St. Paul Park, and Frank C. Lunquist, New Brighton, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 26, 1972, Ser. No. 318,256

Int. Cl. B41b 17/32

U.S. Cl. 95—85

17 Claims



A template useful in a device for forming visible graphics on a radiation activated composite strip material. The template comprises a radiation transmissive supporting member with a thin highly reflective coating. The coating has at least one sharply defined opening to define a window corresponding to a graphic to be formed through which window the strip material may be irradiated in a graphic pattern. The coating may also have an opening to afford viewing the portion of the strip material adjacent the window to facilitate spacing graphics sequentially formed along the strip material.

3,828,360

COMBINATION CAMERA AND DEVELOPER TANK

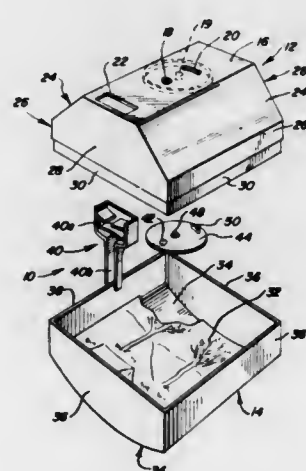
Allen B. Dicus, River Forest, Ill., assignor to DKL Industries, Inc., Chicago, Ill.

Filed May 10, 1973, Ser. No. 359,189

Int. Cl. G03b 17/50

U.S. Cl. 354—89

10 Claims



A combination camera and developer tank formed by a pair of separate light tight sections allows film sheets to be exposed and developed therein without the addition of further apparatus. A film sheet is held in the camera by flexing it against

a concave surface in the rear section of the camera. The front section of the camera contains an aperture and rotatable shutter which aligns a pin-hole defined therein with the aperture to expose the film. Processing solutions are introduced into the camera through a light tight liquid passage which directs the solutions to the film surface. The camera is formed with a convex rear exterior to provide a rocking surface for distributing the solutions across the surface of the film sheet.

3,828,361

SPEECH COMPRESSOR-EXPANDER

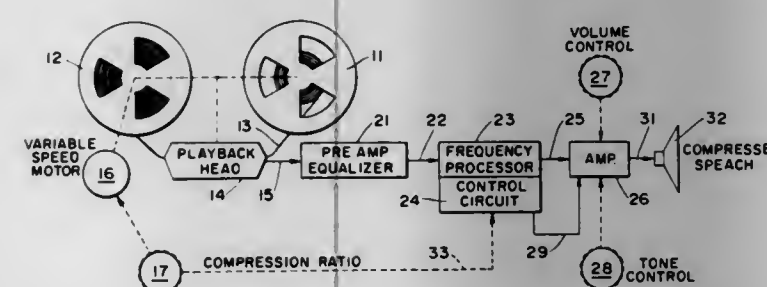
Murray M. Schiffman, Westport, Conn., assignor to Cambridge Research and Development Group, Westport, Conn.; Sanford D. Greenberg, Washington, D.C.; DT Liquidating Partnership, New York, N.Y. and Murray M. Schiffman, Westport, Conn.

Continuation-in-part of Ser. No. 171,571, Aug. 13, 1971, Pat. No. 3,786,195. This application Feb. 12, 1973, Ser. No. 331,550

Int. Cl. G11b 15/46, 15/18, 19/28

U.S. Cl. 360—25

15 Claims



An improved speech compressor provides frequency transformation by passing speech signals through an analog shift register and controlling the shift rate of the register with a linearly varying periodicity with noise cancellation of the characteristic noise in the shift registers and the control of the sample period and output blanking to improve the signal output characteristic and minimize noise components therein. The system provides a single compression-expansion manual control which varies the record reproducer transport speed and the rate of change of the linearly varying pulse periodicity to provide a unitary control for selecting the corresponding compression ratio and automatically modifies the sample period to optimize the signal and discard intervals as the selected compression or expansion ratio is changed.

3,828,362

BINARY SIGNAL DATA DETECTION

Sik-Kee Au, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 26, 1973, Ser. No. 327,034

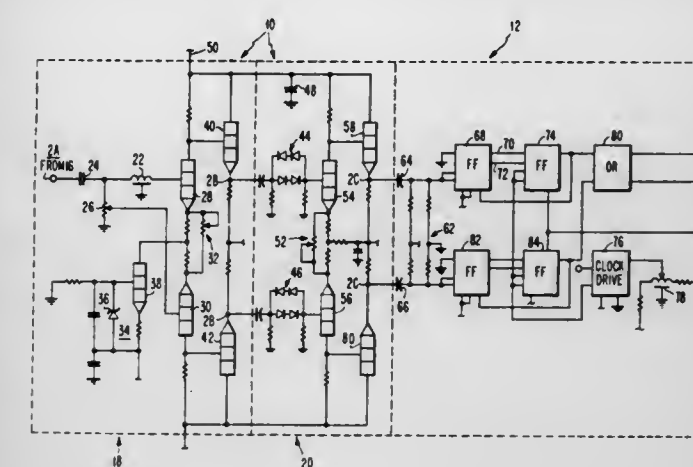
Int. Cl. G11b 5/44

U.S. Cl. 360—45

13 Claims

A binary data signal is detected by shaping readout data in a pulse slimmer using a single delay line, and by center line

clipping to eliminate high frequency noise from the output signal developed by the pulse slimming channel. The shaped



signal is then separated, according to polarity, to achieve amplitude detection.

3,828,363

CASSETTE CONTAINING TWO HUBS CARRYING A MAGNETIC TAPE, FOR USE WITH RECORDING/REPRODUCING APPARATUS

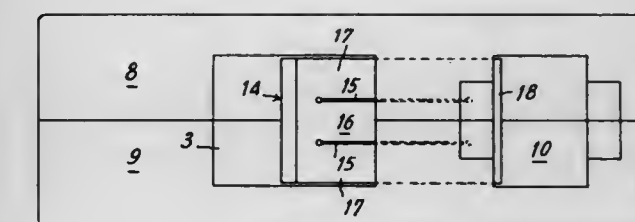
Stanley Brice Lascelles Somers, 5 Quai du Mont Blanc, Geneva, Switzerland

Filed May 9, 1973, Ser. No. 358,700

Int. Cl. G11b 15/04, 23/04

U.S. Cl. 360—60

5 Claims



A cassette, containing magnetic tape carried between two hubs, to be used in a recording/reproducing apparatus, comprising two built in slides each of which is capable of being operated independently from the exterior of the cassette so that it can be placed at will in one or other of two positions which respectively block or unblock hollow spaces provided in the cassette, so that each slide when the cassette is placed in the apparatus either prevents or permits a control lever to enter into the hollow space, the position of this lever controlling the possibility of the erase and record heads being operative and the reproduce head being inoperative, or vice versa.

DESIGNS

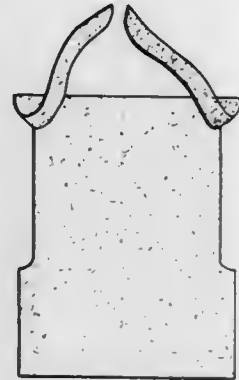
AUGUST 6, 1974

232,276

BIB OR SIMILAR ARTICLE

Lars Marten Andersson, Molnlycke, Inga Gunilla
Margaretha Strandell, Goteborg, and Eric Harry Ove
Svard, Lerum, Sweden, assignors to Molnlycke AB,
Goteborg, Sweden
Filed Apr. 30, 1973, Ser. No. 355,486
Term of patent 14 years
Int. Cl. D2—02

U.S. Cl. D2—226



232,277

SHOE

John Vargo, Cleveland, Ohio, assignor to International
Seaway Trading Corporation, Cleveland, Ohio
Filed Apr. 13, 1972, Ser. No. 243,927
Term of patent 14 years
Int. Cl. D2—04

U.S. Cl. D2—310

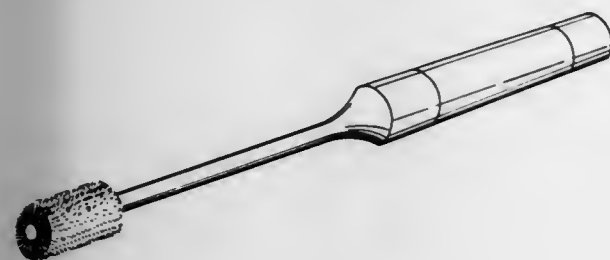


232,278

TOOTHBRUSH

Richard J. Gallo, 23 The Keel, The Moorings,
East Islip, N.Y. 11730
Filed May 11, 1972, Ser. No. 252,540
Term of patent 14 years
Int. Cl. D4—02

U.S. Cl. D4—15

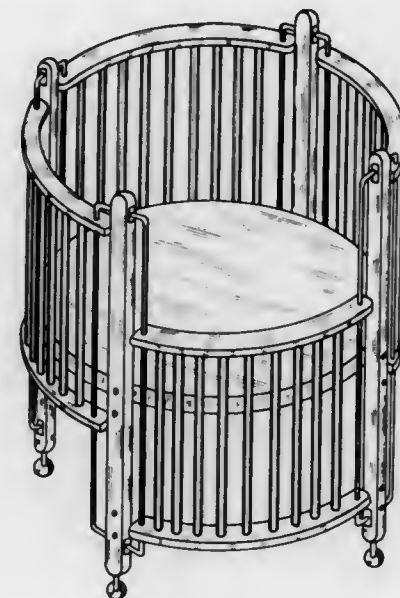


232,279

CIRCULAR CRIB

Taylor F. White, Longwood, Fla.
(11004 Cedar Creek Road, Louisville, Ky. 40229)
Filed Aug. 21, 1972, Ser. No. 282,472
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D6—16

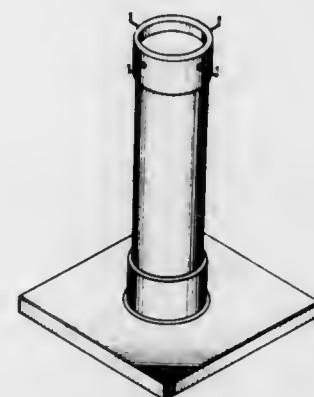


232,280

HOUSEHOLD CADDY

Neely O. Bingham, 1108 S. Ike,
Monahans, Tex. 79756
Filed Sept. 8, 1972, Ser. No. 287,212
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—28



AUGUST 6, 1974

U. S. PATENT OFFICE

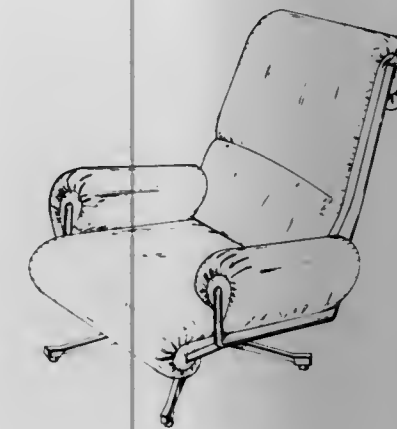
331

232,281

ARMCHAIR

Alex Strassle, Kirchberg, Switzerland, assignor to Inter-
collection Development SA, Kirchberg, Switzerland
Filed Jan. 8, 1973, Ser. No. 321,953
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D6—31

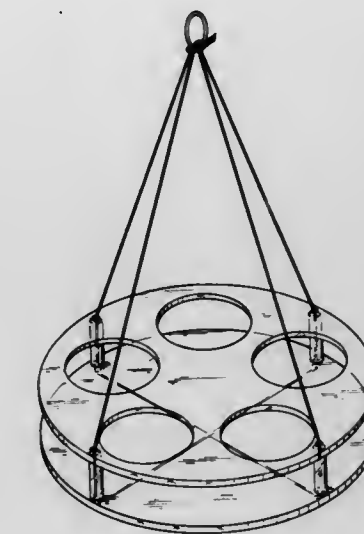


232,283

HOLDER FOR FLOWER POTS OR SIMILAR ARTICLES

Edward A. Wagschal, 21 E. 62nd St.,
New York, N.Y. 10021
Filed Aug. 30, 1972, Ser. No. 284,925
Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D6—114

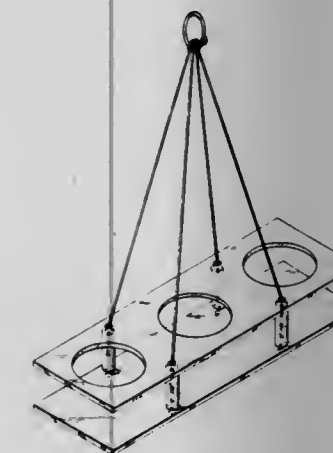


232,282

HOLDER FOR FLOWER POTS OR SIMILAR ARTICLES

Edward A. Wagschal, 21 E. 62nd St.,
New York, N.Y. 10021
Filed Aug. 30, 1972, Ser. No. 284,924
Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D6—114

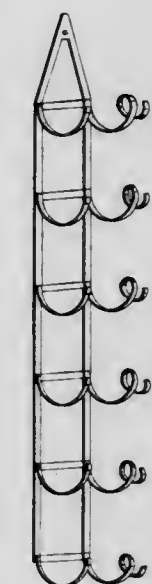


232,284

WINE RACK OR SIMILAR ARTICLE

Ronald Keith Shuck, 351 Dorantes Ave.,
San Francisco, Calif. 94116
Filed Mar. 16, 1973, Ser. No. 342,254
Term of patent 14 years
Int. Cl. D6—04

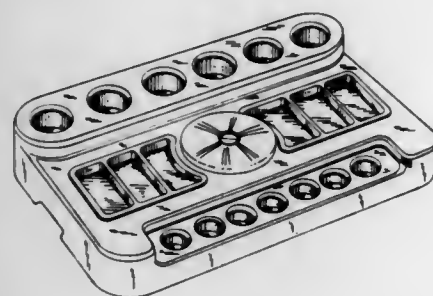
U.S. Cl. D6—114



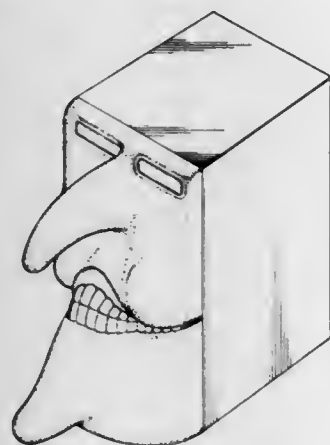
232,285
**COMBINED SHELF, RACK AND TELEPHONE
 RECEIVER SUPPORT**
 Obed Fischer, Westport, S. Dak.
 (Rte. 1, Box 17, Aberdeen, S. Dak. 57401)
 Filed Mar. 28, 1972, Ser. No. 239,007
 Term of patent 3½ years
 Int. Cl. D6—04
 U.S. Cl. D6—136



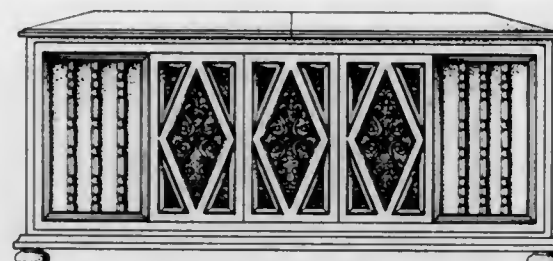
232,286
**COMBINED PORTABLE BAR AND REMOVABLE
 STAND THEREFOR**
 Jerry H. Galuten, Elmhurst, N.Y., assignor to Placix
 Corporation, Woodside, N.Y.
 Filed Jan. 9, 1973, Ser. No. 322,139
 Term of patent 14 years
 Int. Cl. D6—04
 U.S. Cl. D6—144



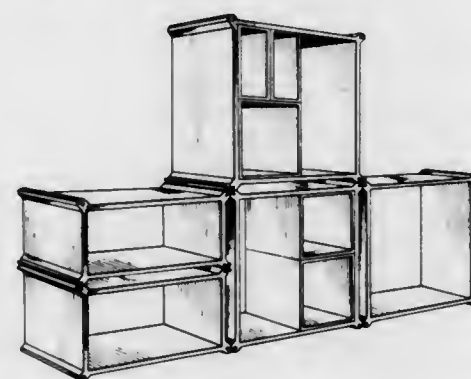
232,287
CHEST OF DRAWERS OR SIMILAR ARTICLE
 Joseph H. Forrester, 9903 Melgar Drive,
 Whittier, Calif. 90601
 Original design application June 22, 1970, Ser. No.
 23,579. Divided and this application July 3, 1972,
 Ser. No. 268,438
 Term of patent 14 years
 Int. Cl. D6—04
 U.S. Cl. D6—152



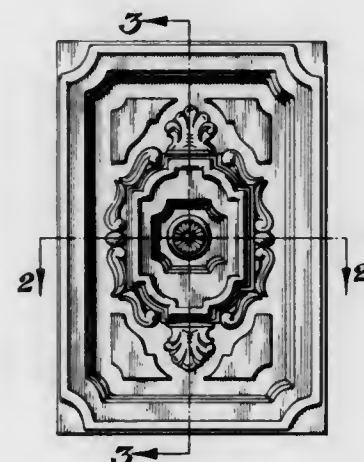
232,288
CABINET
 Robert Levine, Roslyn, N.Y., assignor to Capehart
 Corporation, New York, N.Y.
 Filed July 19, 1972, Ser. No. 273,137
 Term of patent 14 years
 Int. Cl. D6—04
 U.S. Cl. D6—154



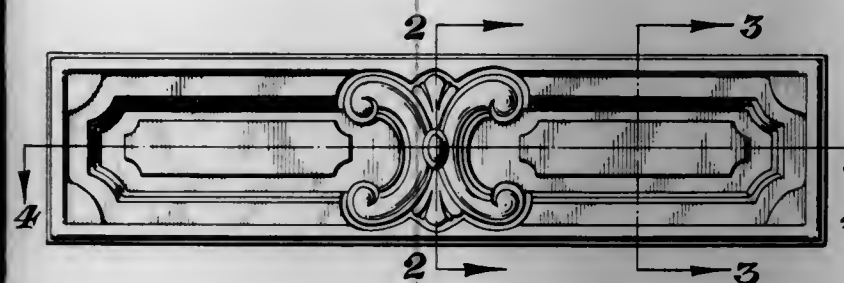
232,289
SHELF UNIT
 Billy Moretine, Chicago, Ill., assignor to International
 Design Corporation, Chicago, Ill.
 Original design application Nov. 10, 1971, Ser. No.
 197,643, now abandoned. Divided and this applica-
 tion May 30, 1973, Ser. No. 365,047
 Term of patent 14 years
 Int. Cl. D6—04
 U.S. Cl. D6—18 G



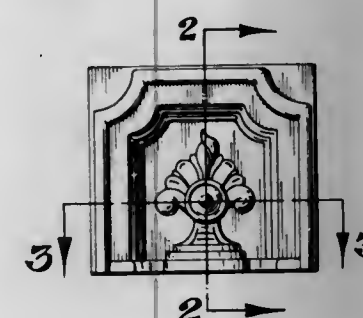
232,290
FURNITURE PANEL OR THE LIKE
 Richard M. Chapin, 2200 Pinewood Circle,
 Charlotte, N.C. 28211
 Filed Jan. 2, 1973, Ser. No. 319,975
 Term of patent 7 years
 Int. Cl. D6—03
 U.S. Cl. D6—193



232,291
FURNITURE DRAWER FRONT OR THE LIKE
 Richard M. Chapin, 2200 Pinewood Circle,
 Charlotte, N.C. 28211
 Filed Jan. 2, 1973, Ser. No. 320,513
 Term of patent 7 years
 Int. Cl. D6—06
 U.S. Cl. D6—193



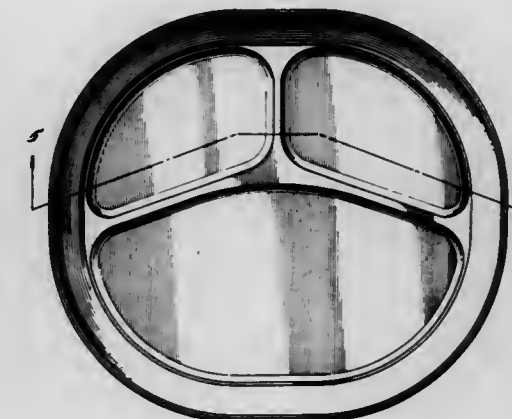
232,292
FURNITURE PANEL OR THE LIKE
 Richard M. Chapin, 2200 Pinewood Circle,
 Charlotte, N.C. 28211
 Filed Jan. 2, 1973, Ser. No. 320,514
 Term of patent 7 years
 Int. Cl. D6—06
 U.S. Cl. D6—193



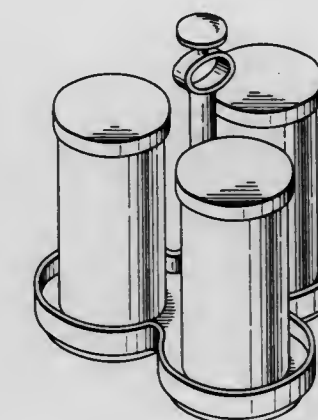
232,293
NESTABLE PLATE
 Hubert E. Christian and David W. Lee, Phoenix, Ariz.,
 assignors to Dart Industries Inc., Los Angeles, Calif.
 Filed May 21, 1973, Ser. No. 362,352
 Term of patent 14 years
 Int. Cl. D7—01
 U.S. Cl. D7—1



232,294
DIVIDED PLATE
 Hubert E. Christian and David W. Lee, Phoenix, Ariz.,
 assignors to Dart Industries Inc., Los Angeles, Calif.
 Filed May 21, 1973, Ser. No. 362,353
 Term of patent 14 years
 Int. Cl. D7—01
 U.S. Cl. D7—27



232,295
SERVER FOR INSTANT COFFEE OR THE LIKE
 Edward Vujnovic, 99 Ashland Ave.,
 Buffalo, N.Y. 14222
 Filed Feb. 5, 1973, Ser. No. 329,724
 Term of patent 14 years
 Int. Cl. D7—06
 U.S. Cl. D7—58

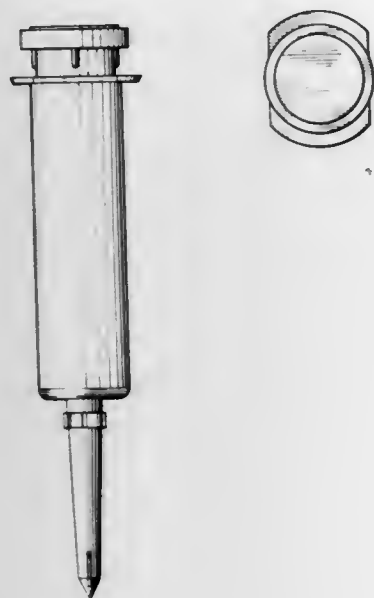


232,296

FOOD SEASONING SYRINGE

Samuel L. McNair, Overland Park, Kans., assignor to
Dazey Products Company, Kansas City, Mo.
Filed Oct. 17, 1972, Ser. No. 300,399
Term of patent 14 years
Int. Cl. D7—04

U.S. Cl. D7—106



232,298

COMBINED CLEANING HEAD AND NOZZLE

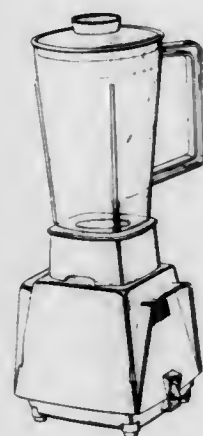
Judson O. Jones, Greenville, S.C., assignor to
Hydrotex Corporation
Filed Sept. 11, 1972, Ser. No. 287,683
Term of patent 14 years
Int. Cl. D15—05

U.S. Cl. D7—173

232,297
BLENDER

Jean Mantelet, Paris, France, assignor to Moulinex,
Societe Anonyme, Bagnolet, France
Filed June 1, 1972, Ser. No. 258,916
Claims priority, application France Dec. 3, 1971
Term of patent 7 years
Int. Cl. D7—04

U.S. Cl. D7—154

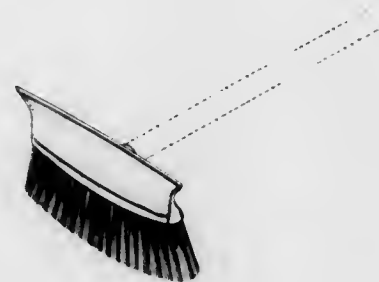


232,299

HEAD FOR COMBINATION SNOW BRUSH AND ICE SCRAPER

Maurice Epstein, 2623 Charney Road,
Cleveland, Ohio 44118
Filed Oct. 10, 1972, Ser. No. 295,877
Term of patent 14 years
Int. Cl. D7—05

U.S. Cl. D7—183



232,300

SCREW DRIVER WITH WIRE STRIPPER

Marvin J. Freed, 8 Leviton St., Tel Aviv, Israel
Filed Sept. 12, 1972, Ser. No. 288,352
Term of patent 14 years
Int. Cl. D8—05

U.S. Cl. D8—87

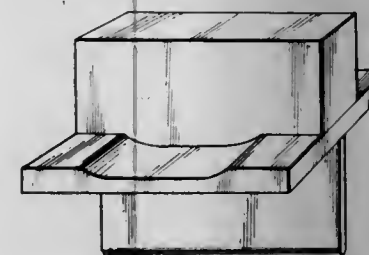


232,301

HAND MANIPULATABLE BLADE

Thomas P. O'Donnell, 220 Highland Blvd.,
Brooklyn, N.Y. 11207
Filed Dec. 27, 1971, Ser. No. 212,883
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—98

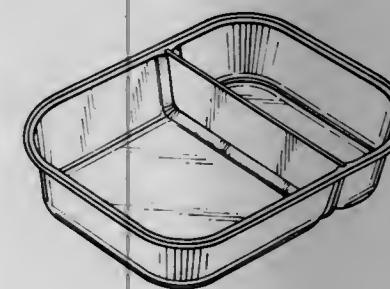


232,302

FOOD CONTAINER OR SIMILAR ARTICLE

Frank S. Lazure, Richmond, Va., assignor to Reynolds
Metals Company, Richmond, Va.
Filed Oct. 15, 1971, Ser. No. 189,557
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—219



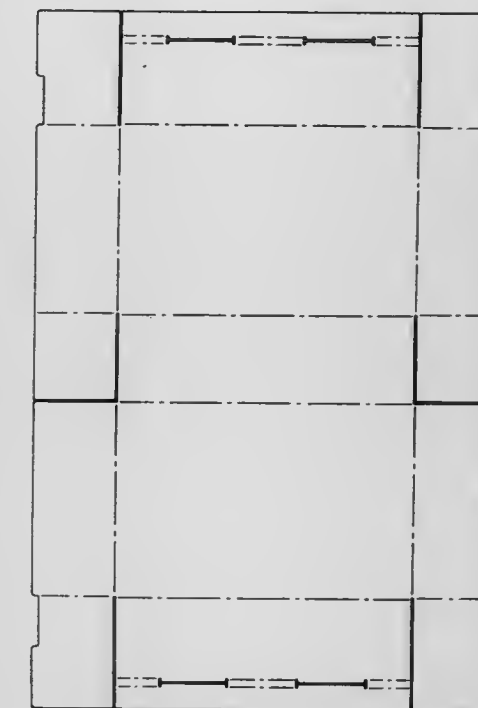
232,303

BOX BLANK

Robert A. Bamberg and Farris N. Duncan, West Monroe,
and Roger M. Floyd, Monroe, La., assignors to Olin-
kraft, Inc.

Filed Aug. 30, 1972, Ser. No. 285,008
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—245

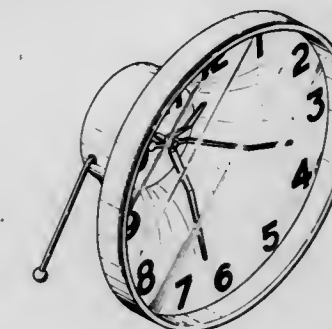


232,304

CLOCK OR SIMILAR ARTICLE

Mark Wallach, 220 E. 63rd St.,
New York, N.Y. 10021
Filed Oct. 1, 1971, Ser. No. 185,921
Term of patent 14 years
Int. Cl. D10—01

U.S. Cl. D10—22

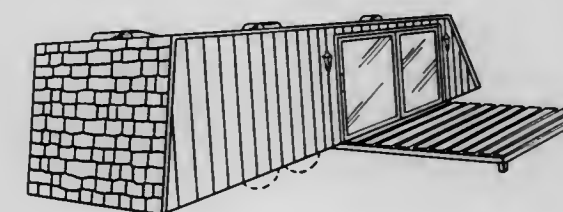


232,305

COMBINED MODULAR HOUSE TRAILER BODY AND PLATFORM

George Charles Innes, 508 Stafford Drive,
Elyria, Ohio 44035
Filed Aug. 9, 1971, Ser. No. 173,742
Term of patent 14 years
Int. Cl. D12—10

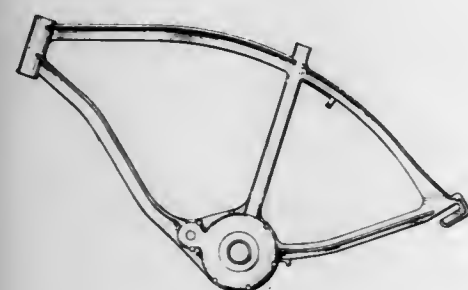
U.S. Cl. D12—103



232,306
BICYCLE FRAME

Alfred F. Bauer, Toledo, Ohio, assignor to N L Industries, Inc., New York, N.Y.
Filed July 26, 1972, Ser. No. 275,198
Term of patent 14 years
Int. Cl. D12—11

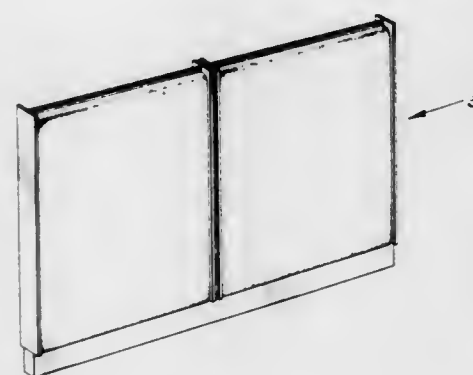
U.S. Cl. D12—111



232,308
WALL PARTITION

Edward Peter Totoonchie, Van Nuys, Calif., assignor to Versa Wall Inc., Canoga Park, Calif.
Filed Jan. 31, 1972, Ser. No. 222,458
Term of patent 14 years
Int. Cl. D25—02

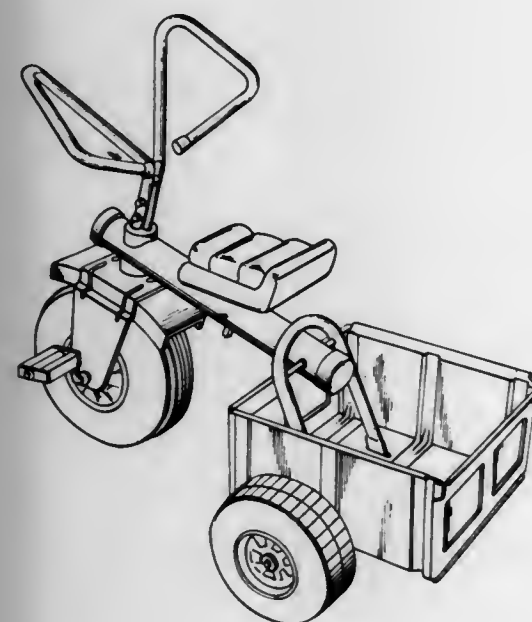
U.S. Cl. D13—1 K



232,307
VELOCIPÈDE

William L. Manofsky, Nashville, Tenn., assignor to The Murray Ohio Manufacturing Co., Nashville, Tenn.
Filed July 19, 1972, Ser. No. 273,126
Term of patent 14 years
Int. Cl. D12—11

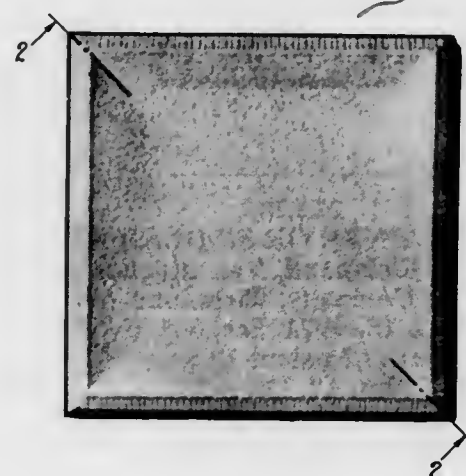
U.S. Cl. D12—112



232,309
MOLDED PANEL OR SIMILAR ARTICLE

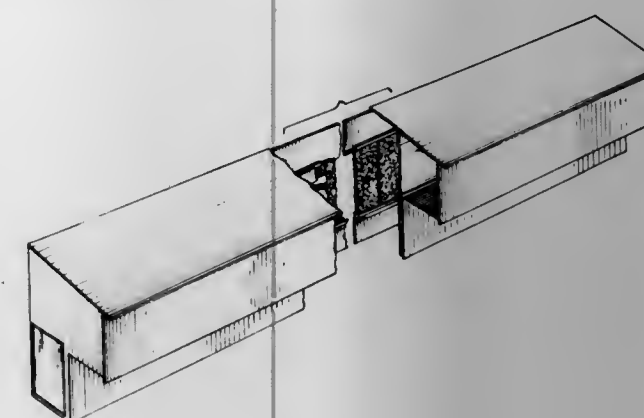
James M. Long, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation
Filed Apr. 17, 1972, Ser. No. 245,018
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D18—2 B



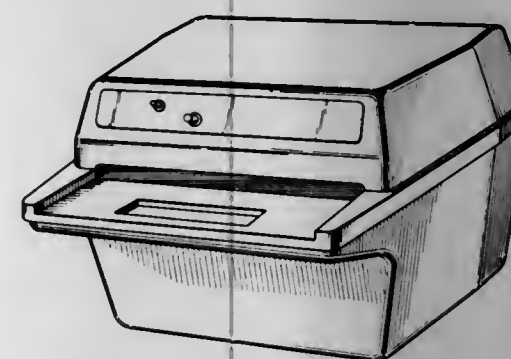
232,310
AGRIBUILDING COOLING PAD PLENUM
George E. Francé, Rte. 2, Box 60, Oswego, Ill. 60543
Filed May 8, 1972, Ser. No. 251,601
Term of patent 14 years
Int. Cl. D23—04

U.S. Cl. D23—139



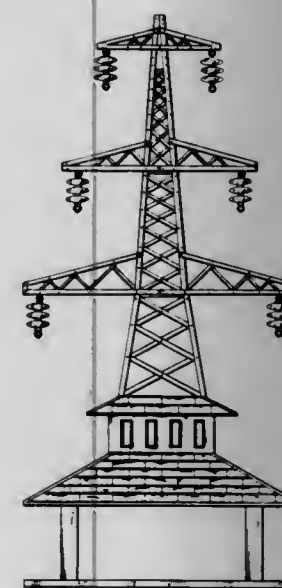
232,311
TEST-SCORING MACHINE
Gary R. Oberg, Spirit Lake, Iowa, assignor to Valtest, Inc., Minneapolis, Minn.
Filed July 24, 1972, Ser. No. 274,279
Term of patent 3½ years
Int. Cl. D19—07

U.S. Cl. D25—1 R



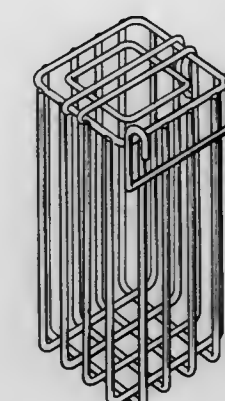
232,312
POWER LINE STANCHION
Ross Forney, Renner, Tex., assignor to Forney Engineering Company, Dallas, Tex.
Filed Oct. 11, 1972, Ser. No. 296,709
Term of patent 14 years
Int. Cl. D13—03

U.S. Cl. D26—12



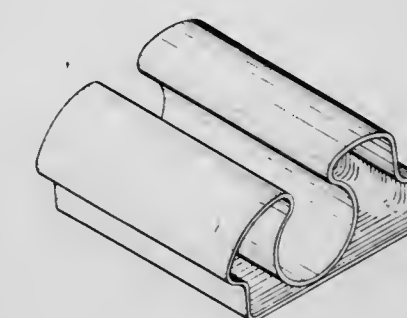
232,313
ANIMAL FEEDER
Albert J. Whitty, 39055 Lyndon, Livonia, Mich. 48154
Filed Jan. 5, 1973, Ser. No. 321,209
Term of patent 14 years
Int. Cl. D30—03

U.S. Cl. D30—13



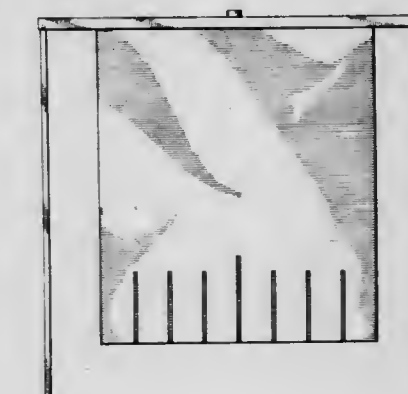
232,314
PLAYGROUND CLIMBER
Nancy Reed Markusen, Grand Forks, N. Dak., assignor to University of Idaho Research Foundation, Moscow, Idaho
Filed May 30, 1972, Ser. No. 258,221
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—5 H



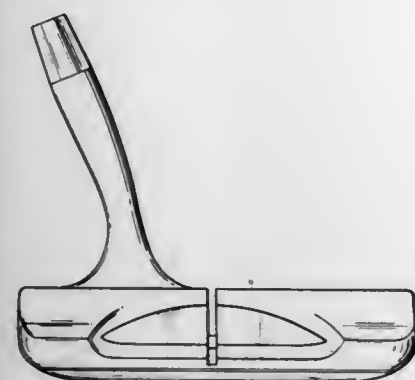
232,315
TRAINING DEVICE FOR BOWLING ALLEY
Len Casey, 5924 SW. 68th St., South Miami, Fla. 33143
Filed July 18, 1972, Ser. No. 272,941
Term of patent 14 years
Int. Cl. D21—02

U.S. Cl. D34—5 DD



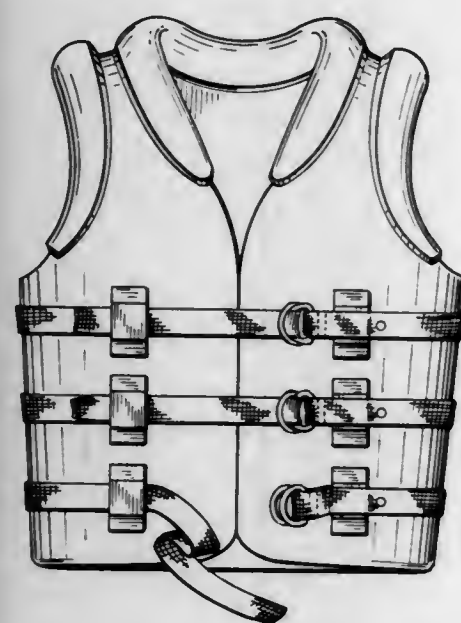
232,316
GOLF PUTTER HEAD
 Raymon W. Cook, 406 Top Hill,
 San Antonio, Tex. 78209
 Filed Sept. 29, 1972, Ser. No. 293,525
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5 GH



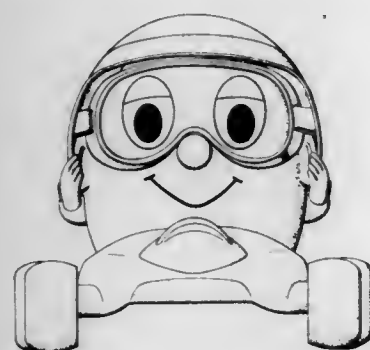
232,317
LIFE PRESERVER JACKET
 James W. Rutland, Cypress Gardens, Fla., assignor to
 Florida Cypress Gardens, Inc., Cypress Gardens, Fla.
 Filed Jan. 10, 1973, Ser. No. 322,314
 Term of patent 14 years
 Int. Cl. D29—02

U.S. Cl. D34—43



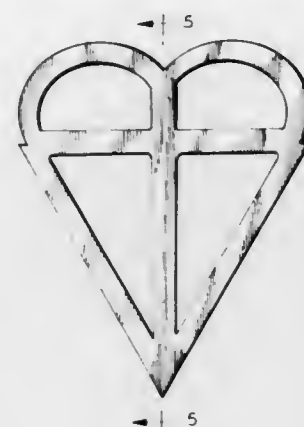
232,318
HUMPTY DUMPTY RACER TOY
 Paul L. Luzius, Brentwood, Tenn., and Jerrold J. Krumholz,
 West Orange, N.J., assignors to Kusan, Inc.,
 Nashville, Tenn.
 Filed May 22, 1973, Ser. No. 362,656
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—15 AN



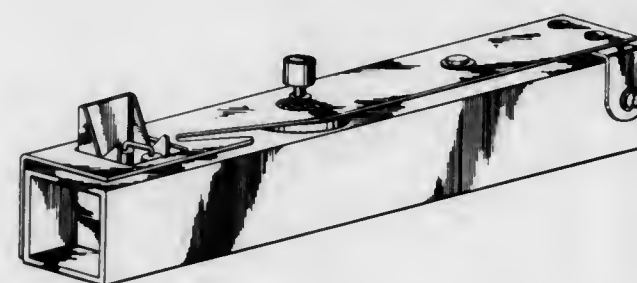
232,319
JEWELRY FINDING
 Mario A. Caputo, 9 Cornerwood Court, Gaithersburg,
 Md. 20760, and Hilda A. Valenta, 4601 Alcon Drive,
 Camp Springs, Md. 20031
 Filed June 18, 1973, Ser. No. 370,596
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—19 S



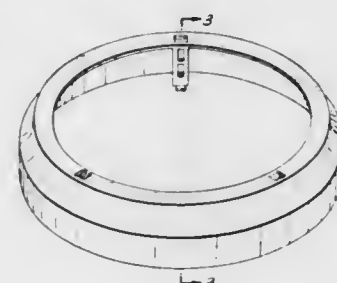
232,320
YARN SPLICER OR SIMILAR ARTICLE
 D. Wayne Bledsoe, 1928 Dug Gap Road, Dalton, Ga.
 30720, and R. Alton Cadenhead, P.O. Box 810, Fitz-
 gerald, Ga. 31750
 Filed Aug. 2, 1972, Ser. No. 277,419
 Term of patent 14 years
 Int. Cl. D15—08

U.S. Cl. D47—5



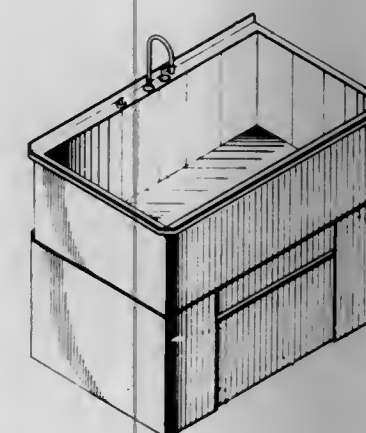
232,321
**RING FOR USE IN THE CONSTRUCTION
 OF A LAMPSHADE**
 Paul Boissevain, Feltham, England, assignor to Merchant
 Adventurers Limited, Feltham, Middlesex, England
 Filed Dec. 6, 1971, Ser. No. 205,471
 Claims priority, application Great Britain June 7, 1971
 Term of patent 14 years
 Int. Cl. D26—05

U.S. Cl. D48—7 A



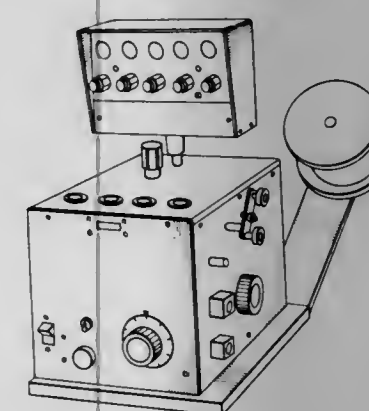
232,322
PARTS WASHING DEVICE
 Edward Lee, Winnipeg, Manitoba, Canada, assignor to
 Solv-X Inc., Mississauga, Ontario, Canada
 Filed Jan. 25, 1972, Ser. No. 220,723
 Term of patent 14 years
 Int. Cl. D15—05

U.S. Cl. D49—1 R



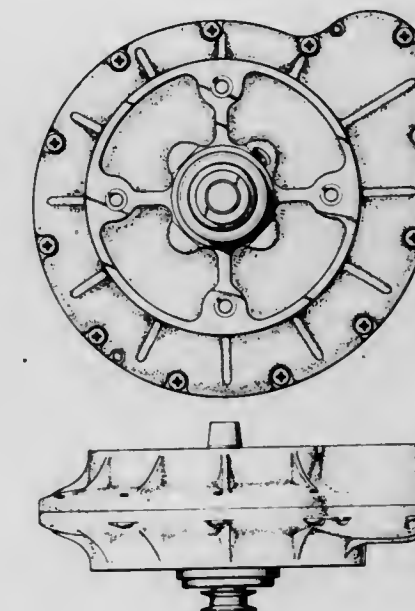
232,323
COIL WINDER
 Raymond F. Kimball, Arcadia, Calif., assignor to Eubanks
 Engineering Co., Monrovia, Calif.
 Filed Dec. 19, 1972, Ser. No. 316,590
 Term of patent 14 years
 Int. Cl. D15—09

U.S. Cl. D55—1 F



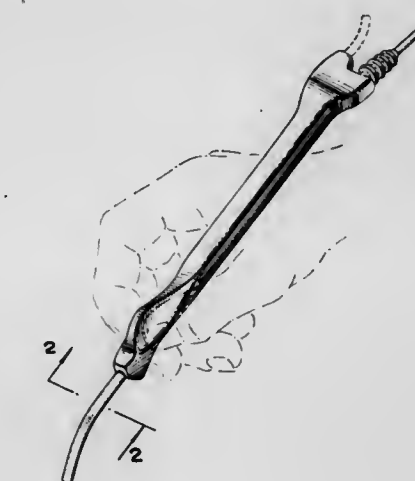
232,324
SUPERCHARGER
 Thomas R. Drouin, 133 Prospect St.,
 East Hartford, Conn. 06604
 Filed Oct. 19, 1972, Ser. No. 300,780
 Term of patent 7 years
 Int. Cl. D15—01

U.S. Cl. D77—1 A



232,325
ELECTROSURGICAL CAUTERY INSTRUMENT
 John G. Durden III, Chamblee, Ga., assignor to Durden
 Enterprises, Ltd., Auburn, Ga.
 Filed Aug. 17, 1973, Ser. No. 389,423
 Term of patent 14 years
 Int. Cl. D24—02

U.S. Cl. D83—12



232,326 HAIR DRYER

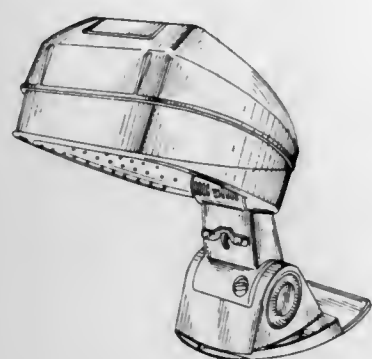
Robert S. Waters, Lancaster, Edward J. Doyle, Hatboro, and Meyric K. Rogers, Lancaster, Pa., and Nial C. Bartram, Wilmington, Del., assignors to Schick Incorporated, Lancaster, Pa.

Filed Feb. 22, 1973, Ser. No. 334,627

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D86—10 F



232,327 COMBINED HOUSING CARRYING CASE FOR A HAIR DRYER

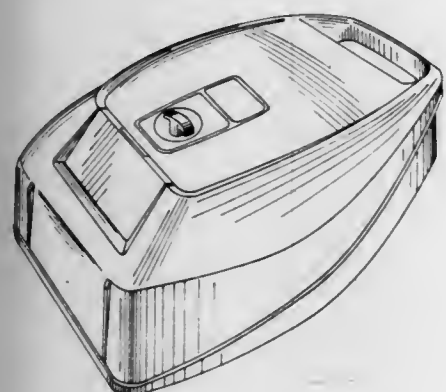
Robert S. Waters, Lancaster, Edward J. Doyle, Hatboro, and Meyric K. Rogers, Lancaster, Pa., and Nial C. Bartram, Wilmington, Del., assignors to Schick Incorporated, Lancaster, Pa.

Filed Feb. 22, 1973, Ser. No. 334,680

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D86—10 F



232,328 TENT

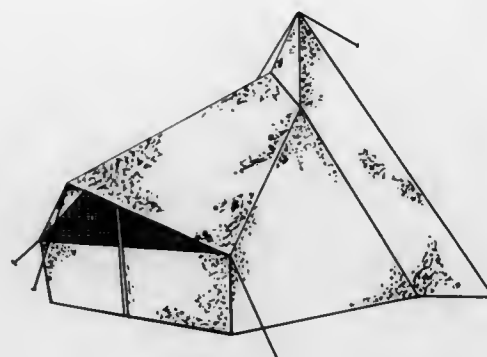
Arthur J. Kirkham, 24 West 5th South, Salt Lake City, Utah 84104

Filed Feb. 17, 1972, Ser. No. 227,322

Term of patent 14 years

Int. Cl. D21—04

U.S. Cl. D88—3 B



232,329 ELECTRIC HAIR CLIPPER CASING

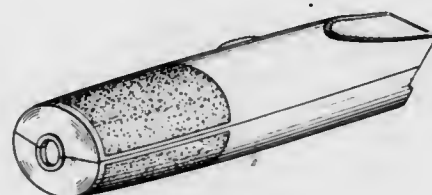
Alfred W. Madl, Glendale, Wis., assignor to Oster Corporation, Milwaukee, Wis.

Filed Oct. 30, 1972, Ser. No. 301,791

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D95—3 A



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 6TH DAY OF AUGUST, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A-T-O Inc.: See—
Manuel, Malcolm O., 3,827,262.
- AB Cellico: See—
Rundqvist, Lars-Goran, 3,827,567.
- AB Svenska Flaktfabriken: See—
Bahri, Marcel; and Carlsson, Kurt, 3,827,955.
- Abbate, Franklin W.; and Farrissey, William J., Jr., to Upjohn Company. The. Phenoxyethyl N-phenyl-N-phenoxyethylpiperazinylethylcarbamate. 3,828,047, Cl. 260-268.00r.
- Abbott Laboratories: See—
Tadanier, John Solomon; and Martin, Jerry Roy, 3,828,022.
- Therault, Robert John; and Kohl, William Leonard, 3,827,941.
- Abe, Norio: See—
Tanihata, Akio; and Abe, Norio, 3,827,127.
- Abe, Takahiro: See—
Kishino, Shunji; Abe, Takahiro; Tamura, Reish; and Amano, Hiroshi, 3,827,271.
- Kishino, Shunji; Abe, Takahiro; and Tamura, Reishi, 3,827,273.
- Aberhart, Donald J.: See—
Caspi, Eliahu; and Aberhart, Donald J., 3,828,029.
- Aberle, Claus: See—
Friedl, Wolfgang; and Aberle, Claus, 3,828,264.
- ACF Industries, Incorporated: See—
Terlecky, Boris S.; and Grob, Leonardus F. A., 3,827,375.
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- Ackley, John William, to Deere & Company. Coupling device. 3,827,724, Cl. 280-511.000.
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Shelffo, Loren E.; and Mathisen, Henry A., 3,827,803.
- Addressograph-Multigraph Corporation, mesne: See—
Bristol, Thomas R.; Lakin, Harold; and Renga, Fred L., 3,827,312.
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- Adiutori, Eugene F., to Diamond Power Specialty Corporation. Soot blower with gas temperature or heat flow detecting means. 3,827,102, Cl. 15-317.000.
- AE & CI Limited: See—
Matthews, Rofe Arthur, 3,827,845.
- Aerosonic Corporation, mesne: See—
Owens, Frederick J., 3,827,157.
- Aetna-Standard Engineering Company: See—
Schuetz, James W., 3,827,274.
- AGA Aktiebolag: See—
Lundgren, Claes E. G.; and Akesson, Stig L., 3,827,432.
- Aga, Rene L.: See—
Cahen, Raymond M.; Debus, Henri R.; and Aga, Rene L., 3,827,974.
- AGFA-Gevaert Aktiengesellschaft: See—
Jores, Willi; Gref, Hans; Lehmann, Helmut; Hoffacker, Franz; Luhrig, Hermann; and Kreit, Bernhard, 3,827,647.
- Pfeifer, Josef; Hofmann, Wilfried; and Dietrich, Karl-Heinz, 3,827,802.
- Saleck, Wilhelm; and Balle, Gerhard, 3,827,890.
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Kawamata, Isamu; Ai, Mitsuo; and Satoh, Ichiya, 3,827,298.
- Aid, James D.: See—
Serfass, Earl J.; Lindsay, Edward R., Jr.; Holmes, Gene Myron; Aid, James D.; and Bishop, French, Jr., 3,827,561.
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- Air Products and Chemicals, Inc.: See—
Ehnot, Donald J., 3,827,186.
- Airco, Inc.: See—
Moen, Walter B.; and Spies, George R., 3,827,246.
- Aisin Seiki Kabushiki Kaisha: See—
Inada, Masami, 3,827,761.
- Kagata, Tooru, 3,827,524.
- Kobashi, Uichiro; Inada, Masami; and Takayama, Katsuki, 3,827,763.
- Ajax Magnethermic Corporation: See—
Settlemyer, Bernard W., 3,827,218.
- Akerhielm, George: See—
Mandy, Zoltan P.; Akerhielm, George; and Tulowiecki, David, 3,827,481.
- Akesson, Stig L.: See—
Lundgren, Claes E. G.; and Akesson, Stig L., 3,827,432.
- Akiyama, Yoshiyuki: See—
Shimizu, Yoshiaki; Tatano, Toshio; Akiyama, Yoshiyuki; and Yamaguchi, Akira, 3,827,936.
- Akiyoshi, Kazuo: See—
Kojima, Yukiyasu; Akiyoshi, Kazuo; and Kawada, Kenji, 3,827,247.
- Aktiebolaget Bofors: See—
Skagerlund, Lars-Erik, 3,827,806.
- Aktiebolaget Gullhogens Bruk: See—
Kawert, Kjell Gunnar Kawe, 3,827,984.
- Aktieselskabet de Danske Sukkerfabrikker: See—
Boe, Christian Thorkild; and Dawids, Steen Gamwell, 3,827,563.
- Akzona Incorporated, mesne: See—
Buckett, William Roger; and Bosman, Hans Harold, 3,828,050.
- Alba, Richard O. Sub-sea pipeline tapping device. 3,827,448, Cl. 137-15.000.
- Alber, Karl; and Seifert, Volker, to U.S. Philips Corporation. Self-correcting phase measuring bridge. 3,828,249, Cl. 324-57.00r.
- Alexander, Jerry L.: See—
Vogelgesang, Peter J.; Alexander, Jerry L.; and Lunquist, Frank C., 3,828,359.
- Alignment Systems, Inc.: See—
Roodvoets, Roger J.; and Applegate, Merlin J. (said Applegate assignor to), 3,827,156.
- All American Industries, Inc.: See—
Doolittle, Donald B., 3,827,660.
- Allaire, Eugene Joseph; and Paradis, Eugene. Disposable mop head. 3,827,099, Cl. 15-229.00r.
- Allen & Hanburys Limited: See—
Bays, David Edmund; and Foster, Roy Vivian, 3,828,093.
- Allen, Dee Dexter, to U.S. Industries, Inc. Canister bail for poultry feeder. 3,827,405, Cl. 119-53.000.
- Allen, Donald J.: See—
Kufirin, Frederick W.; Viroche, Paul R.; Allen, Donald J.; Gokey, Phillip E.; and Rose, Frederick A., 3,827,378.
- Allen, Francis Edwin, to Letson and Burpee Ltd. Crowder roll arm for bandmill. 3,827,324, Cl. 83-425.200.
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Morrison, Howard J.; and Allen, Robert K., 3,827,692.
- Allen, Thomas Jeffrey, to Fletcher Sutcliffe Wild Limited. Drum type rotary coal cutter with water jet orifices. 3,827,755, Cl. 299-81.000.
- Allen-Bradley Company: See—
Hohberger, Clive P., 3,827,293.
- Allied Chemical Corporation: See—
Gilleo, Kenneth B.; Jones, Edward S.; and Tajkowski, Edward G., 3,828,098.
- Lofquist, Robert Alden, 3,828,009.
- Price, Alson K.; and Fenster, Abraham N., 3,828,085.
- Rothwell, Ronald Edward; and Cipriani, Cipriano, 3,827,931.
- Allis-Chalmers Corporation: See—
Boyd, Donald R., 3,828,288.
- Price, Raymond G.; and Stich, Frederick A., 3,828,235.
- Almstrom, Sten Hakan; and Gothberg, Yngve Roland, to Kommanditbolaget United Stirling (Sweden) AB & Co. Governing power output of hot gas engines. 3,827,241, Cl. 60-521.000.
- Aluminum Company of America: See—
Franz, Edmund C., 3,827,952.
- Aluminum Specialty Company: See—
Waak, Gerald A., 3,827,824.
- Alvarez, Luis W., to Optical Research & Development Corporation. Optical element of reduced thickness. 3,827,798, Cl. 350-189.000.
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- Amano, Hiroshi: See—

- Kishino, Shunji; Abe, Takahiro; Tamura, Reish; and Amano, Hiroshi, 3,827,271.
- Amdahl Corporation: See—
Amdahl, Gene M.; and Clements, Michael R., 3,828,175.
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- Amel, Ronald T.: See—
Lyness, Warren I.; Amel, Ronald T.; and Booth, Gary E., 3,828,060.
- American Cyanamid Company: See—
Giglia, Robert Domenico; and Clasen, Richard Howard, 3,827,784.
- Tomcufek, Andrew Stephen; Izzo, Patrick Thomas; and Fabio, Paul Frank, 3,828,041.
- American Express Investment Management Company: See—
Ramsey, S. David, Jr., 3,828,126.
- American Multiplex Systems, Inc.: See—
Schull, Robert D.; and Ichinose, Richard Y., 3,828,313.
- American Plasticraft Company: See—
Dumas, Christ J.; and Simovits, Stephen S., Jr., 3,828,219.
- American Standard Inc.: See—
Parkison, Richard G.; and Fichter, Barry S., 3,827,636.
- American Thermostat Corporation: See—
Hickling, Colin D., 3,828,289.
- Ammco Tools, Inc.: See—
Mitchell, Wallace F., 3,827,153.
- AMP Incorporated: See—
Bunnell, Edward Dennman; and Parsons, Stuart L., 3,828,151.
- Hogendobler, Richard Shure, 3,828,305.
- Schumacher, William Ludlow, 3,828,298.
- Amsted Industries Incorporated: See—
Madura, Francis Eli; and Kent, John Allan, 3,827,709.
- Anaconda Company, The: See—
Hansen, Theodore E., 3,828,120.
- Lonow, Martin S., 3,828,116.
- Anazawa, Shinzo, to Nippon Electric Company, Limited. Leadless semiconductor device for high power use. 3,828,229, Cl. 317-234.00r.
- Andera, Joseph F.: See—
Stumpf, Joseph G.; and Andera, Joseph F., 3,827,436.
- Andersen, Otto: See—
Aunstrup, Knud; and Andersen, Otto, 3,827,938.
- Andersen, Todd G.: See—
Bradbery, Jack L.; Andersen, Todd G.; and Fechalos, William A., 3,828,314.
- Anderson Company, The: See—
Wubbe, Leo J., 3,827,101.
- Anderson, Gordon C.: See—
Pray, Lester W.; and Anderson, Gordon C., 3,827,227.
- Anderson, Robert I., to Eastman Kodak Company. Helical web path processing device utilizing force counter-acting spools. 3,827,617, Cl. 226-118.000.
- Anderson, Ronald A., to Schlumberger Technology Corporation. Well bore force-measuring apparatus. 3,827,294, Cl. 73-151.000.
- Andersson, Axel Lennart, to Gullskruf Glasbruks AB. Multi-purpose grinding mill. 3,827,641, Cl. 241-101.00r.
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- Andress, Harry J., Jr.: See—
Piotrowski, Alfred B.; and Andress, Harry J., Jr., 3,827,979.
- Andrews, Charles Lee, III. Additive metering apparatus for plastic processing machine. 3,827,678, Cl. 259-191.000.
- Andrews, Laurance R., to United Aircraft Corporation. Electrochemical drilling apparatus. 3,827,965, Cl. 204-297.00r.
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- Annessa, Domenico M. Universal shoulder rest for violins and violas of all sizes. 3,827,329, Cl. 84-280.000.
- Appel, Gerhard H., to Garrett Corporation, The. Airfoil and method of forming the same. 3,827,118, Cl. 29-156.80b.
- Applegate, Merlin J.: See—
Roodvoets, Roger J.; and Applegate, Merlin J., 3,827,156.
- Araki, Kazuhiko: See—
Nakanishi, Michio; Tahara, Tetsuya; Araki, Kazuhiko; and Shiroki, Masami, 3,828,039.
- Araseki, Takashi: See—
Ochiai, Kazuo; Araseki, Takashi; and Kato, Yasuo, 3,828,147.
- Arciprete, Genio R.: See—
Heitman, Richard E.; Arciprete, Genio R.; Martin, Peter G.; Norris, Richard C.; and Brisk, Richard A., 3,828,323.
- Arco Nuclear Company, mesne: See—
Miller, Gary E., 3,827,264.
- Arco Polymers, Inc.: See—
Wright, Harold Austin, 3,827,990.
- Arenhold, Knut, to Melude S.A. Indirect lighting fixture. 3,828,183, Cl. 240-51.11r.
- Armco Steel Corporation: See—
Lowderman, Ernest W.; Barrington, Leland L.; and Young, Ferdinand, Jr., 3,827,267.
- Pardo, Oscar L., 3,827,265.
- Armstrong, Fern E. Yarn caddy. 3,827,654, Cl. 242-146.000.
- Armstrong, Ralph W., Jr.: See—
Vigil, Jacob F.; Billard, Stephen L.; Oropesa, Joel T.; and Armstrong, Ralph W., Jr., 3,828,324.
- Armstrong, Thaddeus J.; Styczen, John A.; and Klasek, Ladislav J., to Continental Can Company. Apparatus and method for processing and testing manufactured articles. 3,827,284, Cl. 73-45.100.
- Arnaldo, Ambili. Valve for liquid sprayer. 3,827,609, Cl. 222-402.240.
- Arndt, Peter Joseph; Blitz, Hans-Dieter; Huebner, Klaus; Krall, Wilhelm; Kurth, Hans-Joachim; Mueller, Manfred; and Pennewiss, Horst, to Rohm GmbH. Method for preparing resins in powder or granular form from aqueous polymer latices. 3,828,012, Cl. 260-80.70.
- Arneson, Edwin L., to Federal Paper Board Company, Inc. Bottle carrier. 3,827,550, Cl. 206-181.000.
- Arneson, Edwin L., to Federal Paper Board Company, Inc. Collapsible container. 3,827,623, Cl. 229-39.00r.
- Arnold, Don C.; and Ritzenthaler, Richard L., to Cranda Corporation. Bathtub filler and shower appliance. 3,827,088, Cl. 4-192.000.
- Arnold, Don C., to Granda Corporation. Diverter valve for liquids. 3,827,458, Cl. 137-610.000.
- Arnold, Herbert; Bourseaux, Friedrich; Potel, Jurgen; and Brock, Norbert, to Asta-Werke Aktiengesellschaft Chemische Fabrik. Alkylsulfonic acid esters of 1,3,2-oxazaphospho-cyclic compounds. 3,828,090, Cl. 260-456.00a.
- ARO Plastics Development Limited: See—
Sharp, Herbert John; and Humphrey, Victor William Stanley, 3,827,207.
- ARP Instruments, Inc.: See—
Colin, Dennis P., 3,828,110.
- Arpino, Ronald G., to Sperry Rand Corporation. Shaver cutter head. 3,827,144, Cl. 30-43.920.
- Arrogante, Ricardo Ros, to Industrials Del Hogar, S.A. Heating appliances. 3,827,775, Cl. 312-245.000.
- Arrow Development Co., Inc.: See—
Morgan, Edgar A., 3,827,387.
- Arthur, Jett C., Jr.: See—
Byrne, Geoffrey A.; and Arthur, Jett C., Jr., 3,827,858.
- Arvey Corporation: See—
Stage, Leo J., 3,827,341.
- Asahi Kasei Kogyo Kabushiki Kaisha: See—
Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kusuo, 3,827,971.
- Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kusuo, 3,827,972.
- Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kuso, 3,827,973.
- Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kusuo, 3,827,988.
- Asahi Kogaku Kogyo Kabushiki Kaisha: See—
Mori, Chiharu, 3,828,253.
- Asea Atom AB: See—
Fejes, Peter, 3,827,479.
- Ashland Oil, Inc.: See—
Throckmorton, Peter E.; McKillip, William J.; and Slagel, Robert C., 3,828,007.
- Asta-Werke Aktiengesellschaft Chemische Fabrik: See—
Arnold, Herbert; Bourseaux, Friedrich; Potel, Jurgen; and Brock, Norbert, 3,828,090.
- Ates Componenti Elettronici S.p.A.: See—
Romano, Aldo, 3,828,265.
- Atkins, Carl E., to Wagner Electric Corporation. Condition-responsive control circuit including pulse-energized oscillator and amplifier. 3,828,273, Cl. 331-65.000.
- Atkinson, Cyril John, to International Computers Limited. Web feeding apparatus. 3,827,616, Cl. 226-74.000.
- Atlantic Richfield Company: See—
Melpolder, Frank W.; Guetens, Edward G.; and Mameniskis, Walter A., 3,827,947.
- Miles, Leon H.; and King, Graham E., 3,827,977.
- Miles, Leon H., 3,827,978.
- Au, Sik-Kee, to International Business Machines Corporation. Binary signal data detection. 3,828,362, Cl. 360-45.000.
- Aughtry, Paul C. Jr., to Gower Manufacturing Co., Inc. Rack assembly. 3,827,377, Cl. 108-108.000.
- Augris, Rene: See—
Bocabeille, Gilbert; and Augris, Rene, 3,828,131.
- Augustin, Eugene H.; and Long, William P., to Ford Motor Company. Glass tempering method. 3,827,872, Cl. 65-114.000.
- Aunstrup, Knud; and Andersen, Otto, to Novo Terapeutisk Laboratorium A/S. Enzyme products. 3,827,938, Cl. 195-62.000.
- Auto-Valve, Inc.: See—
Bolden, James D.; and Koller, Floyd G., 3,827,671.
- Automation Industries, Inc.: See—
Wiers, William C., 3,828,356.
- Automobiles Peugeot: See—
Giordano, Jean-Louis; and Lietard, Michel, 3,827,764.
- Autotrol Corporation: See—
Gass, Donald N.; and Prosser, David G., 3,827,559.
- Avco Corporation, mesne: See—
Bruck, George; Faroudja, Yves C.; and Smaller, Philip, 3,828,129.

- Avdjukov, Vyacheslav Ivanovich; and Lebedev, Boris Nikolaevich. Method of producing clinker of alumina cement. 3,827,896, Cl. 106-104.000.
- B. F. Goodrich Company, The: See—
Rastogi, Vijay, 3,827,599.
- Baanstra, Theo Meindert; Von Hagen, Wolf-Rudiger; and Niem, Wolfgang, to Union Special Maschinenfabrik GmbH. Automatic sewing machine control having a manually controlled operating sequence. 3,827,381, Cl. 112-121.110.
- Baba, Kosaku; Wazawa, Kiyoshi; and Hosaka, Akio, to Nissan Motor Company, Limited. Acceleration transducer having semiconductive piezoresistive element. 3,828,294, Cl. 338-43.000.
- Bachmann, Peter, to Ebauches Bettlach S.A. Winding and setting mechanism for watches. 3,827,235, Cl. 58-67.000.
- Bacskai, Robert, to Chevron Research Company. Polymerization of vinylpyridine in the presence of small particles of ziegler catalyzed polyolefins or polystyrene. 3,828,016, Cl. 260-88.30r.
- Badalex Limited: See—
Grenfell, Julian Pascoe, 3,827,400.
- Badische Anilin- & Soda-Fabrik Aktiengesellschaft: See—
Baumann, Hans; and Mayer, Udo, 3,828,035.
- Kast, Helmut; Baumann, Hans; Mayer, Udo; and Oberlinner, Andreas, 3,828,071.
- Tartter, Arnold, 3,828,020.
- Bahri, Marcel; and Carlsson, Kurt, to AB Svenska Flaktfabriken. Cleaning waste gases containing hydrogen fluorides from an electrolytic furnace for aluminum production. 3,827,955, Cl. 204-67.000.
- Bain, James B., to Datron Systems, Inc. Miniature relay. 3,828,286, Cl. 335-126.000.
- Baker Oil Tools, Inc.: See—
Crowe, Talmadge L., 3,827,494.
- Jackson, John L.; and Steinwinder, John E., 3,827,487.
- Kammerer, Archer W., Jr.; and Johnson, Gary R., 3,827,258.
- Baklien, Asbjorn; and Kolm, Jan, to ICI Australia Limited. Multi-step process for preparing 2,3,5,6-tetrahydroimidazo [2,1-b] thiazoles. 3,828,061, Cl. 260-306.700.
- Balle, Gerhard: See—
Saleck, Wilhelm; and Balle, Gerhard, 3,827,890.
- Banker, Louis C. Fish-releasing fish hook. 3,827,174, Cl. 43-43.160.
- Barbera, Edmund C. Building wall construction. 3,827,205, Cl. 52-426.000.
- Barbieri, John D.: See—
Zenchowitz, Alvin L.; Xenakis, James A.; Barbieri, John D.; and Chang, Nai Chai, 3,827,361.
- Barlow, Gordon A.; and Glass, Marvin I., to Glass, Marvin, & Associates. Racing toy apparatus. 3,827,693, Cl. 273-86.00f.
- Barnes, Richard D., to Conolon Corporation, The. Fishing rod handle. 3,827,173, Cl. 43-23.000.
- Barnhurst, James Douglass; and Renold, Adolph, to Colgate-Palmolive Company. Aerosol space deodorant employing certain organic peroxides. 3,828,104, Cl. 424-45.000.
- Barrington, Leland L.: See—
Lowderman, Ernest W.; Barrington, Leland L.; and Young, Ferdinand, Jr., 3,827,267.
- Barthels, Manfred: See—
Vitzthum, Otto; Hubert, Peter; and Barthels, Manfred, 3,827,859.
- Bassett, Ronald M., to International Register Company. Spring driven timer. 3,827,232, Cl. 58-21.130.
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Donati, Denis; Porta, Augusto; and Mosetti, Jacques, 3,827,961.
- Batzer, Hans; Habermeyer, Juergen; and Porret, Daniel, to Ciba-Geigy AG. Diglycidyl ethers of five and six membered N-heterocyclic compounds. 3,828,045, Cl. 260-260.000.
- Bauer, Richard H., Jr.; Schuldt, David A.; and Shum, Edward K., to D-TEK. Intrusion alarm actuating apparatus. 3,828,340, Cl. 340-276.000.
- Baum, Charles S., to Textron Inc. Method of making tire stud. 3,827,885, Cl. 75-208.00r.
- Baum, Richard C., to Singer Company, The. Decreased rotation rate scanning device. 3,828,124, Cl. 178-7.600.
- Baumann, Bernard, to CEGEDUR Societe de Transformation de l'Aluminium Pechiney. Method of making thermoplastic lined metal bodies. 3,827,130, Cl. 29-421.000.
- Baumann, Hans: See—
Kast, Helmut; Baumann, Hans; Mayer, Udo; and Oberlinner, Andreas, 3,828,071.
- Baumann, Hans; and Mayer, Udo, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of oxazine dyes with arylamino groups. 3,828,035, Cl. 260-242.000.
- Baumgarten, Carl B., to Gomco Manufacturing Corporation. Automatic shut-off valve. 3,827,452, Cl. 137-205.000.
- Baumgartner, Heinrich; and Schultze, Manfred, to Siemens Aktiengesellschaft. Operational method and apparatus for the representation of characters. 3,828,343, Cl. 340-324.00a.
- Baxter, Robert O.; Byars, Carl A.; Nadaskay, Richard J.; and Roark, Lamar P., to International Paper Company. Packaging carrier. 3,827,614, Cl. 224-45.00h.
- Bayer Aktiengesellschaft: See—
Bien, Hans-Samuel; Harms, Wolfgang; Schmitz, Reinold; Schmitz, Reinold; and Leister, Heinrich, 3,828,040.
- Lorenz, Watter; Boshagen, Horst; Hammann, Ingeborg; and Behrenz, Wolfgang, 3,828,063.
- Von Bonin, Wulf, 3,827,869.
- Widdig, Arno; Kuhle, Englebert; Grewe, Ferdinand; Kaspers, Helmut; Scheinflug, Hans; and Frohberger, Paul-Ernst, 3,828,094.
- Bays, David Edmund; and Foster, Roy Vivian, to Allen & Hanburys Limited. Benzoylphenylacetic acids and related compounds. 3,828,093, Cl. 260-469.000.
- BBC Brown Boveri & Company Limited: See—
Floessel, Carl Dieter; and Floessel, Klaus, 3,827,731.
- Horler, Hansulrich, 3,827,770.
- Laronze, Joseph, 3,828,211.
- Beattie, Thomas R.; Ruyle, William V.; Shen, Tsung-Ying; Walford, Gordon L.; and Walton, Edward, to Merck & Co., Inc. Gentamicin C derivatives. 3,828,021, Cl. 260-210.0ab.
- Beaudet, Maurice, to Galt Equipment Ltd. Shipping container with removable environmental control unit. 3,827,478, Cl. 165-42.000.
- Beebe, William F.: See—
Neff, Charles G.; and Beebe, William F., 3,827,723.
- Beecham Group Limited: See—
Granchelli, Felix E., 3,828,053.
- Quick, John Kirby; Richardson, Kenneth; and Utting, Kenneth, 3,828,074.
- Beets, Roland H. C.: See—
Fader, John H.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., 3,827,539.
- Behrenz, Wolfgang: See—
Lorenz, Watter; Boshagen, Horst; Hammann, Ingeborg; and Behrenz, Wolfgang, 3,828,063.
- Belart, Juan, to ITT Industries, Inc. Antiskid brake system with power assistance. 3,827,759, Cl. 303-21.0cf.
- Bell & Howell Company: See—
Hapke, Kenyon A.; Johnson, Edwin S.; and Sidlo, Joseph J., 3,827,779.
- Bell Telephone Laboratories, Incorporated: See—
Blane, Leslie Lewis; Bottonari, Kenneth Charles; and Lewis, Edward Earl, 3,828,140.
- Butherus, Alexander Duane; Phillips, James Charles; and Scrosati, Bruno, 3,827,913.
- Carbrey, Robert Lawrence, 3,828,145.
- Fischer, Robert Frederick; North, James Clayton; and Wolfe, Raymond, 3,828,329.
- Flanagan, James Loton; Rabiner, Lawrence Richard; and Schafer, Ronald William, 3,828,132.
- Lewis, Theras Gordon, 3,828,146.
- Bellin, Jack L. S.: See—
Cusick, John H.; Brown, Alvin E.; Hamamoto, Al S.; and Bellin, Jack L. S., 3,827,619.
- Belson, Ross A.; and Palombo, Gaston A., to Honeywell Inc. Ramped-step signal generating circuit. 3,828,203, Cl. 307-228.000.
- Belue, James G.; and Jones, Weston C. Drying chamber apparatus. 3,827,639, Cl. 239-552.000.
- Benander, Vincent A. Simulated basketball game. 3,827,691, Cl. 273-85.00r.
- Bendix Corporation, The: See—
Feintuch, Martin William, 3,827,659.
- Glynn, Donald C.; Chao, Andrew M.; and Carter, George E., 3,828,261.
- McPhee, Walter J.; and Sondergard, Richard D., 3,828,122.
- Shaw, Benjamin Chandler, 3,828,207.
- Benedict, Donald W.: See—
Gregory, Gerald H.; and Benedict, Donald W., 3,827,471.
- Bennett, Charles D.; Coates, Peter M.; and Coates, Robert N., to Cam Industries, Inc. and Operator programmed numerical control system. 3,828,318, Cl. 340-172.500.
- Bennett, John T. Tool holder with provisions for accurately positioning cutting inserts and an improved chip breaking indexable insert. 3,827,119, Cl. 29-105.00r.
- Bennett, Kenneth R.; and Crownover, Joseph W., to GTI Corporation. Tuning of encapsulated precision resistor. 3,827,142, Cl. 29-620.000.
- Benson, James L.; and Sellmann, William, to Evans, George, Corporation, The. Knock-down shipping cable reel. 3,827,651, Cl. 242-115.000.
- Beresniewicz, Aleksander, to Du Pont de Nemours, E. I., and Company. Aqueous dispersions of vinyl ester polymers. 3,827,996, Cl. 260-29.6wb.
- Berger, Helmut: See—
Mika, Norbert; Schuldreich, Rudolf; and Berger, Helmut, 3,828,196.
- Berglund, Neil C.; Kerr, John W.; and Petrie, Jerome U., to International Business Machines Corporation. Simplified storage protection and address translation under system mode control in a data processing system. 3,828,327, Cl. 340-172.500.
- Bergomi, Joseph G., Jr., to Monsanto Company. Flame-resistant compositions of ethylene/vinyl chloride interpolymers and hydrated alumina. 3,827,997, Cl. 260-29.6ta.
- Berlant, Sigmund F. Air curtain device incorporating ultraviolet light. 3,827,862, Cl. 21-74.00r.
- Berns, Avalo A. Hip clamp and lifting frame for bovine quadrupeds. 3,827,406, Cl. 119-100.000.
- Berrie, Robert W., to Omnico Systems International, Inc. Prefabricated building construction. 3,827,203, Cl. 52-236.000.
- Berry Metal Company: See—
Rymarchyk, Nicholas M.; and Meinert, Leo L., 3,827,632.
- Bertelsen, William R. Gimbal ground effect vehicles. 3,827,527, Cl. 180-120.000.

- Berthet, Michel, to Compagnie Generale D'Electricite. Electrical connection, in particular, for connecting two cooled conductors disposed in a vacuum. 3,828,111, Cl. 174-15.00e.
- Bespalov, Evgeny Ivanovich: See—
Samoilov, Sergei Mikhailovich; Ivanov, Vladimir Ivanovich; Zambrovskaya, Galina Vladimirovna; Tsvetkov, Oleg Nikolaevich; Monastyrsky, Viktor Nikolaevich; Bespalov, Evgeny Ivanovich; Gryaznov, Boris Vasilievich; and Molchanov, Boris Vladimirovich, 3,828,01.
- Besuden, David W., to Magnum Automotive Equipment, Inc. Power column latch. 3,827,474, Cl. 157-1.280.
- Betere, Antonio, to Fabricas Lucia Antonio Betere, S.A. Method for the continuous production of needled multi-ply materials. 3,827,112, Cl. 28-72.20r.
- Bethlehem Steel Corporation: See—
Wechsler, Richard L., 3,827,134.
Wheeler, James E., 3,827,680.
- Betts, Paul J., to Browne-Morse Company. Paper tray. 3,827,570, Cl. 211-10.000.
- Betz Laboratories, Inc.: See—
Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,827,873.
- Bickel, Quentin D. Taillight assembly. 3,828,178, Cl. 240-7.10r.
- Bien, Hans-Samuel; Harms, Wolfgang; Schmitz, Reinold; Schmitz, Reinold; and Leister, Heinrich, to Bayer Aktiengesellschaft. Anthraquinone reactive dyestuffs. 3,828,040, Cl. 260-249.000.
- Bieniock, Joachim, to Heberlein & Co. AG. Device for selectively changing the sense of rotation of the twist tubes of a false-twist machine. 3,827,229, Cl. 57-77.450.
- Bierman, Jacob. Portable carrier. 3,827,707, Cl. 280-36.00c.
- Biesinger, Erwin, to Seco Maschinenbau GmbH & Co. KG. Method and apparatus for distilling of solvents in which foreign matter is dissolved. 3,827,476, Cl. 159-44.000.
- Bike Alarm, Ltd.: See—
Miller, Albert J., 3,828,310.
- Billard, Stephen L.: See—
Vigil, Jacob F.; Billard, Stephen L.; Oropesa, Joel T.; and Armstrong, Ralph W., Jr., 3,828,324.
- Bilsback, Malvin S., to International Business Machines Corporation. Integrated packaging arrangement for gas panel display device. 3,828,215, Cl. 313-50.000.
- Bio/Physics Systems, Inc.: See—
Kamentsky, Louis A.; and Klinger, Isaac, 3,827,555.
- Biological Concepts, Inc.: See—
Rudel, Harry W., 3,828,106.
- Biometrics, Inc.: See—
Molner, Stanley F.; and Newman, Joel S., 3,827,789.
- Birch, Arthur I.; and Brown, Darrell E. Check-valve for tracheotomy tubes. 3,827,440, Cl. 128-351.000.
- Bishop, French, Jr.: See—
Seraff, Earl J.; Lindsay, Edward R., Jr.; Holmes, Gene Myron; Aid, James D.; and Bishop, French, Jr., 3,827,561.
- Bissinger, Charles Clarence, Sr. Protection units for the seats of school buses and the like. 3,827,752, Cl. 297-452.000.
- Bizot, Jean; and Sausse, Andre, to Rhone-Poulenc S.A. Process for the regeneration of a haemodialysis liquid. 3,827,975, Cl. 210-22.000.
- Blake, David Edward, to Electrophot, Inc. Toner fixing method and apparatus. 3,827,855, Cl. 432-60.000.
- Blane, Leslie Lewis; Bottonari, Kenneth Charles; and Lewis, Edward Earl, to Bell Telephone Laboratories, Incorporated. Calling line identification system. 3,828,140, Cl. 179-18.00f.
- Blanshine, Allison W.; Crane, Jack W.; and Mast, Aquila D., to Sperry Rand Corporation. Hay roll forming machine. 3,827,223, Cl. 56-341.000.
- Bledsoe, D. Wayne; and Cadenhead, R. Alton. Apparatus for joining thermoplastic material. 3,827,929, Cl. 156-502.000.
- Bley, Erich. Rotatable resilient punch and die cutter apparatus. 3,827,321, Cl. 83-117.000.
- Blickensderfer, Robert; and Blickensderfer, Robert, III. Tire traction device. 3,827,473, Cl. 152-218.000.
- Blickensderfer, Robert, III: See—
Blickensderfer, Robert; and Blickensderfer, Robert, III, 3,827,473.
- Bliss, Robert A., to Hoerner Waldorf Corporation. Double wall tray. 3,827,621, Cl. 229-34.0hw.
- Blitz, Hans-Dieter: See—
Arndt, Peter Joseph; Blitz, Hans-Dieter; Huebner, Klaus; Krall, Wilhelm; Kurth, Hans-Joachim; Mueller, Manfred; and Pennewiss, Horst, 3,828,012.
- Blocked Iron Corporation: See—
Imperato, Louis George, Jr., 3,827,876.
- Blomkamp, Robert W., to Physics International Company. Demodulator for frequency-burst-duration modulated signals. 3,828,263, Cl. 329-106.000.
- Blouch, John H., to Sycamore Manufacturing Company, Inc. Apparatus for lining bottle crowns with thermoplastic material. 3,827,843, Cl. 425-127.000.
- Blum, Rudolf, to Triumph Werke Nuernberg A.G. Character storage arrangement for a powered typewriter action. 3,827,542, Cl. 197-16.000.
- BMR Security Products Corporation: See—
Walters, Russell W., 3,827,266.
- Bocabelle, Gilbert; and Augris, Rene, to Compagnie Industrielle des Telecommunications Cie. Dialling discriminator. 3,828,131, Cl. 178-69.00g.
- Bodenseewerk Perkin-Elmer & Co. GmbH: See—
Riethmuller, Lothar H.; Sponholz, Richard; Kiefer, Hans; and Spreitzhofer, Ernst, 3,828,259.
- Boe, Christian Thorkild; and Dawids, Steen Gamwell, to Aktieselskabet de Danske Sukkerfabrikker. Supporting plates for the membranes of a dialyzer, particularly for hemodialysis. 3,827,563, Cl. 210-321.000.
- Boggs, Luther Miles; Flichman, Howard John; and Hudson, James Alphas, Jr., to Western Electric Company, Incorporated. Methods of and apparatus for measuring the thickness of successive sections of a cable jacket. 3,827,287, Cl. 73-67.80s.
- Boggs, William E.; Boro, Franklin; Linderman, William A.; and Snow, Roland B., to United States Steel Corporation. Method of retarding metal scale formation with carbon-containing MgO-B₂O₃ coatings. 3,827,922, Cl. 148-27.000.
- Bolden, James D.; and Koller, Floyd G., to Auto-Valve, Inc. Low pressure ball valve with annular seal. 3,827,671, Cl. 251-84.000.
- Boldt, Allyn L., to United States of America, Atomic Energy Commission. Radioactive waste storage. 3,828,197, Cl. 250-506.000.
- Bolinger, John F.; and Leatham, Douglas B., to Meridian Industries, Inc. Clutch and ignition interlock. 3,827,540, Cl. 192-084.
- Boltho, Walter J. Unitary cellular-structured cooking fire apparatus. 3,827,423, Cl. 126-29.000.
- Boller, George E.; and Renk, Richard J., to Gladys Miller. Traction motor suspension bearing lubricator. 3,827,769, Cl. 308-132.000.
- Bollinger, Luther L., Sr.: See—
Hennessy, James J., Jr.; and Bollinger, Luther L., Sr., 3,827,768.
- Bom, Nicolaas, to Erasmus Universiteit. Method of manufacturing a catheter. 3,827,115, Cl. 29-25.350.
- Bond, Kenneth Arthur George; Munro, Roger Cameron; and Hayler, Reginald, to Gelman Instrument Company. Device for blood sedimentation rate estimation. 3,827,286, Cl. 73-61.400.
- Boney, Warren X.: See—
Lambert, Russell R., Sr., 3,827,586.
- Booth, Gary E.: See—
Lyness, Warren I.; Amel, Ronald T.; and Booth, Gary E., 3,828,060.
- Borax Consolidated Limited: See—
Greeson, Henry Edward, 3,827,880.
- Borg, Henry A., to United States of America, Army. Vehicle test fixture. 3,827,289, Cl. 73-71.700.
- Boro, Franklin: See—
Boggs, William E.; Boro, Franklin; Linderman, William A.; and Snow, Roland B., 3,827,922.
- Bosch, Robert, G.m.b.H.: See—
Faupel, Werner; and Zibold, Karl, 3,827,832.
- Linder, Ernst; Zechmann, Richard; Wahl, Josef; and Schmidt, Peter Jurgen, 3,827,237.
- Straub, Steffen, 3,828,179.
- Boschetti, Eugene; Molho, Darius; and Fontaine, Louis, to Lipha, Lyonnaise Industrielle Pharmaceutique. Aminoalcohols derived from ortho-trans-hydroxy-cinnamic acids and esters. 3,828,095, Cl. 260-471.00r.
- Boshagen, Horst: See—
Lorenz, Watter; Boshagen, Horst; Hammann, Ingeborg; and Behrenz, Wolfgang, 3,828,063.
- Bosman, Hans Harold: See—
Buckett, William Roger; and Bosman, Hans Harold, 3,828,050.
- Bottonari, Kenneth Charles: See—
Blane, Leslie Lewis; Bottonari, Kenneth Charles; and Lewis, Edward Earl, 3,828,140.
- Boudouris, Angelo; and Gray, Geoffrey T., to Eprad Incorporated. Reflector apparatus. 3,827,782, Cl. 350-295.000.
- Boulus, Paul A. Method of cleaning thick covering textile materials and composite cleaning pad therefor. 3,827,857, Cl. 8-137.000.
- Bourne, Richard Curtis. Unitary electrical receptacles. 3,828,113, Cl. 174-55.000.
- Bourseaux, Friedrich: See—
Arnold, Herbert; Bourseaux, Friedrich; Potel, Jurgen; and Brock, Norbert, 3,828,090.
- Boyd, Donald R., to Allis-Chalmers Corporation. Magnetic actuator device. 3,828,288, Cl. 335-234.000.
- Bradbery, Jack L.; Andersen, Todd G.; and Fechalos, William A., to Wescom, Inc. End mark controlled switching system and matrix. 3,828,314, Cl. 340-166.00r.
- Bradley, Richard S., to Weigh-Tronix, Inc. Weight measuring hook block apparatus for cranes. 3,827,514, Cl. 177-147.000.
- Bradley, Richard S., to Weigh-Tronix Incorporated. Moisture impervious impact shield for a transducer and method of making the same. 3,828,295, Cl. 338-6.000.
- Bradshaw, Roy C.; and Hicks, Gus H., said Bradshaw assor. of 3/4 interest to said Hicks, Gus H. System for treating solid material. 3,827,158, Cl. 34-182.000.
- Braginetz, Paul A., to Morris, Philip, Incorporated. Blade dispenser. 3,827,597, Cl. 221-232.000.
- Branchaud, Jean Marie. Door closing device. 3,827,105, Cl. 16-190.000.
- Brand, Arnold J.: See—
Sacks, Sidney M.; Brand, Arnold J.; and Slump, William R., 3,828,347.
- Brandinger, Jay Jerome; Pritchard, Dalton Harold; Fredendall, Gordon Lyle; and Schroeder, Alfred Christian, to RCA Corporation. Color signal producing system utilizing spatial color encoding and comb filtering. 3,828,121, Cl. 178-5.4st.

- Brasie, William C., to Dow Chemical Company, The. Interfacial surface generator. 3,827,676, Cl. 259-4.000.
- Bratchell, Robert Lyndon, to Concrete Industries (Monier) Limited. Prestressed rod laying means and method. 3,827,132, Cl. 29-433.000.
- Braunmiller, Heinz: See—
Stephany, Christian; Braunmiller, Heinz; and Katzer, Johannes, 3,827,637.
- Brazeway, Inc.: See—
Hickman, Stephen L.; and Griewahn, Carl O., 3,827,485.
- Bredbusch, Heinrich, to Rotary Hoes Limited. Device for lubrication of horizontal wine and fruit presses with cylindrical press basket. 3,827,354, Cl. 100-289.000.
- Brennan, Thomas J., to Stryker Corporation. Dental handpiece. 3,827,149, Cl. 32-26.000.
- Breslow, David S., to Hercules Incorporated. Poly(aziridine)s. 3,828,024, Cl. 260-239.00c.
- Brett, John J.: See—
Eidelberg, Jonah; Mooney, Thomas; and Brett, John J., 3,828,117.
- Bretti, Franco: See—
De Sandre, Giovanni; Subrizi, Angelo; and Brett, Franco, 3,828,322.
- Bridgestone Liquefied Gas Company, Limited: See—
Yamamoto, Katsuro, 3,827,136.
- Bridgestone Liquefied Gas Company Ltd.: See—
Yamamoto, Katsuro, 3,827,135.
- Bridgestone Tire Company, Limited: See—
Tanihata, Akio; and Abe, Norio, 3,827,127.
- Bridgestone Tire Company Ltd.: See—
Yamasaki, Hiroyuki; and Kaida, Masaaki, 3,828,309.
- Briggs & Stratton Corporation: See—
Couchman, Robert Jr., 3,827,307.
- Harkness, Joseph R.; Santi, John D.; and Lechtenbert, Leo J., 3,828,212.
- Brink, Robert H., Jr.: See—
Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,827,873.
- Brink, Robert V., to Chicago Rawhide Manufacturing Company. Radial shaft seal with positive garter spring retention. 3,827,703, Cl. 277-153.000.
- Brisk, Richard A.: See—
Heitman, Richard E.; Arciprete, Genio R.; Martin, Peter G.; Norris, Richard C.; and Brisk, Richard A., 3,828,323.
- Brister, Beryl D. Installation, hydrostatic testing, repair, and modification of large diameter fluid transmission lines. 3,827,282, Cl. 73-40.50r.
- Bristol, Thomas R.; Lakin, Harold; and Renga, Fred L., to Addressograph-Multigraph Corporation, mesne. Indexing mechanism for a collating and collecting apparatus. 3,827,312, Cl. 74-436.000.
- British Railways Board: See—
Denham, Albert W.; and Redfern, Brian A. W., 3,827,129.
- British Steel Corporation: See—
Greeson, Henry Edward, 3,827,880.
- British Titan Limited: See—
New, George William, 3,828,223.
- British United Shoe Machinery Co., Ltd.: See—
Clarke, Terence James Leonard; Quarumby, Robert Charles; and Matts, George Arthur, 3,827,464.
- Broad, David Rex; Hatton, Leslie Roy; and Parnell, Edgar William, to May & Baker Limited. Thiophene derivatives. 3,828,001, Cl. 260-332.20c.
- Brock, Norbert: See—
Arnold, Herbert; Bourseaux, Friedrich; Potel, Jurgen; and Brock, Norbert, 3,828,090.
- Brola, Gabriel. Radiant heaters. 3,827,424, Cl. 126-92-b.
- Brooks, Frank W., to General Motors Corporation. Disc brake parking brake. 3,827,534, Cl. 188-68.000.
- Brooks, Herman H., to Sundstrand Data Control, Inc. Demodulator for angularly related signals. 3,828,331, Cl. 340-179.000.
- Brosene, William G., Jr., to Magnum Automotive Equipment, Inc. Lower bead breaker mechanism. 3,827,475, Cl. 157-1.280.
- Brown, Alvin E.: See—
Cusick, John H.; Brown, Alvin E.; Hamamoto, Al S.; and Bellin, Jack L. S., 3,827,619.
- Brown, Boveri & Cie AG: See—
Gammel, Gregor; Pawlowski, Peter H.; Heidtmann, Uwe; and Jons, Matthias, 3,827,480.
- Brown, Darrell E.: See—
Birch, Arthur I.; and Brown, Darrell E., 3,827,440.
- Brown, David E. Precision rotary index. 3,827,308, Cl. 74-88.000.
- Brown, Donald: See—
Vutz, Norman; and Brown, Donald, 3,827,457.
- Brown, Eldon W.: See—
Forse, Harry D.; and Brown, Eldon W., 3,827,425.
- Brown, Kenneth, to Hepworth Plastic Limited. Pipe couplings. 3,827,734, Cl. 285-379.000.
- Brown Oil Tools, Inc.: See—
Hall, Harold, 3,827,486.
- Browne-Morse Company: See—
Betts, Paul J., 3,827,570.
- Brownson, Ivan Frank. Water ski construction. 3,827,096, Cl. 9-310.00a.
- Bruck, George; Faroudja, Yves C.; and Smaller, Philip, to Avco Corporation, mesne. Polychrome television recording and playback system. 3,828,129, Cl. 178-5.4cd.
- Brucker, William S. Self healing clutch. 3,827,259, Cl. 64-28.00r.
- Brulard, Michel, to Jeumont-Schneider. Switching enabling two electrical machines to motor or regenerate with their armatures in parallel or in series. 3,828,233, Cl. 318-87.000.
- Bryant, Paul M., to International Technical Industries. Pressure sensing and indicating system. 3,828,333, Cl. 340-236.000.
- Buckett, William Roger; and Bosman, Hans Harold, to Akzona Incorporated, mesne. 3-Alkoxy-14-acyloxydihydromorphinone derivatives. 3,828,050, Cl. 260-285.000.
- Budai, Mikulas, to Ferd Ruesch Maschinenfabrik, Firma. Device for moving a web in a rotary printing press for the printing of varying formats. 3,827,358, Cl. 101-228.000.
- Budd, Sidney Maurice, to United Glass Limited. Coating process for glass containers. 3,827,871, Cl. 65-60.000.
- Buhayar, Eric S., to Scott Paper Company. Method and apparatus for changing the spacing between discrete, flexible web product. 3,827,545, Cl. 198-34.000.
- Buhrke, Rolfe E.: See—
Wilber, John A.; Rice, Verner K.; and Buhrke, Rolfe E., 3,828,321.
- Bunker Ramo Corporation: See—
Bushek, James A.; and Sorensen, David K., 3,828,118.
- Cieniawa, Edward A.; and Palecek, Vincent J., 3,828,302.
- Sladek, Norbert J.; Petti, Pasquale Ralph; and Zerlin, William Max Erich, 3,828,303.
- Bunnell, Edward Dennman; and Parsons, Stuart L., to AMP Incorporated. Snap switch actuator. 3,828,151, Cl. 200-67.0da.
- Burchette, Robert L., Jr. Collapsible dye spring or the like. 3,827,652, Cl. 242-118.110.
- Burger Eisenwerke Aktiengesellschaft: See—
Tropp, Karl; Durth, Wilfried; and Jakob, Heinrich, 3,827,346.
- Burgett, James F.; and Vanderberg, Lawrence J., to Ford Motor Company. Magnetic gauge circuit. 3,828,254, Cl. 324-101.000.
- Burke, Richard L., to Colgate-Palmolive Company. Cleanser compositions containing both oxidizing and reducing agents. 3,827,868, Cl. 51-308.000.
- Burlis, Norbert W., to Sherwood Medical Industries Inc. Blood oxygenation device. 3,827,860, Cl. 23-258.500.
- Burrard Refrigeration Ltd.: See—
Williams, George H., 3,827,253.
- Burroughs Corporation: See—
Dinerman, Bernard B.; and Schroeder, Franklin T., 3,828,320.
- Fehnel, Richard Byrd, 3,828,218.
- Schwanauer, Francis J., 3,828,271.
- Stopper, Herbert, 3,828,202.
- Vigil, Jacob F.; Billard, Stephen L.; Oropesa, Joel T.; and Armstrong, Ralph W., Jr., 3,828,324.
- Burroughs Wellcome Co.: See—
Mann, George Forbes, 3,827,943.
- Burton, Christopher Philip, to International Computers Limited. Monitoring and display apparatus. 3,828,342, Cl. 340-324.0ad.
- Buser, Rudolf G.; and Kaunzinger, Helmuth M., to United States of America, Army. Electrostic charge measuring device. 3,828,250, Cl. 324-72.000.
- Bush, John E.: See—
Detting, Ronald F.; Bush, John E.; and Zulkowski, Thomas R., 3,827,656.
- Bushek, James A.; and Sorensen, David K., to Bunker Ramo Corporation. Electrical feedthrough assemblies for containment structures having specially controlled environments and method of making. 3,828,118, Cl. 174-11.00r.
- Buske, Ervin. Wedge-tight clamp. 3,827,279, Cl. 72-457.000.
- Butherus, Alexander Duane; Phillips, James Charles; and Scrosati, Bruno, to Bell Telephone Laboratories Incorporated. Solid electrolyte power source. 3,827,913, Cl. 136-83.00r.
- Butler, Frank W. Boat trim construction. 3,827,092, Cl. 9-6.000.
- Butler, Robert W.: See—
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- Buttner, Gerhard, to Siemens Aktiengesellschaft. Electrical hearing aid. 3,828,142, Cl. 179-107.20r.
- Byars, Carl A.: See—
Baxter, Robert O.; Byars, Carl A.; Nadaskay, Richard J.; and Roark, Lamar P., 3,827,614.
- Byers, Lewis C. Safety latch for hoist hook. 3,827,746, Cl. 294-82.00r.
- Byrne, Geoffrey A.; and Arthur, Jett C., Jr., to United States of America, Agriculture. Durable-press cotton textiles and method of making same. 3,827,858, Cl. 8-184.000.
- Byron, W. H., Inc.: See—
Kirkner, Samuel, 3,827,195.
- C-O Inc.: See—
Ollman, Melvin L., 3,827,117.
- Cadenhead, R. Alton: See—
Bledsoe, D. Wayne; and Cadenhead, R. Alton, 3,827,929.
- Cahen, Raymond M.; Debus, Henri R.; and Aga, Rene L., to Labofina S.A. Process for the purification of light paraffinic petroleum distillates. 3,827,974, Cl. 208-143.000.
- Cairns, Elton J.; Shimotake, Hiroshi; and Selman, Jan R., to United States of America, Atomic Energy Commission. Homogeneous cathode mixtures for secondary electrochemical power-producing cells. 3,827,910, Cl. 136-6.0lf.

Cairns, John Francis; Colchester, John Edward; and Entwisle, John Hubert, to Imperial Chemical Industries Limited. Process for the manufacture of 1,1'-disubstituted-4, 4'-bipyridylum salts. 3,828,058, Cl. 260-296.00d.

California Injection Molding Co., Inc.: See—
De Walker, Roger D.; and Howe, Blair E., 3,827,856.

California Institute of Technology: See—
Toth, Louis R.; Hagler, Ray, Jr.; and Keller, Orville F., 3,827,568.

Callahan, Norman F., to Electrometallurgical Sales, Division of the Gilbert Tramer Co. Reflectivity-responsive control system for electrolytic finishing apparatus. 3,827,963, Cl. 204-228.000.

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Bennett, Charles D.; Coates, Peter M.; and Coates, Robert N., 3,828,318.

Cambridge Research and Development Group: See—
Schiffman, Murray M., 3,828,361.

Camco, Incorporated: See—
Terral, Ben D., 3,827,493.

Cameron Iron Works, Inc.: See—
Jones, Marvin R., 3,827,511.

Campbell, George F., Jr.: See—
Lerner, Julius; and Campbell, George F., Jr., 3,827,283.

Canning, Glenn R. Pegboard display rack. 3,827,569, Cl. 211-7.000.

Canonica, Luigi; Danieli, Bruno; and Ferrari, Giorgio, to Dauten S.A. Insect moulting hormones, and method for their preparation and use. 3,828,082, Cl. 260-397.250.

Carbrey, Robert Lawrence, to Bell Telephone Laboratories, Incorporated. Communication system hybrid balance arrangement. 3,828,145, Cl. 179-170.0nc.

Card, Charles D.; and Crane, John R., to Sperry Rand Corporation. Character addressing in a word oriented computer system. 3,828,316, Cl. 340-172.500.

Carding Specialists (Canada) Limited: See—
Varga, John Maximilian Jules, 3,827,106.

Carlson, Arthur W., to Sheldon, E. H., and Company. Stream table study center. 3,827,290, Cl. 73-86.000.

Carlson, Chesley F., Co.: See—
Pamlenyi, George, 3,828,226.

Carlsson, Kurt: See—
Bahri, Marcel; and Carlsson, Kurt, 3,827,955.

Carolina China, Inc.: See—
Powers, Robert E., Jr., 3,827,596.

Carrier Corporation: See—
Hopkinson, Harold H., 3,827,483.

Kerschbaumer, Hans Gerhard; and Endress, James W., 3,827,250.

Mandy, Zoltan P.; Akerhielm, George; and Tulowiecki, David, 3,827,481.

Carrier Corporation, mesne: See—
Liberman, Harvey W.; Harvey, Samuel E.; and Voorhees, Steven C., 3,827,587.

Carriere et Fours a Chaux Dumont-Wantier: See—
Dumont, Philippe, 3,827,897.

Carroll, William M. Rotary material working apparatus. 3,827,116, Cl. 29-38.00c.

Carter, Charles H., Jr.; and Newfeld, Stewart M., to ICI America Inc. Alarm apparatus for facilitating the detection of an unauthorized removal of property. 3,828,341, Cl. 340-280.000.

Carter, George E.: See—
Glynn, Donald C.; Chao, Andrew M.; and Carter, George E., 3,828,261.

Cash, Kenneth W., to International Business Machines Corporation. Adapter for interfacing a programmable controller to a data processor channel. 3,828,326, Cl. 340-172.500.

Caspi, Eliahu; and Aberhart, Donald J. Synthesis of 14 β hydroxysteroids. 3,828,029, Cl. 260-239.55r.

Cassel, Thomas R. Pipe coupling unit. 3,827,733, Cl. 285-382.200.

Caywood, James A.; McKeron, Charles E.; and Smith, Willard G., to Ford Motor Company. Tractor hydraulic lift control valve. 3,827,336, Cl. 91-446.000.

CEGEDUR Societe de Transformation de l'Aluminium Pechiney: See—
Baumann, Bernard, 3,827,130.

Celada, Juan; Pena, Jesus Maria; MacKay, Patrick W.; de la Pena, Ramon; Martinez, Enrique Ramon; and de la Torre, Maria Teresa, to Fierro Esponja, S.A. Method for the gaseous reduction of metal ores. 3,827,879, Cl. 75-35.000.

Cellesta, Jerry J., to Muskateer Corporation. Insulating plug. 3,827,462, Cl. 138-90.000.

Centre for Industrial Research (CIR) Ltd.: See—
Zirlin, Amnon Dov, 3,827,899.

Chabardes, Pierre; Gandillon, Pierre; Grard, Charles; and Thiers, Michel, to Rhone-Poulenc S.A. Process for producing alkyl ester of ω -cyano-acids. 3,828,092, Cl. 260-465.400.

Chambers, Charles W., Jr., to Lorain Products Corporation. Disconnect circuit for telephone systems. 3,828,139, Cl. 179-16.00f.

Chambers, Charles W., Jr., to Lorain Products Corporation. Impedance simulating circuit for transmission lines. 3,828,281, Cl. 333-17.000.

Chang, Nai Chai: See—
Zenchnowitz, Alvin L.; Xenakis, James A.; Barbieri, John D.; and Chang, Nai Chai, 3,827,361.

Chao, Andrew M.: See—

Glynn, Donald C.; Chao, Andrew M.; and Carter, George E., 3,828,261.

Charles, Maynard. Spark tester. 3,828,246, Cl. 324-18.000.

Charlton, John Cecil; and Lyons, Dermot, to Radiochemical Centre Limited, The. Technetium-99M generators. 3,827,986, Cl. 252-301.10r.

Charmeil, Pierre; and DeBieuvre, Michel, to S.A.R.L. "Constructions Isothermiques Bontami". Regulator for centralized refrigerating. 3,828,152, Cl. 200-83.000.

Chase, Bernard S.; Frederick, Raymond H.; and Gorglione, Victor T. Stationary backlit billboard, billboard display panel and method of making a billboard display panel. 3,827,169, Cl. 40-125.00k.

Chemical Generators, Inc.: See—
Callera, Joseph, 3,828,097.

Chen, Pictaw, to University of California, The Regents of the. Orange picker. 3,827,221, Cl. 56-328.00r.

Chevallier, Pierre, to Etablissements Genoud & Cie, Societe Anonyme. Automatic cigarette lighter. 3,827,852, Cl. 431-254.000.

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Chevron Research Company: See—
Bacska, Robert, 3,828,016.

Reed, Marion G., 3,827,495.

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Unterberger, Robert R., 3,828,245.

Chia, Enrique C., to Southwire Company. Grain refinement of aluminum alloy castings. 3,827,881, Cl. 75-138.000.

Chicago Musical Instrument Co.: See—
Morez, Eugene S., 3,828,109.

Chicago Rawhide Manufacturing Company: See—
Brink, Robert V., 3,827,703.

Ching, Pai Ping. Ambient light warning device. 3,828,311, Cl. 340-84.000.

Cho, Boong Y., to Industrial Nucleonics Corporation. Method and apparatus for measuring the opacity of sheet material in which the transmittance signal is compensated for the reflectivity of the material. 3,827,808, Cl. 356-199.000.

Chofuku, Jiro: See—
Sakurai, Katsuo; and Chofuku, Jiro, 3,827,713.

Chovet, Patrice; Rollin, Claude; Galasso, Honore; and Prost, Roger, to L'Air Liquide, Societe Anonyme Pour L'Etude et l'Exploitation des Procédes Georges Claude. Method of regulation of the frigorific power of a Joule-Thomson refrigerator and a refrigerator utilizing said method. 3,827,252, Cl. 62-222.000.

Chrysler Corporation: See—
Sarto, Jorma O., 3,827,414.

Waitzman, Dennis Carl, 3,827,412.

Chubb Tire Security Limited: See—
Lockwood, Frank R., 3,827,502.

Chugai Seiyaku Kabushiki Kaisha: See—
Hata, Shun-ichi, 3,827,948.

Chukyo Electric Co., Ltd., mesne: See—
Higuchi, Yasuo; and Mitsumura, Yoshio, 3,827,835.

Ciba-Geigy AG: See—
Batzer, Hans; Habermeyer, Juergen; and Porret, Daniel, 3,828,045.

Karrer, Friedrich, 3,828,031.

Stagi, Mauro, 3,828,069.

Ciba-Geigy Corporation: See—
Doerhoefer, Guenther, 3,828,046.

Holt, Brian; Randell, Donald Richard; and Jack, James, 3,828,052.

Porret, Daniel, 3,828,066.

Cicione, Robert J.; Najjar, Edward G.; Scanlon, Patricia M.; Ohlson, John L.; and Finn, Joseph F., to Grace, W. R., & Co. Composition for producing wrinkle-free permanently pressed cellulosic textile materials. 3,827,994, Cl. 260-29.40r.

Cieniawa, Edward A.; and Palecek, Vincent J., to Bunker Ramo Corporation. Electrical connector and mounting means. 3,828,302, Cl. 339-91.00r.

Cipriani, Cipriano: See—
Rothwell, Ronald Edward; and Cipriani, Cipriano, 3,827,931.

Clark, David L., to General Motors Corporation. One-way mirror periscope rear vision system. 3,827,788, Cl. 350-302.000.

Clark Equipment Company: See—
Cooke, Austin C., 3,827,747.

Hansen, Howard C., 3,827,758.

Visser, Peter J., 3,827,743.

Williamson, William A., 3,827,517.

Clark, Jerri O.: See—
Seymour, Merrit W.; and Clark, Jerri O., 3,827,086.

Clarke, Terence James Leonard; Quarmby, Robert Charles; and Matts, George Arthur, to British United Shoe Machinery Co., Ltd., The. Manufacture of springs. 3,827,464, Cl. 140-103.000.

Clarke, William M.: See—
Hammond, Philip D.; Scott, John A.; Clarke, William M.; and Denton, William T., 3,828,089.

Clasen, Richard Howard: See—
Giglia, Robert Domenico; and Clasen, Richard Howard, 3,827,784.

Clay, Henry J.: See—
Pechacek, Raymond E.; and Clay, Henry J., 3,827,839.

Cleland, Ernest K.: See—
Yamaguchi, Takeshi, 3,828,161.

Clement, John H. Signaling device for rural mailbox. 3,827,627, Cl. 232-35.000.

Clements, Michael R.: See—
Amdahl, Gene M.; and Clements, Michael R., 3,828,175.

Close, David E., to Transportation Technology, Inc. Linear motor acceleration control system. 3,828,236, Cl. 318-561.000.

Coates, Peter M.: See—
Bennett, Charles D.; Coates, Peter M.; and Coates, Robert N., 3,828,318.

Coates, Robert N.: See—
Bennett, Charles D.; Coates, Peter M.; and Coates, Robert N., 3,828,318.

Cockrum, Raymond C. Working barrel rack. 3,827,572, Cl. 211-81.000.

Codina, Jorge G., to Combined Sciences Corporation. Optical minitor. 3,827,810, Cl. 356-201.000.

Codrino, Giuseppe. Terminals of electrical equipment and ribbon-like leads. 3,828,300, Cl. 339-74.00r.

Cohen, Lawrence: See—
De Haan, Michael; and Cohen, Lawrence, 3,827,985.

Cohen, Martin G., to Quantronix Corporation. High efficiency acousto-optical Q-switch. 3,828,276, Cl. 331-94.500.

Colchester, John Edward: See—
Cairns, John Francis; Colchester, John Edward; and Entwisle, John Hubert, 3,828,058.

Colgate-Palmolive Company: See—
Barnhurst, James Douglas; and Renold, Adolph, 3,828,104.

Burke, Richard L., 3,827,868.

Colgate-Palmolive Company: See—
Mitchell, Harry Ian; and Tomlinson, Kenneth, 3,827,983.

Colin, Dennis P., to ARP Instruments, Inc. Control circuitry for electronic musical instrument. 3,828,110, Cl. 84-1.010.

Collins, Joseph M. Golf ball warming oven. 3,828,165, Cl. 219-521.000.

Coltrin, Robert Peyton. Method of swage nail fastening. 3,827,131, Cl. 29-432.100.

Columbia Manufacturing Corporation: See—
Dushane, Raymond N., Jr., 3,827,738.

Columbine Glass Company: See—
Fogelberg, Clement V.; and Kujava, John M., 3,827,870.

Combined Sciences Corporation: See—
Codina, Jorge G., 3,827,810.

Commissariat A l'Energie Atomique: See—
Fromageot, Pierre; Hung, Lam Thanh; and Morgat, Jean-Louis, 3,828,102.

Max, Jacques; and Kofman, Wlodzimierz, 3,827,629.

Volsy, Robert, 3,827,217.

Compactor Company, Inc.: See—
Hennells, Ransom J., 3,827,348.

Compagnie Generale d'Electricite: See—
Berthet, Michel, 3,828,111.

Ripart, Guy, 3,827,787.

Compagnie Industrielle des Telecommunications Cie: See—
Bocabelle, Gilbert; and Augris, Rene, 3,828,131.

Concrete Industries (Monier) Limited: See—
Bratchell, Robert Lyndon, 3,827,132.

Condon, John J. Dental tool. 3,827,147, Cl. 32-17.000.

Connell, Lehman J.; and Durkee, Lyle H., to General Motors Corporation. 3,827,710, Cl. 280-87.00r.

Conolon Corporation, The: See—
Barnes, Richard D., 3,827,173.

Construction Technology, Inc.: See—
Lance, Raymond E., 3,827,507.

Constructions Mills. K.: See—
Coppel, Georges, 3,827,365.

Container Corporation of America: See—
McCloud, Robert D., 3,827,622.

Container Graphics Corporation: See—
Saunders, Philip G.; Simpson, Jack R.; and Peer, Daniel R., 3,827,322.

Continental Can Company: See—
Armstrong, Thaddeus J.; Styczen, John A.; and Klasek, Ladislav J., 3,827,284.

Continental Oil Company: See—
Edmond, Tibor O., 3,827,512.

Tarter, James H., 3,827,454.

Continental Scale Corporation: See—
Hutchinson, William Y.; and Kushmuk, Walter P., 3,827,515.

Converse, David B. Guided tool. 3,827,822, Cl. 408-110.000.

Conveyor Line Products, Inc.: See—
Richard, Jimmy W., 3,827,554.

Cooke, Austin C., to Clark Equipment Company. Adjustable seat for an industrial truck. 3,827,747, Cl. 296-65.00r.

Copeland, William Leo. Mod-wall concrete. 3,827,895, Cl. 106-99.000.

Coppel, Georges, to Constructions Mills. K. Automatic type of load-carrying trolley and its applications to storage installations on one or more levels. 3,827,365, Cl. 104-88.000.

Cornier, Sally P.; and Wymore, Charles E., to Dow Chemical Company. The Process for preparing cyclic oligomers of N-substituted aziridines. 3,828,023, Cl. 260-239.0bc.

Corning Glass Works: See—
Mansfield, Gerald R.; Rogers, Charles H.; and Sullivan, Kevin J., 3,827,805.

Meissner, Helmuth E.; and Stookey, Stanley D., 3,827,893.

Cotton, Incorporated: See—
LeBlanc, Robert Bruce, 3,827,907.

Couchman, Robert Jr., to Briggs & Stratton Corporation. Drag device for bendix-type rope starters. 3,827,307, Cl. 74-6.000.

Couture, Romeo E.: See—
LaFlamme, Philip A.; and Couture, Romeo E., 3,827,328.

Coval, Arthur B. Articulated haulage vehicle. 3,827,721, Cl. 280-400.000.

Craig, Frank G., Sr., to Roblin Industries, Inc. Demountable shelf edge fence. 3,827,574, Cl. 211-184.000.

Cranda Corporation: See—
Arnold, Don C.; and Ritzenthaler, Richard L., 3,827,088.

Crane, Jack W.: See—
Blanshine, Allison W.; Crane, Jack W.; and Mast, Aquila D., 3,827,223.

Crane, John R.: See—
Card, Charles D.; and Crane, John R., 3,828,316.

Crawford, Wilbur B.; Young, Earl W.; and Happy, Raymond, to General Motors Corporation. Cam controlled surface forming machine. 3,827,191, Cl. 51-101.00r.

Creusot-Loire: See—
Mouneydiere, Robert, 3,827,373.

Pere, Gerard, 3,827,311.

Croft, Harry E. Shopper's kit. 3,827,551, Cl. 206-214.000.

Cronin, David V.: See—
Land, Edwin H.; and Cronin, David V., 3,828,293.

Cross, Laurence Allan, Jr., to Randomatic Data Systems, Inc. Card shift mechanism for random access filing systems. 3,827,553, Cl. 209-80.500.

Crossfield, Roger John, to Fiber Industries, Inc. Process for steam jet texturing a coated yarn. 3,827,114, Cl. 28-75.0wt.

Crossland, Ronald K., to Shell Oil Company. Stable elastomeric polymer-oil compositions. 3,827,999, Cl. 260-33.6aq.

Crowe, Curtis W., to Dow Chemical Company. The. Fluid loss additive. 3,827,498, Cl. 166-282.000.

Crowe, Talmadge L., to Baker Oil Tools, Inc. Anti-friction ball valve operating means. 3,827,494, Cl. 166-224.000.

Crownover, Joseph W.: See—
Bennett, Kenneth R.; and Crownover, Joseph W., 3,827,142.

Cuccio, Allen B. J.: See—
Stafford, John P.; Cuccio, Allen B. J.; and Johnson, J. Arthur, 3,828,325.

Culligan International Company: See—
Rak, Stanley F., 3,827,564.

Cunningham, Arthur L.; Poovathunkal, Cyriac C.; and Yapp, William J., to Sherwin-Williams Company, The. Liquid polyol compositions. 3,827,993, Cl. 260-22.0ep.

Curran, Roger J., to Remington Arms Company Inc. Water-soluble shotshell wad and method of manufacturing same. 3,827,363, Cl. 102-95.000.

Curry, Paul F. Wheel chair. 3,827,718, Cl. 280-242.0wc.

Cusick, John H.; Brown, Alvin E.; Hamamoto, Al S.; and Bellin, Jack L. S., to United States of America, Navy, mesne. Ultrasonic bond monitor. 3,827,619, Cl. 228-1.000.

Cuthbertson, William C. Tiltable tub assembly for bathing invalids. 3,827,087, Cl. 4-178.000.

Czernik, Daniel E., to Felt Products Mfg. Co. Roadway joint seal assembly and end dam section. 3,827,817, Cl. 404-67.000.

D-TEK: See—
Bauer, Richard H., Jr.; Schultdt, David A.; and Shum, Edward K., 3,828,340.

Dahlin, Erik B.; and Hill, Robert C., to Measurex Corporation. Detector assembly. 3,828,190, Cl. 250-308.000.

Dahly, Harold W. Adjustable chin rest for smokers pipes. 3,827,445, Cl. 131-186.000.

Daido Metal Company: See—
Morisaki, Nobukazu, 3,827,884.

Daido Seiko Kabushiki Kaisha: See—
Sone, Sadaie, 3,828,107.

Daigle, Henri. Rural mailbox. 3,827,626, Cl. 232-17.000.

Dailey, Clifford P. Means for attaching pencils to templates. 3,827,152, Cl. 33-174.00b.

Daimler-Benz Aktiengesellschaft: See—
Florus, Hans-Jorg; Grossner, Horst; and Osswald, Gerhard, 3,828,198.

Lamm, Heinz; and Kortner, Lothar, 3,827,411.

Muller, Alf, 3,827,711.

Pattas, Konstantin; and Glathe, Hans-Peter, 3,827,837.

Dainippon Pharmaceutical Co., Ltd.: See—
Kinugasa, Hiroaki; Tsukamoto, Masatoshi; Mizuta, Hiroyuki; and Uno, Hitoshi, 3,828,030.

Daniel, Michael R., to Westinghouse Electric Corporation. Method for improving semiconductor surface wave transducer efficiency. 3,828,283, Cl. 353-30.00r.

Danieli, Bruno: See—
Canonica, Luigi; Danieli, Bruno; and Ferrari, Giorgio, 3,828,082.

Darm, William J. Grease-collecting heat exchanger installation. 3,827,343, Cl. 98-115.000.

Datron Systems, Inc.: See—
Bain, James B., 3,828,286.

Daughenbaugh, Raymond. Underwater demolition device. 3,827,359, Cl. 102-1.00r.

Dauksys, Richard J. Stabilization of polymers of unsaturated hydrocarbons. 3,828,004, Cl. 260-45.75r.

Dauten S.A.: See—

Canonica, Luigi; Danieli, Bruno; and Ferrari, Giorgio, 3,828,082.
 D'Auty, Eric Marteau, to Gilson, Warren E. Sample handling method. 3,827,304, Cl. 73-425.600.
 Daveau, Bernard: See—
 Drabowitch, Serge; and Daveau, Bernard, 3,828,352.
 Davidson, Paul, mesne: See—
 De Vault, Robert T.; and Maloof, Ralph, 3,827,390.
 Davis, Amos F. Log cutting apparatus for cutting logs into selected lengths. 3,827,327, Cl. 83-522.000.
 Davis, Burns; Fagerburg, David R.; and Kibler, Charles J., to Eastman Kodak Company. Water-dissipatable polyesteramides. 3,828,010, Cl. 260-75.00n.
 Davis, Thomas S. Marking float. 3,827,093, Cl. 9-8.00r.
 Dawids, Steen Gamwell: See—
 Boe, Christian Thorkild; and Dawids, Steen Gamwell, 3,827,563.
 Day, John R. Illuminated fish lure. 3,828,177, Cl. 240-6.40f.
 D.D.I. Communications, Inc.: See—
 Long, Robert Gordon, 3,828,312.
 De Beaulclair, Wilfried: See—
 Dethloff, Jürgen; and De Beaulclair, Wilfried, 3,828,128.
 De Haan, Michael; and Cohen, Lawrence. Grease extractor. 3,827,985, Cl. 210-179.000.
 de la Pena, Ramon: See—
 Celada, Juan; Pena, Jesus Maria; MacKay, Patrick W.; de la Pena, Ramon; Martinez, Enrique Ramon; and de la Torre, Maria Teresa, 3,827,879.
 de la Torre, Maria Teresa: See—
 Celada, Juan; Pena, Jesus Maria; MacKay, Patrick W.; de la Pena, Ramon; Martinez, Enrique Ramon; and de la Torre, Maria Teresa, 3,827,879.
 De Marco, Franco; and Manghi, Carlo A., to Societa Italiana Telecomunicazioni Siemens S.p.A. System for detecting dial-generated and pushbutton generated selection pulses. 3,828,141, Cl. 179-84.0vf.
 De Marinis, Robert M.; and Hoover, John R. E., to Smithkline Corporation. Trifluoromethylmercaptoacetamidoccephalosporins. 3,828,037, Cl. 260-243.00c.
 De Sandre, Giovanni; Subrizi, Angelo; and Bretti, Franco, to Olivetti, Ing., C., & C., S.p.A. Electronic computers. 3,828,322, Cl. 340-172.500.
 De Vault, Robert T.; and Maloof, Ralph, to Davidson, Paul, mesne. Hydrojet propulsion drive. 3,827,390, Cl. 115-12.00r.
 De Vries, Douwe; and Gilmore, Samuel E., to Stewart, C. Jim, & Stevenson, Inc. Locking system for a blowout preventer. 3,827,668, Cl. 251-1.000.
 De Walker, Roger D.; and Howe, Blair E., to California Injection Molding Co., Inc. Apparatus for loading inserts onto insert receiving seats of a mold. 3,827,856, Cl. 425-126.00r.
 Deardorff, Harold F.: See—
 Meyer, Richard C., 3,827,403.
 DeBieuvre, Michel: See—
 Charneil, Pierre; and DeBieuvre, Michel, 3,828,152.
 Debus, Henri R.: See—
 Cahen, Raymond M.; Debus, Henri R.; and Aga, Rene L., 3,827,974.
 Deere & Company: See—
 Ackley, John William, 3,827,724.
 Defibrillator Aktiebolag: See—
 Johansson, Johan Gunnar Inge, 3,827,644.
 Demag A.G.: See—
 Wenzel, Werner; Meraikib, Mohammed; Franke, Friedrich H.; and König, Horst, 3,827,878.
 Demi, Roy C., to Robertshaw Controls Company. Fuel control device. 3,827,630, Cl. 236-99.000.
 Denham, Albert W.; and Redfern, Brian A. W., to British Railways Board. Methods of producing a metal and carbon fibre composite. 3,827,129, Cl. 29-419.000.
 Denton, William T.: See—
 Hammond, Philip D.; Scott, John A.; Clarke, William M.; and Denton, William T., 3,828,089.
 Denzel, Theodor; and Hoehn, Hans, to Squibb, E. R., & Sons, Inc. Amino derivatives of pyrazolopyridine ketones. 3,828,057, Cl. 260-296.00h.
 Dermond, Hartley P. Earth and road roller. 3,827,819, Cl. 404-126.000.
 Derry, Juanita. Portable picnic cart. 3,827,708, Cl. 280-36.00r.
 Dethloff, Jürgen; and De Beaulclair, Wilfried. Manual input device for data-processing system and the like. 3,828,128, Cl. 178-18.000.
 Dettling, Ronald F.; Bush, John E.; and Zulkowski, Thomas R., to United States of America, Navy. Protective weapon for attack aircraft. 3,827,656, Cl. 244-3.160.
 Deubel, Reinhold: See—
 Schwerin, Siegfried; Deubel, Reinhold; and Thilenius, Thilo, 3,827,902.
 Deussen, Werner. Childproof container closure. 3,827,592, Cl. 215-9.000.
 Deutsche Gold-und Silber-Scheideanstalt vormals Roessler: See—
 Westlinning, Hermann; Schwarze, Werner; and Fleischhauer, Horst, 3,828,002.
 DeVita, Raymond A.; Dorosz, Adolph S.; and Scaletti, Henry M. Jr., to USM Corporation. Method and apparatus for forming normally appearing stitches. 3,827,382, Cl. 112-262.000.
 Diagnostic Instruments, Inc.: See—
 Roth, Walter, 3,827,905.
 Diamond Crystal Salt Company: See—

Leverenz, Melvin E.; and Leverenz, Kenneth H., 3,827,450.
 Diamond International Corporation: See—
 Knickerbocker, Michael Gene, 3,827,605.
 Knickerbocker, Michael Gene, 3,827,606.
 Diamond Power Specialty Corporation: See—
 Adiutori, Eugene F., 3,827,102.
 Dickey-John Corporation: See—
 Knepler, John T., 3,828,173.
 Dicus, Allen B., to DKL Industries, Inc. Combination camera and developer tank. 3,828,360, Cl. 354-89.000.
 Diepers, Heinrich; Schmidt, Otto; and Kress, Reinhard, to Siemens Aktiengesellschaft. Method for anodic oxidation of the interior surface of a hollow niobium body provided with at least one opening. 3,827,950, Cl. 204-26.000.
 Dietl, Hans K., to Eastman Kodak Company. Synthesis of 1,5-dimethyl-6,8-dioxabicyclo(3.2.1)octane. 3,828,075, Cl. 260-340.900.
 Dietrich, Karl-Heinz: See—
 Pfeifer, Josef; Hofmann, Wilfried; and Dietrich, Karl-Heinz, 3,827,802.
 Dilby, Clell A., Jr., to United States of America, Navy. Device for changing pitch of an audio signal to improve intelligibility. 3,828,134, Cl. 179-1.0sa.
 Diliberto, Joseph F. Tooth extraction vibrator. 3,827,148, Cl. 32-61.000.
 Dimitracopoulos, Panayotis C. Audiovisual disc projector. 3,827,794, Cl. 353-18.000.
 Dinerman, Bernard B.; and Schroeder, Franklin T., to Burroughs Corporation. Shared memory addressor. 3,828,320, Cl. 340-172.500.
 Dinning, Robert W., to Macco Oil Tool Company, Inc. Apparatus for selectively receiving and releasing well tools. 3,827,491, Cl. 166-224.000.
 DKL Industries, Inc.: See—
 Dicus, Allen B., 3,828,360.
 Doerhoefer, Guenther, to Ciba-Geigy Corporation. [4-(5,10-Dihydro-4H-benzo[5,6]cyclohepta[1,2-b]thien-4-yl)-1-piperazinyl-alkyl]-3-alkyl-2-imidazolidinones. 3,828,046, Cl. 260-268.0tr.
 Dogliotti, Amilcare, to Ferrero, P., & C., S.p.A. Carton closure device. 3,827,624, Cl. 229-45.000.
 Dolby Laboratories Inc.: See—
 Dolby, Ray Milton, 3,828,280.
 Dolby, Ray Milton, to Dolby Laboratories Inc. Compressors, expanders and noise reduction systems. 3,828,280, Cl. 333-14.000.
 Domenico, Amadeo: See—
 Keislich, Klaus; Kerb, Ulrich; Mengel, Klaus; and Domenico, Amadeo, 3,828,083.
 Domtar Limited: See—
 Hamel, Richard, 3,827,281.
 Donahue, Edward T.: See—
 Kenney, Harold E.; and Donahue, Edward T., 3,828,086.
 Donaldson Company, Inc.: See—
 Firth, Robert L., 3,827,558.
 Doniat, Denis; Porta, Augusto; and Mosetti, Jacques, to Battelle Memorial Institute. Method for purifying ionically conducting solutions. 3,827,961, Cl. 204-180.00r.
 Doollittle, Donald B., to All American Industries, Inc. Aircraft arresting apparatus. 3,827,660, Cl. 244-110.00c.
 Doomernik, Cornelis, to Wed. Joh. Verhulst en Zonen B.V. Air conditioning system. 3,827,257, Cl. 62-418.000.
 Dorman, Linneaus C., to Dow Chemical Company, The. Na-[6-(Carbobenzoyloxyamino) hexanoyl]Ne-(substituted carbobenzoyloxy)-L-lysine compounds. 3,828,018, Cl. 260-112.500.
 Dorosz, Adolph S.: See—
 DeVita, Raymond A.; Dorosz, Adolph S.; and Scaletti, Henry M. Jr., 3,827,382.
 Douglas, Bobby L., to Dresser Industries, Inc. Check valve cage apparatus and method of making same. 3,827,122, Cl. 29-157.10r.
 Douglas, David. Method of joining the walls of a double-walled vessel. 3,827,925, Cl. 156-73.000.
 Douglas, Harley W.; and Graydon, Kenneth. Ratchet screw driver. 3,827,470, Cl. 145-76.000.
 Douglass, Richard W., to Norton Company. Fibered metal powders. 3,827,865, Cl. 29-192.000.
 Douley, Richard A. Manipulating mechanism. 3,827,309, Cl. 74-110.000.
 Dow Chemical Company, The: See—
 Brasie, William C., 3,827,676.
 Cornier, Sally P.; and Wymore, Charles E., 3,828,023.
 Crowe, Curtis W., 3,827,498.
 Dorman, Linneaus C., 3,828,018.
 Hickner, Richard A.; and Goss, Edward W., 3,828,100.
 Lee, Walter Joe, 3,827,455.
 Martin, John; and Johnson, Francis, 3,828,064.
 Thomas, Robert J., 3,828,006.
 Dowty Fuel Systems Limited: See—
 Rimmer, Ronald, 3,827,460.
 Drabowitch, Serge; and Daveau, Bernard, to Thomson-CSF. Antenna system employing toroidal reflectors. 3,828,352, Cl. 343-837.000.
 Drayer, T. Gary, to International Harvester Company. Conical transition. 3,827,443, Cl. 130-27.00t.
 Dreher, Edward J. Tilttable form for preformed brick wall. 3,827,666, Cl. 249-18.000.
 Dresser Industries, Inc.: See—
 Douglas, Bobby L., 3,827,122.
 Drollinger, Ralph A.: See—
 Mead, Mitchell F.; and Drollinger, Ralph A., 3,827,612.

Du Pont de Nemours, E. I., and Company: See—
 Beresiewicz, Aleksander, 3,827,996.
 Duggins, Ray B.; Miller, Henry C.; and Vassiliou, Eustachios, 3,827,933.
 Green, Ralph V., 3,827,987.
 Morgan, Paul Winthrop, 3,827,998.
 Zelson, Joseph, 3,827,292.
 Dubrovin, Jury Mikhailovich: See—
 Schedrovitsky, Saveli Solomonovich; Mash, Dmitry Matveevich; Golovko, Zoya Ivanovna; Goncharevich, Leonid Fomich; Lebedev, Alexei Pavlovich; Dubrovin, Jury Mikhailovich; and Suut, Nikolai Karlovich, 3,828,339.
 Duconge, Claude: See—
 Laurent, Jean; and Duconge, Claude, 3,827,814.
 Dudley, Leslie Peter, to Dudley Optical Laboratories, Inc. Steroscopic microscopy. 3,827,793, Cl. 353-8.000.
 Dudley Optical Laboratories, Inc.: See—
 Dudley, Leslie Peter, 3,827,793.
 Duggins, Ray B.; Miller, Henry C.; and Vassiliou, Eustachios, to Du Pont de Nemours, E. I., and Company. Filled polymethyl methacrylate article and a process for its manufacture. 3,827,933, Cl. 161-176.000.
 Dumas, Christ J.; and Simovits, Stephen S., Jr., to American Plasticraft Company. Voltage surge dissipator. 3,828,219, Cl. 313-325.000.
 Dumont, Philippe, to Carriere et Fours a Chaux Dumont-Wantier. Process of obtaining a dry and powdery mixture of hydrated lime and plaster. 3,827,897, Cl. 106-110.000.
 Dunlop Limited: See—
 Mitchell, William E., 3,827,756.
 Durkee, Lyle H.: See—
 Connell, Lehman J.; and Durkee, Lyle H., 3,827,710.
 Durth, Wilfried: See—
 Tropp, Karl; Durth, Wilfried; and Jakob, Heinrich, 3,827,346.
 Dushane, Raymond N., Jr., to Columbia Manufacturing Corporation. Latch assembly. 3,827,738, Cl. 292-128.000.
 Dussan V, Benicio I.: See—
 Weiner, Robert I.; Hoge, Henri H.; and Dussan V, Benicio I., 3,827,477.
 Dycus, Dale W.; Malmberg, Earl W.; and Wilchester, Harry L., to Sun Oil Company (Delaware). Oil recovery process using aqueous surfactant compositions. 3,827,497, Cl. 166-274.000.
 Dzus Fastener Co., Inc.: See—
 Dzus, Theodore, Sr.; and Dzus, Julius Frank, 3,827,110.
 Dzus, Julius Frank: See—
 Dzus, Theodore, Sr.; and Dzus, Julius Frank, 3,827,110.
 Dzus, Theodore, Sr.; and Dzus, Julius Frank, to Dzus Fastener Co., Inc. Rigid fastener. 3,827,110, Cl. 24-221.00a.
 Eastman Kodak Company: See—
 Anderson, Robert I., 3,827,617.
 Davis, Burns; Fagerburg, David R.; and Kibler, Charles J., 3,828,010.
 Dietl, Hans K., 3,828,075.
 Gnage, Oliver W.; and Enfonde, John J., 3,827,588.
 Henion, Richard S.; and Maggill, Cataldo A., 3,828,032.
 Nielsen, Leroy C., 3,827,646.
 Schickler, Edward R., 3,828,172.
 Terwilliger, James P.; Gingello, Anthony D.; and Tinney, John R., 3,827,888.
 Eaton Corporation: See—
 Meacham, George B. K., 3,827,413.
 Mueller, James F., 3,827,520.
 O'Callaghan, Gerald F.; and Woelz, Donald D., 3,828,168.
 Roob, Elwood L., 3,827,451.
 Eaves, Robert B. Overhead projector apparatus. 3,827,797, Cl. 353-122.000.
 Ebauches Bettlach S.A.: See—
 Bachmann, Peter, 3,827,235.
 Ebersberger, Johann, to Siemens Aktiengesellschaft. Self balancing rotary anode arrangement for X-ray tubes. 3,828,217, Cl. 313-149.000.
 Ebisch, Martin, to Siemens Aktiengesellschaft. Circuit for accurately controlling the amplitude of a transmitter. 3,828,270, Cl. 330-130.000.
 Eckrich, Peter & Sons, Inc.: See—
 Flesch, Keith E., 3,827,319.
 Ecology Recycling Inc.: See—
 Rosenow, William L., 3,827,351.
 Eddy Match Company, Limited: See—
 Smith, Jack, 3,827,185.
 Edenfield, Neal M. Horse saddle stirrup setter. 3,827,215, Cl. 54-1.000.
 Edmond, Tibor O., to Continental Oil Company. Anchoring and pressuring apparatus for a drill. 3,827,512, Cl. 175-94.000.
 Edwards, John A.: See—
 Marx, Michael; and Edwards, John A., 3,828,034.
 Edwards, Miles Lowell. Fluid pump control system. 3,827,828, Cl. 417-43.000.
 Ehnott, Donald J., to Air Products and Chemicals, Inc. Deflashing apparatus. 3,827,186, Cl. 51-7.000.
 Eidelberg, Jonah; Mooney, Thomas; and Brett, John J. Liquid-tight swivel coupler for electrical conduit. 3,828,117, Cl. 174-84.00s.
 Eiselstein, Herbert Louis; and Hosier, James Crombie, to International Nickel Company, Inc. The sheathed electric heater elements. 3,828,296, Cl. 338-234.000.
 Electrometallurgical Sales, Division of the Gilbert Tramer Co.: See—

Callahan, Norman F., 3,827,963.
 Electropoint, Inc.: See—
 Blake, David Edward, 3,827,855.
 Elliott, James Madison. Finishing method. 3,827,208, Cl. 52-741.000.
 Ellis, Colin Ronald George: See—
 Needham, James Christopher; Ellis, Colin Ronald George; and Lilly, Rodger Hedley, 3,827,138.
 Eltro GmbH & Co.: See—
 Friedl, Wolfgang; and Aberle, Claus, 3,828,264.
 Em D'Hooge N.V., naamloze vennootschap: See—
 Van Helleputte, Roger Joseph Victor, 3,827,182.
 Emhart Corporation: See—
 MacMaster, Malcolm D.; and Morris, Herbert R., 3,827,254.
 Endersz, Gyorgy Geza, to Telefonaktiebolaget LM Ericsson. Variable wave-guide impedance for measurement and clibration of an active microwave element. 3,828,282, Cl. 333-22.00r.
 Endicott Johnson Corporation: See—
 Jones, James P., 3,827,167.
 Endress, James W.: See—
 Kerschbaumer, Hans Gerhard; and Endress, James W., 3,827,250.
 Enfonde, John J.: See—
 Gnage, Oliver W.; and Enfonde, John J., 3,827,588.
 Engelhard Minerals & Chemicals Corporation: See—
 Highberg, Carl W.; and Roesch, George R., 3,827,189.
 Mallary, Miller B., 3,827,556.
 English, Myrle H.; Goodstal, Laurence; Leek, Wayne E.; Sanzo, Robert J.; Turner, Robert L.; Workman, Clark B.; and Yetter, Edward W., to Remington Arms Company, Inc. Numerically controlled engraving machine system. 3,827,334, Cl. 90-34.000.
 Enkner, Bernhard, to Vereinigte Osterreichische Eisen-und Stahlwerke Alpin Montan Aktiengesellschaft. Scrap charging machine for converters. 3,827,583, Cl. 214-18.0sc.
 Enoguchi, Yuji: See—
 Tanaka, Susumu; Enoguchi, Yuji; and Fujiwara, Takao, 3,827,800.
 Tanaka, Susumu; Enoguchi, Yuji; and Fujiwara, Takao, 3,827,801.
 Entreprise de Recherches d'Activites Petrolieres Elf: See—
 Trocqueme, Francois Jean, 3,828,262.
 Entwisle, John Hubert: See—
 Cairns, John Francis; Colchester, John Edward; and Entwisle, John Hubert, 3,828,058.
 Eprad Incorporated: See—
 Boudouris, Angelo; and Gray, Geoffrey T., 3,827,782.
 Epstein, Irving. Apparatus for measuring powder. 3,827,513, Cl. 177-121.000.
 Epstein, Irving. Apparatus for measuring powder. 3,827,513, Cl. 177-121.000.
 Erasmus Universiteit: See—
 Bom, Nicolaas, 3,827,115.
 Erchoff, Jean-Paul, to GAF Corporation. Slide tray indexing mechanism for slide projectors and the like. 3,827,796, Cl. 353-116.000.
 Ercoli, Alberto; Gardi, Rinaldo; and Vitali, Romano, to Warner-Lambert Company. Steroidyl-estratrienes. 3,828,081, Cl. 260-397.200.
 Erdmann, Hans, to Walde Kohinoor, Inc. Dispensers for dispensing bowed open springs retaining rings provided with locking prongs. 3,827,598, Cl. 221-312.000.
 Erma, Eero Antero; Fredin, Stig Bertil Arthur; Lindh, Karl Gosta; and Tingren, Leo Anders. Method for accomplishing a high driving force at a combustion gas driven impact device and an impact device for carrying out of said method. 3,827,410, Cl. 123-46.00.
 Eseké, James Richard; Morsell, Arthur Lee; Muntz, Eric Phillip; and Welkowsky, Murray Samuel, to Xonics, Inc. Gas handling system for electronradiography imaging chamber. 3,828,191, Cl. 250-315.000.
 Esmond, William G. Filtering device. 3,827,562, Cl. 210-304.000.
 Esquire, Inc.: See—
 McFarlin, Ralph M., 3,827,735.
 Etablissements Genoud & Cie, Societe Anonyme: See—
 Chevallier, Pierre, 3,827,852.
 Chevallier, Pierre, 3,827,853.
 Etablissements Carpano & Pons S.A.: See—
 Payen, Jean Noel, 3,827,649.
 Evans, George, Corporation, The: See—
 Benson, James L.; and Sellmann, William, 3,827,651.
 Evans Products Company: See—
 Krokos, Raymond M., 3,827,662.
 Evans, Robert E.: See—
 Norton, Charles J.; Falk, David O.; and Evans, Robert E., 3,827,499.
 EVI: See—
 Gates, Donald C., 3,827,310.
 Ex-Cell-O Corporation: See—
 Halvorsen, Robert M., 3,827,638.
 Miller, Robert L.; and Fisset, Louis M., 3,827,280.
 Eylet Specialty Company: See—
 Schultz, Robert S., 3,827,212.
 Schultz, Robert S., 3,827,607.
 Fabio, Paul Frank: See—
 Tomcufcik, Andrew Stephen; Izzo, Patrick Thomas; and Fabio, Paul Frank, 3,828,041.
 Fabricas Lucia Antonio Betere, S.A.: See—
 Betere, Antonio, 3,827,112.
 Fabricius, John H.; and Maher, John P., to Sprague Electric Company. Variable electronic component switch. 3,828,154, Cl. 200-153.01b.

- Fadden, Michael F. Orthopedic brace. 3,827,430, Cl. 128-80.00e.
Faden, Carl. Means for lowering the mast on sailboats. 3,827,386, Cl. 114-91.000.
Fader, John H.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., to Monroe Belgium N.V. Shock absorber and piston valve structure. 3,827,539, Cl. 188-322.000.
Fagan, Donald Frederick; and Hale, Rodney Barker, to Movalarm Limited. Television systems. 3,828,125, Cl. 178-6.800.
Fagan, Franklin G., Jr., to Mallory, P. R., & Co., Inc. Low temperature mercury oxide-zinc battery. 3,827,916, Cl. 136-20.000.
Fagerburg, David R.: See—
Davis, Burns; Fagerburg, David R.; and Kibler, Charles J., 3,828,010.
Falk, David O.: See—
Norton, Charles J.; Falk, David O.; and Evans, Robert E., 3,827,499.
False Creek Industries Ltd.: See—
Gregory, Gerald H.; and Benedict, Donald W., 3,827,471.
Faltag A.G.: See—
Voegeli, Ernst, 3,827,196.
Fantoni, Marco, to Tecno S.p.A. Mobili e forniture per arredamento. Support for the seat of a chair. 3,827,750, Cl. 297-445.000.
Farbenfabriken Bayer Aktiengesellschaft: See—
Wieden, Horst; Nogaj, Alfred; and Marzolph, Herbert, 3,828,014.
Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: See—
Junker, Peter; Ribka, Joachim; and Kunstmann, Walter, 3,828,019.
Schwerin, Siegfried; Deubel, Reinhold; and Thilenius, Thilo, 3,827,902.
Spietschka, Ernst; and Landler, Josef, 3,828,072.
Farmer, John, to Ward Foods, Inc. Apparatus for extracting juice from sugar cane. 3,827,909, Cl. 127-3.000.
Farnsworth, Robert P., to Hughes Aircraft Company. Sensitive pulse threshold detector. 3,828,204, Cl. 307-235.00r.
Faroudja, Yves C.: See—
Bruck, George; Faroudja, Yves C.; and Smaller, Philip, 3,828,129.
Farrissey, William J., Jr.: See—
Abbate, Franklin W.; and Farrissey, William J., Jr., 3,828,047.
Faupel, Werner; and Zibold, Karl, to Bosch, Robert, G.m.b.H. Means for reducing fuel delivery of fuel injection pumps in the low RPM range. 3,827,832, Cl. 417-289.000.
Feather, Alec. Swim fin. 3,827,095, Cl. 9-307.000.
Fechalos, William A.: See—
Bradbery, Jack L.; Andersen, Todd G.; and Fechalos, William A., 3,828,314.
Federal Paper Board Company, Inc.: See—
Arneson, Edwin L., 3,827,550.
Arneson, Edwin L., 3,827,623.
Zavatone, James; and Myers, John H., 3,827,211.
Fehnel, Richard Byrd, to Burroughs Corporation. Multi-position character display panel. 3,828,218, Cl. 313-177.000.
Feintuch, Martin William, to Bendix Corporation, The. Control system monitoring apparatus having minimal nuisance alarm characteristics. 3,827,659, Cl. 244-77.00m.
Feit, Peter Werner; and Nielsen, Ole Bent Tvarnosc, to Lovens Kemiske Fabrik Produktionsaktieselskab. Certain 1,2-benzothiazole-1,1-dioxides. 3,828,059, Cl. 260-301.000.
Fejes, Peter, to Asea Atom AB. Surface condenser. 3,827,479, Cl. 165-101.000.
Felt Products Mfg. Co.: See—
Czernik, Daniel E., 3,827,817.
Felzer, Bertold, to General Motors Corporation. Energy absorbing construction for front-engined motor vehicles. 3,827,525, Cl. 180-82.00r.
Fenster, Abraham N.: See—
Price, Alton K.; and Fenster, Abraham N., 3,828,085.
Ferd Ruesch Maschinenfabrik, Firma: See—
Budai, Mikulas, 3,827,358.
Ferdelman, Lawrence Joseph; Peters, Joseph A.; and Peterson, Willard Elvin, to Wunder-Klein—Donohue Company. Process and apparatus for handling bulk building materials at construction sites. 3,827,744, Cl. 294-67.00e.
Fermund, Lars Martin Ingemar, to SKF Industrial Trading and Development Company B.V. Roller bearing. 3,827,771, Cl. 308-212.000.
Ferrand, Jan, to Societe-C. M. V. Lens guide arrangement and apparatus for grinding and polishing toric lenses. 3,827,192, Cl. 51-124.100.
Ferrari, Giorgio: See—
Canonica, Luigi; Danieli, Bruno; and Ferrari, Giorgio, 3,828,082.
Ferrero, P., & C., S.p.A.: See—
Dogliotti, Amilcare, 3,827,624.
Fiber Industries, Inc.: See—
Crossfield, Roger John, 3,827,114.
Fichter, Barry S.: See—
Parkison, Richard G.; and Fichter, Barry S., 3,827,636.
Fiddler, Theodore E.: See—
Adams, Arnold G., 3,828,155.
Fierro Esponja, S.A.: See—
Celada, Juan; Pena, Jesus Maria; MacKay, Patrick W.; de la Pena, Ramon; Martinez, Enrique Ramon; and de la Torre, Maria Teresa, 3,827,879.
Fikui, Kiyoshi: See—
Masaki, Mitsuo; Fikui, Kiyoshi; Kita, Jyun'ichiro; and Uchida, Izu-hiko, 3,828,028.
Finley, John W.; Hautala, Earl; and Walker, Charles E., to United States of America, Agriculture. Process for isolating proteins using liquid fluoro carbons and low density hydrocarbon solvents. 3,828,017, Cl. 260-112.00g.
Finn, Huck, Inc.: See—
Reynolds, Richard W., 3,827,595.
Finn, Joseph F.: See—
Cicione, Robert J.; Najjar, Edward G.; Scanlon, Patricia M.; Ohlson, John L.; and Finn, Joseph F., 3,827,994.
Firma PMD Entwicklungswerk fur Kunststoff-Maschinen GmbH & Co. KG.: See—
Naumann, Wilhelm, 3,827,214.
Firma William Pry-Werke K.G.: See—
Glindmeyer, Friedrich; Limpens, Karl; and Hennenberg, Wilhelm, 3,827,463.
Firth Cleveland Fastenings Limited: See—
Strange, John, 3,827,815.
Firth, Robert L., to Donaldson Company, Inc. Fluid filter with bypass and condition indicator. 3,827,558, Cl. 210-90.000.
Fischer, Elias, to Stepan Chemical Company. Method of copper sulfide ore flotation. 3,827,557, Cl. 209-167.000.
Fischer, Karl: See—
Fischer, Karl; and Niehaus, Wolfgang (said Niehaus assor. to said), 3,828,164.
Fischer, Karl; and Niehaus, Wolfgang, said Niehaus assor. to said Fischer, Karl. Cooking device with an electrical temperature control. 3,828,164, Cl. 219-431.000.
Fischer, Robert Frederick; North, James Clayton; and Wolfe, Raymond, to Bell Telephone Laboratories, Incorporated. Single wall domain propagation arrangement. 3,828,329, Cl. 340-174.00f.
Fish, Robert C.: See—
Garland, Milton W.; and Fish, Robert C., 3,827,249.
Fisher, John M., to Goodrich, B. F., Company, The. Inflatable life raft escape slide. 3,827,094, Cl. 9-11.00a.
Fisset, Louis M.: See—
Miller, Robert L.; and Fisset, Louis M., 3,827,280.
Fixtures Manufacturing Corporation: See—
Johnson, Vern; and Snyder, Bobbie L., 3,827,749.
Flanagan, James Loton; Rabiner, Lawrence Richard; and Schafer, Ronald William, to Bell Telephone Laboratories, Incorporated. Speech synthesis by concatenation of formant encoded words. 3,828,132, Cl. 179-1.0sa.
Fleagle, Joseph E., to Wagner Electric Corporation. Wheel slip control system for automotive vehicles and the like. 3,827,760, Cl. 303-21.00p.
Fleischhauer, Horst: See—
Westlinning, Hermann; Schwarze, Werner; and Fleischhauer, Horst, 3,828,002.
Fleming, Gordon L.: See—
Graham, Frederick W.; and Fleming, Gordon L., 3,827,611.
Flesch, Keith E., to Eckrich, Peter & Sons, Inc. Weight controlled slicing system. 3,827,319, Cl. 83-73.000.
Fletcher Sutcliffe Wild Limited: See—
Allen, Thomas Jeffrey, 3,827,755.
Flichman, Howard John: See—
Boggs, Luther Miles; Flichman, Howard John; and Hudson, James Alphas, Jr., 3,827,287.
Floessel, Carl Dieter; and Floessel, Klaus, to BBC Brown Boveri & Company Limited. Expansion joint for tubular insulating gas-filled enclosure for high-voltage conductor. 3,827,731, Cl. 285-187.000.
Floessel, Klaus: See—
Floessel, Carl Dieter; and Floessel, Klaus, 3,827,731.
Florus, Hans-Jorg; Grossner, Horst; and Osswald, Gerhard, to Daimler-Benz Aktiengesellschaft. Device for forming and processing velocity signals in vehicles. 3,828,198, Cl. 307-120.000.
Fluet, Francis A., to Westinghouse Electric Corporation. Apparatus for digital frequency multiplication. 3,828,169, Cl. 235-150.310.
Foerster, Rolf, to Foerster, Bernhard, Firma. Wrist watch for digital indication. 3,827,231, Cl. 58-5.000.
Foerster, Bernhard, Firma: See—
Foerster, Rolf, 3,827,231.
Fogelberg, Clement V.; and Kujava, John M., to Columbine Glass Company. Method and apparatus for coating glassware. 3,827,870, Cl. 65-60.000.
Fontaine, Louis: See—
Boschetti, Eugene; Molho, Darius; and Fontaine, Louis, 3,828,095.
Food-Quik Products, Inc.: See—
Forse, Harry D.; and Brown, Eldon W., 3,827,425.
Ford, Ethelyn. Microscope field marker. 3,827,777, Cl. 350-81.000.
Ford Motor Company: See—
Ader, William R.; and Krygowski, Richard P., 3,827,416.
Augustin, Eugene H.; and Long, William P., 3,827,872.
Burgett, James F.; and Vanderberg, Lawrence J., 3,828,254.
Caywood, James A.; McKeron, Charles E.; and Smith, Willard G., 3,827,336.
Howell, Carl A.; and Muller, George H., 3,827,741.
Forenade Fabriksverken Eskilstuna: See—
Lundquist, Ulf Rolfsson, 3,827,240.
Forse, Harry D.; and Brown, Eldon W., to Food-Quik Products, Inc. Cooking method and apparatus. 3,827,425, Cl. 126-369.000.

- Forster, Daniel Emile; and Perrault, Jean, to International Standard Electric Corporation. PCM transmission system. 3,828,346, Cl. 340-347.0dd.
Foster, Christopher J., Inc.: See—
Foster, Christopher J., Sr.; and Foster, Christopher J., Jr., 3,827,682.
Foster, Christopher J., Jr.: See—
Foster, Christopher J., Sr.; and Foster, Christopher J., Jr., 3,827,682.
Foster, Christopher J., Sr.; and Foster, Christopher J., Jr., to Foster, Christopher J., Inc. Apparatus for rotation of plates to facilitate weldment. 3,827,682, Cl. 269-8.000.
Foster, Roy Vivian: See—
Bays, David Edmund; and Foster, Roy Vivian, 3,828,093.
Foster Wheeler Corporation: See—
Godino, Rino L.; and Morfit, Oliver, 3,827,944.
Foundation equipment Corporation, The: See—
MacKinnon, Alan G., 3,827,508.
Fouquet-Werke Frauz & Planck: See—
Kuhn, Falk; and Rombach, Friedrich, 3,827,615.
Fram Corporation: See—
Strick, Karl H., 3,827,826.
Franke, Friedrich H.: See—
Wenzel, Werner; Meraikib, Mohammed; Franke, Friedrich H.; and Konig, Horst, 3,827,878.
Franz, Edmund C., to Aluminum Company of America. Aluminum alloy architectural sheet product and method of producing. 3,827,952, Cl. 204-29.000.
Franzl, Gertrude K. Sanitary receptacle for pets. 3,827,401, Cl. 119-1.000.
Fredendall, Gordon Lyle: See—
Brandinger, Jay Jerome; Pritchard, Dalton Harold; Fredendall, Gordon Lyle; and Schroeder, Alfred Christian, 3,828,121.
Frederick, Ralph M. Method of and apparatus for repairing cardan type universal joints and protective boot. 3,827,121, Cl. 29-149.50b.
Frederick, Raymond H.: See—
Chase, Bernard S.; Frederick, Raymond H.; and Gorglione, Victor T., 3,827,169.
Fredin, Stig Bertil Arthur: See—
Erma, Eero Antero; Fredin, Stig Bertil Arthur; Lindh, Karl Gosta; and Timgren, Leo Anders, 3,827,410.
Freeston, W. Denney, Jr.: See—
Skelton, John; and Freeston, W. Denney, Jr., 3,827,904.
Freudenberg, Carl: See—
Mayer, Fritz, 3,827,120.
Frey, Walter C.; Mullender, Claude; and Reinhart, Norman E., to Goodrich, B. F., Company, The. Apparatus for making tires. 3,827,844, Cl. 425-142.000.
Frick Company: See—
Garland, Milton W.; and Fish, Robert C., 3,827,249.
Friedl, Wolfgang; and Aberle, Claus, to Eltro GmbH & Co. Device for optical amplification of a coherent signal. 3,828,264, Cl. 330-4.300.
Frieztische, Gunther; and Krause, Peter, to Gillet, Heinrich, KG, Firma. Sound dampener for a flat engine mounted in the stern of a motor vehicle. 3,827,529, Cl. 181-33.00d.
Fritronics of Conn., Inc.: See—
Stumpf, Joseph G.; and Andera, Joseph F., 3,827,436.
Frohberger, Paul-Ernst: See—
Widdig, Arno; Kühle, Englebert; Grewe, Ferdinand; Kaspers, Helmut; Scheinplig, Hans; and Frohberger, Paul-Ernst, 3,828,094.
Fromageot, Pierre; Hung, Lam Thanh; and Morgat, Jean-Louis, to Commissariat A l'Energie Atomique. Method of preparation of tritium-labelled proteins. 3,828,102, Cl. 424-1.000.
Fuetsch, Alfred. Information device. 3,827,725, Cl. 281-8.000.
Fuji Electric Company Limited: See—
Yamaguchi, Taihei, 3,828,130.
Fuji Photo Film Co., Ltd.: See—
Ohkubo, Kinji; Masuda, Takao; and Noguchi, Junpei, 3,827,889.
Fujita, Koichiro, to Fujizoki Pharmaceutical Co., Ltd. Indirect hemagglutination test with simultaneous absorption of heterologous antibodies. 3,828,103, Cl. 424-12.000.
Fujitsu Limited: See—
Kobayashi, Kengo; and Manabe, Mitsuo, 3,828,238.
Nakayama, Norihiko; Osawa, Mitsuki; Mizuko, Kiyoo; and Takahashi, Isao, 3,827,776.
Fujiwara, Takao: See—
Tanaka, Susumu; Enoguchi, Yuji; and Fujiwara, Takao, 3,827,800.
Tanaka, Susumu; Enoguchi, Yuji; and Fujiwara, Takao, 3,827,801.
Fujizoki Pharmaceutical Co., Ltd.: See—
Fujita, Koichiro, 3,828,103.
Fulks, John Arthur, to Rolls-Royce (1971) Limited. Welding machine. 3,828,156, Cl. 219-60.00a.
Fulton Projects, Inc.: See—
Fulton, William H., 3,827,388.
Fulton, William H., to Fulton Projects, Inc. Ship propulsion system. 3,827,388, Cl. 115-11.000.
Fuma, Toyozu; Takeuchi, Hideo; and Ikeda, Susumu, to Sintokogio, Ltd. Portable blasting device. 3,827,188, Cl. 51-9.000.
Fumi Photo Film Co., Ltd.: See—
Sato, Masamichi; and Tamai, Yasuo, 3,827,906.
Furst, Andor; Labler, Ludwig; Meier, Werner; Muller, Peter; Scott, John William; and Widmer, Erich, to Hoffman-La Roche Inc. Process for the preparation of des A-9 beta-steroids. 3,828,062, Cl. 260-307.00h.
Furuno Electric Company, Limited: See—
Kubota, Hiroshi, 3,827,150.
Furuta, Isao: See—
Ando, Noriaki; Yaeda, Yasuyuki; Furuta, Isao; and Sakata, Ryuichi, 3,827,991.
Fuse, Yuzo, to Sony Corporation. Color display tube with elongated phosphor dots and shadow mask apertures. 3,828,216, Cl. 313-403.000.
GAF Corporation: See—
Erchoff, Jean-Paul, 3,827,796.
Kaplan, Harry; and Papalos, John, 3,828,084.
Gainer, Gordon C.: See—
Luck, Russell M.; and Gainer, Gordon C., 3,828,000.
Galasso, Honore: See—
Chovet, Patrice; Rollin, Claude; Galasso, Honore; and Prost, Roger, 3,827,252.
Galt Equipment Ltd.: See—
Beaudet, Maurice, 3,827,478.
Gammel, Gregor; Pawlowski, Peter H.; Heidtmann, Uwe; and Jons, Mattias, to Brown, Boveri & Cie AG. Electrically insulated double tube heat pipe arrangement. 3,827,480, Cl. 165-105.000.
Gandilhon, Pierre: See—
Chabardes, Pierre; Gandilhon, Pierre; Grard, Charles; and Thiers, Michel, 3,828,092.
Gang-Nail Truss Company: See—
Ward, Robert L.; and Welch, Willie M., 3,827,325.
Gardi, Rinaldo: See—
Ercoli, Alberto; Gardi, Rinaldo; and Vitali, Romano, 3,828,081.
Gardner-Denver Company: See—
Loy, Fred W.; Harms, William J.; Wojahn, Charles W.; and Karasinski, Frederick, 3,827,465.
Garland, Milton W.; and Fish, Robert C., to Frick Company. Pressurized refrigerant recirculation system with control means. 3,827,249, Cl. 62-174.000.
Garnier, Marcel, to Pomagalski S.A. Braking device of a rescue apparatus for an overhead cable transport installation. 3,827,368, Cl. 104-112.000.
Garrett Corporation, The: See—
Appel, Gerhard H., 3,827,118.
Winiarz, Olgierd S., 3,827,702.
Garrett, Udell, Inc.; a division of Macco Oil Tools, Inc.: See—
Johnson, Joseph L.; and Guidry, Shelby L., 3,827,501.
Gass, Donald N.; and Prosser, David G., to Autotrol Corporation. Extended surface rotating biological contactor. 3,827,559, Cl. 210-150.000.
Gates, Donald C., to EVI. Transmission for wheeled vehicle. 3,827,310, Cl. 74-217.00s.
Gebr. Happich G.m.b.H.: See—
Herr, Gerhard; and Treber, Willy O., 3,827,748.
Geihl, Jerry L., to Watson, M. J.; d/b/a. Foldable and expandable modular shelter unit. 3,827,198, Cl. 52-69.000.
Geimer, Allan F. J. Pneumatic launcher and combination flare-ignitor. 3,827,360, Cl. 102-70.00f.
Gelman Instrument Company: See—
Bond, Kenneth Arthur George; Munro, Roger Cameron; and Hayler, Reginald, 3,827,286.
General Electric Company: See—
Guth, Lauren W., 3,827,730.
Kendall, Wyvil R., 3,827,579.
Warburton, Joe Allen; and Wilson, Henry Lewis, 3,828,119.
Webb, Robert F., 3,828,251.
General Motors Corporation: See—
Brooks, Frank W., 3,827,534.
Clark, David L., 3,827,788.
Connell, Lehman J.; and Durkee, Lyle H., 3,827,710.
Crawford, Wilbur B.; Young, Earl W.; and Happy, Raymond, 3,827,191.
Felzer, Bertold, 3,827,525.
Hoagland, Milton B.; and Wroblewski, Lawrence P., 3,827,269.
Kuhl, Bernard A.; and Mason, John B., 3,827,518.
Scheibe, Elias W., 3,827,836.
Williams, Dick H., 3,827,523.
General Signal Corporation: See—
Meyerhoefer, Carl E.; and Naples, Richard J., 3,827,677.
Geometric Data Corporation: See—
Miller, Melvin N.; Levine, Marshall S.; and Partin, Melvin E., 3,827,804.
Georgia Tech Research Institute: See—
Hungerford, Ernest Timmons, 3,828,307.
Gerber Products Company: See—
Nelson, Lloyd A., 3,828,193.
Gerry, Martin E. Programming timer with series connected switches. 3,828,200, Cl. 307-141.800.
Giglia, Robert Domenico; and Clasen, Richard Howard, to American Cyanamid Company. Simple, bonded graphite counter electrode for electrochromic devices. 3,827,784, Cl. 350-160.00p.
Gildersleeve, William E. Automatic metal protecting apparatus and method. 3,827,854, Cl. 432-19.000.
Gillemot, George W.; and Thompson, John T. Sealing grommet and plug for use with electrical cabling. 3,827,704, Cl. 277-209.000.

- Gilleo, Kenneth B.; Jones, Edward S.; and Tajkowski, Edward G., to Allied Chemical Corporation. Sulfur substituted bis(polyfluoroalkoxyalkyl carboxylic acids) and derivatives thereof. 3,828,098, Cl. 260-481.00r.
- Gillet, Heinrich, KG, Firma: See—
Frieztische, Gunther; and Krause, Peter, 3,827,529.
- Gilley, Charles W., deceased (by Gilley, Martha R.; executrix). Low profile coal mining apparatus. 3,827,754, Cl. 299-30.000.
- Gilley, Martha R.: See—
Gilley, Charles W., deceased, 3,827,754.
- Gilman, Frederick C., to Worthington Pump International, Inc. Stream filament mixer for pipe flow. 3,827,461, Cl. 138-39.000.
- Gilman, Winthrop W. Machine for conditioning waste material for recycling. 3,827,347, Cl. 100-8.000.
- Gilman, Winthrop W. Machine for conditioning waste material for recycling. 3,827,349, Cl. 100-98.00r.
- Gilman, Winthrop W. Machine for conditioning waste material for recycling. 3,827,350, Cl. 100-52.000.
- Gilmore, Samuel E.: See—
De Vries, Douwe; and Gilmore, Samuel E., 3,827,668.
- Gilson, Robert E.: See—
Gilson, Warren E.; and Gilson, Robert E., 3,827,305.
- Gilson, Warren E.: See—
D'Autry, Eric Marteau, 3,827,304.
- Gilson, Warren E.; and Gilson, Robert E. Adjustable pipette. 3,827,305, Cl. 73-426.500.
- Gingello, Anthony D.: See—
Terwilliger, James P.; Gingello, Anthony D.; and Tinney, John R., 3,827,888.
- Giordano, Jean-Louis; and Lietard, Michel, to Regie Nationale des Usines Renault and Automobiles Peugeot. Combined braking and trim-correction devices for road vehicles. 3,827,764, Cl. 303-22.00r.
- Girard, Peter F.: See—
Ryan, T. Claude; and Girard, Peter F., 3,827,661.
- Girffin, Thomas S.; and Heywood, Kenneth W., to NS Industries, Inc. Calcium-aluminum-silicate extender pigment. 3,827,901, Cl. 106-306.000.
- Givens, Edwin N.; Plank, Charles J.; and Rosinski, Edward J., to Mobil Oil Corporation. Aromatization process. 3,827,968, Cl. 208-49.000.
- Givens, Wyatt W., to Mobil Oil Corporation. Logging technique for asaying for uranium in rock formations. 3,828,189, Cl. 250-253.000.
- GKN Sankey Limited: See—
Wiggin, Anthony John, 3,827,466.
- Glacier Metal Company Limited, The: See—
Lloyd, Kenneth; and Michael, Anthony Dennis, 3,827,882.
- Gladys Miller: See—
Boller, George E.; and Renk, Richard J., 3,827,769.
- Glass, Marvin, & Associates: See—
Barlow, Gordon A.; and Glass, Marvin I., 3,827,693.
- Morrison, Howard J.; and Allen, Robert K., 3,827,692.
- Glass, Marvin I.: See—
Barlow, Gordon A.; and Glass, Marvin I., 3,827,693.
- Glathe, Hans-Peter: See—
Pattas, Konstantin; and Glathe, Hans-Peter, 3,827,837.
- Glaxo Laboratories, Limited: See—
Phillips, Gordon Hanley; and May, Peter John, 3,828,080.
- Glindmeyer, Friedrich; Limpens, Karl; and Hennenberg, Wilgelm, to Firma William Pry-Werke K.G. Method of and apparatus for the production of a slide fastener. 3,827,463, Cl. 139-35.000.
- Global Erectors, Inc.: See—
Lodjic, Carl L., 3,827,590.
- Globe Manufacturing Company: See—
Rupprecht, Kenneth J., 3,827,261.
- Gluncic, Berislav; and Kujundzic, Nedjeljko, to PLIVA, Pharmaceutical and Chemical Works. 5-(3,4,5-Trimethoxybenzyl)-barbituric acid. 3,828,044, Cl. 260-257.000.
- Glynn, Donald C.; Chao, Andrew M.; and Carter, George E., to Bendix Corporation, The. Solid state compass follower. 3,828,261, Cl. 328-155.000.
- Gnage, Oliver W.; and Enfonde, John J., to Eastman Kodak Company. Film cartridge opener. 3,827,588, Cl. 214-305.000.
- Goda, Kazuhiro: See—
Kawano, Reiji; Goda, Kazuhiro; Yamakawa, Hiroshi; and Otsuka, Masayoshi, 3,827,543.
- Godino, Rino L.; and Morfit, Oliver, to Foster Wheeler Corporation. Wax crystal growth control in oil dewaxing plants. 3,827,944, Cl. 196-14.500.
- Goettsch, Walter J., to Harris-Intertype Corporation. Adhesive system. 3,827,395, Cl. 118-5.000.
- Gokey, Phillip E.: See—
Kufirin, Frederick W.; Virnoche, Paul R.; Allen, Donald J.; Gokey, Phillip E.; and Rose, Frederick A., 3,827,378.
- Goldberg, Edwin Allen, to RCA Corporation. Motor speed control system. 3,828,234, Cl. 318-314.000.
- Goldfarb, William C., to Singer Company, The. Detector for self-clocking data with variable digit periods. 3,828,167, Cl. 235-61.11a.
- Goldman, Jerome N.: See—
Goldman, Marvin A.; and Goldman, Jerome N., 3,828,176.
- Goldman, Marvin A.; and Goldman, Jerome N., to Penn-Plax Plastics, Inc. Safe underwater lighting system for aquariums. 3,828,176, Cl. 240-2.01c.
- Golovko, Zoya Ivanovna: See—
Schedrovitsky, Savely Solomonovich; Mash, Dmitry Matveevich; Golovko, Zoya Ivanovna; Goncharevich, Leonid Fomich;
- Lebedev, Alexei Pavlovich; Dubrovin, Jury Mikhailovich; and Suut, Nikolai Karlovich, 3,828,339.
- Golze, Richard R.; and Kienle, Richard F., to Rockwell International Corporation. Structurally reinforced vehicle bumper. 3,827,740, Cl. 293-98.000.
- Gomco Manufacturing Corporation: See—
Baumgarten, Carl B., 3,827,452.
- Goncharevich, Leonid Fomich: See—
Schedrovitsky, Savely Solomonovich; Mash, Dmitry Matveevich; Golovko, Zoya Ivanovna; Goncharevich, Leonid Fomich; Lebedev, Alexei Pavlovich; Dubrovin, Jury Mikhailovich; and Suut, Nikolai Karlovich, 3,828,339.
- Goodman, Mallard S. Detachable spiked shoe protective cover. 3,827,166, Cl. 36-2.5an.
- Goodrich, B. F. Company, The: See—
Fisher, John M., 3,827,094.
- Frey, Walter C.; Mullender, Claude; and Reinhart, Norman E., 3,827,844.
- Goodstal, Laurence: See—
English, Myrle H.; Goodstal, Laurence; Leek, Wayne E.; Sanzo, Robert J.; Turner, Robert L.; Workman, Clark B.; and Yetter, Edward W., 3,827,334.
- Goodwin, Charles M. Adjustable universal trouble light support. 3,828,181, Cl. 240-54.00a.
- Gorglione, Victor T.: See—
Chase, Bernard S.; Frederick, Raymond H.; and Gorglione, Victor T., 3,827,169.
- Goss, Edward W.: See—
Hickner, Richard A.; and Goss, Edward W., 3,828,100.
- Gothberg, Yngve Roland: See—
Almstrom, Sten Hakani; and Gothberg, Yngve Roland, 3,827,241.
- Gould Inc.: See—
Koeblitz, William E., 3,828,357.
- Gourmandy, Raymond: See—
Vidal, Roger; and Gourmandy, Raymond, 3,827,113.
- Gower Manufacturing Co., Inc.: See—
Aughtry, Paul C. Jr., 3,827,377.
- Grace, W. R., & Co.: See—
Cicione, Robert J.; Najjar, Edward G.; Scanlon, Patricia M.; Ohlson, John L.; and Finn, Joseph F., 3,827,994.
- Granchelli, Felix E., to Beecham Group Limited. Lower-alkyl- β -oxo-4-piperidine-N-benzoyl-propionates. 3,828,053, Cl. 260-293.770.
- Granda Corporation: See—
Arnold, Don C., 3,827,458.
- Graniaris, Neophytos, to Struthers Patent Corporation. Ice crystals. 3,827,248, Cl. 62-123.000.
- Grantham, Frederick W.: See—
Grantham, Frederick W.; and Fleming, Gordon L. (said Fleming assor. to said), 3,827,611.
- Grantham, Frederick W.; and Fleming, Gordon L., said Fleming assor. to said Grantham, Frederick W. Folder with paper inserting means. 3,827,611, Cl. 223-37.000.
- Graphica Precision Works Ltd.: See—
Mette, Klaus-Hermann, 3,828,317.
- Grard, Charles: See—
Chabardes, Pierre; Gandilhon, Pierre; Grard, Charles; and Thiers, Michel, 3,828,092.
- Grasser, Hans, to Siemens Aktiengesellschaft. X-ray diagnosing apparatus with a regulating device for the X-ray tube voltage. 3,828,194, Cl. 250-408.000.
- Graulius, Marcel J. R.: See—
Fader, John H.; Keijzer, Johan H.; Graulius, Marcel J. R.; and Beets, Roland H. C., 3,827,539.
- Gray, Geoffrey T.: See—
Boudouris, Angelo; and Gray, Geoffrey T., 3,827,782.
- Graydon, Kenneth: See—
Douglas, Harley W.; and Graydon, Kenneth, 3,827,470.
- Green, Edward H. Mounting cover for pressurized fluid canister. 3,827,608, Cl. 222-402.160.
- Green, Ralph V., to Du Pont de Nemours, E. I., and Company. Reforming process. 3,827,987, Cl. 252-373.000.
- Greenberg, Sanford D., DT Liquidating Partnership: See—
Schiffman, Murray M., 3,828,361.
- Greenerd Press Machine Company, Inc.: See—
LaFlamme, Philip A.; and Couture, Romeo E., 3,827,328.
- Greenlee Bros. & Co.: See—
Seborg, Earnest Y.; and Wanke, Harold R., 3,827,683.
- Greenwald, Harry; and Tuppo, Robert, to Kidd, Walter, & Company, Inc. Replaceable cam switching device for a coin controlled machine. 3,827,541, Cl. 194-1.001.
- Greer, William S., 1/2 interest to McAlpin, Courtenay W. Electrode holder with power disconnect. 3,828,160, Cl. 219-141.000.
- Greeson, Henry Edward, to British Steel Corporation and Borax Consolidated Limited. Inclusion of hydroboracite in additive composition and use thereof in steel refining. 3,827,880, Cl. 75-53.000.
- Gref, Hans: See—
Jores, Willi; Gref, Hans; Lehmann, Helmut; Hoffacker, Franz; Luhrig, Hermann; and Kreit, Bernhardt, 3,827,647.
- Gregoire, Francois: See—
Kneller, Klaus; Trub, Jean; and Gregoire, Francois, 3,827,842.
- Gregory, Gerald H.; and Benedict, Donald W., to False Creek Industries Ltd. Flexible transporting containers. 3,827,471, Cl. 150-2.000.
- Grenfell, Julian Pascoe, to Badalex Limited. Coating apparatus. 3,827,400, Cl. 118-421.000.

- Grewe, Ferdinand: See—
Widdig, Arno; Kuhle, Englebert; Grewe, Ferdinand; Kaspers, Helmut; Scheinplugg, Hans; and Frohberger, Paul-Ernst, 3,828,094.
- Grewer, Rudolf; Hickmann, Herbert; and Welke, Wolfgang, to Thyssen Niederrhein AG Hutten-und Walzwerke. Charging apparatus for shaft furnace. 3,827,584, Cl. 214-36.000.
- Griewahn, Carl O.: See—
Hickman, Stephen L.; and Griewahn, Carl O., 3,827,485.
- Griffin, Dana K.; and Wilson, John R. Floor wax applicator with throw-away head. 3,827,100, Cl. 15-229.00a.
- Griffin, Donald E., to Phillips Petroleum Company. Process apparatus control system for optimizing objective variable quality. 3,828,171, Cl. 235-151.120.
- Grimes, Alton C. Trigonometry teaching device. 3,827,163, Cl. 35-34.000.
- Grimmett, Earl S.; and Lamont, Philip E., to United States of America, Atomic Energy Commission. Method for the disposal of combustible and dilute aqueous wastes. 3,827,946, Cl. 203-10.000.
- Grieverus, Tor Lennart Berni. Flow meter provided with a vortex chamber. 3,827,297, Cl. 73-194.00c.
- Grob, Leonardus F. A.: See—
Terlecky, Boris S.; and Grob, Leonardus F. A., 3,827,375.
- Grolitzer, Arthur J., to Vocon, Inc. Apparatus for intensifying radiation images. 3,828,186, Cl. 250-213.00r.
- Grossman, David H.; and Plough, Charles T., to Multi-State Devices Ltd. Temperature compensating thermal relay. 3,828,292, Cl. 337-417.000.
- Grossner, Horst: See—
Florus, Hans-Jorg; Grossner, Horst; and Osswald, Gerhard, 3,828,198.
- Grotewold, Werner: See—
Kirsch, Klaus; and Grotewold, Werner, 3,828,247.
- Grove, Marvin H., to M & J Valve Company. Flow control apparatus and method with leak detection. 3,827,285, Cl. 73-46.000.
- Grow, William C. Turnover bed assembly. 3,827,089, Cl. 5-61.000.
- Grube, Werner; Rutz, Karl-Friedrich; Jung, Berthold; and Schrage, Johannes, to Maschinenfabrik B. Maier KG. Wood comminuting apparatus. 3,827,643, Cl. 241-221.000.
- Grundt, Reed H., to Westinghouse Air Brake Company. Fail-safe vehicle-carried anti-collision protection receiver. 3,828,225, Cl. 317-147.000.
- Gruner, Wolf; Schabert, Hans-Peter; and Schubert, Franz, to Siemens Aktiengesellschaft. Apparatus for in-core instrumentation of pressurized water reactors. 3,827,935, Cl. 176-19.00r.
- Gryaznov, Boris Vasilievich: See—
Samoilov, Sergei Mikhailovich; Ivanov, Vladimir Ivanovich; Zambrovskaya, Galina Vladimirovna; Tsvetkov, Oleg Nikolaevich; Monastyrsky, Viktor Nikolaevich; Bessalov, Evgeny Ivanovich; Gryaznov, Boris Vasilievich; and Molchanov, Boris Vladimirovich, 3,828,011.
- GTE Automatic Electric Laboratories Incorporated: See—
Mila, Truman R., 3,828,315.
- Padgett, Richard A., 3,828,135.
- Wilber, John A.; Rice, Verner K.; and Buhrke, Rolfe E., 3,828,321.
- GTE Information Systems Incorporated: See—
Schwartz, William F.; and Butler, Robert W. (said Schwartz assor. to), 3,828,344.
- GTE Sylvania Incorporated: See—
Keeffe, William M.; Gungle, W. Calvin; and Olson, Albert W., 3,828,214.
- Shaffer, John W.; and Vetere, John J., 3,827,850.
- Torsch, Charles E., 3,828,287.
- GTI Corporation: See—
Bennett, Kenneth R.; and Crownover, Joseph W., 3,827,142.
- Guerette, Marcel, to Moody Matthew, Limited. Folding cart. 3,827,573, Cl. 211-149.000.
- Guertens, Edward G.: See—
Melpolder, Frank W.; Guertens, Edward G.; and Mameniskis, Walter A., 3,827,947.
- Guidry, Shelby L.: See—
Johnson, Joseph L.; and Guidry, Shelby L., 3,827,501.
- Gullaskruff Glasbruks AB: See—
Andersson, Axel Lennart, 3,827,641.
- Gumprecht, Donald L.: See—
White, James T.; and Gumprecht, Donald L., 3,827,995.
- Gungle, W. Calvin: See—
Keeffe, William M.; Gungle, W. Calvin; and Olson, Albert W., 3,828,214.
- Gurizzan, Daniel Alberto: See—
Gurizzan, Luis; Gurizzan, Daniel Alberto; and Sayavedra, Modesto Albino, 3,827,449.
- Gurizzan, Luis; Gurizzan, Daniel Alberto; and Sayavedra, Modesto Albino. Automatic mechanism for the discharge of fluid in a pressurized system. 3,827,449, Cl. 137-68.000.
- Guth, Lauren W., to General Electric Company. Waste food disposer mounting assembly. 3,827,730, Cl. 285-159.000.
- Gutshall, Richard L.: See—
United States of America, National Aeronautics and Space Administration, 3,827,807.
- Habermeier, Juergen: See—
Batzner, Hans; Habermeier, Juergen; and Porret, Daniel, 3,828,045.
- Hag Aktiengesellschaft: See—
Vitzthum, Otto; Huber, Peter; and Barthels, Manfred, 3,827,859.
- Haga, Teruhide: See—
Ishihara, Masao; Haga, Teruhide; Horiuchi, Hiroshi; Yamaguchi, Hisashi; and Sugino, Osakazu, 3,827,886.
- Hagler, Ray, Jr.: See—
Toth, Louis R.; Hagler, Ray, Jr.; and Keller, Orville F., 3,827,568.
- Hagstrom, Arthur A.; and Yamashita, Takeshi, to Teletype Corporation. Paper width-responsive switch apparatus for printers. 3,828,153, Cl. 200-153.01a.
- Hahn & Clay: See—
Pechacek, Raymond E.; and Clay, Henry J., 3,827,839.
- Hahn Brass Limited: See—
Lambertz, Martin R., 3,827,104.
- Hakkeling, Berend: See—
Mulder, Herman; Van Pol, Jan Huibert Leonard Philomena; and Hakkeling, Berend, 3,827,224.
- Haldeman, Charles W., to Massachusetts Institute of Technology. Process for coating refractory metals with oxidation-resistant metals. 3,827,953, Cl. 204-37.00r.
- Halc, Gloria M. Educational device. 3,827,164, Cl. 35-37.000.
- Hale, Rodney Barker: See—
Fagan, Donald Frederick; and Hale, Rodney Barker, 3,828,125.
- Hall, Harold, to Brown Oil Tools, Inc. Well reentry system. 3,827,486, Cl. 166-500.
- Hall, William Cornelius; and Peterson, John Merriam. Moldable lead composition. 3,827,982, Cl. 252-62.000.
- Haller, Henry E., Jr.; Huettner, Henry F.; and Martin, Elliott E., Jr., to National Valve and Manufacturing Company. Hydraulic shock and sway suppressor. 3,827,537, Cl. 188-314.000.
- Hallerback, Stig Lennart, to SKF Industrial Trading and Development Company, N.V. Method of manufacturing an electric rotary machine. 3,827,141, Cl. 29-596.000.
- Halliburton Company: See—
Mosier, John E.; and Stephenson, Jack G., 3,827,575.
- Hallworth, Robert, to Lockheed Aircraft Corporation. Actuating means for a vane. 3,827,658, Cl. 244-42.00b.
- Halvorsen, Robert M., to Ex-Cell-O Corporation. Fuel spray nozzle. 3,827,638, Cl. 239-534.000.
- Hamamoto, Al S.: See—
Cusick, John H.; Brown, Alvin E.; Hamamoto, Al S.; and Bellin, Jack L. S., 3,827,619.
- Hamanaka, Ernest S., to Pfizer Inc. Phosphono substituted acylpenicillins. 3,828,025, Cl. 260-239.100.
- Hamann, Raymond J. Device for washing and coiling hoses. 3,827,097, Cl. 15-40.000.
- Hamel, Richard, to Domtar Limited. Sheet material and knife edge abrasive test. 3,827,281, Cl. 73-700.000.
- Hamilton, William M.; Reighard, Alan B.; and Tamny, Simon Z., to Nordson Corporation. Modular solenoid-operated dispenser. 3,827,604, Cl. 222-146.00e.
- Hamisch, Paul H., Sr., to Monarch Marking Systems, Inc. Method of making record members. 3,827,355, Cl. 101-26.000.
- Hammann, Ingeborg: See—
Lorenz, Watter; Boshagen, Horst; Hammann, Ingeborg; and Behrenz, Wolfgang, 3,828,063.
- Hammelmann, Paul. Cleaning device. 3,827,634, Cl. 239-227.000.
- Hammon, Donald P.; and Hammon, Edwin J., to Industrial Concepts Corporation. Oil well brush tool. 3,827,492, Cl. 166-173.000.
- Hammon, Edwin J.: See—
Hammon, Donald P.; and Hammon, Edwin J., 3,827,492.
- Hammond, Philip D.; Scott, John A.; Clarke, William M.; and Denton, William T., to Olin Corporation. Preparation of aromatic isocyanates in fixed bed reactor. 3,828,089, Cl. 260-453.00c.
- Hansen, Carl J. Harvesting machine for cabbage, or the like. 3,827,503, Cl. 171-38.000.
- Hansen, Howard C., to Clark Equipment Company. Brake system. 3,827,758, Cl. 303-3.000.
- Hansen, Howard G. Cementitious coating containing non-abrasive filler. 3,827,894, Cl. 106-90.000.
- Hansen, Joseph A., to Nelson Muffler Corporation. Exhaust muffler. 3,827,531, Cl. 181-53.000.
- Hansen, Theodore E., to Anaconda Company, The. Flexible flat power cable. 3,828,120, Cl. 174-117.00f.
- Hapke, Kenyon A.; Johnson, Edwin S.; and Sidlo, Joseph J., to Bell & Howell Company. Lens focusing system. 3,827,779, Cl. 350-255.000.
- Happy, Raymond: See—
Crawford, Wilbur B.; Young, Earl W.; and Happy, Raymond, 3,827,191.
- Harada, Nozomu: See—
Horiike, Yasuhiro; Shirouzu, Shunji; Tsuji, Shigeo; and Harada, Nozomu, 3,828,232.
- Harkness, Joseph R.; Santi, John D.; and Lechtenbert, Leo J., to Briggs & Stratton Corporation. Assembly of alternator magnet blocks with engine flywheel. 3,828,212, Cl. 310-153.000.
- Harmon Industries, Inc.: See—
Miller, Dennis D.; and Karr, Jerry W., 3,827,722.
- Harms, William J.: See—
Loy, Fred W.; Harms, William J.; Wojahn, Charles W.; and Karasinski, Frederick, 3,827,465.
- Harms, Wolfgang: See—
Bien, Hans-Samuel; Harms, Wolfgang; Schmitz, Reinold; Schmitz, Reinold; and Leister, Heinrich, 3,828,040.
- Harney, David M.: See—
Vaughn, Rudolph Marion; and Harney, David M., 3,827,716.
- Harris, John Madison: See—

- Nelson, Edwin G., 3,827,161.
Harris-Intertype Corporation: See—
Goettsch, Walter J., 3,827,395.
Harvey, Richard F.; and Moore, George E., to Sun Steel Treating, Inc. Case hardening super high speed steel. 3,827,923, Cl. 148-31.500.
Harvey, Samuel E.: See—
Lieberman, Harvey W.; Harvey, Samuel E.; and Voorhees, Steven C., 3,827,587.
Hasegawa, Minoru: See—
Takahashi, Kentaro; Hasegawa, Minoru; and Nara, Kaoru, 3,827,863.
Hata, Shun-ichi, to Chugai Seiyaku Kabushiki Kaisha. Method for detecting cancer tissue by polarograph. 3,827,948, Cl. 204-1.00t.
Hatton, Leslie Roy: See—
Broad, David Rex; Hatton, Leslie Roy; and Parnell, Edgar William, 3,828,001.
Hauni-Werke Korber & Co., KG.: See—
Heitmann, Bob; Kasparek, Alois; and Torbeck, Johann, 3,827,757.
Hautala, Earl: See—
Finley, John W.; Hautala, Earl; and Walker, Charles E., 3,828,017.
Havstad, Harold R., to Hudson Oxygen Therapy Sales Co. Method for molding a nasal cannula. 3,827,926, Cl. 156-242.000.
Hayashi, Yoshimasa, to Nissan Motor Company Limited. Device for supplying supplementary fuel to a catalytic engine exhaust cleaner. 3,827,238, Cl. 60-286.000.
Hayashibara Biochemical Laboratories, Incorporated: See—
Kato, Koso; and Shiosaka, Makoto, 3,827,937.
Hayashibara Company: See—
Sugimoto, Kaname; Hirao, Mamoru; and Masuda, Kazuo, 3,827,940.
Hayler, Reginald: See—
Bond, Kenneth Arthur George; Munro, Roger Cameron; and Hayler, Reginald, 3,827,286.
Hazy, Andrew C.; Shirey, John E.; and Ramins, Lothar, to Horizons Incorporated, a Division of Horizons Research Incorporated. Storage stability of nonsilver photosensitive systems by incorporating therein certain organic N-oxides. 3,827,887, Cl. 96-48.00p.
Heath, Arthur R. Vibration-damping system. 3,827,530, Cl. 181-33.00a.
Hebberling, Friedrich, deceased (by Uhl, Lothar J., administrator). Apparatus for coating moving filamentary strands. 3,827,397, Cl. 118-50.000.
Heberlein & Co. AG: See—
Bieniok, Joachim, 3,827,229.
Heflinger, Lee O.; and Wuerker, Ralph F., to TRW Inc. Polarized multi-frequency laser oscillator for holographic contouring. 3,828,275, Cl. 331-94.500.
Heidmann, Uwe: See—
Gammel, Gregor; Pawlowski, Peter H.; Heidmann, Uwe; and Jons, Mattias, 3,827,480.
Heikes, Norman L., to Pantec Development Company. Ambulatory orthopedic traction apparatus. 3,827,429, Cl. 128-75.000.
Heimann, Helmut, to Wickler-Kupper-Brauerei KGaA. Method of and apparatus for testing the condition of bottles. 3,827,812, Cl. 356-240.000.
Heinemann, Heinz; and Weisz, Paul B., to Mobil Oil Corporation. Production of methane and aromatics. 3,827,867, Cl. 48-211.000.
Heitman, Richard E.; Arciprete, Genio R.; Martin, Peter G.; Norris, Richard C.; and Brisk, Richard A., to Little, Arthur D., Inc. Data recording and printing apparatus. 3,828,323, Cl. 340-172.500.
Heitmann, Bob; Kasparek, Alois; and Torbeck, Johann, to Hauni-Werke Korber & Co., KG. Apparatus for transporting rod-shaped articles. 3,827,757, Cl. 302-2.00r.
Henion, Richard S.; and Maggiulli, Cataldo A., to Eastman Kodak Company. Process for preparing 3-alkyl-2-benzothiazolylidene ketones. 3,828,032, Cl. 260-240.00r.
Henley, Frederick A.: See—
Henley, Terry L.; Henley, Frederick A.; and Townsend, Donald I., 3,827,467.
Henley, Terry L.; Henley, Frederick A.; and Townsend, Donald I., to HH&T Industries, Inc. Fluid dispensing apparatus. 3,827,467, Cl. 141-104.000.
Hennells, Ransom J., to Compactor Company, Inc. Compactor with single ring-supported bag. 3,827,348, Cl. 100-153.000.
Hennenberg, Wilgelm: See—
Glindmeyer, Friedrich; Limpens, Karl; and Hennenberg, Wilgelm, 3,827,463.
Hennessy, James J., Jr.; and Bollinger, Luther L., Sr., to Hennessy Products Incorporated. Axle journal stop device. 3,827,768, Cl. 308-40.000.
Hennessy Products Incorporated: See—
Hennessy, James J., Jr.; and Bollinger, Luther L., Sr., 3,827,768.
Henriquez, Theodore A.: See—
Tims, Allan C.; and Henriquez, Theodore A., 3,828,143.
Hepworth Plastic Limited: See—
Brown, Kenneth, 3,827,734.
Hercules Incorporated: See—
Breslow, David S., 3,828,024.
Podlas, Thomas J., 3,827,898.
Herr, Gerhard; and Treber, Willy O., to Gebr. Hapich G.m.b.H. Reinforced sun visor, especially for motor vehicles. 3,827,748, Cl. 296-97.00h.
Hervieux, Bernice, administratrix: See—
Hervieux, Harvey Joseph, deceased, 3,827,124.
Hervieux, Harvey Joseph, deceased (by Hervieux, Bernice, administratrix). Machine for conveying expanding and applying endless sealing members. 3,827,124, Cl. 29-200.00a.
Hess, Roy Paul. Three-dimensional vertical stacking dominogame apparatus. 3,827,695, Cl. 273-137.00d.
Hewlett-Packard Company: See—
Wong, Roger W.; and Stewart, Ronald D., 3,828,228.
Heyer-Schulte Corporation: See—
Schulte, Rudolf R.; and Portnoy, Harold D. (said Schulte assor. to), 3,827,439.
Heywood, Kenneth W.: See—
Girfin, Thomas S.; and Heywood, Kenneth W., 3,827,901.
HH&T Industries, Inc.: See—
Henley, Terry L.; Henley, Frederick A.; and Townsend, Donald I., 3,827,467.
Hickling, Colin D., to American Thermostat Corporation. Combined current and temperature sensitive fuse assembly. 3,828,289, Cl. 337-5.000.
Hickman, Stephen L.; and Griewahn, Carl O., to Brazeway, Inc. Heat exchanger and method of manufacture therefor. 3,827,485, Cl. 165-171.000.
Hickmann, Herbert: See—
Grewer, Rudolf; Hickmann, Herbert; and Welke, Wolfgang, 3,827,584.
Hickner, Richard A.; and Goss, Edward W., to Dow Chemical Company. The Cycloaliphatic polythiols. 3,828,100, Cl. 260-609.00d.
Hicks, Gus H.: See—
Bradshaw, Roy C.; and Hicks, Gus H., 3,827,158.
Hidaka, Yoshihisa. Surface flaw detecting device for coated wire. 3,827,296, Cl. 73-160.000.
Hierath, Leonard L.: See—
Magrath, Joseph M.; and Hierath, Leonard L., 3,827,601.
Highberg, Carl W.; and Roesch, George R., to Engelhard Minerals & Chemicals Corporation. Sheet glass seaming machine. 3,827,189, Cl. 51-33.00r.
Higuchi, Yasuo; and Mitsumura, Yoshio, to Chukyo Electric Co., Ltd., mesne. Low speed rotary fluid apparatus with elastic sealing liner. 3,827,835, Cl. 418-56.000.
Hill, Charles C., to Rohr Industries, Inc. Passive switching system. 3,827,370, Cl. 104-130.000.
Hill, Raymond Roger. Liquid flow valve system. 3,827,827, Cl. 417-28.000.
Hill, Robert C.: See—
Dahlin, Erik B.; and Hill, Robert C., 3,828,190.
Hills, Vernon Elton; and Wu, Leesui, to RCA Corporation. Signal duration sensing circuit. 3,828,258, Cl. 328-111.000.
Hilsinger Corporation, The: See—
Wenzel, Ronald A., 3,827,790.
Hilti Aktiengesellschaft: See—
Oesterle, Helmut; Mark, Fritz; and Jochum, Peter, 3,827,618.
Hilton, Howard T., to International Business Machines Corporation. Ink drop charge compensation method and apparatus for ink drop printer. 3,828,354, Cl. 346-1.000.
Himmelstein, Sydney; and Tveter, Richard S. Torque control apparatus. 3,827,506, Cl. 173-12.000.
Hinds, Paul B. Self-contained front projection display cabinet. 3,827,795, Cl. 353-77.000.
Hinman, Arch E., to Johnson Industries, Inc. Self-adjusting furniture support. 3,827,663, Cl. 248-188.300.
Hirao, Mamoru: See—
Sugimoto, Kaname; Hirao, Mamoru; and Masuda, Kazuo, 3,827,940.
Hirohashi, Toshiyuki: See—
Yamamoto, Hisao; Inaba, Shigehiro; Okamoto, Tadashi; Hirohashi, Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama, Isamu; Mori, Kazuo; and Kohayashi, Tsuyoshi, 3,828,027.
Hirose, Kiyoshi: See—
Shiozawa, Kaoru; Shirato, Tsugio; and Hirose, Kiyoshi, 3,827,126.
Hitachi, Ltd.: See—
Ito, Kiyoo, 3,828,328.
Kawagoe, Hiroto; and Nomiya, Kosei, 3,828,209.
Kawamata, Isamu; Ai, Mitsuo; and Satoh, Ichia, 3,827,298.
Onoda, Yoshimitsu, 3,827,371.
Shiina, Masaru, 3,827,303.
Yamashita, Swizi; and Onishi, Kazuo, 3,828,213.
Yokoyama, Kanji; and Miwa, Hiroshi, 3,828,285.
Hitachi Shipbuilding and Engineering Company, Ltd.: See—
Yamamoto, Akira; Yoshida, Dan; and Onaka, Tatsumi, 3,827,187.
Hoagland, Milton B.; and Wroblewski, Lawrence P., to General Motors Corporation. Roll forming apparatus. 3,827,269, Cl. 72-108.000.
Hobbs, James R. Duct-grille connection clip. 3,827,209, Cl. 52-760.000.
Hoccevar, Lorraine E. Crochet loop gauge. 3,827,091, Cl. 6-1.00a.
Hoehn, Hans: See—
Denzel, Theodor; and Hoehn, Hans, 3,828,057.
Hoerner Waldorf Corporation: See—
Bliss, Robert A., 3,827,621.
Hoersch Aktiengesellschaft: See—
Sablotny, Adalbert, 3,828,158.
Hoersch Werke Aktiengesellschaft: See—
Sinner, Karl-Helmut, 3,827,767.
Hoffacker, Franz: See—
Jores, Willi; Gref, Hans; Lehmann, Helmut; Hoffacker, Franz; Lührig, Hermann; and Kreit, Bernhard, 3,827,647.

- Hoffman, Jacob. Tape cutting and attaching device. 3,827,123, Cl. 29-200.00b.
Hoffman, John T. Drill dispensing container. 3,827,820, Cl. 403-165.000.
Hoffman, Neil R.; and Jansen, Johann H., to Kelsey-Hayes Company. Electrically operated disk brake and automatic adjusting mechanism. 3,827,535, Cl. 188-138.000.
Hoffman-La Roche Inc.: See—
Furst, Andor; Labler, Ludwig; Meier, Werner; Muller, Peter; Scott, John William; and Widmer, Erich, 3,828,062.
Hoffmann, Klaus: See—
Wick, Richard; Meyer, Rudolf; and Hoffmann, Klaus, 3,828,355.
Hofmann, Wilfried: See—
Pfeifer, Josef; Hofmann, Wilfried; and Dietrich, Karl-Heinz, 3,827,802.
Hoge, Henri H.: See—
Weiner, Robert I.; Hoge, Henri H.; and Dussan V, Benicio I., 3,827,477.
Hogendobler, Richard Shure, to AMP Incorporated. Terminal connector and method of attaching same to coaxial. 3,828,305, Cl. 339-177.00r.
Hoglund Engineering and Manufacturing Company, Inc.: See—
Hoglund, Nils O., 3,827,420.
Hoglund, Nils O., to Hoglund Engineering and Manufacturing Company, Inc. Grinding wheel dressing apparatus. 3,827,420, Cl. 125-11.00p.
Hohberger, Clive P., to Allen-Bradley Company. Machine tool spindle calibration method and apparatus. 3,827,293, Cl. 73-133.00r.
Holden, Calvin B., to PPG Industries, Inc. Method for heating corrosive gases with arc heater. 3,828,162, Cl. 219-383.000.
Holden, Jimmie H. Fixture for handling panel articles. 3,827,742, Cl. 294-16.000.
Holland Hitch Company: See—
Neff, Charles G.; and Beebe, William F., 3,827,723.
Hollins, Jesse R. Resilient tire and wheel assembly. 3,827,792, Cl. 152-319.000.
Holmes, Gene Myron: See—
Serfass, Earl J.; Lindsay, Edward R., Jr.; Holmes, Gene Myron; Aid, James D.; and Bishop, French, Jr., 3,827,561.
Holt, Brian; Randall, Donald Richard; and Jack, James, to Ciba-Geigy Corporation. Acyl hydrazones of 2,2,6,6-tetramethylpiperidine-4-ones. 3,828,052, Cl. 260-293.620.
Hon, Edward H.; and Hon, Robert W. Bipolar electrode structure for monitoring fetal heartbeat and the like. 3,827,428, Cl. 128-2.06c.
Hon, Robert W.: See—
Hon, Edward H.; and Hon, Robert W., 3,827,428.
Honeycutt, Bass. Fruit and vegetable harvesting device. 3,827,446, Cl. 134-63.000.
Honeywell Inc.: See—
Belson, Ross A.; and Palombo, Gaston A., 3,828,203.
Nelson, Lorne W., 3,827,849.
Rekai, Andre, 3,828,332.
Honeywell Information Systems, Inc.: See—
Stafford, John P.; Cuccio, Allen B. J.; and Johnson, J. Arthur, 3,828,325.
Hoover, John R. E.: See—
De Marinis, Robert M.; and Hoover, John R. E., 3,828,037.
Hopkinson, Harold H., to Carrier Corporation. Heat exchanger. 3,827,483, Cl. 165-145.000.
Horiuchi, Tetsuya, to Sony Corporation. Regulated voltage supply circuit which compensates for temperature and input voltage variations. 3,828,241, Cl. 323-22.00t.
Horiike, Yasuhiro; Shirouzu, Shunji; Tsuji, Shigeo; and Harada, Nozomu, to Tokyo Shibaura Electric Company, Ltd. Semiconductor target. 3,828,232, Cl. 357-31.000.
Horiuchi, Hiroshi: See—
Ishihara, Masao; Haga, Teruhide; Horiuchi, Hiroshi; Yamaguchi, Hisashi; and Sugino, Osakazu, 3,827,886.
Horizons Incorporated, a Division of Horizons Research Incorporated: See—
Hazy, Andrew C.; Shirey, John E.; and Ramins, Lothar, 3,827,887.
Horler, Hansulrich, to BBC Brown, Boveri & Company Limited. Hydrodynamic combined axial and radial bearing. 3,827,770, Cl. 308-160.000.
Hosaka, Akio: See—
Baba, Kosaku; Wazawa, Kiyoshi; and Hosaka, Akio, 3,828,294.
Hosier, James Crombie: See—
Eiselstein, Herbert Louis; and Hosier, James Crombie, 3,828,296.
Houdaille Industries, Inc.: See—
Schultz, John Clayton; and Shyu, Tsu Pin, 3,827,681.
Hough, Richard Murray. Rotary grain distribution system. 3,827,578, Cl. 214-16.00r.
Houlgrave, Robert C.; and Weber, Joseph P. Valve seat construction. 3,827,673, Cl. 251-360.000.
Howard, William E. Fishing bobber. 3,827,175, Cl. 43-44.950.
Howe, Blair E.: See—
De Walker, Roger D.; and Howe, Blair E., 3,827,856.
Howe, Everett. Bench rest device for firearms. 3,827,172, Cl. 42-94.000.
Howell, Carl A.; and Muller, George H., to Ford Motor Company. Resilient bumper assembly. 3,827,741, Cl. 293-99.000.
Hoza, Philip J., III. Electrical adapter. 3,828,297, Cl. 339-14.00r.
Hubbard, Harold C.; and Strbik, Joseph J., to Motor Wheel Corporation. Wheel speed sensor for an anti-skid vehicle braking system. 3,828,150, Cl. 200-61.460.

- Hubert, Peter: See—
Vitzthum, Otto; Hubert, Peter; and Barthels, Manfred, 3,827,859.
Hudson, James Alphas, Jr.: See—
Boggs, Luther Miles; Flichman, Howard John; and Hudson, James Alphas, Jr., 3,827,287.
Hudson Oxygen Therapy Sales Co.: See—
Havstad, Harold R., 3,827,926.
Hudson Products Corporation: See—
Shipes, Kelly V., 3,827,825.
Hudson, Robert M.; Perry, Paul E.; and Warning, Clair J., to United States Steel Corporation. Method of forming a diffused metal coded steel product. 3,827,903, Cl. 117-1.000.
Huebner, Klaus: See—
Arndt, Peter Joseph; Blitz, Hans-Dieter; Huebner, Klaus; Krall, Wilhelm; Kurth, Hans-Joachim; Mueller, Manfred; and Pennewiss, Horst, 3,828,012.
Huettnner, Henry F.: See—
Haller, Henry E., Jr.; Huettnner, Henry F.; and Martin, Elliott E., Jr., 3,827,537.
Huggett, Clayton M., to United States of America, Navy. Electrical circuit destruct system. 3,827,362, Cl. 102-90.000.
Hughes Aircraft Company: See—
Farnsworth, Robert P., 3,828,204.
Murray, John S., Jr., 3,828,348.
Wheeler, Bryce A., 3,827,778.
Zoot, Robert M., 3,828,159.
Hughes, George W. Air circulating device. 3,827,342, Cl. 98-33.000.
Hulshizer, Stephen J. Switch with receptacle and switch shunt means. 3,828,224, Cl. 317-112.000.
Humphrey, Samuel A.; and Kissinger, Charles W., to United States of America, Navy. Short range guided missile. 3,827,655, Cl. 244-3.150.
Humphrey, Victor William Stanley: See—
Sharp, Herbert John; and Humphrey, Victor William Stanley, 3,827,207.
Hung, Chih Piao: See—
Ko, Wen H.; Knodel, James R.; and Hung, Chih Piao, 3,828,237.
Hung, Lam Thanh: See—
Fromageot, Pierre; Hung, Lam Thanh; and Morgat, Jean-Louis, 3,828,102.
Hungerford, Ernest Timmons, to Georgia Tech Research Institute. Automatic traffic control system. 3,828,307, Cl. 340-35.000.
Hunter Automated Machinery Corporation: See—
Hunter, William Allan, 3,827,549.
Hunter, Edwin J., to Toro Company, The. Water powered drive for automatic controllers. 3,827,459, Cl. 137-624.140.
Hunter, William Allan, to Hunter Automated Machinery Corporation. Extended cooling conveyor. 3,827,549, Cl. 198-221.000.
Hurd, John E., to Ingersoll Milling Machine Company, The. Gravity sag compensation system. 3,827,333, Cl. 90-14.000.
Huseby, Irvin C.: See—
Sherby, Oleg D.; Huseby, Irvin C.; and Whalen, Robert E., 3,827,921.
Husted, Royce H. Brake valve. 3,827,765, Cl. 303-52.000.
Hutchins, Alma A. Piercing of suction holes in sanding discs. 3,827,194, Cl. 51-170.00t.
Hutchins, Thomas B., IV. Microwave device including indium joined quartz window closing off hermetic chamber. 3,828,284, Cl. 333-98.00p.
Hutchinson, William Y.; and Kushmuk, Walter P., to Continental Scale Corporation. Weighing scale. 3,827,515, Cl. 177-241.000.
Huttenwerk Oberhausen A.G.: See—
Pantke, Heinz-Dieter; and Pohl, Ulrich, 3,827,877.
Hvizd, Andrew, Jr., to Kerite Company, The. High voltage cable having high SIC insulation layer between low SIC insulation layers and terminal construction thereof. 3,828,115, Cl. 174-73.00r.
Hyde, George W., to Permal, Incorporated. Gymnastic horizontal bar. 3,827,689, Cl. 272-63.000.
Hyde, James Stewart, to Varian Associates. Coaxial line to microwave coupler. 3,828,244, Cl. 324-50r.
Hynes, Joseph H., to Vetco Offshore Industries, Inc. Pipe connectors. 3,827,728, Cl. 285-90.000.
Ichinose, Richard Y.: See—
Schull, Robert D.; and Ichinose, Richard Y., 3,828,313.
ICI America Inc.: See—
Carter, Charles H., Jr.; and Newfeld, Stewart M., 3,828,341.
ICI Australia Limited: See—
Baklien, Asbjorn; and Kolm, Jan, 3,828,061.
IEC-Holden Ltd.: See—
Winsor, Robert Beck, 3,827,374.
Ikeda, Susumu: See—
Fuma, Toyozu; Takeuchi, Hideo; and Ikeda, Susumu, 3,827,188.
Ikeda, Yoshitsugi, to Olympus Optical Company Limited. Super telephoto lens system having a small telephoto ratio. 3,827,781, Cl. 350-220.000.
Imanishi, Kunimi. Display device for calendar watch. 3,827,234, Cl. 58-58.000.
Imperato, Louis George, Jr., to Blocked Iron Corporation. Lump ore products and methods of making the same. 3,827,876, Cl. 75-3.000.
Imperial Chemical Industries Limited: See—
Cairns, John Francis; Colchester, John Edward; and Entwisle, John Hubert, 3,828,058.
Kay, Ian Trevor; Peacock, Frederick Charles; and Waring, Wilson Shaw, 3,828,043.
Nield, Eric, 3,828,013.

- Weston, David Frederick, 3,827,277.
 Inaba, Shigeho: See—
 Yamamoto, Hisao; Inaba, Shigeho; Okamoto, Tadashi; Hirohashi, Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama, Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, 3,828,027.
 Inaba, Yoshio. Surgical tool, 3,827,437, Cl. 128-328.000.
 Inada, Masami: See—
 Kobashi, Uichiro; Inada, Masami; and Takayama, Katsuki, 3,827,763.
 Inada, Masami, to Aisin Seiki Kabushiki Kaisha. Automotive antiskid device with safety apparatus, 3,827,761, Cl. 303-21.0af.
 Industrial Concepts Corporation: See—
 Hammon, Donald P.; and Hammon, Edwin J., 3,827,492.
 Industrial Nucleonics Corporation: See—
 Cho, Boong Y., 3,827,808.
 Industrials Del Hogar, S.A.: See—
 Arrogante, Ricardo Ros, 3,827,775.
 Industrie Pirelli Societa per Azioni: See—
 Priaroggia, Paolo G.; and Maschio, Gabriele, 3,828,114.
 Ingersoll Milling Machine Company, The: See—
 Hurd, John E., 3,827,333.
 Institut Francais du Petrole des Carburants et Lubrifiants: See—
 Laurent, Jean; and Duconge, Claude, 3,827,814.
 Intercan S.A.: See—
 Nascica, Jean R., 3,827,128.
 International Business Machines Corporation: See—
 Ameen, Thomas J.; and Mesley, Nimrod N., 3,827,918.
 Au, Sik-Kee, 3,828,362.
 Berglund, Neil C.; Kerr, John W.; and Petrie, Jerome U., 3,828,327.
 Bilsback, Malvin S., 3,828,215.
 Cash, Kenneth W., 3,828,326.
 Hilton, Howard T., 3,828,354.
 Johnson, Claude Jr.; and Palmer, Myron D., 3,827,908.
 Platter, Valeria; and Schwarz, Geraldine C., 3,827,949.
 Tex, Karel Den; Jensen, Donald F.; Ricklefs, Merlin J.; Saltz, Fred; Schmidt, Jon J.; and Stacy, Phillip S., 3,827,628.
 International Computers Limited: See—
 Atkinson, Cyril John, 3,827,616.
 Burton, Christopher Philip, 3,828,342.
 International Harvester Company: See—
 Drayer, T. Gary, 3,827,443.
 Knapp, William H.; Kest, Elmer M.; and Miner, Robert C., 3,827,816.
 Willers, Eduard, 3,827,276.
 International Nickel Company, Inc., The: See—
 Eiselstein, Herbert Louis; and Hosier, James Crombie, 3,828,296.
 International Paper Company: See—
 Baxter, Robert O.; Byars, Carl A.; Nadaskay, Richard J.; and Roark, Lamar P., 3,827,614.
 International Register Company: See—
 Bassett, Ronald M., 3,827,232.
 International Research & Development Company: See—
 McCalvey, Leo Francis, 3,827,291.
 International Standard Electric Corporation: See—
 Forster, Daniel Emile; and Perrault, Jean, 3,828,346.
 Johnsen, John Normann; and Vralstad, Tor, 3,827,143.
 International Technical Industries: See—
 Bryant, Paul M., 3,828,333.
 International Telephone and Telegraph Corporation: See—
 Majkrzak, Charles P.; and Polgar, Michael S., 3,828,353.
 Inui, Takao, to Kabushiki Kaisha Tange Tekkosho (Tange Industries, Ltd.). Apparatus for supplying shaft like materials, 3,827,581, Cl. 214-1.0pb.
 Iowa State University Research Foundation, Inc.: See—
 Wallace, Leonard M., 3,828,334.
 IPC Services Limited: See—
 Owen, David Gregory; Robinson, Alfred Henry; and Whalley, Norman, 3,828,319.
 Isabell, Walter J.: See—
 Kramb, Kenneth D.; and Isabell, Walter J., 3,827,593.
 Isberg, Jon Lewis, to Yule Tree Farms. Christmas tree baling machine, 3,827,353, Cl. 100-232.000.
 Ishigami, Hikoichi; Kitayama, Seishi; and Sato, Akira, to Kokusai Denshin Denwa Kabushiki Kaisha. Speech-quality improving system utilizing the generation of higher harmonic components, 3,828,133, Cl. 179-1.0sa.
 Ishihara, Masao; Haga, Teruhide; Horiuchi, Hiroshi; Yamaguchi, Hisashi; and Sugino, Osakazu, to Konishiroku Photo Industry Co., Ltd. Light-sensitive silver halide photographic materials, 3,827,886, Cl. 96-50.00r.
 Ishii, Shinya: See—
 Makino, Takayuki; Ishii, Shinya; and Ohkubo, Rokuji, 3,827,415.
 Ishikawa, Yoshikazu, to Nissan Motor Company, Limited. Rotary combustion engine, 3,827,408, Cl. 123-8.130.
 Ishizumi, Kikuo: See—
 Yamamoto, Hisao; Inaba, Shigeho; Okamoto, Tadashi; Hirohashi, Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama, Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, 3,828,027.
 Isomura, Takuji, to Nippondenso Co., Ltd. Fuel injection means for a diesel engine, 3,827,419, Cl. 123-326.000.
 Ito, Kiyoo, to Hitachi, Ltd. Magnetic thin film memory, 3,828,328, Cl. 340-174.0nc.
 Ito, Yoshio: See—
 Sato, Ryozi; and Ito, Yoshio, 3,828,099.
 ITT Industries, Inc.: See—
 Belart, Juan, 3,827,759.
 Keller, Hans; and Kleinman, Henry M., 3,828,240.
 Ohmayer, Siegfried; and Storzel, Karl, 3,827,536.
 Walldorf, Juan Belart, 3,827,242.
 Ivanov, Vladimir Ivanovich: See—
 Samoilov, Sergei Mikhailovich; Ivanov, Vladimir Ivanovich; Zambrovskaya, Galina Vladimirovna; Tsvetkov, Oleg Nikolaevich; Monastyrsky, Viktor Nikolaevich; Bepalov, Evgeny Ivanovich; Gryaznov, Boris Vasilievich; and Molchanov, Boris Vladimirovich, 3,828,01.
 Ives, Andrew Peter, to Joseph Lucas (Industries) Limited. Braking systems for vehicles, 3,827,762, Cl. 303-21.00f.
 Iwasako, Toshiyuki: See—
 Kominami, Naoya; Iwasako, Toshiyuki; and Ohki, Kuso, 3,827,971.
 Kominami, Naoya; Iwasako, Toshiyuki; and Ohki, Kuso, 3,827,972.
 Kominami, Naoya; Iwasako, Toshiyuki; and Ohki, Kuso, 3,827,973.
 Kominami, Naoya; Iwasako, Toshiyuki; and Ohki, Kuso, 3,827,988.
 Iwata, Akira: See—
 Kawai, Isami; Nishikawa, Atsuro; Iwata, Akira; and Sugiyama, Kohei, 3,827,841.
 Izzo, Patrick Thomas: See—
 Tomcufcik, Andrew Stephen; Izzo, Patrick Thomas; and Fabio, Paul Frank, 3,828,041.
 Jack, James: See—
 Holt, Brian; Randell, Donald Richard; and Jack, James, 3,828,052.
 Jackson, John L.; and Steinwinder, John E., to Baker Oil Tools, Inc. Tubing injector and stuffing box construction, 3,827,487, Cl. 166-77.000.
 Jacobs, Christopher A. Capacitive discharge ignition system having inductor in parallel with ignition coil, 3,827,418, Cl. 123-148.0cd.
 Jacobs, Richard L.: See—
 Schlaudecker, George F.; and Jacobs, Richard L., 3,828,042.
 Jacobson, Robert. Test scoring apparatus, 3,827,165, Cl. 35-48.00a.
 Jacquet, Robert. Vice, 3,827,684, Cl. 269-32.000.
 Jakob, Heinrich: See—
 Tropp, Karl; Durth, Wilfried; and Jakob, Heinrich, 3,827,346.
 Janetos, Nicholas S.: See—
 Marzocchi, Alfred; and Janetos, Nicholas S., 3,827,230.
 Janhonen, Veikko Ilmari. Reinforced package and method for its preparation, 3,827,552, Cl. 206-424.000.
 Janik, Alice Marie, to Miles Laboratories, Inc. Blood agar culture medium, 3,827,942, Cl. 195-100.000.
 Janke, Donald E., to Whirlpool Corporation. Apparatus for dispensing a liquid and another material, 3,827,600, Cl. 222-70.000.
 Jansen, Johann H.: See—
 Hoffman, Neil R.; and Jansen, Johann H., 3,827,535.
 Japan Steel Works Ltd.: See—
 Kishino, Shunji; Abe, Takahiro; Tamura, Reish; and Amano, Hiroshi, 3,827,271.
 Kishino, Shunji; Abe, Takahiro; and Tamura, Reishi, 3,827,273.
 Japan Synthetic Rubber Co., Ltd.: See—
 Ando, Noriaki; Yaeda, Yasuyuki; Furuta, Isao; and Sakata, Ryuchi, 3,827,991.
 Japanese Geon Co., Ltd., The: See—
 Sato, Ryozi; and Ito, Yoshio, 3,828,099.
 Jensen, Donald F.: See—
 Tex, Karel Den; Jensen, Donald F.; Ricklefs, Merlin J.; Saltz, Fred; Schmidt, Jon J.; and Stacy, Phillip S., 3,827,628.
 Jensen, Thorkild: See—
 Minich, Paul R., Jr.; and Jensen, Thorkild, 3,827,532.
 Jeumont-Schneider: See—
 Brulard, Michel, 3,828,233.
 Jewett, Vernon L. Necktie holing method and combination, 3,827,108, Cl. 24-49.0cf.
 Jinkawa, Nozomu, to Kawasaki Jukogyo Kabushiki Kaisha. Rotor cooling device in an oscillation type compressor, 3,827,833, Cl. 417-482.000.
 Jochum, Peter: See—
 Oesterle, Helmut; Mark, Fritz; and Jochum, Peter, 3,827,618.
 Johanson, Hans A.; Whittaker, Dewey E.; and Phillippi, Larry R., to Moore, Samuel & Company. Composite hose for conductive fluid, 3,828,112, Cl. 174-47.000.
 Johansson, Johan Gunnar Inge, to Defibrator Aktiebolag. Grinding apparatus, 3,827,644, Cl. 241-259.300.
 Johansson, Sven Lissol; and Lundblad, Leif, to Norob System AB. Cash register intended for safe and fast operation during reception and issue of banknotes and comparable documents, 3,828,166, Cl. 235-7.00a.
 Johns-Manville Corporation: See—
 Smalley, Rodney Roger; Staudinger, John Vendel; Smith, Harvell Morton; and Meeker, Brian Lee, 3,827,210.
 Johnsen, John Normann; and Vralstad, Tor, to International Standard Electric Corporation. Oil cable installation method, 3,827,143, Cl. 29-628.000.
 Johnson, Claude Jr.; and Palmer, Myron D., to International Business Machines Corporation. Method for improving photoresist adherence, 3,827,908, Cl. 117-201.000.
 Johnson, Edwin S.: See—

- Hapke, Kenyon A.; Johnson, Edwin S.; and Sidlo, Joseph J., 3,827,779.
 Johnson, Francis: See—
 Martin, John; and Johnson, Francis, 3,828,064.
 Johnson, Frederick Mark. Mobile communication console, 3,827,772, Cl. 312-7.00r.
 Johnson, Gary R.: See—
 Kammerer, Archer W., Jr.; and Johnson, Gary R., 3,827,258.
 Johnson, George E.; and Newman, Walter, to Leviton Manufacturing Co., Inc. Lamp-retaining contact, 3,828,299, Cl. 339-53.000.
 Johnson Industries, Inc.: See—
 Hinman, Arch E., 3,827,663.
 Johnson, J. Arthur: See—
 Stafford, John P.; Cuccio, Allen B. J.; and Johnson, J. Arthur, 3,828,325.
 Johnson, Joseph L.; and Guidry, Shelby L., to Garrett, Udell, Inc.; a division of Macco Oil Tools, Inc. Method and apparatus for automatically terminating uncontrolled flow of well fluids from a subsurface formation, 3,827,501, Cl. 166-314.000.
 Johnson, Marvin M.: See—
 Nowack, Gerhard P.; and Johnson, Marvin M., 3,828,077.
 Johnson, Milton J.: See—
 Nordeen, Erwin E.; and Johnson, Milton J., 3,827,103.
 Johnson, Vern; and Snyder, Bobbie L., to Fixtures Manufacturing Corporation. Chair structure, 3,827,749, Cl. 297-248.000.
 Jones, Carlton C.: See—
 Pittman, Allen G.; Wasley, William L.; and Jones, Carlton C., 3,828,005.
 Jones, David Thomas: See—
 Spelman, Dennis Gerald; Kent, Bromley; and Jones, David Thomas, 3,827,591.
 Jones, Dennis L., to Scooter Ski Limited. Water planing craft, 3,827,392, Cl. 115-70.000.
 Jones, Edward S.: See—
 Gilileo, Kenneth B.; Jones, Edward S.; and Tajkowski, Edward G., 3,828,098.
 Jones, James P., to Endicott Johnson Corporation. Safety boot, 3,827,167, Cl. 36-4.000.
 Jones, Marvin R., to Cameron Iron Works, Inc. Apparatus for controlling well pressure, 3,827,511, Cl. 175-25.000.
 Jones, Weston C.: See—
 Belue, James G.; and Jones, Weston C., 3,827,639.
 Jons, Mattias: See—
 Gammel, Gregor; Pawlowski, Peter H.; Heidtmann, Uwe; and Jons, Mattias, 3,827,480.
 Jores, Willi; Gref, Hans; Lehmann, Helmut; Hoffacker, Franz; Luhrig, Hermann; and Kreit, Bernhard, to AGFA-Gevaert Aktiengesellschaft. Automatic tape winding machine, 3,827,647, Cl. 242-56.00r.
 Joseph Lucas (Industries) Limited: See—
 Ives, Andrew Peter, 3,827,762.
 Joslyn Mfg. and Supply Co.: See—
 Kawiecki, Chester J., 3,828,290.
 Jung, Berthold: See—
 Grube, Werner; Rutz, Karl-Friedrich; Jung, Berthold; and Schrage, Johannes, 3,827,643.
 Junker, Peter; Ribka, Joachim; and Kunstmann, Walter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Water insoluble benzimidazole-(5) sulfonamidophenylene-azo-aryl dyestuffs, 3,828,019, Cl. 260-157.000.
 Justice, Donald S. Magnetopolytyle tubular battery and method of making same, 3,827,912, Cl. 136-83.00r.
 Kabushiki Kaisha Seisan: See—
 Uramoto, Tatsuro, 3,827,472.
 Kabushiki Kaisha Tange Tekkosho (Tange Industries, Ltd.): See—
 Inui, Takao, 3,827,581.
 Kaelin, Joseph Richard. Method of introducing oxygen into a liquid to be clarified and device for carrying the method into effect, 3,827,679, Cl. 261-91.000.
 Kagata, Tooru, to Aisin Seiki Kabushiki Kaisha. Free wheel locking mechanism, 3,827,524, Cl. 180-70.000.
 Kaida, Masaaki: See—
 Yamasaki, Hiroyuki; and Kaida, Masaaki, 3,828,309.
 Kaifesh, Cass. Thread inserts and gage utilizing same, 3,827,154, Cl. 33-199.00r.
 Kaiser Aluminum & Chemical Corporation: See—
 Zeigler, Paul P.; and Roberts, Sidney G., 3,827,917.
 Kakimoto, Masakazu. Small diameter cylindrical air motor for driving grinders and the like, 3,827,834, Cl. 418-15.000.
 Kaller, Sigurd. Sealing device, 3,827,700, Cl. 277-59.000.
 Kallianides, Milton; and Klein, Gerhart P., to Mallory, P. R., & Co. Inc. Continuous forming of anodes for capacitors, 3,827,951, Cl. 204-28.000.
 Kamen, Jack M. Adapter for use with tracheal tubes, 3,827,729, Cl. 285-121.000.
 Kamentsky, Louis A.; and Klinger, Isaac, to Bio/Physics Systems, Inc. Particle sorter with segregation indicator, 3,827,555, Cl. 209-111.700.
 Kammerer, Archer W., Jr.; and Johnson, Gary R., to Baker Oil Tools, Inc. Disconnectable torque and axial load transmission apparatus, 3,827,258, Cl. 64-23.000.
 Kanai, Tomiyoshi; and Ushioda, Shunta, to Showa Aluminium Kabushiki Kaisha. Composite extrusion, 3,827,864, Cl. 29-191.600.

Hoffman, Neil R.; and Jansen, Johann H., 3,827,535.
Kendall, Wyvil R., to General Electric Company. Irradiated fuel processing system. 3,827,579, Cl. 214-8.50c.
Kenney, Harold E.; and Donahue, Edward T., to United States of America, Agriculture. Metallic dibasic fatty soap based greases. 3,828,086, Cl. 260-413.000.
Kent, Bromley: See—
Spelman, Dennis Gerald; Kent, Bromley; and Jones, David Thomas, 3,827,591.
Kent, John Allan: See—
Madura, Francis Eli; and Kent, John Allan, 3,827,709.
Kerb, Ulrich: See—
Keislich, Klaus; Kerb, Ulrich; Mengel, Klaus; and Domenico, Amadeo, 3,828,083.
Kerite Company, The: See—
Hvizd, Andrew, Jr., 3,828,115.
Kerr, John W.: See—
Berglund, Neil C.; Kerr, John W.; and Petrie, Jerome U., 3,828,327.
Kerr, Paul F.: See—
Paul, Peter L.; and Kerr, Paul F., 3,827,243.
Kerschbaumer, Hans Gerhard; and Endress, James W., to Carrier Corporation. Economizer pressure regulating system. 3,827,250, Cl. 62-196.000.
Kest, Elmer M.: See—
Knapp, William H.; Kest, Elmer M.; and Miner, Robert C., 3,827,816.
Khan, Yusuff Mohammed. Combined cigarette holder and ash receptacle. 3,827,444, Cl. 131-174.000.
Kibler, Charles J.: See—
Davis, Burns; Fagerburg, David R.; and Kibler, Charles J., 3,828,010.
K.I.C. Incorporated: See—
Kramb, Kenneth D.; and Isabell, Walter J., 3,827,593.
Kidd, Walter, & Company, Inc.: See—
Greenwald, Harry; and Tuppo, Robert, 3,827,541.
Kiefer, Hans: See—
Riettmüller, Lothar H.; Sponholz, Richard; Kiefer, Hans; and Spreitzhofer, Ernst, 3,828,259.
Kienle, Richard F.: See—
Golze, Richard R.; and Kienle, Richard F., 3,827,740.
Kiessling, Rudolf H., to Square D Company. Miniaturized joystick and cam structure with push button switch operating means. 3,827,313, Cl. 74-471.0xy.
Kilbride, Robert S.: See—
Kurk, Kenneth G.; and Kilbride, Robert S., 3,827,577.
Kimura, Kazuya: See—
Sakai, Yutaka; and Kimura, Kazuya, 3,828,199.
King, Graham E.: See—
Miles, Leon H.; and King, Graham E., 3,827,977.
Kinugasa, Hiroaki; Tsukamoto, Masatoshi; Mizuta, Hiroyuki; and Uno, Hitoshi, to Dainippon Pharmaceutical Co., Ltd. Chalcone derivatives and preparation thereof. 3,828,030, Cl. 260-240.00j.
Kirik, Edward F., to Syntex Rubber Corporation. Rail mounting pad. 3,827,631, Cl. 238-283.000.
Kirsch, Klaus; and Grotewold, Werner, to Volkswagenwerk Aktiengesellschaft. Testing a fuel injection valve. 3,828,247, Cl. 324-28.00r.
Kirzner, Samuel, to Byron, W. H., Inc. Fixture for sharpening thread chasers. 3,827,195, Cl. 51-220.000.
Kish, Arthur S., to Murray Corporation. Means for preventing flow of lubricant-saturated refrigerant in automotive air-conditioning systems. 3,827,255, Cl. 62-296.000.
Kishino, Shunji; Abe, Takahiro; Tamura, Reish; and Amano, Hiroshi, to Japan Steel Works Ltd. Die holding device in an indirect extrusion machine. 3,827,271, Cl. 72-253.000.
Kishino, Shunji; Abe, Takahiro; and Tamura, Reishi, to Japan Steel Works Ltd. Shearing device for unextruded butts in an indirect metal extrusion machine. 3,827,273, Cl. 72-255.000.
Kissinger, Charles W.: See—
Humphrey, Samuel A.; and Kissinger, Charles W., 3,827,655.
Kistler, Laurenz. Support structure for overhead concrete molding forms. 3,827,665, Cl. 248-354.00p.
Kistler, Laurenz. Mobile concrete ceiling mold platform. 3,827,840, Cl. 425-62.000.
Kita, Jun'ichiro: See—
Masaki, Mitsuo; Fikui, Kiyoshi; Kita, Jun'ichiro; and Uchida, Izuhiko, 3,828,028.
Kitayama, Seishi: See—
Ishigami, Hikoichi; Kitayama, Seishi; and Sato, Akira, 3,828,133.
Klasek, Ladislav J.: See—
Armstrong, Thaddeus J.; Styczen, John A.; and Klasek, Ladislav J., 3,827,284.
Klaus, Jacobs, to Meyer, Roth & Pastor. Overhung shear. 3,827,323, Cl. 83-310.000.
Klein, Gerhart P.: See—
Kallianides, Milton; and Klein, Gerhart P., 3,827,951.
Kleinman, Henry M.: See—
Keller, Hans; and Kleinman, Henry M., 3,828,240.
Klinger, Isaac: See—
Kamentsky, Louis A.; and Klinger, Isaac, 3,827,555.
Knapp, William H.; Kest, Elmer M.; and Miner, Robert C., to International Harvester Company. Coupling device. 3,827,816, Cl. 403-322.000.

Kneller, Klaus; Trub, Jean; and Gregoire, Francois, to Schweizerische Industrie-Gesellschaft. Device for cooling extruded plastic tubing. 3,827,842, Cl. 425-72.000.
Knepler, John T., to Dickey-John Corporation. Grain analysis computer circuit. 3,828,173, Cl. 235-151.350.
Knickerbocker, Michael Gene, to Diamond International Corporation. Locking means for liquid dispensers. 3,827,605, Cl. 222-153.000.
Knickerbocker, Michael Gene, to Diamond International Corporation. Pump immobilizing means. 3,827,606, Cl. 222-384.000.
Knodel, James R.: See—
Ko, Wen H.; Knodel, James R.; and Hung, Chih Piao, 3,828,237.
Knoll, Glenn F., to United States of America, Atomic Energy Commission. Apparatus for measuring radioactivity in the human eye. 3,827,427, Cl. 128-2.00a.
Ko, Wen H.; Knodel, James R.; and Hung, Chih Piao, to North American Manufacturing Company. Fuel-air ratio controller. 3,828,237, Cl. 318-619.000.
Kobashi, Uichiro; Inada, Masami; and Takayama, Katsuki, to Aisin Seiki Kabushiki Kaisha. Control valve assemblies for hydraulic brake systems of automobiles. 3,827,763, Cl. 303-21.00f.
Kobayashi, Ikuya, to Toyota Jidosha Kogyo Kabushiki Kaisha. Operatin indicating device for hydraulic brake system. 3,828,308, Cl. 340-52.00c.
Kobayashi, Kengo; and Manabe, Mitsuo, to Fujitsu Limited. Numerically controlled machine tool including backlash elimination. 3,828,238, Cl. 318-630.000.
Kobayashi, Tsuyoshi: See—
Yamamoto, Hisao; Inaba, Shigeho; Okamoto, Tadashi; Hirohashi, Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama, Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, 3,828,027.
Kobayasi, Hiroyuki, to Matsushita Electric Industrial Company, Limited. Apparatus for epitaxial growth from the liquid state. 3,827,399, Cl. 118-64.000.
Koeblitz, William E., to Gould Inc. Pulsed droplet ejecting system. 3,828,357, Cl. 346-140.000.
Koehring Company: See—
Krause, Kenneth M., 3,827,522.
Kofman, Wlodzimierz: See—
Max, Jacques; and Kofman, Wlodzimierz, 3,827,629.
Kohl, William Leonard: See—
Theriault, Robert John; and Kohl, William Leonard, 3,827,941.
Koizumi, Yutaka, to Ricoh Co., Ltd. Device for preventing development of non-image marginal portions of a photoreceptor in electrophotographic copying apparatus. 3,827,799, Cl. 355-3.00r.
Kojima, Kazumi: See—
Yamazaki, Shingo; Takemura, Akira; Kojima, Kazumi; Nishimura, Masato; Tsuchida, Teruo; and Yonemoto, Tadashi, 3,828,003.
Kojima, Yukiyasu; Akiyoshi, Kazuo; and Kawada, Kenji, to Showa Denko K.K. Process of complete cryogenic vaporization of liquefied natural gas. 3,827,247, Cl. 62-52.000.
Kokusai Denshin Denwa Kabushiki Kaisha: See—
Ishigami, Hikoichi; Kitayama, Seishi; and Sato, Akira, 3,828,133.
Yamamoto, Takaya, 3,828,231.
Koller, Floyd G.: See—
Bolden, James D.; and Koller, Floyd G., 3,827,671.
Kolm, Jan: See—
Baklien, Asbjorn; and Kolm, Jan, 3,828,061.
Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kusuo, to Asahi Kasei Kogyo Kabushiki Kaisha. Reforming with platinum-lead catalyst. 3,827,971, Cl. 208-139.000.
Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kusuo, to Asahi Kasei Kogyo Kabushiki Kaisha. Method of producing aromatic hydrocarbons. 3,827,972, Cl. 208-139.000.
Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kusuo, to Asahi Kasei Kogyo Kabushiki Kaisha. Reforming with a coprecipitated platinum-lead catalyst. 3,827,973, Cl. 208-139.000.
Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kusuo, to Asahi Kasei Kogyo Kabushiki Kaisha. Pt-Pb catalyst compositions. 3,827,988, Cl. 252-441.000.
Kommanditbolaget United Stirling (Sweden) AB & Co.: See—
Almstrom, Sten Hakan; and Gothberg, Yngve Roland, 3,827,241.
Konig, Horst: See—
Wenzel, Werner; Meraikib, Mohammed; Franke, Friedrich H.; and Konig, Horst, 3,827,878.
Konishiroku Photo Industry Co., Ltd.: See—
Ishihara, Masao; Haga, Teruhide; Horiuchi, Hiroshi; Yamaguchi, Hisashi; and Sugino, Osakazu, 3,827,886.
Kono, Tateomi, to Minolta Camera Kabushiki Kaisha. Device for supporting sensitive paper cassette for electrophotography copier. 3,827,687, Cl. 271-117.000.
Konopka, John G., to Warwick Electronics, Inc. Memory circuit. 3,828,205, Cl. 307-238.000.
Kornsey, Robert J.: See—
Stratienko, Andrew; and Kornsey, Robert J., 3,827,407.
Kortner, Lothar: See—
Lamm, Heinz; and Kortner, Lothar, 3,827,411.
Koski, William L.; and Swenson, Emil S. Apparatus for cooling a living organ. 3,827,251, Cl. 62-217.000.
Kouno, Hiroshi; and Kubo, Sueki, to Kurosaki Yogyo Co., Ltd. Mobile device for repairing furnace walls and the like. 3,827,633, Cl. 239-132.300.
Koutny, George H., to Pace Promotions, Inc. Display stand for supporting prehung articles. 3,827,571, Cl. 211-59.000.

Krakowski, Anthony J.; and Krakowski, Daniel S. Air hose adapter. 3,827,635, Cl. 239-391.000.
Krakowski, Daniel S.: See—
Krakowski, Anthony J.; and Krakowski, Daniel S., 3,827,635.
Krall, Wilhelm: See—
Arndt, Peter Joseph; Blitz, Hans-Dieter; Huebner, Klaus; Krall, Wilhelm; Kurth, Hans-Joachim; Mueller, Manfred; and Pennewiss, Horst, 3,828,012.
Kramb, Kenneth D.; and Isabell, Walter J., to K.I.C. Incorporated. Container safety closure. 3,827,593, Cl. 215-9.000.
Krause, Kenneth M., to Koehring Company. Fluid pressure actuated brake light switch. 3,827,522, Cl. 180-6.00r.
Krause, Peter: See—
Friedtze, Gunther; and Krause, Peter, 3,827,529.
Krawetz, Barton, to United States of America, Atomic Energy Commission. Electron beam-pumped gas laser system. 3,828,274, Cl. 331-94.500.
Kreider, Eunice M., to Searle, G. D., & Co. (2-Methyl-5-nitro-1-imidazolyl)ethyl heteroaryloxy. 3,828,056, Cl. 260-296.00r.
Kreider, Eunice M., to Searle, G. D., & Co. 2-Methyl-5-nitro-1-(2-phenylthioethyl)imidazoles. 3,828,065, Cl. 260-309.000.
Kreit, Bernhard: See—
Jores, Willi; Gref, Hans; Lehmann, Helmut; Hoffacker, Franz; Luhrig, Hermann; and Kreit, Bernhard, 3,827,647.
Krenzer, John, to Velsicol Chemical Corporation. Dialkyl acetals of heterocyclic ureidoacetaldehyde. 3,827,875, Cl. 71-90.000.
Kress, Reinhard: See—
Diepers, Heinrich; Schmidt, Otto; and Kress, Reinhard, 3,827,950.
Krokos, Raymond M., to Evans Products Company. Cargo tie down. 3,827,662, Cl. 248-119.00r.
Kruka, Vitold R.: See—
Meier, Dale J.; and Kruka, Vitold R., 3,827,447.
Krygowski, Richard P.: See—
Ader, William R.; and Krygowski, Richard P., 3,827,416.
Kubo, Sueki: See—
Kouno, Hiroshi; and Kubo, Sueki, 3,827,633.
Kubota, Hiroshi, to Furuno Electric Company, Limited. Dodging course calculating device. 3,827,150, Cl. 33-1.05d.
Kufnin, Frederick W.; Viroche, Paul R.; Allen, Donald J.; Gokey, Phillip E.; and Rose, Frederick A., to Polar Ware Company. Disposal of waste by incineration. 3,827,378, Cl. 110-9.00r.
Kuhl, Bernard A.; and Mason, John B., to General Motors Corporation. Suspension system for hitch assembly. 3,827,518, Cl. 180-12.000.
Kuhle, Englebert: See—
Widdig, Arno; Kuhle, Englebert; Grew, Ferdinand; Kaspers, Helmut; Scheinflug, Hans; and Frohberger, Paul-Ernst, 3,828,094.
Kuhn, Falk; and Rombach, Friedrich, to Fouquet-Werke Frau & Planck. Knitting machine selector jack butt removal apparatus. 3,827,615, Cl. 225-103.000.
Kuhrau, Lothar: See—
Liebmann, Werner; and Kuhrau, Lothar, 3,827,193.
Kujava, John M.: See—
Fogelberg, Clement V.; and Kujava, John M., 3,827,870.
Kujundzic, Nedjeljko: See—
Gluncic, Berislav; and Kujundzic, Nedjeljko, 3,828,044.
Kunstmann, Walter: See—
Junker, Peter; Ribka, Joachim; and Kunstmann, Walter, 3,828,019.
Kupex AG: See—
Stephany, Christian; Braunmiller, Heinz; and Katzer, Johannes, 3,827,637.
Kureth, Richard L. Boat stabilizer. 3,827,389, Cl. 115-12.00a.
Kurk, Kenneth G.; and Kilbride, Robert S., to Moorman Manufacturing Company. Apparatus for assembling layers of packages on a pallet. 3,827,577, Cl. 214-6.00p.
Kurosaki Yogyo Co., Ltd.: See—
Kouno, Hiroshi; and Kubo, Sueki, 3,827,633.
Kurosawa Tele-Communications Limited: See—
Kawano, Reiji; Goda, Kazuhiro; Yamakawa, Hiroshi; and Otsuka, Masayoshi, 3,827,543.
Kurth, Hans-Joachim: See—
Arndt, Peter Joseph; Blitz, Hans-Dieter; Huebner, Klaus; Krall, Wilhelm; Kurth, Hans-Joachim; Mueller, Manfred; and Pennewiss, Horst, 3,828,012.
Kushmuk, Walter P.: See—
Hutchinson, William Y.; and Kushmuk, Walter P., 3,827,515.
Kusunoki, Yasuo; and Okasaki, Hiroshi, to Nippon Steel Chemical Co., Ltd. Process for producing pyridine bases. 3,828,051, Cl. 260-290.00p.
Kutino, Tsuyoshi: See—
Yamagishi, Hidehisa; Yokoi, Fumitoshi; and Kutino, Tsuyoshi, 3,827,140.
Kyowa Hakko Kogyo Kabushiki Kaisha: See—
Shimizu, Yoshiaki; Tatano, Toshio; Akiyama, Yoshiyuki; and Yamaguchi, Akira, 3,827,936.
Labarber, James P.; Shade, Ross A.; and Terbrack, William H., to Wrather, J. D., Jr., mesne. Data handling system employing time modulation. 3,828,279, Cl. 332-2.000.
Labes, Mortimer M., to Temple University. Stable anil-type nematic liquid crystals. 3,827,780, Cl. 350-160.01c.
Labler, Ludwig: See—
Furst, Andor; Labler, Ludwig; Meier, Werner; Muller, Peter; Scott, John William; and Widmer, Erich, 3,828,062.

Labofina S.A.: See—
Cahen, Raymond M.; Debus, Henri R.; and Aga, Rene L., 3,827,974.
LaFlamme, Philip A.; and Couture, Romeo E., to Greenerd Press Machine Company, Inc. Control system for hydraulic presses. 3,827,328, Cl. 83-617.000.
L'Air Liquide, Societe Anonyme Pour L'Etude et l'Exploitation des Procédes Georges Claude: See—
Chovet, Patrice; Rollin, Claude; Galasso, Honore; and Prost, Roger, 3,827,252.
Lakin, Harold: See—
Bristol, Thomas R.; Lakin, Harold; and Renga, Fred L., 3,827,312.
Lamb, Raymond K.: See—
Piazza, Andre L.; and Lamb, Raymond K., 3,827,488.
Lambert, Russell R., Sr., 1/2 to Boney, Warren X. Vehicle towing and jacking device. 3,827,586, Cl. 214-86.00a.
Lambert, Martin R., to Hahn Brass Limited. Patio door roller. 3,827,104, Cl. 16-18.000.
Lamm, Heinz; and Kortner, Lothar, to Daimler-Benz Aktiengesellschaft. Rotary piston internal combustion engine of trochoidal construction. 3,827,411, Cl. 123-119.00r.
Lamont, Philip E.: See—
Grimmett, Earl S.; and Lamont, Philip E., 3,827,946.
Lance, Raymond E., to Construction Technology, Inc. Hydraulically powered demolition device. 3,827,507, Cl. 173-15.000.
Land, Edwin H.; and Cronin, David V. Temperature dependant start switch. 3,828,293, Cl. 337-417.000.
Landler, Josef: See—
Spietschka, Ernst; and Landler, Josef, 3,828,072.
Langwell, John D. Clamp device for releasably securing a stack of sheets together while enabling the sheets to be successively torn away. 3,827,109, Cl. 24-67.500.
Laronze, Joseph, to BBC Brown Boveri & Company Limited. Tubular inductor structure for linear motors. 3,828,211, Cl. 310-13.000.
Larry, John R. High adhesion metallizing compositions. 3,827,891, Cl. 106-1.000.
Larsen, Bob W.: See—
Zimmerman, Bryant S.; and Larsen, Bob W., 3,827,183.
Larson, John O., to Lewis Bolt & Nut Company. Floating type drive spike accessory. 3,827,509, Cl. 173-128.000.
Larson, Perley E. Tissue box holder for automobiles. 3,827,664, Cl. 248-311.000.
Laser Alignment, Inc.: See—
Menzel, Ramon, 3,827,155.
Roodvoets, Roger J.; and Applegate, Merlin J. (said Roodvoets as-sor. to), 3,827,156.
Lau, Dickson T. W. Mosaic composite sheet composed of a new type of greeting cards. 3,827,170, Cl. 40-158.00r.
Laurenceau, Bernard, to Thomson-CSF. Stacked beam radar. 3,828,349, Cl. 343-12.05b.
Laurent, Jean; and Duconge, Claude, to Institut Francais du Petrole des Carburants et Lubrifiants. Device for a quick connection of traction elements. 3,827,814, Cl. 403-301.000.
Laurent, Roger, to Poma 2.000 S.A., mesne. Haulage grip for releasably gripping a traction cable. 3,827,372, Cl. 104-209.000.
Laurenti, Italo Marco Levi. Method of producing new scissors. 3,827,316, Cl. 76-104.00a.
Laurenz, Frank R. Animal facility. 3,827,402, Cl. 119-15.000.
Leatham, Douglas B.: See—
Bolinger, John F.; and Leatham, Douglas B., 3,827,540.
Lebedev, Alexei Pavlovich: See—
Schedrovitsky, Savely Solomonovich; Mash, Dmitry Matveevich; Golovko, Zoya Ivanovna; Goncharevich, Leonid Fomich; Lebedev, Alexei Pavlovich; Dubrovnik, Jury Mikhailovich; and Suut, Nikolai Karlovich, 3,828,339.
Lebedev, Boris Nikolaevich: See—
Avdjukov, Vyacheslav Ivanovich; and Lebedev, Boris Nikolaevich, 3,827,896.
LeBlanc, Robert Bruce, to Cotton, Incorporated. Production of textile materials with improved flame retardance. 3,827,907, Cl. 117-62.100.
Lechtenbert, Leo J.: See—
Harkness, Joseph R.; Santi, John D.; and Lechtenbert, Leo J., 3,828,212.
Lederer, George H. Stacking device. 3,827,582, Cl. 214-7.000.
Lee, Arthur L. Articulated haulage vehicle. 3,827,720, Cl. 280-400.000.
Lee, Raymond Organization, The: See—
Kastner, William G., 3,828,350.
Lee, Richard A.; and Lins, William F., to United States of America, Army. Comfort level measuring device. 3,828,170, Cl. 235-151.300.
Lee, Walter Joe, to Dow Chemical Company, The. Self-sealing system for storing and dispensing a fluid material. 3,827,455, Cl. 137-375.000.
Leek, Wayne E.: See—
English, Myrle H.; Goodstal, Laurence; Leek, Wayne E.; Sanzo, Robert J.; Turner, Robert L.; Workman, Clark B.; and Yetter, Edward W., 3,827,334.
Leenaards, Antoine Joseph, to Societe du Bouchon Couronne (Crown Cork Company France). Twist-off crown closure with seal. 3,827,594, Cl. 215-324.000.
Leesona Corporation: See—
Lesser, Eliyu, 3,827,226.

Lefevre, Andre, to Regie Nationale des Usines Renault. Automatic tensioning and release devices for automotive safety harnesses. 3,827,714, Cl. 280-150.0sb.

Lehmann, Helmut: See—
Jores, Willi; Gref, Hans; Lehmann, Helmut; Hoffacker, Franz; Lührig, Hermann; and Kreit, Bernhardt, 3,827,647.

Lehmann, Joseph L., to Weston Instruments, Inc. Display device with ambient light graticule illuminator. 3,828,127, Cl. 178-7.840.

Leister, Heinrich: See—
Bien, Hans-Samuel; Harms, Wolfgang; Schmitz, Reinold; Schmitz, Reinold; and Leister, Heinrich, 3,828,040.

Lemelson, Jerome H. Composite mold wall structure. 3,827,667, Cl. 249-80.000.

Lemelson, Jerome H. Game apparatus. 3,827,694, Cl. 273-113.000.

Lemelson, Jerome H. Optical sheet material. 3,827,783, Cl. 350-104.000.

Lerner, Julius; and Campbell, George F., Jr., to Sun Oil Company of Pennsylvania. Fluid leakage measuring apparatus. 3,827,283, Cl. 73-40.000.

Lesser, Eliyu, to Leesona Corporation. Ring rail tracking arrangement for ring spinning machines. 3,827,226, Cl. 57-34.00r.

Letson and Burpee Ltd.: See—
Allen, Francis Edwin, 3,827,324.

Leverenz, Kenneth H.: See—
Leverenz, Melvin E.; and Leverenz, Kenneth H., 3,827,450.

Leverenz, Melvin E.; and Leverenz, Kenneth H., to Diamond Crystal Salt Company. Automatic control for deburring relish stock and other materials. 3,827,450, Cl. 137-88.000.

Levine, Marshall S.: See—
Miller, Melvin N.; Levine, Marshall S.; and Partin, Melvin E., 3,827,804.

Leviton Manufacturing Co., Inc.: See—
Johnson, George E.; and Newman, Walter, 3,828,299.

Lewis Bolt & Nut Company: See—
Larson, John O., 3,827,509.

Lewis, Edward Earl: See—
Blane, Leslie Lewis; Bottonari, Kenneth Charles; and Lewis, Edward Earl, 3,828,140.

Lewis, Herbert J.; and Ziegler, William H., to United States of America, Army. Fluid system with angular displacement sensor for axially reciprocating shaft. 3,827,335, Cl. 91-3.000.

Lewis, Theras Gordon, to Bell Telephone Laboratories, Incorporated. Time division conference hybrid circuit. 3,828,146, Cl. 179-170.0nc.

Lhomme, Francois G., to Regie Nationale Des Usines Renault. Cutting tool adjustment devices. 3,827,823, Cl. 408-158.000.

Liberman, Harvey W.; Harvey, Samuel E.; and Voorhees, Steven C., to Carrier Corporation, mesne. Automatic self-leveling forks. 3,827,347, Cl. 214-302.000.

Lichtblau, George Jay. Noise rejection circuitry. 3,828,337, Cl. 340-280.000.

Liebmann, Werner; and Kuhrau, Lothar, to Schneider Maschinenbau GmbH. System for balancing rotary bodies. 3,827,193, Cl. 51-169.000.

Lietard, Michel: See—
Giordano, Jean-Louis; and Lietard, Michel, 3,827,764.

Lilly, Rodger Hedley: See—
Needham, James Christopher; Ellis, Colin Ronald George; and Lilly, Rodger Hedley, 3,827,138.

Limpens, Karl: See—
Glindmeyer, Friedrich; Limpens, Karl; and Hennenberg, Wilgelm, 3,827,463.

Linder, Ernst; Zechnall, Richard; Wahl, Josef; and Schmidt, Peter Jürgen, to Bosch, Robert GmbH. Method and apparatus for removal of noxious components from the exhaust of internal combustion engines. 3,827,237, Cl. 60-274.000.

Linderman, William A.: See—
Boggs, William E.; Boro, Franklin; Linderman, William A.; and Snow, Roland B., 3,827,922.

Lindh, Karl Gosta: See—
Erma, Eero Antero; Fredin, Stig Bertil Arthur; Lindh, Karl Gosta; and Timgren, Leo Anders, 3,827,410.

Lindo, Neil A.: See—
Zinnes, Harold; and Lindo, Neil A., 3,828,055.

Zinnes, Harold; and Lindo, Neil A., 3,828,073.

Lindsay, David B., Jr. Aircraft having recoilless rifle. 3,827,332, Cl. 89-1.700.

Lindsay, Edward R., Jr.: See—
Serfass, Earl J.; Lindsay, Edward R., Jr.; Holmes, Gene Myron; Aid, James D.; and Bishop, French, Jr., 3,827,561.

Lindsey, Cornelius: See—
Talbot, William Carl; and Lindsey, Cornelius, 3,827,160.

Lindsey, William C.: See—
United States of America, National Aeronautics and Space Administration, 3,828,138.

Lines, Raydon Ayers. Control for radial type pumps of the like. 3,827,831, Cl. 417-273.000.

Lins, William F.: See—
Lee, Richard A.; and Lins, William F., 3,828,170.

Lipha, Lyonnaise Industrielle Pharmaceutique: See—
Boschetti, Eugene; Molho, Darius; and Fontaine, Louis, 3,828,095.

Little, Arthur D., Inc.: See—

Heitman, Richard E.; Arciprete, Genio R.; Martin, Peter G.; Norris, Richard C.; and Brisk, Richard A., 3,828,323.

Liu, Ching-Chung. Self contained test probe employing high input impedance. 3,828,256, Cl. 324-133.000.

Livenick, Corwin E.; Malinowski, Stanley; and Vann, Robert D., to Motorola, Inc. Temperature compensated mounting structure for coupled resonator crystals. 3,828,210, Cl. 310-9.100.

Lloyd, Kenneth; and Michael, Anthony Dennis, to Glacier Metal Company Limited, The. High lead aluminium alloy. 3,827,882, Cl. 75-138.000.

Lockheed Aircraft Corporation: See—
Hallworth, Robert, 3,827,658.

Mershon, Butler A.; and Wilhelm, Keith A., 3,827,278.

Lockwood, Frank R., to Chubb Tire Security Limited. Fire-extinguishing apparatus. 3,827,502, Cl. 169-51.000.

Lode, Tenny D. Amplifier buffered resistance network digital to analog and analog to digital converter system. 3,828,345, Cl. 340-347.0da.

Lodjic, Carl L., to Global Erectors, Inc. Baggage loader. 3,827,590, Cl. 214-505.000.

Lofquist, Robert Alden, to Allied Chemical Corporation. Cationic dyeable polyamide of improved physical properties. 3,828,009, Cl. 260-78.001.

Lohr, Raymond J.; and Smith, James, to Louis Marx & Co., Inc. Toy cycle construction. 3,827,719, Cl. 280-259.000.

Long, Robert Gordon, to D.D.I. Communications, Inc. Digital data change detector. 3,828,312, Cl. 340-146.10r.

Long, William P.: See—
Augustin, Eugene H.; and Long, William P., 3,827,872.

Lonow, Martin S., to Anaconda Company, The. Inflatable corona ring and cable termination method employing same. 3,828,116, Cl. 174-73.00r.

Lorain Products Corporation: See—
Chambers, Charles W., Jr., 3,828,139.

Chambers, Charles W., Jr., 3,828,281.

Lorenz, Watter; Boshagen, Horst; Hammann, Ingeborg; and Behrenz, Wolfgang, to Bayer Aktiengesellschaft. Benzisoxazolo (thiono) phosphoric (phosphonic) acid esters. 3,828,063, Cl. 260-307.00d.

Louis Marx & Co., Inc.: See—
Lohr, Raymond J.; and Smith, James, 3,827,719.

Lovens Kemiske Fabrik Produktionsaktieselskab: See—
Feit, Peter Werner; and Nielsen, Ole Bent Tvarmose, 3,828,059.

Lowderman, Ernest W.; Barrington, Leland L.; and Young, Ferdinand, Jr., to Armco Steel Corporation. Rotary hearth furnace and system for forming balls. 3,827,267, Cl. 72-69.000.

Loy, Fred W.; Harms, William J.; Wajahn, Charles W.; and Karasinski, Frederick, to Gardner-Denver Company. Apparatus for forming twisted pairs of conductor wire. 3,827,465, Cl. 140-149.000.

Lubowitz, Hyman R., to TRW Inc. Method of bonding using improved polyimide adhesives. 3,827,927, Cl. 156-331.000.

Lucas Aerospace Limited: See—
Needham, Victor, 3,827,966.

Lucia, George C. Steering mechanism for snowmobile. 3,827,516, Cl. 180-5.00r.

Lucifer S.A.: See—
Stampfli, Harald, 3,827,672.

Luck, Russell M.; and Gainer, Gordon C., to Westinghouse Electric Corporation. Asbestos-thickened cycloaliphatic epoxy materials for use in atmospheres of arced sulfur hexafluoride and articles thereof. 3,828,000, Cl. 260-37.0ep.

Ludder, Rodney E. Non-reusable nestable cup or container. 3,827,620, Cl. 229-1.50b.

Ludlow Corporation: See—
Keck, Jerry L.; and Rowley, James Robert, 3,827,340.

Luffy, Dennis J.; and Mosemiller, Robert L., to Miller Printing Machinery Co. Sheet delivery mechanism. 3,827,688, Cl. 271-203.000.

Lührig, Hermann: See—
Jores, Willi; Gref, Hans; Lehmann, Helmut; Hoffacker, Franz; Lührig, Hermann; and Kreit, Bernhardt, 3,827,647.

Lundblad, Leif: See—
Johansson, Sven Lissol; and Lundblad, Leif, 3,828,166.

Lunde, Einar O.: See—
Lunde, Thomas Trygve; and Lunde, Einar O., 3,827,384.

Lunde, Thomas Trygve; and Lunde, Einar O. Containership. 3,827,384, Cl. 114-72.000.

Lundgren, Claes E. G.; and Akeson, Stig L., to AGA Aktiebolag. Breathing apparatus. 3,827,432, Cl. 128-142.200.

Lundquist, Ulf Rolfsson, to Forenade Fabriksverken Eskilstuna. Hot gas engine. 3,827,240, Cl. 60-521.000.

Lunquist, Frank C.: See—
Vogelgesang, Peter J.; Alexander, Jerry L.; and Lunquist, Frank C., 3,828,359.

Lupo, Joseph Paul. Automatic transmission shifting point and firmness variation control. 3,827,315, Cl. 74-863.000.

Lupton, Joseph D. Ionization chamber with a porous anode. 3,828,184, Cl. 250-83.6ft.

Ly, Manuel G.: See—
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Sletzing, Meyer, 3,828,049.

Lynch, Robert W., to Specialty Products Development Corporation. Pyrotechnic gas generator with homogenous separator phase. 3,827,715, Cl. 280-150.0ab.

Lyness, Warren I.; Amel, Ronald T.; and Booth, Gary E., to Procter & Gamble Company, The. Heterocyclic nitrogen-and sulfur-containing optical brightener compounds. 3,828,060, Cl. 260-301.000.

Lyons, Dermot: See—
Charlton, John Cecil; and Lyons, Dermot, 3,827,986.

M & J Valve Company: See—
Grove, Marvin H., 3,827,285.

Mabuchi, Kenichi, to Mabuchi Motor Co., Ltd. Electrically driven model airplane. 3,827,181, Cl. 46-243.0av.

Mabuchi Motor Co., Ltd.: See—
Mabuchi, Kenichi, 3,827,181.

Macco Oil Tool Company, Inc.: See—
Dinning, Robert W., 3,827,491.

Mace, Dennis Geoffrey Wallace: See—
Moore, Ronald Leslie; and Mace, Dennis Geoffrey Wallace, 3,828,220.

Macher, Karl, to Schneider, Jos. & Co. Optische Werke. High-speed varifocal objective system. 3,827,786, Cl. 350-186.000.

MacKay, Patrick W.: See—
Celada, Juan; Pena, Jesus Maria; MacKay, Patrick W.; de la Pena, Ramon; Martinez, Enrique Ramon; and de la Torre, Maria Teresa, 3,827,879.

MacKinnon, Alan G., to Foundation equipment Corporation, The. Mechanical safety pile monkey. 3,827,508, Cl. 173-112.000.

MacMaster, Malcolm D.; and Morris, Herbert R., to Emhart Corporation. Refrigerated display case. 3,827,254, Cl. 62-256.000.

Madura, Francis Eli; and Kent, John Allan, to Amsted Industries, Incorporated. Fifth wheel coupling. 3,827,709, Cl. 280-43.00a.

Maggiulli, Cataldo A.: See—
Henion, Richard S.; and Maggiulli, Cataldo A., 3,828,032.

Magnum Automotive Equipment, Inc.: See—
Besuden, David W., 3,827,474.

Brosene, William G., Jr., 3,827,475.

Magrath, Joseph M.: See—
Magrath, Joseph M.; and Hierath, Leonard L. (said Hierath assor. to said), 3,827,601.

Magrath, Joseph M.; and Hierath, Leonard L., said Hierath assor. to said Magrath, Joseph M. Hand powered liquid dispenser of the metering type. 3,827,601, Cl. 222-83.000.

Maher, John P.: See—
Fabricius, John H.; and Maher, John P., 3,828,154.

Mahoney, Ralph W., to Sperry Rand Corporation. On-the-fly printer with shortened print cycle. 3,827,357, Cl. 101-93.00c.

Maiale, Louis J. Sheet steel draw die. 3,827,272, Cl. 72-203.000.

Maison, Richard L., to Rohr Industries, Inc. Adhesion air bearing feedback control apparatus and method. 3,827,364, Cl. 104-23.0fs.

Majkrzak, Charles P.; and Polgar, Michael S., to International Telephone and Telegraph Corporation. Integrally-wound antenna helix-coilform. 3,828,353, Cl. 343-873.000.

Makiguchi, Michinori: See—
Tsuruta, Hidemasa; and Makiguchi, Michinori, 3,827,379.

Makino, Takayuki; Ishii, Shinji; and Ohkubo, Rokuji, to Messrs. Toyota Jidosha Kogyo Kabushiki Kaisha. Fuel supply device for internal combustion engines. 3,827,415, Cl. 123-119.00r.

Malinowski, Stanley: See—
Livenick, Corwin E.; Malinowski, Stanley; and Vann, Robert D., 3,828,210.

Mallory, Miller B., to Engelhard Minerals & Chemicals Corporation. Purification of kaolin clay by froth flotation. 3,827,556, Cl. 209-166.000.

Mallory, P. R., & Co., Inc.: See—
Fagan, Franklin G., Jr., 3,827,916.

Kallianides, Milton; and Klein, Gerhart P., 3,827,951.

Kaye, Gordon E., 3,827,914.

Neely, Lloyd F., 3,827,883.

Waugh, Jerry, 3,827,699.

Malmberg, Earl W.: See—
Dycus, Dale W.; Malmberg, Earl W.; and Wilchester, Harry L., 3,827,497.

Maloof, Ralph: See—
De Vault, Robert T.; and Maloof, Ralph, 3,827,390.

Malott, Thomas J.; and Paul, John C., to Parker-Hannifin Corporation. Directional control valve. 3,827,453, Cl. 137-117.000.

Mameniskis, Walter A.: See—
Melpolder, Frank W.; Guetens, Edward G.; and Mameniskis, Walter A., 3,827,947.

Manabe, Mitsuo: See—
Kobayashi, Kengo; and Manabe, Mitsuo, 3,828,238.

Mandy, Zoltan P.; Akerhielm, George; and Tulowiecki, David, to Carrier Corporation. Distributor for gel-like materials. 3,827,481, Cl. 165-118.000.

Manghi, Carlo A.: See—
De Marco, Franco; and Manghi, Carlo A., 3,828,141.

Mango, Silvio D. Heated, vibratory track sander. 3,827,736, Cl. 291-20.000.

Mann, George Forbes, to Burroughs Wellcome Co. Culture apparatus. 3,827,943, Cl. 195-127.000.

Mansfield, Gerald R.; Rogers, Charles H.; and Sullivan, Kevin J., to Corning Glass Works. System for controlling centrifugal forces to produce cellular monolayers. 3,827,805, Cl. 356-73.000.

Manuel, Malcolm O., to A-T-O Inc. Spray washing system for garments. 3,827,262, Cl. 68-3.00r.

Marathon Oil Company: See—
Norton, Charles J.; Falk, David O.; and Evans, Robert E., 3,827,499.

Schroeder, Donald E., 3,827,496.

Mare, Ernest. Scrubbing apparatus and method. 3,827,216, Cl. 55-95.000.

Maremont Corporation: See—
Pray, Lester W.; and Anderson, Gordon C., 3,827,227.

Mark, Fritz: See—
Oesterle, Helmut; Mark, Fritz; and Jochum, Peter, 3,827,618.

Markham, Orvil A. Routing guide. 3,827,468, Cl. 144-136.00r.

Markind, Joseph: See—
Stana, Regis R.; and Markind, Joseph, 3,827,976.

Marrie, Paul, to Societe Anonyme dite "ETUD". Electric coffee mill. 3,827,640, Cl. 241-100.000.

Marsan, Arthur E. Disposable ostomy pouch with variable means. 3,827,435, Cl. 128-283.000.

Martin, Elliott E., Jr.: See—
Haller, Henry E., Jr.; Huettner, Henry F.; and Martin, Elliott E., Jr., 3,827,537.

Martin, Gilbert E. Table for use with traverse power tool. 3,827,326, Cl. 83-468.000.

Martin, Jerry Roy: See—
Tadanier, John Solomon; and Martin, Jerry Roy, 3,828,022.

Martin, John; and Johnson, Francis, to Dow Chemical Company, The. Method of preparing 1, 5-disubstituted-2-nitroimidazoles. 3,828,064, Cl. 260-309.000.

Martin, Peter G.: See—
Heitman, Richard E.; Arciprete, Genio R.; Martin, Peter G.; Norris, Richard C.; and Brisk, Richard A., 3,828,323.

Martinez, Enrique Ramon: See—
Celada, Juan; Pena, Jesus Maria; MacKay, Patrick W.; de la Pena, Ramon; Martinez, Enrique Ramon; and de la Torre, Maria Teresa, 3,827,879.

Maruyama, Isamu: See—
Yamamoto, Hisao; Inaba, Shigeo; Okamoto, Tadashi; Hirohashi, Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama, Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, 3,828,027.

Marx, Michael; and Edwards, John A., to Syntex (U.S.A.) Inc., mesne. Tricyclic pharmacological agents, intermediates and methods of making. 3,828,034, Cl. 260-240.0tc.

Marzocchi, Alfred; and Janetos, Nicholas S., to Owens-Corning Fiberglass Corporation. Glass fiber size. 3,827,230, Cl. 57-140.00g.

Marzolph, Herbert: See—
Wieden, Horst; Nogaj, Alfred; and Marzolph, Herbert, 3,828,014.

Masaki, Mitsuo; Fikui, Kiyoshi; Kita, Jyun Ichiro; and Uchida, Izuhiko, to Ube Industries Ltd. Process for preparing lactam complexes. 3,828,028, Cl. 260-239.30r.

Maschinenfabrik B. Maier KG: See—
Grube, Werner; Rutz, Karl-Friedrich; Jung, Berthold; and Schrage, Johannes, 3,827,643.

Maschinenfabrik Flums AG: See—
Matzinger, August, 3,827,213.

Maschinenfabrik Hasenclever GmbH: See—
Suttan, Franz; Veit, Paul; and Rauber, Oskar, 3,827,275.

Maschio, Gabriele: See—
Priaroggia, Paolo G.; and Maschio, Gabriele, 3,828,114.

Mash, Dmitry Matveevich: See—
Schedrovitsky, Savely Solomonovich; Mash, Dmitry Matveevich; Golovko, Zoya Ivanovna; Goncharevich, Leonid Fomich; Lebedev, Alexei Pavlovich; Dubrov, Jury Mikhailovich; and Suut, Nikolai Karlovich, 3,828,339.

Mason, John B.: See—
Kuhl, Bernard A.; and Mason, John B., 3,827,518.

Mason, Lawrence J., to Xerox Corporation. Flash lamp circuit. 3,828,222, Cl. 315-241.00p.

Massa Corporation: See—
Massa, Donald P., 3,828,336.

Massa, Donald P., to Massa Corporation. Intrusion alarm system with improved air turbulence compensation. 3,828,336, Cl. 340-258.00a.

Massachusetts Institute of Technology: See—
Haldeman, Charles W., 3,827,953.

Shannon, Daniel C., 3,827,433.

Massonnet, Henry. Molding presses. 3,827,848, Cl. 425-406.000.

Mast, Aquila D.: See—
Blanshine, Allison W.; Crane, Jack W.; and Mast, Aquila D., 3,827,223.

Masuda, Kazuo: See—
Sugimoto, Kaname; Hirao, Mamoru; and Masuda, Kazuo, 3,827,940.

Masuda, Takao: See—
Ohkubo, Kinji; Masuda, Takao; and Noguchi, Junpei, 3,827,889.

Masui, Hiroaki: See—
Takechi, Hiroshi; Masui, Hiroaki; Kawaharada, Minoru; and Sugiyama, Motoaki, 3,827,924.

Mathisen, Henry A.: See—
Shelffo, Loren E.; and Mathisen, Henry A., 3,827,803.

Matsumura, Kenneth N. Method and device of artificial endocrine pancreas. 3,827,565, Cl. 210-22.000.

Matsuo, Masaharu. Belt conveyor for sheet material. 3,827,548, Cl. 198-184.000.

Matshita Electric Industrial Co., Ltd.: See—
Amagami, Keizo; Tsugeki, Toshi; Ogo, Yasuo; Mitani, Yoshinori; Ueda, Hiromutsu; Nishida, Takeo; and Ono, Atsuo, 3,828,163.

Miyoshi, Seizo, 3,827,697.

Sakai, Yutaka; and Kimura, Kazuya, 3,828,199.

Sato, Kohei, 3,828,123.

Matshita Electric Industrial Company, Limited: See—
Kobayashi, Hiroyuki, 3,827,399.

Matsushita, Kazuo; Nishizawa, Koichi; and Toyama, Minoru, to Nippon Selfoc Co., Ltd. Glass lens having reduced chromatic aberration and refractive index gradient. 3,827,785, Cl. 350-175.0gn.

Matthews, Gary B., to Minnesota Mining and Manufacturing Company. Threadless fastener system. 3,827,125, Cl. 29-200.00d.

Matthews, Rofe Arthur, to AE & CI Limited. Presses. 3,827,845, Cl. 425-346.000.

Matts, George Arthur: See—
Clarke, Terence James Leonard; Quarmby, Robert Charles; and Matts, George Arthur, 3,827,464.

Matula, Jerry, to Pertec Corporation. Rotational position sensor. 3,828,188, Cl. 250-231.0se.

Matzinger, August, to Maschinenfabrik Flums AG. Apparatus for packaging synthetic-resin scraps. 3,827,213, Cl. 53-124.00e.

Max, Jacques; and Kofman, Wlodzimierz, to Commissariat a l'Energie Atomique. Device for estimating the value of the ambiguity function. 3,827,629, Cl. 235-150.530.

May & Baker Limited: See—
Broad, David Rex; Hatton, Leslie Roy; and Parnell, Edgar William, 3,828,001.

May, Peter John: See—
Phillipps, Gordon Hanley; and May, Peter John, 3,828,080.

Mayer, Fritz, to Freudenberg, Carl. Covering for rolls of textile machines. 3,827,120, Cl. 29-129.000.

Mayer, Udo: See—
Baumann, Hans; and Mayer, Udo, 3,828,035.

Kast, Helmut; Baumann, Hans; Mayer, Udo; and Oberlinner, Andreas, 3,828,071.

Mazepa, Robert, to Rockwell International Corporation. Power tool. 3,827,510, Cl. 173-163.000.

Mazzei, Alessandro: See—
Roggero, Arnaldo; Mazzei, Alessandro; and Proni, Antonio, 3,828,011.

McAlpin, Courtenay W.: See—
Greer, William S., 3,828,160.

McCalvey, Leo Francis, to International Research & Development Company. Transducer systems for detection of relative displacement. 3,827,291, Cl. 73-88.50r.

McCarthy, Jack N.: See—
Nelson, Edwin G., 3,827,161.

McCauley, James W., to United States of America, Army. Mica based, ceramic composite material. 3,827,892, Cl. 106-46.000.

McCawley, Frank X.; Wyche, Charlie; and Schlain, David, to United States of America, Interior. Electrodeposition of metallic boride coatings. 3,827,954, Cl. 204-39.000.

McCloud, Robert D., to Container Corporation of America. Easy packing deep container. 3,827,622, Cl. 229-37.00r.

McConaughy, Randall T.: See—
United States of America, National Aeronautics and Space Administration, 3,827,807.

McFarlin, Ralph M., to Esquire, Inc. Apparatus for holding parts between which wiring is to extend in selected pivotal positions with respect to one another. 3,827,735, Cl. 403-113.000.

McGinniss, Vincent Daniel, to SCM Corporation. Photopolymerizable pigmented vehicles containing chlorosulfonated or α -haloalkylated benzanthrone initiators. 3,827,956, Cl. 204-159.230.

McGinniss, Vincent Daniel, to SCM Corporation. Photopolymerizable pigmented vehicles containing chlorosulfonated or α -haloalkylated polynuclear ketone initiators. 3,827,957, Cl. 204-159.230.

McGinniss, Vincent Daniel, to SCM Corporation. Photopolymerizable pigmented vehicles containing chlorosulfonated or α -haloalkylated fluorenone initiators. 3,827,958, Cl. 204-159.230.

McGinniss, Vincent Daniel, to SCM Corporation. Process for photopolymerization with carbonylated phenyl nuclear sulfonyl chloride sensitizer. 3,827,959, Cl. 204-159.240.

McGinniss, Vincent Daniel, to SCM Corporation. Process for photopolymerization with carbonylated polynuclear sulfonyl chloride sensitizers. 3,827,960, Cl. 204-159.240.

McGowen, Harold E., Jr.: See—
Moore, Howard H., Jr.; and McGowen, Harold E., Jr., 3,827,490.

McGowen, Harold E., Jr. Apparatus for installing and removing flow valves. 3,827,489, Cl. 166-117.500.

McGraw-Edison Company: See—
Urani, Angelo, 3,828,291.

McKeron, Charles E.: See—
Caywood, James A.; McKeron, Charles E.; and Smith, Willard G., 3,827,336.

McKillip, William J.: See—
Throckmorton, Peter E.; McKillip, William J.; and Slagel, Robert C., 3,828,007.

McNeight, David L.; and Morris, William John, to Scragg, Ernest & Sons Limited. Textile apparatus. 3,827,228, Cl. 57-77.450.

McNeil Corporation: See—
Pamer, Karl A., 3,827,366.

McNeil Laboratories, Inc.: See—
Meschino, Joseph A., 3,828,096.

McPhee, Walter J.; and Sondergard, Richard D., to Bendix Corporation. The TV area correlation tracker. 3,828,122, Cl. 178-6.800.

McVoy, Robert A.; and O'Connor, Ronald R., to Polaroid Corporation. Identification cards. 3,827,726, Cl. 283-7.000.

McWilliams, Joseph E., to Method and apparatus for loading bagged mail from a loading dock into a highway vehicle. 3,827,585, Cl. 214-41.000.

Meacham, George B. K., to Eaton Corporation. Timing control system. 3,827,413, Cl. 123-99.000.

Mead, Mitchell F.; and Drollinger, Ralph A. Adjustable fit pack frame. 3,827,612, Cl. 224-25.00a.

Measurix Corporation: See—
Dahlin, Erik B.; and Hill, Robert C., 3,828,190.

Mecklenborg, Richard A., to Singer Company, The. Optical panoramic projection apparatus. 3,827,791, Cl. 352-69.000.

Meckler, Gershon. Lighting fixture. 3,828,180, Cl. 240-9.00a.

Meeker, Brian Lee: See—
Smalley, Rodney Roger; Staudinger, John Vendel; Smith, Harvell Morton; and Meeker, Brian Lee, 3,827,210.

Meier, Dale J.; and Kruka, Vitold R., to Shell Oil Company. Method and composition for reducing the frictional drag of flowing fluids. 3,827,447, Cl. 137-13.000.

Meier, Werner: See—
Furst, Andor; Labler, Ludwig; Meier, Werner; Muller, Peter; Scott, John William; and Widmer, Erich, 3,828,062.

Meinert, Leo L.: See—
Rymarchyk, Nicholas M.; and Meinert, Leo L., 3,827,632.

Meissner, Helmut E.; and Stookey, Stanley D., to Corning Glass Works. Silicate bodies. 3,827,893, Cl. 106-74.000.

Melpolder, Frank W.; Guetens, Edward G.; and Mameniskis, Walter A., to Atlantic Richfield Company. Purification of 3,5-xyleneol by extractive distillation. 3,827,947, Cl. 203-64.000.

Melude S.A.: See—
Arenhold, Knut, 3,828,183.

Memory-Plastic Gunter Wengel: See—
Wengel, Gunter, 3,827,177.

Mengel, Klaus: See—
Keislich, Klaus; Kerb, Ulrich; Mengel, Klaus; and Domenico, Amadeo, 3,828,083.

Menzel, Ramon, to Laser Alignment, Inc. Method and apparatus for laying a pipeline. 3,827,155, Cl. 33-228.000.

Meraikib, Mohammed: See—
Wenzel, Werner; Meraikib, Mohammed; Franke, Friedrich H.; and Konig, Horst, 3,827,878.

Mercier, Jacques H. Method of forming a locking ring for pressure vessel. 3,827,133, Cl. 29-445.000.

Merck & Co., Inc.: See—
Beattie, Thomas R.; Ruyle, William V.; Shen, Tsung-Ying; Wal-ford, Gordon L.; and Walton, Edward, 3,828,021.

Mrozik, Helmut H., 3,828,078.

Mrozik, Helmut H., 3,828,079.

Shuman, Richard F., 3,828,088.

Sprague, James M.; and Ziegler, Carl, 3,828,054.

Merck Sharp & Dohme (I.A.) Corporation: See—
Wasson, Burton Kendall; and Rooney, Clarence Stanley, 3,828,076.

Meridian Industries, Inc.: See—
Bolinger, John F.; and Leatham, Douglas B., 3,827,540.

Mershon, Butler A.; and Wilhelm, Keith A., to Lockheed Aircraft Corporation. Jogging tool. 3,827,278, Cl. 72-430.000.

Meschino, Joseph A., to McNeil Laboratories, Inc. 2-Alkoxy carbonyl-3-aryl-propylamines. 3,828,096, Cl. 260-471.00a.

Mesley, Nimrod N.: See—
Ameen, Thomas J.; and Mesley, Nimrod N., 3,827,918.

Messrs. Toyota Jidosha Kogyo Kabushiki Kaisha: See—
Makino, Takayuki; Ishii, Shinya; and Ohkubo, Rokuji, 3,827,415.

Method and apparatus for loading bagged mail from a loading dock into a highway vehicle: See—
McWilliams, Joseph E., 3,827,585.

Mette, Klaus-Hermann, to Graphica Precision Works Ltd. Cleaning process sequence controller. 3,828,317, Cl. 340-172.500.

Meyer, Marvin C. Golf bag bicycle rack. 3,827,613, Cl. 224-40.000.

Meyer, Richard C., 30% interest to Petersen, Arne J. and 30% interest to Deardorff, Harold F. Animal training device. 3,827,403, Cl. 119-29.000.

Meyer, Roth & Pastor: See—
Klaus, Jacobs, 3,827,323.

Meyer, Rudolf: See—
Wick, Richard; Meyer, Rudolf; and Hoffmann, Klaus, 3,828,355.

Meyeroefer, Carl E.; and Naples, Richard J., to General Signal Corporation. Habger device for portable mixers. 3,827,677, Cl. 259-104.000.

Michael, Anthony Dennis: See—
Lloyd, Kenneth; and Michael, Anthony Dennis, 3,827,882.

Mih, Li C.: See—
Wilson, Raymond F.; Peck, Reese A.; and Mih, Li C., 3,827,969.

Mika, Norbert; Schuldreich, Rudolf; and Berger, Helmut, to Siemens Aktiengesellschaft. X-ray photographing device. 3,828,196, Cl. 250-468.000.

Miklas, Edward J., to Petro-Tex Chemical Corporation. Method of preparation of ferrite catalysts. 3,828,101, Cl. 423-594.000.

Mila, Truman R., to GTE Automatic Electric Laboratories Incorporated. Method and arrangement for protecting corroded matrix contacts. 3,828,315, Cl. 340-166.00s.

Miles Laboratories, Inc.: See—
Janik, Alice Marie, 3,827,942.

Miles, Leon H.; and King, Graham E., to Atlantic Richfield Company. Composition for inhibiting scale formation in oil well brines. 3,827,977, Cl. 252-8.55b.

Miles, Leon H., to Atlantic Richfield Company. Packer fluid for drilling and completing a well. 3,827,978, Cl. 252-8.55b.

Millard, Richard J.; and Poat, David R., to Sprague Electric Company. Solid tantalum capacitor with end cap terminals. 3,828,227, Cl. 317-230.000.

Miller, Albert J., to Bike Alarm, Ltd. Bicycle theft alarm. 3,828,310, Cl. 340-65.000.

Miller, Dennis D.; and Karr, Jerry W., to Harmon Industries, Inc. Safety chain attachment for roof-mounted trailer hitch. 3,827,722, Cl. 280-432.000.

Miller, Gary E., to Arco Nuclear Company, mesne. Method of producing sheets and article to practice such method. 3,827,264, Cl. 72-46.000.

Miller, Harmon B., to Reclosable Package Corp. Reclosable package and controlled release paper for use therein. 3,827,625, Cl. 229-62.000.

Miller, Henry C.: See—
Duggins, Ray B.; Miller, Henry C.; and Vassiliou, Eustachios, 3,827,933.

Miller, Melvin N.; Levine, Marshall S.; and Partin, Melvin E., to Geometric Data Corporation. Color separation for discrimination in pattern recognition systems. 3,827,804, Cl. 356-39.000.

Miller Printing Machinery Co.: See—
Luffy, Dennis J.; and Mosemiller, Robert L., 3,827,688.

Miller, Robert L.; and Fisset, Louis M., to Ex-Cell-O Corporation. Tooth forming tool. 3,827,280, Cl. 72-469.000.

Millman, Pierce D. Wheeled skis. 3,827,706, Cl. 280-11.1bt.

Millmaster Onyx Corporation: See—
Adams, Philip; and Petrocci, Alfonso N., 3,827,874.

Milton, Richard D.: See—
Otto, William F.; and Milton, Richard D., 3,828,277.

Miner, Robert C.: See—
Knapp, William H.; Kesi, Elmer M.; and Miner, Robert C., 3,827,816.

Minich, Paul R., Jr.; and Jensen, Thorkild. Collapsible overhead guard. 3,827,532, Cl. 187-9.000.

Minick, David G., to Sinclair Company, The. Method of seaming wire cloth. 3,828,157, Cl. 219-67.000.

Minieri, Pasquale P., to Tenneco Chemicals, Inc. N-(indazolylyl-N'-methyl)dialkanolamines. 3,828,067, Cl. 260-310.00c.

Minieri, Pasquale P., to Tenneco Chemicals, Inc. [(Substituted indazolylyl)-N'-methyl] carbamates. 3,828,068, Cl. 260-310.00c.

Minnesota Mining and Manufacturing Company: See—
Matthews, Gary B., 3,827,125.

Vogelgesang, Peter J.; Alexander, Jerry L.; and Lunquist, Frank C., 3,828,359.

Minolta Camera Kabushiki Kaisha: See—
Kono, Tateomi, 3,827,687.

Tanaka, Susumu; Enoguchi, Yuji; and Fujiwara, Takao, 3,827,800.

Tanaka, Susumu; Enoguchi, Yuji; and Fujiwara, Takao, 3,827,801.

Mitani, Yoshinori: See—
Amagami, Keizo; Tsugeki, Toshii; Ogo, Yasuo; Mitani, Yoshinori; Ueda, Hiromitsu; Nishida, Takeo; and Ono, Atsuo, 3,828,163.

Mitchell, Harry Ian; and Tomlinson, Kenneth, to Colgate-Palmolive Company. Method and compositions for cleaning ovens and the like. 3,827,983, Cl. 252-89.000.

Mitchell, Wallace F., to Ammcò Tools, Inc. Brake shoe gage. 3,827,153, Cl. 33-178.00r.

Mitchell, William E., to Dunlop Limited. Wheels. 3,827,756, Cl. 301-63.00r.

Mitsubishi Rayon Company Limited: See—
Orito, Zen-Ichi; Sugimoto, Hiroshi; Uchida, Minoru; Sahara, Hajime; Takesue, Masatoshi; and Nishida, Kiyoharu, 3,827,932.

Mitsui Shipbuilding and Engineering Co., Ltd.: See—
Moriguchi, Shigeru; Tamura, Mitsuo; and Saito, Yuzi, 3,827,190.

Shiozawa, Kaoru; Shirato, Tsugio; and Hirose, Kiyoshi, 3,827,126.

Soma, Hisashi, 3,827,385.

Mitsumura, Yoshio: See—
Higuchi, Yasuo; and Mitsumura, Yoshio, 3,827,835.

Miwa, Hiroshi: See—
Yokoyama, Kanji; and Miwa, Hiroshi, 3,828,285.

Miyaoka, Senri, to Sony Corporation. Exposure apparatus for the direct photographic production of a phosphor screen on the face-plate of a color picture tube. 3,828,358, Cl. 354-1.000.

Miyoshi, Seizo, to Matsushita Electric Industrial Co., Ltd. Automatic record player. 3,827,697, Cl. 274-10.00r.

Mizoguchi, Katsuhiko: See—
Shinohara, Isao; Tsuchida, Eishun; and Mizoguchi, Katsuhiko, 3,828,008.

Mizuko, Kiyoo: See—
Nakayama, Norihiko; Osawa, Mitsuoki; Mizuko, Kiyoo; and Takahashi, Isao, 3,827,776.

Mizuta, Hiroyuki: See—
Kinugasa, Hiroaki; Tsukamoto, Masatoshi; Mizuta, Hiroyuki; and Uno, Hitoshi, 3,828,030.

Mobil Oil Corporation: See—
Givens, Edwin N.; Plank, Charles J.; and Rosinski, Edward J., 3,827,968.

Givens, Wyatt W., 3,828,189.

Heinemann, Heinz; and Weisz, Paul B., 3,827,867.

Piotrowski, Alfred B.; and Andress, Harry J., Jr., 3,827,979.

Strong, Jerry G., 3,828,091.

Mobius, T. Paul, Firma: See—
Mobius, Werner, 3,827,469.

Mobius, Werner, to Mobius, T. Paul, Firma. Pencil sharpener. 3,827,469, Cl. 145-3.300.

Moebius, Kurt O. Constrictor ring and tube joint. 3,827,727, Cl. 285-27.000.

Moen, Walter B.; and Spies, George R., to Airco, Inc. Pressure control system for cryogenic fluids. 3,827,246, Cl. 62-50.000.

Moeser, Alan. Counting cube. 3,827,162, Cl. 35-32.000.

Molchanov, Boris Vladimirovich: See—
Samoilov, Sergei Mikhailovich; Ivanov, Vladimir Ivanovich; Zambrovskaya, Galina Vladimirovna; Tsvetkov, Oleg Nikolaevich; Monastyrsky, Viktor Nikolaevich; Bespalov, Evgeny Ivanovich; Gryaznov, Boris Vasilievich; and Molchanov, Boris Vladimirovich, 3,828,01.

Molho, Darius: See—
Boschetti, Eugene; Molho, Darius; and Fontaine, Louis, 3,828,095.

Molner, Stanley F.; and Newman, Joel S., to Biometrics, Inc. Monitoring devices. 3,827,789, Cl. 351-23.000.

Monarch Logging Company, Inc.: See—
Rochon, Robert W.; and Sneed, Joe W., 3,827,295.

Monarch Marking Systems, Inc.: See—
Hamisch, Paul H., Sr., 3,827,355.

Monastyrsky, Viktor Nikolaevich: See—
Samoilov, Sergei Mikhailovich; Ivanov, Vladimir Ivanovich; Zambrovskaya, Galina Vladimirovna; Tsvetkov, Oleg Nikolaevich; Monastyrsky, Viktor Nikolaevich; Bespalov, Evgeny Ivanovich; Gryaznov, Boris Vasilievich; and Molchanov, Boris Vladimirovich, 3,828,01.

Monford, Leo G., Jr., to United States of America, National Aeronautics and Space Administration. Digital communication system. 3,828,137, Cl. 179-15.0at.

Monroe Belgium N.V.: See—
Fader, John H.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., 3,827,539.

Monsanto Company: See—
Bergomi, Joseph G., Jr., 3,827,997.

Moody Matthew, Limited: See—
Guerette, Marcel, 3,827,573.

Mooney, Thomas: See—
Eidelberg, Jonah; Mooney, Thomas; and Brett, John J., 3,828,117.

Moore, George E.: See—
Harvey, Richard F.; and Moore, George E., 3,827,923.

Moore, Harold H., Jr.: See—
Moore, Howard H., Jr.; and McGowen, Harold E., Jr., 3,827,490.

Moore, Howard H., Jr.; and McGowen, Harold E., Jr., to McGowen, Harold E., Jr. and Moore, Harold H., Jr. Apparatus for installing and removing flow valves. 3,827,490, Cl. 166-117.500.

Moore, Robert R. Adjustable strap assembly. 3,827,107, Cl. 24-16.00r.

Moore, Ronald Leslie; and Mace, Dennis Geoffrey Wallace, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for the Environment in Her Britannic Majesty's Government of the. Apparatus for controlling the intensity of vehicle headlamps. 3,828,220, Cl. 315-82.000.

Moore, Samuel & Company: See—
Johanson, Hans A.; Whittaker, Dewey E.; and Phillippi, Larry R., 3,828,112.

Moorman Manufacturing Company: See—
Kurk, Kenneth G.; and Kilbride, Robert S., 3,827,577.

Morez, Eugene S., to Chicago Musical Instrument Co. Chorus generator for electronic musical instrument. 3,828,109, Cl. 84-1.010.

Morfit, Oliver: See—
Godino, Rino L.; and Morfit, Oliver, 3,827,944.

Morgan, Edgar A., to Arrow Development Co., Inc. Boat construction for amusement park use. 3,827,387, Cl. 114-219.000.

Morgan, Frank S. Shock absorbers. 3,827,538, Cl. 188-319.000.

Morgan, Paul Winthrop, to Du Pont de Nemours, E. I., and Company. Anisotropic dopes of polyamides in concentrated sulfuric acid. 3,827,998, Cl. 260-30.80r.

Morgat, Jean-Louis: See—
Fromageot, Pierre; Hung, Lam Thanh; and Morgat, Jean-Louis, 3,828,102.

Mori, Chiharu, to Asahi Kogaku Kogyo Kabushiki Kaisha. Quantized indication arrangement. 3,828,253, Cl. 324-99.00d.

Mori, Gian Luigi. Perpetual calendar, operated by a magnet. 3,827,168, Cl. 40-110.000.

Mori, Kazuo: See—
Yamamoto, Hisao; Inaba, Shigeo; Okamoto, Tadashi; Hirohashi, Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama, Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, 3,828,027.

Moriguchi, Shigeru; Tamura, Mitsuo; and Saito, Yuzi, to Mitsui Shipbuilding and Engineering Co., Ltd. Pipe cutting machine with spark actuated feed control. 3,827,190, Cl. 51-98.00r.

Morisaki, Nobukazu, to Daido Metal Company. Tin based white metal bearing alloys producing good bond with backing material. 3,827,884, Cl. 75-175.00a.

Morita, Yasuyuki, to Toyo Kogyo Company Limited. Cold starting device for use in an internal combustion engine. 3,827,417, Cl. 123-127.000.

Morris, Herbert R.: See—
MacMaster, Malcolm D.; and Morris, Herbert R., 3,827,254.

Morris, Philip, Incorporated: See—
Braginetz, Paul A., 3,827,597.

Morris, William John: See—
McNeight, David L.; and Morris, William John, 3,827,228.

Morrison, Howard J.; and Allen, Robert K., to Glass, Marvin, & Associates. Magnetic type game. 3,827,692, Cl. 273-85.00f.

Morsell, Arthur Lee: See—
Eseke, James Richard; Morsell, Arthur Lee; Muntz, Eric Phillip; and Welkowsky, Murray Samuel, 3,828,191.

Morsell, Arthur Lee, to Xonics, Inc. Spherical segment electrode imaging chamber. 3,828,192, Cl. 250-315.000.

Morton, Michael S. J. Aquarium filter. 3,827,560, Cl. 210-169.000.

Mosemiller, Robert L.: See—
Luffy, Dennis J.; and Mosemiller, Robert L., 3,827,688.

Mosetti, Jacques: See—
Doniat, Denis; Porta, Augusto; and Mosetti, Jacques, 3,827,961.

Mosier, John E.; and Stephenson, Jack G., to Halliburton Company. Method and apparatus for providing coupling train action and alignment control for railway vehicles. 3,827,575, Cl. 213-8.000.

Motor Wheel Corporation: See—
Hubbard, Harold C.; and Strbik, Joseph J., 3,828,150.

Motorola, Inc.: See—
Livenick, Corwin E.; Malinowski, Stanley; and Vann, Robert D., 3,828,210.

Rees, Lynn T., 3,828,278.

Mouneydiere, Robert, to Creusot-Loire. Articulated railway truck. 3,827,373, Cl. 105-182.00r.

Movalarm Limited: See—
Fagan, Donald Frederick; and Hale, Rodney Barker, 3,828,125.

Mrozik, Helmut H., to Merck & Co., Inc. 4-Amino-3-(halo, nitro or trifluoromethyl)-5-trifluoromethyl benzenesulfonamides. 3,828,078, Cl. 260-397.70r.

Mrozik, Helmut H., to Merck & Co. Inc. 4-Amino-3,5-(trifluoromethyl or bromo) benzene sulfonamides. 3,828,079, Cl. 260-397.70r.

Mueller, Harry B. Wheelbarrow having spherical wheel. 3,827,369, Cl. 104-118.000.

Mueller, James F., to Eaton Corporation. Clutch means for a 4 X 4 drive transfer vehicle. 3,827,520, Cl. 180-44.00r.

Mueller, Manfred: See—
Arndt, Peter Joseph; Blitz, Hans-Dieter; Huebner, Klaus; Krall, Wilhelm; Kurth, Hans-Joachim; Mueller, Manfred; and Pennewiss, Horst, 3,828,012.

Muenchinger, Herman G., to Research Engineering & Manufacturing, Inc. Self-extruding screw. 3,827,331, Cl. 85-41.000.

Mulder, Herman; Van Pol, Jan Huibert Leonard Philomena; and Hakeling, Berend. Device comprising at least one rake member adapted to rotate about an upwardly extending axis. 3,827,224, Cl. 56-370.000.

Mullender, Claude: See—
Frey, Walter C.; Mullender, Claude; and Reinhart, Norman E., 3,827,844.

Muller, Alf, to Daimler-Benz Aktiengesellschaft. Front wheel suspension for a passenger motor vehicle. 3,827,711, Cl. 280-96.20b.

Muller, George H.: See—
Howell, Carl A.; and Muller, George H., 3,827,741.

Muller, Peter: See—
Furst, Andor; Labler, Ludwig; Meier, Werner; Muller, Peter; Scott, John William; and Widmer, Erich, 3,828,062.

Multi-Contact AG: See—
Neidecker, Rudolf, 3,828,301.

Multi-State Devices Ltd.: See—
Grossman, David H.; and Plough, Charles T., 3,828,292.

Munro, Roger Cameron: See—
Bond, Kenneth Arthur George; Munro, Roger Cameron; and Hayler, Reginald, 3,827,286.

Muntz, Eric Phillip: See—
Eseke, James Richard; Morsell, Arthur Lee; Muntz, Eric Phillip; and Welkowsky, Murray Samuel, 3,828,191.

Murray Corporation: See—
Kish, Arthur S., 3,827,255.

Murray, John S., Jr., to Hughes Aircraft Company. System for minimizing multiple time around echos in a coherent-on-receive-doppler radar. 3,828,348, Cl. 343-7.00a.

Muskateer Corporation: See—
Cellesta, Jerry J., 3,827,462.

Myers, John H.: See—
Zavatone, James; and Myers, John H., 3,827,211.

Nadaskay, Richard J.: See—
Baxter, Robert O.; Byars, Carl A.; Nadaskay, Richard J.; and Roark, Lamar P., 3,827,614.

Nagai, Tamiji; and Sahara, Hiroshi, to Sony Corporation. High DC voltage generating circuit. 3,828,239, Cl. 321-2.000.

Naill, David W. Decoding instrument for a pin-type tumbler lock. 3,827,151, Cl. 33-174.00f.

Naito, Shun-Ichi. Aminoethanesulfonyl derivatives and their production. 3,828,070, Cl. 260-326.12r.

Najjar, Edward G.: See—
Cicione, Robert J.; Najjar, Edward G.; Scanlon, Patricia M.; Ohlson, John L.; and Finn, Joseph F., 3,827,994.

Nakagawa, Masaya: See—
Oguni, Hiroshi; and Nakagawa, Masaya, 3,827,338.

Nakamura, Tadahiko; and Tanaka, Yoshinori, to Sony Corporation. Numerical data input apparatus. 3,828,174, Cl. 235-156.000.

Nakanishi, Michio; Tahara, Tetsuya; Araki, Kazuhiko; and Shiroki, Masami, to Yoshitomi Pharmaceutical Industries, Ltd. 2-Amino-thieno (2,3-e) (1,4) diazepine compounds. 3,828,039, Cl. 260-247.100.

Nakayama, Norihiko; Osawa, Mitsuoki; Mizuko, Kiyoo; and Takahashi, Isao, to Fujitsu Limited. Method of fabricating a gas discharge display device having an alkali metal atomic layer. 3,827,776, Cl. 316-20.000.

Nakich, Robert B.: See—
United States of America, National Aeronautics and Space Administration, 3,827,288.

Nap, Cornelis; Van Haarlem, Adriaan; and Ruempol, Emile O. H. M., to Shell Oil Company. Thermal cracking of hydrocarbons. 3,827,967, Cl. 208-48.00r.

Naples, Richard J.: See—
Meyerhoefer, Carl E.; and Naples, Richard J., 3,827,677.

Nara, Kaoru: See—
Takahashi, Kentaro; Hasegawa, Minoru; and Nara, Kaoru, 3,827,863.

Nash, Paul. Circuits for deriving a common output signal from a plurality of amplifiers in apparatus for detecting blemishes in sheet material. 3,827,809, Cl. 356-200.000.

Nasica, Jean R., to Intercan S.A. Method for producing containers with composite walls. 3,827,128, Cl. 29-421.000.

National State Bank, The, mesne: See—
Pilat, Peter, 3,827,546.

National Valve and Manufacturing Company: See—
Haller, Henry E., Jr.; Huettner, Henry F.; and Martin, Elliott E., Jr., 3,827,537.

Naumann, Wilhelm, to Firma PMD Entwicklungswerk für Kunststoff-Maschinen GmbH & Co. KG. Blowing- and filling thorn. 3,827,214, Cl. 53-191.000.

Needham, James Christopher; Ellis, Colin Ronald George; and Lilly, Rodger Hedley, to Welding Institute, The. Friction welding method. 3,827,138, Cl. 29-470.300.

Needham, Victor, to Lucas Aerospace Limited. Sputtering apparatus. 3,827,966, Cl. 204-298.000.

Neely, Lloyd F., to Mallory, P. R., & Co. Inc. Electrical contact material. 3,827,883, Cl. 75-153.000.

Neff, Charles G.; and Beebe, William F., to Holland Hitch Company. Dolly for tractor trailers. 3,827,723, Cl. 280-476.00r.

Neidecker, Rudolf, to Multi-Contact AG. Plug connector for electrically interconnecting orthogonal conductors. 3,828,301, Cl. 339-75.00m.

Neilsen, Hilda L. Deburring devices. 3,827,270, Cl. 72-199.000.

Nelson, Edwin G., 10% to Harris, John Madison and 10% to McCarthy, Jack N. Educational mathematical device. 3,827,161, Cl. 35-31.00a.

Nelson, Lloyd A., to Gerber Products Company. Method and apparatus for detecting partially-filled or absent containers in a sealed shipping carton. 3,828,193, Cl. 250-360.000.

Nelson, Lorne W., to Honeywell Inc. Combustion control apparatus. 3,827,849, Cl. 431-90.000.

Nelson Muffler Corporation: See—
Hansen, Joseph A., 3,827,531.

Nelson, Peter H., to Syntex Corporation. Process for preparing 2-(6-methoxy-2-naphthyl) propionic acid and intermediates therefor. 3,828,033, Cl. 260-240.00r.

New, George William, to British Titan Limited. Process and apparatus for varying the position of the arc root in a plasma arc suitable for producing titanium dioxide pigments. 3,828,223, Cl. 315-267.000.

Newfeld, Stewart M.: See—
Carter, Charles H., Jr.; and Newfeld, Stewart M., 3,828,341.

Newman, Joel S.: See—
Molner, Stanley F.; and Newman, Joel S., 3,827,789.

Newman, Walter: See—
Johnson, George E.; and Newman, Walter, 3,828,299.

Nicholls, Augustus H. Dual tubular dispensing device. 3,827,602, Cl. 222-137.000.

Niehaus, Wolfgang: See—
Fischer, Karl; and Niehaus, Wolfgang, 3,828,164.

Nield, Eric, to Imperial Chemical Industries Limited. Chemical process for preparing odorless taste-free acrylonitrile/aromatic olefin copolymers. 3,828,013, Cl. 260-85.50r.

Nielsen, Leroy C., to Eastman Kodak Company. Elevator mechanism for reducing web tension and controlling elevator descent. 3,827,646, Cl. 242-55.010.

Nielsen, Ole Bent Tvarmose: See—
Feit, Peter Werner; and Nielsen, Ole Bent Tvarmose, 3,828,059.

Niem, Wolfgang: See—
Baanstra, Theo Meindert; Von Hagen, Wolf-Rudiger; and Niem, Wolfgang, 3,827,381.

Nierle, Pierre. Three dimensional construction. 3,827,206, Cl. 52-648.000.

Nippon Electric Company, Limited: See—
Anazawa, Shinzo, 3,828,229.

Nishio, Tomoyuki, 3,828,268.

Ochiai, Kazuo; Araseki, Takashi; and Kato, Yasuo, 3,828,147.

Shinohara, Isao; Tsuchida, Eishun; and Mizoguchi, Katsuhiro, 3,828,008.

Nippon Kogaku K.K.: See—
Kato, Yoshio; and Ogiwara, Yutaka, 3,827,811.

Nippon Kokan Kabushiki Kaisha: See—
Yamagishi, Hidehisa; Yokoi, Fumitoshi; and Kutino, Tsuyoshi, 3,827,140.

Nippon Oils and Fats Company Limited: See—
Yamazaki, Shingo; Takemura, Akira; Kojima, Kazumi; Nishimura, Masato; Tsuchida, Teruo; and Yonemoto, Tadashi, 3,828,003.

Nippon Petrochemicals Co., Ltd.: See—

Sato, Atsushi, 3,827,302.

Nippon Piston Ring Co., Ltd.: See—
Sakamaki, Hiroshi, 3,827,701.

Takahashi, Kentaro; Hasegawa, Minoru; and Nara, Kaoru, 3,827,863.

Nippon Selfco Co., Ltd.: See—
Matsushita, Kazuo; Nishizawa, Koichi; and Toyama, Minoru, 3,827,785.

Nippon Steel Chemical Co., Ltd.: See—
Kusunoki, Yasuo; and Okasaki, Hiroshi, 3,828,051.

Nippon Steel Corporation: See—
Takechi, Hiroshi; Masui, Hiroaki; Kawaharada, Minoru; and Sugiyama, Motoaki, 3,827,924.

Uchida, Hiromu; and Yanabu, Osamu, 3,827,866.

Nippondenso Co., Ltd.: See—
Isomura, Takuji, 3,827,419.

Nishida, Kiyoharu: See—
Orito, Zen-Ichi; Sugimoto, Hiroshi; Uchida, Minoru; Sahara, Hajime; Takesue, Masatoshi; and Nishida, Kiyoharu, 3,827,932.

Nishida, Takeo: See—
Amagami, Keizo; Tsugeki, Toshii; Ogo, Yasuo; Mitani, Yoshinori; Ueda, Hiromutsu; Nishida, Takeo; and Ono, Atsuo, 3,828,163.

Nishikawa, Atsuro: See—
Kawai, Isami; Nishikawa, Atsuro; Iwata, Akira; and Sugiyama, Kohei, 3,827,841.

Nishimura, Masato: See—
Yamazaki, Shingo; Takemura, Akira; Kojima, Kazumi; Nishimura, Masato; Tsuchida, Teruo; and Yonemoto, Tadashi, 3,828,003.

Nishio, Tomoyuki, to Nippon Electric Company, Limited. Differential amplifier having increased bandwidth. 3,828,268, Cl. 330-30.00d.

Nishizawa, Jun-Ichi; and Terasaki, Takeshi, to Zaidan Hojin Handotai Kenkyu Shinkokai. Field effect semiconductor device having an unsaturated triode vacuum tube characteristic. 3,828,230, Cl. 357-22.000.

Nishizawa, Koichi: See—
Matsushita, Kazuo; Nishizawa, Koichi; and Toyama, Minoru, 3,827,785.

Nissan Motor Company, Limited: See—
Baba, Kosaku; Wazawa, Kiyoshi; and Hosaka, Akio, 3,828,294.

Hayashi, Yoshimasa, 3,827,238.

Ishikawa, Yoshikazu, 3,827,408.

Shimoda, Yasunori; and Taniguchi Kojiro, 3,827,920.

Nissin Shokuhin Kaisha, Ltd.: See—
Tanaka, Tatsuro; Terada, Masaki; Takatsu, Mitsumune; and Otani, Shohci, 3,827,939.

Nittetu Chemical Engineering Ltd.: See—
Tsuruta, Hidemasa; and Makiguchi, Michinori, 3,827,379.

Nixon, Philip Sidney, to Pilkington Brothers Limited. Glass sheet conveying apparatus. 3,827,547, Cl. 198-127.00r.

Noble, Peter M., to Westinghouse Air Brake Company. Operable skate type of railway car retarder. 3,827,533, Cl. 188-62.000.

Nogaj, Alfred: See—
Wieden, Horst; Nogaj, Alfred; and Marzolph, Herbert, 3,828,014.

Noguchi, Junpei: See—
Ohkubo, Kinji; Masuda, Takao; and Noguchi, Junpei, 3,827,889.

Noguchi, Masaaki; and Kawahara, Takezo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Pipe joint assembly. 3,827,732, Cl. 285-342.000.

Nomiya, Kosei: See—
Kawagoe, Hiroto; and Nomiya, Kosei, 3,828,209.

Nordeen, Erwin E.; and Johnson, Milton J., to Whirlpool Corporation. Vacuum cleaner. 3,827,103, Cl. 15-359.000.

Nordson Corporation: See—
Hamilton, William M.; Reighard, Alan B.; and Tamny, Simon Z., 3,827,604.

Reighard, Alan B.; Rosen, Samuel R.; Schroeder, Ronald R.; and Tamny, Simon Z., 3,827,603.

Rosen, Samuel R.; Rood, Alvin A.; and Scharf, Donald R., 3,827,339.

Norob System AB: See—
Johansson, Sven Lissol; and Lundblad, Leif, 3,828,166.

Norris, Richard C.: See—
Heitman, Richard E.; Arciprete, Genio R.; Martin, Peter G.; Norris, Richard C.; and Brisk, Richard A., 3,828,323.

Norteman, Samuel L., to Wheeling-Pittsburgh Steel Corporation. Manufacture of electrical metallic tubing. 3,827,139, Cl. 29-477.000.

North American Manufacturing Company: See—
Ko, Wen H.; Knodel, James R.; and Hung, Chih Piao, 3,828,237.

North, James Clayton: See—
Fischer, Robert Frederick; North, James Clayton; and Wolfe, Raymond, 3,828,329.

North, Max D. Feeder device. 3,827,404, Cl. 119-51.110.

Orton, Charles J.; Falk, David O.; and Evans, Robert E., to Marathon Oil Company. Injectivity in supplemented oil recovery. 3,827,499, Cl. 166-305.00r.

Norton Company: See—
Douglass, Richard W., 3,827,865.

Norton, Ralph S. Current follower amplifier. 3,828,269, Cl. 330-97.000.

Norwood Industries, Inc.: See—
Sutton, Robert G., 3,827,930.

Novak, John: See—
Stratman, Jerome F.; and Novak, John, 3,827,352.

Novo Terapeutisk Laboratorium A/S: See—
Aunstrup, Knud; and Andersen, Otto, 3,827,938.

Nowack, Gerhard P.; and Johnson, Marvin M., to Phillips Petroleum Company. Production of 2,3-dihydrofuran. 3,828,077, Cl. 260-346.100.

NS Industries, Inc.: See—
Girffin, Thomas S.; and Heywood, Kenneth W., 3,827,901.

Nygaard, Harold A.; and Rubin, Jacob N., to Stone & Webster Engineering Corporation. Recovery and purification of ethylene from direct hydration ethanol vent gas streams. 3,827,245, Cl. 62-18.000.

Oberlinner, Andreas: See—
Kast, Helmut; Baumann, Hans; Mayer, Udo; and Oberlinner, Andreas, 3,828,071.

Obuchi, Akio: See—
Yamamuro, Isao; and Obuchi, Akio, 3,828,144.

O'Callaghan, Gerald F.; and Woelz, Donald D., to Eaton Corporation. Controlled velocity drive. 3,828,168, Cl. 235-150.100.

Ochiai, Kazuo; Araseki, Takashi; and Kato, Yasuo, to Nippon Electric Company, Limited. Echo canceller arrangement comprising quasi-static echo cancellers and a smaller number of self-adaptive echo cancellers. 3,828,147, Cl. 179-170.200.

O'Connell, James P. Fastening means for detachably securing together mating ends of a binder ring construction and the like. 3,827,111, Cl. 24-230.0cf.

O'Connor, Ronald R.: See—
McVoy, Robert A.; and O'Connor, Ronald R., 3,827,726.

Oesterle, Helmut; Mark, Fritz; and Jochum, Peter, to Hilti Aktiengesellschaft. Ratchet arrangement for an explosion driven setting gun. 3,827,618, Cl. 227-8.000.

Ogawara, Yoshiaki: See—
Okada, Takashi; Ogawara, Yoshiaki; and Takeda, Masashi, 3,828,266.

Ogiwara, Yutaka: See—
Kato, Yoshio; and Ogiwara, Yutaka, 3,827,811.

Ogo, Yasuo: See—
Amagami, Keizo; Tsugeki, Toshii; Ogo, Yasuo; Mitani, Yoshinori; Ueda, Hiromutsu; Nishida, Takeo; and Ono, Atsuo, 3,828,163.

Oguni, Hiroshi; and Nakagawa, Masaya, to Kawasaki Jukogyo Kabushiki Kaisha. Fluid device. 3,827,338, Cl. 91-491.000.

Ohki, Kuso: See—
Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kuso, 3,827,973.

Ohki, Kuso: See—
Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kuso, 3,827,971.

Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kuso, 3,827,972.

Kominami, Naoya; Iwaisako, Toshiyuki; and Ohki, Kuso, 3,827,988.

Ohkubo, Kinji; Masuda, Takao; and Noguchi, Junpei, to Fuji Photo Film Co., Ltd. Thermally developable light sensitive material. 3,827,889, Cl. 96-114.100.

Ohkubo, Rokuji: See—
Makino, Takayuki; Ishii, Shinya; and Ohkubo, Rokuji, 3,827,415.

Ohlson, John L.: See—
Cicione, Robert J.; Najjar, Edward G.; Scanlon, Patricia M.; Ohlson, John L.; and Finn, Joseph F., 3,827,994.

Ohmayer, Siegfried; and Storzel, Karl, to ITT Industries, Inc. Brake lining wear adjusting device. 3,827,536, Cl. 188-196.00f.

Okada, Takashi; Ogawara, Yoshiaki; and Takeda, Masashi, to Sony Corporation. Signal control circuit. 3,828,266, Cl. 330-29.000.

Okamoto, Tadashi: See—
Yamamoto, Hisao; Inaba, Shigeo; Okamoto, Tadashi; Hirohashi, Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama, Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, 3,828,027.

Okasaki, Hiroshi: See—
Kusunoki, Yasuo; and Okasaki, Hiroshi, 3,828,051.

Okubo, Katsuhiro; and Ueno, Atsuyuki. Apparatus for removal of contaminants from wastes. 3,827,964, Cl. 204-257.000.

Olin Corporation: See—
Hammond, Philip D.; Scott, John A.; Clarke, William M.; and Denton, William T., 3,828,089.

Olivetti, Ing., C., & C., S.p.A.: See—
De Sandre, Giovanni; Subrizi, Angelo; and Bretti, Franco, 3,828,322.

Ollman, Melvin L., to C-O Inc. Method for making truss members. 3,827,117, Cl. 29-155.00r.

Olson, Albert W.: See—
Keeffe, William M.; Gungle, W. Calvin; and Olson, Albert W., 3,828,214.

Olympus Optical Company Limited: See—
Ikeda, Yoshitsugi, 3,827,781.

Omnic Systems International, Inc.: See—
Berrie, Robert W., 3,827,203.

Omron Tateisi Electronics Co.: See—
Yamasaki, Hiroyuki; and Kaida, Masaaki, 3,828,309.

Onaka, Tatsumi: See—
Yamamoto, Akira; Yoshida, Dan; and Onaka, Tatsumi, 3,827,187.

O'Neill, Cormac G., to Physics International Company. Fuel injection system for internal combustion engines. 3,827,409, Cl. 123-32.0ea.

Onishi, Kazuo: See—
Yamashita, Swizi; and Onishi, Kazuo, 3,828,213.

Ono, Atsuo: See—
Amagami, Keizo; Tsugeki, Toshii; Ogo, Yasuo; Mitani, Yoshinori; Ueda, Hiromutsu; Nishida, Takeo; and Ono, Atsuo, 3,828,163.

Onoda, Yoshimitsu, to Hitachi, Ltd. Linear and rotary motor driving system for electric car. 3,827,371, Cl. 104-148.01m.

- Operator programmed numerical control system: See—
Bennett, Charles D.; Coates, Peter M.; and Coates, Robert N., 3,828,318.
- Optical Research & Development Corporation: See—
Alvarez, Luis W., 3,827,798.
- Orito, Zen-Ichi; Sugimoto, Hiroshi; Uchida, Minoru; Sahara, Hajime; Takesue, Masatoshi; and Nishida, Kiyoharu, to Mitsubishi Rayon Company Limited. Polyacrylonitrile synthetic fiber and a process of manufacturing the same. 3,827,932, Cl. 161-172.000.
- Orlovsky, Vladimir W.: See—
Snow, Gerald A.; and Orlovsky, Vladimir W., 3,827,356.
- Oropesa, Joel T.: See—
Vigil, Jacob F.; Billard, Stephen L.; Oropesa, Joel T.; and Armstrong, Ralph W., Jr., 3,828,324.
- Osawa, Mitsuoki: See—
Nakayama, Norihiko; Osawa, Mitsuoki; Mizuko, Kiyoo; and Takahashi, Isao, 3,827,776.
- Osswald, Gerhard: See—
Florus, Hans-Jorg; Grossner, Horst; and Osswald, Gerhard, 3,828,198.
- Otani, Shohei: See—
Tanaka, Tatsuro; Terada, Masaki; Takatsu, Mitsumune; and Otani, Shohei, 3,827,939.
- Otsuka, Masayoshi: See—
Kawano, Reijiro; Goda, Kazuhiro; Yamakawa, Hiroshi; and Otsuka, Masayoshi, 3,827,543.
- Otto Engineering, Inc.: See—
Roeser, John O., 3,828,148.
- Otto, William F.; and Milton, Richard D., to United States of America, Army. Integral capacitor lateral discharge laser. 3,828,277, Cl. 331-94.5p.
- Overholser, Loyal M. Lever attachment for door latch-operating device. 3,827,739, Cl. 292-347.000.
- Owen, David Gregory; Robinson, Alfred Henry; and Whalley, Norman, to IPC Services Limited. Composition system. 3,828,319, Cl. 340-172.500.
- Owens, Frederick J., to Aerosonic Corporation, mesne. Artificial-horizon gyroscope. 3,827,157, Cl. 33-329.000.
- Owens-Corning Fiberglass Corporation: See—
Marzocchi, Alfred; and Janetos, Nicholas S., 3,827,230.
- Seymour, Merrit W.; and Clark, Jerri O., 3,827,086.
- Pace Promotions, Inc.: See—
Koutny, George H., 3,827,571.
- Padgett, Richard A., to GTE Automatic Electric Laboratories, Incorporated. Arrangement for assembling an initial entry in a billing buffer. 3,828,135, Cl. 179-7.00r.
- Page, Mark; and Sawyer, Philip N. Prosthetic pump. 3,827,426, Cl. 128-1.00d.
- Paglia, Marius F. Conveyor trolley with camming heads. 3,827,367, Cl. 104-93.000.
- Palecek, Vincent J.: See—
Cieniawa, Edward A.; and Palecek, Vincent J., 3,828,302.
- Palmer, Myron D.: See—
Johnson, Claude Jr.; and Palmer, Myron D., 3,827,908.
- Palombo, Gaston A.: See—
Belson, Ross A.; and Palombo, Gaston A., 3,828,203.
- Pamer, Karl A., to McNeil Corporation. Material handling apparatus. 3,827,366, Cl. 104-89.000.
- Pamlenyi, George, to Carlson, Chesley F., Co. Exposure override control. 3,828,226, Cl. 317-124.000.
- Pantec Development Company: See—
Heikes, Norman L., 3,827,429.
- Pantke, Heinz-Dieter; and Pohl, Ulrich, to Huttenwerk Oberhausen A.G. Method of induction-refining a ferrous melt using a sponge iron charge. 3,827,877, Cl. 75-12.000.
- Papalos, John: See—
Kaplan, Harry; and Papalos, John, 3,828,084.
- Paradis, Eugene: See—
Allaire, Eugene Joseph; and Paradis, Eugene, 3,827,099.
- Pardo, Oscar L., to Armco Steel Corporation. Feeding organization for grinding ball making machine. 3,827,265, Cl. 72-69.000.
- Parke, Davis & Company: See—
Smith, John R., 3,827,544.
- Parker, Robert, to Parker, Robert, Research, Inc. Fin cooled temperature sensor employing liquid crystals. 3,827,301, Cl. 73-356.000.
- Parker, Robert, Research, Inc.: See—
Parker, Robert, 3,827,301.
- Parker-Hannifin Corporation: See—
Malott, Thomas J.; and Paul, John C., 3,827,453.
- Parkison, Richard G.; and Fichter, Barry S., to American Standard Inc. Substantially leakless aerator. 3,827,636, Cl. 239-428.500.
- Parks, James D., to Westinghouse Learning Corporation. Air exhaust system for waste material. 3,827,320, Cl. 83-100.000.
- Parnell, Edgar William: See—
Broad, David Rex; Hatton, Leslie Roy; and Parnell, Edgar William, 3,828,001.
- Parsons, Stuart L.: See—
Bunnell, Edward Dennman; and Parsons, Stuart L., 3,828,151.
- Partin, Melvin E.: See—
Miller, Melvin N.; Levine, Marshall S.; and Partin, Melvin E., 3,827,804.
- Parzefall, Franz, to Siemens Aktiengesellschaft. Cylindrical domain propagation pattern. 3,828,330, Cl. 340-174.0tf.
- Pasbrig, Max. Device for clamping and tightening cables and the like. 3,827,674, Cl. 254-73.000.
- Pattas, Konstantin; and Glathe, Hans-Peter, to Daimler-Benz Aktiengesellschaft. Hot-gas engine. 3,827,837, Cl. 418-104.000.
- Paul, John C.: See—
Malott, Thomas J.; and Paul, John C., 3,827,453.
- Paull, Peter L.; and Kerr, Paul F., to Texaco Development Corporation. Method for recovering geothermal energy. 3,827,243, Cl. 60-641.000.
- Pawlowski, Peter H.: See—
Gammel, Gregor; Pawlowski, Peter H.; Heidtmann, Uwe; and Jons, Mattias, 3,827,480.
- Payen, Jean Noel, to Etablissements Carpano & Pons S.A. Click pawl device. 3,827,649, Cl. 242-84.10r.
- Peabody Gordon-Platt, Inc.: See—
Walker, Dale E., 3,827,851.
- Peacock, Frederick Charles: See—
Kay, Ian Trevor; Peacock, Frederick Charles; and Waring, Wilson Shaw, 3,828,043.
- Pechacek, Raymond E.; and Clay, Henry J., to Hahn & Clay. Vulcanizing press for rubber products. 3,827,839, Cl. 425-34.000.
- Peck, Reese A.: See—
Wilson, Raymond F.; Peck, Reese A.; and Mih, Li C., 3,827,969.
- Pecorella, Ignatius Richard. Orthopedic appliance having detachable fastening means. 3,827,431, Cl. 128-80.00f.
- Peer, Daniel R.: See—
Saunders, Philip G.; Simpson, Jack R.; and Peer, Daniel R., 3,827,322.
- Pena, Jesus Maria: See—
Celada, Juan; Pena, Jesus Maria; MacKay, Patrick W.; de la Pena, Ramon; Martinez, Enrique Ramon; and de la Torre, Maria Teresa, 3,827,879.
- Penn-Plax Plastics, Inc.: See—
Goldman, Marvin A.; and Goldman, Jerome N., 3,828,176.
- Pennec, Jean-Claude; and Valadon, Michel Marcel, to Regie Nationale Des Usines Renault. Sliding glass locks. 3,827,184, Cl. 49-449.000.
- Pennewiss, Horst: See—
Arndt, Peter Joseph; Blitz, Hans-Dieter; Huebner, Klaus; Krall, Wilhelm; Kurth, Hans-Joachim; Mueller, Manfred; and Pennewiss, Horst, 3,828,012.
- Pere, Gerard, to Creusot-Loire. Oscillatable pinion. 3,827,311, Cl. 74-410.000.
- Perkin Elmer Limited: See—
Welland, John Michael, 3,827,299.
- Permal, Incorporated: See—
Hyde, George W., 3,827,689.
- Perna, Aldo; and Valbonesi, Giuseppe, to Societa Italiana Telecomunicazioni Siemens S.p.A. Time division telephone switching exchange. 3,828,136, Cl. 179-15.0bf.
- Perrault, Jean: See—
Forster, Daniel Emile; and Perrault, Jean, 3,828,346.
- Perrino, Joseph. Wire stripper. 3,827,317, Cl. 81-9.50b.
- Perry, Paul E.: See—
Hudson, Robert M.; Perry, Paul E.; and Warning, Clair J., 3,827,903.
- Pertec Corporation: See—
Matula, Jerry, 3,828,188.
- Peters, Joseph A.: See—
Ferdelman, Lawrence Joseph; Peters, Joseph A.; and Peterson, Willard Elvin, 3,827,744.
- Petersen, Arne J.: See—
Meyer, Richard C., 3,827,403.
- Peterson, John Merriam: See—
Hall, William Cornelius; and Peterson, John Merriam, 3,827,982.
- Peterson, Willard Elvin: See—
Ferdelman, Lawrence Joseph; Peters, Joseph A.; and Peterson, Willard Elvin, 3,827,744.
- Petrie, Jerome U.: See—
Berglund, Neil C.; Kerr, John W.; and Petrie, Jerome U., 3,828,327.
- Petro-Tex Chemical Corporation: See—
Miklas, Edward J., 3,828,101.
- Petrocci, Alfonso N.: See—
Adams, Phillip; and Petrocci, Alfonso N., 3,827,874.
- Petrolite Corporation: See—
Quinlan, Patrick M., 3,828,036.
- Petti, Pasquale Ralph: See—
Sladek, Norbert J.; Petti, Pasquale Ralph; and Zerlin, William Max Erich, 3,828,303.
- Pfeifer, Josef; Hofmann, Wilfried; and Dietrich, Karl-Heinz, to AGFA-Gevaert Aktiengesellschaft. Microfilm coding apparatus. 3,827,802, Cl. 355-41.000.
- Pfizer Inc.: See—
Hamanaka, Ernest S., 3,828,025.
- Phelps Dodge Industries, Inc.: See—
Winn, Donald J., 3,828,304.
- Philadelphia Gear Corporation: See—
Stratienko, Andrew; and Kornsey, Robert J., 3,827,407.
- Phillippi, Larry R.: See—
Johanson, Hans A.; Whittaker, Dewey E.; and Phillippi, Larry R., 3,828,112.
- Phillips, Gordon Hanley; and May, Peter John, to Glaxo Laboratories, Limited. Androstane-17 β -carboxylic acids and processes for the preparation thereof. 3,828,080, Cl. 260-397.100.
- Phillips, James Charles: See—
Butherus, Alexander Duane; Phillips, James Charles; and Scrosati, Bruno, 3,827,913.

- Phillips, James T. Jr. Hoop propelling device. 3,827,180, Cl. 46-220.000.
- Phillips, Leonard R., to Sterling Radiator Co., Inc. Joint for enclosure, and mounting therefor. 3,827,202, Cl. 52-220.000.
- Phillips Petroleum Company: See—
Griffin, Donald E., 3,828,171.
- Nowack, Gerhard P.; and Johnson, Marvin M., 3,828,077.
- Physics International Company: See—
Blomenkamp, Robert W., 3,828,263.
- O'Neill, Cormac G., 3,827,409.
- Piazza, Andre L.; and Lamb, Raymond K., to Rucker Company, The. Casing hanger assembly and operating tools therefor. 3,827,488, Cl. 166-87.000.
- Picker Corporation: See—
Snarr, James L., 3,828,195.
- Pickett, David F., to United States of America, Air Force. Preparation of nickel electrodes. 3,827,911, Cl. 136-24.000.
- Pilat, Peter, to National State Bank, The, mesne. Coin wrapping machine. 3,827,546, Cl. 198-53.000.
- Pilkington Brothers Limited: See—
Nixon, Philip Sidney, 3,827,547.
- Pines, Seemon H.: See—
Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Slettinger, Meyer, 3,828,049.
- Pioneer Electronic Corporation: See—
Yamamuro, Isao; and Obuchi, Akio, 3,828,144.
- Piotrowski, Alfred B.; and Andress, Harry J., Jr., to Mobil Oil Corporation. Oberbasing manganese compounds with promoters and copromoters. 3,827,979, Cl. 252-33.000.
- Pittman, Allen; and Wasley, William L., to United States of America, Agriculture. Siloxane polymers for soil-repellent and soil-release textile finishes. 3,828,087, Cl. 260-448.20b.
- Pittman, Allen G.; Wasley, William L.; and Jones, Carlton C. Treatment of textiles with glycidol-modified polyurethanes. 3,828,005, Cl. 260-77.5ma.
- Pitts, Charlie C. Vehicle dump body with auxiliary inner movable body. 3,827,753, Cl. 298-1.00b.
- Plank, Charles J.: See—
Givens, Edwin N.; Plank, Charles J.; and Rosinski, Edward J., 3,827,968.
- Platter, Valeria; and Schwartz, Geraldine C., to International Business Machines Corporation. Anodic oxide passivated planar aluminum metallurgy system and method of producing. 3,827,949, Cl. 204-15.000.
- Plessey Handel und Investments A.G.: See—
Richards, Wilfred Arthur, 3,827,145.
- PLIVA, Pharmaceutical and Chemical Works: See—
Gluncic, Berislav; and Kujundzic, Nedjeljko, 3,828,044.
- Plough, Charles T.: See—
Grossman, David H.; and Plough, Charles T., 3,828,292.
- Poat, David R.: See—
Millard, Richard J.; and Poat, David R., 3,828,227.
- Podlas, Thomas J., to Hercules Incorporated. Method of reducing the rate of oxidative degradation of cellulose ether. 3,827,898, Cl. 106-194.000.
- Pohl, Ulrich: See—
Pantke, Heinz-Dieter; and Pohl, Ulrich, 3,827,877.
- Polar Ware Company: See—
Kuftrin, Frederick W.; Virmoche, Paul R.; Allen, Donald J.; Gokey, Phillip E.; and Rose, Frederick A., 3,827,378.
- Polaroid Corporation: See—
McVoy, Robert A.; and O'Connor, Ronald R., 3,827,726.
- Polgar, Michael S.: See—
Majkrzak, Charles P.; and Polgar, Michael S., 3,828,353.
- Polytex AG: See—
Rohner, Hans, 3,827,580.
- Poma 2.000 S.A., mesne: See—
Laurent, Roger, 3,827,372.
- Pomagalski S.A.: See—
Garnier, Marcel, 3,827,368.
- Ponce, Carlos I. Multi-level, pleated filter array. 3,827,566, Cl. 210-338.000.
- Poovathunkal, Cyriac C.: See—
Cunningham, Arthur L.; Poovathunkal, Cyriac C.; and Yapp, William J., 3,827,993.
- Pope, Robert R. Radiator fan for earth movers. 3,827,482, Cl. 165-119.000.
- Porret, Daniel: See—
Batzner, Hans; Habermeyer, Juergen; and Porret, Daniel, 3,828,045.
- Porret, Daniel, to Ciba-Geigy Corporation. Diglycidylimidazolidones. 3,828,066, Cl. 260-309.600.
- Porta, Augusto: See—
Doniat, Denis; Porta, Augusto; and Mosetti, Jacques, 3,827,961.
- Portnoy, Harold D.: See—
Schulte, Rudolf R.; and Portnoy, Harold D., 3,827,439.
- Potel, Jurgen: See—
Arnold, Herbert; Bourseaux, Friedrich; Potel, Jurgen; and Brock, Norbert, 3,828,090.
- Powers, Robert E., Jr., to Carolina China, Inc. Cookware cover release valve. 3,827,596, Cl. 220-44.00r.
- PPG Industries, Inc.: See—
Holden, Calvin B., 3,828,162.
- Prasse, Herbert F., to Ramsey Corporation. Oil seal for rotary piston engines. 3,827,838, Cl. 418-142.000.
- Pratolongo, Modesto, to Santa Martha Bay Shipping and Trading Co. Ltd. Apparatus for the fast cooking, in hot water, of dosed quantities of foodstuffs in general. 3,827,344, Cl. 99-352.000.
- Pray, Lester W.; and Anderson, Gordon C., to Maremont Corporation. Grasper bar pivoting and positioning. 3,827,227, Cl. 57-52.000.
- Preissler, Detlev. Polygonal building structure. 3,827,200, Cl. 52-82.000.
- Priaroggia, Paolo G.; and Maschio, Gabriele, to Industrie Pirelli Societa per Azioni. Synthetic resin sleeve with embedded stress control screen for high-voltage cables. 3,828,114, Cl. 174-73.00r.
- Price, Alson K.; and Fenster, Abraham N., to Allied Chemical Corporation. Novel amidoamine oxides. 3,828,085, Cl. 260-404.500.
- Price, Raymond G.; and Stich, Frederick A., to Allis-Chalmers Corporation. Variable duty cycle traction motor control providing controlled plugging. 3,828,235, Cl. 318-373.000.
- Printex: See—
van de Gent, Edouard, 3,827,928.
- Pritchard, Dalton Harold: See—
Brandinger, Jay Jerome; Pritchard, Dalton Harold; Fredendall, Gordon Lyle; and Schroeder, Alfred Christian, 3,828,121.
- Procter & Gamble Company, The: See—
Lyness, Warren I.; Amel, Ronald T.; and Booth, Gary E., 3,828,060.
- Proni, Antonio: See—
Roggero, Arnaldo; Mazzei, Alessandro; and Proni, Antonio, 3,828,011.
- Proodian, Robert E.: See—
Winer, Allen; and Proodian, Robert E., 3,827,383.
- Prosser, David G.: See—
Gass, Donald N.; and Prosser, David G., 3,827,559.
- Prost, Roger: See—
Chovet, Patrice; Rollin, Claude; Galasso, Honore; and Prost, Roger, 3,827,252.
- Pruvot, Francois C., to Regie Nationale des Usines Renault. Hydrostatic bearings for the swash plate of a barrel-cylinder hydraulic pump or motor. 3,827,337, Cl. 91-489.000.
- Pugh, Billy Gene. Personnel or cargo net. 3,827,745, Cl. 294-77.000.
- Puskas, Jeffrey A., to Zenith Radio Corporation. VHF-UHF varactor tuning system incorporating automatic frequency control with equalization. 3,828,257, Cl. 325-418.000.
- Quaker Oats Company, The: See—
Reiling, Victor C. Jr., 3,827,179.
- Reiling, Victor C. Jr., 3,827,774.
- Quantronix Corporation: See—
Cohen, Martin G., 3,828,276.
- Quarmby, Robert Charles: See—
Clarke, Terence James Leonard; Quarmby, Robert Charles; and Matts, George Arthur, 3,827,464.
- Quick, John Kirby; Richardson, Kenneth; and Utting, Kenneth, to Beecham Group Limited. Process for the production of 3-thienylacetic acid. 3,828,074, Cl. 260-332.20a.
- Quinlan, Patrick M., to Petrolite Corporation. Bis-quaternary cyclic thiazines. 3,828,036, Cl. 260-243.00b.
- Raab, Hans: See—
Trattner, Hermann; and Raab, Hans, 3,827,398.
- Rabiner, Lawrence Richard: See—
Flanagan, James Loton; Rabiner, Lawrence Richard; and Schafer, Ronald William, 3,828,132.
- Radiochemical Centre Limited, The: See—
Charlton, John Cecil; and Lyons, Dermot, 3,827,986.
- Rafaat, Riaz, to Singer Company, The. Automatic take-up or spooling device for paper tape or audit trail. 3,827,648, Cl. 242-74.000.
- Rak, Stanley F., to Culligan International Company. Reverse osmosis membrane module. 3,827,564, Cl. 210-321.000.
- Ramins, Lothar: See—
Hazy, Andrew C.; Shirey, John E.; and Ramins, Lothar, 3,827,887.
- Ramsey Corporation: See—
Prasse, Herbert F., 3,827,838.
- Ramsey, S. David, Jr., to American Express Investment Management Company. Real time interferometry. 3,828,126, Cl. 178-6.800.
- Randell, Donald Richard: See—
Holt, Brian; Randell, Donald Richard; and Jack, James, 3,828,052.
- Randomatic Data Systems, Inc.: See—
Cross, Laurence Allan, Jr., 3,827,553.
- Rastogi, Vijay, to B. F. Goodrich Company, The. Plural container pressure differential system. 3,827,599, Cl. 222-52.000.
- Rauber, Oskar: See—
Suttan, Franz; Veit, Paul; and Rauber, Oskar, 3,827,275.
- Raytheon Company: See—
Kelleher, John J., 3,828,208.
- RCA Corporation: See—
Brandinger, Jay Jerome; Pritchard, Dalton Harold; Fredendall, Gordon Lyle; and Schroeder, Alfred Christian, 3,828,121.
- Goldberg, Edwin Allen, 3,828,234.
- Hills, Vernon Elton; and Wu, Leesui, 3,828,258.
- Zuk, Borys, 3,828,206.
- Reclosable Package Corp.: See—
Miller, Harmon B., 3,827,625.
- Redfern, Brian A. W.: See—
Denham, Albert W.; and Redfern, Brian A. W., 3,827,129.
- Reed, Marion G., to Chevron Research Company. Sand stabilization in selected formations. 3,827,495, Cl. 166-250.000.

- Reed, Marion G., to Chevron Research Company. Formation permeability maintenance with hydroxy-aluminum solutions. 3,827,500, Cl. 166-305.00r.
- Rees, Lynn T., to Motorola, Inc. Control Circuit for disabling MOS oscillator. 3,828,278, Cl. 331-116.00r.
- Regie Nationale des Usines Renault: See—
Giordano, Jean-Louis; and Lietard, Michel, 3,827,764.
Lefevre, Andre, 3,827,714.
Lhomme, Francois G., 3,827,823.
Pennec, Jean-Claude; and Valadon, Michel Marcel, 3,827,184.
Pruvot, Francois C., 3,827,337.
- Reichhold Chemicals, Inc.: See—
White, James T.; and Gumprecht, Donald L., 3,827,995.
- Reighard, Alan B.: See—
Hamilton, William M.; Reighard, Alan B.; and Tamny, Simon Z., 3,827,604.
- Reighard, Alan B.; Rosen, Samuel R.; Schroeder, Ronald R.; and Tamny, Simon Z., to Nordson Corporation. Thermoplastic applicator system in which the pump back-pressure controls the dispersing outlet. 3,827,603, Cl. 222-146.0he.
- Reiling, Victor C. Jr., to Quaker Oats Company. The. Wheeled toy vehicle with cam operated oscillating chair and steering wheel. 3,827,179, Cl. 46-204.000.
- Reiling, Victor G., Jr., to Quaker Oats Company. The. Toy desk. 3,827,774, Cl. 312-230.000.
- Reinhart, Norman E.: See—
Frey, Walter C.; Mullender, Claude; and Reinhart, Norman E., 3,827,844.
- Rekai, Andre, to Honeywell Inc. Temperature responsive circuit having a high frequency output signal. 3,828,332, Cl. 340-227.00r.
- Rem Research, Inc.: See—
Spiteri, Joseph, 3,828,221.
- Remington Arms Company Inc.: See—
Curran, Roger J., 3,827,363.
English, Myrle H.; Goodstal, Laurence; Leek, Wayne E.; Sanzo, Robert J.; Turner, Robert L.; Workman, Clark B.; and Yetter, Edward W., 3,827,334.
- Renga, Fred L.: See—
Bristol, Thomas R.; Lakin, Harold; and Renga, Fred L., 3,827,312.
- Renk, Richard J.: See—
Boller, George E.; and Renk, Richard J., 3,827,769.
- Renold, Adolph: See—
Barnhurst, James Douglass; and Renold, Adolph, 3,828,104.
- Research Engineering & Manufacturing, Inc.: See—
Muenchinger, Herman G., 3,827,331.
- Reynolds, Richard W., to Finn, Huck, Inc. Beer keg. 3,827,595, Cl. 220-1.00r.
- Rheinische Braunkohlenwerke AG.: See—
Wenzel, Werner; Meraikib, Mohammed; Franke, Friedrich H.; and Konig, Horst, 3,827,878.
- Rhone-Poulenc S.A.: See—
Bizot, Jean; and Sausse, Andre, 3,827,975.
Chabardes, Pierre; Gandilhon, Pierre; Grard, Charles; and Thiers, Michel, 3,828,092.
- Ribka, Joachim: See—
Junker, Peter; Ribka, Joachim; and Kunstmann, Walter, 3,828,019.
- Rice, Verner K.: See—
Wilber, John A.; Rice, Verner K.; and Buhrke, Rolfe E., 3,828,321.
- Richard, Jimmy W., to Conveyor Line Products, Inc. Bean sizer and broken bean eliminator. 3,827,554, Cl. 209-96.000.
- Richards, Wilfred Arthur, to Plessey Handel und Investments A.G. Artificial tooth structure. 3,827,145, Cl. 32-10.00a.
- Richardson, Kenneth: See—
Quick, John Kirby; Richardson, Kenneth; and Utting, Kenneth, 3,828,074.
- Richdel, Inc.: See—
Saarem, Myrl J., 3,827,670.
- Ricklefs, Merlin J.: See—
Tex, Karel Den; Jensen, Donald F.; Ricklefs, Merlin J.; Saltz, Fred; Schmidt, Jon J.; and Stacy, Phillip S., 3,827,628.
- Ricoh Co., Ltd.: See—
Koizumi, Yutaka, 3,827,799.
Takahashi, Yasuhiro; and Saita, Osamu, 3,827,394.
- Riethmuller, Lothar H.; Sponholz, Richard; Kiefer, Hans; and Spreitzhofer, Ernst, to Bodenseewerk Perkin-Elmer & Co. GmbH. Peak detector. 3,828,259, Cl. 328-151.000.
- Rimmer, Ronald, to Dowty Fuel Systems Limited. Fluid distribution apparatus. 3,827,460, Cl. 137-809.000.
- Ringley, Michael B.; and Wendelin, Pauli O., to Westvaco Corporation. Process for producing high strength, high yield hardwood pulp. 3,827,934, Cl. 162-28.000.
- Ripart, Guy, to Compagnie Generale D'Electricite. Arrangement for eliminating interference reflections in a light deviating device. 3,827,787, Cl. 350-285.000.
- Ritzenthaler, Richard L.: See—
Arnold, Don C.; and Ritzenthaler, Richard L., 3,827,088.
- Roark, Lamar P.: See—
Baxter, Robert O.; Byars, Carl A.; Nadaskay, Richard J.; and Roark, Lamar P., 3,827,614.
- Roberts, Sidney G.: See—
Zeigler, Paul P.; and Roberts, Sidney G., 3,827,917.
- Robertshaw Controls Company: See—
Demi, Roy C., 3,827,630.
Willson, James R., 3,827,345.
- Robinson, Alfred Henry: See—
Owen, David Gregory; Robinson, Alfred Henry; and Whalley, Norman, 3,828,319.
- Roblin Industries, Inc.: See—
Craig, Frank G., Sr., 3,827,574.
- Rochon, Robert W.; and Sneed, Joe W., to Monarch Logging Company, Inc. Bell nipple monitor. 3,827,295, Cl. 73-155.000.
- Rockford Screw Products Company: See—
Stover, Jordan H., III, 3,827,268.
- Rockwell International Corporation: See—
Golze, Richard R.; and Kienle, Richard F., 3,827,740.
Mazepa, Robert, 3,827,510.
- Rodgers, Fletcher. Remote control hydraulic valve. 3,827,669, Cl. 251-62.000.
- Roe, Richard C., to Sealy Incorporated. Wire mesh pad for mattress box springs. 3,827,090, Cl. 5-354.000.
- Roesch, George R.: See—
Highberg, Carl W.; and Roesch, George R., 3,827,189.
- Roeser, John O., to Otto Engineering, Inc. Multi-position electrical switch and spring biasing means for universal-type actuator. 3,828,148, Cl. 200-6.00a.
- Rogers Athletic Co., Inc.: See—
Rogers, Orley David, 3,827,690.
- Rogers, Charles H.: See—
Mansfield, Gerald R.; Rogers, Charles H.; and Sullivan, Kevin J., 3,827,805.
- Rogers, Dayton, Manufacturing Company: See—
Wennes, Stephen B., 3,827,685.
- Rogers, Orley David, to Rogers Athletic Co., Inc. Blocking sled. 3,827,690, Cl. 273-55.00r.
- Roggero, Arnaldo; Mazzei, Alessandro; and Proni, Antonio, to Snam Progetti, S.p.A. Process for producing addition homo- and copolymers from episulphides. 3,828,011, Cl. 260-79.000.
- Rohm GmbH: See—
Arndt, Peter Joseph; Blitz, Hans-Dieter; Hübner, Klaus; Krall, Wilhelm; Kurth, Hans-Joachim; Mueller, Manfred; and Pennewiss, Horst, 3,828,012.
- Rohner, Hans, to Polytex AG. Apparatus for affixing fabric swatches to sample cards. 3,827,580, Cl. 214-8.50c.
- Rohr Industries, Inc.: See—
Hill, Charles C., 3,827,370.
Maison, Richard L., 3,827,364.
Schubach, Theodor C., 3,827,137.
- Rollin, Claude: See—
Chovet, Patrice; Rollin, Claude; Galasso, Honore; and Prost, Roger, 3,827,252.
- Rolls-Royce (1971) Limited: See—
Fulks, John Arthur, 3,828,156.
- Romano, Aldo, to Ates Componenti Elettronici S.p.A. Low frequency power amplifier. 3,828,265, Cl. 330-17.000.
- Rombach, Friedrich: See—
Kuhn, Falk; and Rombach, Friedrich, 3,827,615.
- Roob, Elwood I., to Eaton Corporation. Quick release valve. 3,827,451, Cl. 137-102.000.
- Rood, Alvin A.: See—
Rosen, Samuel R.; Rood, Alvin A.; and Scharf, Donald R., 3,827,339.
- Roodvoets, Roger J.; and Applegate, Merlin J., said Roodvoets assor. to Laser Alignment, Inc. and said Applegate assor. to Alignment Systems, Inc. Method and apparatus for laying a pipeline. 3,827,156, Cl. 33-228.000.
- Rooney, Clarence Stanley: See—
Wasson, Burton Kendall; and Rooney, Clarence Stanley, 3,828,076.
- Rose, Frederick A.: See—
Kufirin, Frederick W.; Virnoche, Paul R.; Allen, Donald J.; Gokey, Phillip E.; and Rose, Frederick A., 3,827,378.
- Rosen, Karl Isaac Joel. Positive thread delivery device for textile machines. 3,827,645, Cl. 242-47.120.
- Rosen, Samuel R.: See—
Reighard, Alan B.; Rosen, Samuel R.; Schroeder, Ronald R.; and Tamny, Simon Z., 3,827,603.
- Rosen, Samuel R.; Rood, Alvin A.; and Scharf, Donald R., to Nordson Corporation. Double acting hydraulic pump. 3,827,339, Cl. 92-152.000.
- Rosenbauer, Hans-Gunter: See—
Aignesberger, Alois; and Rosenbauer, Hans-Gunter, 3,827,992.
- Rosenow, William L., to Ecology Recycling Inc. Apparatus for flattening metal cans and crushing glass containers. 3,827,351, Cl. 100-176.000.
- Rosinski, Edward J.: See—
Givens, Edwin N.; Plank, Charles J.; and Rosinski, Edward J., 3,827,968.
- Rotary Hoes Limited: See—
Bredebusch, Heinrich, 3,827,354.
- Roth, Walter, to Diagnostic Instruments, Inc. Development enhancement of electrostatic images. 3,827,905, Cl. 117-17.500.
- Rothwell, Ronald Edward; and Cipriani, Cipriano, to Allied Chemical Corporation. Shock-proof nylon carpet system. 3,827,931, Cl. 161-67.000.
- Rowe, Donald H.: See—
Whitten Gary Z.; and Rowe, Donald H., 3,827,970.
- Rowley, James Robert: See—

- Keck, Jerry L.; and Rowley, James Robert, 3,827,340.
- Roy, Milton, Company: See—
Serfass, Earl J.; Lindsay, Edward R., Jr.; Holmes, Gene Myron; Aid, James D.; and Bishop, French, Jr., 3,827,561.
- Royal Industries, Inc.: See—
Sosalla, Harry, 3,827,505.
- Royco Instruments, Inc.: See—
Underwood, Raymond D., 3,828,260.
- Rubberfabriek "Indiana" N.V.: See—
Ruyters, Johannes Hubertus, 3,827,818.
- Rubin, Jacob N.: See—
Nygaard, Harold A.; and Rubin, Jacob N., 3,827,245.
- Rucker Company, The: See—
Piazza, Andre L.; and Lamb, Raymond K., 3,827,488.
- Rudel, Harry W., to Biological Concepts, Inc. Novel oral pharmaceutical dosage form. 3,828,106, Cl. 424-239.000.
- Rudolph, Lois K. Brassiere construction for the handicapped. 3,827,441, Cl. 128-425.00.
- Ruempol, Emile O. H. M.: See—
Nap, Cornelis; Van Haarlem, Adriaan; and Ruempol, Emile O. H. M., 3,827,967.
- Rundqvist, Lars-Goran, to AB Cellico. Apparatus for treating material suspended in water. 3,827,567, Cl. 210-414.000.
- Rupprecht, Kenneth J., to Globe Manufacturing Company. Knit yarn package. 3,827,261, Cl. 66-195.000.
- Rust, Donald. Cooling systems for turbocharger mechanisms. 3,827,236, Cl. 60-13.00r.
- Rutz, Karl-Friedrich: See—
Grube, Werner; Rutz, Karl-Friedrich; Jung, Berthold; and Schrage, Johannes, 3,827,643.
- Ruyle, William V.: See—
Beattie, Thomas R.; Ruyle, William V.; Shen, Tsung-Ying; Wal-ford, Gordon L.; and Walton, Edward, 3,828,021.
- Ruyters, Johannes Hubertus, to Rubberfabriek "Indiana" N. V. Concrete tile. 3,827,818, Cl. 404-33.000.
- Ryan, T. Claude; and Girard, Peter F., to Ryson Aviation Corporation. Aircraft wing structure and method of assembly. 3,827,661, Cl. 244-123.000.
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- Ryson Aviation Corporation: See—
Ryan, T. Claude; and Girard, Peter F., 3,827,661.
- Rystad, Arnold O., to Work Right Products Inc. Shower door latch. 3,827,737, Cl. 292-74.000.
- Saarem, Myrl J., to Richdel, Inc. Valve assembly. 3,827,670, Cl. 251-81.000.
- Sablontny, Adalbert, to Hoesch Aktiengesellschaft. Method of testing spiral-welded seam tubes. 3,828,158, Cl. 219-62.000.
- Sacks, Sidney M.; Brand, Arnold J.; and Slump, William R., to Singer Company, The. Error correction for an integrating analog to digital converter. 3,828,347, Cl. 340-347.0ad.
- Sageman, Frank W. Feed particulator apparatus. 3,827,642, Cl. 241-101.700.
- Sahara, Hajime: See—
Orito, Zen-ichi; Sugimoto, Hiroshi; Uchida, Minoru; Sahara, Hajime; Takesue, Masatoshi; and Nishida, Kiyoharu, 3,827,932.
- Sahara, Hiroshi: See—
Nagai, Tamiji; and Sahara, Hiroshi, 3,828,239.
- Saita, Osamu: See—
Takahashi, Yasuhiro; and Saita, Osamu, 3,827,394.
- Saito, Yuzi: See—
Moriguchi, Shigeru; Tamura, Mitsuo; and Saito, Yuzi, 3,827,190.
- Sakai, Yutaka; and Kimura, Kazuya, to Matsushita Electric Industrial Co., Ltd. Timing system having a high speed and a low speed gear train. 3,828,199, Cl. 307-141.000.
- Sakamaki, Hiroshi, to Nippon Piston Ring Co., Ltd. Oil seal for use in rotary piston internal combustion engine. 3,827,701, Cl. 277-81.00p.
- Sakata, Ryuichi: See—
Ando, Noriaki; Yaeda, Yasuyuki; Furuta, Isao; and Sakata, Ryuichi, 3,827,991.
- Sakurai, Katsuo; and Chofuku, Jiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Passive seat belt assembly for automobile or the like. 3,827,713, Cl. 280-150.0sb.
- Saleck, Wilhelm; and Balle, Gerhard, to AGFA-Gevaert Aktiengesellschaft. Process for the preparation of photographic silver salt emulsions. 3,827,890, Cl. 96-114.000.
- Salmel, Gaston Raoul. Radio-wave detector for discovering the movement of persons or objects in a confined space. 3,828,335, Cl. 340-258.00c.
- Saltz, Fred: See—
Tex, Karel Den; Jensen, Donald F.; Ricklefs, Merlin J.; Saltz, Fred; Schmidt, Jon J.; and Stacy, Phillip S., 3,827,628.
- Samoilov, Sergei Mikhailovich; Ivanov, Vladimir Ivanovich; Zambrovskaya, Galina Vladimirovna; Tsvetkov, Oleg Nikolaevich; Monastyrsky, Viktor Nikolaevich; Besspalov, Evgeny Ivanovich; Gryaznov, Boris Vasilievich; and Molchanov, Boris Vladimirovich. Method for preparing branched copolymers of ethylene with vinyl organosilicon monomers. 3,828,015, Cl. 260-88.10r.
- Sanderson, Edward. Portable sanitary putrescible material collector assembly. 3,827,098, Cl. 15-104.800.
- Santa Martha Bay Shipping and Trading Co. Ltd.: See—
Pratolongo, Modesto, 3,827,344.
- Santi, John D.: See—
Harkness, Joseph R.; Santi, John D.; and Lechtenbert, Leo J., 3,828,212.
- Sanzo, Robert J.: See—
English, Myrle H.; Goodstal, Laurence; Leek, Wayne E.; Sanzo, Robert J.; Turner, Robert L.; Workman, Clark B.; and Yetter, Edward W., 3,827,334.
- S.A.R.L. "Constructions Isothermiques Bontami": See—
Charmeil, Pierre; and DeBievre, Michel, 3,828,152.
- Sarto, Jorma O., to Chrysler Corporation. Exhaust recirculation. 3,827,414, Cl. 123-119.00a.
- Sato, Akira: See—
Ishigami, Hikoichi; Kitayama, Seishi; and Sato, Akira, 3,828,133.
- Sato, Atsushi, to Nippon Petrochemicals Co., Ltd. Apparatus for selectively sampling fluids. 3,827,302, Cl. 73-422.0gc.
- Sato, Kohei, to Matsushita Electric Industrial Co., Ltd. Regulated H.V. power supply for a television receiver. 3,828,123, Cl. 178-7.30r.
- Sato, Masamichi; and Tamai, Yasuo, to Fumi Photo Film Co., Ltd. Method for developing an electrostatic latent image. 3,827,906, Cl. 117-37.01e.
- Sato, Ryozi; and Ito, Yoshio, to Japanese Geon Co., Ltd., The. Process for separating methacrolein. 3,828,099, Cl. 260-601.00r.
- Satoh, Ichiya: See—
Kawamata, Isamu; Ai, Mitsuo; and Satoh, Ichiya, 3,827,298.
- Saunders, Philip G.; Simpson, Jack R.; and Peer, Daniel R., to Container Graphics Corporation. Ejection member for cutting dies. 3,827,322, Cl. 83-128.000.
- Saurano, Marina, to Societe Alexandre. Hairdressing composition and process for preparation thereof. 3,828,105, Cl. 424-70.000.
- Sausse, Andre: See—
Bizot, Jean; and Sausse, Andre, 3,827,975.
- Sawyer, Philip N.: See—
Page, Mark; and Sawyer, Philip N., 3,827,426.
- Sayavedra, Modesto Albino: See—
Gurizzan, Luis; Gurizzan, Daniel Alberto; and Sayavedra, Modesto Albino, 3,827,449.
- Scaletti, Henry M. Jr.: See—
DeVita, Raymond A.; Dorosz, Adolph S.; and Scaletti, Henry M. Jr., 3,827,382.
- Scanlon, Patricia M.: See—
Cicione, Robert J.; Najjar, Edward G.; Scanlon, Patricia M.; Ohl-son, John L.; and Finn, Joseph F., 3,827,994.
- Schabert, Hans-Peter: See—
Gruner, Wolf; Schabert, Hans-Peter; and Schubert, Franz, 3,827,935.
- Schafer, Richard A. Golf swing training device. 3,827,696, Cl. 273-183.00e.
- Schafer, Ronald William: See—
Flanagan, James Loton; Rabiner, Lawrence Richard; and Schafer, Ronald William, 3,828,132.
- Scharf, Donald R.: See—
Rosen, Samuel R.; Rood, Alvin A.; and Scharf, Donald R., 3,827,339.
- Schedrovitsky, Savely Solomonovich; Mash, Dmitry Matveevich; Golovko, Zoya Ivanovna; Goncharevich, Leonid Fomich; Lebedev, Alexei Pavlovich; Dubrov, Jury Mikhailovich; and Suut, Nikolai Karlovich. Crane overload safety device. 3,828,339, Cl. 340-267.00c.
- Scheibe, Elias W., to General Motors Corporation. Metering pump. 3,827,836, Cl. 418-88.000.
- Scheinflug, Hans: See—
Widdig, Arno; Kuhle, Englebert; Grewe, Ferdinand; Kaspers, Helmut; Scheinflug, Hans; and Froberger, Paul-Ernst, 3,828,094.
- Scherer Aktiengesellschaft: See—
Keislich, Klaus; Kerb, Ulrich; Mengel, Klaus; and Domenico, Amadeo, 3,828,083.
- Schickler, Edward R., to Eastman Kodak Company. Replenishment controller for photographic processors. 3,828,172, Cl. 255-151.120.
- Schiffman, Murray M., to Cambridge Research and Development Group, Greenberg, Sanford D., DT Liquidating Partnership and Schiffman, Murray M., jointly. Speech compressor-expander. 3,828,361, Cl. 360-25.000.
- Schiffman, Murray M., jointly: See—
Schiffman, Murray M., 3,828,361.
- Schlain, David: See—
McCawley, Frank X.; Wyche, Charlie; and Schlain, David, 3,827,954.
- Schlaudecker, George F.; and Jacobs, Richard L., to Sherwin-Williams Company, The. Production of 3-substituted and 1,3-disubstituted-2,4 (1H,3H)-quinazolinones, and the 2,4 thio and dithio analogues thereof. 3,828,042, Cl. 260-251.0qa.
- Schlumberger Technology Corporation: See—
Anderson, Ronald A., 3,827,294.
- Schmidt, Jon J.: See—
Tex, Karel Den; Jensen, Donald F.; Ricklefs, Merlin J.; Saltz, Fred; Schmidt, Jon J.; and Stacy, Phillip S., 3,827,628.
- Schmidt, Otto: See—
Diepers, Heinrich; Schmidt, Otto; and Kress, Reinhard, 3,827,950.
- Schmidt, Peter Jurgen: See—
Linder, Ernst; Zechall, Richard; Wahl, Josef; and Schmidt, Peter Jurgen, 3,827,237.
- Schmitz, Reinold: See—
Bien, Hans-Samuel; Harms, Wolfgang; Schmitz, Reinold; Schmitz, Reinold; and Leister, Heinrich, 3,828,040.
- Schneider, Jos. & Co. Optische Werke: See—

- Macher, Karl, 3,827,786.
 Schneider Maschinenbau GmbH: See—
 Liebmann, Werner; and Kuhrau, Lothar, 3,827,193.
 Schoerner, Roger J., to Southwire Company. High speed strander. 3,827,225, Cl. 57-13.000.
 Scholz, Robert H. Combine control. 3,827,442, Cl. 130-24.000.
 Schrage, Johannes: See—
 Grube, Werner; Rutz, Karl-Friedrich; Jung, Berthold; and Schrage, Johannes, 3,827,643.
 Schroeder, Alfred Christian: See—
 Brandinger, Jay Jerome; Pritchard, Dalton Harold; Fredendall, Gordon Lyle; and Schroeder, Alfred Christian, 3,828,121.
 Schroeder, Donald E., to Marathon Oil Company. High water content micellar solution containing thickeners. 3,827,496, Cl. 166-273.000.
 Schroeder, Franklin T.: See—
 Dinerman, Bernard B.; and Schroeder, Franklin T., 3,828,320.
 Schroeder, Ronald R.: See—
 Reighard, Alan B.; Rosen, Samuel R.; Schroeder, Ronald R.; and Tammy, Simon Z., 3,827,603.
 Schubach, Theodor C., to Rohr Industries, Inc. Method of assembling a vehicle roof and sidewall on a completed base by external joint structures. 3,827,137, Cl. 29-469.000.
 Schubert, Franz: See—
 Gruner, Wolf; Schabert, Hans-Peter; and Schubert, Franz, 3,827,935.
 Schuetz, James W., to Aetna-Standard Engineering Company. Strand drawing apparatus including means for preparing the leading end of the strand. 3,827,274, Cl. 72-289.000.
 Schuldreich, Rudolf: See—
 Mika, Norbert; Schuldreich, Rudolf; and Berger, Helmut, 3,828,196.
 Schuldt, David A.: See—
 Bauer, Richard H., Jr.; Schuldt, David A.; and Shum, Edward K., 3,828,340.
 Schull, Robert D.; and Ichinose, Richard Y., to American Multiplex Systems, Inc. Method and apparatus for data transmission. 3,828,313, Cl. 340-147.05y.
 Schulte, Rudolf R.; and Portnoy, Harold D., said Schulte assor. to Heyer-Schulte Corporation. Plug valve for physiological shunt systems. 3,827,439, Cl. 128-350.00v.
 Schultz, John Clayton; and Shyu, Tsu Pin, to Houdaille Industries, Inc. Damping system especially suitable for vehicle suspensions. 3,827,681, Cl. 267-8.00b.
 Schultz, Robert S., to Eyelet Specialty Company. Tool for sealing a pressure-operated dispensing container. 3,827,212, Cl. 53-88.000.
 Schultz, Robert S., to Eyelet Specialty Company. Pressure operated container for dispensing viscous products. 3,827,607, Cl. 222-389.000.
 Schultze, Manfred: See—
 Baumgartner, Heinrich; and Schultze, Manfred, 3,828,343.
 Schumacher, Frederick A.; and Wolds, Keith H., to Silicon Technology Corporation. Hydraulic blade mount. 3,827,421, Cl. 125-15.000.
 Schumacher, William Ludlow, to AMP Incorporated. Electrical terminal for a braided shield on a coaxial cable. 3,828,298, Cl. 339-14.00r.
 Schuman, Mark. Oscillating bellows. 3,827,675, Cl. 356-85.000.
 Schuon, Eberhard; and Wandel u. Goltermann. Electric meter with logarithmically indicating digital reader. 3,828,255, Cl. 324-132.000.
 Schwanauer, Francis J., to Burroughs Corporation. Clock and sector mark generator for rotating storage units. 3,828,271, Cl. 331-784.000.
 Schwartz, Geraldine C.: See—
 Platter, Valeria; and Schwartz, Geraldine C., 3,827,949.
 Schwartz, William F.; and Butler, Robert W., said Schwartz assor. to GTE Information Systems Incorporated. Double density to NRZ code converter. 3,828,344, Cl. 340-347.0dd.
 Schwarze, Werner: See—
 Westlinning, Hermann; Schwarze, Werner; and Fleischhauer, Horst, 3,828,002.
 Schwarzler, Hans-Jurgen, to Vereinigte Flugtechnische Werke-Fokker Gesellschaft mit beschränkter Haftung. Flap arrangement for thrust deflection in aircraft. 3,827,657, Cl. 244-42.0da.
 Schweizerische Industrie-Gesellschaft: See—
 Kneller, Klaus; Trub, Jean; and Gregoire, Francois, 3,827,842.
 Schwerin, Siegfried; Deubel, Reinhold; and Thilenius, Thilo, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for preparing pigment compositions. 3,827,902, Cl. 106-308.00n.
 SCM Corporation: See—
 McGinniss, Vincent Daniel, 3,827,956.
 McGinniss, Vincent Daniel, 3,827,957.
 McGinniss, Vincent Daniel, 3,827,958.
 McGinniss, Vincent Daniel, 3,827,959.
 McGinniss, Vincent Daniel, 3,827,960.
 Scooter Ski Limited: See—
 Jones, Dennis L., 3,827,392.
 Scott, Charles D., to United States of America, Atomic Energy Commission. Impregnated chemical separation particles. 3,827,989, Cl. 260-2.10c.
 Scott, John A.: See—
 Hammond, Philip D.; Scott, John A.; Clarke, William M.; and Denton, William T., 3,828,089.
 Scott, John William: See—
 Furst, Andor; Labler, Ludwig; Meier, Werner; Muller, Peter; Scott, John William; and Widmer, Erich, 3,828,062.
 Scott Paper Company: See—
 Buhayar, Eric S., 3,827,545.
 Scovill Manufacturing Company: See—
 Ackermann, Walter Thomas, 3,827,085.
 Scragg, Ernest & Sons Limited: See—
 McNeight, David L.; and Morris, William John, 3,827,228.
 Scrosati, Bruno: See—
 Butherus, Alexander Duane; Phillips, James Charles; and Scrosati, Bruno, 3,827,913.
 Sealy Incorporated: See—
 Roe, Richard C., 3,827,090.
 Searle, G. D., & Co.: See—
 Kreider, Eunice M., 3,828,056.
 Kreider, Eunice M., 3,828,065.
 Seborg, Earnest Y.; and Wanke, Harold R., to Greenlee Bros. & Co. Clamping frame for plastic sheet material. 3,827,683, Cl. 269-9.000.
 Seco Maschinenbau GmbH & Co. KG: See—
 Biesinger, Erwin, 3,827,476.
 Seidel, David Paul, to Victor Limited. Safety guards for rotary lawnmowers. 3,827,220, Cl. 56-320.200.
 Seifert, Volker: See—
 Alber, Karl; and Seifert, Volker, 3,828,249.
 Sekisui Kagaku Kogyo Kabushiki Kaisha: See—
 Kawai, Isami; Nishikawa, Atsuro; Iwata, Akira; and Sugiyama, Kohei, 3,827,841.
 Sellmann, William: See—
 Benson, James L.; and Sellmann, William, 3,827,651.
 Selman, Jan R.: See—
 Cairns, Elton J.; Shimotake, Hiroshi; and Selman, Jan R., 3,827,910.
 Semonovich, Joseph. Star type ornamental structure. 3,828,182, Cl. 240-101.00s.
 Serfass, Earl J.; Lindsay, Edward R., Jr.; Holmes, Gene Myron; Aid, James D.; and Bishop, French, Jr., to Roy, Milton, Company. Deaerator for dialysis system. 3,827,561, Cl. 210-180.000.
 Seta, Carlo N. Undercollar construction and method for making same. 3,827,084, Cl. 2-98.000.
 Settemyer, Bernard W., to Ajax Magnethermic Corporation. Valveless low pressure air dehumidifier. 3,827,218, Cl. 55-179.000.
 Seymour, Merrit W.; and Clark, Jerri O., to Owens-Corning Fiberglass Corporation. Bathtub and wall enclosure. 3,827,086, Cl. 4-175.000.
 Shade, Ross A.: See—
 Labarber, James P.; Shade, Ross A.; and Terbrack, William H., 3,828,279.
 Shaffer, John W.; and Vetere, John J., to GTE Sylvania Incorporated. Photoflash lamp coating. 3,827,850, Cl. 431-94.000.
 Shaffer, Walter M., to Towmotor Corporation. Low cost auxiliary hydrostatic drive for trucks. 3,827,528, Cl. 180-44.00m.
 Shannon, Daniel C., to Massachusetts Institute of Technology. Respiratory device and procedure. 3,827,433, Cl. 128-145.000.
 Sharp, Herbert John; and Humphrey, Victor William Stanley, to ARO Plastics Development Limited. Composite frame member with bushed aperture. 3,827,207, Cl. 52-727.000.
 Shaw, Benjamin Chandler, to Bendix Corporation. The Boost circuit for saturating output stages of high power amplifiers. 3,828,207, Cl. 307-254.000.
 Sheldon, E. H., and Company: See—
 Carlson, Arthur W., 3,827,290.
 Shellfro, Loren E.; and Mathisen, Henry A., to Addressograph-Multi-graph Corporation. Copier-duplicator machine. 3,827,803, Cl. 355-3.00r.
 Shell Oil Company: See—
 Crossland, Ronald K., 3,827,999.
 Meier, Dale J.; and Kruka, Vitold R., 3,827,447.
 Nap, Cornelis; Van Haarlem, Adriaan; and Ruempol, Emile O. H. M., 3,827,967.
 Whitten Gary Z.; and Rowe, Donald H., 3,827,970.
 Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, to Betz Laboratories, Inc. Slime control compositions and their use. 3,827,873, Cl. 71-67.000.
 Shen, Tsung-Ying: See—
 Beattie, Thomas R.; Ruyle, William V.; Shen, Tsung-Ying; Wal-ford, Gordon L.; and Walton, Edward, 3,828,021.
 Sheppard, William L. Fluid valves. 3,827,456, Cl. 137-525.000.
 Sherby, Oleg D.; Huseby, Irvin C.; and Whalen, Robert E., to United States of America, Navy. Method of making a composite alloy. 3,827,921, Cl. 148-11.50r.
 Sherwin-Williams Company: See—
 Vacek, Lubomir C., 3,828,038.
 Sherwin-Williams Company, The: See—
 Cunningham, Arthur L.; Poovathunkal, Cyriac C.; and Yapp, William J., 3,827,993.
 Schlaudecker, George F.; and Jacobs, Richard L., 3,828,042.
 Sherwood Medical Industries Inc.: See—
 Burlis, Norbert W., 3,827,860.
 Shiina, Masaru, to Hitachi Ltd. Liquid chromatography. 3,827,303, Cl. 73-422.0gc.
 Shimizu, Yoshiaki; Tatano, Toshio; Akiyama, Yoshiyuki; and Yamaguchi, Akira, to Kyowa Hakko Kogyo Kabushiki Kaisha. Process for preparing cyclic adenosine monophosphate. 3,827,936, Cl. 195-28.00n.

- Shimoda, Yasunori; and Taniguchi Kojiro, to Nissan Motor Company, Limited. Method for forming a wear-resistant surface on a metal article. 3,827,920, Cl. 148-15.500.
 Shimotake, Hiroshi: See—
 Cairns, Elton J.; Shimotake, Hiroshi; and Selman, Jan R., 3,827,910.
 Shinohara, Isao; Tsuchida, Eishun; and Mizoguchi, Katsuhiro, to Nippon Electric Company Limited. Electroconductive high polymer composition. 3,828,008, Cl. 260-78.40n.
 Shiosaka, Makoto: See—
 Kato, Koso; and Shiosaka, Makoto, 3,827,937.
 Shiozawa, Kaoru; Shirato, Tsugio; and Hirose, Kiyoshi, to Mitsui Shipbuilding and Engineering Co., Ltd. Bent pipe assembling apparatus. 3,827,126, Cl. 29-200.00p.
 Shipes, Kelly V., to Hudson Products Corporation. Axial flow fan assembly. 3,827,825, Cl. 415-219.000.
 Shirato, Tsugio: See—
 Shiozawa, Kaoru; Shirato, Tsugio; and Hirose, Kiyoshi, 3,827,126.
 Shirey, John E.: See—
 Hazy, Andrew C.; Shirey, John E.; and Ramins, Lothar, 3,827,887.
 Shiroski, Masami: See—
 Nakanishi, Michio; Tahara, Tetsuya; Araki, Kazuhiko; and Shiroski, Masami, 3,828,039.
 Shirouzu, Shunji: See—
 Horiike, Yasuhiro; Shirouzu, Shunji; Tsuji, Shigeo; and Harada, Nozomu, 3,828,232.
 Showa Aluminium Kabushiki Kaisha: See—
 Kanai, Tomiyoshi; and Ushioda, Shunta, 3,827,864.
 Showa Denko K.K.: See—
 Kojima, Yukiyasu; Akiyoshi, Kazuo; and Kawada, Kenji, 3,827,247.
 Shum, Edward K.: See—
 Bauer, Richard H., Jr.; Schuldt, David A.; and Shum, Edward K., 3,828,340.
 Shuman, Richard F., to Merck & Co., Inc. Method for the preparation of 2-acetamidoethyl (4-chlorophenyl)-alpha;haloacetate. 3,828,088, Cl. 260-453.00r.
 Shyu, Tsu Pin: See—
 Schultz, John Clayton; and Shyu, Tsu Pin, 3,827,681.
 Sidlo, Joseph J.: See—
 Hapke, Kenyon A.; Johnson, Edwin S.; and Sidlo, Joseph J., 3,827,779.
 Siemens Aktiengesellschaft: See—
 Baumgartner, Heinrich; and Schultze, Manfred, 3,828,343.
 Buttner, Gerhard, 3,828,142.
 Diepers, Heinrich; Schmidt, Otto; and Kress, Reinhard, 3,827,950.
 Ebersberger, Johann, 3,828,217.
 Ebisch, Martin, 3,828,270.
 Grasser, Hans, 3,828,194.
 Gruner, Wolf; Schabert, Hans-Peter; and Schubert, Franz, 3,827,935.
 Mika, Norbert; Schuldreich, Rudolf; and Berger, Helmut, 3,828,196.
 Parzefall, Franz, 3,828,330.
 Trattner, Hermann; and Raab, Hans, 3,827,398.
 Winzer, Gerhard, 3,828,187.
 Silicon Technology Corporation: See—
 Schumacher, Frederick A.; and Wolds, Keith H., 3,827,421.
 Silver Top Manufacturing Company, Inc.: See—
 Struben, Francis L., 3,827,201.
 Simon, Marvin K.: See—
 United States of America, National Aeronautics and Space Administration, 3,828,138.
 Simovits, Stephen S., Jr.: See—
 Dumas, Christ J.; and Simovits, Stephen S., Jr., 3,828,219.
 Simpson, Jack R.: See—
 Saunders, Philip G.; Simpson, Jack R.; and Peer, Daniel R., 3,827,322.
 Sinclair Company, The: See—
 Minick, David G., 3,828,157.
 Singer Company, The: See—
 Baum, Richard C., 3,828,124.
 Goldfarb, William C., 3,828,167.
 Mecklenborg, Richard A., 3,827,791.
 Rafaat, Riaz, 3,827,648.
 Sacks, Sidney M.; Brand, Arnold J.; and Slump, William R., 3,828,347.
 Vandling, John M., 3,828,185.
 Sinner, Karl-Helmut, to Hoesch Werke Aktiengesellschaft. Hydrostatic bearing. 3,827,767, Cl. 308-9.000.
 Sintokogio, Ltd.: See—
 Fuma, Toyozu; Takeuchi, Hideo; and Ikeda, Susumu, 3,827,188.
 Skagerlund, Lars-Erik, to Aktiebolaget Bofors. Device for facilitating the adjustment of an optical system. 3,827,806, Cl. 356-138.000.
 Skelton, John; and Freeston, W. Denney, Jr., to United States of America, Air Force. Thermal stabilization of polybenzimidazole fiber fabrics. 3,827,904, Cl. 117-7.000.
 SKF Industrial Trading and Development Company B.V.: See—
 Fernlund, Lars Martin Ingemar, 3,827,771.
 SKF Industrial Trading and Development Company, N.V.: See—
 Hallerback, Stig Lennart, 3,827,141.
 Sladek, Norbert J.; Petti, Pasquale Ralph; and Zerlin, William Max Erich, to Bunker Ramo Corporation. Coaxial connector. 3,828,303, Cl. 339-177.00r.
 Slagel, Robert C.: See—
 Throckmorton, Peter E.; McKillip, William J.; and Slagel, Robert C., 3,828,007.
 Slettinger, Meyer: See—
 Karady, Sandor; Pines, Seemon H.; Ly, Manuel G.; and Slettinger, Meyer, 3,828,049.
 Slump, William R.: See—
 Sacks, Sidney M.; Brand, Arnold J.; and Slump, William R., 3,828,347.
 Smaller, Philip: See—
 Bruck, George; Faroudja, Yves C.; and Smaller, Philip, 3,828,129.
 Smalley, Rodney Roger; Staudinger, John Vendel; Smith, Harvell Morton; and Meeker, Brian Lee, to Johns-Manville Corporation. Method and apparatus for packaging flexible duct. 3,827,210, Cl. 53-24.000.
 Smith, Arthur H., to Wagner Electric Corporation. Automotive security system and solenoid lock for same. 3,827,526, Cl. 180-114.000.
 Smith, Carl G. Lock for trap shot guns. 3,827,171, Cl. 42-69.00b.
 Smith, Harvell Morton: See—
 Smalley, Rodney Roger; Staudinger, John Vendel; Smith, Harvell Morton; and Meeker, Brian Lee, 3,827,210.
 Smith, Jack, to Eddy Match Company, Limited. Ice skate sharpening apparatus. 3,827,185, Cl. 51-5.000.
 Smith, James: See—
 Lohr, Raymond J.; and Smith, James, 3,827,719.
 Smith, John R., to Parke, Davis & Company. Strip chart recording roll and system for supporting roll during recording. 3,827,544, Cl. 197-133.00r.
 Smith, Willard G.: See—
 Caywood, James A.; McKeron, Charles E.; and Smith, Willard G., 3,827,336.
 Smithkline Corporation: See—
 De Marinis, Robert M.; and Hoover, John R. E., 3,828,037.
 Snam Progetti, S.p.A.: See—
 Roggero, Arnaldo; Mazzei, Alessandro; and Proni, Antonio, 3,828,011.
 Snarr, James L., to Picker Corporation. Cassette unloader. 3,828,195, Cl. 250-468.000.
 Sneed, Joe W.: See—
 Rochon, Robert W.; and Sneed, Joe W., 3,827,295.
 Snider, John R. Vehicular exerciser apparatus. 3,827,519, Cl. 180-25.00r.
 Snow, Gerald A.; and Orlovsky, Vladimir W. Rotary printer for use in conjunction with an indexed conveyor. 3,827,356, Cl. 101-35.000.
 Snow, Roland B.: See—
 Boggs, William E.; Boro, Franklin; Linderman, William A.; and Snow, Roland B., 3,827,922.
 Snyder, Bobbie L.: See—
 Johnson, Vern; and Snyder, Bobbie L., 3,827,749.
 Societa Italiana Telecomunicazioni Siemens S.p.A.: See—
 De Marco, Franco; and Manghi, Carlo A., 3,828,141.
 Societa Italiana Telecomunicazioni Siemens S.p.A.: See—
 Perna, Aldo; and Valbonesi, Giuseppe, 3,828,136.
 Societe Alexandre: See—
 Saurano, Marina, 3,828,105.
 Societe Anonyme dite "ETUD": See—
 Marrie, Paul, 3,827,640.
 Societe Anonyme L'Eclairage Technique: See—
 Adam, Marie Henri Hubert, 3,827,197.
 Societe C. M. V.: See—
 Ferrand, Jan, 3,827,192.
 Societe du Bouchon Couronne (Crown Cork Company France): See—
 Leenaards, Antoine Joseph, 3,827,594.
 Societe Generale de Recherches et d'Applications Scientifiques (SOGERAS): See—
 Tixier, Rene, 3,828,048.
 Societe Rhodiacta: See—
 Vidal, Roger; and Gourmandy, Raymond, 3,827,113.
 Solomon, Archie. Shelf rack. 3,827,376, Cl. 108-91.000.
 Soma, Hisashi, to Mitsui Shipbuilding and Engineering Co., Ltd. Cargo vessel. 3,827,385, Cl. 114-85.000.
 Somers, Stanley Brice Lascelles. Cassette containing two hubs carrying a magnetic tape, for use with recording/reproducing apparatus. 3,828,363, Cl. 360-60.000.
 Sondergard, Richard D.: See—
 McPhee, Walter J.; and Sondergard, Richard D., 3,828,122.
 Sone, Sadaie, to Daido Seiko Kabushiki Kaisha. Plasma smelting furnace. 3,828,107, Cl. 13-1.000.
 Sony Corporation: See—
 Fuse, Yuzo, 3,828,216.
 Horiuchi, Tetsuya, 3,828,241.
 Miyaoka, Senri, 3,828,358.
 Nagai, Tamiji; and Sahara, Hiroshi, 3,828,239.
 Nakamura, Tadahiko; and Tanaka, Yoshinori, 3,828,174.
 Okada, Takashi; Ogawara, Yoshiaki; and Takeda, Masashi, 3,828,266.
 Tsurushima, Katsuaki, 3,828,267.
 Sorensen, David K.: See—
 Bushek, James A.; and Sorensen, David K., 3,828,118.
 Sorenson Engineering, Inc.: See—
 Sorenson, Jess Frank, 3,827,318.
 Sorenson, Jess Frank, to Sorenson Engineering, Inc. Automatic lathe with rotary cutter. 3,827,318, Cl. 82-1.00c.
 Sosalla, Harry, to Royal Industries, Inc. Mounting clamp for spring tooth. 3,827,505, Cl. 172-707.000.

Sostero, Carlo. Record sequentially positioning device for automatic phonograph record players. 3,827,698, Cl. 274-10.00s.

Southwire Company: See—
Chia, Enrique C., 3,827,881.
Schoerner, Roger J., 3,827,225.

Specialty Products Development Corporation: See—
Lynch, Robert W., 3,827,715.

Spelman, Dennis Gerald; Kent, Bromley; and Jones, David Thomas, to Viscose Development Company, Limited. Tamper proof secondary closure device. 3,827,591, Cl. 215-7.000.

Sperry Rand Corporation: See—
Arpino, Ronald G., 3,827,144.
Blanshine, Allison W.; Crane, Jack W.; and Mast, Aquila D., 3,827,223.
Card, Charles D.; and Crane, John R., 3,828,316.
Mahoney, Ralph W., 3,827,357.

Spies, George R.: See—
Moen, Walter B.; and Spies, George R., 3,827,246.

Spitschka, Ernst; and Landler, Josef, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for preparing compounds of the benzothioxanthene series. 3,828,072, Cl. 260-328.000.

Spiteri, Joseph, to Rem Research, Inc. Ballast circuit for a plurality of lamps. 3,828,221, Cl. 315-1.000.

Sponholz, Richard: See—
Riethmuller, Lothar H.; Sponholz, Richard; Kiefer, Hans; and Spreitzhofer, Ernst, 3,828,259.

Sprague Electric Company: See—
Fabricius, John H.; and Maher, John P., 3,828,154.
Millard, Richard J.; and Poat, David R., 3,828,227.

Sprague, James M.; and Ziegler, Carl, to Merck & Co., Inc. N-Acyl and N-pyridylcarbonyl of sulfonyl mono- or di-substituted sulfamoyl-benesulfonamides. 3,828,054, Cl. 260-294.80f.

Spreitzhofer, Ernst: See—
Riethmuller, Lothar H.; Sponholz, Richard; Kiefer, Hans; and Spreitzhofer, Ernst, 3,828,259.

Square D Company: See—
Kiessling, Rudolf H., 3,827,313.

Squibb, E. R., & Sons, Inc.: See—
Denzel, Theodor; and Hoechn, Hans, 3,828,057.

Stacy, Phillip S.: See—
Tex, Karel Den; Jensen, Donald F.; Ricklefs, Merlin J.; Saltz, Fred; Schmidt, Jon J.; and Stacy, Phillip S., 3,827,628.

Stafford, John P.; Cuccio, Allen B. J.; and Johnson, J. Arthur, to Honeywell Information Systems, Inc. Universal interface system using a controller to adapt to any connecting peripheral device. 3,828,325, Cl. 340-172.500.

Stage, Leo J., to Arvey Corporation. Method of making a package. 3,827,341, Cl. 93-35.00r.

Stagi, Mauro, to Ciba-Geigy AG. 1,3-Diarylhexahydroindazole derivatives as optical brighteners. 3,828,069, Cl. 260-310.00d.

Stampfli, Harald, to Lucifer S.A. Electromagnetically controlled fluid-operating valve. 3,827,672, Cl. 251-129.000.

Stana, Regis R.; and Markind, Joseph, to Westinghouse Electric Corporation. Process for cleaning reverse osmosis membranes. 3,827,976, Cl. 210-23.000.

Stanberry, William R., Jr.: See—
Stanberry, William R., Sr.; and Stanberry, William R., Jr., 3,827,391.

Stanberry, William R., Sr.; and Stanberry, William R., Jr. Hydrofoil vehicle. 3,827,391, Cl. 115-70.000.

Starrett, Rupert M. Automatic key-selector key case. 3,827,263, Cl. 70-456.00r.

Staudinger, John Vendel: See—
Smalley, Rodney Roger; Staudinger, John Vendel; Smith, Harvell Morton; and Meeker, Brian Lee, 3,827,210.

Steele, Duane F., to Tecumseh Products Company. Compressor construction. 3,827,314, Cl. 74-606.000.

Steinwinder, John E.: See—
Jackson, John L.; and Steinwinder, John E., 3,827,487.

Stapan Chemical Company: See—
Fischer, Elias, 3,827,557.

Stephany, Christian; Braunmiller, Heinz; and Katzer, Johannes, to Kupex AG. Sprinkler systems. 3,827,637, Cl. 239-242.000.

Stephenson, Jack G.: See—
Mosier, John E.; and Stephenson, Jack G., 3,827,575.

Sterling Radiator Co., Inc.: See—
Phillips, Leonard R., 3,827,202.

Stevens, Joe E.: See—
Stevens, Ray C.; and Stevens, Joe E., 3,827,650.

Stevens, Ray C.; and Stevens, Joe E. Truck mounted wrapper cable storage means. 3,827,650, Cl. 242-86.50r.

Stewart, C. Jim, & Stevenson, Inc.: See—
De Vries, Douwe; and Gilmore, Samuel E., 3,827,668.

Stewart, Ronald D.: See—
Wong, Roger W.; and Stewart, Ronald D., 3,828,228.

Stich, Frederick A.: See—
Price, Raymond G.; and Stich, Frederick A., 3,828,235.

Stiefel, Harold A., Jr. Volumetric filling device. 3,827,610, Cl. 222-440.000.

Stirewalt, Homer A. Electronic executing device for moles, gophers and the like. 3,827,176, Cl. 43-98.000.

Stone & Webster Engineering Corporation: See—
Nygaard, Harold A.; and Rubin, Jacob N., 3,827,245.

Stokey, Stanley D.: See—
Meissner, Helmuth E.; and Stokey, Stanley D., 3,827,893.

Stopper, Herbert, to Burroughs Corporation. Logic circuit using a current switch to compensate for signal deterioration. 3,828,202, Cl. 307-218.000.

Storkh, Bengt Rudolf. Stop devices. 3,827,686, Cl. 269-315.000.

Storzel, Karl: See—
Ohmayer, Siegfried; and Storzel, Karl, 3,827,536.

Stover, Jordan H., III, to Rockford Screw Products Company. Apparatus for making self-locking bolts. 3,827,268, Cl. 72-90.000.

Strange, John, to Firth Cleveland Fastenings Limited. Spring clips. 3,827,815, Cl. 403-397.000.

Stratienko, Andrew; and Kornsey, Robert J., to Philadelphia Gear Corporation. Tug/barge latching mechanism. 3,827,407, Cl. 114-235.00a.

Stratman, Jerome F.; and Novak, John, to Toppan Company, The. Refuse compactor container assembly. 3,827,352, Cl. 100-229.00a.

Straub, Steffen, to Bosch, Robert, GmbH. Hydraulic system for automatically adjusting the positions of headlights of an automobile. 3,828,179, Cl. 240-7.11j.

Strbik, Joseph J.: See—
Hubbard, Harold C.; and Strbik, Joseph J., 3,828,150.

Strick, Karl H., to Fram Corporation. Flexible bladed fan with strengthened leading edge. 3,827,826, Cl. 416-132.000.

Strong, Jerry G., to Mobil Oil Corporation. 2-Aryl-3-aliphaticthioacrylonitriles. 3,828,091, Cl. 260-465.00f.

Struben, Francis L., to Silver Top Manufacturing Company, Inc. Skirting for below dwelling. 3,827,201, Cl. 52-169.000.

Struthers Patent Corporation: See—
Graniaris, Neophytos, 3,827,248.

Stryczek, Leon K. Automatic filling ruling pen with auxiliary control valve. 3,827,813, Cl. 401-151.000.

Stryker Corporation: See—
Brennan, Thomas J., 3,827,149.

Stumpf, Joseph G.; and Andera, Joseph F., to Frigitronics of Conn., Inc. Multipurpose cryosurgical probe. 3,827,436, Cl. 128-303.100.

Styczen, John A.: See—
Armstrong, Thaddeus J.; Styczen, John A.; and Klasek, Ladislav J., 3,827,284.

Subrizi, Angelo: See—
De Sandro, Giovanni; Subrizi, Angelo; and Bretti, Franco, 3,828,322.

Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft: See—
Aignesberger, Alois; and Rosenbauer, Hans-Gunter, 3,827,992.

Sugimoto, Hiroshi: See—
Orito, Zen-Ichi; Sugimoto, Hiroshi; Uchida, Minoru; Sahara, Hajime; Takesue, Masatoshi; and Nishida, Kiyoharu, 3,827,932.

Sugimoto, Kaname; Hirao, Mamoru; and Masuda, Kazuo, to Hayashibara Company. Preparation of α -1,6-glucosidase. 3,827,940, Cl. 195-66.00r.

Sugino, Osakazu: See—
Ishihara, Masao; Haga, Teruhide; Horiuchi, Hiroshi; Yamaguchi, Hisashi; and Sugino, Osakazu, 3,827,886.

Sugiyama, Kohei: See—
Kawai, Isami; Nishikawa, Atsuro; Iwata, Akira; and Sugiyama, Kohei, 3,827,841.

Sugiyama, Motoaki: See—
Takechi, Hiroshi; Masui, Hiroaki; Kawaharada, Minoru; and Sugiyama, Motoaki, 3,827,924.

Sullivan, Kevin J.: See—
Mansfield, Gerald R.; Rogers, Charles H.; and Sullivan, Kevin J., 3,827,805.

Sumitomo Chemical Company, Ltd.: See—
Yamamoto, Hisao; Inaba, Shigehiko; Okamoto, Tadashi; Hirohashi, Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama, Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, 3,828,027.

Sun Chemical Corporation, mesne: See—
Keating, Robert, 3,827,919.

Sun Oil Company (Delaware): See—
Dycus, Dale W.; Malmberg, Earl W.; and Wilchester, Harry L., 3,827,497.

Sun Oil Company of Pennsylvania: See—
Lerner, Julius; and Campbell, George F., Jr., 3,827,283.

Sun Research and Development Company: See—
Thompson, Robert M.; and Talbot, Alfred F., 3,827,980.

Thompson, Robert M., 3,827,981.

Sun Steel Treating, Inc.: See—
Harvey, Richard F.; and Moore, George E., 3,827,923.

Sundstrand Data Control, Inc.: See—
Brooks, Herman H., 3,828,331.

Suttan, Franz; Veit, Paul; and Rauber, Oskar, to Maschinenfabrik Hasenclever GmbH. Method of and apparatus for the upsetting of bars and similar workpieces. 3,827,275, Cl. 72-342.000.

Sutton, Robert G., to Norwood Industries, Inc. Production of polyurethane film/split leather laminates. 3,827,930, Cl. 161-64.000.

Suut, Nikolai Karlovich: See—
Schedrovitsky, Savely Solomonovich; Mash, Dmitry Matveevich; Golovko, Zoya Ivanovna; Goncharevich, Leonid Fomich; Lebedev, Alexei Pavlovich; Dubrovina, Jury Mikhailovich; and Suut, Nikolai Karlovich, 3,828,339.

Suzuki, Ichiro; and Watanabe, Hiroyuki, to Toyota Jidosha Kogyo Kabushiki Kaisha. Structural frame capable of absorbing impact energy. 3,827,712, Cl. 280-106.00r.

Swenson, Emil S.: See—
Koski, William L.; and Swenson, Emil S., 3,827,251.

Swenson, Henry F. Axially actuated back spot facing tool. 3,827,821, Cl. 408-59.000.

Swered, Paul: See—
Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,827,873.

Sycamore Manufacturing Company, Inc.: See—
Blouch, John H., 3,827,843.

Syntax (U.S.A.) Inc., mesne: See—
Marx, Michael; and Edwards, John A., 3,828,034.

Syntax Corporation: See—
Nelson, Peter H., 3,828,033.

Syntax Rubber Corporation: See—
Kirik, Edward F., 3,827,631.

Taber, Clyde E., III: See—
Ward, Henry D., Jr.; Ward, William F.; and Taber, Clyde E., III, 3,827,576.

Tadanier, John Solomon; and Martin, Jerry Roy, to Abbott Laboratories. 10,11-Anhydroerythromycins. 3,828,022, Cl. 260-210.00e.

Tahara, Tetsuya: See—
Nakanishi, Michio; Tahara, Tetsuya; Araki, Kazuhiko; and Shiroki, Masami, 3,828,039.

Tajkowski, Edward G.: See—
Gilleo, Kenneth B.; Jones, Edward S.; and Tajkowski, Edward G., 3,828,098.

Takahashi, Isao: See—
Nakayama, Norihiko; Osawa, Mitsuoki; Mizuko, Kiyoo; and Takahashi, Isao, 3,827,776.

Takahashi, Kentaro; Hasegawa, Minoru; and Nara, Kaoru, to Nippon Piston Ring Co., Ltd. Thermal and abrasion resistant sintered alloy. 3,827,863, Cl. 29-182.000.

Takahashi, Yasuhiro; and Saita, Osamu, to Ricoh Co., Ltd. Developer apparatus. 3,827,394, Cl. 118-2.000.

Takatsu, Mitsumune: See—
Tanaka, Tatsuro; Terada, Masaki; Takatsu, Mitsumune; and Otani, Shohei, 3,827,939.

Takayama, Katsuki: See—
Kobashi, Uichiro; Inada, Masami; and Takayama, Katsuki, 3,827,763.

Takechi, Hiroshi; Masui, Hiroaki; Kawaharada, Minoru; and Sugiyama, Motoaki, to Nippon Steel Corporation. High-strength rolled steel sheets. 3,827,924, Cl. 148-36.000.

Takeda, Masashi: See—
Okada, Takashi; Ogawara, Yoshiaki; and Takeda, Masashi, 3,828,266.

Takemura, Akira: See—
Yamazaki, Shingo; Takemura, Akira; Kojima, Kazumi; Nishimura, Masato; Tsuchida, Teruo; and Yonemoto, Tadashi, 3,828,003.

Takesue, Masatoshi: See—
Orito, Zen-Ichi; Sugimoto, Hiroshi; Uchida, Minoru; Sahara, Hajime; Takesue, Masatoshi; and Nishida, Kiyoharu, 3,827,932.

Takeuchi, Hideo: See—
Fuma, Toyozo; Takeuchi, Hideo; and Ikeda, Susumu, 3,827,188.

Talbot, Alfred F.: See—
Thompson, Robert M.; and Talbot, Alfred F., 3,827,980.

Talbot, William Carl; and Lindsey, Cornelius. Educational device. 3,827,160, Cl. 35-9.00r.

Tamai, Yasuo: See—
Sato, Masamichi; and Tamai, Yasuo, 3,827,906.

Tammy, Simon Z.: See—
Hamilton, William M.; Reighard, Alan B.; and Tammy, Simon Z., 3,827,604.

Reighard, Alan B.; Rosen, Samuel R.; Schroeder, Ronald R.; and Tammy, Simon Z., 3,827,603.

Tamura, Mitsuo: See—
Moriguchi, Shigeru; Tamura, Mitsuo; and Saito, Yuzi, 3,827,190.

Tamura, Reish: See—
Kishino, Shunji; Abe, Takahiro; Tamura, Reish; and Amano, Hiroshi, 3,827,271.

Tamura, Reish: See—
Kishino, Shunji; Abe, Takahiro; and Tamura, Reish, 3,827,273.

Tanaka, Susumu; Enoguchi, Yuji; and Fujiwara, Takao, to Minolta Camera Kabushiki Kaisha. Apparatus for transferring electrostatic latent images in electrophotographic copiers of image transfer type. 3,827,800, Cl. 355-3.00r.

Tanaka, Susumu; Enoguchi, Yuji; and Fujiwara, Takao, to Minolta Camera Kabushiki Kaisha. Electrophotographic copier of image transfer type. 3,827,801, Cl. 355-15.000.

Tanaka, Tatsuro; Terada, Masaki; Takatsu, Mitsumune; and Otani, Shohei, to Nissin Shokuhin Kaisha, Ltd. Process for making a protease for foodstuffs. 3,827,939, Cl. 195-66.00r.

Tanaka, Yoshinori: See—
Nakamura, Tadahiko; and Tanaka, Yoshinori, 3,828,174.

Taniguchi Kojiro: See—
Shimoda, Yasunori; and Taniguchi Kojiro, 3,827,920.

Tanihata, Akio; and Abe, Norio, to Bridgestone Tire Company, Limited. Tire valve core mounting apparatus. 3,827,127, Cl. 29-240.000.

Tarter, James H., to Continental Oil Company. Vehicle and vehicle control system. 3,827,454, Cl. 137-344.000.

Tartter, Arnold, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Alkoxyalkylamino salts of disazo acid dyes. 3,828,020, Cl. 260-191.000.

Tatano, Toshio: See—
Shimizu, Yoshiaki; Tatano, Toshio; Akiyama, Yoshiyuki; and Yamaguchi, Akira, 3,827,936.

Tax, Hans. Partly reversible auditorium. 3,827,199, Cl. 52-10.000.

Taylor, Anna J. Thread dispensing bobbin. 3,827,653, Cl. 242-137.100.

Tecno S.p.A. Mobili e forniture per arredamento: See—
Fantoni, Marco, 3,827,750.

Tecumseh Products Company: See—
Steele, Duane F., 3,827,314.

Telefonaktiebolaget LM Ericsson: See—
Endersz, Gyorgy Geza, 3,828,282.

Teletype Corporation: See—
Hagstrom, Arthur A.; and Yamashita, Takeshi, 3,828,153.

Temple University: See—
Labs, Mortimer M., 3,827,780.

Templeton, Raymond E. Tricycle drive train. 3,827,705, Cl. 280-7.150.

Tenneco Chemicals, Inc.: See—
Minieri, Pasquale P., 3,828,067.
Minieri, Pasquale P., 3,828,068.

Terada, Masaki: See—
Tanaka, Tatsuro; Terada, Masaki; Takatsu, Mitsumune; and Otani, Shohei, 3,827,939.

Terasaki, Takeshi: See—
Nishizawa, Jun-Ichi; and Terasaki, Takeshi, 3,828,230.

Terbrack, William H.: See—
Labarber, James P.; Shade, Ross A.; and Terbrack, William H., 3,828,279.

Terlecky, Boris S.; and Grob, Leonardus F. A., to ACF Industries, Incorporated. Container securing means for railway flat cars. 3,827,375, Cl. 105-366.00d.

Terral, Ben D., to Camco, Incorporated. Latch for retrievable flow control devices. 3,827,493, Cl. 166-215.000.

Terwilliger, James P.; Gingello, Anthony D.; and Tinney, John R., to Eastman Kodak Company. Apparatus and process for combining chemically compatible solutions. 3,827,888, Cl. 96-107.000.

Terzuoli, Dominick. Apparatus for producing paper bags. 3,827,396, Cl. 118-44.000.

Tex, Karel Den; Jensen, Donald F.; Ricklefs, Merlin J.; Saltz, Fred; Schmidt, Jon J.; and Stacy, Phillip S., to International Business Machines Corporation. Pneumatically controlled document card punch. 3,827,628, Cl. 234-18.000.

Tex-Trans, Inc.: See—
Ulrich, Bernhard, Jr., 3,827,239.

Texaco Development Corporation: See—
Paull, Peter L.; and Kerr, Paul F., 3,827,243.

Texaco Inc.: See—
Wilson, Raymond F.; Peck, Reese A.; and Mih, Li C., 3,827,969.

Textron Inc.: See—
Baum, Charles S., 3,827,885.
Voronoff, George N., 3,828,351.

Thaler, Sherwood S. Level sensing device with capacitive gaging transducer. 3,827,300, Cl. 73-304.00c.

Therault, Robert John; and Kohl, William Leonard, to Abbott Laboratories. Microbial conversion of 11-acetylerythromycin B to erythromycin B. 3,827,941, Cl. 195-80.000.

Thiers, Michel: See—
Chabardes, Pierre; Gandilhon, Pierre; Grard, Charles; and Thiers, Michel, 3,828,092.

Thilenius, Thilo: See—
Schwerin, Siegfried; Deubel, Reinhold; and Thilenius, Thilo, 3,827,902.

Thiokol Chemical Corporation: See—
Walters, Fred L., 3,827,204.

Thomas, Robert J., to Dow Chemical Company, The. Polyesters prepared from bisphenols and isopropylidene bis (p-phenyleneoxy) diacetyl chloride. 3,828,006, Cl. 260-47.00c.

Thompson, Floyd G. Binary organ and coding system for operating same. 3,828,108, Cl. 84-1.010.

Thompson, John T.: See—
Gillemot, George W.; and Thompson, John T., 3,827,704.

Thompson, Robert M.; and Talbot, Alfred F., to Sun Research and Development Company. Tertiary diamide based grease. 3,827,980, Cl. 252-28.000.

Thompson, Robert M., to Sun Research and Development Company. Tertiary diamide lubricants. 3,827,981, Cl. 252-51.50a.

Thompson, Thomas C., to Vicra Sterile, Inc. Catheter insertion device. 3,827,434, Cl. 128-214.400.

Thomson-CSF: See—
Drabowitch, Serge; and Daveau, Bernard, 3,828,352.
Laurenceau, Bernard, 3,828,349.

Throckmorton, Peter E.; McKillip, William J.; and Slagel, Robert C., to Ashland Oil, Inc. Process of reacting isocyanate or isothiocyanate and compositions therefor. 3,828,007, Cl. 260-75.00b.

Thyssen Niederrhein AG Hutten-und Walzwerke: See—
Grewer, Rudolf; Hickmann, Herbert; and Welke, Wolfgang, 3,827,584.

Timgren, Leo Anders: See—
Erma, Eero Antero; Fredin, Stig Bertil Arthur; Lindh, Karl Gosta; and Timgren, Leo Anders, 3,827,410.

Tims, Allan C.; and Henriquez, Theodore A., to United States of America, Navy. Piezoelectric end capped cylinder assembly for use to the radial-mode resonance frequency. 3,828,143, Cl. 179-110.00a.

Tinney, John R.: See—
Terwilliger, James P.; Gingello, Anthony D.; and Tinney, John R., 3,827,888.

- Tixier, Rene, to Societe Generale de Recherches et d'Applications Scientifiques (SOGERAS). Alkylsulfonic derivatives of quinine alkaloids. 3,828,048, Cl. 260-284.000.
- Tokyo Shibaura Electric Company, Ltd.: See—
Horiike, Yasuhiro; Shirouzu, Shunji; Tsuji, Shigeo; and Harada, Nozomu, 3,828,232.
- Tom, Theodore K., to Veeco Instruments Inc. Sputter-ion pump. 3,827,829, Cl. 417-49.000.
- Tomcufcik, Andrew Stephen; Izzo, Patrick Thomas; and Fabio, Paul Frank, to American Cyanamid Company. 6-Substituted 3-nitroimidazo (1,2-beta) pyridazines and method of preparing same. 3,828,041, Cl. 260-250.0ac.
- Tomlinson, Kenneth: See—
Mitchell, Harry Ian; and Tomlinson, Kenneth, 3,827,983.
- Toppan Company, The: See—
Stratman, Jerome F.; and Novak, John, 3,827,352.
- Torbeck, Johann: See—
Heitmann, Bob; Kasperek, Alois; and Torbeck, Johann, 3,827,757.
- Toro Company, The: See—
Hunter, Edwin J., 3,827,459.
- Torsch, Charles E., to GTE Sylvania Incorporated. Deflection yoke mounting means. 3,828,287, Cl. 335-210.000.
- Toth, Louis R.; Hagler, Ray, Jr.; and Keller, Orville F., to California Institute of Technology. Full flow fluid filter. 3,827,568, Cl. 210-448.000.
- Toti, Andrew J. Row crop harvesting machine. 3,827,222, Cl. 56-330.000.
- Towmotor Corporation: See—
Shaffer, Walter M., 3,827,528.
- Townsend, Donald I.: See—
Henley, Terry L.; Henley, Frederick A.; and Townsend, Donald I., 3,827,467.
- Townsend, Warren R., Jr. Carrier apparatus for motor vehicles. 3,827,589, Cl. 214-450.000.
- Toyama, Minoru: See—
Matsushita, Kazuo; Nishizawa, Koichi; and Toyama, Minoru, 3,827,785.
- Toyoko Kogyo Company Limited: See—
Morita, Yasuyuki, 3,827,417.
- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
Kobayashi, Ikuya, 3,828,308.
Noguchi, Masaaki; and Kawahara, Takezo, 3,827,732.
Sakurai, Katsuo; and Chofuku, Jiro, 3,827,713.
Suzuki, Ichiro; and Watanabe, Hiroyuki, 3,827,712.
- Transportation Technology, Inc.: See—
Close, David E., 3,828,236.
- Trattner, Hermann; and Raab, Hans, to Siemens Aktiengesellschaft. Apparatus for tinning electrical circuit wires and the like. 3,827,398, Cl. 118-58.000.
- Treber, Willy O.: See—
Herr, Gerhard; and Treber, Willy O., 3,827,748.
- Triumph Werke Nuernberg A.G.: See—
Blum, Rudolf, 3,827,542.
- Troque, Francois Jean, to Entreprise de Recherches d'Activites Petrolieres Elf. Device for the automatic adjustment of the amplitude of signals. 3,828,262, Cl. 328-175.000.
- Tropp, Karl; Durth, Wilfried; and Jakob, Heinrich, to Burger Eisenwerke Aktiengesellschaft. Food-treatment apparatus with grease-collection hood for air circulator. 3,827,346, Cl. 99-446.000.
- Trub, Jean: See—
Kneller, Klaus; Trub, Jean; and Gregoire, Francois, 3,827,842.
- TRW Inc.: See—
Heflinger, Lee O.; and Wuerker, Ralph F., 3,828,275.
Lubowitz, Hyman R., 3,827,927.
- Tsuchida, Eishun: See—
Shinohara, Isao; Tsuchida, Eishun; and Mizoguchi, Katsuhiko, 3,828,008.
- Tsuchida, Teruo: See—
Yamazaki, Shingo; Takemura, Akira; Kojima, Kazumi; Nishimura, Masato; Tsuchida, Teruo; and Yonemoto, Tadashi, 3,828,003.
- Tsugeki, Toshi: See—
Amagami, Keizo; Tsugeki, Toshi; Ogo, Yasuo; Mitani, Yoshinori; Ueda, Hiromutsu; Nishida, Takeo; and Ono, Atsuo, 3,828,163.
- Tsuji, Shigeo: See—
Horiike, Yasuhiro; Shirouzu, Shunji; Tsuji, Shigeo; and Harada, Nozomu, 3,828,232.
- Tsukamoto, Masatoshi: See—
Kinugasa, Hiroaki; Tsukamoto, Masatoshi; Mizuta, Hiroyuki; and Uno, Hitoshi, 3,828,030.
- Tsurushima, Katsuki, to Sony Corporation. Muting circuit. 3,828,267, Cl. 330-29.000.
- Tsuruta, Hidemasa; and Makiguchi, Michinori, to Nittetu Chemical Engineering Ltd. Rotary kiln type solid waste incinerating system and method. 3,827,379, Cl. 110-14.000.
- Tsvetkov, Oleg Nikolaevich: See—
Samoilov, Sergei Mikhailovich; Ivanov, Vladimir Ivanovich; Zambrovskaya, Galina Vladimirovna; Tsvetkov, Oleg Nikolaevich; Monastyrsky, Viktor Nikolaevich; Bepalov, Evgeny Ivanovich; Gryaznov, Boris Vasilievich; and Molchanov, Boris Vladimirovich, 3,828,01.
- Tulowiecki, David: See—
Mandy, Zoltan P.; Akerhielm, George; and Tulowiecki, David, 3,827,481.
- Tuppo, Robert: See—
Greenwald, Harry; and Tuppo, Robert, 3,827,541.
- Turner, Robert L.: See—
English, Myrle H.; Goodstal, Laurence; Leek, Wayne E.; Sanzo, Robert J.; Turner, Robert L.; Workman, Clark B.; and Yetter, Edward W., 3,827,334.
- Tveter, Richard S.: See—
Himmelstein, Sydney; and Tveter, Richard S., 3,827,506.
- Ube Industries Ltd.: See—
Masaki, Mitsuo; Fikui, Kiyoshi; Kita, Jyun'ichiro; and Uchida, Izu-hiko, 3,828,028.
- Uchida, Hiromu; and Yanabu, Osamu, to Nippon Steel Corporation. Surface treated steel plate. 3,827,866, Cl. 29-195.000.
- Uchida, Izu-hiko: See—
Masaki, Mitsuo; Fikui, Kiyoshi; Kita, Jyun'ichiro; and Uchida, Izu-hiko, 3,828,028.
- Uchida, Minoru: See—
Orito, Zen-Ichi; Sugimoto, Hiroshi; Uchida, Minoru; Sahara, Hajime; Takesue, Masatoshi; and Nishida, Kiyoharu, 3,827,932.
- Ueda, Hiromutsu: See—
Amagami, Keizo; Tsugeki, Toshi; Ogo, Yasuo; Mitani, Yoshinori; Ueda, Hiromutsu; Nishida, Takeo; and Ono, Atsuo, 3,828,163.
- Ueno, Atsuyuki: See—
Okubo, Katsuhiko; and Ueno, Atsuyuki, 3,827,964.
- Uhl, Lothar J., administrator: See—
Hebberling, Friedrich, deceased, 3,827,397.
- Ulrich, Bernhard, Jr., to Tex-Trans, Inc. Hydraulic power transmission and braking system for vehicles. 3,827,239, Cl. 60-420.000.
- Underwood, Raymond D., to Royco Instruments, Inc. Hemacrit measuring apparatus. 3,828,260, Cl. 328-151.000.
- Union Special Maschinenfabrik GmbH: See—
Baanstra, Theo Meindert; Von Hagen, Wolf-Rudiger; and Niem, Wolfgang, 3,827,381.
- United Aircraft Corporation: See—
Andrews, Laurance R., 3,827,965.
- United Glass Limited: See—
Budd, Sidney Maurice, 3,827,871.
- United Kingdom of Great Britain and Northern Ireland, Secretary of State for the Environment in Her Britannic Majesty's Government of the: See—
Moore, Ronald Leslie; and Mace, Dennis Geoffrey Wallace, 3,828,220.
- United States of America
Agriculture: See—
Byrne, Geoffrey A.; and Arthur, Jett C., Jr., 3,827,858.
Finley, John W.; Hautala, Earl; and Walker, Charles E., 3,828,017.
Kenney, Harold E.; and Donahue, Edward T., 3,828,086.
Pittman, Allen; and Wasley, William L., 3,828,087.
- Air Force: See—
Pickett, David F., 3,827,911.
Skelton, John; and Freeston, W. Denney, Jr., 3,827,904.
- Army: See—
Borg, Henry A., 3,827,289.
Buser, Rudolf G.; and Kaunzinger, Helmuth M., 3,828,250.
Lee, Richard A.; and Lins, William F., 3,828,170.
Lewis, Herbert J.; and Ziegler, William H., 3,827,335.
McCauley, James W., 3,827,892.
Otto, William F.; and Milton, Richard D., 3,828,277.
- Army, mesne: See—
Zenchowitz, Alvin L.; Xenakis, James A.; Barbieri, John D.; and Chang, Nai Chai, 3,827,361.
- Atomic Energy Commission: See—
Boldt, Allyn L., 3,828,197.
Cairns, Elton J.; Shimotake, Hiroshi; and Selman, Jan R., 3,827,910.
Grimmett, Earl S.; and Lamont, Philip E., 3,827,946.
Knoll, Glenn F., 3,827,427.
Krawetz, Barton, 3,828,274.
Scott, Charles D., 3,827,989.
- Interior: See—
McCawley, Frank X.; Wyche, Charlie; and Schlain, David, 3,827,954.
- National Aeronautics and Space Administration: See—
Monford, Leo G., Jr., 3,828,137.
- National Aeronautics and Space Administration; Administrator; with respect to an invention of:
Gutshall, Richard L.; McCauley, Randall T.; and Volpe, Frank A. Stars scanner. 3,827,807, Cl. 356-141.000.
Lindsey, William C.; and Simon, Marvin K. Coherent receiver employing nonlinear coherence detection for carrier tracking. 3,828,138, Cl. 179-15.0bc.
- Nakich, Robert B. Digital servo control of random sound test excitation. 3,827,288, Cl. 73-69.000.
- Navy: See—
Detting, Ronald F.; Bush, John E.; and Zulkowski, Thomas R., 3,827,656.
Dilby, Clell A., Jr., 3,828,134.
Huggett, Clayton M., 3,827,362.
Humphrey, Samuel A.; and Kissinger, Charles W., 3,827,655.
Sherby, Oleg D.; Huseby, Irvin C.; and Whalen, Robert E., 3,827,921.
Tims, Allan C.; and Henriquez, Theodore A., 3,828,143.
Winer, Allen; and Proodian, Robert E., 3,827,383.
- Navy, mesne: See—

- Cusick, John H.; Brown, Alvin E.; Hamamoto, A.I.S.; and Bellin, Jack L. S., 3,827,619.
- United States Steel Corporation: See—
Boggs, William E.; Boro, Franklin; Linderman, William A.; and Snow, Roland B., 3,827,922.
- Hudson, Robert M.; Perry, Paul E.; and Warning, Clair J., 3,827,903.
- University of California, The Regents of the: See—
Chen, Pictaw, 3,827,221.
- Uno, Hitoshi: See—
Kinugasa, Hiroaki; Tsukamoto, Masatoshi; Mizuta, Hiroyuki; and Uno, Hitoshi, 3,828,030.
- Unterberger, Robert R., to Chevron Research Company. Method of mapping bedding interfaces in a permafrost zone of an earth formation by electromagnetic radiation. 3,828,245, Cl. 324-6.000.
- Upjohn Company, The: See—
Abbate, Franklin W.; and Farrissey, William J., Jr., 3,828,047.
- Uramoto, Tatsuro, to Kabushiki Kaisha Seisan. Reclosable bag. 3,827,472, Cl. 150-3.000.
- Urani, Angelo, to McGraw-Edison Company. Protector for electric circuit. 3,828,291, Cl. 335-201.000.
- U.S. Industries, Inc.: See—
Allen, Dee Dexter, 3,827,405.
- U.S. Philips Corporation: See—
Alber, Karl; and Seifert, Volker, 3,828,249.
- Ushioda, Shunta: See—
Kanai, Tomiyoshi; and Ushioda, Shunta, 3,827,864.
- USM Corporation: See—
DeVita, Raymond A.; Dorosz, Adolph S.; and Scaletti, Henry M. Jr., 3,827,382.
- Utting, Kenneth: See—
Quick, John Kirby; Richardson, Kenneth; and Utting, Kenneth, 3,828,074.
- Vacek, Lubomir C., to Sherwin-Williams Company. Method for producing isatoic anhydride and 3-azaisatoic anhydride. 3,828,038, Cl. 260-244.00a.
- Valadon, Michel Marcel: See—
Pennec, Jean-Claude; and Valadon, Michel Marcel, 3,827,184.
- Valbonesi, Giuseppe: See—
Perna, Aldo; and Valbonesi, Giuseppe, 3,828,136.
- van de Gent, Edouard, to Priatex. Method for manufacturing shopping-bags and device for the working thereof. 3,827,928, Cl. 156-423.000.
- Van Haarlem, Adriaan: See—
Nap, Cornelis; Van Haarlem, Adriaan; and Ruempol, Emile O. H. M., 3,827,967.
- Van Helleputte, Roger Joseph Victor, to Em D'Hooge N.V., naamloze vennootschap. Device for automatic opening, respectively closing of a curved sliding door or similar with regard to a concentric opening. 3,827,182, Cl. 49-40.000.
- Van Horn, Robert Eldon. Intensifier system. 3,827,830, Cl. 417-225.000.
- Van Pol, Jan Huibert Leonard Philomena: See—
Mulder, Herman; Van Pol, Jan Huibert Leonard Philomena; and Hakkeling, Berend, 3,827,224.
- Vanderberg, Lawrence J.: See—
Burgett, James F.; and Vanderberg, Lawrence J., 3,828,254.
- Vandling, John M., to Singer Company, The. Modulated light communication system. 3,828,185, Cl. 250-199.000.
- Vann, Robert D.: See—
Livenick, Corwin E.; Malinowski, Stanley; and Vann, Robert D., 3,828,210.
- Vann, Robert M. Electromagnetic induction exploration guide assembly. 3,828,242, Cl. 324-3.000.
- Varga, John Maximilian Jules, to Carding Specialists (Canada) Limited. Apparatus for controlling the count of a sliver fed from a carding machine. 3,827,106, Cl. 19-240.000.
- Varian Associates: See—
Hyde, James Stewart, 3,828,244.
Ward, Stanley H., 3,828,243.
- Vassiliou, Eustachios: See—
Duggins, Ray B.; Miller, Henry C.; and Vassiliou, Eustachios, 3,827,933.
- Vaughn, Rudolph Marion; and Harney, David M. Safety vest. 3,827,716, Cl. 280-150.0ab.
- Veeco Instruments Inc.: See—
Tom, Theodore K., 3,827,829.
- Veit, Paul: See—
Suttan, Franz; Veit, Paul; and Rauber, Oskar, 3,827,275.
- Velsicol Chemical Corporation: See—
Krenzer, John, 3,827,875.
- Venanzetti, Michele, to Venanzetti Vibrazioni S.p.A. Particulate material conveyor. 3,827,159, Cl. 34-164.000.
- Venanzetti Vibrazioni S.p.A.: See—
Venanzetti, Michele, 3,827,159.
- Vereingte Flugtechnische Werke-Fokker Gesellschaft mit beschrankter Haftung: See—
Schwarzler, Hans-Jurgen, 3,827,657.
- Vereingte Osterreichische Eisen-und Stahlwerke Alpin Montan Aktiengesellschaft: See—
Enkner, Bernhard, 3,827,583.
- Vetco Offshore Industries, Inc.: See—
Hynes, Joseph H., 3,827,728.
- Vetere, John J.: See—
Shaffer, John W.; and Vetere, John J., 3,827,850.
- Vicra Sterile, Inc.: See—
Thompson, Thomas C., 3,827,434.
- Victor Limited: See—
Seidel, David Paul, 3,827,220.
- Vidal, Roger; and Gourmandy, Raymond, to Societe Rhodiaca. Process for simultaneously texturizing a plurality of yarns. 3,827,113, Cl. 28-72.140.
- Vigil, Jacob F.; Billard, Stephen L.; Oropesa, Joel T.; and Armstrong, Ralph W., Jr., to Burroughs Corporation. Fail-soft interrupt system for a data processing system. 3,828,324, Cl. 340-172.500.
- Villar Echevarria, Jesus; and Villar Lopez, Jesus. Geographical timepiece or clock. 3,827,233, Cl. 58-44.000.
- Villar Lopez, Jesus: See—
Villar Echevarria, Jesus; and Villar Lopez, Jesus, 3,827,233.
- Vinten, W., Limited: See—
Wolff, Heinz, 3,828,252.
- Virmoche, Paul R.: See—
Kufir, Frederick W.; Virmoche, Paul R.; Allen, Donald J.; Gokey, Phillip E.; and Rose, Frederick A., 3,827,378.
- Viscose Development Company, Limited: See—
Spelman, Dennis Gerald; Kent, Bromley; and Jones, David Thomas, 3,827,591.
- Visser, Peter J., to Clark Equipment Company. Load handling apparatus. 3,827,743, Cl. 294-67.0bb.
- Vitali, Romano: See—
Ercoli, Alberto; Gardi, Rinaldo; and Vitali, Romano, 3,828,081.
- Vitzthum, Otto; Hubert, Peter; and Barthels, Manfred, to Hag Aktiengesellschaft. Flame ionization detector for supercritical fluid chromatography. 3,827,859, Cl. 23-254.0ef.
- Vocon, Inc.: See—
Grolitzer, Arthur J., 3,828,186.
- Voegli, Ernst, to Faltag AG. Mobile room dividing structure. 3,827,196, Cl. 52-64.000.
- Vogelgesang, Peter J.; Alexander, Jerry L.; and Lunquist, Frank C., to Minnesota Mining and Manufacturing Company. Template for a graphic forming device. 3,828,359, Cl. 354-15.000.
- Volkswagenwerk Aktiengesellschaft: See—
Kirsch, Klaus; and Grotewold, Werner, 3,828,247.
- Volpe, Frank A.: See—
United States of America, National Aeronautics and Space Administration, 3,827,807.
- Volsy, Robert, to Commissariat a l'Energie Atomique. Electrostatic precipitator for the collection of particles contained in a gas. 3,827,217, Cl. 55-121.000.
- Von Bonin, Wulf, to Bayer Aktiengesellschaft. Production of foamed silicate moldings where the foamable composition is gelled prior to foaming. 3,827,869, Cl. 65-22.000.
- Von Hagen, Wolf-Rudiger: See—
Baanstra, Theo Meindert; Von Hagen, Wolf-Rudiger; and Niem, Wolfgang, 3,827,381.
- Voorhees, Steven C.: See—
Liberman, Harvey W.; Harvey, Samuel E.; and Voorhees, Steven C., 3,827,587.
- Voronoff, George N., to Textron, Inc. Broadband spiral antenna. 3,828,351, Cl. 343-740.000.
- Vralstad, Tor: See—
Johnsen, John Normann; and Vralstad, Tor, 3,827,143.
- Vutz, Norman; and Brown, Donald, to Westinghouse Air Brake Company. Fluid pressure system for converting digital signals to analog signals. 3,827,457, Cl. 137-599.000.
- Waak, Gerald A., to Aluminum Specialty Company. Toy mixer. 3,827,824, Cl. 415-69.000.
- Wagner Electric Corporation: See—
Atkins, Carl E., 3,828,273.
Fleagle, Joseph E., 3,827,760.
Smith, Arthur H., 3,827,526.
- Wahl, Josef: See—
Linder, Ernst; Zechall, Richard; Wahl, Josef; and Schmidt, Peter Jurgen, 3,827,237.
- Waitzman, Dennis Carl, to Chrysler Corporation. Exhaust recirculation. 3,827,412, Cl. 123-119.00a.
- Walbrohl, Heinz-Theo. Form for producing a concrete lining of mine galleries tunnels, shafts or the like. 3,827,244, Cl. 61-84.000.
- Waldes Kohinoor, Inc.: See—
Erdmann, Hans, 3,827,598.
- Walford, Gordon L.: See—
Beattie, Thomas R.; Ruyle, William V.; Shen, Tsung-Ying; Walford, Gordon L.; and Walton, Edward, 3,828,021.
- Walker, Charles E.: See—
Finley, John W.; Hautala, Earl; and Walker, Charles E., 3,828,017.
- Walker, Dale E., to Peabody Gordon-Piatt, Inc. Combination, oil, gas and/or solid burner. 3,827,851, Cl. 431-175.000.
- Wallace, Leonard M., to Iowa State University Research Foundation, Inc. System for remote monitoring of tower lighting system. 3,828,334, Cl. 340-251.000.
- Walldorf, Juan Belart, to ITT Industries, Inc. Master cylinder for a two-circuit brake system. 3,827,242, Cl. 60-552.000.
- Wallshein, Melvin. Orthodontic coil and retaining device utilizing the same. 3,827,146, Cl. 32-14.00e.
- Walters, Fred L., to Thiokol Chemical Corporation. Sealed joint for sectionalized flooring and method of making the same. 3,827,204, Cl. 52-396.000.
- Walters, Russell W., to BMR Security Products Corporation. Bar lock assembly. 3,827,266, Cl. 70-104.000.

Walton, Edward: *See*—
Beattie, Thomas R.; Ruyle, William V.; Shen, Tsung-Ying; Wal-
ford, Gordon L.; and Walton, Edward, 3,828,021.

Wandel u. Goltermann: *See*—
Schuon, Eberhard; and Wandel u. Goltermann, 3,828,255.

Wanke, Harold R.: *See*—
Seborg, Earnest Y.; and Wanke, Harold R., 3,827,683.

Warburton, Joe Allen; and Wilson, Henry Lewis, to General Electric
Company. High temperature resistant electrical conductor, and
method of producing same. 3,828,119, Cl. 174-121.00a.

Ward, Daniel. Music teaching device. 3,827,330, Cl. 84-472.000.

Ward Foods, Inc.: *See*—
Farmer, John, 3,827,909.

Ward, Henry D., Jr.; Ward, William F.; and Taber, Clyde E., III. Auto-
matic stack feeder. 3,827,576, Cl. 214-6.00d.

Ward, Robert L.; and Welch, Willie M., 50% to Gang-Nail Truss Com-
pany. Trim saw mounting bracket assembly. 3,827,325, Cl. 83-
461.000.

Ward, Stanley H., to Varian Associates. Apparatus and method for
electromagnetic geophysical exploration. 3,828,243, Cl. 324-.50r.

Ward, William F.: *See*—
Ward, Henry D., Jr.; Ward, William F.; and Taber, Clyde E., III,
3,827,576.

Waring, Wilson Shaw: *See*—
Kay, Ian Trevor; Peacock, Frederick Charles; and Waring, Wilson
Shaw, 3,828,043.

Warneke, Richard J. Device for attachment to the wheel of a bicycle.
3,827,178, Cl. 46-191.000.

Warner-Lambert Company: *See*—
Ercoli, Alberto; Gardi, Rinaldo; and Vitali, Romano, 3,828,081.

Zinnes, Harold; and Lindo, Neil A., 3,828,055.

Zinnes, Harold; and Lindo, Neil A., 3,828,073.

Warning, Clair J.: *See*—
Hudson, Robert M.; Perry, Paul E.; and Warning, Clair J.,
3,827,903.

Warwick Electronics, Inc.: *See*—
Konopka, John G., 3,828,205.

Wasley, William L.: *See*—
Pittman, Allen; and Wasley, William L., 3,828,087.

Pittman, Allen G.; Wasley, William L.; and Jones, Carlton C.,
3,828,005.

Wasson, Burton Kendall; and Rooney, Clarence Stanley, to Merck
Sharp & Dohme (I.A.) Corporation. 3-(3-Substituted amino-2-
hydroxypropoxy)-2-substituted-4-pyranones. 3,828,076, Cl. 260-
345.900.

Watanabe, Hiroyuki: *See*—
Suzuki, Ichiro; and Watanabe, Hiroyuki, 3,827,712.

Watson, M. J.; d/b/a: *See*—
Geihl, Jerry L., 3,827,198.

Watt, Gordon James. Flexible membrane bearing. 3,827,766, Cl. 308-
9.000.

Waugh, Jerry, to Mallory, P. R., & Co. Inc. Head cleaner for cassette
tapes. 3,827,699, Cl. 274-47.000.

Wazawa, Kiyoshi: *See*—
Baba, Kosaku; Wazawa, Kiyoshi; and Hosaka, Akio, 3,828,294.

Weaver, Lumon D. Apparatus for forming box-like article and lid
therefor. 3,827,847, Cl. 425-424.000.

Webb, Robert F., to General Electric Company. Portable microwave
radiation sensing and measuring device. 3,828,251, Cl. 324-72.000.

Weber, Joseph P.: *See*—
Houlgrave, Robert C.; and Weber, Joseph P., 3,827,673.

Wechsler, Richard L., to Bethlehem Steel Corporation. Apparatus for
shrinking collars on a shaft. 3,827,134, Cl. 29-252.000.

Wed. Joh. Verhulst en Zonen B.V.: *See*—
Doomernik, Cornelis, 3,827,257.

Weigh-Tronix, Inc.: *See*—
Bradley, Richard S., 3,827,514.

Weigh-Tronix Incorporated: *See*—
Bradley, Richard S., 3,828,295.

Weiler, Herold J.; and Weiler, John E. Apparatus for making cured tire
tread strip. 3,827,846, Cl. 425-371.000.

Weiler, John E.: *See*—
Weiler, Herold J.; and Weiler, John E., 3,827,846.

Weiner, Robert L.: *See*—
Weiner, Robert L.; Hoge, Henri H.; and Dussan V. Benicio I.,
3,827,477.

Weiner, Robert L.; Hoge, Henri H.; and Dussan V. Benicio I., to
Weiner, Robert L. Method of heating alcoholic beverages. 3,827,477,
Cl. 165-1.000.

Weisz, Paul B.: *See*—
Heinemann, Heinz; and Weisz, Paul B., 3,827,867.

Welch, Willie M.: *See*—
Ward, Robert L.; and Welch, Willie M., 3,827,325.

Welding Institute, The: *See*—
Needham, James Christopher; Ellis, Colin Ronald George; and
Lilly, Rodger Hedley, 3,827,138.

Welke, Wolfgang: *See*—
Grewer, Rudolf; Hickmann, Herbert; and Welke, Wolfgang,
3,827,584.

Welkowsky, Murray Samuel: *See*—
Eseke, James Richard; Morsell, Arthur Lee; Muntz, Eric Phillip;
and Welkowsky, Murray Samuel, 3,828,191.

Welland, John Michael, to Perkin Elmer Limited. Electrical flow-met-
ers. 3,827,299, Cl. 73-204.000.

Welsh, Emery H. Spare tire enclosure. 3,827,521, Cl. 180-54.00a.

Wendelin, Paul O.: *See*—
Ringley, Michael B.; and Wendelin, Paul O., 3,827,934.

Wengel, Gunter, to Memory-Plastic Gunter Wengel. Construction
game. 3,827,177, Cl. 46-31.000.

Wennerberg, Gunnar. Apparatus for measuring a predetermined
characteristic of moving sheet material which accommodates both
tilting and changes in thickness and vertical location of the material.
3,828,248, Cl. 324-34.0tk.

Wennes, Stephen B., to Rogers, Dayton, Manufacturing Company.
Cam stop positioning apparatus. 3,827,685, Cl. 269-229.000.

Wenzel, Dr.-Ing.: *See*—
Wenzel, Werner; Meraikib, Mohammed; Franke, Friedrich H.;
and Konig, Horst, 3,827,878.

Wenzel, Ronald A., to Hilsinger Corporation, The. Spectacle holder.
3,827,790, Cl. 351-123.000.

Wenzel, Werner; Meraikib, Mohammed; Franke, Friedrich H.; and
Konig, Horst, 33 1/3% to Demag A.G., 33 1/3% to Rheinische
Braunkohlenwerke AG, and 33 1/3% to Wenzel, Dr.-Ing. Methods
and apparatus for the reduction of metal ores, particularly iron ores.
3,827,878, Cl. 75-34.000.

Westcom, Inc.: *See*—
Bradbery, Jack L.; Andersen, Todd G.; and Fechalos, William A.,
3,828,314.

Western Electric Company, Incorporated: *See*—
Boggs, Luther Miles; Flichman, Howard John; and Hudson, James
Alphus, Jr., 3,827,287.

Westinghouse Air Brake Company: *See*—
Grundy, Reed H., 3,828,225.

Noble, Peter M., 3,827,533.

Vutz, Norman; and Brown, Donald, 3,827,457.

Westinghouse Electric Corporation: *See*—
Daniel, Michael R., 3,828,283.

Fluet, Francis A., 3,828,169.

Luck, Russell M.; and Gainer, Gordon C., 3,828,000.

Stana, Regis R.; and Markind, Joseph, 3,827,976.

Westinghouse Learning Corporation: *See*—
Parks, James D., 3,827,320.

Westlinning, Hermann; Schwarze, Werner; and Fleischhauer, Horst,
to Deutsche Gold-und Silber-Schneideanstalt vormals Roessler. Rubber
stabilized with phenylenediamine-s-triazines. 3,828,002, Cl. 260-
45.80n.

Weston, David Frederick, to Imperial Chemical Industries Limited.
Applicator for surgical clips. 3,827,277, Cl. 72-410.000.

Weston Instruments, Inc.: *See*—
Lehmann, Joseph L., 3,828,127.

Westvaco Corporation: *See*—
Ringley, Michael B.; and Wendelin, Paul O., 3,827,934.

Whalen, Robert E.: *See*—
Sherby, Oleg D.; Huseby, Irvin C.; and Whalen, Robert E.,
3,827,921.

Whalley, Norman: *See*—
Owen, David Gregory; Robinson, Alfred Henry; and Whalley,
Norman, 3,828,319.

Wheeler, Bryce A., to Hughes Aircraft Company. Dual imaging con-
centric optics. 3,827,778, Cl. 350-55.000.

Wheeler, James E., to Bethlehem Steel Corporation. Method and
device for retaining material within a plunging bell. 3,827,680, Cl.
266-34.00t.

Wheeling-Pittsburgh Steel Corporation: *See*—
Norteman, Samuel L., 3,827,139.

Whirlpool Corporation: *See*—
Janke, Donald E., 3,827,600.

Nordeen, Erwin E.; and Johnson, Milton J., 3,827,103.

White, James T.; and Gumprecht, Donald L., to Reichhold Chemicals,
Inc. Copolymer blends and method of making same. 3,827,995, Cl.
260-29.40r.

Whitley, William P., Jr. Prow tie-down device for boat trailers.
3,827,717, Cl. 280-179.00r.

Whittaker, Dewey E.: *See*—
Johanson, Hans A.; Whittaker, Dewey E.; and Phillippi, Larry R.,
3,828,112.

Whitten Gary Z.; and Rowe, Donald H., to Shell Oil Company. Jet Fuel
process. 3,827,970, Cl. 208-93.000.

Wiberg, Ole. Furniture assembly. 3,827,751, Cl. 297-440.000.

Wick, Richard; Meyer, Rudolf; and Hoffmann, Klaus, to AGFA-
Gevaert Aktiengesellschaft. Continuous ink-jet recording.
3,828,355, Cl. 346-75.000.

Wickler-Kupper-Brauerei KGaA: *See*—
Heimann, Helmut, 3,827,812.

Widdig, Arno; Kuhle, Englebert; Grewe, Ferdinand; Kaspers, Helmut;
Scheinpflug, Hans; and Froberger, Paul-Ernst, to Bayer Aktien-
gesellschaft. Substituted ureidophenylguanidines. 3,828,094, Cl.
260-471.00c.

Widmer, Erich: *See*—
Furst, Andor; Labler, Ludwig; Meier, Werner; Muller, Peter;
Scott, John William; and Widmer, Erich, 3,828,062.

Wieden, Horst; Nogaj, Alfred; and Marzolph, Herbert, to Far-
benfabriken Bayer Aktiengesellschaft. High shrinkage threads, yarn
and fibers from acrylonitrile polymers. 3,828,014, Cl. 260-85.50r.

Wiers, William C., to Automation Industries, Inc. Plural channel
recorder. 3,828,356, Cl. 346-108.000.

Wiesner, Alfredo. Bar-cabinet for the preservation, refrigeration and
distribution of alcoholic and unalcoholic drinks. 3,827,256, Cl. 62-
330.000.

Wiggin, Anthony John, to GKN Sankey Limited. Washing and filling
machines. 3,827,466, Cl. 141-92.000.

Wilber, John A.; Rice, Verner K.; and Buhrke, Rolfe E., to GTE Auto-
matic Electric Laboratories Incorporated. System for reconfiguring
central processor and instruction storage combinations. 3,828,321,
Cl. 340-172.500.

Wilchester, Harry L.: *See*—
Dycus, Dale W.; Malmberg, Earl W.; and Wilchester, Harry L.,
3,827,497.

Wilhelm, Keith A.: *See*—
Mershon, Butler A.; and Wilhelm, Keith A., 3,827,278.

Willers, Eduard, to International Harvester Company. Shift transmis-
sion with slideable gear-engaging sleeve particularly for motor vehi-
cles. 3,827,276, Cl. 74-363.000.

Williams, A. Carey. Antistat and binder for glass fibers. 3,827,900, Cl.
106-287.00s.

Williams, Dick H., to General Motors Corporation. Engine cooling
from exhaust gas turbine. 3,827,523, Cl. 180-68.00r.

Williams, George H., to Burrard Refrigeration Ltd. Chiller for ice rink
refrigeration systems. 3,827,253, Cl. 62-235.000.

Williamson, William A., to Clark Equipment Company. Vehicle drive
steer wheel. 3,827,517, Cl. 180-6.480.

Willson, James R., to Robertshaw Controls Company. Computer cook-
ing means. 3,827,345, Cl. 99-325.000.

Wilson, Henry Lewis: *See*—
Warburton, Joe Allen; and Wilson, Henry Lewis, 3,828,119.

Wilson, John R.: *See*—
Griffin, Dana K.; and Wilson, John R., 3,827,100.

Wilson, Raymond F.; Peck, Reese A.; and Mih, Li C., to Texaco Inc.
Conversion of paraffins. 3,827,969, Cl. 208-89.000.

Winer, Allen; and Proddian, Robert E., to United States of America,
Navy. Salvage method utilizing water emulsified polyester resin and
hollow microspheres. 3,827,383, Cl. 114-50.000.

Winarz, Olgierd S., to Garrett Corporation, The. Unidirectional
diaphragm face seal. 3,827,702, Cl. 277-88.000.

Winn, Donald J., to Phelps Dodge Industries, Inc. Slide-on RF connec-
tor. 3,828,304, Cl. 339-177.00r.

Winsor, Robert Beck, to IEC-Holden Ltd. Variable force hopper gate
actuating mechanism. 3,827,374, Cl. 105-282.00p.

Winther, Charles R.: *See*—
Winther, Harry C., 3,827,393.

Winther, Harry C., 38% to Winther, Walter J., 10% to Winther,
Charles R., 5% to Winther, William J. and 1% to Winther, Shirley M.
Vehicle tire deflation signalling means. 3,827,393, Cl. 116-34.00r.

Winther, Harry C., 38% to Winther, Walter J., 10% to Winther,
Charles R., 5% to Winther, William J. and 1% to Winther, Shirley M.
Mechanically-resetting tire deflation signalling system. 3,828,149,
Cl. 200-61.250.

Winther, Shirley M.: *See*—
Winther, Harry C., 3,827,393.

Winther, Harry C., 38% to Winther, Walter J., 10% to Winther,
Charles R., 5% to Winther, William J. and 1% to Winther, Shirley M.
Mechanically-resetting tire deflation signalling system. 3,828,149,
Cl. 200-61.250.

Winther, Walter J.: *See*—
Winther, Harry C., 3,827,393.

Winther, Harry C., 38% to Winther, Walter J., 10% to Winther,
Charles R., 5% to Winther, William J. and 1% to Winther, Shirley M.
Mechanically-resetting tire deflation signalling system. 3,828,149,
Cl. 200-61.250.

Winther, William J.: *See*—
Winther, Harry C., 3,827,393.

Winther, Harry C., 38% to Winther, Walter J., 10% to Winther,
Charles R., 5% to Winther, William J. and 1% to Winther, Shirley M.
Mechanically-resetting tire deflation signalling system. 3,828,149,
Cl. 200-61.250.

Winer, Gerhard, to Siemens Aktiengesellschaft. Coherent-optical
image converter. 3,828,187, Cl. 250-213.0vt.

Wise, Kenneth J. Dresser for abrasive wheels. 3,827,422, Cl. 125-
37.000.

Wixson, James D. Distillation apparatus. 3,827,945, Cl. 202-177.000.

Woelz, Donald D.: *See*—
O'Callaghan, Gerald F.; and Woelz, Donald D., 3,828,168.

Wojahn, Charles W.: *See*—
Loy, Fred W.; Harms, William J.; Wojahn, Charles W.; and
Karasinski, Frederick, 3,827,465.

Wolds, Keith H.: *See*—
Schumacher, Frederick A.; and Wolds, Keith H., 3,827,421.

Wolfe, Raymond: *See*—
Fischer, Robert Frederick; North, James Clayton; and Wolfe,
Raymond, 3,828,329.

Wolff, Heinz, to Vinten, W., Limited. Meter with audible read-out.
3,828,252, Cl. 324-99.00d.

Wolowodiuk, Walter. Liquid metal heat exchanger. 3,827,484, Cl.
165-161.000.

Wong, Roger W.; and Stewart, Ronald D., to Hewlett-Packard Com-
pany. Microwave transistor package. 3,828,228, Cl. 317-234.00r.

Woodward, Robert Burns. Process for the temporary protection of car-
boxyl groups. 3,828,026, Cl. 260-239.100.

Work Right Products Inc.: *See*—
Rystad, Arnold O., 3,827,737.

Workman, Clark B.: *See*—
English, Myrle H.; Goodstal, Laurence; Leek, Wayne E.; Sanzo,
Robert J.; Turner, Robert L.; Workman, Clark B.; and Yetter,
Edward W., 3,827,334.

Worthington Pump International, Inc.: *See*—
Gilman, Frederick C., 3,827,461.

Wrather, J. D., Jr., mesne: *See*—
Labarber, James P.; Shade, Ross A.; and Terbrack, William H.,
3,828,279.

Wright, Harold Austin, to Arco Polymers, Inc. Impregnation of
polystyrene with trichlorofluoromethane. 3,827,990, Cl. 260-2.50b.

Wroblewski, Lawrence P.: *See*—
Hoagland, Milton B.; and Wroblewski, Lawrence P., 3,827,269.

Wu, Leesui: *See*—
Hills, Vernon Elton; and Wu, Leesui, 3,828,258.

Wubbe, Leo J., to Anderson Company, The. Arm mounted windshield
washer jet. 3,827,101, Cl. 15-250.040.

Wuerker, Ralph F.: *See*—
Heflinger, Lee O.; and Wuerker, Ralph F., 3,828,275.

Wunder-Klein-Donohue Company: *See*—
Ferdelman, Lawrence Joseph; Peters, Joseph A.; and Peterson,
Willard Elvin, 3,827,744.

Wyche, Charlie: *See*—
McCawley, Frank X.; Wyche, Charlie; and Schlain, David,
3,827,954.

Wycoff, Keith H. Tone generator for selective call transmitter.
3,828,272, Cl. 331-40.000.

Wymore, Charles E.: *See*—
Cornier, Sally P.; and Wymore, Charles E., 3,828,023.

Xenakis, James A.: *See*—
Zenchnowitz, Alvin L.; Xenakis, James A.; Barbieri, John D.; and
Chang, Nai Chai, 3,827,361.

Xerox Corporation: *See*—
Mason, Lawrence J., 3,828,222.

Xonics, Inc.: *See*—
Eseke, James Richard; Morsell, Arthur Lee; Muntz, Eric Phillip;
and Welkowsky, Murray Samuel, 3,828,191.

Morsell, Arthur Lee, 3,828,192.

Yaeda, Yasuyuki: *See*—
Ando, Noriaki; Yaeda, Yasuyuki; Furuta, Isao; and Sakata,
Ryuichi, 3,827,991.

Yamagishi, Hidehisa; Yokoi, Fumitoshi; and Kutino, Tsuyoshi, to Nip-
pon Kokan Kabushiki Kaisha. Method of surface treating steel
products with metal powder. 3,827,140, Cl. 29-487.000.

Yamaguchi, Akira: *See*—
Shimizu, Yoshiaki; Tatano, Toshio; Akiyama, Yoshiyuki; and
Yamaguchi, Akira, 3,827,936.

Yamaguchi, Hisashi: *See*—
Ishihara, Masao; Haga, Teruhide; Horiuchi, Hiroshi; Yamaguchi,
Hisashi; and Sugino, Osakazu, 3,827,886.

Yamaguchi, Taihei, to Fuji Electric Company Limited. Data trans-
mitting system. 3,828,130, Cl. 178-69.50r.

Yamaguchi, Takeshi, to Cleland, Ernest K. Apparatus for heating fluids
by means of gas permeable heat generating members. 3,828,161, Cl.
219-382.000.

Yamakawa, Hiroshi: *See*—
Kawano, Reiji; Goda, Kazuhiro; Yamakawa, Hiroshi; and Otsu-
ka, Masayoshi, 3,827,543.

Yamamoto, Akira; Yoshida, Dan; and Onaka, Tatsumi, to Hitachi
Shipbuilding and Engineering Company, Ltd. Abrasive apparatus.
3,827,187, Cl. 51-9.000.

Yamamoto, Hisao; Inaba, Shigeo; Okamoto, Tadashi; Hirohashi,
Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama,
Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, to Sumitomo Chemi-
cal Company, Ltd. Process for preparing benzodiazepine derivatives.
3,828,027, Cl. 260-239.30d.

Yamamoto, Katsuro, to Bridgestone Liquefied Gas Company Ltd.
Method of constructing a low temperature liquefied gas tank of a
membrane type. 3,827,135, Cl. 29-455.000.

Yamamoto, Katsuro, to Bridgestone Liquefied Gas Company, Limited.
Method of constructing a low temperature liquefied gas tank of a
membrane type. 3,827,136, Cl. 29-455.000.

Yamamoto, Michihiro: *See*—
Yamamoto, Hisao; Inaba, Shigeo; Okamoto, Tadashi; Hirohashi,
Toshiyuki; Ishizumi, Kikuo; Yamamoto, Michihiro; Maruyama,
Isamu; Mori, Kazuo; and Kobayashi, Tsuyoshi, 3,828,027.

Yamamoto, Takaya, to Kokusai Denshin Denwa Kabushiki Kaisha.
Light amplifier using a semiconductor. 3,828,231, Cl. 357-30.000.

Yamamoto, Isao; and Obuchi, Akio, to Pioneer Electronic Corpora-
tion. Vibration absorbing support for loudspeaker voice coil bobbin.
3,828,144, Cl. 179-115.5vc.

Yamasaki, Hiroyuki; and Kaida, Masaaki, to Omron Tateisi Electronics
Co. and Bridgestone Tire Company Ltd. Apparatus for detecting the
internal pressure of a tire. 3,828,309, Cl. 340-58.000.

Yamashita, Swizi; and Onishi, Kazuo, to Hitachi, Ltd. Stator for low-in-
ertia DC machines. 3,828,213, Cl. 310-254.000.

Yamashita, Takeshi: *See*—
Hagstrom, Arthur A.; and Yamashita, Takeshi, 3,828,153.

Yamazaki, Shingo; Takemura, Akira; Kojima, Kazumi; Nishimura,
Masato; Tsuchida, Teruo; and Yonemoto, Tadashi, to Nippon Oils
and Fats Company Limited. Flame resistant polymer compositions.
3,828,003, Cl. 260-45.75b.

Yanabu, Osamu: *See*—
Uchida, Hiromu; and Yanabu, Osamu, 3,827,866.

Yapp, William J.: *See*—
Cunningham, Arthur L.; Poovathunkal, Cyriac C.; and Yapp, Wil-
liam J., 3,827,993.

Yetter, Edward W.: *See*—
English, Myrle H.; Goodstal, Laurence; Leek, Wayne E.; Sanzo,
Robert J.; Turner, Robert L.; Workman, Clark B.; and Yetter,
Edward W., 3,827,334.

Yokoi, Fumitoshi: *See*—
Yamagishi, Hidehisa; Yokoi, Fumitoshi; and Kutino, Tsuyoshi,
3,827,140.

Yokoyama, Kanji; and Miwa, Hiroshi, to Hitachi, Ltd. Electronic
tuner. 3,828,285, Cl. 334-14.000.

- Yonemoto, Tadashi: *See—*
Yamazaki, Shingo; Takemura, Akira; Kojima, Kazumi; Nishimura, Masato; Tsuchida, Teruo; and Yonemoto, Tadashi, 3,828,003.
- Yoshida, Dan: *See—*
Yamamoto, Akira; Yoshida, Dan; and Onaka, Tatsumi, 3,827,187.
- Yoshitomi Pharmaceutical Industries, Ltd.: *See—*
Nakanishi, Michio; Tahara, Tetsuya; Araki, Kazuhiko; and Shiroki, Masami, 3,828,039.
- Young, Earl W.: *See—*
Crawford, Wilbur B.; Young, Earl W.; and Happy, Raymond, 3,827,191.
- Young, Ferdinand, Jr.: *See—*
Lowderman, Ernest W.; Barrington, Leland L.; and Young, Ferdinand, Jr., 3,827,267.
- Youngs, Homer S. Soft wall hydrometer. 3,827,306, Cl. 73-450.000.
- Yule Tree Farms: *See—*
Isberg, Jon Lewis, 3,827,353.
- Zaidan Hojin Handotai Kenkyu Shinkokai: *See—*
Nishizawa, Jun-ichi; and Terasaki, Takeshi, 3,828,230.
- Zambrovskaya, Galina Vladimirovna: *See—*
Samoilov, Sergei Mikhailovich; Ivanov, Vladimir Ivanovich; Zambrovskaya, Galina Vladimirovna; Tsvetkov, Oleg Nikolaevich; Monastyrsky, Viktor Nikolaevich; Besspalov, Evgeny Ivanovich; Gryaznov, Boris Vasilievich; and Molchanov, Boris Vladimirovich, 3,828,01.
- Zavatone, James; and Myers, John H., to Federal Paper Board Company, Inc. Packaging machine. 3,827,211, Cl. 53-48.000.
- Zechall, Richard: *See—*
Linder, Ernst; Zechall, Richard; Wahl, Josef; and Schmidt, Peter Jurgen, 3,827,237.
- Zeigler, Paul P.; and Roberts, Sidney G., to Kaiser Aluminum & Chemical Corporation. Aluminum electrical conductor and process for making the same. 3,827,917, Cl. 148-2.000.
- Zelson, Joseph, to Du Pont de Nemours, E. I., and Company. Optical aid for simulated driving of motor vehicles. 3,827,292, Cl. 73-117.000.
- Zenchnowitz, Alvin L.; Xenakis, James A.; Barbieri, John D.; and Chang, Nai Chai, to United States of America, Army, mesne. Settable pneumatic altitude detection equipment. 3,827,361, Cl. 102-70.20r.
- Zenith Radio Corporation: *See—*
Puskas, Jeffrey A., 3,828,257.
- Zenkner, Kurt. Device for thermal afterburning of exhaust air. 3,827,861, Cl. 23-277.00c.
- Zerlin, William Max Erich: *See—*
Sladek, Norbert J.; Petti, Pasquale Ralph; and Zerlin, William Max Erich, 3,828,303.
- Zibold, Karl: *See—*
Faupe, Werner; and Zibold, Karl, 3,827,832.
- Ziegler, Carl: *See—*
Sprague, James M.; and Ziegler, Carl, 3,828,054.
- Ziegler, William H.: *See—*
Lewis, Herbert J.; and Ziegler, William H., 3,827,335.
- Zimmerman, Bryant S.; and Larsen, Bob W. Door assembly. 3,827,183, Cl. 49-383.000.
- Zimmerman, Clarence R. Rod weeder. 3,827,504, Cl. 172-44.000.
- Zinnes, Harold; and Lindo, Neil A., to Warner-Lambert Company. Heterocyclic amides of 4-hydroxy-2H-1-benzothiopyran-3-carboxylic acid 1,1-dioxide. 3,828,055, Cl. 260-294.80c.
- Zinnes, Harold; and Lindo, Neil A., to Warner-Lambert Company. 4-Hydroxy-2H-1-benzothiopyran-3-carboxamides and their corresponding S-oxides. 3,828,073, Cl. 260-327.0th.
- Zirlin, Amnon Dov, to Centre for Industrial Research (CIR) Ltd. Modified microcrystalline cellulose dispersion. 3,827,899, Cl. 106-208.000.
- Zito Company, Inc.: *See—*
Zito, Ralph, Jr., 3,827,915.
- Zito, Ralph, Jr., to Zito Company, Inc., The. In a battery, a halogen retention vent means. 3,827,915, Cl. 136-179.000.
- Zoot, Robert M., to Hughes Aircraft Company. Laser cutting surface. 3,828,159, Cl. 219-121.01m.
- Zuk, Borys, to RCA Corporation. High speed driving circuit for producing two in-phase and two out-of-phase signals. 3,828,206, Cl. 307-254.000.
- Zulkowski, Thomas R.: *See—*
Dettling, Ronald F.; Bush, John E.; and Zulkowski, Thomas R., 3,827,656.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 6TH DAY OF AUGUST, 1974

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

- Besser, John E., A. P. Werts, III, and J. C. Martin. Flexible polyurethane foam. T925,004, 8-6-74, Cl. 260-2.5.
- Bonner, Raymond E., to International Business Machines Corp. Egg monitoring method. T925,003, 8-6-74, Cl. 444-1.
- Chen, Fred F.: *See—*
Chen, Shen S., and P. F. T925,005.
- Chen Shen S., and F. S. Chen. Copolyester hot melt adhesive textile fibers. T925,005, 8-6-74, Cl. 260-75.
- Faw, Wendell G., and R. B. Moore, Jr. Method and apparatus for forming three-dimensional crimp in yarn of continuous length filamentary thermoplastic material. T925,009, 8-6-74, Cl. 28-1.6.
- Grant, Peter M.: *See—*
Harrington, Robert C., Jr., Hood and Grant. T925,008.
- Haller, Henry E., III.: *See—*
Mole, Cecil J., and Haller. T925,001.
- Harrington, Robert C., J. D. Hood, and P. M. Grant. Polyester-cellulose ester powder coating compositions. T925,008, 8-6-74, Cl. 260-16.
- Hood, James D.: *See—*
Harrington, Robert S., Jr., Hood, and Grant. T925,008.
- Imperial Chemical Industries Ltd.: *See—*
Last, Anthony Graham Marshall. T925,007.
- International Business Machines Corp.: *See—*
Bonner, Raymond E. T925,003.
- Last, Anthony Graham Marshall. Imperial Chemical Industries Ltd. Bubble magnetics. T925,007, 8-6-74, Cl. 360-115.
- Martin, James C.: *See—*
Besser, John E., Werts, and Martin. T925,004.
- Mole, Cecil J., and H. E. Haller, III. Westinghouse Electric Corp. Dynamoelectric machine with a superconductive field winding for operation in either a synchronous or an asynchronous mode. T925,001, 8-6-74, Cl. 310-52.
- Moore, Robert B., Jr.: *See—*
Faw, Wendell G., and Moore. T925,009.
- Moore, Robert B., Jr. Fluid jet injector device for a yarn bulk-ing apparatus. T925,006, 8-6-74, Cl. 28-1.3.
- Pierce, Harold C.: *See—*
Rosborough, Robert S., and Pierce. T925,002.
- Rosborough, Robert S., and H. C. Pierce. Film cartridge opening device. T925,002, 8-6-74, Cl. 225-103.
- Werts, Arthur P., III.: *See—*
Besser, John E., Werts, and Martin. T925,004.
- Westinghouse Electric Corp.: *See—*
Mole, Cecil J., and Haller. T925,001.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 6TH DAY OF AUGUST, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Aktlebolaget Flymo: *See—*
Dahlman, Karl R. Re. 28,098.
- Bell Telephone Laboratories, Inc.: *See—*
Nordquist, Walter R., and W. N. Toy. Re. 28,097.
- Dahlman, Karl R., by Flymo Soetele Anonyme, to Aktlebolaget Flymo. Grass cutting machines. Re. 28,098, 8-6-74, Cl. 56-12.8.
- Dahlman, Karl R., by Flymo Soetele Anonyme, to Aktlebolaget Flymo. Grass cutting machines. Re. 28,098, 8-6-74, Cl. 26-12.8.
- Day, Frederick L.: *See—*
Schwartz, Arthur, and Day. Re. 28,103.
- Earle, Fred A., Jr., and C. S. Pound, by E. L. Pound. Oscillating mechanism for tennis ball throwing machine. Re. 28,096, 8-6-74, Cl. 124-1.
- Environment/One Corp.: *See—*
Grace, Richard C. Re. 28,104.
- Global Marine Inc.: *See—*
Knorr, Gordon D. Re. 28,101.
- Grace, Richard C., to Environment/One Corp. Pump storage grinder. Re. 28,104, 8-6-74, Cl. 241-36.
- Hoffmann-La Roche Inc.: *See—*
Rosenberger, Michael, and Saucy. Re. 28,099.
- Knorr, Gordon D., to Global Marine Inc. Air cushion vehicle. Re. 28,101, 8-6-74, Cl. 175-5.
- Le Mark Industries, Inc.: *See—*
Lee, Richard D. Re. 28,106.
- Lee, Richard D., to Le Mark Industries, Inc. Food patty press. Re. 28,106, 8-6-74, Cl. 17-32.
- Lippert, Henry E. Game of chance. Re. 28,108, 8-6-74, Cl. 273-130.
- Long, William H., to Minnesota Mining and Manufacturing Co. Traffic signal remote control system. Re. 28,100, 8-6-74, Cl. 340-34.
- Mayhew, Delbert J., to Minnesota Mining and Manufacturing Co. Filtration mask. Re. 28,102, 8-6-74, Cl. 128-146.2.
- Minnesota Mining and Manufacturing Co.: *See—*
Long, William H. Re. 28,100.
- Minnesota Mining and Manufacturing Co.: *See—*
Mayhew, Delbert J. Re. 28,102.
- Morgan Construction Co.: *See—*
Wilson, Norman A., and Wykes. Re. 28,107.
- Nordquist, Walter R. and W. N. Toy, to Bell Telephone Laboratories, Inc. Time division switching system employing common transmission highways. Re. 28,097, 8-6-74, Cl. 179-15.
- Pound, Carl S.: *See—*
Earle, Fred A., Jr., and Pound. Re. 28,096.
- Rosenberger, Michael, and G. Saucy, to Hoffman-La Roche Inc. 9-Oxo-5-hydroxydecanoic acid lactone. Re. 28,099, 8-6-74, Cl. 260-343.5.
- Saucy, Gabriel: *See—*
Rosenberger, Michael, and Saucy. Re. 28,099.
- Shamban, W. S., & Co.: *See—*
Traub, Henry A. Re. 28,105.
- Schwartz, Arthur: *See—*
Schwartz, Arthur, and Day. Re. 28,103.
- Schwartz, Arthur, and F. L. Day, to Arthur Schwartz. Invalid mobility device. Re. 28,103, 8-6-74, Cl. 128-25.
- Toy, Wing Noon: *See—*
Nordquist, Walter Reinhold, and Toy. Re. 28,097.
- Traub, Henry A., to W. S. Shamban, & Co. Sealing assembly. Re. 28,105, 8-6-74, Cl. 277-165.
- Wilson, Norman A., and R. D. Wykes, to Morgan Construction Company. Rolling mill. Re. 28,107, 8-6-74, Cl. 72-235.
- Wykes, Robert D.: *See—*
Wilson, Norman A., and Wykes. Re. 28,107.

LIST OF PLANT PATENTEEES

- Armstrong Nurseries, Inc.: *See—*
Armstrong, David L. 3,584.
- Armstrong, David L., to Armstrong Nurseries, Inc. Rose plant. 3,584, 8-6-74, Cl. 20.
- Berg, Clayton V. Winter blue juniper. 3,586, 8-6-74, Cl. 50.
- Jackson & Perkins Co.: *See—*
Johnson, Theodore H., and Warriner. 3,585.

- Johnson, Theodore H., and W. A. Warriner, to Jackson & Perkins Co. Rose plant. 3,585, 8-6-74, Cl. 26.
- Merrill, Grant. Variety of nectarine-may queen. 3,581, 8-6-74, Cl. 41.
- Merrill, Grant. Peach. 3,582, 8-6-74, Cl. 43.
- Merrill, Grant. Peach. 3,583, 8-6-74, Cl. 43.
- Warriner, William A.: *See—*
Johnson, Theodore H., and Warriner. 3,585.

LIST OF DESIGN PATENTEES

Andersson Lars M., I. G. M. Strandell, and E. H. O. Svard, to Molnycke AB. Bib or similar article. 232,276, 8-6-74, Cl. D2-226.

Bamburg, Robert A., F. N. Duncan, and R. M. Floyd, to Olin-kraft, Inc. Box blank. 232,303, 8-6-74, Cl. D9-245.

Bauer, Alfred F., to N L Industries, Inc. Bicycle frame. 232,306, 8-6-74, Cl. D12-111.

Bingham, Neely O. Household caddy. 232,280, 8-6-74, Cl. D6-28.

Bledsoe, D. Wayne, and R. A. Cadenhead. Yarn splicer or sim-ilar article. 232,320, 8-6-74, Cl. D47-5.

Bolssevaln, Paul, to Merchant Adventurers Ltd. Ring for use in the construction of a lampshade. 232,321, 8-6-74, Cl. D48-7.

Cadenhead, R. Alton: See—Bledsoe, D. Wayne, and Cadenhead. 232,320.

Capehart Corp.: See—Levine, Robert. 232,288.

Caputo, Mario A., and H. A. Valenta. Jewelry finding. 232,319, 8-6-74, Cl. D45-19.

Casey, Len. Training device for bowling alley. 232,315, 8-6-74, Cl. D34-5.

Chaplin, Richard M. Furniture panel or the like. 232,290, 8-6-74, Cl. D6-193.

Chaplin, Richard M. Furniture drawer front or the like. 232,291, 8-6-74, Cl. D6-193.

Chaplin, Richard M. Furniture panel or the like. 232,292, 8-6-74, Cl. D6-193.

Christian, Hubert E., and D. W. Lee, to Dart Industries, Inc. Nestable plate. 232,293, 8-6-74, Cl. D7-1.

Christian, Hubert E., and D. W. Lee, to Dart Industries Inc. Divided plate. 232,294, 8-6-74, Cl. D7-27.

Cook, Raymon W. Golf putter head. 232,316, 8-6-74, Cl. D34-5.

Dart Industries Inc.: See—Christian, Hubert E., and Lee. 232,293.

Dazey Products Co.: See—McNair, Samuel L. 232,296.

Doyle, Edward J.: See—Waters, Robert S., Doyle, Robers, and Bartram. 232,326.

Doyle, Edward J.: See—Waters, Robert S., Doyle, Robers, and Bartram. 232,327.

Drouin, Thomas R. Supercharger. 232,324, 8-6-74, Cl. D77-1.

Duncan, Farris N.: See—Bamburg, Robert A., Duncan, and Floyd. 232,303.

Durden Enterprises, Ltd.: See—Durden, John G. III. 232,325.

Durden, John G., III, to Durden Enterprises, Ltd. Electro-surgical cautery instrument. 232,325, 8-6-74, Cl. D83-12.

Epstein, Maurice. Head for combination snow brush and ice scraper. 232,299, 8-6-74, Cl. D7-183.

Eubanks Engineering Co.: See—Fimball, Raymond F. 232,323.

Fimball, Raymond F., to Eubanks Engineering Co. Coil winder. 232,323, 8-6-74, Cl. D55-1.

Fischer, Obed. Shelf with telephone receiver support. 232,285, 8-6-74, Cl. D6-136.

Florida Cypress Gardens, Inc.: See—Rutland, James W. 232,317.

Floyd, Roger, M.: See—Bamburg, Robert A., Duncan, and Floyd. 232,303.

Forney Engineering Co.: See—Forney, Ross. 232,312.

Forney, Ross, to Forney Engineering Co. Power line stanchion. 232,312, 8-6-74, Cl. D26-12.

Forrester, Joseph H. Chest of drawers or similar article. 232,287, 8-6-74, Cl. D6-152.

France, George E. Agribuilding cooling pad plenum. 232,310, 8-6-74, Cl. D23-139.

Freed, Marvin J. Screw driver with wire stripper. 232,300, 8-6-74, Cl. D8-87.

Gallo, Richard J. Toothbrush. 232,278, 8-6-74, Cl. D4-15.

Galuten, Jerry H., to Placix Corp. Combined portable bar and removable stand therefor. 232,286, 8-6-74, Cl. D6-144.

Hydrotex Corp.: See—Jones, Judson O. 232,298.

Innes, George C. Combined modular house trailer body and platform. 232,305, 8-6-74, Cl. D12-103.

Intercollecion Development SA: See—Strassle, Alex. 232,281.

International Design Corp.: See—Moretine, Billy. 232,289.

International Seaway Trading Corp.: See—Vargo, John. 232,277.

Jones, Judson O., to Hydrotex Corp. Combined cleaning head and nozzle. 232,298, 8-6-74, Cl. D7-173.

Kirkham, Arthur J. Tent. 232,328, 8-6-74, Cl. D88-3.

Krumholz, Jerrold J.: See—Luzius, Paul L., and Krumholz. 232,318.

Kusan, Inc.: See—Luzius, Paul L., and Krumholz. 232,318.

Lazure, Frank S., to Revolds Metals Co. Container having divider. 232,302, 8-6-74, Cl. D9-219.

Lee, David W.: See—Christian, Hubert E., and Lee. 232,293.

Christian, Hubert E., and Lee. 232,294.

Lee, Edward, to Solv-X Inc. Parts washing device. 232,322, 8-6-74, Cl. D49-1.

Levine, Robert, to Capehart Corp. Cabinet. 232,288, 8-6-74, Cl. D6-154.

Long, James M., to Owens-Corning Fiberglas Corp. Molded panel or similar article. 232,309, 8-6-74, Cl. D18-2.

Luzius, Paul L., and J. J. Krumholz, to Kusan, Inc. Humpty dumpty racer toy. 232,318, 8-6-74, Cl. D34-15.

Madl, Alfred W., to Oster Corp. Electric hair clipper casing. 232,329, 8-6-74, Cl. D95-3.

Manofsky, William L., to Murray Ohio Manufacturing Co., The. Velocipede. 232,307, 8-6-74, Cl. D12-112.

Mantelet, Jean, to Moulinex, Societe Anonyme. Blender. 232,297, 8-6-74, Cl. D7-154.

Markusen, Nancy Reed, to University of Idaho Research Foundation. Convertible play unit. 232,314, 8-6-74, Cl. D34-5.

McNair, Samuel L., to Dazey Products Co. Food seasoning syringe. 232,296, 8-6-74, Cl. D7-106.

Merchant Adventurers Ltd.: See—Bolssevaln, Paul. 232,321.

Molnycke AB: See—Anderson, Lars Marten, Strandell, and Svard. 232,276.

Moretine, Billy, to International Design Corp. Shelf unit. 232,289, 8-6-74, Cl. D6-186.

Moulinex, Societe Anonyme: See—Mantelet, Jean. 232,297.

Murray Ohio Manufacturing Co., The: See—Manofsky, William L. 232,307.

N L Industries, Inc.: See—Bauer, Alfred F. 232,306.

Oberg, Gary R., to Valtest, Inc. Test-scoring machine. 232,311, 8-6-74, Cl. D25-1.

O'Donnell, Thomas P. Blade. 232,301, 8-6-74, Cl. D8-98.

Olinkraft, Inc.: See—Bamburg, Robert A., Duncan, and Floyd. 232,303.

Oster Corp.: See—Madl, Alfred W. 232,329.

Owens-Corning Fiberglass Corp.: See—Long, James M. 232,309.

Placix Corp.: See—Galuten, Jerry H. 232,286.

Reynolds Metals Co.: See—Lazure, Frank S. 232,302.

Robers, Myrle K.: See—Waters, Robert S., Doyle, and Robers. 232,326.

Rogers, Myrle K.: See—Waters, Robert S., Doyle, and Rogers. 232,327.

Rutland, James W., to Florida Cypress Gardens, Inc. Life pre-server jacket. 232,317, 8-6-74, Cl. D34-43.

Shick Inc.: See—Waters, Robert S., Doyle, Robers, and Bartram. 232,326.

Waters, Robert S., Doyle, Rogers, and Bartram. 232,327.

Shuck, Ronald Keith. Wine rack or similar article. 232,284, 8-6-74, Cl. D6-114.

Solv-X Inc.: See—Lee, Edward. 232,322.

Strandell, Inga Gunilla Margareta: See—Andersson, Lars Marten, Strandell, and Svard. 232,276.

Strassle, Alex., to Intercollecion Development SA. Armchair. 232,281, 8-6-74, Cl. D6-31.

Svard, Eric Ove: See—Andersson, Lars Marten, Strandell, and Svard. 232,276.

Totoonchie, Edward Peter, to Versa Wall Inc. Wall partition. 232,308, 8-6-74, Cl. D13-1.

University of Idaho Research Foundation: See—Markusen, Nancy Reed. 232,314.

Valenta, Hilda A.: See—Caputo, Mario A., and Valenta. 232,319.

Valtest, Inc.: See—Oberg, Gary R. 232,311.

Vargo, John, to International Seaway Trading Corp. Shoe. 232,277, 8-6-74, Cl. D2-310.

Versa Wall Inc.: See—Totoonchie, Edward Peter. 232,308.

Vulnovic, Edward. Server for instant coffee or the like. 232,295, 8-6-74, Cl. D7-58.

Wagschal, Edward A. Holder for flower pots or similar arti-cles. 232,282, 8-6-74, Cl. D6-114.

Wagschal, Edward A. Holder for flower pots or similar arti-cles. 232,283, 8-6-74, Cl. D6-114.

Wallach, Mark. Clock or similar article. 232,304, 8-6-74, Cl. D10-22.

Waters, Robert S., E. J. Doyle, M. K. Robers, and N. C. Bartram, to Shick Inc. Hair dryer. 232,326, 8-6-74, Cl. D86-10.

Waters, Robert S., E. J. Doyle, M. K. Robers, and N. C. Bartram, to Shick Inc. Combined housing and carrying case for a hair dryer. 232,327, 8-6-74, Cl. D86-10.

White, Taylor F. Circular crib. 232,279, 8-6-74, Cl. D6-16.

Whitty, Albert J. Animal feeder. 232,313, 8-6-74, Cl. D30-13.

CLASSIFICATION OF PATENTS

ISSUED AUGUST 6, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

98	CLASS 2	628	3,827,143	48	3,827,211	235	Re.28,107	CLASS 90	CLASS 114		
234	3,827,084			88	3,827,212	253	3,827,271	14	3,827,333	50	3,827,383
	3,827,085	43.92	3,827,144	124E	3,827,213	255	3,827,273	34	3,827,334	72	3,827,384
				191	3,827,214	289	3,827,274			85	3,827,385
175	CLASS 4	10A	3,827,145		CLASS 54	342	3,827,275	CLASS 91		91	3,827,386
178	3,827,086	14E	3,827,146	1	3,827,215	410	3,827,277	3	3,827,335	219	3,827,387
192	3,827,088	17	3,827,147		CLASS 55	430	3,827,278	446	3,827,336	235A	3,827,407
		26	3,827,149	95	3,827,216	457	3,827,279	489	3,827,337		
61	3,827,089	61	3,827,148	121	3,827,217	469	3,827,280	491	3,827,338	CLASS 115	
354	3,827,090			179	3,827,218					11	3,827,388
		ISD	3,827,150		CLASS 56	7	3,827,281	152	3,827,339	12A	3,827,389
137	3,827,857	174B	3,827,152	12.8	Re.28,098	40	3,827,283	CLASS 92		12R	3,827,390
184	3,827,858	174F	3,827,151	53	3,827,219	40.5R	3,827,282	35R	3,827,341	70	3,827,391
		178R	3,827,153	320.2	3,827,220	45.1	3,827,284	58.1	3,827,340		3,827,392
		199R	3,827,154	328R	3,827,221	46	3,827,285	CLASS 96		34R	3,827,393
6	3,827,092	228	3,827,155	330	3,827,222	61.4	3,827,286	48QP	3,827,887	CLASS 117	
8R	3,827,093		3,827,156	341	3,827,223	67.8S	3,827,287	SOR	3,827,886	1	3,827,903
11A	3,827,094	329	3,827,157	370	3,827,224	69	3,827,288	107	3,827,888	7	3,827,904
307	3,827,095					71.7	3,827,289	114	3,827,890	17.5	3,827,905
310A	3,827,096	CLASS 34	3,827,159	13	3,827,225	86	3,827,290	114.1	3,827,891	37LE	3,827,906
		164	3,827,158	34R	3,827,226	88.5R	3,827,291	CLASS 98		62.1	3,827,907
1.	CLASS 13	182	3,827,158	52	3,827,227	117	3,827,292	33	3,827,342	201	3,827,908
	CLASS 15	9R	3,827,160	77.45	3,827,228	133R	3,827,293	115	3,827,343	CLASS 118	
40	3,827,097	31A	3,827,161	140G	3,827,229	151	3,827,294	CLASS 99		2	3,827,394
104.8	3,827,098	32	3,827,162		3,827,230	155	3,827,295	325	3,827,345	5	3,827,395
229A	3,827,100	34	3,827,163			160	3,827,296	352	3,827,344	44	3,827,396
229R	3,827,099	37	3,827,164		CLASS 58	194EM	3,827,298	446	3,827,346	50	3,827,397
250.04	3,827,101	48A	3,827,165	21.13	3,827,231	204	3,827,299	CLASS 100		58	3,827,398
317	3,827,102			44	3,827,232	304C	3,827,300	8	3,827,347	64	3,827,399
359	3,827,103	2.5AN	3,827,166	57	3,827,233	356	3,827,301	52	3,827,350	421	3,827,400
		4	3,827,167	68	3,827,235	422GC	3,827,302	53	3,827,348	CLASS 119	
18	3,827,104						3,827,303	98R	3,827,349	1	3,827,401
190	3,827,105	110	3,827,168	13R	3,827,236	425.6	3,827,304	176	3,827,351	15	3,827,402
		125K	3,827,169	274	3,827,237		3,827,305	229A	3,827,352	29	3,827,403
32	Re.28,106	158R	3,827,170	286	3,827,238	450	3,827,306	232	3,827,353	51.11	3,827,404
				420	3,827,239			289	3,827,354	53	3,827,405
240	CLASS 19	69B	3,827,171	521	3,827,240	CLASS 74	3,827,307	CLASS 101		100	3,827,406
74R	3,827,862	94	3,827,172		3,827,241	6	3,827,308	26	3,827,355	CLASS 123	
			3,827,172	552	3,827,242	88	3,827,309	35	3,827,356	8.13	3,827,408
	CLASS 23	23	3,827,173	641	3,827,243	217S	3,827,310	93C	3,827,357	32EA	3,827,409
254EF	3,827,859	43.16	3,827,174			363	3,827,276	228	3,827,358	32.6	3,827,419
258.5	3,827,860	44.95	3,827,175	84	3,827,244	410	3,827,311	CLASS 102		46R	3,827,410
277C	3,827,861	98	3,827,176		CLASS 62	436	3,827,312	IR	3,827,359	99	3,827,413
				18	3,827,245	471XY	3,827,313	70F	3,827,360	119A	3,827,412
16R	3,827,107	31	3,827,177	50	3,827,246	863	3,827,315	70.2R	3,827,361	37	3,827,414
49CF	3,827,108	191	3,827,178	52	3,827,247			90	3,827,362	119R	3,827,411
67.5	3,827,109	204	3,827,179	123	3,827,248	CLASS 75	3,827,876	95	3,827,363	122A	3,827,416
221A	3,827,110	204	3,827,179	174	3,827,249	3	3,827,877	CLASS 104		127	3,827,417
230CF	3,827,111	220	3,827,180	196	3,827,250	12	3,827,877	23FS	3,827,364	148CD	3,827,418
		243A	3,827,181	217	3,827,251	34	3,827,878	88	3,827,365	CLASS 124	
	CLASS 28			222	3,827,252	35	3,827,879	89	3,827,366	1	Re.28,096
72.14	3,827,113	211	3,827,867	235	3,827,253	53	3,827,880	93	3,827,367	CLASS 125	
72.2R	3,827,112			256	3,827,254	138	3,827,881	112	3,827,368	11PH	3,827,420
75WT	3,827,114	40	3,827,182	296	3,827,255	153	3,827,882	118	3,827,369	15	3,827,421
		383	3,827,183	330	3,827,256	175A	3,827,884	130	3,827,370	37	3,827,422
25.35	3,827,115	449	3,827,184	418	3,827,257	208R	3,827,885	148LM	3,827,371	148CD	3,827,418
38C	3,827,116							209	3,827,372	CLASS 126	
105R	3,827,119	5	3,827,185	23	3,827,258	CLASS 76	3,827,316	182R	3,827,373	29	3,827,423
129	3,827,120	7	3,827,186	28R	3,827,259	104A	3,827,316	282P	3,827,374	92B	3,827,424
149.5B	3,827,121	9	3,827,187	29	3,827,260	CLASS 81	3,827,317	366D	3,827,375	369	3,827,425
155R	3,827,117					9.5B	3,827,317	CLASS 106		CLASS 127	
156.8B	3,827,118	33R	3,827,188	22	3,827,869	IC	3,827,318	1	3,827,891	3	3,827,909
157.1R	3,827,122	98R	3,827,189	60	3,827,870	CLASS 82	3,827,318	46	3,827,892	CLASS 128	
182	3,827,863	101R	3,827,190	114	3,827,871	73	3,827,319	74	3,827,893	1D	3,827,426
191.6	3,827,864	124L	3,827,192		3,827,872	100	3,827,320	90	3,827,894	2A	3,827,427
192	3,827,865	169	3,827,193	1A	3,827,091	117	3,827,321	99	3,827,895	2.06E	3,827,428
195	3,827,866	170MT	3,827,194	195	3,827,261	128	3,827,322	104	3,827,896	25R	Re.28,103
200A	3,827,124	220	3,827,195			310	3,827,323	110	3,827,897	75	3,827,429
200B	3,827,123	308	3,827,868	CLASS 68	3,827,262	425.2	3,827,324	104	3,827,898	80E	3,827,430
200P	3,827,126			CLASS 70		461	3,827,325	194	3,827,899	80F	3,827,431
240	3,827,127	10	3,827,199	104	3,827,266	468	3,827,326	287S	3,827,900	142.2	3,827,432
252	3,827,134	29	3,827,197	456R	3,827,263	522	3,827,327	306	3,827,901	145.5	3,827,433
419	3,827,129	64	3,827,196			617	3,827,328	308N	3,827,902	146.2	Re.28,102
421	3,827,128	69	3,827,198	67	3,827,873	CLASS 84				214.4	3,827,434
	3,827,130	82	3,827,200		3,827,874	1.01	3,828,108	91	3,827,376	283	3,827,435
432.1	3,827,131	169	3,827,201	90	3,827,875	280	3,827,329	108	3,827,377	303.1	3,827,436
433	3,827,132	220	3,827,202			472	3,827,330			328	3,827,437
443	3,827,133	236	3,827,203	CLASS 72				CLASS 110		346	3,827,438
445	3,827,135	396	3,827,204	CLASS 71				9R	3,827,378	350V	3,827,439
455	3,827,136	426	3,827,205	CLASS 72				14	3,827,379	351	3,827,440
	3,827,137	648	3,827,206	CLASS 73				CLASS 112		425	3,827,441
469	3,827,138	727	3,827,207	CLASS 74				25	3,827,380	CLASS 130	
470.3	3,827,139	741	3,827,208	CLASS 75				121.11	3,827,381	24	3,827,442
477.7	3,827,140	760	3,827,209	CLASS 76				262	3,827,382	27T	3,827,443
487	3,827,141			CLASS 77							
596	3,827,142			CLASS 78							
620	3,827,143			CLASS 79							

CLASSIFICATION OF PATENTS

174	CLASS 131	274	3,827,497	28N	CLASS 195	7	3,827,582	77.5MA	3,828,005
186	3,827,444	282	3,827,498	31P	3,827,936	8.5C	3,827,579	78L	3,828,009
	3,827,445	305R	3,827,499	62	3,827,937		3,827,580	78.4N	3,828,008
63	CLASS 134	314	3,827,501	66R	3,827,939	16R	3,827,578	79	3,828,011
	3,827,446				3,827,940	18SC	3,827,583	80.73	3,828,012
6LF	CLASS 136	51	3,827,502	80	3,827,941	36	3,827,584	85.5R	3,828,013
20	3,827,910			100	3,827,942	41	3,827,585		3,828,014
24	3,827,911	38	3,827,503	127	3,827,943	86A	3,827,586	88.1R	3,828,015
83R	3,827,912				3,827,944	105	3,827,587	88.3R	3,828,016
	3,827,913	44	3,827,504		3,827,945	111R	3,827,588	112G	3,828,017
113	3,827,914	707	3,827,505		3,827,946	54A	3,827,589	112.5	3,828,018
179	3,827,915				3,827,947		3,827,590	157	3,828,019
					3,827,948		3,827,591	191	3,828,020
13	3,827,447	12	3,827,506		3,827,949		3,827,592	210AB	3,828,021
15	3,827,448	15	3,827,507		3,827,950		3,827,593	210E	3,828,022
68	3,827,449	112	3,827,508		3,827,951		3,827,594	239BC	3,828,023
88	3,827,450	128	3,827,509		3,827,952		3,827,595	239E	3,828,024
102	3,827,451	163	3,827,510		3,827,953		3,827,596	239.1	3,828,025
117	3,827,452				3,827,954		3,827,597		3,828,026
205	3,827,453	11R	3,828,118		3,827,955		3,827,598		3,828,027
344	3,827,454	15C	3,828,119		3,827,956		3,827,599		3,828,028
375	3,827,455	47	3,828,120		3,827,957		3,827,600		3,828,029
525	3,827,456	73R	3,828,121		3,827,958		3,827,601		3,828,030
599	3,827,457				3,827,959		3,827,602		3,828,031
610	3,827,458				3,827,960		3,827,603		3,828,032
624.14	3,827,459				3,827,961		3,827,604		3,828,033
809	3,827,460				3,827,962		3,827,605		3,828,034
					3,827,963		3,827,606		3,828,035
39	3,827,461				3,827,964		3,827,607		3,828,036
90	3,827,462				3,827,965		3,827,608		3,828,037
					3,827,966		3,827,609		3,828,038
CLASS 139	3,827,463				3,827,967		3,827,610		3,828,039
35	3,827,464				3,827,968		3,827,611		3,828,040
103	3,827,465				3,827,969		3,827,612		3,828,041
149	3,827,466				3,827,970		3,827,613		3,828,042
					3,827,971		3,827,614		3,828,043
CLASS 141	3,827,467				3,827,972		3,827,615		3,828,044
92	3,827,468				3,827,973		3,827,616		3,828,045
104	3,827,469				3,827,974		3,827,617		3,828,046
					3,827,975		3,827,618		3,828,047
CLASS 144	3,827,470				3,827,976		3,827,619		3,828,048
136R	3,827,471				3,827,977		3,827,620		3,828,049
					3,827,978		3,827,621		3,828,050
CLASS 145	3,827,472				3,827,979		3,827,622		3,828,051
76	3,827,473				3,827,980		3,827,623		3,828,052
					3,827,981		3,827,624		3,828,053
CLASS 148	3,827,474				3,827,982		3,827,625		3,828,054
6.16	3,827,475				3,827,983		3,827,626		3,828,055
6.2	3,827,476				3,827,984		3,827,627		3,828,056
11.5R	3,827,477				3,827,985		3,827,628		3,828,057
15.5	3,827,478				3,827,986		3,827,629		3,828,058
27	3,827,479				3,827,987		3,827,630		3,828,059
31.5	3,827,480				3,827,988		3,827,631		3,828,060
36	3,827,481				3,827,989		3,827,632		3,828,061
					3,827,990		3,827,633		3,828,062
CLASS 150	3,827,482				3,827,991		3,827,634		3,828,063
2	3,827,483				3,827,992		3,827,635		3,828,064
3	3,827,484				3,827,993		3,827,636		3,828,065
CLASS 152	3,827,485				3,827,994		3,827,637		3,828,066
218	3,827,486				3,827,995		3,827,638		3,828,067
319	3,827,487				3,827,996		3,827,639		3,828,068
					3,827,997		3,827,640		3,828,069
CLASS 156	3,827,488				3,827,998		3,827,641		3,828,070
73	3,827,489				3,827,999		3,827,642		3,828,071
242	3,827,490				3,828,000		3,827,643		3,828,072
331	3,827,491				3,828,001		3,827,644		3,828,073
423	3,827,492				3,828,002		3,827,645		3,828,074
502	3,827,493				3,828,003		3,827,646		3,828,075
					3,828,004		3,827,647		3,828,076
CLASS 157	3,827,494				3,828,005		3,827,648		3,828,077
1.28	3,827,495				3,828,006		3,827,649		3,828,078
					3,828,007		3,827,650		3,828,079
CLASS 159	3,827,496				3,828,008		3,827,651		3,828,080
44	3,827,497				3,828,009		3,827,652		3,828,081
					3,828,010		3,827,653		3,828,082
CLASS 161	3,827,498				3,828,011		3,827,654		3,828,083
64	3,827,499				3,828,012		3,827,655		3,828,084
67	3,827,500				3,828,013		3,827,656		3,828,085
172	3,827,501				3,828,014		3,827,657		3,828,086
176	3,827,502				3,828,015		3,827,658		3,828,087
					3,828,016		3,827,659		3,828,088
CLASS 162	3,827,503				3,828,017		3,827,660		3,828,089
28	3,827,504				3,828,018		3,827,661		3,828,090
					3,828,019		3,827,662		3,828,091
CLASS 165	3,827,505				3,828,020		3,827,663		3,828,092
1	3,827,477				3,828,021		3,827,664		3,828,093
42	3,827,478				3,828,022		3,827,665		3,828,094
101	3,827,479				3,828,023		3,827,666		3,828,095
105	3,827,480				3,828,024		3,827,667		3,828,096
118	3,827,481				3,828,025		3,827,668		3,828,097
119	3,827,482				3,828,026		3,827,669		3,828,098
145	3,827,483				3,828,027		3,827,670		3,828,099
161	3,827,484				3,828,028		3,827,671		3,828,100
171	3,827,485				3,828,029		3,827,672		3,828,101
					3,828,030		3,827,673		3,828,102
CLASS 166	3,827,486				3,828,031		3,827,674		3,828,103
5	3,827,487				3,828,032		3,827,675		3,828,104
77	3,827,488				3,828,033		3,827,676		3,828,105
87	3,827,489				3,828,034		3,827,677		3,828,106
117.5	3,827,490				3,828,035		3,827,678		3,828,107
					3,828,036		3,827,679		3,828,108
154	3,827,491				3,828,037		3,827,680		3,828,109
173	3,827,492				3,828,038		3,827,681		3,828,110
215	3,827,493				3,828,039		3,827,682		3,828,111
224	3,827,494				3,828,040		3,827,683		3,828,112
250	3,827,495				3,828,041		3,827,684		3,828,113
273	3,827,496				3,828,042		3,827,685		3,828,114

CLASSIFICATION OF PATENTS

315	3,827,686	CLASS 271	16	3,827,742	CLASS 294	82	3,828,220	CLASS 332	2	3,828,279	280	3,828,337	CLASS 360	25	3,828,361
117	3,827,687		67BB	3,827,743		161	3,828,221	CLASS 333	14	3,828,280	324AD	3,828,341	45	3,828,362	
203	3,827,688	CLASS 272	67E	3,827,744		241P	3,828,222		17	3,828,281	324A	3,828,342	60	3,828,363	
			77	3,827,745		267	3,828,223		12R	3,828,282	347AD	3,828,347	CLASS 401		
63	3,827,689		82R	3,827,746	CLASS 316	20	3,827,776		30R	3,828,283	347DA	3,828,345	151	3,827,813	
		CLASS 273							98P	3,828,284	347DD	3,828,346	CLASS 403		
55R	3,827,690		65R	3,827,747	CLASS 296	112	3,828,224	CLASS 334	14	3,828,285	CLASS 343	7A	3,828,348	113	3,827,735
85F	3,827,692		97H	3,827,748		124	3,828,226		12SB		12SB	3,828,349	165	3,827,820	
85R	3,827,691	CLASS 297				147	3,828,225	CLASS 335			715	3,828,350	302	3,827,814	
86F	3,827,693		248	3,827,749		230	3,828,227		126	3,828,286	740	3,828,351	397	3,827,815	
113	3,827,694		440	3,827,751	CLASS 317	234R	3,828,228		210	3,828,287	837	3,828,352	CLASS 404		
130H	Re.28,108		445	3,827,750		235AN	3,828,232	CLASS 337	5	3,828,289	873	3,828,353	33	3,827,818	
137D	3,827,695	CLASS 298							186	3,828,290	CLASS 346	1	3,828,354	67	3,827,817
183E	3,827,696		1B	3,827,753	CLASS 318	87	3,828,233		1	3,828,291	55	3,827,778	126	3,827,819	
		CLASS 299				314	3,828,234	CLASS 338	6	3,828,295	81	3,827,777	CLASS 408		
10R	3,827,697		30	3,827,754		373	3,828,235		43	3,828,294	104	3,827,783	59	3,827,821	
10S	3,827,698	CLASS 300	81	3,827,755		561	3,828,236		234	3,828,296	108	3,827,784	110	3,827,822	
47	3,827,699				CLASS 301	619	3,828,237	CLASS 339	14R	3,828,297	160LC	3,827,780	158	3,827,823	
		CLASS 302	63R	3,827,756		630	3,828,238		53	3,828,299	160P	3,827,781	CLASS 415		
59	3,827,700							CLASS 340	32	3,828,306	175GN	3,827,785	219	3,827,825	
81P	3,827,701	CLASS 303							34	Re.28,100		3,827,786	CLASS 416		
88	3,827,702		2R	3,827,757	CLASS 321	2	3,828,239		58	3,828,309		3,827,787	69	3,827,824	
153	3,827,703				CLASS 323	22T	3,828,240	CLASS 341	52C	3,828,308		3,827,788	132	3,827,826	
165	Re.28,105		3	3,827,758			3,828,241		58	3,828,309	23	3,827,789	CLASS 417		
209	3,827,704	CLASS 304	21AF	3,827,761	CLASS 324	.5R	3,828,243		65	3,828,310	123	3,827,790	28	3,827,827	
			21F	3,827,759				CLASS 342	84	3,828,311	69	3,827,791	43	3,827,828	
7.15	3,827,705			3,827,762					146.R	3,828,312			49	3,827,829	
11.1BT	3,827,706	CLASS 305		3,827,763				CLASS 343	147SY	3,828,313	8	3,827,793	572	3,828,101	
36C	3,827,707		21P	3,827,760					166R	3,828,314	18	3,827,794	CLASS 418		
36R	3,827,708		22R	3,827,764		3	3,828,244	CLASS 344	166S	3,828,315	77	3,827,795	15	3,828,102	
87R	3,827,710		52	3,827,765		6	3,828,245		172.5	3,828,316	116	3,827,796	12	3,828,103	
96.2B	3,827,711	CLASS 306				18	3,828,246			3,828,317	89	3,828,360	70	3,828,104	
106R	3,827,712		120	3,828,198	CLASS 307	28R	3,828,247	CLASS 345		3,828,318			239	3,828,105	
150AB	3,827,715		141	3,828,199		34TK	3,828,248			3,828,319	3R	3,827,799	4C	3,827,841	
	3,827,716		141.8	3,828,200		57R	3,828,249	CLASS 346		3,828,320	15	3,827,800	34	3,827,839	
150SB	3,827,713			3,828,201		72R	3,828,250			3,828,321		3,827,801	62	3,827,840	
	3,827,714	CLASS 308		3,828,202		99D	3,828,251	CLASS 347		3,828,322	15	3,827,802	126R	3,827,842	
179R	3,827,717		150	3,828,203			3,828,252			3,828,323	41	3,827,803	72	3,827,843	
242WC	3,827,718		228	3,828,203		101	3,828,253	CLASS 348		3,828,324		3,827,804	127	3,827,844	
259	3,827,719	CLASS 309	235R	3,828,204		132	3,828,254			3,828,325	39	3,827,804	142	3,827,845	
400	3,827,720		238	3,828,205		133	3,828,255	CLASS 349		3,828,326	73	3,827,805	346	3,827,846	
	3,827,721		254	3,828,206		137	3,828,256			3,828,327	85	3,827,806	371	3,827,847	
432	3,827,722	CLASS 310		3,828,207				CLASS 350		3,828,328	138	3,827,807	406	3,827,848	
439	3,827,723		270	3,828,208	CLASS 311	41R	3,828,257			3,828,329	141	3,827,808	90	3,827,849	
476R	3,827,723		279	3,828,209	CLASS 312			CLASS 351		3,828,330	199	3,827,809	94	3,827,850	
511	3,827,724	CLASS 308				111	3,828,258			3,828,331	200	3,827,810	175	3,827,851	
			9	3,827,766	CLASS 313	151	3,828,259	CLASS 352		3,828,332	201	3,827,811	254	3,827,852	
8	3,827,725		40	3,827,767		155	3,828,260			3,828,333	225	3,827,812	255	3,827,853	
CLASS 283			132	3,827,769	CLASS 314	175	3,828,261	CLASS 353		3,828,334					
7	3,827,726		160	3,827,770		106	3,828,262	CLASS 354		3,828,335	15	3,827,813	CLASS 425		
CLASS 285			212	3,827,771	CLASS 315					3,828,336	39	3,827,814	34	3,827,839	
		CLASS 310						CLASS 355		3,828,337	73	3,827,815	62	3,827,840	
27	3,827,727					4.3	3,828,264			3,828,338	126R	3,827,816	127	3,827,841	
90	3,827,728		9.1	3,828,210	CLASS 316	17	3,828,265	CLASS 356		3,828,339		3,827,817	142	3,827,842	
121	3,827,729		13	3,828,211		29	3,828,266			3,828,340	39	3,827,818	346	3,827,843	
159	3,827,730		153	3,828,212	CLASS 317	30D	3,828,267			3,828,341	73	3,827,819	371	3,827,844	
187	3,827,731		254	3,828,213		97	3,828,268	CLASS 357		3,828,342	85	3,827,820	406	3,827,845	
342	3,827,732	CLASS 312				130	3,828,270			3,828,343	138	3,827,821	424	3,827,846	
379	3,827,733		7R	3,827,772	CLASS 313			CLASS 358		3,828,344	141	3,827,822	406	3,827,847	
382.2	3,827,733		100	3,827,773						3,828,345	143	3,827,823	90	3,827,848	
		CLASS 291	230	3,827,774	CLASS 314	1A	3,828,271	CLASS 359		3,828,346	199	3,827,824	94	3,827,849	
20	3,827,736		245	3,827,775		40	3,828,272			3,828,347	200	3,827,825	175	3,827,850	
		CLASS 292				65	3,828,273	CLASS 360		3,828,348	201	3,827,826	254	3,827,851	
74	3,827,737		1	3,828,214	CLASS 315	94.5PE	3,828,274			3,828,349	225	3,827,827	255	3,827,852	
128	3,827,738		50	3,828,215		94.5Q	3,828,275	CLASS 361		3,828,350					
347	3,827,739		149	3,828,217	CLASS 316					3,828,351	20	3,828,230	19	3,827,854	
		CLASS 293	177	3,828,218		94.5	3,828,276			3,828,352	30	3,828,231	60	3,827,855	
98	3,827,740		325	3,828,219	CLASS 317	116R	3,828,277	CLASS 362		3,828,353					
99	3,827,741		403	3,828,216						3,828,354					

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama.....	1	Kentucky.....	21	Oregon.....	41
Alaska.....	2	Louisiana.....	22	Pennsylvania.....	42
American Samoa.....	3	Maine.....	23	Puerto Rico.....	43
Arizona.....	4	Maryland.....	24	Rhode Island.....	44
Arkansas.....	5	Massachusetts.....	25	South Carolina.....	45
California.....	6	Michigan.....	26	South Dakota.....	46
Canal Zone.....	7	Minnesota.....	27	Tennessee.....	47
Colorado.....	8	Mississippi.....	28	Texas.....	48
Connecticut.....	9	Missouri.....	29	Utah.....	49
Delaware.....	10	Montana.....	30	Vermont.....	50
District of Columbia.....	11	Nebraska.....	31	Virginia.....	51
Florida.....	12	Nevada.....	32	Virgin Islands.....	52
Georgia.....	13	New Hampshire.....	33	Washington.....	53
Guam.....	14	New Jersey.....	34	West Virginia.....	54
Hawaii.....	15	New Mexico.....	35	Wisconsin.....	55
Idaho.....	16	New York.....	36	Wyoming.....	56
Illinois.....	17	North Carolina.....	37	U.S. Air Force.....	57
Indiana.....	18	North Dakota.....	38	U.S. Army.....	58
Iowa.....	19	Ohio.....	39	U.S. Navy.....	59
Kansas.....	20	Oklahoma.....	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1 : 3,827,742	3,827,390	3,827,917	3,827,807	3,828,143	3,827,693
3,827,847	3,827,403	3,827,921	3,827,870	3,828,151	3,827,703
3,827,900	3,827,409	3,827,926	3,827,945	3,827,183	3,827,724
3,827,995	3,827,418	3,827,927	3,828,145	3,827,225	3,827,749
3,828,277	3,827,428	3,827,970	3,828,146	3,827,287	3,827,765
3,827,268	3,827,429	3,827,985	3,828,236	3,827,556	3,827,779
3,827,705	3,827,439	3,827,999	3,828,345	3,827,625	3,827,803
3,827,894	3,827,447	3,828,005	3,827,085	3,827,857	3,827,816
3,828,178	3,827,459	3,828,016	3,827,144	3,827,881	3,827,817
3,828,278	3,827,462	3,828,033	3,827,212	3,827,929	3,827,875
3,827,614	3,827,482	3,828,034	3,827,243	3,828,180	3,827,910
3,827,684	3,827,492	3,828,087	3,827,263	3,828,184	3,827,993
Re 28,096	3,827,495	3,828,118	3,827,363	3,828,202	3,828,022
Re 28,101	3,827,500	3,828,126	3,827,436	3,828,056	3,828,065
Re 28,105	3,827,519	3,828,138	3,827,607	3,828,109	3,828,135
3,827,092	3,827,565	3,828,159	3,827,631	3,828,148	3,828,153
3,827,095	3,827,568	3,828,175	3,827,766	3,828,025	3,828,173
3,827,096	3,827,569	3,828,186	3,827,963	3,828,047	3,828,205
3,827,107	3,827,579	3,828,188	3,828,025	3,827,153	3,828,210
3,827,118	3,827,590	3,828,190	3,828,047	3,827,165	3,828,219
3,827,131	3,827,602	3,828,191	3,828,089	3,827,178	3,828,257
3,827,137	3,827,605	3,828,192	3,828,115	3,827,219	3,828,297
3,827,142	3,827,606	3,828,200	3,828,303	3,827,232	3,828,302
3,827,151	3,827,611	3,828,204	3,828,304	3,827,284	3,828,314
3,827,152	3,827,612	3,828,207	3,828,361	3,827,321	3,828,315
3,827,154	3,827,619	3,828,228	3,827,292	3,827,333	3,828,321
3,827,164	3,827,648	3,828,244	3,827,660	3,827,340	3,828,360
3,827,166	3,827,656	3,828,245	3,827,891	3,827,360	3,827,089
3,827,170	3,827,661	3,828,248	3,827,898	3,827,443	3,827,101
3,827,171	3,827,699	3,828,260	3,827,933	3,827,445	3,827,319
3,827,173	3,827,702	3,828,261	3,827,980	3,827,458	3,827,540
3,827,176	3,827,704	3,828,263	3,827,981	3,827,515	3,827,709
3,827,180	3,827,707	3,828,271	3,827,996	3,827,527	3,827,729
3,827,194	3,827,715	3,828,274	3,828,024	3,827,528	3,827,843
3,827,203	3,827,716	3,828,275	3,827,200	3,827,549	3,827,883
3,827,221	3,827,723	3,828,279	3,827,532	3,827,551	3,827,942
3,827,222	3,827,727	3,828,290	3,827,675	3,827,557	3,828,120
3,827,278	3,827,728	3,828,310	Re 28,108	3,827,571	3,828,122
3,827,288	3,827,737	3,828,313	3,827,093	3,827,577	3,827,174
3,827,301	3,827,738	3,828,324	3,827,161	3,827,577	3,827,279
3,827,306	3,827,773	3,828,331	3,827,215	3,827,585	3,827,320
3,827,312	3,827,777	3,828,333	3,827,332	3,827,608	3,827,406
3,827,318	3,827,778	3,828,340	3,827,347	3,827,613	3,827,505
3,827,345	3,827,793	3,828,348	3,827,349	3,827,651	3,828,334
3,827,352	3,827,798	3,828,351	3,827,350	3,827,663	3,827,087
3,827,359	3,827,827	3,828,354	3,827,554	3,828,127	3,827,391
3,827,364	3,827,828	3,828,362	3,827,561	3,828,134	3,827,692
3,827,367	3,827,829	8 : 3,827,440	3,827,717		
3,827,370	3,827,855	3,827,496	3,827,819		
3,827,384	3,827,856	3,827,499	3,828,127		
3,827,387	3,827,905	3,827,666	3,828,134		

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

21 : 3,827,158	3,827,465	3,827,441	3,827,914	3,828,060	3,827,934
3,827,438	3,827,467	3,827,461	3,827,916	3,828,112	3,827,402
3,827,730	3,827,485	3,827,484	3,827,918	3,828,139	3,827,123
3,828,246	3,827,517	3,827,526	3,827,919	3,828,162	3,827,587
3,828,251	3,827,521	3,827,546	3,827,949	3,828,181	3,827,754
3,827,325	3,827,523	3,827,550	3,827,962	3,828,182	3,827,989
3,827,448	3,827,570	3,827,553	3,827,969	3,828,195	3,828,075
3,827,487	3,827,574	3,827,598	3,827,982	3,828,237	3,827,122
3,827,895	3,827,578	3,827,623	3,828,032	3,828,281	3,827,198
3,828,201	3,827,589	3,827,636	3,828,067	3,828,357	3,827,208
3,827,356	3,827,593	3,827,659	3,828,068	40 : 3,827,498	3,827,209
3,828,227	3,827,667	3,827,667	3,828,085	3,827,512	3,827,239
3,828,306	3,827,668	3,827,694	3,828,097	3,827,572	3,827,258
Re 28,103	3,827,642	3,827,736	3,828,098	3,827,575	3,827,282
3,827,201	3,827,662	3,827,783	3,828,106	3,827,669	3,827,285
3,827,259	3,827,676	3,827,789	3,828,116	3,827,677	3,827,294
3,827,383	3,827,690	3,827,821	3,828,117	3,828,171	3,827,295
3,827,477	3,827,696	3,827,822	3,828,124	3,828,325	3,827,342
3,827,562	3,827,710	3,827,867	3,828,167	41 : 3,827,097	3,827,434
3,827,576	3,827,733	3,827,868	3,828,169	3,827,236	3,827,435
3,827,655	3,827,740	3,827,874	3,828,172	3,827,343	3,827,452
3,827,680	3,827,741	3,827,913	3,828,176	3,827,353	3,827,455
3,827,746	3,827,743	3,827,944	3,828,185	3,827,473	3,827,468
3,827,954	3,827,758	3,827,968	3,828,215	3,828,284	3,827,488
Re 28,107	3,827,788	3,827,979	3,828,222	3,828,286	3,827,489
3,827,108	3,827,836	3,828,021	3,828,269	42 : 3,827,098	3,827,490
3,827,111	3,827,872	3,828,021	3,828,276	3,827,119	3,827,491
3,827,148	3,827,885	3,828,041	3,828,287	3,827,134	3,827,493
3,827,155	3,827,923	3,828,049	3,828,289	3,827,186	3,827,494
3,827,195	3,828,006	3,828,055	3,828,299	3,827,204	3,827,497
3,827,202	3,828,018	3,828,073	3,828,311	3,827,218	3,827,501
3,827,226	3,828,078	3,828,337	3,828,311	3,827,223	3,827,507
3,827,245	3,828,084	3,828,347	3,828,347	3,827,249	3,827,511
3,827,300	3,828,100	3,828,356	3,828,356	3,827,254	3,827,586
3,827,317	3,828,150	3,828,356	3,828,356	3,827,264	3,827,610
3,827,331	3,828,155	3,828,356	3,828,356	3,827,274	3,827,668
3,827,382	3,828,170	3,828,356	3,828,356	3,827,283	3,827,673
3,827,388	3,828,193	3,828,356	3,828,356	3,827,293	3,827,735
3,827,433	3,828,202	3,828,356	3,828,356	3,827,308	3,827,745
3,827,544	3,828,254	3,828,356	3,828,356	3,827,334	3,827,753
3,827,726	3,828,356	3,828,356	3,828,356	3,827,357	3,827,825
3,827,772	Re 28,100	3,828,356	3,828,356	3,827,369	3,827,830
3,827,790	Re 28,102	3,828,356	3,828,356	3,827,393	3,827,839
3,827,865	Re 28,106	3,828,356	3,828,356	3,827,397	3,827,977
3,827,892	3,828,102	3,828,356	3,828,356	3,827,407	3,827,978
3,827,904	3,828,125	3,828,356	3,828,356	3,827,457	3,828,010
3,827,915	3,828,132	3,828,356	3,828,356	3,827,533	3,828,101
3,827,951	3,828,132	3,828,356	3,828,356	3,827,537	3,828,137
3,827,953	3,828,132	3,828,356	3,828,356	3,827,545	3,828,160
3,827,965	3,828,132	3,828,356	3,828,356	3,827,545	3,828,165
3,827,994	3,828,132	3,828,356	3,828,356	3,827,545	3,828,189
3,828,026	3,828,132	3,828,356	3,828,356	3,827,545	3,828,242
3,828,029	3,828,132	3,828,356	3,828,356	3,827,545	3,827,404
3,828,053	3,828,132	3,828,356	3,828,356	3,827,545	3,828,243
3,828,064	3,828,132	3,828,356	3,828,356	3,827,545	3,828,154
3,828,110	3,828,132	3,828,356	3,828,356	3,827,545	3,827,768
3,828,119	3,828,132	3,828,356	3,828,356	3,827,545	3,827,780
3,828,157	3,828,132	3,828,356	3,828,356	3,827,545	3,827,797
3,828,177	3,828,132	3,828,356	3,828,356	3,827,545	3,827,804
3,828,203	3,828,132	3,828,356	3,828,356	3,827,545	3,827,820
3,828,208	3,828,132	3,828,356	3,828,356	3,827,545	3,827,850
3,828,214	3,828,132	3,828,356	3,828,356	3,827,545	3,827,854
3,828,293	3,828,132	3,828,356	3,828,356	3,827,545	3,827,862
3,828,323	3,828,132	3,828,356	3,828,356	3,827,545	3,827,931
3,828,336	3,828,132	3,828,356	3,828,356	3,827,545	3,828,009
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,827,147
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,827,442
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,827,922
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,827,930
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,827,947
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,827,952
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,827,976
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,827,990
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,828,197
3,828,356	3,828,132	3,828,356	3,828,356	3,827,545	3,

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4 : 232,293	232,315	22 : 232,303	232,288	39 : 232,277	46 : 232,285
232,294	232,317	24 : 232,319	232,295	232,299	47 : 232,307
6 : 232,284	13 : 232,320	26 : 232,313	232,301	232,305	48 : 232,280
232,287	232,325	34 : 232,318	232,304	232,306	232,312
232,308	17 : 232,289	36 : 232,278	232,290	232,309	232,316
232,323	232,310	232,282	232,291	42 : 232,326	49 : 232,328
9 : 232,324	19 : 232,311	232,283	232,292	232,327	51 : 232,302
12 : 232,279	20 : 232,296	232,286	38 : 232,314	45 : 232,298	55 : 232,329

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6 : 3,581	3,582	3,583	3,584	25 : 3,585	30 : 3,586
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[Notice of Dec. 16, 1969, 869 O.G. 6877]

36 : T925,002	42 : T925,001	T925,005	T925,006	T925,008	T925,009
36 : T925,003	47 : T925,004				

Vol. 925 Number 2

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PATENTS

August 13, 1974



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August 13, 1974

Volume 925

Number 2

CONTENTS

	Page
Patent and Trademark Notices	
Reinstatement	342
Patent Suits	342
Patent Notices	
Certificates of Correction for the Week of August 13, 1974	344
Adverse Decisions in Interferences	344
Dedication	344
Disclaimers	344
Condition of Patent Applications	346
Reissue Patents Granted (28,109)	347
Plant Patents Granted (3,587)	350
Patents Granted	
General and Mechanical (3,828,364)	351
Chemical (3,829,286)	585
Electrical (3,829,595)	641
Design Patents Granted (232,330)	722
Index of Patentees	PI 1
Indices of Reissues, Plants and Designs	PI 46
Classification of	
Patents (Including Reissues)	PI 49
Designs and Plants	PI 52
Geographical Index of Residence of Inventors	
Patents (Including Reissues)	PI 53
Designs and Plants	PI 55

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PATENT OFFICE NOTICES

Reinstatement

Donal E. McCarthy of Alexandria, Virginia, who was suspended from practice as a patent attorney before the United States Patent Office, effective April 11, 1974 (922 O.G. 1), is hereby, on the basis of a sufficient showing, reinstated on the register of attorneys effective July 19, 1974.

LUTRELLE F. PARKER,
Chairman, Committee on Enrollment.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

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D. 230,097. (See D. 230,095.)

D. 230,098. (See D. 230,095.)

3,096,801, Miles, Brown and Ward, SEED POTATO CUTTER, filed Apr. 11, 1972, D.C. Idaho (Boise), Doc. C-4-72-13, *Milestone, Inc. v. Lockwood Graders of Idaho, Inc. et al.* Stipulation and order for dismissal of case Dec. 11, 1973.

3,184,536, W. K. Larkin, MINIATURE HEADSET-MICROPHONE ADAPTED FOR USE WITH A MASK, filed Dec. 14, 1973, D.C., W.D. Mich. (Grand Rapids), Doc. K152-73CA 8, *Plantronics, Inc. v. Electro-Voice, Inc.*

3,227,273, Syverson and Syverson, PACKAGE; 3,289,385, same, METHOD OF PACKAGING, filed Dec. 21, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c3212, *Compact Industries, Inc. v. MB Packing Co. and Martin Smoler*.

3,262,027, Zaleske and Churchill, SOLENOID STRUCTURE AND MOUNTING MEANS THEREFOR, filed Nov. 3, 1972, D.C., N.D. Ill. (Chicago), Doc. 72c2786, *Automatic Switch Company v. Emerson Electric Co.* Order cause dismissed without prejudice under Rule 41 (a) (1), Dec. 18, 1973.

3,289,385. (See 3,227,273.)

3,312,124, Meler and Meler, STEERING-WHEEL ASSEMBLY FOR AUTOMOTIVE VEHICLES, filed Jan. 3, 1974, D.C., N.D. Calif. (San Francisco), Doc. C-74-0010 RFP, *Kamel-Autokomfort and Superior Industries, Inc. v. S. S. Kresge Company*.

AUGUST 13, 1974

U. S. PATENT OFFICE

343

3,316,294, Freighner and Kapur, DETERGENT ALKYLATE AND THE SULFONATE DERIVATIVE, filed Jan. 7, 1974, D.C., N.D. Ill. (Chicago), Doc. 70c12, *Continental Oil Company v. Witco Chemical Corporation*. Judgment on mandate, plaintiff's patent is invalid. Cause dismissed with prejudice, Jan. 7, 1974.

3,426,960, P. B. Shore, PHONOGRAPH RECORD RECEIVING JACKET, filed Jan. 7, 1974, D.C., N.D. Ill. (Chicago), Doc. 74c46, *Shorewood Packaging Corp. v. Album Graphics*.

3,454,100, M. R. Lilley, WINDROWING FORK ARRANGEMENT FOR PEANUT DIGGER, filed Jan. 10, 1973, D.C., N.D. Ga. (Atlanta), Doc. 17658, *Ferguson Manufacturing Company, Incorporated v. Kelley Manufacturing Company*. Consent dismissal dismissing complaint and counterclaims with prejudice pursuant to Rule 41 (a) (1) (ii) F.R.C.P., Jan. 4, 1974.

3,473,681, S. Hall, Jr., SAFETY MEDICINE BOTTLE CLOSURE, filed Nov. 29, 1972, D.C., W.D. Okla. (Oklahoma City), Doc. 72-825-C, *Plastic Container Corp. v. Continental Plastics of Oklahoma, Inc.* Plaintiff is owner of patent; all of the claims of patent are invalid. Complaint and all causes of action dismissed with prejudice, Dec. 14, 1973.

3,488,868, West, Kuchta and Gutowski, MEASURING TOOL; D. 213,643, same, MEASURING TOOL FOR CARPENTRY AND THE LIKE, filed May 4, 1972, D.C., E.D.N.Y. (Brooklyn), Doc. 72C438, *Stanley Works v. Oxwall Tool Co. Ltd.*

3,560,660, Poretli and Costa, TIME-ALLOCATION COMMUNICATION SYSTEM WITH SCRAMBLING NETWORK, filed Jan. 2, 1974, D.C., S.D.N.Y., Doc. 74-C-28, *Teletronics Corporation of America v. L.C.A. Sales Co. et al.*

3,606,154, R. C. Tufts, SPRAY COATING APPARATUS, filed Nov. 15, 1972, D.C., C.D. Calif. (Los Angeles), Doc. 72-2730-MML, *Mono-Therm Insulation Systems, Inc. v. Dellason, Inc., etc. et al.* Filed order dismissing action without prejudice,

Court retains jurisdiction to reopen action if further litigation is necessary, entered Dec. 11, 1973.

3,657,060, T. I. Halgh, EMBROIDERED EMBLEM WITH THERMOPLASTIC ADHESIVE, filed Nov. 27, 1972, D.C.N.J. (Newark), Doc. C-1895-72, *The Penn Novelty Company v. Joel & Aranoff, Inc.* Stipulation and order of dismissal of action Dec. 28, 1973.

3,670,549, Tsellkov, Nosal, and Verderevsky, METHOD AND APPARATUS FOR COLD ROLLING THIN WALL PIPE; 3,673,840, same, COLD ROLLING PIPE MILL ROLLER TYPE ROLLING STAND; 3,680,345, same, FLOATING, BLANK FEED AND TURNING MECHANISM FOR THIN-WALL PIPE MILL; 3,739,624, same, PIPE BLANK CLAMP, filed Jan. 8, 1974, D.C., E.D. Wash. (Spokane), Doc. C-74-13, *Patent Management, Inc. v. Sandvik Special Metals Corporation*.

3,673,840. (See 3,670,549.)

3,680,345. (See 3,670,549.)

3,709,761, Trueb and Hesener, ADHESIVE TAPE DISPENSERS, filed Jan. 10, 1974, D.C., N.D. Ill. (Chicago), Doc. 74c83, *Heinz Hermann Weick v. U.S. Industries, Inc.*

3,739,624. (See 3,670,549.)

3,743,793, S. T. Emerson, ANALOG SIGNAL RECORDING AND PLAYBACK METHOD AND SYSTEM; 3,754,264, W. T. Blackland, RADIO DIRECTION FINDING APPARATUS, filed Dec. 15, 1973, D.C.N.J. (Camden), Doc. C-1813-73, *Periphonics Corporation v. All Systems, Inc. and Applied Information Industries, Inc.*

3,754,264. (See 3,743,793.)

3,781,480, R. R. Roge, LOOP EXTENDER, filed Jan. 7, 1974, D.C.R.I. (Providence), Doc. 74-3, *Wescom, Inc. v. Transcom Electronics, Inc.*

D. 213,643. (See 3,488,868.)

Certificates of Correction for the Week of Aug. 13, 1974

Re. 27,805	3,768,838	3,792,085	3,798,184
D. 229,518	3,769,077	3,792,131	3,798,216
3,507,362	3,770,498	3,792,330	3,798,251
3,549,020	3,770,792	3,792,409	3,798,311
3,573,747	3,772,715	3,792,471	3,798,389
3,575,938	3,773,266	3,792,726	3,798,438
3,595,747	3,773,923	3,792,770	3,798,486
3,608,958	3,774,775	3,792,987	3,798,616
3,611,982	3,775,371	3,793,185	3,798,760
3,622,943	3,775,505	3,793,276	3,798,928
3,645,500	3,775,672	3,793,332	3,799,077
3,646,524	3,775,968	3,793,577	3,799,142
3,647,874	3,776,818	3,793,590	3,799,488
3,665,471	3,777,289	3,793,601	3,799,549
3,673,614	3,777,885	3,793,663	3,799,636
3,678,381	3,778,332	3,793,689	3,799,855
3,688,250	3,778,476	3,793,764	3,799,867
3,690,716	3,779,080	3,793,862	3,799,928
3,691,093	3,779,939	3,794,017	3,800,063
3,692,375	3,780,094	3,794,244	3,800,199
3,696,154	3,780,423	3,794,351	3,800,320
3,697,090	3,780,589	3,794,572	3,800,535
3,708,425	3,781,067	3,794,695	3,800,588
3,709,352	3,781,256	3,794,833	3,800,629
3,709,857	3,781,400	3,795,361	3,800,640
3,717,316	3,781,528	3,795,407	3,800,728
3,717,741	3,782,042	3,795,639	3,800,733
3,719,908	3,783,091	3,795,774	3,801,335
3,722,621	3,783,133	3,795,809	3,801,353
3,726,665	3,783,203	3,795,850	3,801,483
3,732,215	3,783,291	3,796,068	3,801,804
3,740,226	3,784,705	3,796,104	3,802,003
3,742,837	3,785,120	3,796,105	3,802,410
3,743,897	3,785,184	3,796,153	3,802,535
3,744,489	3,785,214	3,796,514	3,802,600
3,744,766	3,785,235	3,796,689	3,802,759
3,745,183	3,786,558	3,796,786	3,802,803
3,745,594	3,786,634	3,796,803	3,803,024
3,751,092	3,787,388	3,796,924	3,803,042
3,753,958	3,787,628	3,796,999	3,803,080
3,755,080	3,787,757	3,797,245	3,803,261
3,755,329	3,788,015	3,797,272	3,803,279
3,755,587	3,788,876	3,797,335	3,803,281
3,755,806	3,789,369	3,797,345	3,803,332
3,756,770	3,790,269	3,797,392	3,803,447
3,756,950	3,790,317	3,797,422	3,803,760
3,757,124	3,790,472	3,797,467	3,803,930
3,759,587	3,790,646	3,797,536	3,804,219
3,760,233	3,790,669	3,797,657	3,804,812
3,762,627	3,790,766	3,797,708	3,804,860
3,763,279	3,790,789	3,797,767	3,805,004
3,763,824	3,791,229	3,797,806	3,805,033
3,763,904	3,791,447	3,798,034	3,805,066
3,765,615	3,791,525	3,798,099	3,805,369
3,766,723	3,791,996	3,798,138	3,806,385

Adverse Decisions in Interferences

In the designated interference involving the indicated claims of the following patents final decisions have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,142,671, H. Kawaguchi, M. Okanishi, T. Miyaki, T. Ohmori, M. Matsuzaki, H. Koshiyama and H. Tsukura, GLEBOMYCIN AND SALTS THEREOF, Interference No. 98,133, decided Apr. 1, 1974, claims 1, 2, 3, 4 and 5.

Patent No. 3,474,015, E. O. Norris, RECOVERY OF METAL VALUES FROM SEA WATER ENVIRONMENTS, Interference No. 98,001, decided Feb. 22, 1974, claim 9.

Patent No. 3,496,405, C. F. Mankus, APPARATUS FOR GENERATING A STEPPED VOLTAGE WAVEFORM, Interference No. 97,866, decided Mar. 11, 1974, claims 1, 2, 3, 4 and 9.

Patent No. 3,498,170, A. C. Sanford, CONNECTOR PLATE COMBINATION, Interference No. 97,685, decided Nov. 5, 1973, claims 1, 2 and 4.

Patent No. 3,533,835, R. J. Hagenbach and R. W. Madrid, ELECTROSTATOGRAPHIC DEVELOPER MIXTURE, Interference No. 98,028, decided Apr. 9, 1974, claims 6 and 9.

Patent No. 3,656,067, A. T. Zavodny, LASER CELL, Interference No. 98,220, decided Apr. 22, 1974, claims 1, 2 and 3.

Patent No. 3,657,119, J. E. Turbeville, POLLUTION CONTROL DEVICE, Interference No. 98,221, decided Feb. 19, 1974, claims 8, 9, 10 and 11.

Patent No. 3,683,201, T. Haraszti, LOGIC INTERCONNECTIONS, Interference No. 98,411, decided Apr. 10, 1974, claims 1, 2, 8, 9, 11, 12, 13 and 14.

Patent No. 3,704,474, J. G. Winkler, METHOD OF STRING-LASTING, Interference No. 98,467, decided Apr. 18, 1974, claims 1, 2, 3, 4, 5, 7, 8, 10, 11 and 12.

Dedication

3,418,246.—Martin R. Royce, Lancaster, Pa. RARE EARTH ACTIVATED YTTRIUM AND GADOLINIUM OXY-CHALCOGENIDE PHOSPHORS. Patent dated Dec. 24, 1968. Dedication filed May 13, 1974, by the assignee, Radio Corporation of America.

Hereby dedicates the entire remaining term of said patent to the Public.

Disclaimers

Design No. 228,924.—Leo P. Niemiec, Morton Grove, Ill. FENCE SECTION. Patent dated Oct. 30, 1973. Disclaimer filed Jan. 28, 1974, by the inventor.

Hereby disclaims the claim of said patent.

3,126,523.—Edward J. Rabenda, Poughkeepsie, Wayne D. Brodd, Wappingers Falls, and Eugene E. Marquardt, Poughkeepsie, N.Y. FILE SEARCH DATA SELECTOR. Patent dated Mar. 24, 1964. Disclaimer filed Feb. 21, 1974, by the assignee, International Business Machines Corporation.

Hereby enters this disclaimer to claims 1 through 3 of said patent.

3,210,102.—Alvin Earl Joslin, Clarkson, Ontario, Canada. PIPE COUPLING HAVING A DEFORMED INNER LOCK. Patent dated Oct. 5, 1965. Disclaimer filed Mar. 14, 1974, by the assignee, Zapata Pipeline Technology, Inc.

Hereby disclaims the portion of the term of the patent subsequent to Sept. 28, 1982.

3,212,995.—Hsing T. Huang, Groton, Conn., and Thomas A. Seto, Brooklyn, N.Y. 6-AMINOPENICILLANIC ACID PRODUCTION. Patent dated Oct. 19, 1965. Disclaimer filed Feb. 11, 1974, by the assignee, Pfizer Inc.

Hereby enters this disclaimer to claims 1-6 of said patent.

3,215,136.—Norman J. Holter and Wilford R. Glasscock, Helena, Mont. ELECTROCARDIOGRAPHIC MEANS. Patent dated Nov. 2, 1965. Disclaimer filed Feb. 22, 1974, by the assignee, The Holter Research Foundation, Inc.

Hereby enters this disclaimer to claims 14 and 15 of said patent.

3,236,975.—Woodrow A. De Smidt, Whitefish Bay, and Donald V. Eckman, Milwaukee, Wis. REMOVABLE SEGMENT, TRACK-MOUNTED TERMINAL BLOCK. Patent dated Feb. 22, 1966. Disclaimer filed Apr. 8, 1974, by the assignee, Allen-Bradley Company.

Hereby enters this disclaimer to claims 1 through 8 of said patent.

3,243,783.—Edward J. Rabenda, Poughkeepsie, Wayne D. Brodd, Wappingers Falls, and Eugene E. Marquardt, Poughkeepsie, N.Y. FILE SEARCH DATA SELECTOR. Patent dated Mar. 29, 1966. Disclaimer filed Feb. 21, 1974, by the assignee, International Business Machines Corporation.

Hereby enters this disclaimer to claims 1 through 14 of said patent.

3,381,183.—Norman C. Turner, Hopatcong, and James H. Cavitt, Somerville, N.J. HIGH POWER MULTI-EMITTER TRANSISTOR. Patent dated Apr. 30, 1968. Disclaimer filed Apr. 19, 1974, by the assignee, Radio Corporation of America.

Hereby enters this disclaimer to claim 3 of said patent.

3,784,792.—Bruce W. Dobras, Dayton, Ohio. CODED RECORD AND METHODS OF AND APPARATUS FOR ENCODING AND DECODING RECORDS. Patent dated Jan. 8, 1974. Disclaimer filed Apr. 4, 1974, by the assignee, Monarch Marking Systems, Incorporated.

Hereby enters this disclaimer to claims 1 through 3 of said patent.

3,805,171.—Ronald L. Drumheller, New York, N.Y. SIGNAL FREQUENCY DETECTION CIRCUIT. Patent dated Apr. 16, 1974. Disclaimer filed June 24, 1974, by the assignee, Eastech, Inc.

Hereby enters this disclaimer to claim 7 of said patent.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JULY 20, 1974

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	9-7-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—R. F. BURNETT, Acting Director..... Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-1-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-16-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	9-4-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Pro- cesses.	7-3-73

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—W. L. CARSON, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	11-29-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio- Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-1-73
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-1-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—N. ANSHER, Director..... Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	4-11-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—L. FORMAN, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Net- works; Optics; Radiant Energy; Measuring.	12-10-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director..... Industrial Arts; Household, Personal and Fine Arts.	1-29-73

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	1-2-74
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-23-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-2-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B. R. GAY, Director..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gear- ing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	9-24-73
GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	11-1-73

Expiration of patents: The patents within the range of numbers indicated below expire during August 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,801,414 to 2,804,619, inclusive
Plant Patents..... Numbers 1,626 to 1,637, inclusive

REISSUES

AUGUST 13, 1974

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

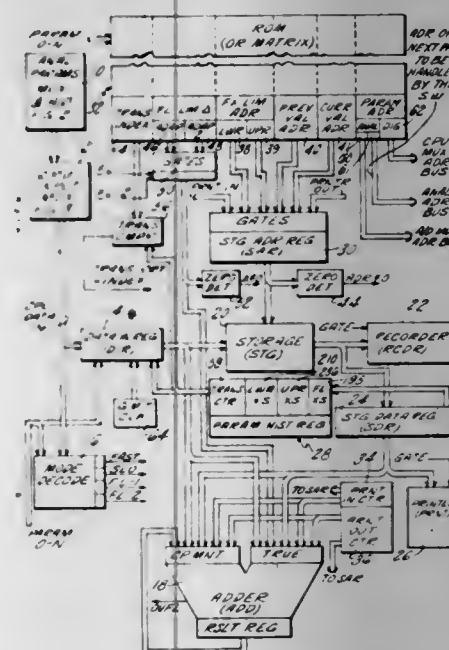
28,109

SELECTIVE DATA HANDLING APPARATUS
James Provenzano, Jr., Winsted, John Saunders, East Hartford, and Henry Monterose, Wapping, Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Original No. 3,702,989, dated Nov. 14, 1972, Ser. No. 123,854, Mar. 12, 1971, which is a continuation of abandoned application Ser. No. 803,372, Feb. 28, 1969. Application for reissue Feb. 16, 1973, Ser. No. 333,582 Int. Cl. G11b 27/00

U.S. Cl. 340—172.5

17 Claims



Raw data relating to a variety of parameters is analyzed to determine whether or not the current value or condition of the parameter is significant according to schedules of criteria which are subject to change. Criteria selection is adaptive, being dependent upon modes or conditions indicated by the parameter values being handled by the apparatus. Additionally, certain criteria may have floating limits, so that the base from which deviation is measured for the purpose of determining significance is adjusted whenever a significant condition (deviation from a base by more than a permissible amount) occurs. Additionally, fixed limits are provided, particularly for parameters of the type that can result in a dangerous condition whenever the value of the parameter exceeds certain upper or lower limits. A given parameters may be tested for both floating limit and fixed limit conformance, and provision is made to take similar as well as different action in dependence upon exceeding the different types of limits. Provision is made to transmit the data, in this embodiment to record it for further analysis at a later date, in dependence upon exceeding a fixed limit a number of times more than a number settable to indicate probable successive number of transients. Exceeding a fixed limit results in printing an identification of the parameter which exceeded a fixed limit together with Greenwich Mean Time at the time of occurrence and an indication of whether an upper or lower limit was exceeded. Thereafter, that parameter will not cause printing until such time as the parameter value again falls within fixed limits.

The disclosure embodiment utilizes standard data processing components in a relatively simple data flow ar-

rangement, [will] with control provided by a parameter identification decode in a read only memory (hereinafter referred to as ROM) or large decoding matrix. The ROM provides for each given parameter: a transient index indicative of the number of fixed limit excesses which are held to be within a number of probable transients, thereby to be ignored; floating limit deviations (referred to symbolically herein as deltas) for a plurality of modes, the correct one being selected in dependence upon a given mode of operation; the addresses of both upper and lower fixed limits for the given parameter; the address in storage of the previous value used as a base for floating limits; the address of current values in storage which permits storing the present value of the parameter until it can be determined, at the end of a scan of all parameters, whether or not these parameters are to be recorded; and the addresses of the transducers or sensors—that is the actual input equipment—with which the parameter is related. Any parameter can have more than one parameter identifying number, so that polling of parameters can include more frequent polling of certain key parameters interspersed with sequential polling of all parameters, simply by providing the same connections for additional parameter numbers as may be provided for the basic parameter number for a given parameter. Progression of logical sequence and control is provided simply by a parameter counter which counts successively for each parameter analysis period, thereby polling the various parameter numbers in sequence, together with a program counter which identifies four different function periods, each subdivided into eight times, there being clock signals to identify first and second halves of each of the clock times. Provision is made to utilize main storage as a printer buffer storage as well as a one-scan recorder buffer storage.

28,110

CHRYSANTHEMIC ACID ESTERS

John Mervyn Osbond and James Charles Wickens, Herts, England, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original No. 3,663,591, dated May 16, 1972, Ser. No. 880,964, Nov. 28, 1969. Application for reissue Feb. 28, 1973, Ser. No. 336,680

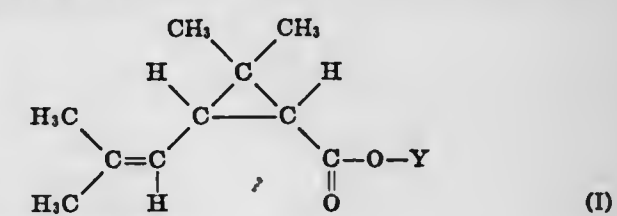
Claims priority, application Great Britain, Dec. 9, 1968, 58,351/68, 58,352/68, 58,353/68, 58,354/68

Int. Cl. A01n 9/29; C07c 69/74

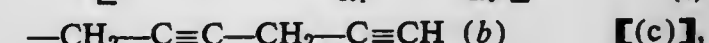
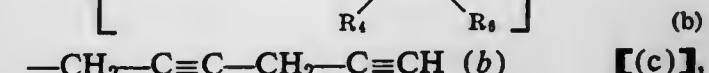
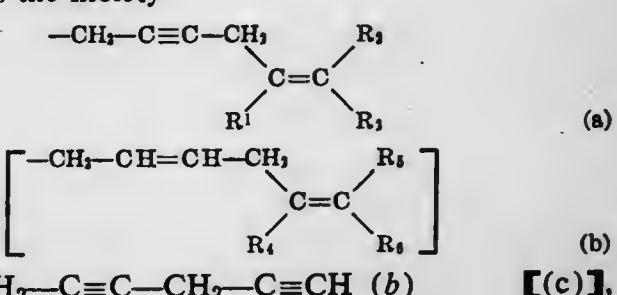
U.S. Cl. 260—468 H

14 Claims

The invention comprises chrysanthemic acid ester compounds of the formula



wherein Y is the moiety



or



wherein $\text{R}^1\text{—R}_4$ [R₇] is hydrogen or an alkyl group.

The compounds of formula I are useful as insecticides and are prepared by reacting an acid chloride with alcohol or by reacting a halide with a salt of a chrysanthemum carboxylic acid.

28,111 FASTENER WITH IMPROVED THREAD CONSTRUCTION

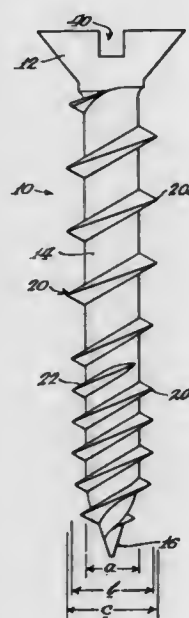
Richard C. Lavery, Palatine, Ill., assignor to MSL Industries, Inc.

Original No. 3,703,843, dated Nov. 28, 1972, Ser. No. 103,637, Jan. 4, 1971. Application for reissue Dec. 4, 1973, Ser. No. 421,549

Int. Cl. F16h 25/00, 39/30

U.S. Cl. 85—46

9 Claims



A fastener having a shank divided into first and second portions respectively located adjacent a head end and a tapered pointed end with the first portion having a single thread formed thereon of uniform pitch. A multiple of parallel threads of similar uniform pitch are formed on the second portion of the shank and one of the threads on the second portion is a continuation of the thread on the first portion. All of the threads have a substantially uniform minor diameter while the major diameter of the upper single thread portion is greater than the major diameter of the lower multiple thread portion.

28,112 COLOR PHOTOGRAPHIC ELEMENTS AND PROCESS

Charles O. Edens and John H. Van Campen, Rochester, N.Y., assignors to Eastman Kodak Co., Rochester, N.Y.

No Drawing. Original No. 3,582,322, dated June 1, 1971, Ser. No. 736,010, June 11, 1968. Application for reissue Oct. 19, 1973, Ser. No. 408,234

Int. Cl. G03c 7/16

U.S. Cl. 96—22

20 Claims

Color photographic elements containing differently sensitized silver halide emulsions, a nondiffusible yellow dye-forming coupler that reacts with an oxidized primary aromatic amine color developing agent to form a yellow dye and substantially no uncolored form of the yellow dye, a 5-pyrazolone coupler, a cyan dye-forming coupler and hydrophilic colloids that are hardened with divinyl-sulfone hardening agent [substantially free of aldehyde and substantially free of aldehyde and

aldehyde-releasing hardening agents are advantageously color processed by color development step followed by a blix step to produce good dye image densities with substantially no uncolored forms of the dyes being present.

28,113 AUTOMATIC CONTROL SYSTEM FOR HYDROSTATIC DRIVE

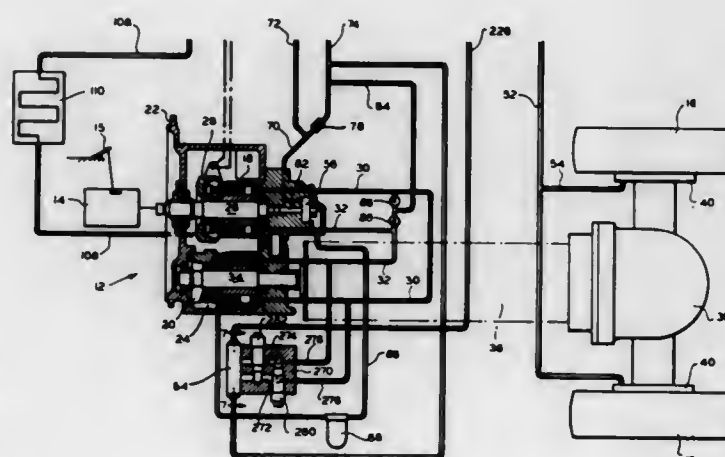
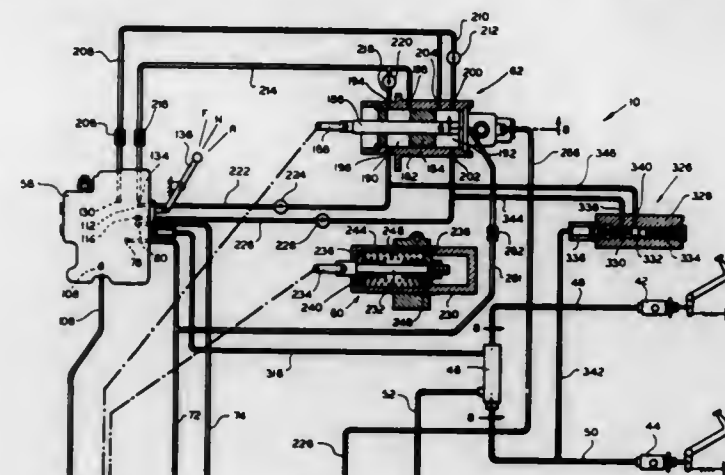
Wayne B. Howard and Ronald L. Sisson, Jackson, Mich., assignors to Clark Equipment Co.

Original No. 3,636,705, dated Jan. 25, 1972, Ser. No. 71,704, Sept. 14, 1970. Application for reissue Sept. 27, 1973, Ser. No. 401,477

Int. Cl. F16h 39/46

U.S. Cl. 60—447

22 Claims



An automatic control system for use with a hydrostatic drive having a variable displacement fluid pump drivingly connected to an engine. The control system includes a spring mechanism connected to the pump for returning the pump to its zero displacement position and mechanism connected to the pump and responsive to engine speed for actuating the pump away from its zero displacement position.

28,114 MICROWAVE GENERATING APPARATUS INCLUDING SPURIOUS SIGNAL SUPPRESSION MEANS

Harold C. Anderson, New Brighton, Minn., and David F. Graff, New Iberia, La., assignors to Litton Systems, Inc., Beverly Hills, Calif.

Original No. 3,697,804, dated Oct. 10, 1972, Ser. No. 79,764, Oct. 12, 1970. Application for reissue Feb. 5, 1973, Ser. No. 329,528

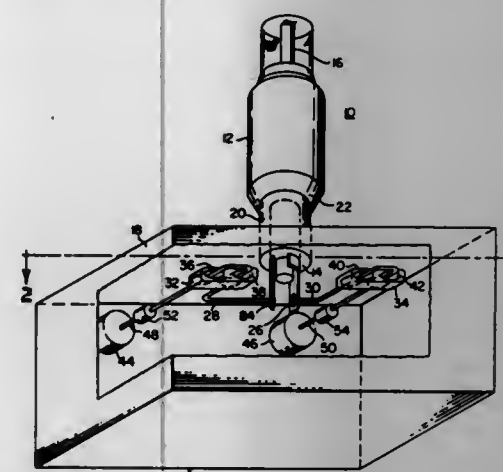
Int. Cl. H05b 39/00

U.S. Cl. 315—105

8 Claims

A microwave generating apparatus is disclosed which includes suppression means for preventing high frequency signals from being propagated out of the apparatus through its cathode terminals to be radiated away from the apparatus. The suppression means includes a shield

member and a non-saturating ferrite member positioned around each of the cathode heater leads of the apparatus within the shield member. The ferrite member comprises a member which is supported above the floor of an aquarium. Air is passed through the inner cylindrical tube, diffused, and mixed with the water in



an elongated ferrite body having at least two apertures extending therethrough, with the lead element traversing both of these apertures in opposing directions.

28,115 TUBE FINS OF OUTWARDLY-ORGANIZED MATERIALS

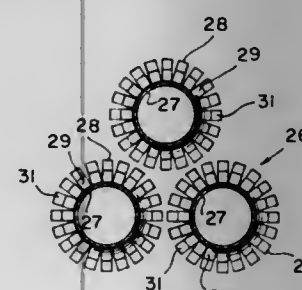
Herbert Wayne Cooper, Jericho, N.Y., assignor to Escosa Flintube Corporation, Pryor, Okla.

Original No. 3,731,738, dated May 8, 1973, Ser. No. 165,945, July 26, 1971. Application for reissue Aug. 20, 1973, Ser. No. 390,026

Int. Cl. F28f 21/02

U.S. Cl. 165—180

7 Claims



This disclosure teaches a finned tube (or studded tube or the like) for convection sections of process heaters or boilers to improve heat transfer and reduce pressure drops of both process streams and flue gas. Tubes in this service are preferably of carbon steel which is, within this context, a relatively-high heat-conducting but relatively-low heat-resisting material. The finned tube is made of at least two materials organized proximally and distally relative the tube wall to which it is connected and from which it projects outwardly. The distal portion is made of a relatively-high heat-resisting but relatively-low heat-conducting material such as stainless steel. The proximal portion may be of a material the same as that of the tube wall or it may be of a material with heat-conducting and heat-resisting properties intermediate those of the tube wall and of the distal portion.

28,116

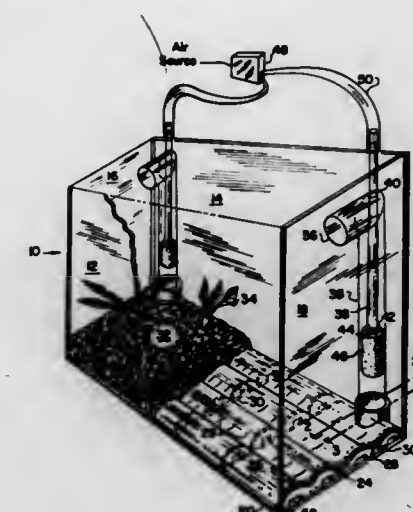
FILTER AND WATER RECIRCULATION SYSTEM
Harvey K. Cohen, Brooklyn, N.Y., assignor of a fractional part interest to Arnold Conn, Brooklyn, N.Y.
Original No. 3,720,318, dated Mar. 13, 1973, Ser. No. 127,292, Mar. 23, 1971. Application for reissue Nov. 23, 1973, Ser. No. 418,594

Int. Cl. E04h 3/16, 3/20

U.S. Cl. 210—169

14 Claims

An aquarium filter water recirculation system comprises a water-carrying and an inner air-carrying member at-



the water-carrying member. The base member is made of polyvinyl chloride and is provided with a corrugated regular contour above which rests the gravel bed of the aquarium.

28,117

PRODUCTION OF TORQUE YARN

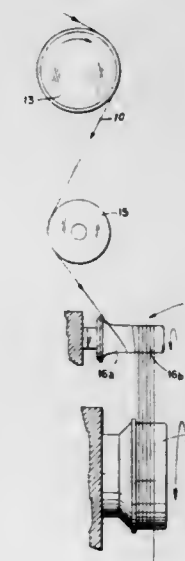
Charles M. Price, Candler, N.C., assignor to Akzona Incorporated, Asheville, N.C.

Original No. 3,559,391, dated Feb. 2, 1971, Ser. No. 740,869, June 28, 1968. Application for reissue Oct. 14, 1971, Ser. No. 189,276

Int. Cl. D02g 1/02, 1/08

U.S. Cl. 57—34 HS

16 Claims



PLANT PATENTS

GRANTED AUGUST 13, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,587

CHRYSANTHEMUM

Robert E. Danielson, West Chicago, Ill., assignor to Pan-American Plant Company, West Chicago, Ill.
Filed Aug. 16, 1972, Ser. No. 281,171
Int. Cl. A01h 5/00

U.S. Cl. Plt.—78

1 Claim

A new and distinct variety of *Chrysanthemum morifolium* of the standard incurved type providing very large, well formed, globular blooms having an overall light yellow color, the central florets having a somewhat darker shade of yellow than the much larger mass of outer florets, this new variety being the first yellow mutation of the variety Dignity (Plant Pat. 3,309).

3,588

CHRYSANTHEMUM PLANT

Leonard H. Shoesmith, Westfield-Woking, England, assignor to Pan-American Plant Company, Chicago, Ill.
Filed Aug. 10, 1972, Ser. No. 279,512
Int. Cl. A01h 5/00

U.S. Cl. Plt.—78

1 Claim

A new variety of chrysanthemum plant particularly suited for summertime greenhouse production as a pot plant and having a dependable nine-week response for photoperiod culture. This is a vigorous variety producing a strong, well branched plant when grown as a pot mum and appears to have no tendency to heat delay in warm seasons. In the wintertime, the flowers of this variety develop a light bronze coloring as they open but as the seasons become warmer, the flower color is a good and attractive yellow.

3,589

PEACH PLANT

Grant Merrill, 416 N. Anderson Road, Exeter, Calif. 93221
Filed Oct. 3, 1972, Ser. No. 294,669
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach substantially as illustrated and described, which is characterized by a medium to large tree, bearing regularly and heavily for its season relatively large fruit with skin colored from half to nearly all of its surface with bright red and with a yellow undercolor, with scant pubescence and with freestone yellow flesh that holds its firmness while on the tree after ripening so that the first fruit is still firm when the last fruit is ready to pick, allowing the fruit to be harvested in one picking, or if the tree is properly pruned it may be mechanically harvested in one picking without excessive damage to the fruit; and which most nearly resembles June Lady (Plant Pat. 3,022) and Harmony (Plant Pat. 2,152), but is an improvement thereon in that it ripens its fruit about a week later than June

Lady and is freer from the stone, and is an improvement on Harmony in having more red color on its skin and in remaining on the tree when ripe without softening so that it may be harvested in one picking.

3,590

PEACH PLANT

Grant Merrill, 416 N. Anderson Road, Exeter, Calif. 93221
Filed Oct. 3, 1972, Ser. No. 294,670
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach tree substantially as illustrated and described and particularly characterized as being a medium size tree regularly bearing large fruit having a surface covering of brilliant red over from half to almost all of its surface and with freestone yellow flesh that stays firm near the surface when ripe so it may be picked in one picking, or when properly pruned may be mechanically harvested in one picking, and which most nearly resembles Red Lady, also known as Scarlet Lady 2 (Plant Pat. 2,601), but is an improvement thereon in that it is a more vigorous tree and ripens its fruit about a week later.

3,591

CARNATION PLANT

Alexandre Barberet and Henri Blanc, La Londe, France, assignors to Laboratoire de Physiologie Vegetale de la Londe Barberet & Blanc, La Londe, France
Filed Mar. 30, 1973, Ser. No. 346,716
Claims priority, application Italy, Dec. 22, 1972, 33,460/72
Int. Cl. A01h 5/00

U.S. Cl. Plt.—70

1 Claim

A new variety of carnation plant of the miniature type distinguished by the pale pink color of its blossoms, the good branched arrangement of the inflorescence, its continuous high production of flowers on short sturdy stems, and its vigorous habit of growth.

3,592

CARNATION PLANT

Alexandre Barberet and Henri Blanc, La Londe, France, assignors to Laboratoire de Physiologie Vegetale de la Londe Barberet & Blanc, La Londe, France
Filed Mar. 30, 1973, Ser. No. 346,715
Int. Cl. A01h 5/00

U.S. Cl. Plt.—72

1 Claim

A new variety of carnation plant of the miniature type suitable for greenhouse production of cut flowers and most nearly resembling the miniature variety "Sam's Pride," this new variety being distinguished by the darker and bluish coloring of its flowers, the smaller size of its flowers which have fewer but more frilly petals, and its shorter and more rigid flower stems.

PATENTS

GRANTED AUGUST 13, 1974

GENERAL AND MECHANICAL

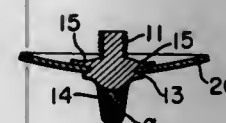
3,828,364

CALK FOR GOLF SHOES

Yahyo Aoyama, Tokyo, Japan, assignor to Miyata Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 29, 1973, Ser. No. 392,747
Int. Cl. A44b 21/00

U.S. Cl. 36—67 B

6 Claims



A calk to be mounted on the sole of a golf shoe, wherein the central spindle is made of a semi-hard steel containing about 0.45 percent of carbon and only the portion of said central spindle projecting below the base plate thereof is made to have a high hardness by quenching.

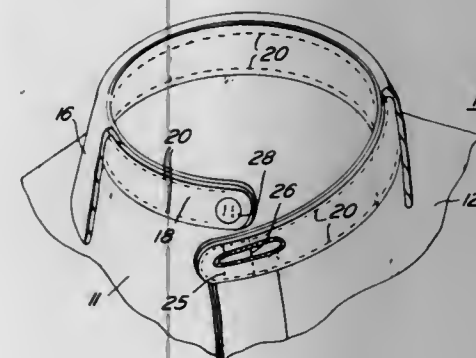
3,828,365

SELF-ADJUSTABLE SHIRT COLLAR

Samuel Berger, Apt. D-20, 4401 Conshohocken Ave., Philadelphia, Pa. 19131
Filed May 24, 1973, Ser. No. 363,404
Int. Cl. A41b 1/10

U.S. Cl. 2—128

6 Claims



A self-adjustable shirt collar is described in which the neckband of the collar comprises inner and outer bands with aligned button holes therein for engagement by the collar button on the neckband, an elastic strip being provided anchored in the inner and outer bands and spanning part of the length of the button hole for accommodation for the wearer to changes in neck size or neckband length.

3,828,366

PROTECTIVE FACE MASK

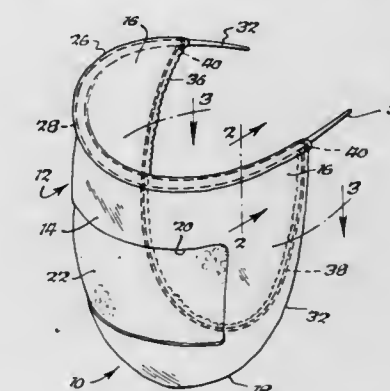
Victoria N. Conrad, 2007 Lockpark-Olcote Rd., Burt, N.Y. 14028, and Charles A. Nemec, 1586 Slayton Settlement Rd., Gasport, N.Y. 14067
Filed Mar. 20, 1972, Ser. No. 235,945
Int. Cl. A42b 1/18

U.S. Cl. 2—174

3 Claims

A protective face mask comprising a flexible mask body conforming generally to the facial configuration of a wearer

and being removably mounted at its upper end on a curved support member engageable with the upper portion of the



wearer's head. The central forward portion of the mask body is provided with a porous section for filtering out particulates and minute spray globules while permitting normal breathing.

3,828,367

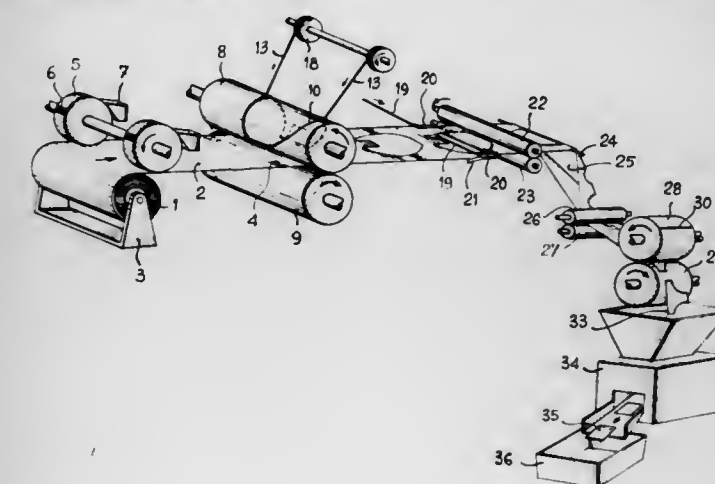
METHOD OF AND INSTALLATION FOR CONTINUOUS MANUFACTURE OF UNSEWN ARTICLES OF CLOTHING
Alain Bourgeois, Le Puy-Haute-Laire, France, assignor to Elastelle Paul Fontanille & Fils, Haute-Loire, France
Filed Sept. 16, 1971, Ser. No. 181,062

Claims priority, application France, Sept. 18, 1970, 70.33899

U.S. Cl. 2—224 A

Int. Cl. A41b 9/04

13 Claims



A method apparatus for installation for the continuous manufacture of articles of clothing constituted by a flexible non-elastic element on which is fixed locally at least one stretched elastic element adapted to confer on the said non-elastic element the faculty of stretching, the elastic element being fixed in position in the stretched condition. The said method comprising essentially the steps of: causing a continuous strip of said non-elastic element to travel, without being subjected to deformation, at a constant speed and always in the same direction; simultaneously causing at least one continuous tape or band of said elastic element to move in the same direction and at the same speed as the said strip, while subjecting said elastic tape to a pre-determined stretch; fixing the said elastic tape in the stretched condition on the said non-elastic strip; and cutting the assembly formed by the non-elastic strip and the elastic tape fixed on said strip, transversely to the direction of travel so as to obtain a continuous series

of articles separated from each other; the said non-elastic strip being further subjected at regular intervals to a second cutting operation following a predetermined outline so as to form rough shapes of the articles to be obtained.

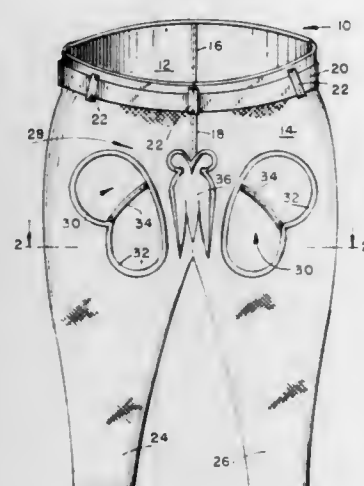
3,828,368 WEARING APPAREL

Josephine Lam, P.O. Box 335 Canal Street Station, New York; N.Y. 10013

Filed May 21, 1973, Ser. No. 362,206
Int. Cl. A41d 1/06

U.S. Cl. 2-227

7 Claims



Wearing Apparel comprising a conventional pair of pants or trousers provided with a modified seat or rear portion thereof. The seat of the trousers is provided with apertures, openings or cutout portions therein, thereby exposing the wearer's skin or garment disposed beneath the trousers. Preferably, the cutout portions are symmetrical with respect to the rear trouser seam and display a particular design. A binding is preferably sewn to the edges of the cutout portion to provide a finished appearance and strengthen same. Additionally, an applique may be sewn to the seat between the pair of openings to complete the design, wherein the applique strengthens the rear trouser seam. In a modified form, a cover member is detachably connected to the seat of the trousers to cover the cutout portions.

3,828,369 ELASTIC STOCKING WITH A SPLIT ADJUSTABLE THIGH PANEL

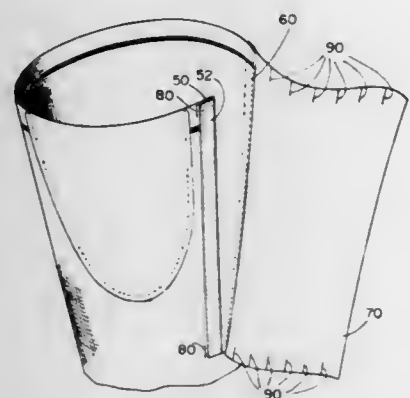
Roger T. Swallow, 40 Dartmoor Dr., Crystal Lake, Ill. 60014

Filed Dec. 29, 1972, Ser. No. 319,181

Int. Cl. A41b 11/00

U.S. Cl. 2-239

2 Claims



An elastic stocking has an upper thigh panel which is adjustable both at the top and bottom of the panel and is fastened in adjustable overlapping relation according to the location of printed indicia that appears along both the top and bottom edges of the panel for indicating where the fastening

means should hold the overlapping part of the panel according to the known upper and lower circumferential thigh dimensions of the wearer.

3,828,370 BAND ADJUSTING DEVICE FOR GARMENTS

Johannes Ihmels, Berchhof-Benn-Strasse 11, 4505 Iburg Teutoburgerwald, Germany

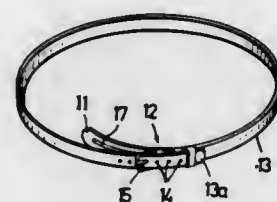
Filed Nov. 9, 1972, Ser. No. 305,034

Claims priority, application Germany, Nov. 10, 1971, 7143337; Jan. 21, 1972, 2202822; Oct. 17, 1972, 7238011

Int. Cl. A41f 9/00

U.S. Cl. 2-322

7 Claims



A band adjustment device for garments having overlapping parts separated from each other in the region of the waist or hips, for example trousers with overlapping front and back parts, characterised by the feature that a strip which forms a belt member is secured adjustably within a limited range and fixed in position on a buckle, preferably having a pivotal spike and said strip is provided with an oblong opening extending in the longitudinal direction of the strip and the buckle has a member limiting the longitudinal adjustment of the strip and engageable in the opening in the strip.

3,828,371 SELF-CONTAINED ARTIFICIAL HEART

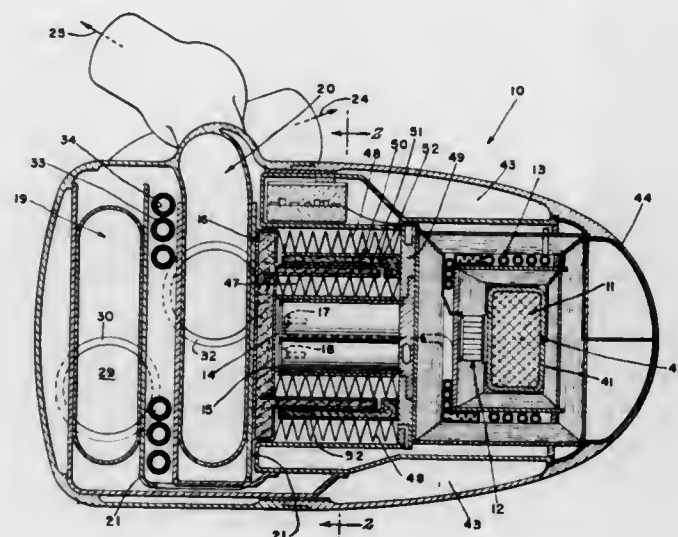
David L. Purdy, Indiana, Pa., assignor to ARCO Nuclear Company, Philadelphia, Pa.

Filed Dec. 18, 1970, Ser. No. 99,635

Int. Cl. A61f 1/24

U.S. Cl. 3-1

18 Claims



A small, self-contained blood pump with integral power source comprising an isotopic thermal source which drives both a Rankine cycle steam engine and a thermoelectric converter which generates electricity to drive a physiologically-responsive beat rate control system, a solenoid-driven feed liquid pump, and a pulmonary edema protection system.

3,828,372 RECIRCULATING SEWERAGE SYSTEM

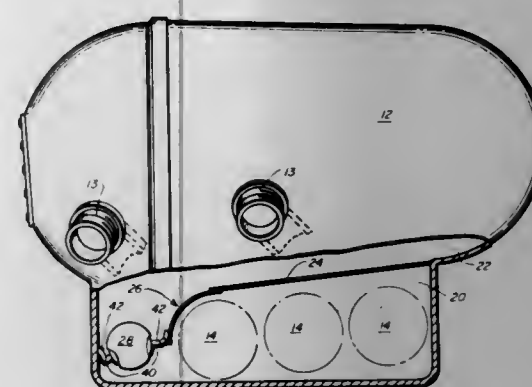
Alan H. Cornish, Newington, Conn.; George W. Foster, Los Angeles, and Alexander J. Campbell, Altadena, both of Calif., assignors to Koehler-Dayton, Inc., New Britain, Conn.

Filed Jan. 24, 1973, Ser. No. 326,435

Int. Cl. E03d 5/01, 5/16

U.S. Cl. 4-10

3 Claims



A recirculating sewerage system comprising at least one water closet, a recirculating tank including effluent receiving and pumping chambers separated by a common wall, a pump including a filtering element for drawing liquid from the pumping chamber and for directing the drawn liquid to the water closet to flush same, and a drainage opening defined in the bottom of the recirculating tank. The common wall including a filter for restricting the flow of bulk waste including paper products from the effluent receiving chamber to the pumping chamber; an opening; a drainage valve selectively sized for placement within the common wall opening and selectively displaceable from a first position whereat the drainage opening is closed to a second position whereat the drainage valve is open. Sealing means for effectively preventing the passage of effluent from the effluent receiving chamber through the common wall opening into the pumping chamber when the drainage valve is at the first position. The displacement of the drainage valve to the second position establishing a direct passage from each of the chambers to the drainage opening whereby both chambers will be completely drained.

3,828,373 OUTDOOR WASH STAND

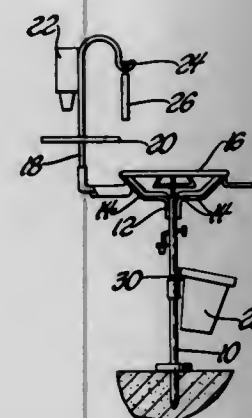
Francis C. Fraley, 535 N. Third St., Saint Clair, Mich. 48079

Filed Oct. 26, 1972, Ser. No. 301,080

Int. Cl. A47k 1/04, 1/05

U.S. Cl. 4-170

4 Claims



A wash stand for outdoor use and comprising a ground stake of sufficient length to stand at substantially waist height as vertically erected, a plurality of wire form members engaged to the ground stake and extended radially outward and upward at their ends to receive and support a wash bowl therewithin, and arcuate sectors provided on said wire form

members for peripheral engagement and support of the wash bowl inwardly thereof and providing radiused cross members outwardly thereof for towel bar and other uses.

3,828,374 CONVERTIBLE BERTH

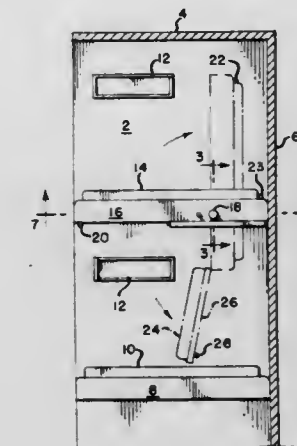
Richard J. Del Missier, Seattle, Wash., assignor to Tri-Way Industries, Inc., Seattle, Wash.

Filed Dec. 21, 1972, Ser. No. 317,414

Int. Cl. A47c 17/40

U.S. Cl. 5-9 B

4 Claims



A two-level berth structure for use on ships or the like including a counterbalanced upper bunk mounted on a pivot having a torsion spring secured thereto. The pivot is rearward of the longitudinal centerline of the bunk such that the normal position i.e. the position reached by gravitational force would be down or horizontal. The lower portion of the bunk is hinged at the afteredge, when the upper bunk is raised to its vertical position the hinged portion swings downwardly to form a back supporting rest for an individual seated on the lower bunk. Movement of the upper bunk to the vertical position not only provides a back support but also provides ample clearance for the individual's upper torso.

3,828,375 STORABLE BEDS

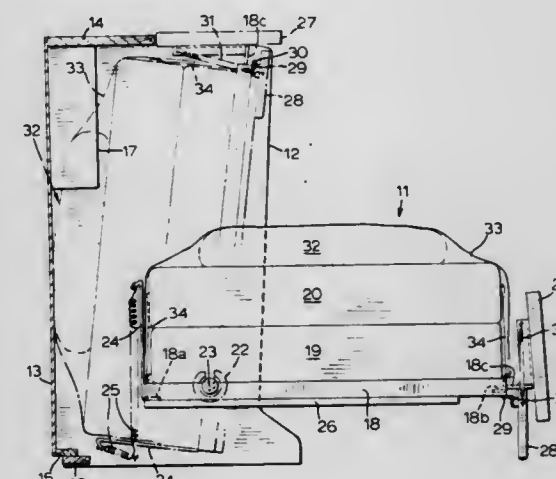
Wilfred D. Driver, Box 132, Thessalon, Ontario, Canada

Filed Nov. 24, 1972, Ser. No. 309,309

Int. Cl. A47c 17/52

U.S. Cl. 5-160 R

4 Claims



In a storable bed comprising a cabinet and a bed frame which is enclosed in the cabinet in a stored position, the frame has a front panel member fastened to its underside and a top panel member fastened to one longer edge, the top panel member constituting a bed side panel in the usable position, while it completes the cabinet top and determines the stored position of the frame in the stored position. A leg panel is pivoted to the bed frame and moves between stored and usa-

ble positions under its own weight; in the usable position thereof it constitutes a support leg for the frame extending alongside the bed side panel, while in the stored position it constitutes a front panel member of the cabinet enclosing the bed frame.

3,828,376

MOLDED BED FRAME LEG

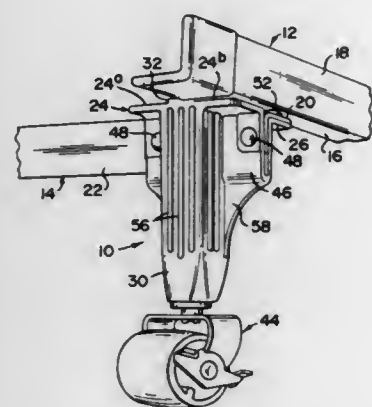
Richard A. Miller, Bedford Heights, Ohio, assignor to Rusco Industries, Inc., Los Angeles, Calif.

Filed July 19, 1973, Ser. No. 380,585

Int. Cl. A47c 19/00

U.S. Cl. 5-200 R

6 Claims



A molded plastic one-piece bed frame support leg having a pair of parallel, laterally spaced upper flange means, a U-shaped section connecting the flange means together and adapted to receive a leg of a cross rail angle therein, and a center tubular support section connecting to one of the flange means and blending into part of the U-shaped section. A caster can be completely received in and supported by the lower end of the tubular support section which is vertically extending when the bed frame is in use.

3,828,377

ADJUSTABLE BODY REST

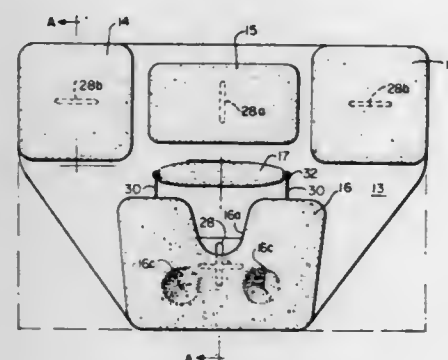
George D. Fary, Sr., P.O. 258, Falling Waters, W. Va. 25419

Continuation-in-part of Ser. No. 329,041, Feb. 2, 1973. This application Sept. 11, 1973, Ser. No. 396,130

Int. Cl. A47c 21/00, 7/32

U.S. Cl. 5-327 B

10 Claims



An adjustable head and upper body rest is disclosed which is intended primarily for supporting the body while lying face down. A head or face rest having an open portion for the nose and mouth is provided, together with chest and shoulder supports, permitting proper weight distribution and adjustment to different body dimensions, and allowing ease of breathing and body comfort.

3,828,378

SUPPORT MEANS FOR THE EVEN DISTRIBUTION OF BODY PRESSURE

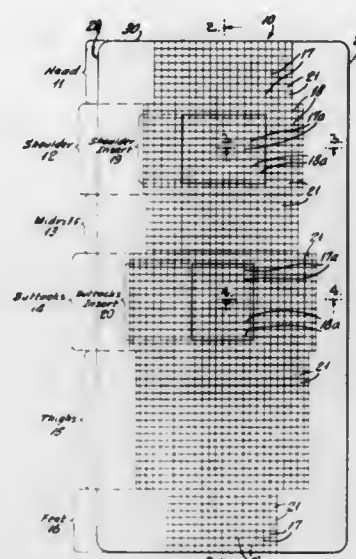
Eric Flam, East Brunswick, N.J., assignor to Johnson & Johnson, New Brunswick, N.J.

Filed July 31, 1972, Ser. No. 276,506

Int. Cl. A61g 7/02; A47c 27/22

U.S. Cl. 5-345 R

6 Claims



A mattress is provided having a gradation of its compression modulus such that the weight of a person reclining thereupon is distributed uniformly. In the preferred embodiment, intersecting cut scores extend partially into the mattress and at their intersections provide upstanding columnar tufts. The mattress is especially useful for supporting patients susceptible to decubitus ulcers or who have traumatized skin resulting from burns and the like.

The surface area of the columnar tufts and the variance of the depth of the cut scores in the preferred embodiment reduces the pressure on body surfaces not only to below that which would occlude arteries, but on some surfaces to below the value determined to occlude capillaries. In one embodiment, areas of highest expected pressure are recessed below the mattress surface. The mattress can be wet-proofed by applying a film to clusters of the columnar tufts.

3,828,379

CAMPER CONVERTA BOAT

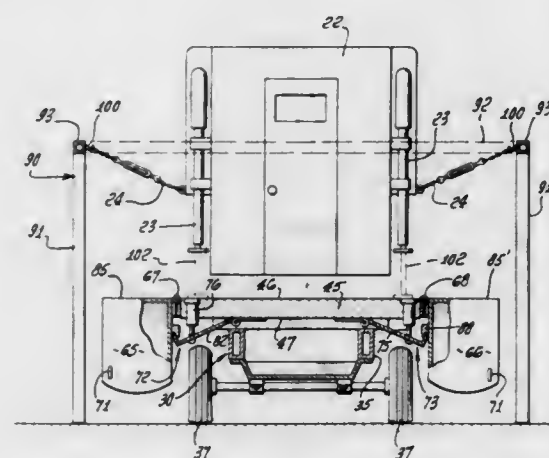
Bobby J. Walston, 4457 Parker Ave., Bakersfield, Calif. 93309

Filed June 1, 1973, Ser. No. 365,959

Int. Cl. B63c 13/00

U.S. Cl. 9-1 T

3 Claims



A camper converta-boat which is a camper-boat combination utilizing a conventional automotive camper, the body of which is removable from the truck chassis and is coupled with a flat bed trailer on which is supported for transportation purposes a catamaran type boat with a flat deck, including

catamaran type pontoons for flotation purposes which are hinged to the deck body and foldable inwardly to reduce width for transportation, and swung down at the sides and locked in position for boating purposes.

3,828,380

FIXED FREEBOARD SPAR BUOY

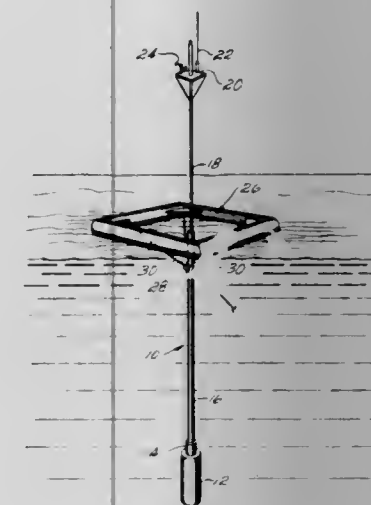
Morris Lebovits, and James C. Schaff, both of San Diego, Calif., assignors to Global Marine Inc., Los Angeles, Calif.

Filed Mar. 8, 1973, Ser. No. 339,414

Int. Cl. B63b 21/52

U.S. Cl. 9-8 R

4 Claims



There is described an instrumentation buoy having an elongated vertical spar, the upper end of which has a collar to which is tied by a group of slack flexible lines, an annular float which surrounds the upper end of the spar. The flexible attachment between the float and the spar isolates pitch and roll motions of the float from the spar while providing coupling to vertical heave.

3,828,381

SAFETY SWIM OR SAFETY FLOAT EMERGENCY FLOAT

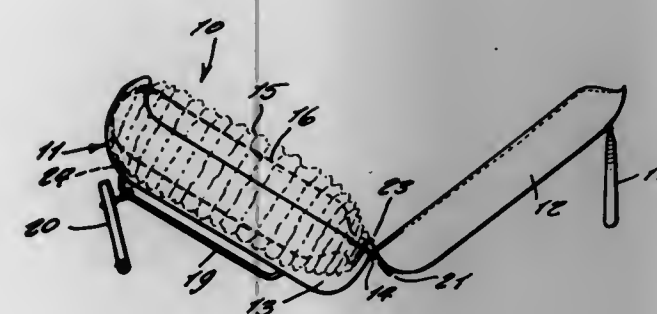
Irwin D. Prager, 34 Malone Ave., Staten Island, N.Y. 10306

Filed Feb. 6, 1973, Ser. No. 330,038

Int. Cl. B63c 9/16

U.S. Cl. 9-316

3 Claims



An emergency water safety device designed primarily for protection of individual persons on or in the water, the device consisting of a capsule to be worn by a swimmer, the capsule containing an inflatable bladder and compressed gas cylinder, a pull on the outside of the capsule being operable by a swimmer when in emergency of drowning, the pull activating a mechanism that releases the gas into the bladder which when inflated opens the capsule so to float upon the water.

3,828,382

METHOD OF MANUFACTURING A FASTENER SUCH AS A BOLT, RIVET, OR THE LIKE

Yoshio Nakamura, Tokyo, Japan, assignor to Toyo Purasu Sukuryu Kabushiki Kaisha (Toyo Plus Screw Co., Ltd.), Kanagawa-Ken, Japan

Filed May 4, 1971, Ser. No. 140,093

Claims priority, application Japan, May 6, 1970, 45-37932

Int. Cl. B21k 1/46

U.S. Cl. 10-27 R

13 Claims



A method of manufacturing a fastener such as bolt, rivet and the like having an integrated flange on the head. The flange may be made of any metal and in any form, but must have a central flat part where it is integrated with the head. The head is two stage cold headed. After a first flowing cold heading, the head is inserted into an opening in the central flat part of the flange and finishing cold headed simultaneously with the integration of the flange on the head so that flow of structure of the head partly surrounds the part of the flange received in the head.

3,828,383

CONTROL ASSEMBLY FOR ATTACHMENT TO A MACHINE TOOL TO CONTROL THREAD TAPPING OPERATIONS

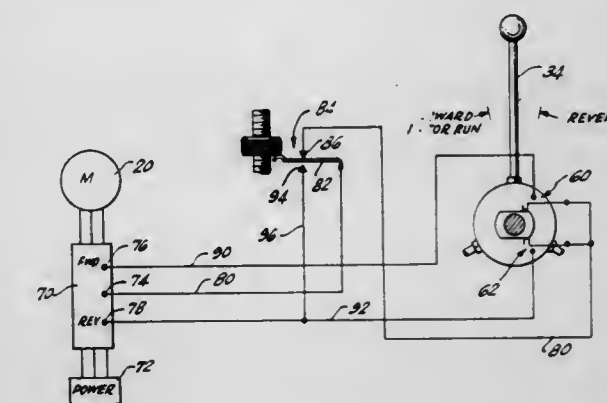
Colin G. Johnstone, 38732 Puerta St., Palmdale, Calif. 93550

Filed Sept. 4, 1973, Ser. No. 394,128

Int. Cl. B23g 1/18

U.S. Cl. 10-136 E

20 Claims



A control assembly for attachment to a machine tool such as a drill press or vertical miller, to control thread tapping operations. Such a machine tool typically includes a frame, a quill movable linearly on the frame supporting a motor driven spindle which turns a thread tap, and a control shaft for moving the quill. The control assembly includes an inner sleeve mounted on the control shaft and a concentric outer sleeve to which a control handle is connected. A lost motion connection enables the outer sleeve to move between opposite extreme positions relative to the inner sleeve and it is yieldably biased to an intermediate, neutral position. When the outer sleeve is at one extreme the motor is energized to drive the spindle in a direction causing the thread tap to feed into the workpiece. When it is at the other extreme, the motor turns the spindle in an opposite direction to feed the thread tap out from the workpiece. During other operations of the machine not involving thread tapping, the inner and outer sleeves can be locked together.

3,828,384

MACHINE FOR TREATING LASTED UPPERS

Johann Bechtold, Oberursel, Germany, assignor to Maschinenfabrik Moenus Aktiengesellschaft, Frankfurt/Main, Germany

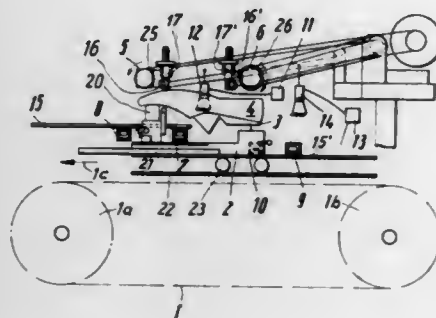
Continuation-in-part of Ser. No. 255,052, May 19, 1972, Pat. No. 3,733,632. This application Mar. 5, 1973, Ser. No. 338,403

Claims priority, application Germany, Mar. 6, 1972, 221064

U.S. Cl. 12-1 A

Int. Cl. A43d

10 Claims



The roughening machine for lasted uppers described in my copending allowed application Ser. No. 255,052, discloses the automatic transport of a lasted upper to roughening brushes. In accordance with the invention, pinched folds in the front and heel portions of the upper, are automatically removed by grinding or milling tools which, under the control of limit switches, are moved to an operative position when passed by the transported upper, before the upper is treated by the roughening brush.

3,828,385

APPARATUS FOR ASSEMBLING SHOE PARTS

Frantisek Jancik, and Josef Polach, both of Gottwaldov, Czechoslovakia, assignors to SVIT, narodni podnik, Gottwaldov, Czechoslovakia

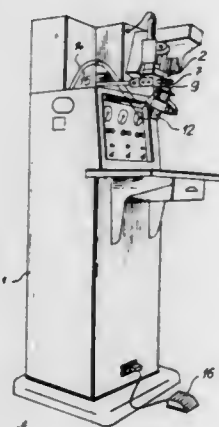
Filed Apr. 9, 1973, Ser. No. 349,313

Claims priority, application Czechoslovakia, Apr. 7, 1972, 2312-72

Int. Cl. A43b 5/12, 13/28

U.S. Cl. 12-24.5

7 Claims



Apparatus for covering shoe parts, such as molded insoles particularly, in which a frame has supported thereon a screw wiper arranged behind a pair of adjacent frusto-conical inner and outer pulling rolls. A presser means, such as a presser disk, is supported on a piston rod of a pressure cylinder containing a labyrinthine piston, the pressure cylinder being located below the screw wiper and pulling rolls, and movable in an axis parallel to the line of engagement of the pulling rolls.

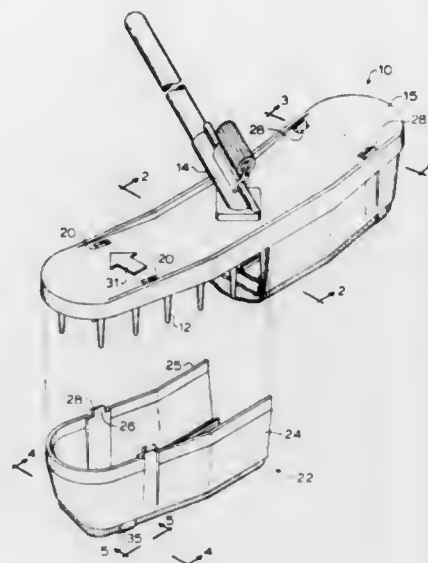
3,828,386

RUG CARE IMPLEMENT

Eric Michael Roth, R.R. No. 1, Unionville, Ontario, Canada
Continuation-in-part of Ser. No. 178,082, Sept. 7, 1971, abandoned. This application July 5, 1972, Ser. No. 269,166
Int. Cl. A46b 9/02; A47l 13/42

U.S. Cl. 15-105

8 Claims



Slides mounted over a slant pile fabric and extending approximately in the direction of the slanting pile allow use of such fabric to brush a rug. The fabric, its holder and slides can form part of an adaptor for a rug rake.

3,828,387

ROTATABLE BRUSH FOR CLEANING APPARATUS

Johannes Liebscher, Nassau Lahn, Germany, assignor to Leifhehl International Gunter Leifhehl KG, Nassau/Lahn, Germany

Filed July 13, 1971, Ser. No. 162,207

Claims priority, application Germany, July 28, 1970, 7028262

Int. Cl. A46b 7/10, 1/00

U.S. Cl. 15-182

6 Claims



A rotatable brush for cleaning apparatus is composed of a shaft supported for rotation within the apparatus. Attached to the shaft are a plurality of rows of bristles extending along the shaft in radially spaced relationship. The bristles are inclined relative to the axis of the shaft to permit maximum bristle length without increasing the overall diametrical dimension of the brush.

3,828,388

WINDSHIELD WIPER BLADE SNOW AND ICE SCRAPER ATTACHMENT

John R. Fuhr, Stone Gate Apt., Block 7, Apt. C6, Peekskill, N.Y.

Filed Mar. 23, 1973, Ser. No. 344,226

Int. Cl. B60s 1/04

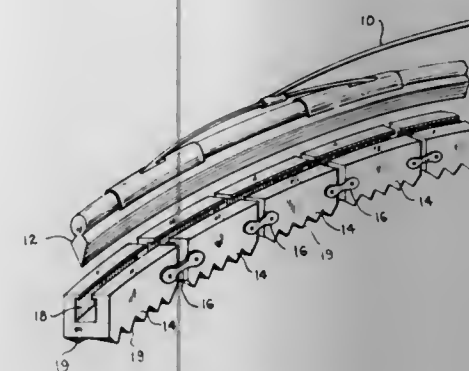
U.S. Cl. 15-250.41

8 Claims

An attachment for fitting over a standard vehicular windshield wiper which scrapes snow and ice from the windshield. The scraper takes the form of a multiplicity of

scraper blocks which are interconnected by chains or hinges so that the scraper blocks articulate over the outer surface of

and progressively sprayed onto the carpet and then evacuated and discharged with entrained dirt, the improvements including arrangement of a dual purpose pump to provide the necessary suction into a filter as well as to apply sufficient pressure on the retrieved dirty water to drive the same toward a drain, and the cleaning head used to traverse the carpet is balanced



the windshield. Because of the swivel action of the scraper block segments, the curvature of any windshield is followed and effective scraping action is achieved.

3,828,389

UNITARY CONTAINER HAVING A HINGED PANEL WITH A TRAY CONFIGURATION

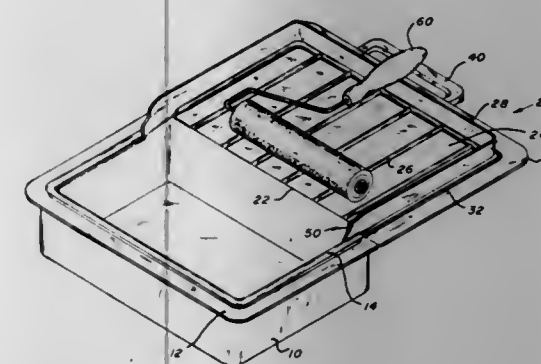
Raymond A. Heisler, 657 Dakota Trl., Franklin Lakes, N.J. 07417

Filed Mar. 9, 1973, Ser. No. 339,591

Int. Cl. B65d 43/10, 43/16

U.S. Cl. 15-257.06

11 Claims



This invention pertains to a unitary container preferably generally rectangular in configuration. This container has one side or panel portion thereof hinged to the remainder of the container. This side or panel portion of the container is configured so that in its open condition there is provided a rimmed tray which may be used as a paint storage tray such as used with rollers and the like. The rim portion of the traytype side portion is adapted to fit within the rectangular remaining portion of the container. This remaining portion of the container provides the storage area. There is provided also an engaging tongue and groove portion which provides the seal of the container after initial use. The container in its initial condition has outwardly extending flange portions which are sealed to each other to provide a hermetic and fluid-tight seal of the container for storage, shipping and to prevent unwanted tempering.

3,828,390

CARPET CLEANING MACHINE

Jerome D. Cater, 14135 Ezra Ln., Poway, Calif. 92064

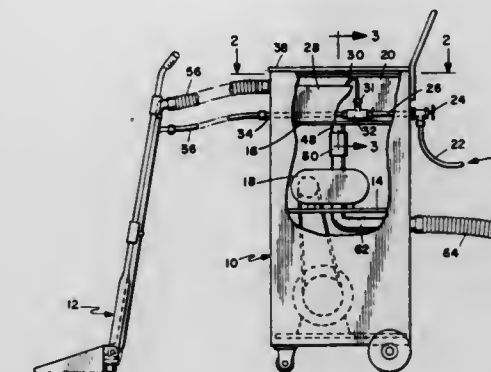
Filed Sept. 13, 1971, Ser. No. 179,712

Int. Cl. A47l 7/00

U.S. Cl. 15-321

1 Claim

Improvements in a carpet cleaning machine of the type employing hot water with a cleaning additive, ordinarily liquid,



and weighted and has multidirectional spray nozzles for the hot water spaced sufficiently from the actual vacuum duct to assure reasonable time for the water and chemicals in the water to achieve their cleaning action before being drawn back into the cleaning head as the latter is moved at normal speed over the carpet.

3,828,391

TACKLESS CARPET STRIPPING

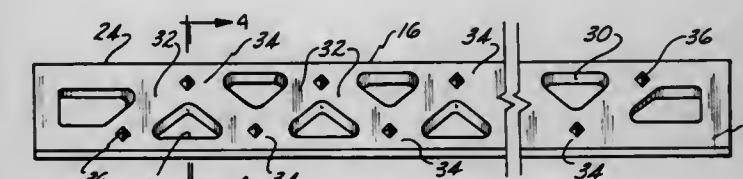
Lawrence R. Sutton, Detroit; Carl P. Ranno, Grosse Pointe Park, and Kenneth E. Hewson, Farmington, all of Mich., assignors to Performance Industries Inc., Pontiac, Mich.

Filed July 13, 1972, Ser. No. 271,376

Int. Cl. A47g 27/04

U.S. Cl. 16-16

6 Claims



A tackless carpet stripping for attaching carpet or the like to a floor in a room wherein the stripping is fastened to the floor along the peripheral edge of the floor adjacent the walls of the room. The tackless carpet stripping is a one-piece integrally molded structure having an elongated member with its lower surface positioned on the floor and fastened thereto by means of nails or the like. The upper surface of the elongated member has a plurality of integral sharp-ending holding members projecting toward the wall at an angle inclined with respect to the upper surface of the elongated member. In the preferred embodiment the stripping has a plurality of regularly spaced apertures extending from the upper to the lower surface of the elongated member and is fabricated from a plastic material, such as polystyrene.

3,828,392

SWIVEL LOCKING CASTER BRAKE

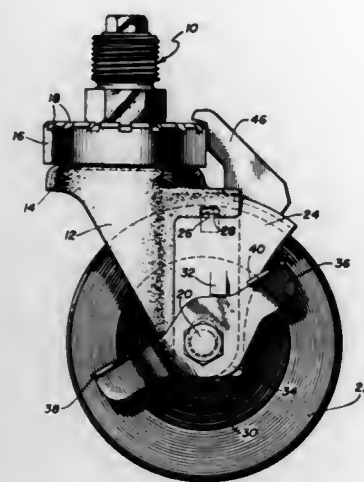
Joseph Bolger, Summer St., Barre, Mass. 01005

Filed Aug. 23, 1972, Ser. No. 283,097

Int. Cl. B60b 33/00

U.S. Cl. 16—35 R

1 Claim



A swivel locking caster brake including a one-piece wheel brake and swivel lock constructed and arranged to apply the swivel lock separately prior to the application of the brake to the wheel.

3,828,393

DOOR RETURN AND CLOSURE MECHANISM

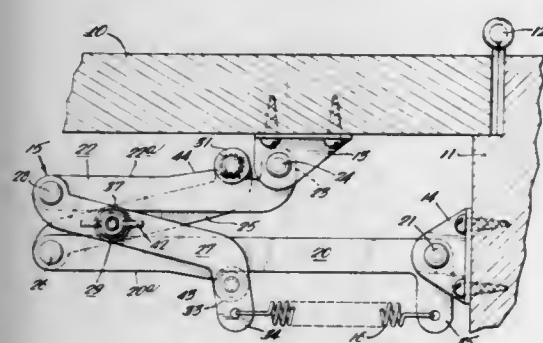
Charles Gorgas Pierie, 1460 Creek Rd., Huntingdon Valley, Pa. 19006

Filed Oct. 25, 1973, Ser. No. 409,408

Int. Cl. E05f 1/08

U.S. Cl. 16—65

8 Claims



A spring powered door closure is disclosed consisting of two primary levers pivotally connected to the door and frame respectively. The outer free ends of the two primary levers are interconnected by a pair of crossed connecting links. The connecting links are pivotally interconnected at their midpoints, have their outer end pivotally connected to the free end of a primary lever and their inner end interconnected with the other primary lever in a manner permitting a sliding connection with the primary lever. A tension spring connected between the inner end of one connecting link and the door frame exerts a closing force on the door. As the door approaches a closed position and the force exerted by the spring decreases, the sliding connection of the connecting links to the primary levers increases the moment arm of the primary levers resulting in a substantially uniform closing force on the door throughout its entire path of travel.

3,828,394

HINGE-DEVICE AND METHOD

William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

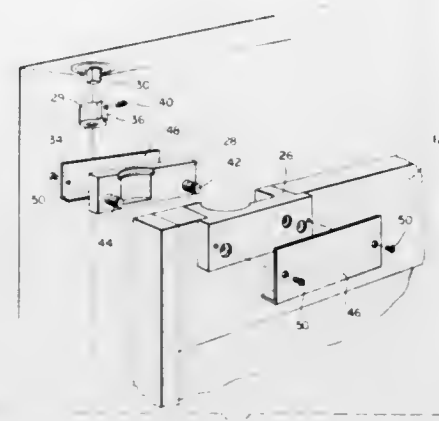
Continuation-in-part of Ser. No. 107,232, Jan. 18, 1971, Pat. No. 3,722,029. This application Dec. 5, 1972, Ser. No. 312,363

The portion of the term of this patent subsequent to Jan. 1, 1988, has been disclaimed.

Int. Cl. E05d 7/08

U.S. Cl. 16—129

8 Claims



A hinge for use with glass doors having solid frames includes a split hinge element for embracing a pivot in the frame around the door and providing a means and method of hanging the door.

3,828,395

TOILET SEAT RETAINER

Michael J. Grady, Annapolis, Md., assignor to Marshall A. Binder, Anne Arundel County, Md., a part interest

Filed Aug. 16, 1972, Ser. No. 281,147

Int. Cl. E05d 11/08; A47k 13/24

U.S. Cl. 16—137

5 Claims



A device readily attached to toilets without tools or special skills to frictionally engage the transverse rear edge of a toilet seat and retain it open when it otherwise would fall down as a result, for example, of the presence of a thick, decorative cover on the toilet lid.

3,828,396

ANAESTHESIA PLANT FOR ANIMALS TO BE SLAUGHTERED

Niels-Erik B. Wernberg, Teglvaerksgade 37, 2100 Copenhagen O, Denmark

Filed May 4, 1972, Ser. No. 250,164

Claims priority, application Denmark, May 4, 1971, 2149/71

Int. Cl. A22b 3/08

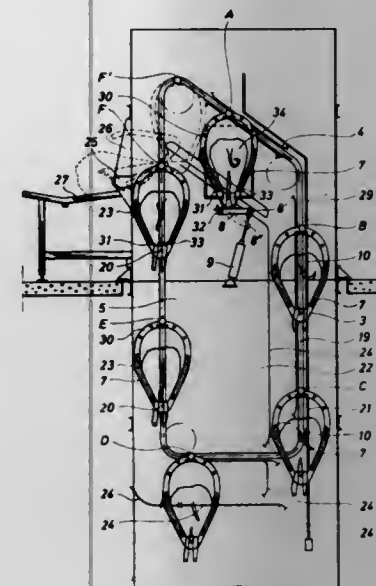
U.S. Cl. 17—1 R

8 Claims

It is known to slaughter hogs in an anaesthesia plant in which the hogs are hanging in traps shaped as troughs suspended in a two-chained paternoster elevator leading the troughs through a pit-shaped gas chamber. The trap has a tiltable side wall permitting the animal to be taken out from the plant in the vicinity of the entrance of the plant.

It is now suggested to arrange a gable at each end of each trap, said gable being suspended in the elevator and being al-

ways kept in a vertical position. In each pair of gables the trap is suspended in its entirety on pivots in the one side of the ga-



3,828,397

POULTRY STUNNING APPARATUS

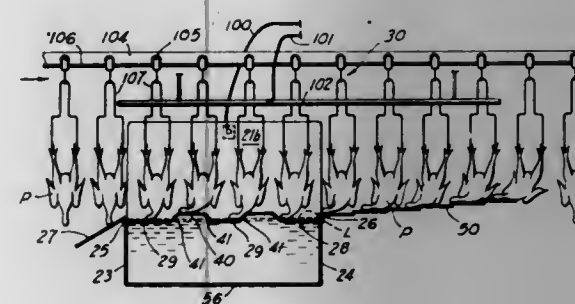
Grover S. Harben, Jr., Gainesville, Ga., assignor to Gainesville Machine Company, Inc., Gainesville, Ga.

Filed Sept. 26, 1972, Ser. No. 292,391

Int. Cl. A22c 21/00

U.S. Cl. 17—11

8 Claims



A poultry stunning apparatus and method for stunning and thereby immobilizing poultry for a sufficient length of time that it can be more readily handled for killing.

The apparatus includes a tank for containing a non-toxic electrolyte liquid, such as salt and water, the level of which is maintained by a float valve. Poultry, disposed head down on successive shackles, are moved across the tank at such a height with respect to the tank that the head of each bird is pulled along the surface of a foraminous electrode tray, successive increments of which are disposed in staggered relationship, slightly above and slightly below the liquid level. Thence, the bird is pulled up an inclined drain plate which directs excess liquid back into the tank.

Cranks and cables enable the tank to be raised or lowered so as to be at the proper level for the poultry line. Make-up water is automatically fed to a feed tank over a grid type strainer on which salt crystals are deposited for being dissolved in the make-up water.

An electrical circuit from the shackle to the tank is closed by the fowl, when its head contacts the electrolyte, thereby stunning and immobilizing the bird.

3,828,398

METHOD AND APPARATUS FOR SHUCKING BIVALVES

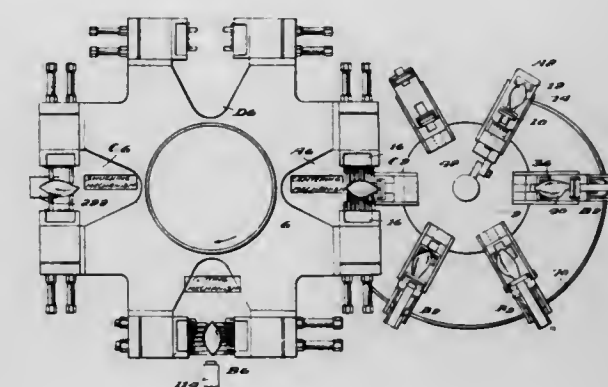
Sterling G. Harris, Beaufort; Joseph D. Smith, Orangeburg; David D. McCall, Orangeburg; Glenn S. Moore, Orangeburg, all of S.C.; William P. Hidden, Wenham, and Noel Svendsen, Bedford, both of Mass., assignors to Harris Automated Machinery Company, Beaufort, S.C.

Filed May 6, 1971, Ser. No. 140,686

Int. Cl. A22c 29/00

U.S. Cl. 17—74

95 Claims



A bivalve shucking machine includes a spider rotatable about a vertical axis, on the arms of which are mounted bivalve holders the jaws of which are differentially operated to grip successive bivalves fed thereto, from which a substantial part of the liquid between the shells has been removed, and in the same orientation in which the hinge end is upward and the center of the adductor muscles are at the same distance from the axis of rotation of the spider. The spider is rotated to bring the bivalve beneath one or more vibrators, the vibrators then being lowered to bring them into engagement with the bivalves, and the vibrators then operate to vibrate the shells to cause the meat to fall into the lower parts. The bivalves are then raised at another station of the holders between two gripping members mounted on a rotating table and gripped between the gripping members, whereupon the holder is released and moved downward. The bivalves are then moved past a rotating saw blade which cuts off enough of the tops to remove the hinge and leave a hole. At a further station, the upper edges of the shell adjacent the hole are arranged from the inside and the outside, the gripping force is reduced while the upper edges are pulled apart and then gripped more securely. Knives are passed from above downward through the enlarged hole between the shell engaging members to sever the adductor muscles and, passing completely through the bivalve, to spread apart the lower end of the shells to allow the meat to drop out between the bottom ends of the shells. The engaging members are released, and the shells are carried to another station and dropped.

3,828,399

APPARATUS FOR FELTING FIBROUS ELEMENTS

Robert D. Lambert, Fort Wayne, Ind., assignor to Multiply Development Corporation Ltd., Vancouver, B.C., Canada

Filed Mar. 9, 1972, Ser. No. 233,244

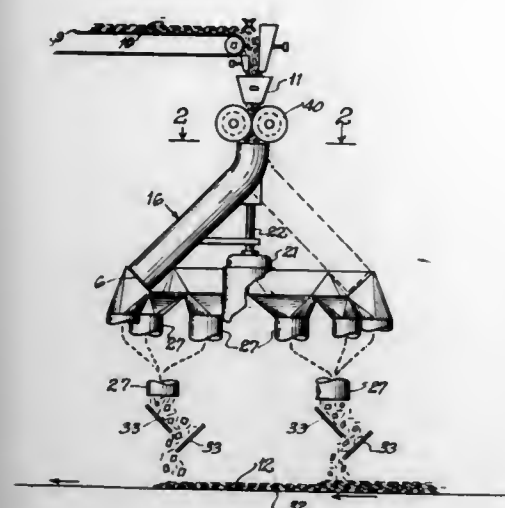
Int. Cl. D01g 25/00

U.S. Cl. 19—155

8 Claims

Improvements are disclosed for securing a greater uniformity of the deposition on a moving surface, of particulate material flowing uniformly to the depositing means in a narrow

stream, to form a mat of any desired width on the moving surface, by feeding the stream into the center of the intake of a



horizontally revolving distributor whose outlet continuously discharges portions of the material into a circular arrangement of inlets of individual conveyors.

3,828,400

HYDRAULIC MOTORS AND THE LIKE

Brian Edward Mason, and Michael Iain Young, both of London, England, assignors to Chamberlain Industries Limited, London, England

Filed Jan. 27, 1972, Ser. No. 221,366

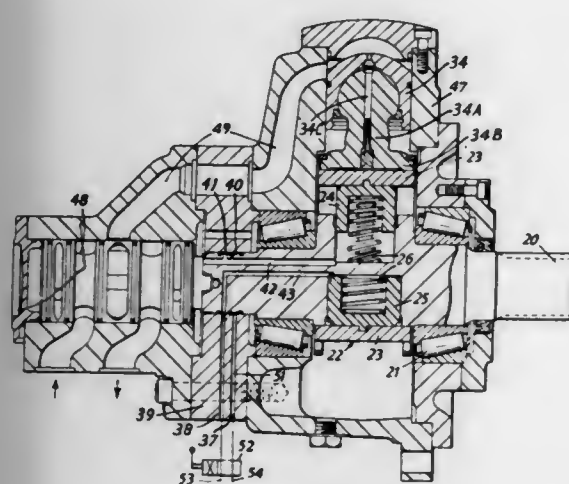
Claims priority, application Great Britain, Jan. 29, 1971, 3532/71

Int. Cl. F01b 13/06; F04b 1/30

U.S. Cl. 91-497

8 Claims

U.S. Cl. 24-81 PH



A radial-cylinder hydraulic motor in which a series of reciprocating pistons are arranged around an eccentric mounted on a drive shaft, has a novel eccentric construction, the eccentric comprising an annulus which is driven by the pistons, and opposed piston-and-cylinder devices which are based on said drive shaft carry the annulus towards and away from the axis of the drive shaft to vary the throw of the eccentric and thus the displacement of the motor. The piston-and-cylinder device which moves the annulus away from the shaft axis is preferred to have a larger effective working area than the piston-and-cylinder device which moves the annulus towards the shaft axis.

3,828,401
NON-STAKING CORNER SLUGS FOR JOINING MITRED EXTRUSIONS

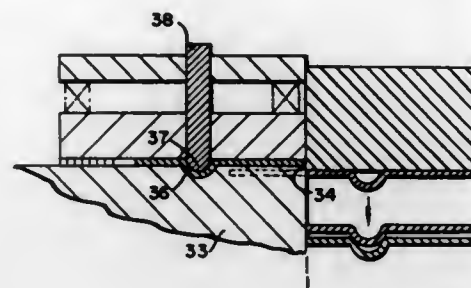
Steve Poyak, 10 Starr Ave., Danbury, Conn. 06810

Filed Apr. 6, 1973, Ser. No. 348,731

Int. Cl. A44b 21/00; F16b 1/00

U.S. Cl. 24-73 B

14 Claims



Substantially flat L-shaped corner slugs adapted for insertion in ways formed in mitred extrusions are provided with a raised central bead or ridge arched upwardly. The corner slugs are inserted in the extrusion ways and the mitred extrusions are assembled in their desired final relationship. The beaded corner slugs are then flattened, spreading their edges into swaged deformed interfering relationship with the extruded ways, firmly securing the mitred extrusions in their assembled condition. The corner slugs may be provided with either straight or saw-toothed edges; several different bead cross-sections are contemplated; and the extent of bead flattening is greater at the ends of the corner slugs than at their apices, maximizing the strengthening effect of the bead or rib, at the corner of the assembled mitred extrusion unit.

3,828,402

DEVICE FOR RELEASABLE GRIPPING ARTICLE

Walter M. Gorman, 45 Glen Ave., Troy, N.Y. 12180

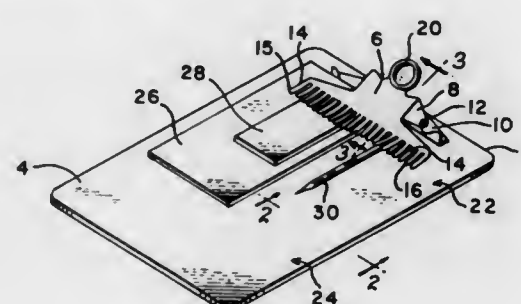
Filed Apr. 16, 1973, Ser. No. 351,617

Int. Cl. A44b 21/00

8 Claims

U.S. Cl. 24-81 PH

18 Claims



A device for releasably holding one or more articles of different sizes and shapes. The device includes a rigid support member on which is mounted a base member, the latter being provided with a plurality of spring fingers extending therefrom. A spring under compression urges the base member toward the support member thereby gripping the article or articles to be held between the support member and spring fingers.

3,828,403

PIPE COUPLING

Duane O. Perrin, 3205 Merrill Dr., Torrance, Calif. 90503, and Julius G. Smegal, 10324 Banff St., Stanton, Calif. 90960

Filed Apr. 10, 1972, Ser. No. 242,575

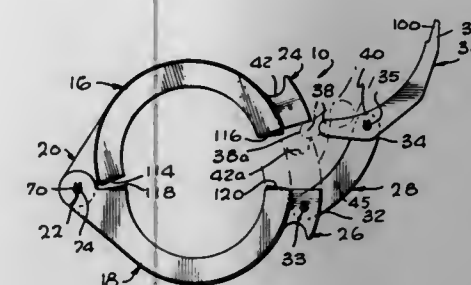
Int. Cl. F16l 21/00, 23/00; B65d 63/00

U.S. Cl. 24-270

3 Claims

A clamp that can be rapidly operated to hold the ends of two pipes together so as to connect them, and which facilitates field repair when the clamp breaks. The clamp includes two identical body members having hinge ends where they are

hinged together and latch ends where they can be held together by a latch. The hinge end of each member has a pair of spaced hinge flanges, one located at one extreme side and the other located between the middle and other extreme side, to permit the pair of flanges on the two identical body members to be sandwiched into one another. A rubber seal is



fastened to each body member, each seal extending slightly more than one-half circle, so that when the clamp is closed the ends of the seals on the two body members abut and compress against one another to form a tight seal. The latch end of each body member has a pair of laterally spaced strike flanges, and a latch lever passing between the strike flanges carries a latch member that clamps the strike ends together.

3,828,404

COMMINGLING JET FOR MULTIFILAMENT YARN

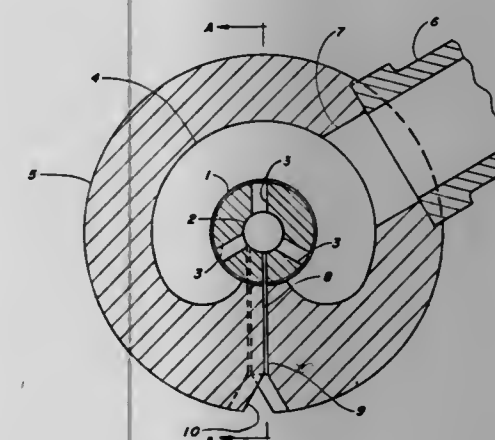
Frank Lee Peckinpaugh, Colonial Heights; Wilbur Leon Stables, Matoaca, and Raymond Joseph Biron, Petersburg, all of Va., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Apr. 4, 1973, Ser. No. 347,770

Int. Cl. D02g 1/16

U.S. Cl. 28-1.4

4 Claims



An improved apparatus and method for commingling multifilament yarn has been found. The apparatus comprises an elongated body having a straight yarn passageway with at least three orifices substantially equally spaced about the periphery of the body at substantially the same level. The orifice centerlines are offset so that they do not intersect with the center of the effective diameter of the yarn passageway. These orifices are drilled with a particular eccentricity, and communicate with a source of high pressure fluid which flows through the orifices into the yarn passageway causing yarn passing linearly through the passageway to have filaments commingled with one another. This improved process of entangling multifilament yarn can operate at from about 500 to about 8,000 feet per minute.

3,828,405
METHOD FOR IMPARTING COLORATION TO A TEXTILE YARN

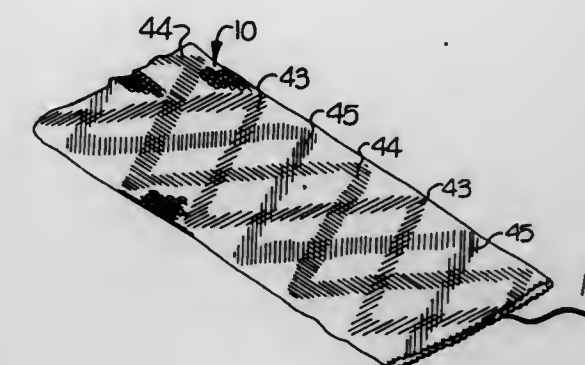
George L. DeVinney, P.O. Box 182, Rutherfordton, N.C. 28139

Filed Oct. 12, 1972, Ser. No. 296,977

Int. Cl. D04b 19/00

U.S. Cl. 28-72.16

1 Claim



Textile yarn which has been knitted into a tube and which is subsequently to be deknitted is advanced along a predetermined path of travel while dyestuff is freely dribbled thereonto from a nozzle overlying the path of travel. The tube is then passed through rolls which press the tube flat and force differential migration of the dyestuff and is immediately passed into and through a heated zone for setting the dyestuff on the yarn.

3,828,406

METHOD FOR FORMING A CAST HINGE

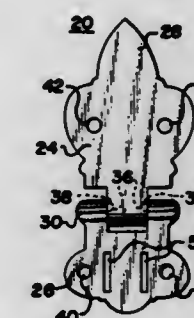
Karl Hannes, White Plains, N.Y., assignor to Coats & Clark, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 187,427, Oct. 7, 1971, Pat. No. 3,742,555. This application May 30, 1973, Ser. No. 365,119

Int. Cl. B21d 53/40; B21k 13/02

U.S. Cl. 29-11

11 Claims



A cast hinged article and the method and apparatus for simultaneously casting both parts of the article. A first part of the article is formed with inner projections, and a second part of the article is formed thereover to enclose the projections to provide a hinged pivot. A staking unit which includes a punch then distorts the material in the first part adjacent to the projections so that the pivot will be freely movable.

3,828,407

METHOD OF MANUFACTURING ELECTRIC LAMPS

Anton Boekkooi, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

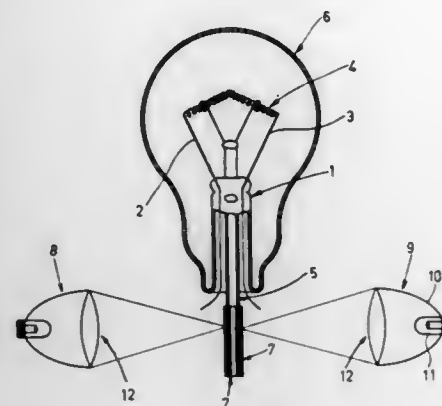
Filed Sept. 14, 1972, Ser. No. 288,920

Claims priority, application Netherlands, Sept. 17, 1971, 7112769

Int. Cl. H01j 9/00

U.S. Cl. 29—25.11

5 Claims



In the manufacture of incandescent lamps, discharge lamps and the like, glass parts are coated with a radiation absorbing pigmented lacquer which are softened or sealed by means of irradiation by light.

3,828,408

PIPE CUTTING AND PLUGGING MACHINE

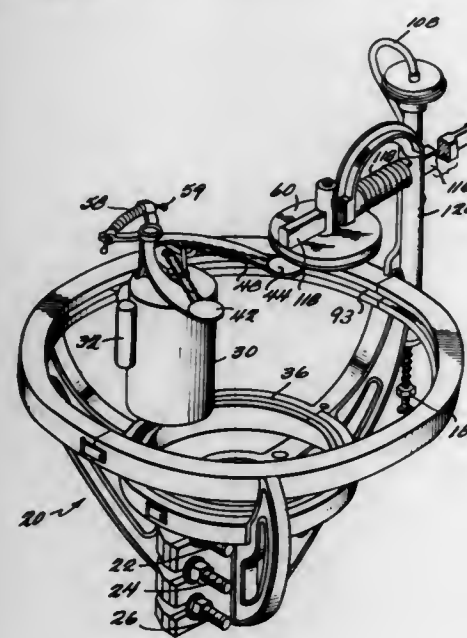
Angel J. Ortiz, Rio Guadalquivin 30, Mexico 5 D.F., Mexico

Division of Ser. No. 123,779, March 12, 1971, now Defensive Publication No. 3,724,662. This application Jan. 8, 1973, Ser. No. 321,990

Int. Cl. E21b 29/00

U.S. Cl. 29—33 R

12 Claims



A machine for cutting and plugging a pipe having a frame for clamping onto the pipe, a cutting assembly mounted on a track on the frame for movement around the pipe including a motor driving the assembly and also rotating a pair of cutting blades respectively mounted on a pair of arms, and normally urged toward each other by a spring, and a plugging assembly with a cover plate, and an arm attached to the plate and mounted for movement toward and away from the pipe. When cutting is completed an explosive charge is detonated to liberate a further spring which forces the arms apart and operates a diaphragm to permit the arm to move toward the pipe. When the plate is over the cut-off pipe, a further shaft is urged by a spring into engagement with the arm to pivot it and clamp the plate tightly onto the open end of the pipe.

3,828,409

REVERSIBLY MOUNTABLE BOOK CUTTER

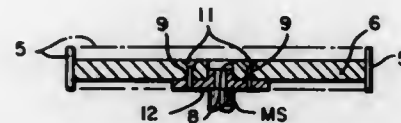
Peter Aspinwall, Carlisle, Mass., assignor to Comstock & Wescott, Inc., Cambridge, Mass.

Filed Apr. 23, 1973, Ser. No. 353,460

Int. Cl. B26d 1/12

U.S. Cl. 29—105 A

8 Claims



A cutting wheel for trimming the edge of a book has cutting bits of isosceles triangular cross section brazed in triangular notches around the periphery of the wheel. Each bit has cutting edges of two sets extending beyond both faces of the wheel, and the wheel has a mounting hub permitting the wheel to be reversibly mounted on a drive shaft to use one set of cutting edges when the other set on the same bits is dulled.

3,828,410

HONEYCOMB ROLL

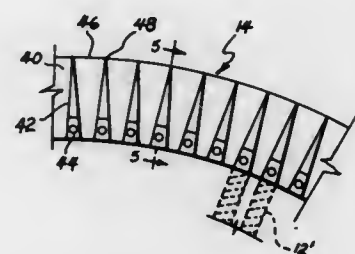
Dieter F. Zeiffer, Charlotte, N.C., assignor to Gaston County Dyeing Machine Company, Mt. Holly, N.C.

Filed Feb. 22, 1973, Ser. No. 334,955

Int. Cl. B21b 27/02

U.S. Cl. 29—121 R

14 Claims



A honeycomb roll is provided in which the honeycomb structure incorporates partitioning aligned with the roll axis and which may be formed to present the thinnest practical outer edges at the roll body surface in combination with inner edges of substantially greater thickness for enhancing the effect of suction influence applied through the honeycomb structure. The preferred embodiment employs a plurality of specially formed annular members secured in assembled relation as a honeycomb structure in roll body form.

3,828,411

METHOD OF MAKING A FRICTIONAL CONNECTION BETWEEN AN ANTI-FRICTION BEARING AND A SEALING RING

Gunter Zahn, Hilden, Germany, assignor to Ziller & Co., Düsseldorf, Germany

Filed Mar. 6, 1973, Ser. No. 338,432

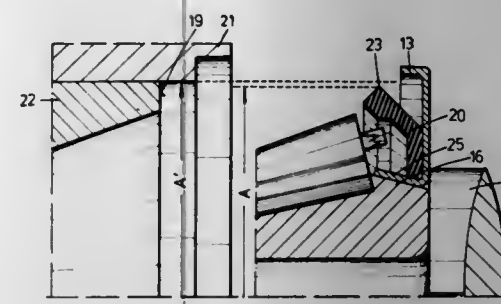
Int. Cl. B23p 11/00; F16c 33/78

U.S. Cl. 29—148.4 S

2 Claims

A sealing ring structure and method of making same for an anti-friction bearing. The sealing ring structure is composed of an outer sealing ring of substantially U-shaped cross section and the inner portion thereof is pressed upon a conical portion of the inner race ring of the anti-friction bearing. The ceiling

ring structure is furthermore composed of an inner sealing ring, preferably of rubber or synthetic material, which is firmly



connected to the outer sealing ring and has a lip in frictional engagement with the bearing housing and the respective outer race ring of the anti-friction bearing.

3,828,412

METHOD OF FORMING HIGH INTEGRITY EPOXY JOINT BETWEEN ALUMINUM TUBES

Moshe Y. Dreksler, Harwinton, Conn., assignor to Dunham Bush, Inc., West Hartford, Conn.

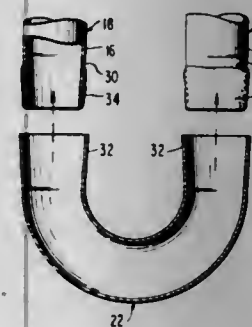
Division of Ser. No. 125,988, Mar. 19, 1971. This application

Feb. 8, 1973, Ser. No. 330,545

Int. Cl. B21d 41/02; F16b 11/00

U.S. Cl. 29—157 R

3 Claims



Aluminum tubes particularly useful in forming heat exchange coils are joined together by first flaring and necking respective tube ends to define tapered mating surfaces to insure maximum wetting of both surfaces by the epoxy which bonds the tubes together when the epoxy coated male tube is inserted axially within the female tube.

3,828,413

PIPE ALIGNMENT DEVICE

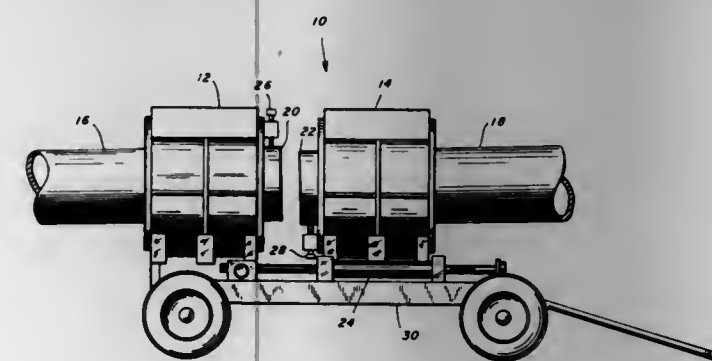
William F. Province, and Wayne E. Cooper, both of Bartlesville, Okla., assignors to The Ridge Tool Company, Bartlesville, Okla.

Filed June 11, 1973, Ser. No. 368,883

Int. Cl. B23p 19/00

U.S. Cl. 29—200 P

4 Claims



This abstract describes improvements in a plastic pipe, thermal joining apparatus, in which two pipe elements are coaxi-

ally clamped, the ends faced and heated and then brought together under compression so that as the pipe material cools it will be joined. This improvement is required in those cases where the pipe ends are not completely circular or aligned. Circular track means are provided on the inner faces of the pipe clamping means and jack screw means are provided, to be positioned at different circumferential positions on said track means so that radial forces can be applied to the pipe ends, at any desired azimuthal position, so as to force them into matching contours.

3,828,414

TUBE JOINING SYSTEM

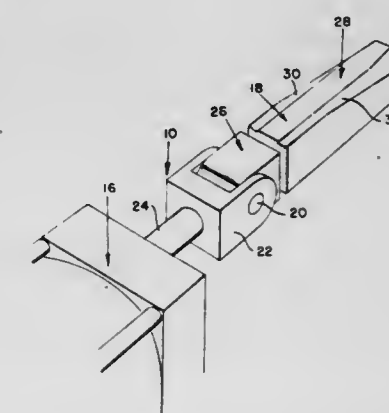
Charles N. Apple, Sr., Greensboro, N.C., assignor to Metafab Industries, Inc., Greensboro, N.C.

Continuation-in-part of Ser. No. 219,754, Jan. 21, 1972, abandoned. This application Sept. 27, 1973, Ser. No. 401,363

Int. Cl. B23p 19/00, 11/00

U.S. Cl. 29—200 B

15 Claims



A tool, for securing together a first member having legs thereon, and a second tubular member for receiving the legs through openings provided therein. The tool includes inclined cam surfaces or inclined rollers which are adapted to be directed through the tubular member for engaging and deforming the legs.

3,828,415

METHOD AND APPARATUS FOR REBUILDING VALVE GUIDES

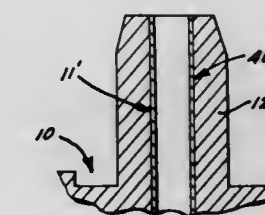
James A. Kammeraad, and Donald J. Kammeraad, both of Holland, Mich., assignors to K-Line Tool Company, Holland, Mich.

Division of Ser. No. 847,927, Aug. 6, 1969, abandoned. This application Nov. 26, 1971, Ser. No. 202,207

Int. Cl. B23p 7/00, 15/00, 19/02

U.S. Cl. 29—401

12 Claims



This disclosure relates to a method and system for rebuilding valve guides for internal combustion engines wherein the old worn guides are first reamed and then have slitted tubular members forced into the reamed guides. The tubular member inserts can then be reamed to size. The operation can also include knurling and broaching of the tubular members after insertion of the tubular member into the reamed valve guide. The tubular member has an outer diameter greater than the inner diameter of the reamed guide so that a press fit between the tubular member and the guide results.

3,828,416

METHOD OF REINFORCING CONCRETE

Wilhelm Boyer, Josef Ritter, and Gerhard Ritter, all of Graz, Austria, assignors to AVI Alpenlandische Veredelungs-Industrie Gesellschaft m.b.H., Österreich, Austria
Filed June 11, 1973, Ser. No. 368,469
Int. Cl. B23p 17/00

U.S. Cl. 29-417

9 Claims

The disclosure is concerned with the reinforcement of concrete by grids. Grids are produced in lengths of at least 50 metres and having longitudinal steel rods interconnected by transverse elements. Said grids are rolled up in their longitudinal direction and stressed past the yield point of said rods to produce a permanent deformation. To use said grid, pieces are cut off and straightened, and then laid longitudinally parallel side by side, the spacing between adjacent rods of adjacent pieces being equal to the spacing between adjacent rods within said pieces.

3,828,417

METHOD FOR FABRICATING COMPOSITE MATERIAL REINFORCED BY UNIFORMLY SPACED FILAMENTS

Amarnath P. Divecha, Falls Church, Va., assignor to Commonwealth Scientific Corporation, Alexandria, Va.
Continuation-in-part of Ser. No. 67,193, Aug. 26, 1970, abandoned. This application Oct. 22, 1971, Ser. No. 191,881
Int. Cl. B23p 17/00

U.S. Cl. 29-419

16 Claims



A method and apparatus for producing a composite material of the type having a number of filaments of one material separated by and bonded to a matrix of another material. As discussed below each of a number of filaments are wound with a number of turns of wire or foil which is made of the matrix material and these wound filaments are then consolidated by any suitable means, e.g. hot pressing, or drawing through rolls or properly shaped dies to produce a member from the composite material.

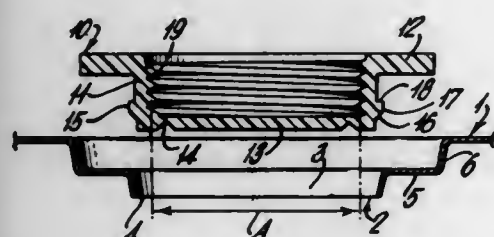
3,828,418

CLOSURE COMBINATION AND METHOD

Jeremiah J. Laurizio, New Providence, N.J., assignor to American Flange & Manufacturing Co., Inc., New York, N.Y.
Filed Nov. 6, 1972, Ser. No. 304,239
Int. Cl. B23p 11/02

U.S. Cl. 29-451

5 Claims



A closure bushing molded of synthetic plastic material has a cylindrical wall surrounded by a circumferential retaining shoulder and terminates at one end in a laterally extending octagonally shaped flange. The bushing wall is molded with an oversize pitch diameter internal straight pipe thread. Insertion of the bushing within a suitably sized container wall opening reduces the bushing wall interior to a standard pipe thread pitch diameter for reception of a threaded closure fitting.

3,828,419

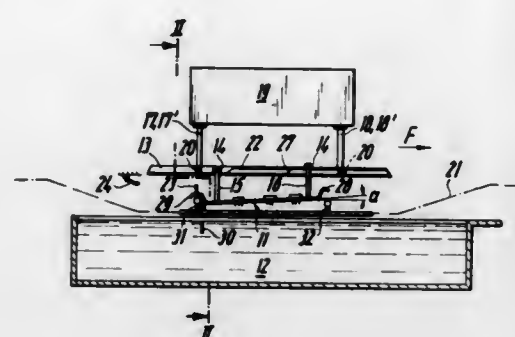
AUTOMATIC SOLDERING MACHINE

Rudolf Wanner, Arolsen, Germany, assignor to Zevatron, GmbH, Arolsen, Germany
Filed Sept. 26, 1972, Ser. No. 292,283
Claims priority, application Germany, Sept. 29, 1971, 2148680

U.S. Cl. 29-503

Int. Cl. B23k 31/02

21 Claims



An automatic soldering machine in which objects to be dip soldered or touch soldered are carried by holders and moved by a conveyor into and out of contact with a molten solder bath. Guide rails selectively adjustable in position during a soldering cycle control the path of movement of the holder in the area of the solder bath. Cam actuators on the holder operate switches to establish a desired programmed movement of the guide rails, and conveyor.

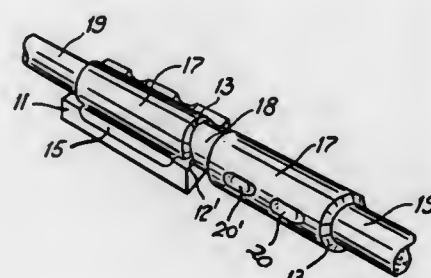
3,828,420

METHOD OF CRIMPING A SOCKET TO A ROD FORMED OF ALUMINUM MATERIAL

Uno Svensson, Porlabacken 5, Bandhagen, Sweden
Filed Oct. 7, 1971, Ser. No. 187,565
Claims priority, application Sweden, Oct. 9, 1970, 13678/70
Int. Cl. B21d 39/00; B23p 11/00

U.S. Cl. 29-517

5 Claims



Method and apparatus for crimping a socket to a rod formed aluminium material using a matrix and a mandrel. The force acting upon the mandrel shall exceed the formula $G = A/52 + 1.6$ and be below the formula $G = A/38 + 3.0$. G is stated in tons and A in mm^2 . The formulas are usable within the area 25 - 500 mm^2 for the rod formed material.

3,828,421

METHOD OF CLAMPING AND RIVETING PARTS

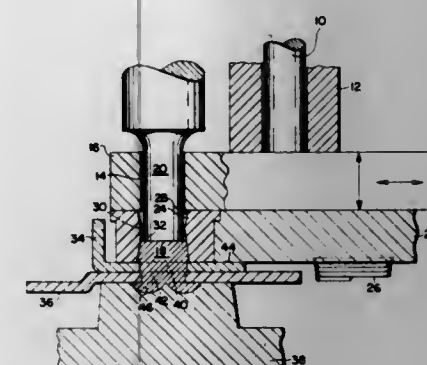
Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Nov. 2, 1972, Ser. No. 303,065
Int. Cl. B21d 39/00; B23p 11/02

U.S. Cl. 29-522

4 Claims

Wire slugs for use as rivets are passed from a slug-forming station to a partial riveting station where a ram forces a slug through a restricted orifice in a spring-loaded guide and clamp member so that the guide and clamp member is pressed against the parts to be riveted as the slug is forced through the orifice into aligned holes in the parts. The parts are positioned upon an anvil which may be a fixture mounted on a turntable

moveable from station to station, and the anvil has recesses into which the lower portion of the slug is forced to form a lower cap. The hole in the bottom part is preferably slightly smaller than the hole through the top part so that the slug material will flow outwardly filling the top hole, locking the



parts in place and rendering hole alignment noncritical. Upon retraction of the ram, the spring-loaded guide and clamp member is elevated above the partially formed rivet and the two joined parts. The subassembly and anvil may then be moved to a rivet completion station where formation of a top rivet cap may be completed.

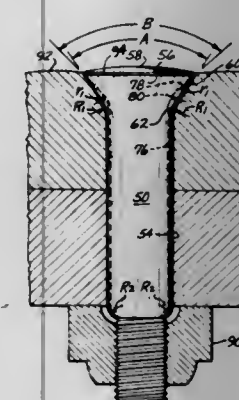
3,828,422

METHOD OF MAKING FATIGUE RESISTANT FASTENER JOINT

Hubert A. Schmitt, Auburn, Wash., assignor to The Boeing Company, Seattle, Wash.
Division of Ser. No. 61,153, Aug. 5, 1970, Pat. No. 3,748,948.
This application May 3, 1973, Ser. No. 356,878
Int. Cl. B23p 19/02

U.S. Cl. 29-525

3 Claims



A flush head fastener pin for use in aircraft structural joints which are countersunk for surface flushness. The pin is shaped and adapted to preload the joint material surrounding the countersink to create a predetermined residual stress pattern in that region for improvement of fatigue life. Preferred embodiments of a straight shank bolt, a tapered shank bolt, and a rivet are presented. Each pin embodiment has a 70° conical head and a concave transition portion of specified radius and smoothness interconnecting the head with the shank. The 70° head and transition portion cooperate to conformably deform and preload the countersunk region of the hole, which is preferably provided with a convex surface of specified radius at the base of the countersink, and a conical surface having a greater cone angle than that of the pin. The straight shank bolt embodiment further discloses a hardened convex lead-in portion of specified shape and smoothness extending between the shank and the threads to prevent galling of the hole during installation of the bolt.

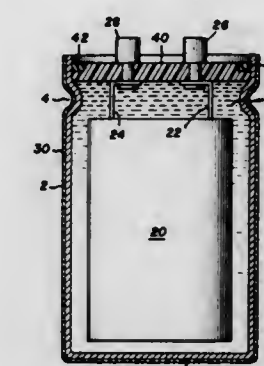
3,828,423

SELF-BONDING CAPACITOR CASE INSULATION

Joel B. Buice, and David G. Schwenker, both of Columbia, S.C., assignors to General Electric Company, Owensboro, Ky.
Division of Ser. No. 284,440, Aug. 28, 1972, Pat. No. 3,778,683. This application July 16, 1973, Ser. No. 379,570
Int. Cl. B01j 17/00

U.S. Cl. 29-570

3 Claims



An improved aluminum electrolytic capacitor is provided having an electrically insulating coating securely bonded to the casing. The coating comprises an epoxy resin preferably applied as a powder and cured to the empty casing at an elevated temperature to secure a proper bond without damage to the electrical components subsequently assembled therein.

3,828,424

Patent Not Issued For This Number

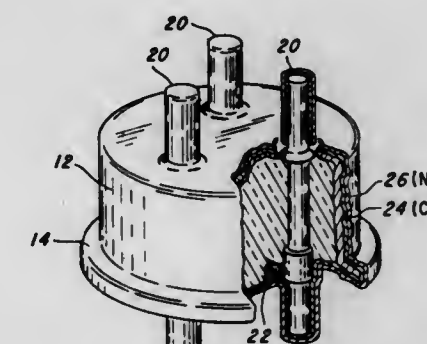
3,828,425

METHOD FOR MAKING SEMICONDUCTOR PACKAGED DEVICES AND ASSEMBLIES

Donald J. Manus, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Oct. 16, 1970, Ser. No. 81,354
Int. Cl. B01j 17/00

U.S. Cl. 29-590

11 Claims



A semiconductor package fabricated from metals of atomic number less than 32 for use in any environment including a high radiation environment, and a process for fabricating a semiconductor package with reproducible electrical characteristics using mass production techniques. In the method, a base member, such as a metal header having metal terminal conductors and an area for attaching a semiconductor body, is first coated at least in part with a Soft Metal, such as copper, and then coated with a Hard Metal, such as nickel, or if a molybdenum-manganese metallized ceramic header is used, at least the metallization is coated with a metal strike, such as nickel, prior to coating the header with the Soft and Hard Metals, and then the base member is heat treated to form a header having an improved semiconductor body attachment area and electrical conductors.

3,828,426

METHOD OF FABRICATING MAGNETOMOTIVE DEVICES

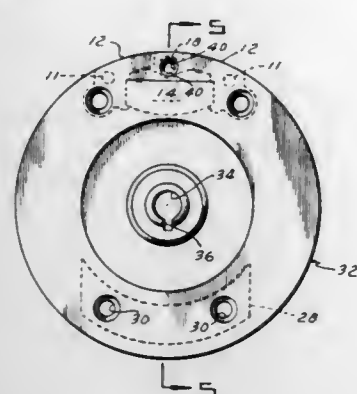
Russell D. Phelon, Longmeadow, and John C. Van Amsterdam, Wilbraham, both of Mass., assignors to R. E. Phelon Company, Inc., East Longmeadow, Mass.

Filed Dec. 26, 1972, Ser. No. 318,521

Int. Cl. H02k 15/02

U.S. Cl. 29—598

7 Claims



Method of fabricating magnetomotive devices by encapsulating a unitary pole-shoe magnet group into a casting of non-magnetic material. The pole-shoe portion of the group is formed of a plurality of integral, stacked ferromagnetic laminations, each having between the shoe portions an interconnecting web disposed radially inward of the outer surface of the pole-shoes. The magnetomotive device is cast so that the outer surfaces of the pole-shoe laminations are generally flush with the outer diameter of the casting. The interconnecting web portions are then removed so that the pole-shoes are magnetically separated. Alternatively, the disclosure is concerned with a pole-shoe magnet group for a flywheel magneto which is composed of a plurality of stacked ferromagnetic laminations embracing a permanent magnet. Each of the laminations has at least two pole-shoe portions interconnected by a web disposed radially inward of the outer surface of the pole-shoes whereby the web may be removed by a single drilling operation.

3,828,427

METHOD FOR PRODUCING A GLASS-ENCAPSULATED REED-CONTACT SWITCH

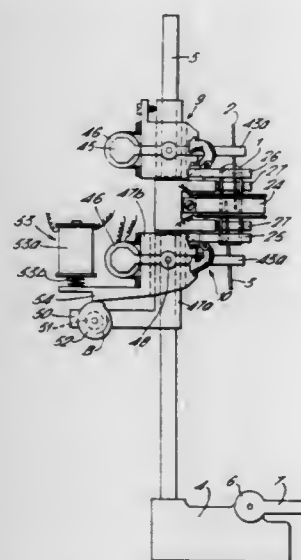
Theo Huttner, Tegersee, Germany, assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Aug. 20, 1973, Ser. No. 389,615

Int. Cl. H01h 11/00, 11/02, 11/04

U.S. Cl. 29—622

5 Claims



This disclosure relates to a method for producing reed switches whereby a first contact is embedded in one end of a

glass tube, a second contact is positioned through the other end of the glass tube, the temperature of the other end is controlled to embed a portion of the second contact in viscous glass, a magnetic field is applied to both contacts during which time the second contact is moved with respect to the first contact until the reed switch is actuated, and finally, the other end of the glass tube is cooled to harden the viscous glass and hold the second contact.

3,828,428

MATRIX-TYPE ELECTRODES HAVING BRAZE-PENETRATION BARRIER

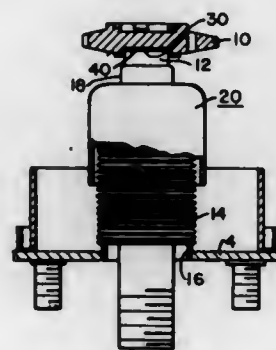
Paul O. Wayland, Montour Falls, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 25, 1972, Ser. No. 292,210

Int. Cl. H01b 19/00

U.S. Cl. 29—630 C

5 Claims



A braze-penetration barrier is provided for a sintered and infiltrated matrix-type of electrode or contact, so that, in effect, two joints are provided, one joint being provided between the metallic braze-penetration barrier and the sintered and infiltrated body portion of the matrix-type contact or electrode, and the other or second joint being provided between the metallic braze-penetration barrier member and the supporting rod-like metallic stem-portion of the interrupting contact or electrode.

The braze-penetration barrier member may be provided, for example, by pressing a preformed braze-penetration barrier member with the particles of the matrix system in the press, which is subsequently sintered and infiltrated with a lower-melting-temperature infiltrant material, such as copper or silver, for example, which penetrates into the pores of the higher-melting-temperature matrix material, such as tungsten or chromium, for example.

3,828,429

RAZOR WITH AN ENDLESS BAND

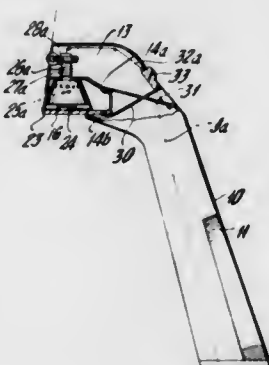
Paul Hiromura, 596 Warwick Ave., Teaneck, N.J. 07666

Filed Feb. 2, 1973, Ser. No. 329,100

Int. Cl. B26b 21/26, 21/54

U.S. Cl. 30—40.1

11 Claims



A razor includes a replaceable snap-in cartridge containing a blade in the form of an endless band. The band is moved

crosswise to the direction of shaving by gears which are rotated by a traction wheel, the traction wheel being rotated when pulled over the skin.

3,828,430

ELECTRIC DRY SHAVER WITH CUT HAIR DISPOSAL MEANS

Norio Yamada; Yoritaka Ikejima; Hiromi Takasu; Masao Kubo, and Yoshimasa Tanaka, all of Hikone, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

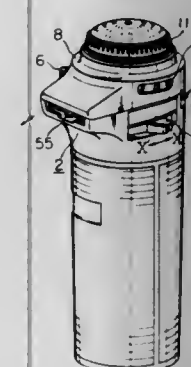
Filed Aug. 11, 1972, Ser. No. 279,775

Claims priority, application Japan, Aug. 19, 1971, 46-62612

Int. Cl. B26b 19/44; A47i 9/20; B01d 46/04

U.S. Cl. 30—41.5

8 Claims



Electric dry shaver having cut-hair receiving means built in the shaver body and including manually rotatable means for arbitrarily discharging cut-hairs received in the receiving means without disassembling said means from the body through a normally closed aperture opened and closed by the rotatable means. Inner cutter includes a fan for producing an air current in direction away from outer cutter and the cut-hair receiving means is located in the air current passage and remote from the cutters. The receiving means has a filter for allowing only air to pass therethrough and a path large enough for allowing the air current and cut-hairs carried thereon to pass therethrough.

3,828,431

GAS ACTUATED DEHORNING TOOL

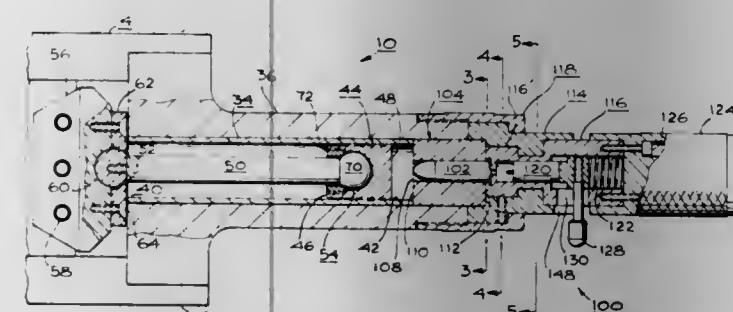
Robert W. Fleming, 944 Linda Vista Ave., Pasadena, Calif. 91170, and George Boothroy, 226 Crest More Dr., Paradise, Calif. 95969

Filed May 29, 1973, Ser. No. 339,112

Int. Cl. B26b 15/00

U.S. Cl. 30—228

10 Claims



A gas actuated dehorning tool arrangement having a fixed blade coupled to one end of a pair of parallel rails and a moving blade slidably mounted on the pair of rails and adapted to move from the second end of the pair of rails and pass in horn severing relationship to the fixed blade. A tubular barrel is adjacent the second end of the rails and has a piston slidingly mounted therein. A connecting rod having universal joint connections to the moving blade and to the piston moves the moving blade as the piston is moved. A gas generating means generates a high pressure gas on the back face of the piston to

drive the piston and thus the moving blade. The gas generating means incorporates structure for firing a pressure cartridge, which may be similar to a blank cartridge, and provides for simplified removal of an expended cartridge and insertion of a new cartridge.

3,828,432

SHEAR CONSTRUCTION

Berthold Leibinger, Gerlingen, Germany, assignor to Firma Trumpf & Co., Ditzingen, Germany

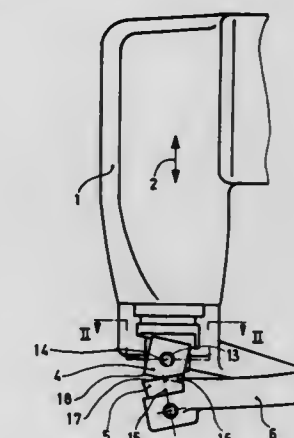
Filed Mar. 5, 1973, Ser. No. 337,852

Claims priority, application Germany, Mar. 11, 1972, 2211898

Int. Cl. B26b 15/00

U.S. Cl. 30—241

5 Claims



A shear, particularly a portable shear, includes a first reciprocating blade and a second fixed blade which is mounted alongside the path of movement of the first blade for cooperative shearing operation therewith. Each blade comprises a block-like member having a plurality of separately oriented cutting edges disposed at angles to each other and the mounting means for each blade is such that the blades may be adjusted so as to present a selected cutting edge in an operative position.

3,828,433

MOUNTING DEVICE FOR THE MANUFACTURE OF DENTAL PROSTHESES

Horst Guenther Winkler, Hauptstrasse 15, 8722 Wiebelsberg, Germany

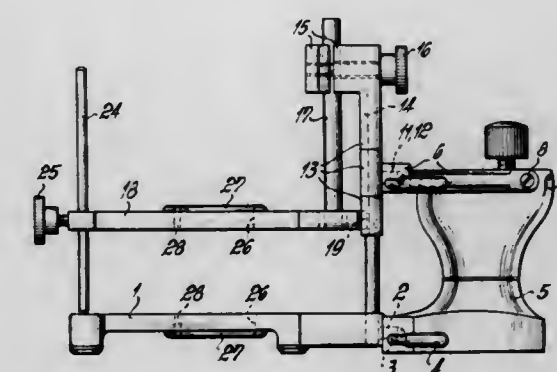
Filed Sept. 22, 1972, Ser. No. 291,364

Claims priority, application Germany, Sept. 23, 1971, 2147576

Int. Cl. A61c 11/00

U.S. Cl. 32—32

6 Claims



A first mounting device has a top plate vertically adjustable in parallel relation to a bottom plate, and a support bracket parallelly adjustable therebetween with means thereon for engaging a dentist's jaw model on the occlusion plane thereof, whereby hardenable material may be poured between the model and the top and bottom plates to provide two working surfaces on the model. A second mounting device having a bottom plate and a top plate guided in parallel therewith and adjustable in the vertical plane receives the working surfaces

of the model therebetween. However, an auxiliary alignable device insertable on the second mounting device in place of the top plate, and having an alignable vertically disposed blade-like alignment member at the front thereof with notches at either end for engaging the model, is first used to align the vertical symmetry axis of the model on the base plate whereby a screw-threaded ring can be secured to the model in alignment. Thereafter the ring secures the model to the base plate with a mating nut, with the ring engaging a key in an aperture through the base plate so the model is always in proper alignment for insertion of the teeth in the wax layer thereon.

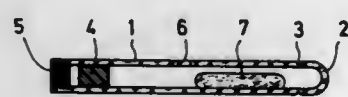
3,828,434 MIXING CAPSULE

Wolfgang Mosch, Wengengasse 29, 79 Ulm, Danube, Germany
Filed Jan. 27, 1970, Ser. No. 6,221
Claims priority, application Germany, Feb. 1, 1969, 1904963

Int. Cl. A61c 5/04

U.S. Cl. 32-60

9 Claims



A capsule for dental amalgam is provided with an internal piston for dispensing amalgam and is provided with means for attaching the capsule to a delivery means for advancing the piston; the other end may have a break-off closure.

3,828,435 GEOLOGICAL MOVEMENT DETECTORS

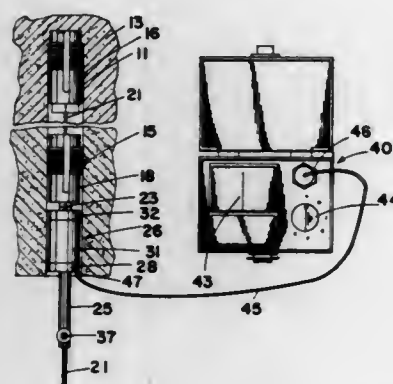
Donald O. Baker, Columbus, Ohio, assignor to Linear Devices Inc., Columbus, Ohio

Filed Dec. 20, 1971, Ser. No. 209,531

Int. Cl. G01b 7/00

U.S. Cl. 33-1 H

1 Claim



A device for determining very minute movement, as well as relatively large movement, of a material such as rock in a mine. An anchor is secured to one part of the material, and another anchor is secured to a separated part of the material. A pair of movable elements are secured separately to the two anchors. One part of a transducer, as for example, in one embodiment, illustrated a carbon resistance bar of a variable resistance, is secured to one of the movable elements; and another part of the transducer, as for example in the same embodiment the wiper arm of the variable resistance, is secured to the other movable element. Thus, when one anchor moves relative to the other anchor, the resistance is varied. This is one type of linear transducer. In other types shown, an inductance or a capacitance is substituted for the variable resistance.

There is also provided an electrical circuit including a source or supply of electric power, the transducer, and a read-out device. The read-out device is shown herein as an ammeter.

3,828,436 SWINGING T-SQUARE

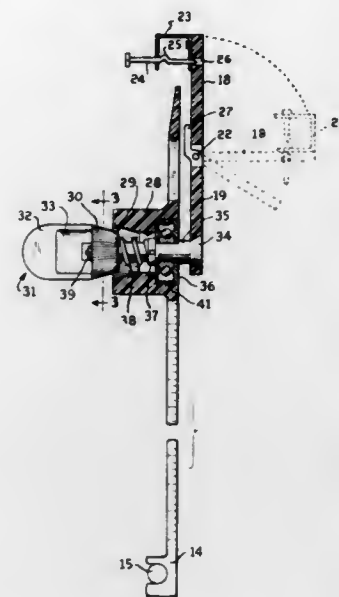
Calvin E. King, 300 Edgewood St., Hope, Ark. 71801

Continuation-in-part of Ser. No. 297,728, Dec. 24, 1972, abandoned. This application Aug. 30, 1973, Ser. No. 393,112

Int. Cl. G01c 9/12

U.S. Cl. 33-88

12 Claims



A geometrical instrument useful as a building tool has a T-square with a protractor head revolvably mounted on a stub shaft projecting from an adjacent rectangular panel, the blade of the T-square depending from the mounting. Stop means are combined with the shaft for selectively locking the T-square to the panel.

3,828,437 DEVICE FOR MEASURING ELONGATED MATERIAL

James C. Heselwood, Bethlehem, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

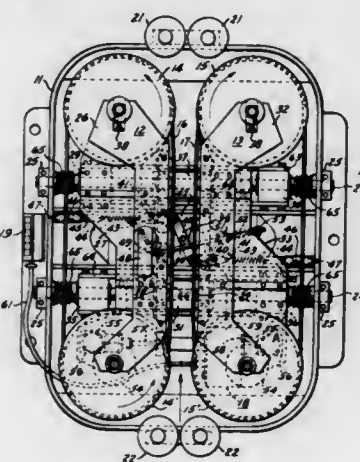
Continuation of Ser. No. 66,514, Aug. 24, 1970, abandoned.

This application July 7, 1972, Ser. No. 269,697

Int. Cl. G01b 5/04

U.S. Cl. 33-134 R

11 Claims



Apparatus for measuring the length of elongated material wherein a pair of endless belts in frictional contact with said material and operatively connected to a differential measures the length and records the measurement on a readout device.

3,828,438 SURVEYING TAPE TENSIONING AND LEVELING APPARATUS

John G. Raymond, Jr., P.O. Box 725, Strasburg, Va. 91320
Filed Sept. 8, 1972, Ser. No. 287,245

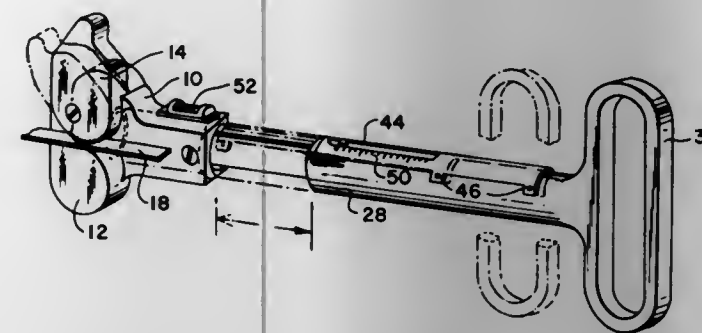
Int. Cl. G01b 3/00

U.S. Cl. 33-137 R

5 Claims

Apparatus for releasably gripping a section of a surveying tape to tension the tape including a gauge for measuring the

tension applied to the tape and a leveling gauge to facilitate properly positioning the tape. The apparatus is intended for



in-the-field use by a surveyor's assistant and is provided with a handle so that the appropriate tension may be applied to the tape.

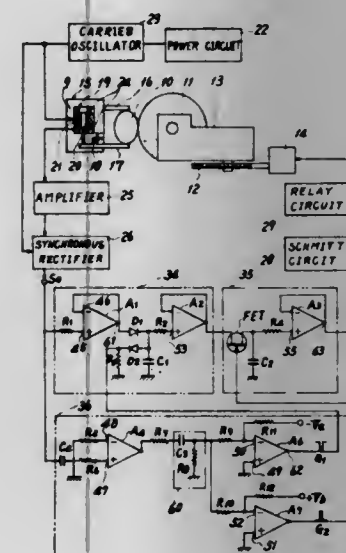
3,828,439 SIZING SYSTEM FOR MEASURING THE DIAMETER OF A ROTATING WORKPIECE OF NON-CIRCULAR CROSS-SECTION

Mineo Ishikawa, and Kazuo Moriya, both of Kariya, Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya-shi, Japan
Filed Aug. 21, 1972, Ser. No. 282,221

Int. Cl. G01b 7/12

U.S. Cl. 33-143 L

5 Claims



An in-process sizing device generates an output signal corresponding to the diameter of a rotating workpiece of non-circular cross-section. A signal generating circuit generates a first and a second signal each time the output signal is respectively increasing and decreasing in the cycle thereof. A peak holding circuit holds the voltage peak of the output signal in response to the first signal. A sample holding circuit picks up a voltage sample corresponding to a major diameter of the rotating workpiece from the voltage peak in response to the second signal and holds the same therein. Another circuit is connected to the sample holding circuit to generate a sizing signal when the voltage sample attains a voltage preset thereto in accordance with the desired particular diameter.

3,828,440 TRACK SURVEYING

Franz Plasser; Josef Theurer, and Egon Schubert, all of Vienna, Austria, assignors to Plasser, Franz Bahnbaumaschinen-Industrie Gesellschaft, m.b.H., Vienna, Austria

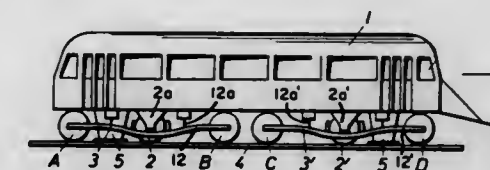
Continuation-in-part of Ser. No. 813,855, April 7, 1969, abandoned. This application Apr. 13, 1972, Ser. No. 243,619

Claims priority, application Austria, Apr. 9, 1968, 3508/68

Int. Cl. B61k 9/00, 9/08; E01b 29/00

U.S. Cl. 33-144

11 Claims



The track gage, camber or flexure, as well as the strength of the rail fastening may be measured with a surveying car with two surveying buggies or frames spaced from each other in the direction of track elongation and running on the track rails with the car. Each surveying frame has two axles having wheels running on the track rails. A respective undercarriage on which the car chassis is mounted is arranged between the two axles of a respective surveying frame. The surveying frames are preferably yielding and their axles and wheels indicate the relative position of the frames to each other and to the track.

3,828,441 AUTOMOTIVE AIR FILTER GAUGE

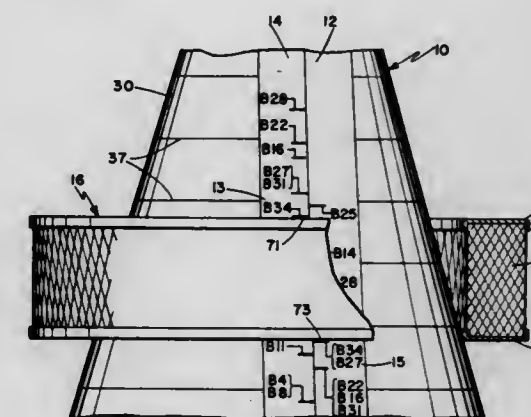
Richard E. Williams, 1942 Port Bristol Cir., Corona Del Mar, Calif. 92660

Filed Sept. 18, 1972, Ser. No. 290,165

Int. Cl. G01b 3/34

U.S. Cl. 33-178 B

6 Claims



A gauge for classifying automobile air filters and identifying the applicable manufacturers part numbers. The gauge measures a combination of the inside diameter and relative height. The gauge is in a generally conical form and includes two vertically oriented scales along the surface of the cone. A first scale is designed to be read in association with the lower edge of the generally toroidal configured air filters. The scale is marked with a series of part numbers and includes all the numbers that could be expected for air filters of that inner diameter. The second scale is designed to be read in association with the upper edge of air filter when the air filter is lodged with its inner diameter in contact with the conical surface. The second scale includes a list of those part numbers for air filters which lodge with their upper surface at that point. By reading both lists, the operator can identify the single part number which corresponds to an air filter having the inner diameter and height of the filter under measurement. The gauge includes a stand that allows the conical body to be tilted away from an upper support member for insertion of the filter onto the conical

cal surface, and a bearing which permits the rotation of the conical surface to confirm proper alignment of the filter.

transverse angle to the line. The line may run horizontally, angularly, or vertically, as desired.

3,828,442

GOLF BALL SPHERICITY GAUGE

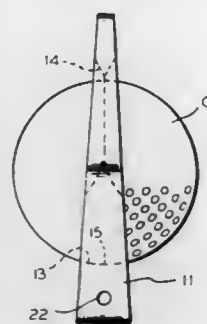
Henry W. Bernard, 8103 Rt. 53, Woodridge, Ill. 60515

Filed May 14, 1973, Ser. No. 360,154

Int. Cl. G01b 3/34; A63b 47/00

U.S. Cl. 33-178 B

4 Claims



A gauge adapted to check the sphericity of golf balls which embodies a plate member having thereon a circular hole of a diameter slightly greater than the standardized diameter of a golf ball. About half of the wall of the circular hole is transversely concave to form a concave ball seat. The other half of the hole includes a symmetrically tapered portion providing a relatively sharp edged arc directly opposite the concave seat and preferably has closely spaced line markings on the tapered portion. The golf ball is placed in the hole on the concave seat and rotated about various axes thereof to check its sphericity by noting the constancy or variance in distance between the face of the ball and the sharp edge arc.

3,828,443

LINE SQUARE

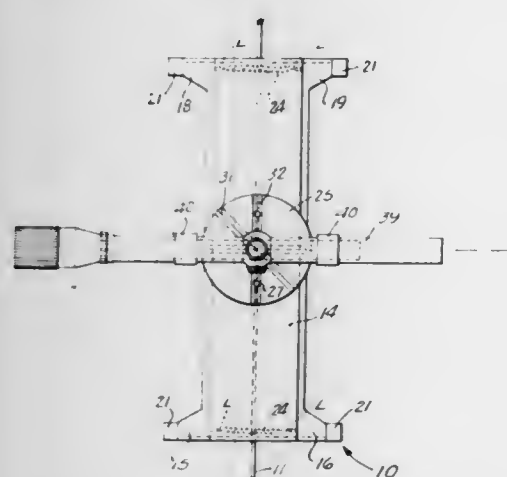
Russell P. James, Avon Park, Fla., assignor to Thomas W. Bagwill and James A. Heim, both of Avon Park, Fla., part interest to each

Filed June 20, 1972, Ser. No. 264,438

Int. Cl. G01c 1/00

U.S. Cl. 33-227

10 Claims



A line square for laying out a building; for a permanent lay out reference for large constructions of the type which require a considerable period of time such as bridges and piling work; for a factory machinery layout; for a grocery store, shelves and aisles layout; and for measuring inaccessible objects such as Stone Mountain illustrations and the like. A reference line is drawn taut across the area to be aligned, and an instrument support member is hand held on the line in alignment therewith. A theodolite, transit, or a simple angularly adjustable telescope is supported on the instrument support for movement along the line to align the instrument at any desired

3,828,444

DEVICE FOR UNIFORMLY ADJUSTING THE MOISTURE CONTENT IN A COMPACTED MASS

Eugen Kopp, Stuttgart, Germany, assignor to Werner & Pleiderer, Stuttgart-Feuerbach, Germany

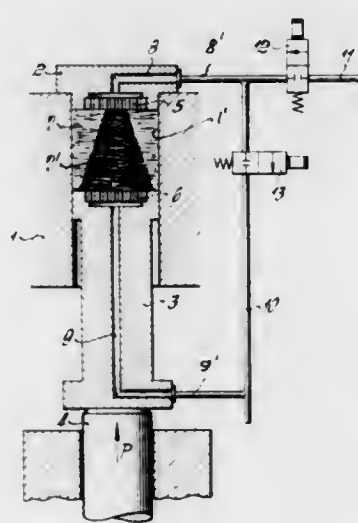
Filed June 1, 1973, Ser. No. 366,070

Claims priority, application Germany, July 19, 1972, 2235255

Int. Cl. F26b 19/00

U.S. Cl. 34-70

3 Claims



There is disclosed a device for dewatering a mass of nitrocellulose and replacing the water by alcohol so that the moisture content in the mass is adjusted for a uniformly distributed selected level. The device comprises a press, the cylinder of which is closed at one end by a removable cover mounting on its inner side a perforated plate and into which extends a power driven ram or plunger mounting on its face wall a second perforated plate. The mass of nitrocellulose to be processed is fed into the cylinder space between the two perforated plates. The perforated plate on the cover communicates with a conduit for feeding alcohol into the cylinder and the other perforated plate with a discharge conduit. These two conduits are interconnected by a conduit. A valve is included in the feed conduit upstream of the connection thereof to the discharge conduit and a second valve is included in the interconnecting conduit. First, alcohol is added via the feed conduit by opening the valve in the feed conduit and closing the valve in the interconnecting conduit. Then the valve in the feed conduit is closed and the valve in the interconnecting conduit is opened and, finally, the mass in the cylinder is compacted by activating the plunger. The water is pressed out during the compacting of the mass is discharged through the now open discharge conduit.

3,828,445

CLOTHES DRYER SEAL

Edward H. Smoot, Holcomb, N.Y., assignor to The Schlegel Manufacturing Company, Rochester, N.Y.

Filed Mar. 26, 1973, Ser. No. 345,077

Int. Cl. F26b 25/00

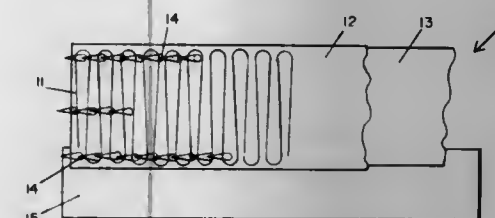
U.S. Cl. 34-242

13 Claims

A seal between the housing and rotating drum of a clothes dryer is formed of a spring wire laid in a zig zag pattern with a wear material secured to the zig zag wire by rows of stitching

that also hold the wire loops together. The seal includes an air barrier and is mounted in the dryer in a generally conical

shape to engage a sealing edge at an oblique angle, and the spring wire is selected for pressing the wear surface against the sealing edge with a predetermined force.



shape to engage a sealing edge at an oblique angle, and the spring wire is selected for pressing the wear surface against the sealing edge with a predetermined force.

3,828,446

PROCESS FOR ACCELERATING THE LEARNING OF LANGUAGES

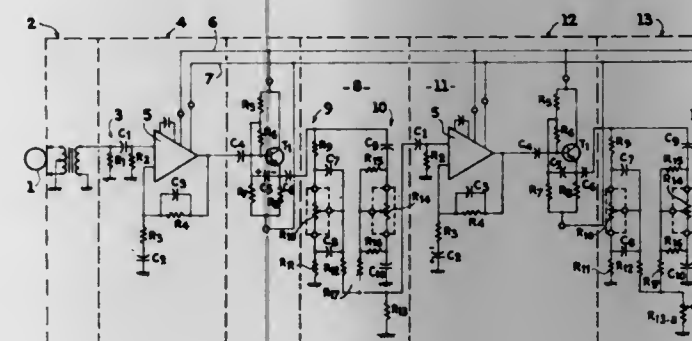
Marc Jean-Christophe Noel Mandel, Paris, France, assignor to L'Institut De Recherches Economiques Et Sociales, Paris, France

Filed Apr. 21, 1972, Ser. No. 246,323

Int. Cl. G09b 19/06

U.S. Cl. 35-35 C

5 Claims



Process and apparatus for accelerating learning of languages whereby the individual is made to acquire a phonation curve pertaining to the foreign language to be learned. The process comprises converting the phonation curve of the vocal emissions of the individual into electrical signals and, in a first stage of learning, modifying the phonation curve by a first selective filtering of the signals, so as to produce a first audition curve having an energy level which is roughly constant as a function of the frequency, this audition curve being heard by the individual whereby he acquires a transformed phonation curve similar to the audition curve obtained and, in a second stage of learning, modifying the transformed phonation curve in such manner as to obtain a second audition curve whose form reproduces the phonation curve of the language to be learned, the second audition curve being heard by the individual whereby he acquires the phonation curve of the language to be learned. A recording of vocal emissions spaced apart in time can be employed in addition in combination with reproducing means whereby the individual may repeat the recorded emissions in the intervals between recordings instead of reading from a text.

3,828,447

EDUCATIONAL DEVICE

David L. Larkin, 1200 W. Michigan Ave., Battle Creek, Mich. 49017

Filed Aug. 22, 1973, Ser. No. 390,397

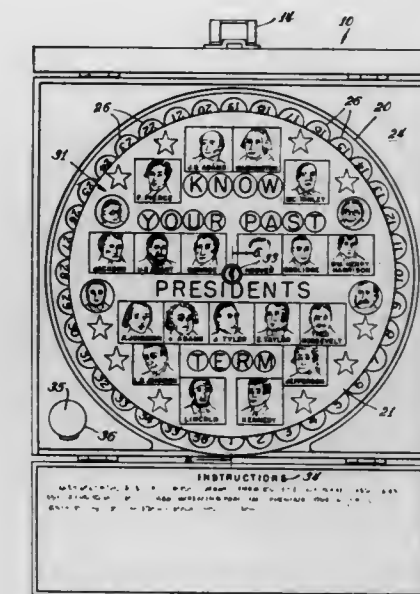
Int. Cl. G09b 3/00

U.S. Cl. 35-9 R

9 Claims

An educational device, comprising a base supporting a spindle and several discs mounted over the spindle, the lower disc having a plurality of recessed receptacles or sockets arranged in a circle concentric with the spindle, and having question in-

dicia associated with each receptacle, and having on the upper surface of the disc verified answer indicia associated with each socket or receptacle, the second disc having a diameter sufficiently large to cover the verified answer indicia, and in an im-



proved embodiment arranged to cover partially the receptacles, and a plurality of tablets such as discs each containing proposed answer indicia adapted to be inserted one into each receptacle.

3,828,448

SKI BOOT

DeFaveri Tron Antonio Leonildo, 287 Via Canova, Asolo, Italy

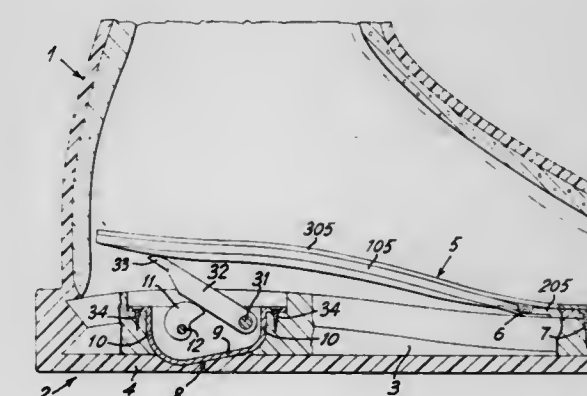
Filed Apr. 6, 1973, Ser. No. 348,619

Claims priority, application Italy, Apr. 8, 1972, 12590/72

Int. Cl. A43b

U.S. Cl. 36-2.5 AL

10 Claims



A rigid insole is hinged near its toe end to the outsole of a ski boot. In the heel region of the outsole a device is built-in, acting on the insole so as to lift and lower said insole with respect to the outsole. Manual control means are provided operable from the side of the boot to adjust the said device so as to provide for the desired height displacement of the insole.

3,828,449

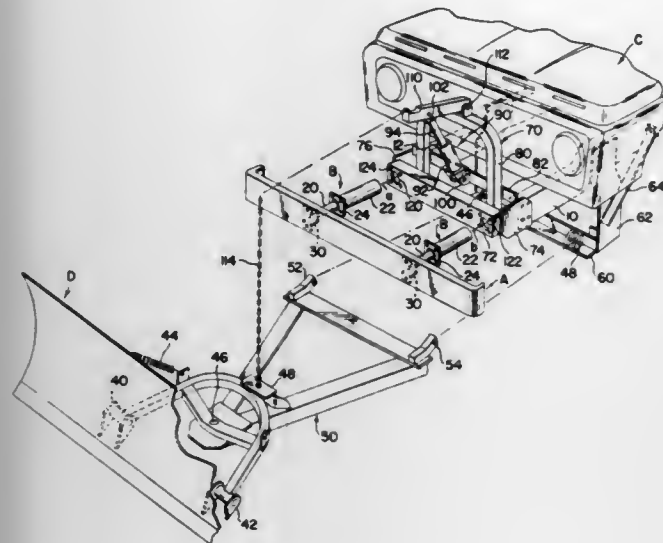
PLOW BLADE LIFT FRAME AND METHOD OF USING SAME

Marc L. Miceli, Cleveland, Ohio, assignor to Meyer Products, Inc., Cleveland, Ohio

Filed Dec. 27, 1972, Ser. No. 318,897
Int. Cl. E01h 5/00; B60r 19/00

U.S. Cl. 37-41

4 Claims



There is provided a snow plow lift frame for use on the front of a motor vehicle wherein the lift frame is provided with mounting arrangements for energy absorbing devices or units to be secured onto a bumper which is in turn attached to the plow blade lift frame.

3,828,450

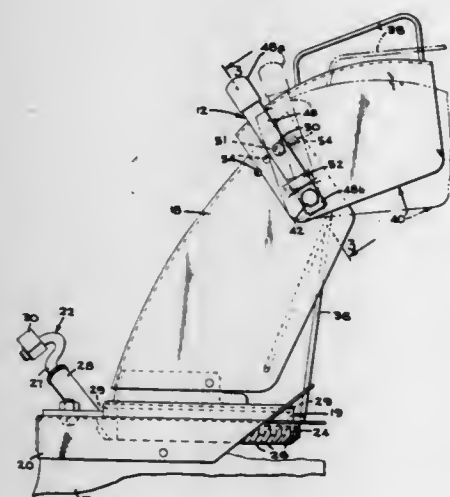
SNOW CASTER DEFLECTOR CAP LOCKING DEVICE

David J. Boeck, Port Washington, Wis., assignor to FMC Corporation, San Jose, Calif.

Filed Dec. 7, 1972, Ser. No. 313,085
Int. Cl. E01h 5/00

U.S. Cl. 37-43 R

1 Claim



A snow deflector cap locking device for positively locking a snow deflector cap, in selected pivot positions, to a snow outlet duct surmounted by the cap. A spring lever mounted on one side of the cap carries a lock pin that extends through a slot in the cap for selective engagement in any one of several holes in the fixed duct to couple the cap to the fixed duct and thereby lock the cap in selected annular positions.

3,828,451

DUCTING SYSTEM FOR SUCTION DREDGERS HAVING PIVOTALLY CONNECTED TUBE LENGTHS

Jan de Koning, Amsterdam; Romke van der Veen, Jutphaas, and Tjako Aldrik Wolters, Vianen, all of Netherlands, assignors to Ballast-Nedam Groep N.V., Amsterdam, Netherlands

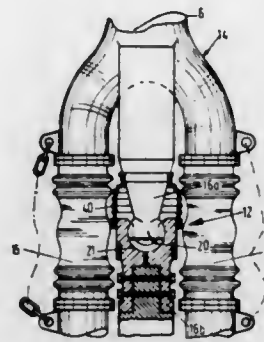
Filed Jan. 29, 1973, Ser. No. 327,408

Claims priority, application Netherlands, Jan. 28, 1972, 7201145

U.S. Cl. 37-58

Int. Cl. E02f 3/90

6 Claims



An earth dredger comprising a duct system for sucking up earth from a soil below water, the duct system comprising a plurality of rigid lengths of tube pivotally connected with each other by means of universal joints formed by hinge parts and coupling members and communicating with each other through flexible, elastic bellows is improved in that the coupling members of the universal joints are arranged between two adjacent bellows, so that the universal joint has smaller dimensions and the earth dredger is less expensive.

3,828,452

STEAM GENERATING SUBASSEMBLY FOR ELECTRIC IRON

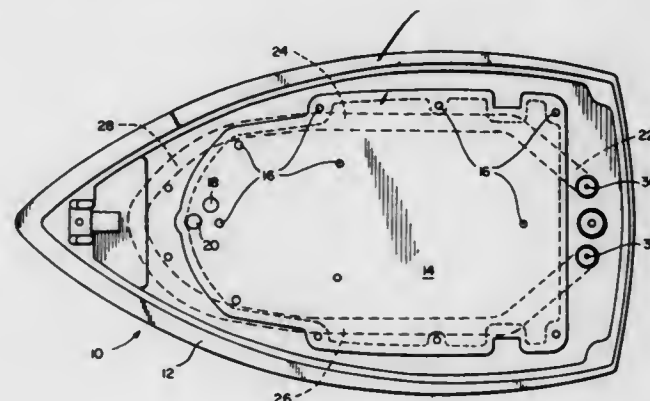
John L. Eaton, Delanco, N.J., and Roger V. Eeckhout, Warminster, Pa., assignors to SCM Corporation, New York, N.Y.

Filed June 1, 1973, Ser. No. 366,008

Int. Cl. D06f 75/06

U.S. Cl. 38-77.83

11 Claims



A sole plate of an electric iron containing two independent steam generating chambers separately generating a low velocity steam and a high velocity steam, respectively, and communicating with steam ports in the sole plate through a common outlet path. The low and high velocity steam generating chambers include a substantially linear passageway and a tortuous passageway, respectively. A portion of a water receiving passage of the high velocity steam generating chamber and a portion of its tortuous passageway extend over a heating element embedded in the sole plate.

3,828,453

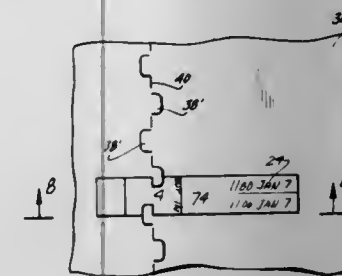
MEANS FOR ARRANGING DATA

Arthur M. Cohen, 2775 E. 12th St., No. 205, Brooklyn, N.Y. 11235

Division of Ser. No. 12,058, Feb. 17, 1970, abandoned. This application May 8, 1972, Ser. No. 251,526
Int. Cl. G09f 3/18

U.S. Cl. 40-19.5

4 Claims



Means for arranging data by separating a data sheet along perforated lines into segments and securing said segments to a backing sheet in any desired arrangement. In one embodiment the data segments are provided with slits adapted to engage successive spaced tabs cut out along a fold line on the backing sheet. In a second embodiment the data sheet is provided with cut-out tabs which extend outwardly when the sheet is folded along a perforated fold line coterminous with the tab base. The tabs are inserted into slits cut out in the backing sheet.

3,828,454

DESTRUCTION RESISTANT TAG

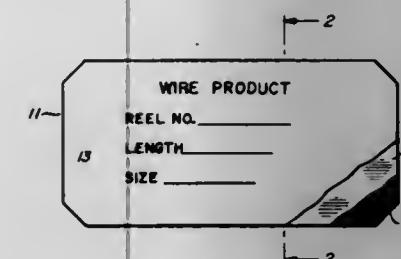
Claude J. Hafner, Bethlehem, and Bruce D. Bush, Allentown, both of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Dec. 13, 1972, Ser. No. 314,637

Int. Cl. G09f 3/02

U.S. Cl. 40-27

8 Claims



A weather and damage resistant tag is made from a lamination of thin soft metal sheet and cross woven fiberglass securely bonded together with an adhesive. Reinforcing patches composed of a lamination of thin sheet metal and a woven cloth backing are preferably secured to the tag with the metal portion of the patch uppermost surrounding any attachment orifices extending through the tag body.

3,828,455

SIGN AND SUPPORT APPARATUS

Ralph L. Bentley, 79 Dascomb Rd., Andover, Mass.

Continuation of Ser. No. 99,000, Dec. 17, 1970, abandoned.

This application Jan. 17, 1973, Ser. No. 324,349

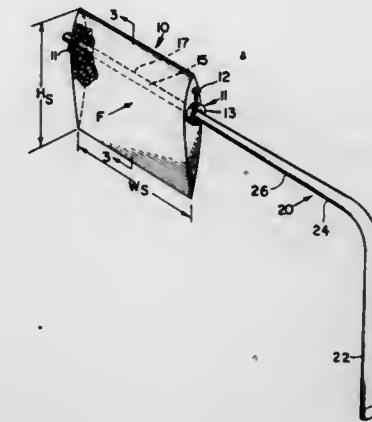
Int. Cl. G09f 7/18

U.S. Cl. 40-125 H

18 Claims

The sign has an aerodynamic cross-sectional shape, is supported along a center of gravity line and is normally prevented from rotating by a releasable support member that is coupled to the main sign support structure. The sign may be supported either horizontally or vertically along a hingeline that passes through the sign. Both the sign and support are fabricated with a light-weight core material surrounded by a stronger, rela-

tively thin skin material. An optimum strength support is obtained by providing a circular cross-section in a plane that



passes through the normal (perpendicular) force center on the sign and the support for each incremental section of the support.

3,828,456

CAR TOP ADVERTISING STAND

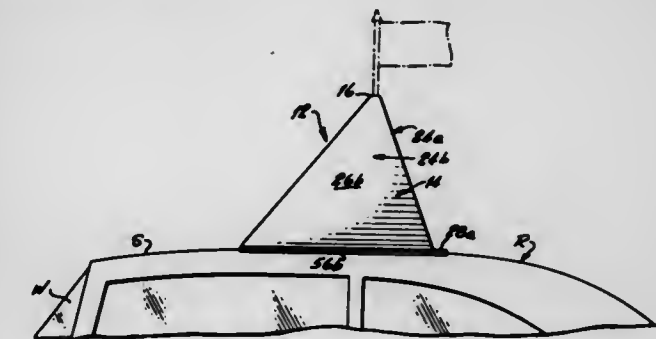
Ralph B. Rose, P.O. Box 727, Miami, Fla. 33070

Filed July 31, 1972, Ser. No. 276,595

Int. Cl. G09f 7/00

U.S. Cl. 40-129.C

1 Claim



An advertising stand of paperboard construction adapted to be stored or packaged in flat paperboard blank form and to be erected to a pyramidal form for stationary support on the top surface of an automobile roof. Contact adhesive surfaces provide means for securing the advertising stand in erected pyramidal configuration and for securing the erected stand on an automobile top surface.

3,828,457

DECORATIVE WALL FIXTURE

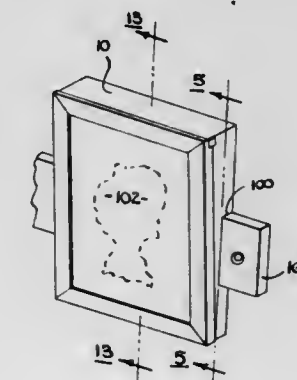
Arthur E. Willis, 927 Circuit Dr., Roseville, Calif. 95678

Filed Jan. 24, 1973, Ser. No. 326,462

Int. Cl. G09f 1/12

U.S. Cl. 40-152.1

6 Claims



A decorative fixture for hanging on a wall, having a baseboard in sections, slots in the baseboard, and supported

items having studs protruding therefrom, the studs simultaneously holding the segments of the baseboard together and supporting the supported item in cantilevered fashion from the baseboard.

3,828,458

REMOTELY OPERABLE TRIGGER ACTUATOR

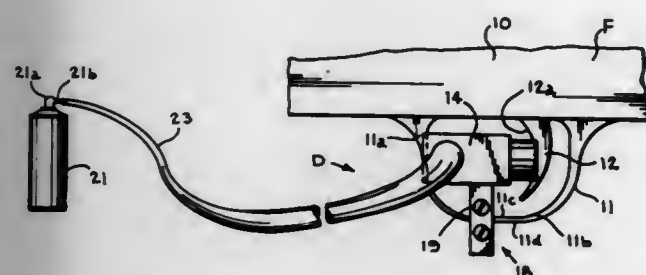
John R. Skone-Palmer, 1735 Portsmouth, Suite 9, Houston, Tex. 77006

Filed June 11, 1973, Ser. No. 368,511

Int. Cl. F41c 19/06, 27/00

U.S. Cl. 42—69 R

8 Claims



A remotely operable trigger actuator including a body adapted for mounting between the trigger housing and the trigger of a rifle or the like; a piston slidably mounted in a bore in the body and a remotely located pressure source connected to the bore in order to displace the piston and to actuate the trigger.

3,828,459

PNEUMATIC RIFLE CAST FISHING ROD

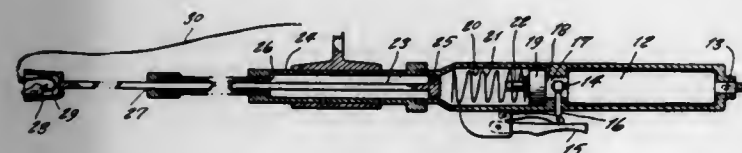
Miller Easom, c/o Miller Easom Mail Order, 110-113 Francis L. Blvd., Hollis, N.Y. 11429

Filed Apr. 17, 1973, Ser. No. 352,027

Int. Cl. A01k 91/02

U.S. Cl. 43—19

1 Claim



An improved fishing rod for use by sports fishermen, the rod including a mechanism for casting the baited hook out into the water. The mechanism consists of an inflatable gas pressure can in the rod handle, gas being released by a trigger so that the released air quickly pushes a piston against a rear end of a rod that is slidable in a rifle-like barrel. A forward end of the rod extends from the barrel and has a cup in which is placed a baited hook attached to the fishing line so that when the rod is struck by the piston it thrusts the baited hook out into the water.

3,828,460

RODENT TRAP

Fritz Herman, 2848 N.E. 26 Court, Fort Lauderdale, Fla. 33306

Filed Mar. 7, 1973, Ser. No. 338,828

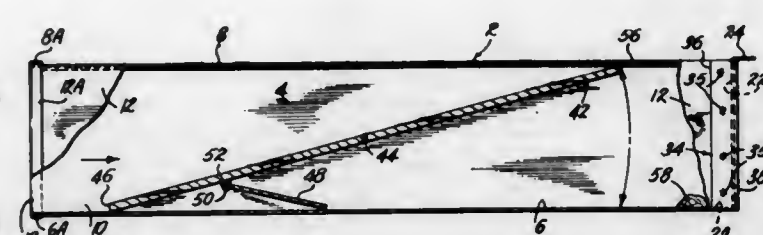
Int. Cl. A01m 23/08

U.S. Cl. 43—61

5 Claims

An animal trap for rodents, comprising a sheet metal housing containing an elongated compartment, and a trap walk pivotally mounted in the compartment. The compartment is open at one end to allow entry of the animal, and closed at its other end by a slidable door. Bait is placed in the end of the compartment nearest the door. The trap walk is gravity balanced, so that, in its open position, its end nearest the entrance engages the bottom wall of the compartment and its

other end engages the top wall of the compartment. The trap walk can be tilted to a closed position wherein said end nearest the entrance engages the top wall of the compartment and its other end engages the bottom wall of the compartment.



3,828,461

CRAB TRAP

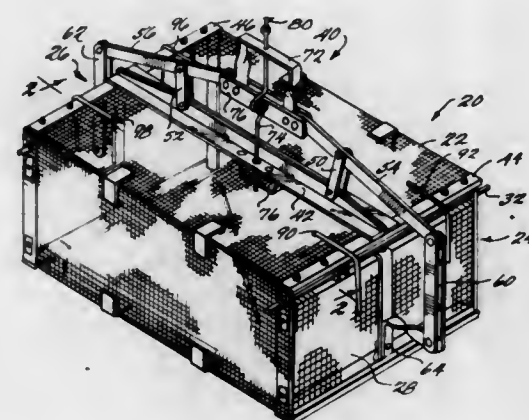
Grant W. Roberts, 19 E. Center St., Folly Beach, S.C. 29439

Filed Dec. 8, 1972, Ser. No. 313,541

Int. Cl. A01k 69/08

U.S. Cl. 43—102

6 Claims



A porous crustacean trap having at least one pair of opposed hinged doors which may be placed in either an open or closed position by a linkage mechanism which is mounted atop the trap and connects the hinged doors to a lifting line. When tension is placed on the lifting line, the linkage mechanism operates to close the hinged doors, but when the line is not in tension, flexible straps or the like provide the necessary force to overcome the weight of the hinged doors and open the hinged doors to permit crabs and other marine animals to enter. The linkage mechanism is pivotally hinged to enable the operator to selectively open either end to remove crabs or other crustaceans from one end while preventing their exit from the other.

3,828,462

ANIMATED TOY

Howard J. Morrison, Deerfield, and Marvin I. Glass, Chicago, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Dec. 21, 1972, Ser. No. 317,278

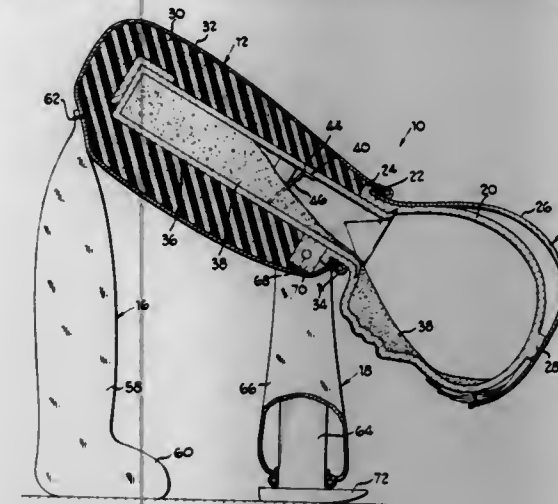
Int. Cl. A63h 11/08

U.S. Cl. 46—41

2 Claims

An animated toy in the form of a doll having an elongated body portion and supporting arm portions and leg portions connected to the body portion so that the ends of the arm and leg portions may be positioned on a supporting surface and maintain the body portion in an elevated forwardly-downwardly inclined position. A fluent granular material is disposed within an interior compartment inside the body por-

tion of the doll whereby the granular material flows forwardly to shift the center of gravity of the doll forwardly. The granular material flows relatively slowly past a baffle plate to cause the doll to slowly tumble over in a generally forward direction, under gravity.



3,828,463

DROP SPIN FISHING LURE

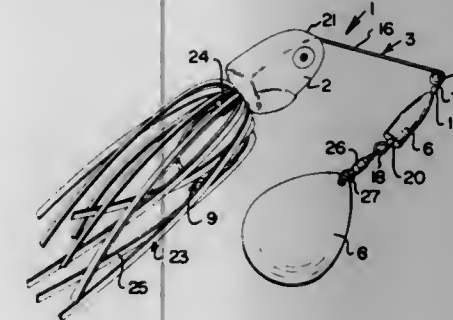
George S. Perrin, Fort Smith, Ark., assignor to Plastic Research and Development Corporation, Fort Smith, Ark.

Filed Feb. 26, 1973, Ser. No. 336,038

Int. Cl. A01k 85/00

U.S. Cl. 43—42.11

7 Claims



An artificial fishing lure has a hollow or floater body member with a line shank extending forwardly and downwardly therefrom and having an eye for connection of a fishing line. A weight member is mounted on a weight support shaft extending rearwardly from the eye of the line shank below and at an angle relative to the body member for a desired angular relation and having a spinner or action member mounted on a rear end of the weight support shaft. A hook shank extends rearwardly from the hollow body member and has a down-turned portion terminating in a barb at the free end thereof, the lure having a suitable skirt or the like on the body and extending around the hook.

3,828,464

DISPENSING APPARATUS FOR APPLYING EXTERMINATING AND PRESERVATIVE COMPOSITIONS

Franklin Peace, c/o National Volume Sales Corp., 1024 Cottman Ave., Philadelphia, Pa. 19111

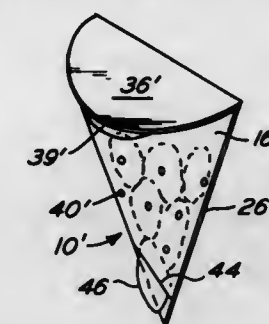
Continuation-in-part of Ser. No. 84,094, Oct. 26, 1970, Pat. No. 3,692,469. This application May 25, 1972, Ser. No. 257,040

Int. Cl. A01m 25/00

U.S. Cl. 43—131

7 Claims

A container is provided for a wood-penetrating preservative or exterminating composition for insects and rodents. Any preservative composition in the container contacts a wood



3,828,465

DIRECT-ENTRY CASH REGISTER

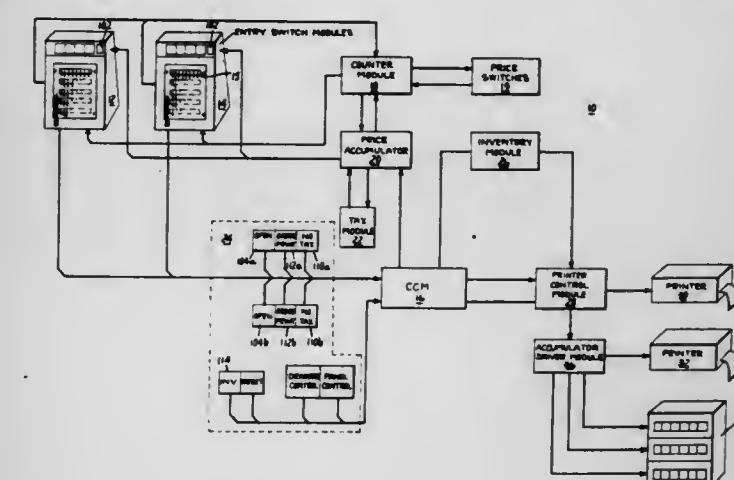
Frederick A. Buuck, 421 W. Maple Grove, Fort Wayne, Ind. 46807, and Robert E. Fritsch, 5133 Forest Grove Dr., Fort Wayne, Ind. 46815

Filed Feb. 7, 1973, Ser. No. 330,308

Int. Cl. G06c 29/00; G07g 1/00

U.S. Cl. 235—6

43 Claims



A direct-entry cash register for totaling the prices of a selected quantity of a predetermined plurality of items offered for sale, the combination comprising item switch means for selecting a quantity of each of one of a predetermined plurality of items, the item switch means including a plurality of line-item switches, there being one item switch for each item offered for sale and each item switch being selectively operable between a plurality of discrete positions. Each position of the switches corresponds to a different selected quantity of the associated item. Means are provided for programming into the cash register the price of each item offered for sale, the programming means including a plurality of groups of manually settable price switches, each group of switches being operable between a multiplicity of discrete positions corresponding to a multiplicity of prices. There is one group of price switches for each item offered for sale. A first indicia means is associated with each item switch for identifying the item corresponding thereto and second indicia means are operatively coupled to each of the item switches for automatically and visibly indicating the selected quantity of the item. A computing means is provided for automatically interrogating the item switch means and the programming means and totaling the prices and quantities of all selected items. A display means is operatively coupled to the computing means for displaying the total price of the items sold in a single transaction.

ERRATUM

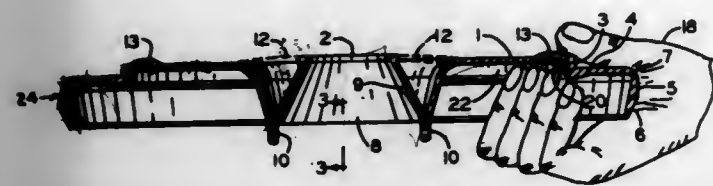
For Class 46—41 see: Patent No. 3,828,462

3,828,466 FLYING SAUCER

Ervin D. Geiger, R.R. No. 4, Albion, Ind. 46701
Filed June 22, 1972, Ser. No. 265,119
Int. Cl. A63h 27/00

U.S. Cl. 46—74 D

4 Claims



A gyro-aerodynamic saucer shaped throwing or projecting implement. Consisting of a single or plurality of inter boundary rings projecting down from relative flat plateau upper outer surfaces, said rings may be accompanied by raised dimples which make for more comfortable hand grip, and better control of the saucer as it is thrown with a wrist snapping action. Said rings also exert a controlled drag on the upper surface of the saucer to help prevent rolloff or rollover. Also consisting of an outer ring with a flatter cone-shaped lower foresurface to act as lift, similar to flaps on an aircraft, which also tends to prevent rollover, yet cause a more stable flight with a much thinner overall thickness of the saucer, thereby reducing the overall aerodynamic drag during flight. Saucer also having an optional hole in the center with downward projecting cone center shaped center section, for either catching it on the finger of the player, or used in games where stakes are used, thus throwing the saucer on the stake through the hole. Said cone may also have downward projecting hooks on its lower surface and be shot and whirled into flight with an elastic member. Saucer may contain a lower projecting ridge on the under surface of the plateau's upper surface of the larger saucers. Said ridges may also be accompanied with raised dimples adjacent to them, being there to hook the finger tips of the thrower, for a more comfortable grip, and more controlled flight while being thrown.

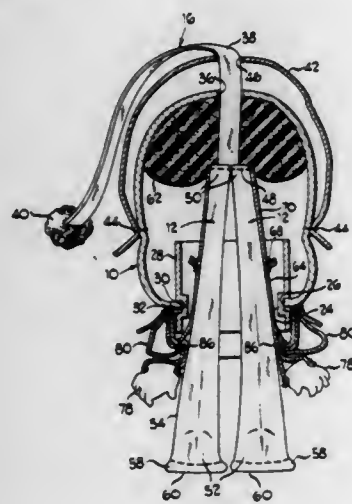
3,828,467 DOLL

Bette M. Kaelin, Chicago, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.

Filed July 16, 1973, Ser. No. 379,854
Int. Cl. A63h 13/00

U.S. Cl. 46—115

8 Claims



A toy growing doll, animal or the like, including leg defining members of fixed length. A body is provided, which body has an interior cavity and a downwardly facing opening for receipt of the upper ends of the legs so that the same may be moved into the cavity. An elongated element is secured to the leg members and extends through the body so as to be graspable to move the leg members into the cavity. A flexible covering which can define either apparel or a further body portion is secured to the legs and to the body such that the same will move with the leg members as they are moved partially into

the cavity. A unique retaining force structure is employed for maintaining the legs in any particular position within the opening to the body.

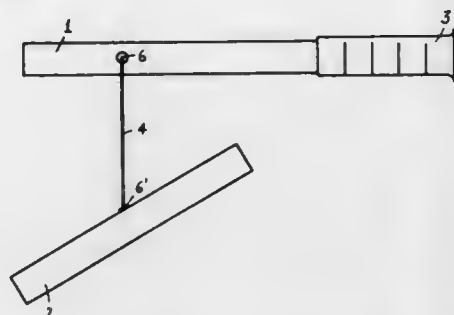
3,828,468

RESONATING TETHERED TUBULAR MEMBERS

Araldo Palumbo, Milano, Via Faenza 10, Italy
Filed Mar. 12, 1973, Ser. No. 340,007
Claims priority, application Italy, Jan. 31, 1973, 20567
Int. Cl. A63h 5/00

U.S. Cl. 46—191

7 Claims



Toy, including two cylindrical tubular sections, connected to each other by means of a string, which may emanate sounds and create particular optical and chromatic effects.

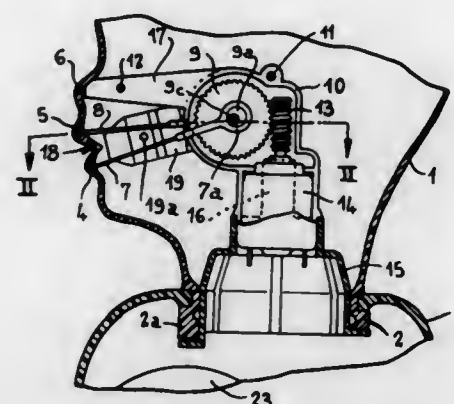
3,828,469

HEAD WITH LIPS MOVABLE BY RODS ECCENTRICALLY MOUNTED TO A WHEEL

Germain Giroud, Moingt-par-Montbrison, Loire, France
Filed Jan. 26, 1973, Ser. No. 326,838
Claims priority, application France, Feb. 11, 1972, 72.5441
Int. Cl. A63h 13/02

U.S. Cl. 46—245

8 Claims



A head for a doll or figurine, having a mouth including two lips each coupled to an operating rod. A wheel with eccentric studs mounts and drives each rod to impart a reciprocating displacement to the lips, such displacements being staggered, to simulate lip movement as in talking. An electric motor drives the wheel. A circuit breaker may be positioned in the head near an opening at the mouth so that an object inserted therein will turn off the electric motor.

3,828,470

MUSHROOM SPAWN AND METHOD OF MAKING SAME

Benjamin B. Stoller, Santa Cruz, Calif., assignor to Stoller Research Co., Santa Cruz, Calif.
Continuation-in-part of Ser. No. 79,265, Oct. 8, 1970, abandoned. This application June 14, 1971, Ser. No. 153,032
Int. Cl. C05g 1/00

U.S. Cl. 47—1.4

11 Claims

Mushroom spawn and the method of making same wherein the substrate is prepared with finely ground feedstuffs. Flocculating agents and trituration permit the finely granular mixture to serve as a substrate without becoming a sticky paste or cement-like product. The finely ground substrate provides for increased and faster mycelial growth throughout the compost, and for greater mushroom yield from the use of a particular amount of spawn.

3,828,471

AGRICULTURAL MULCH FILMS ADAPTED FOR PLANT PENETRATION

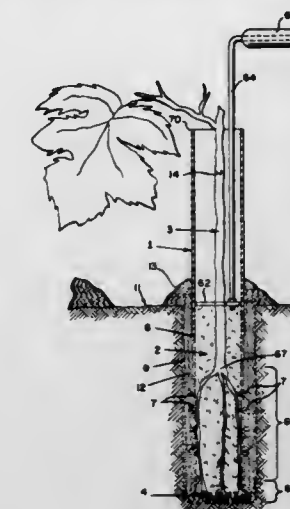
Bernard Fornelius Anderson, West Chester, Pa., assignor to E. I. duPont de Nemours and Company, Wilmington, Del.
Continuation-in-part of Ser. No. 60,724, Aug. 3, 1970, Pat. No. 3,673,134. This application Feb. 25, 1972, Ser. No. 229,488
Int. Cl. A01q 7/00; B44d 5/00

U.S. Cl. 47—9

5 Claims

Films prepared from ethylene polymer-hydrocarbon elastomer blends are coated with petroleum derived rubber processing and extender oils. These films degrade more rapidly and provide for easier plant penetration than untreated films.

medium intact through the bottom of the container into a prepared hole. The container is left partially buried in the



3,828,472

FLOWER ARRANGING ELEMENT

Johannes Anthonius Vermeulen, Herwijnen, and Bernardus Adrianus Van Etten, Delft, both of Netherlands, assignors to Johannes Anthonius Vermeulen, Waaldijk, Herwijnen, Netherlands

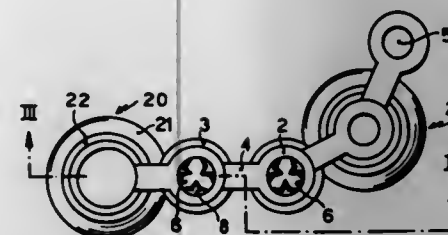
Filed July 13, 1972, Ser. No. 271,528

Claims priority, application Netherlands, July 16, 1971, 7109879

Int. Cl. A01g 5/00

U.S. Cl. 47—41

4 Claims



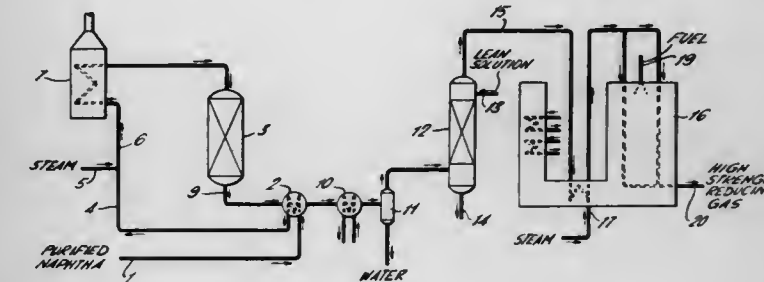
A flower arranging element according to the invention is provided by a body of stiff resilient plastics material consisting of two outwardly cylindrical members being joined to each other with their axes in parallel relationship by a linking piece lying in a plane extending at right angles to the axes of the members, one of the members having therein an open ended cylindrical cavity narrowing towards its open end and the other member being in the form of a cylindrical ring fitting closely around the cavity containing member of another element. The flower arranging element includes a flower stem holder being provided at its bottom end with a ball-shaped part capable of tight insertion into the cavity of the cavity carrying member and the flower stem holder being capable of receiving and supporting flower stems of different diameters.

3,828,474 PROCESS FOR PRODUCING HIGH STRENGTH REDUCING GAS

Orlando J. Quartulli, London, England, assignor to Pullman Incorporated, Chicago, Ill.
Filed Feb. 1, 1973, Ser. No. 328,805
Int. Cl. C01b 2/14

U.S. Cl. 48—214

13 Claims



This invention provides a process for producing a high strength reducing gas suitable for reducing metallic ores such as iron ore. The process is a multi-step process using a C₃ to C₁₅ hydrocarbon such as liquid naphtha as the starting material.

The first step of the process comprises gasifying the hydrocarbon by passing a preheated mixture of the hydrocarbon and steam through a bed of a reforming catalyst to produce a gas consisting essentially of methane, hydrogen, carbon oxides and steam. Carbon dioxide is then removed from this gas mixture and the resulting gas is steam reformed in the presence of a reforming catalyst to produce reducing gas comprising hydrogen and carbon monoxide.

3,828,475

GATE OPENER

Perry W. Eblen, 111 High St., Oakland, Iowa 51560
Filed Oct. 6, 1972, Ser. No. 295,569
Int. Cl. E05c 17/08; E05b 65/06

U.S. Cl. 49—394

8 Claims

A device for opening and closing a gate comprising a normally closed latch means at the free end of the gate and a spring means at the other end of the gate for returning the gate to its closed position. One form of the latch means comprising a latching arm which is pivotally secured to the post adjacent the free end of the gate and which may be moved between locked and unlocked positions. A bar means extends from the free end of the gate for engagement with the latching member

3,828,473

METHOD, CONTAINER AND TOOL FOR GROWING AND PLANTING GRAPES AND OTHER DEEP AND/OR TAP ROOTED PLANTS

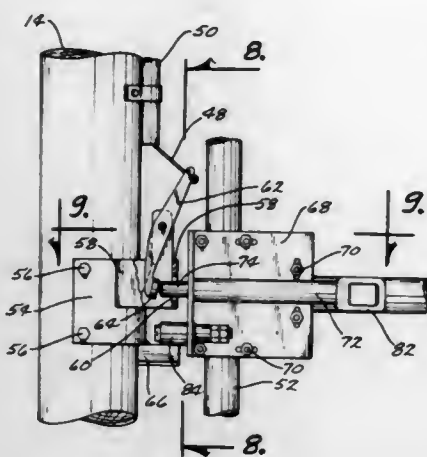
Dennison H. Morey, 555 Irwin Ln., Santa Rosa, Calif. 95401
Filed Jan. 8, 1973, Ser. No. 321,573
Int. Cl. A01c 5/02; A01g 9/02

U.S. Cl. 47—58

8 Claims

A method for growing deep and/or tap rooted plants such as grapes and many shade trees in a growing container which is foldable, longitudinally ribbed or grooved and open at both ends. After the plant is ready for replanting in cultivated soil a special C-shaped tool pushes the plant along with the growing

to maintain the gate in its closed position. An elongated flexible cable is secured to the latching member and extends upwardly therefrom to a location adjacent the approach area of the gate to permit a person on a tractor or the like to grasp the cable and to move the latching member to its unlocked position. The tractor is then driven against the gate which causes



the gate to swing open as the tractor is driven thereby. Once the tractor has disengaged from the gate, the spring means causes the gate to return to its closed position. The modified form of the latch means comprises a spring loaded plunger element which is secured to the free end of the gate and which is received by an opening in a bracket secured to a post adjacent the free end of the gate.

3,828,476

HINGE ASSEMBLY

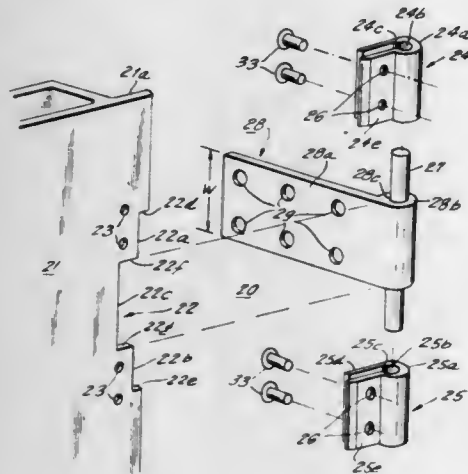
Paul Tenenbaum, Glenside, and Howard Yurkevich, Levittown, both of Pa., assignors to Strick Corporation, Fairless Hills, Pa.

Filed June 29, 1972, Ser. No. 267,699

Int. Cl. E05d 9/00; E06b 3/00

U.S. Cl. 49-501

9 Claims



A hinge assembly for doors and the like in which the door frame forms an integral part of the hinge assembly. The door frame is provided with a cutout of a predetermined shape wherein two inwardly spaced edges of the cutout act as mounting surfaces for the hinge butts and collectively cooperate with the hinge butts to secure the hinge pin. The remaining cutout portion, positioned between the aforementioned spaced cutout portions and extending inwardly therefrom provides clearance for the hinge strap. The protruding edge of the door frame containing the cutouts further provides protection against damage for the edge of the door carrying the hinge straps. The transverse edges of the spaced cutout portions further serves as the means for retaining the upper and lower ends of the hinge pin.

The employment of the special cutout eliminates the need for additional mechanical means such as welding, cotter pins

or threaded hinge pins and cooperating trapped nuts normally employed in conventional systems to mount the hinge pin to the hinge butts.

3,828,477

CLOSED LOOP GRINDER INFEEED CONTROL SYSTEM W/AUTOMATIC COMPENSATION FOR WHEEL DIAMETER CHANGES DUE TO DRESSING OPERATIONS

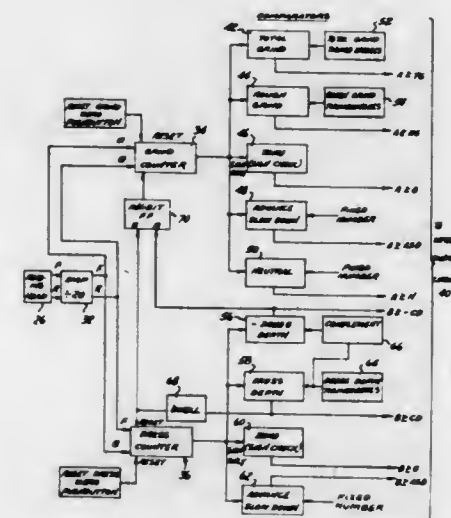
Norman Ray Sanford, Piqua; Alan Dale Wainscott, and Billy Keith Skelton, both of Dayton, all of Ohio, assignors to The Bendix Corporation, Southfield, Mich.

Filed May 7, 1973, Ser. No. 357,755

Int. Cl. B24b 49/18, 49/10, 51/00

U.S. Cl. 51-5

6 Claims



An infeed control system for a grinding machine is disclosed which includes a distance transducer generating trains of electrical pulses in response to wheelhead movement in either direction on the infeed slide, and a first and second up-down counter receiving and counting these electrical pulses generated, the first of these counters counting up in response to pulses generated by grinding infeed movement, the second counting up in response to pulses generated in response to dressing infeed movement. A series of comparator networks compares these counts with preset values set in the series of comparators, and generates sequencing control signals therefrom at points in the infeed motions of the wheelhead corresponding to the preset values. To compensate for the effect of the changes in wheel diameter due to dressing operations, an arrangement is provided which inhibits the counting up of the counter responding to electrical pulses generated by grinding infeed motion occurring after each dressing operation for a count total equal to the dressing depth.

3,828,478

FLUID-JET-ABRASIVE DEVICE AND SYSTEM

Edwin G. Bemis, 1357 La Serena Dr., Brea, Calif. 92621

Filed June 25, 1973, Ser. No. 373,467

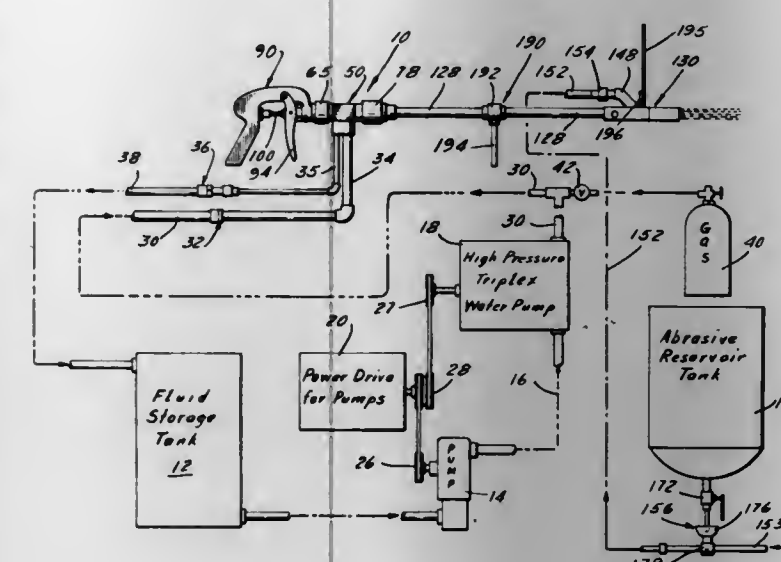
Int. Cl. B24c 7/00

U.S. Cl. 51-11

18 Claims

A fluid-jet-abrasive device and system according to the present invention comprises a fluid-jet gun having a trigger means adapted to operate a pressure-control valve, to allow fluid to flow therethrough and pass out of the spray-nozzled distal end of the gun under extremely high pressures and velocities, the fluid under pressure being supplied through an interconnected flow system having a water-tank reservoir, a pumping unit being coupled at one end thereof to the water tank and at the opposite end to the pressure inlet of the gun by means of a recirculating conduit system. The gun includes a separate inlet port through which various types of abrasive

materials are passed and mixed with the fluid to be sprayed under high pressure, the abrasive material being stored in a



tank having a material-flow regulator operably attached thereto for automatically controlling the feeding of the abrasives to the gun.

3,828,479

MULTIPLE SPINDLE CLUSTER FOR SHEET GLASS CORE DRILLING MACHINE

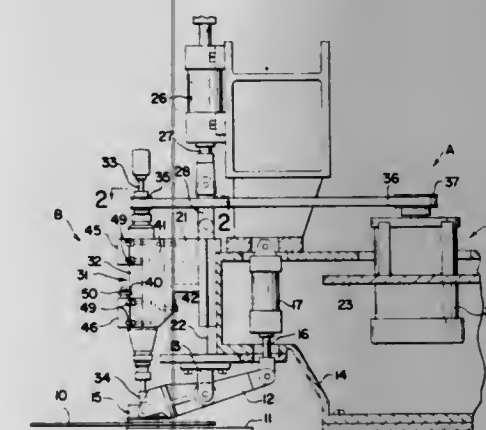
Carle W. Highberg, Sylvania, and George R. Roesch, Sylvania Twp., both of Ohio, assignors to Engelhard Minerals & Chemicals Corporation, Murray Hill, N.J.

Filed May 17, 1973, Ser. No. 361,268

Int. Cl. B23b 41/00; B24b 7/00; B28b 1/02

U.S. Cl. 51-81 R

8 Claims



A multiple spindle cluster assembly for use in association with a core drilling machine to drill a plurality of holes simultaneously in a glass sheet. A pair of such identical cluster assemblies are located on opposite sides of the sheet with the respective pairs of opposed spindles axially aligned. The respective drills are fed alternately into the sheet to a depth less than the thickness of the glass. Each assembly includes an adapter and at least one spindle clamp attachable to the adapter to support the spindles in parallel alignment and in a predetermined pattern and spacing relative to one another. The spindles are adjustable in an axial direction relative to one another to position the drill tips in a common plane parallel to the plane of the glass sheet.

3,828,480

TIP SHARPENING MACHINE FOR DRILLS, ESPECIALLY TWIST DRILLS

Georg Ernst Weng, Ravensburg, Germany, assignor to Haivera Probst Kommanditgesellschaft Hartmetall-Werkzeugfabrik Ravensburg, Ravensburg, Germany

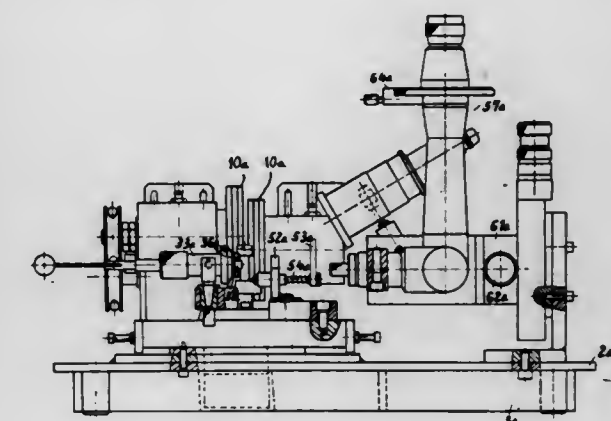
Filed Feb. 15, 1973, Ser. No. 332,616

Claims priority, application Germany, Feb. 17, 1972, 7205920; Jan. 15, 1973, 7301349

Int. Cl. B24b 7/00; B21k 3/10

U.S. Cl. 51-85 R

12 Claims



A machine for sharpening drills, especially twist drills, in which a pair of grinding discs are mounted in adjacent relation and rotate on respective axes which are parallel and offset so the discs define a re-entrant grinding throat. A drill holder is provided to support a drill so the point end can be introduced into the grinding throat at an angle. The drill holder includes means to adjust the drill axially and angularly and can move the drill from grinding position to an inspection position wherein a microscope is located and which includes hairline means for precise adjustment of the drill in the drill holder.

3,828,481

CAM CONTROLLED MACHINE FOR GRINDING A NON-CIRCULAR SURFACE

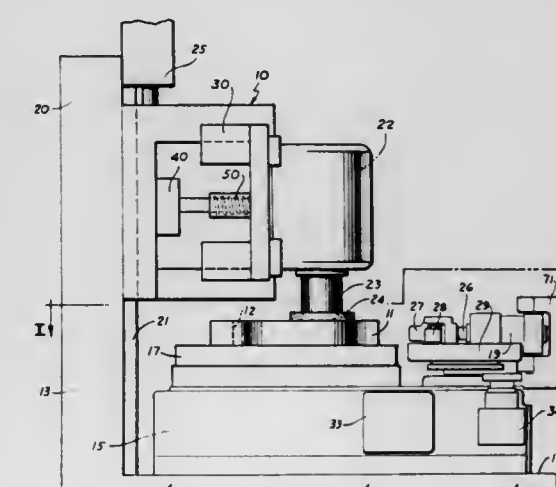
Herbert Rudolf Uhtenwoldt, Worcester, Mass., assignor to Cincinnati Milacron-Heald Corp., Worcester, England

Filed May 23, 1973, Ser. No. 362,957

Int. Cl. B24b 7/04, 17/00

U.S. Cl. 51-101 R

10 Claims



A grinding machine for forming a non-circular surface on a workpiece, the machine having means for preventing misformation of the surface due to lack of normalcy between a master cam and its cam follower.

3,828,482 FINISHING MACHINES WITH A WORKPIECE CONVEYING SYSTEM

James Thomas Shaw, and Raymond Percy Arthur Lilley, both of Peterborough, England, assignors to Baker Perkins Limited, Peterborough, England

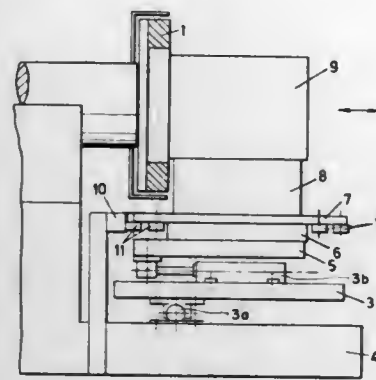
Filed Sept. 21, 1972, Ser. No. 291,078

Claims priority, application Great Britain, Oct. 6, 1971, 46542/71

Int. Cl. B24b 7/06

U.S. Cl. 51-121

11 Claims



A snag or flash cutting or grinding machine has a stationary cutting or grinding head and a system for conveying a workpiece around a closed circuit having an operative run passing the cutting or grinding head. Apparatus is provided for turning the workpiece if required during inoperative run portions of the circuit so that successive workpiece faces can be presented to the cutting or grinding head during successive circuits and a guide system ensures correct alignment of each face relative to the cutting or grinding head.

3,828,483

OPTICAL LENS GENERATING MACHINE HAVING SPHERICAL BEARING WORKPIECE HOLDER

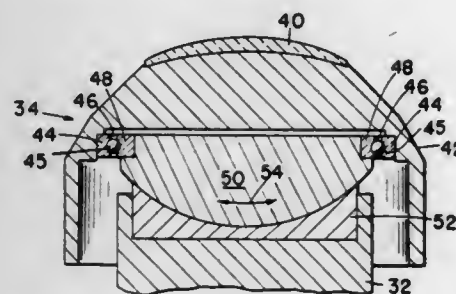
Raymond T. Blum, Pittsford, and George J. Laughman, Perinton, both of N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Oct. 10, 1972, Ser. No. 296,486

Int. Cl. B24b 9/14, 41/04

U.S. Cl. 51-124 L

3 Claims



An optical lens surfacing machine for separate operation upon each refractive side of an ophthalmic lens. The lens is carried by a pivotable workpiece holder. The holder permits total lens surface engagement by an operation tool, thereby providing a single machine for lapping and polishing a lens in a minimum number of steps.

3,828,484

POWER TOOL ACCESSORY

Charles H. Baechle, 7701 Telegraph Rd., St. Louis, Mo. 63129

Filed Aug. 28, 1972, Ser. No. 284,054

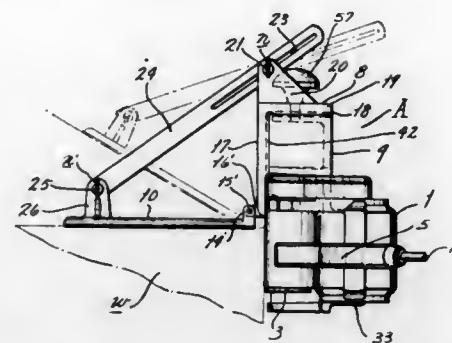
Int. Cl. B24b 23/06, 23/08

U.S. Cl. 51-170 EB

5 Claims

An accessory for a portable power tool, such as a sander, for supporting same with relationship to the work for presentation

in preselected attitude thereto, said accessory comprising a main component positionable upon a major surface of the work, and being adjustable to accommodate the angle formed



by such surface with the adjacent edge to be treated, and an adapter fixed to the tool and selectively engageable to said main component to locate said tool for effective operation upon the work edge.

3,828,485

REINFORCED ABRASIVE WHEELS

Charles A. McClure, R.D. 2, Box 290, Malvern, Pa. 19355

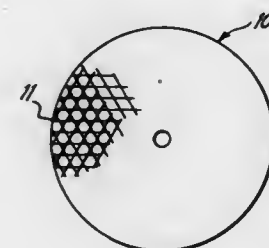
Continuation-in-part of Ser. No. 186,338, Oct. 12, 1971, Pat. No. 3,716,950. This application Feb. 1, 1973, Ser. No. 328,748

The portion of the term of this patent subsequent to Feb. 20, 1990, has been disclaimed.

Int. Cl. B24d 5/08

U.S. Cl. 51-206 NF

10 Claims



Abrasive cut-off wheels are reinforced by one or more disc-like layers of open-mesh triaxial fabric, made of glass or other suitable yarn. The mesh openings comprise two or more different sets, such as a set of triangular openings of intermediate size, a set of smaller triangular or hexagonal openings, and a set of larger lozenge-shaped openings. In such reinforced abrasive wheels, a simple fabric layer may be sandwiched by layers of bonded abrasive material, or a pair of fabric layers may sandwich and be bonded to an intervening layer of abrasive material.

3,828,486

SHARPENING DEVICE

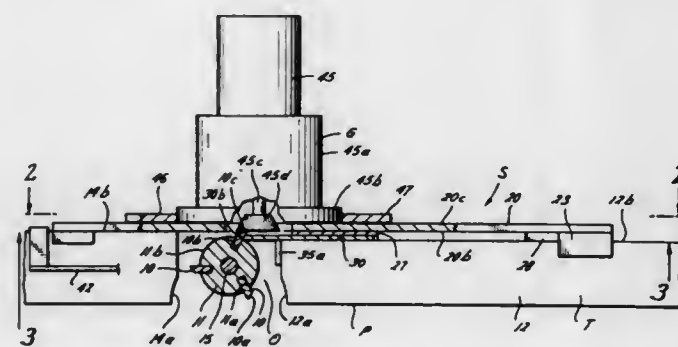
Henry A. Bonke, 2605 Bott, Colorado Springs, Colo. 80904

Filed Nov. 17, 1972, Ser. No. 307,578

Int. Cl. B24b 19/00

U.S. Cl. 51-249

8 Claims



Apparatus for sharpening the shaft mounted blades of a planar-jointer including a base member for mounting onto the

planar-jointer table over the blades thereof and positioning means mounted onto the base member for positioning the base member and a blade of the planar-jointer for sharpening.

3,828,487

GRINDER ATTACHMENT FOR A LATHE

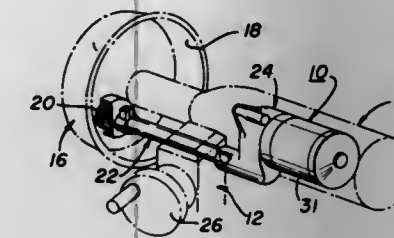
Wallace F. Mitchell, Arlington Heights, Ill., assignor to Ammco Tools, Inc., North Chicago, Ill.

Filed Dec. 1, 1972, Ser. No. 311,124

Int. Cl. B24b 19/26

U.S. Cl. 51-259

6 Claims



A precision finishing tool for use in turning brake drums incorporates a plurality of different length quills and means for interchanging the quills for use with different sizes of rotors.

3,828,488

METHOD OF MAINTAINING THE FLUID PERMEABILITY OF A FIRED ALUMINA, BALL CLAY AND TALC FLUID-RELEASE MOLD

Rudolph A. Skrlitz, Marysville, and Virgil D. Kendall, Springfield, both of Ohio, assignors to Wallace-Murray Corporation, New York, N.Y.

Division of Ser. No. 346,291, March 30, 1973. This application May 15, 1973, Ser. No. 360,589

Int. Cl. B24c 1/00; B24b 1/00

U.S. Cl. 51-319

4 Claims

A method of maintaining the fluid permeability of a fired ceramic mold body comprising at least 70 percent alumina, up to 15 percent ball clay and up to 15 percent talc wherein accumulated colloidal material which clogs the surface of the mold face is removed by abrading the mold face. The preferred manner of carrying out the invention is to sandblast the mold face.

3,828,489

MANDREL FOR SANDING DRUMS

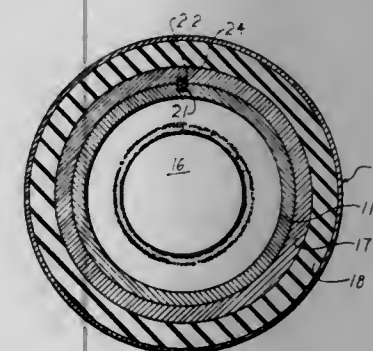
Donnell H. Culley, Jr., P.O. Box 1581, Morristown, Tenn. 37814

Filed Sept. 24, 1973, Ser. No. 400,418

Int. Cl. B24d 9/02; B65h 75/18

U.S. Cl. 51-375

7 Claims



A mandrel for supporting large diameter sanding drums so that they are concentric and balanced. The structure comprises an inner cylinder-like member having heads in each end to which are secured supporting shafts. Slidably surrounding the inner member are metal cylinders having secured to their outer surfaces sleeves of rubber or the like. Spacer washers

are interposed between the adjacent ends of the metal cylinders. Means is provided to exert compressive force on the rubber members, from each end of the mandrel, thus to cause the rubber sleeves to distort radially, frictionally securing the sanding drum to the mandrel.

3,828,490

ACCESS CLOSURE FOR AN AIR INFLATED STRUCTURE

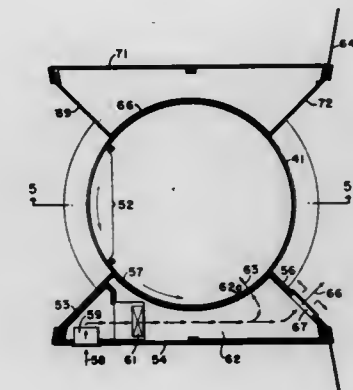
William L. Duquette, 6170 Thornton Ave., Newark, Calif. 94560

Filed Dec. 14, 1972, Ser. No. 315,152

Int. Cl. E04b 1/34; E04g 11/04

U.S. Cl. 52-2

2 Claims



An access closure for an air inflated structure consisting briefly of a platform, a relatively impervious chamber having a rotatable wall formed with an access opening, and optional means for pre-pressurizing the chamber to maintain a relatively constant air pressure within the inflated structure during movement of persons and material in and out of the structure.

3,828,491

COMBINATION JACK, ANCHOR AND HOLD-DOWN APPARATUS

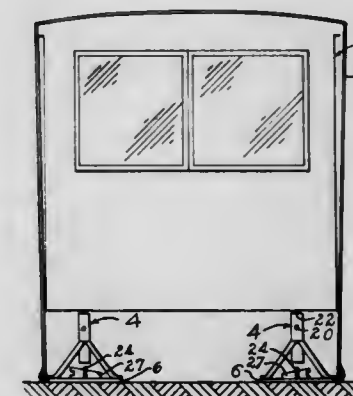
Billy W. Koon, P.O. Box 166, and Alfred Glenn Sylvester, 412 E. Hamilton, both of Stamford, Tex. 79553

Filed July 2, 1973, Ser. No. 375,894

Int. Cl. E04b 7/00; E02d 5/74

U.S. Cl. 52-23

9 Claims



An adjustable support member and a dual anchor for mobile homes and other instrumentalities which require leveling by jack means and require anchoring against being moved off of the support members by high winds or other hazards. The present structure is so constructed as to provide a screw jack which bindingly and detachably engages the lower faces of beams which screw jack is so constructed as to enable the leveling of the mobile home or the like. Further an earth engaging anchor extends up through the base of the jack, and the base of the jack is secured thereto, as by a wedge, so as to prevent relative movement between the frame of the mobile home, or the like, and the terrain. A still further anchor for the mobile home or the like is provided by a band which passes

over the mobile home or the like, which band is secured to the base of the jacks.

3,828,492

STRUCTURAL MODULE

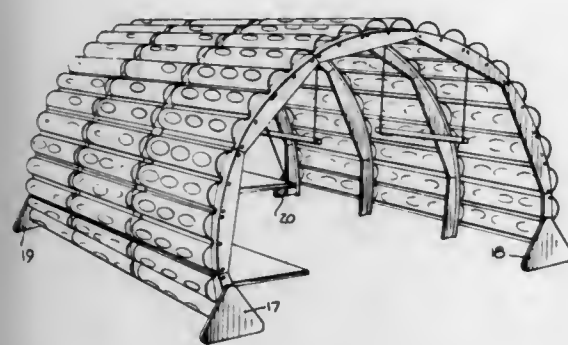
Louis F. Schliemann, and Jerome E. Borgos, both of 418 W. 25th St., New York, N.Y. 10001

Filed May 6, 1970, Ser. No. 35,029

Int. Cl. E04b 1/32

U.S. Cl. 52-36

4 Claims



A structural module comprising a pair of parallel arcuate beams each having a side flange and a top flange, and a corrugated facing sheet marginally secured to the top flanges of the beams, the ends of the sheet being bent downwardly to form connecting flanges. Two or more modules may be interconnected at their adjoining connecting flanges as well as by coupling plates straddling the modules at their juncture and attached to the side flanges thereof. Each module constitutes a segment of a circular cylinder so that by combining such segments, one may erect caves, enclosures, dividers and other useful structures.

3,828,493

EXPLOSION PRESSURE RELEASE FASTENER

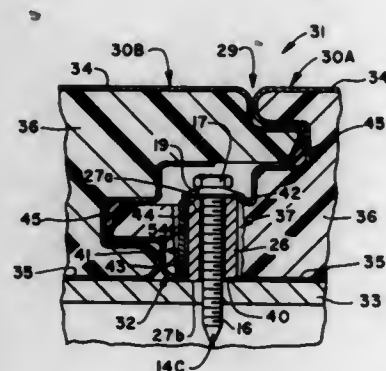
Alexander G. Vezmar, Leetsdale, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa.

This application Feb. 14, 1973, Ser. No. 332,406

Int. Cl. E04c 2/00; F16b 29/00, 35/04

U.S. Cl. 52-1

6 Claims



An explosion release fastener for releasably securing wall elements, such as, facing sheets or double-skin panels, to a building structural framework. In the event of an explosion within the building, an exteriorly presented deformable washer is forced over the fastener head thereby releasing the wall element. Means is provided for maintaining the fastener receiving opening in the wall element concentrically aligned with the fastener head to facilitate release of the wall element.

3,828,494

ROOF JACK

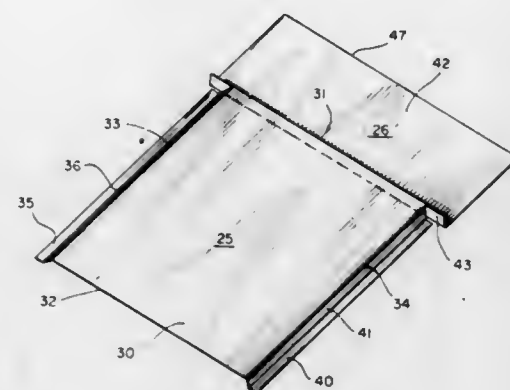
Philip F. Uhrhane, Edgewood Park, W. Va., and Donald L. Day, Guysville, Ohio, assignors to Textron Inc., Providence, R.I.

Filed June 13, 1973, Ser. No. 369,449

Int. Cl. E04d 13/04

U.S. Cl. 52-15

6 Claims



A roof jack for a vent or a stack, the jack having a channel which receives water flowing down the roof and diverts the same around the stack or vent so that the water continually flows and no puddles are formed.

3,828,495

PARTITION WITH CONCEALED SLOTTED STANDARD

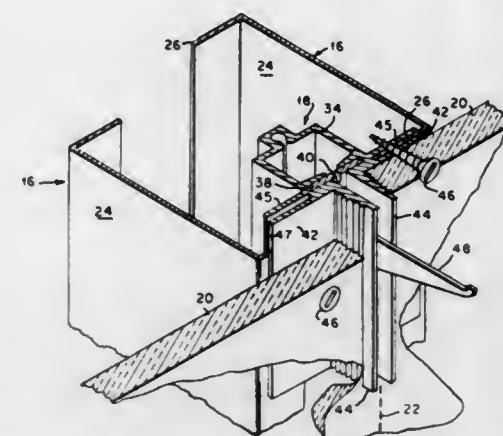
William J. H. Law, 271 Madison Ave., Port Chester, N.Y. 10016

Filed Jan. 2, 1973, Ser. No. 320,270

Int. Cl. A47g 29/02

U.S. Cl. 52-36

4 Claims



The invention relates to the installation of concealed slotted standards in partitions for supporting shelving and the like.

3,828,496

PREFABRICATED BUILDING CONSTRUCTION

Gino S. Testaguzza, Oxford, and Paul A. Perini, Madison Heights, both of Mich.

Continuation of Ser. No. 115,179, Feb. 16, 1971, abandoned.

This application Feb. 22, 1973, Ser. No. 334,923

Int. Cl. E04b 1/54

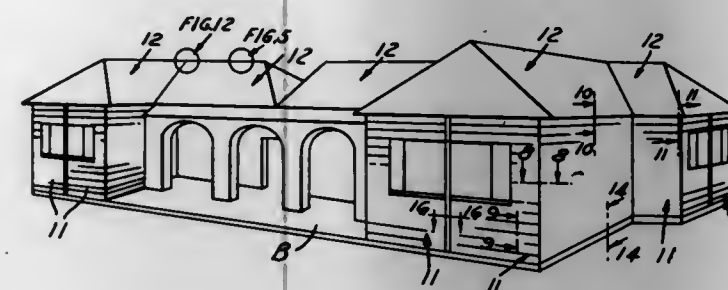
U.S. Cl. 52-91

4 Claims

A prefabricated building construction comprising a base, a plurality of wall units and a plurality of roof units. Each of the wall units comprises at least one panel with a hollow vertical opening therein. Each roof unit comprises at least one panel with a hollow portion therein. When the wall units and roof units are placed in position, the hollow portions of the wall

units and the hollow portions of the roof units are in communication and concrete or other settable material is poured

verse rows across the roof surface of the structure. The individual rows are spaced in a longitudinal direction along the



through the openings to provide a unitary structure. Reinforcing rods and the like can be positioned in the communicating hollow portions.

3,828,497

GROUND ANCHORS

William Anthony Vinycomb, Lymington, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

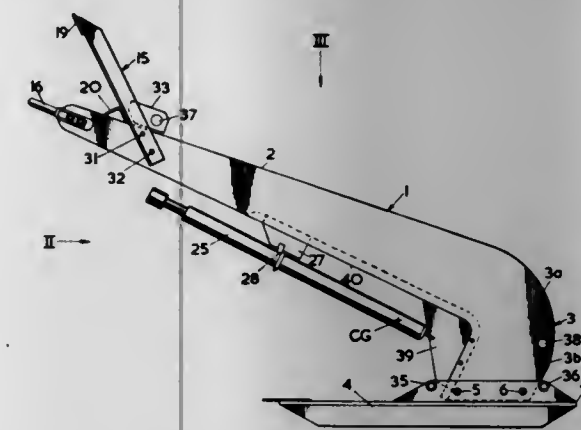
Filed Jan. 26, 1973, Ser. No. 326,688

Claims priority, application Great Britain, Jan. 27, 1972, 3920/72

Int. Cl. E02d 5/80

U.S. Cl. 52-155

9 Claims



A ground anchor which is self-righting and self-engaging under the action of the anchor rope, comprises a shank with an oblique fluke plate at one end and a self-righting device at the other. The self-righting device has a plurality of arms fixed to and projecting laterally from the shank, arranged such that by pulling on the anchor rope when the anchor is disorientated at least one of the arms engages the ground and reacts with the ground to correct the orientation of the anchor for correct ground engagement of the fluke plate. The self-righting device can include three arms, one arm being perpendicular to the other two arms which are in line, on either side of the shank.

3,828,498

METHOD OF STABILIZING A COMPARATIVELY FLAT ROOFED STRUCTURE AGAINST WIND

Robert A. Jones, 5505 Valmont, No. 308, Boulder, Colo. 80302

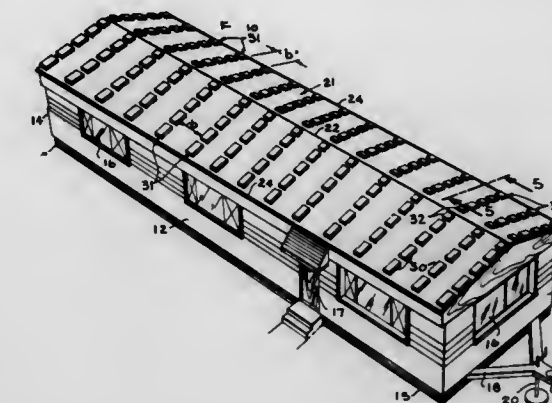
Filed Oct. 18, 1972, Ser. No. 298,472

Int. Cl. E04h 9/00; E04b 1/62

U.S. Cl. 52-173

5 Claims

A method for stabilizing elongated, comparatively flat roofed structures against wind forces by affixing concrete blocks to the roof in a desired regular arrangement to disturb and break up the normal airflow pattern across the surface of the roof. The blocks are positioned to form a plurality of trans-



verse rows across the roof surface of the structure. The individual rows are spaced in a longitudinal direction along the length of the structure. Adhesive material is used to affix the blocks to the surface to prevent movement or shifting from the desired position.

3,828,499

CORNER ASSEMBLY FOR EXTERIOR SIDING

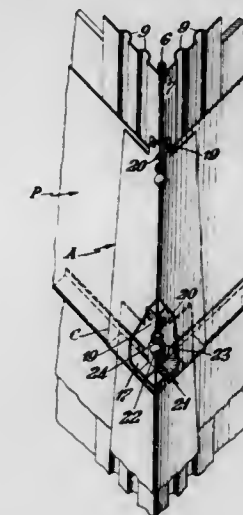
Robert Leddy, 389 Mayer Ct., Ridgefield, N.J. 07657

Filed Jan. 3, 1972, Ser. No. 214,776

Int. Cl. E04b 1/00, 7/00

U.S. Cl. 52-278

2 Claims



A corner assembly including a base corner guide to be secured over an existing structure and having fastener gripping means at the edge thereof for receiving a tandem head fastener and a corner cap which is secured by said tandem head fastener to said guide and which has a locking means for gripping the second of said tandem heads.

3,828,500

REINFORCED CONCRETE CONSTRUCTION

James C. Chancey, 908 W. Ladies Mile Rd., and Leonard C. Ellis, Jr., 2305 Lacross St., both of Richmond, Va. 23223

Filed July 30, 1971, Ser. No. 167,623

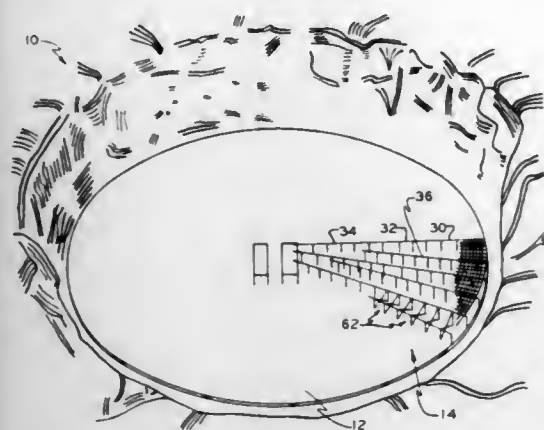
Int. Cl. E02d 27/08, 27/32

U.S. Cl. 52-292

7 Claims

An improved reinforced concrete construction is provided. The invention is concerned primarily with large, thick reinforced concrete structures of the type used for base slabs for reactors of nuclear power plants, which slabs may be in the order of six to fourteen feet in thickness and measure from one hundred to two hundred feet across. Such structures include mats of reinforcing bars extending thereacross with generally mutually perpendicular junctures, at both lower and upper portions thereof. The upper mat of reinforcing bars is carried on special supporting frames, including uprights and cross bars, which are used to support I-beam stringers on which the upper reinforcing bars rest. The supporting frames

are prefabricated and can be set up rapidly, thereby reducing construction time along with associated labor and other costs. The frames are also specially braced to enable them to be positioned in vertical planes through which the stringers extend.



The frames are also specially braced to enable them to be positioned in vertical planes through which the stringers extend.

3,828,501

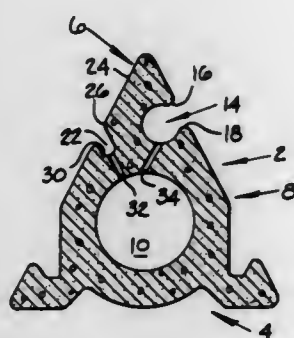
APPARATUS COMPRISING A HOLD-DOWN DEVICE
Lewis B. Haskins, Littleton, Colo., assignor to Johns-Manville Corporation, Greenwood Village, Colo.

Filed Sept. 10, 1973, Ser. No. 395,476

Int. Cl. E04b 1/345

U.S. Cl. 52—303

12 Claims



Apparatus is disclosed comprising a holddown device for anchoring an inflatable thin wall structure which encloses a high humidity environment and simultaneously collecting the condensate formed on the inside of the wall of the structure. The device is elongate and contains means for attachment of the structure canopy and a longitudinal groove for collection of the condensate. Openings are provided for removal of the condensate from the collection groove. Anchoring means to attach the device to underlying earth or other support structure is also disclosed. The cross-sectional shape is preferably generally triangular.

3,828,502

MODULAR WALL SECTION FOR BUILDINGS

Sven A. Carlsson, Yonkers, N.Y., assignor to Phelps Dodge Industries, Inc., New York, N.Y.

Filed Sept. 8, 1972, Ser. No. 287,283

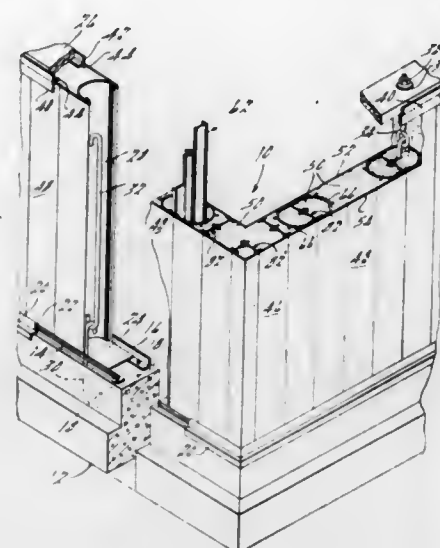
Int. Cl. E04b 1/62; E04c 1/40, 2/22

U.S. Cl. 52—309

13 Claims

A modular building system including a plurality of upright panels arranged in edge butting relationship with adjacently oriented panels being connected via an interlocking fastener. Each of the individual panels are prefabricated and comprised of first and second spaced, outer skin members having at least one upright rolled over edge for cooperatively receiving the fastener and for engagingly supporting an end partition, the latter having a generally arcuately shaped cross section which defines an upright, concavely extending recess along the transverse side edge of the panel. An insulating core is disposed in-

teriorly of the outer skin and bondingly secures the inner surface of the partition and the outer skin members. After assembly of the prefabricated panels, the recess formed between



adjacent panels is also filled with an insulating core material providing a finished wall of substantially monolithic construction.

3,828,503

RESILIENT FLOOR, ESPECIALLY FOR GYMNASIUMS
Alwin Hofmann, Hildrizhausen, Germany, assignor to Mero-Werke KG, Wurzburg, Germany

Filed May 4, 1973, Ser. No. 357,270

Claims priority, application Germany, May 4, 1972, 2221761

Int. Cl. E04f 15/04, 15/16

U.S. Cl. 52—393

9 Claims



A final top floor covering is laid on top of a top floor portion formed of fiberboard panels which in turn are disposed on top of smaller square fiberboard elements forming a bottom floor portion. The square fiberboard elements in turn are laid on top of resiliently elastic panels which form a supporting floor. The edge length of the fiberboard panels is an integral multiple of the edge length of the individual square fiberboard elements, which latter is preferably smaller than the edge length of the elastic panels of the supporting floor, wherein the joints between the various panels and elements forming the supporting floor, bottom floor portion, and top floor portion are not in mutual alignment. In a modified form the top floor portion, bottom floor portion and supporting floor are constructed in prefabricated floor elements with overlapping marginal zones whereby adjacent prefabricated floor elements are connected together by screws or the like.

3,828,504

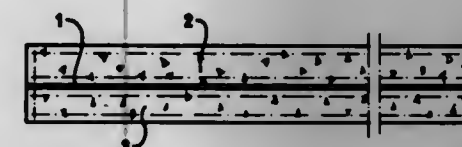
CONCRETE STRUCTURAL MEMBER WITH HIGH INTERNAL DAMPING

Bo Malte Staffan Egerborg, 22, Lundhagsvagen, Ekero; Goran Robert Gadefelt, 30A, Rorstrandsgatan; Gunnar Ingemar Hagbjer, 29, Roslagsgatan, both of Stockholm, and Kjell Spang, 52, Neptunistigen, Vallingby, all of Sweden
Continuation-in-part of Ser. No. 146,776, May 25, 1971, abandoned. This application Apr. 9, 1973, Ser. No. 349,589

Int. Cl. E04c 3/34

U.S. Cl. 52—396

10 Claims



A concrete structural member comprises at least two elongated concrete elements completely spaced from one another by a continuous intervening layer of viscoelastic material in full surface engagement with each element. The viscoelastic material has a thickness which is a small fraction of the thickness of each element, a modulus of elasticity of 10^6 - 10^8 N/m², and a loss factor exceeding 0.5.

3,828,505

METAL TRESTLE FOR MANUFACTURING REINFORCED-CONCRETE BEAMS FOR FLOORS
Salvatore Leone, Via Donati, 14 Milan, Italy

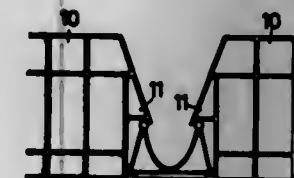
Filed Oct. 19, 1971, Ser. No. 190,566

Claims priority, application Italy, Oct. 22, 1970, 83683/70; Oct. 1, 1971, 29365/71

Int. Cl. E04c 5/00; E04b 1/14

U.S. Cl. 52—414

3 Claims



A preformed metal trestle comprises two pairs of elongated parallel supporting elements, such as metal rods, two junction members such as iron bars bent in a substantially sinusoidal shape, for connecting respectively each supporting element of the first pair with each supporting element of the second pair, and a third junction member for connecting the two supporting elements of one of said pairs. The supporting elements and the junction members are mutually connected in such a way to form a prism-shape trestle. Reinforcing elements are also provided, such as arcuated elements fixed at the ends to the pair of supporting elements which are not connected by junction members, and at the centrally bent portion to the junction member connecting the other pair of supporting elements. Another embodiment of said reinforcing elements comprise two additional supporting elements respectively fixed to the pair of supporting elements which are not connected by junction members.

3,828,506

CEILING PANEL INSERT

Richard C. Phillips, Arvada, Colo., assignor to Insulation Ceiling & Supply, Denver, Colo.

Filed Sept. 15, 1972, Ser. No. 289,244

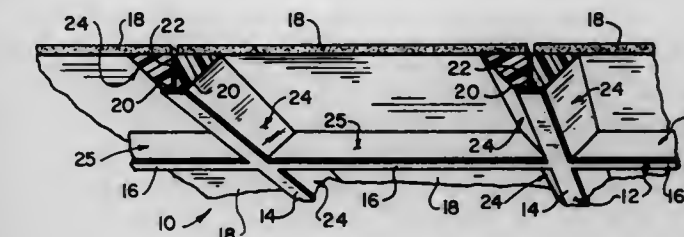
Int. Cl. E04b 5/52

U.S. Cl. 52—475

13 Claims

A suspended ceiling panel system includes elongated insert members adapted to rest upon a frame gridwork conven-

tionally used to support acoustical ceiling panels so as to support the panels in a elevated position. At least one insert member at each joint between adjacent insert members has a bevelled end so that adjacent insert members surrounding a common opening in the gridwork will brace each other whereby insert members around each opening are self-supporting and positively retained on the gridwork. Each insert



member has an upper support surface upon which an acoustical panel is adapted to rest and a lower seating surface adapted to rest upon the frame gridwork whereby in the completed ceiling system, each acoustical panel is elevated relative to the gridwork defining recessed zones in the ceiling. The insert members may take various cross-sectional configurations to provide desired versatility in both acoustics and appearance.

3,828,507

FALSE CEILING SYSTEMS

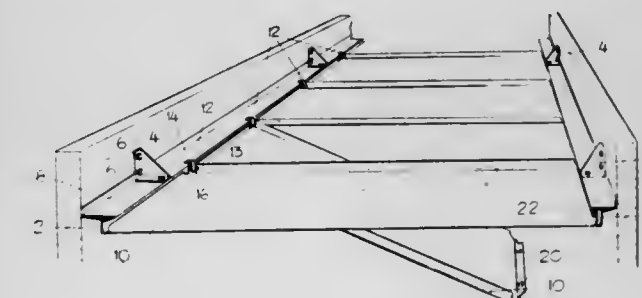
Barrie William Storer, Hinckley, England, assignor to Burgess Products Company Limited, Hinckley, Leicestershire, England

Filed May 7, 1973, Ser. No. 357,529

Int. Cl. E04b 5/52

U.S. Cl. 52—484

20 Claims



False ceiling system has panels which are pivotably supported on one end and releasably supported at the other end. The ends of the panels are supported on longitudinal members which are mounted to the walls of the building with brackets. The false ceiling system may be positioned in corridors of varying width and provides a convenient access to service ducts during construction and maintenance.

3,828,508

TILE DEVICE FOR JOINING PERMANENT CEILING TILE TO REMOVABLE CEILING TILE

Wolfgang Moeller, 4 Glen Cove Dr., Glen Head, N.Y. 11545

Filed July 31, 1972, Ser. No. 276,871

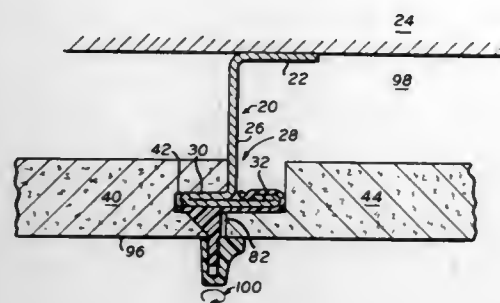
Int. Cl. E04b 5/52

U.S. Cl. 52—489

5 Claims

An improvement in a suspended ceiling tile construction wherein a permanent ceiling tile is affixed to a suspended bracket, which bracket extends toward an adjacent removable ceiling tile which improvement comprises a supporting member to join said removable tile to said bracket, a generally vertical member descending from said supporting member away from the verticle edge of said removable ceiling tile adjacent said permanent ceiling tile and rotatable means in the form of an eccentric button at the lower end thereof rotatable

to dispose an eccentric portion of said button beneath said removable tile to support the same rotatable to remove said eccentric portion from beneath said ceiling tile so that the same is unsupported, the non-eccentric portion thereof disposed beneath said permanent tile; a button for securing a



removable tile to a permanent ceiling tile which comprises a clip adapted to engage a structural member, a generally vertical member disposed beneath said clip remote from the exterior edge portion of said clip which engages said structural member and eccentric rotatably mounted to said vertical member.

3,828,509

REFRACTORY BLOCK FOR LINING FIRING AND MELTING CHAMBERS

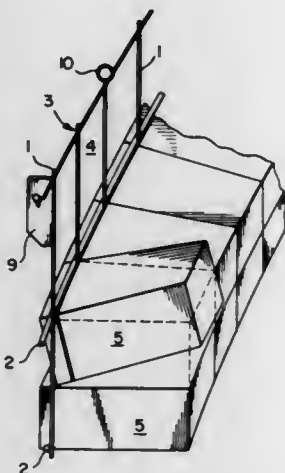
Paul Ottmar, Wiesbaden-Erbenheim, and Hermann Stein, Bad Dürkheim, both of Germany, assignors to Didier-Werke A.G., Wiesbaden, Germany

Filed Dec. 29, 1972, Ser. No. 319,703

Claims priority, application Germany, Jan. 3, 1972, 2200081

Int. Cl. F27d 1/04

U.S. Cl. 52-497



A refractory block for lining the firing and melting chambers of metallurgical furnaces or melting equipment includes a metal support in the form of a lattice consisting of longitudinal and transverse bars forming openings. In each opening is positioned at least one brick. Each brick is provided adjacent one end thereof on one longitudinal side thereof with a groove for the reception of the bars extending in one direction of the lattice, and on adjoining longitudinal sides with recessed portions for the reception of the bars extending in the other direction.

3,828,510

SIDING ASSEMBLY STRUCTURE

Phillip Stephen Bettoli, Martinsville, N.J., assignor to GAF Corporation, New York, N.Y.

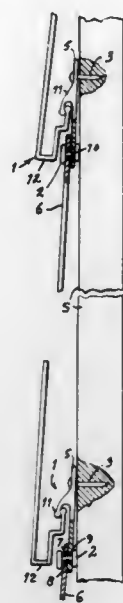
Filed Feb. 20, 1973, Ser. No. 334,136

Int. Cl. E04d 3/362

U.S. Cl. 52-548

A siding material suitable for affixing to a substrate or sheeting wherein such siding material consists of two principal por-

tions. An underlay and overlay portion are each respectively joined to one another by means of a suitable fastener, such as a rivet. The rivet is attached through mating holes on the respective portions, where such holes are provided with sufficient clearance with respect to the rivet, so as to enable verti-



cal and horizontal adjustment of the overlay with respect to the underlay once the entire unit has been affixed to the substrate. The advantage of such adjustment derives results from an ability of the installed siding to exhibit a flat face contour rather than a concave or "oil canned" configuration which is displeasing to the eye.

3,828,511

PROCESS AND DEVICE FOR ANCHORING A BAND USED TO MOUNT VENTILATION DUCTS ETC. IN A CONSTRUCTION

Georg Broberg, Solna, Sweden, assignor to Aktiebolaget Svenska Flaktfabriken, Nacka, Sweden

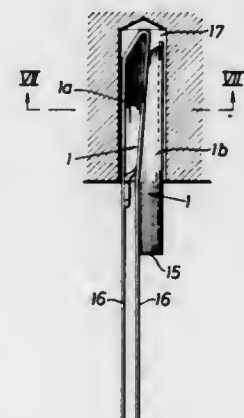
Filed Feb. 23, 1973, Ser. No. 335,250

Claims priority, application Sweden, Mar. 10, 1972, 3136/72

Int. Cl. E21f 17/02

U.S. Cl. 52-741

9 Claims



A method and a device for anchoring a suspension band in a structural element, such as a ceiling, having a bore. The method consists of forming a loop or bight in the band and driving it into the bore by means of the wedge device which is engaged in the bight with the enlarged forward end of the wedge device innermost in the bore. The device consists of two wedge members which are connected in longitudinal alignment which may be separated by a fracturable impression therebetween. When the upper wedge member is fully engaged in the bore, the lower member is separated from it and is inserted into the bore alongside the first member but on the opposite side of the one leg of the band and is driven home to clamp that leg of the band between the two wedge members

and also to clamp the other leg of the band between the side of the bore and the other wedge member. The first wedge member is provided with stop ears to position it in the bore so that its leading end does not engage the bottom of the bore. Preferably the two wedge members are stamped out of a common sheet of metal material.

3,828,512

METHOD OF FORMING A MULTI-UNIT FOLDING SLAB CONSTRUCTION FOR USE ON RESTRICTED BUILDING SITE

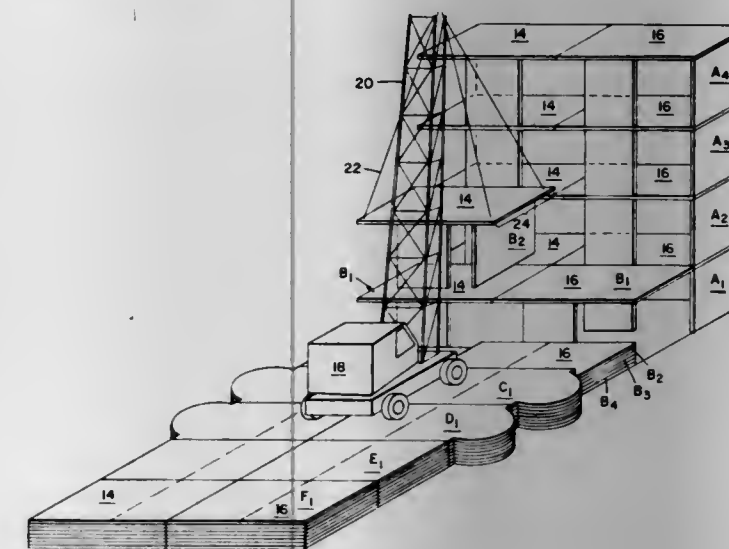
Delp W. Johnson, 240 Oakview Dr., San Carlos, Calif. 94070

Filed Jan. 20, 1972, Ser. No. 219,283

Int. Cl. E04b 1/04, 1/35, 1/344

U.S. Cl. 52-745

4 Claims



A folding slab building is disclosed wherein walls and floors are formed with their edges juxtaposed in the same relation as the walls and floors are juxtaposed when the building is erected. The floor slabs have the wall slabs cast in underlying relation. The slabs as formed on the site before they are erected occupy substantially the same area of the finished building on the site after it is erected. The floor and wall slabs, all formed horizontally, define a roadway for the crane or lifting apparatus which erects the folding slabs. The slabs when moved from their horizontal position to their erected and juxtaposed position, provide an edge-to-edge keying relation. This keying relation provides for support of two ceiling slabs on a common wall slab, permits columnar continuity between overlying and underlying walls the foundation to roof distance of a multistory building; and provides a key between adjoining slabs to counteract shear stresses incurred during dynamic loading of the building.

3,828,513

METHOD OF ERECTING A MULTI-STORY BUILDING AND APPARATUS THEREFOR

Peter M. Vanderklaauw, Miami, Fla., assignor to Research Corporation, New York, N.Y.

Division of Ser. No. 114,455, Feb. 11, 1971, Pat. No. 3,692,446. This application June 12, 1972, Ser. No. 261,685

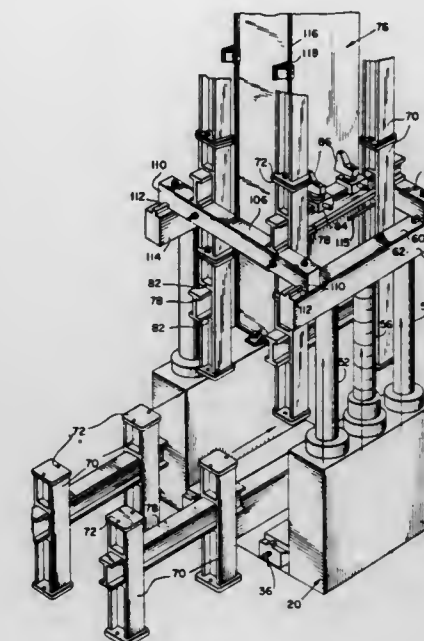
Int. Cl. E04g 13/02

U.S. Cl. 52-745

7 Claims

The basic supporting framework of reinforced concrete slabs and columns for a multi-story building is formed in a roof down fashion and erected in a continuous lifting process from the foundation level. Auxiliary column sections, which retain molding formworks for the columns and are supportingly tied to the formed concrete columns, support the load of the building, until the concrete at the bottom hardens, by bearing on adjustable bearing platforms at the foundation. Lifting devices at the foundation cooperate with the supporting auxiliary column sections to push the building up after each floor is built. The lifting devices raise the auxiliary columns off the

cooperating adjustable bearing platforms to permit the insertion under and attachment to the auxiliary column assemblies of a further auxiliary column section with the lifting devices operating in step-by-step alternation with support of the auxiliary column assembly on the bearing platforms until the



building is raised to the desired height for a new floor at which time a reinforcement cage for a new permanent concrete column to be poured is fixedly inserted in the newly created space within the auxiliary column and attached to the preceding column.

3,828,514

STRUCTURAL JOINT AND CONNECTOR PLATE THEREFOR

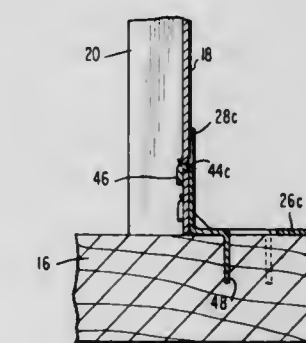
John Calvin Jureit, Coral Gables, Fla., assignor to Automated Building Components, Inc., Miami, Fla.

Filed Oct. 8, 1971, Ser. No. 187,744

Int. Cl. F16b 7/00

U.S. Cl. 52-753 D

6 Claims



The connector plate comprises a right angle bracket having in one flange a plurality of teeth struck to provide angularly related shank and end portions. The shank portions project in a direction away from the struck flange. The tip portions project toward the struck flange for insertion through the corresponding slot into a wooden member. The other flange is connected to a metal member, for example, by a weld or rivet. In a third form, a plurality of teeth are struck to project from the other flange in a direction away from the first flange for insertion in openings formed in the metal member. The tips of the teeth remote from the bracket are deformed to effect connection between the bracket and metal member.

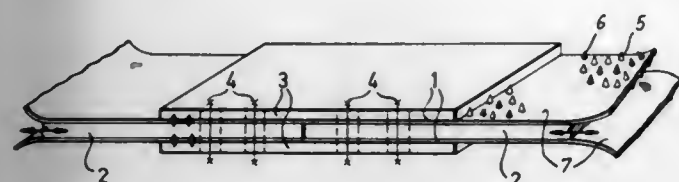
3,828,515

NON-SLIP, HIGH STRENGTH BOLTED JOINTS

Gabor Galgoczy, Benczur u. 3; Zoltan Gyulai, Tapolicsanyi u. 8; Tivadar Palagyi, Gyori u. 14, all of Budapest, and Jozsef Wagensommer, Petofi u. 19, Biatorbagy, all of Hungary
Continuation-in-part of Ser. No. 885,425, Dec. 16, 1969, abandoned. This application May 21, 1971, Ser. No. 146,450
Int. Cl. F16b 5/02

U.S. Cl. 52—758 F

8 Claims



Improved non-slip structural joints between metal members held together by high strength bolts means which hold them in forcible face-to-face engagement, and method of forming such joints. In accordance with the invention strong shearing elements are partially embedded in at least one of the metal members and extend across the interface therebetween. The shearing elements may be separate from and embedded in both metal members, or may be parts of the metal members and embedded in the other of the metal members.

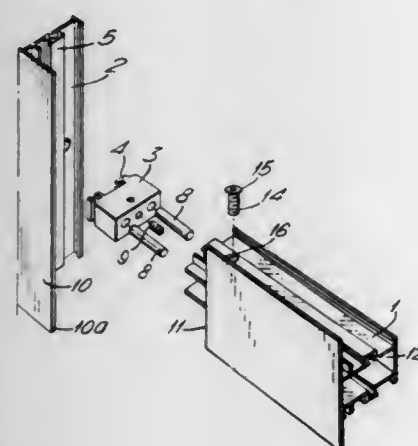
3,828,516

PRESS-FITTED JOINT BETWEEN A TRANSOM BAR AND A FRAME OR SASH BAR FOR USE ON WINDOWS, DOORS OR THE LIKE

Horstmar Kern, Ulm, Germany, assignor to Wieland-Werke A.G., Donau, Germany
Division of Ser. No. 201,707, Nov. 24, 1971, abandoned. This application Aug. 11, 1972, Ser. No. 280,012
Int. Cl. F16b 7/00

U.S. Cl. 52—758 H

4 Claims



A press-fitted joint between a transom bar and the frame or sash bar of a window, door or the like is provided having a connecting piece with parallel hooked ribs which enter the transom bar, such hooked ribs being in engagement with facing hooked ribs on the frame or sash bar wherein the engagement is effected solely with hooks of the connecting piece open in the same direction and hooks of the frame or sash bar open in the other direction and the inter-engaging hooked ribs permit of displacement of the connecting piece in relation to the opening of its hooks at least to the extent of the depth of the hooks relative to the frame or sash bar and that for securing the connecting piece in its frame or sash bar engaging position, one or more fixing pins are provided which are forced into registering holes of the connecting piece and the sash bar.

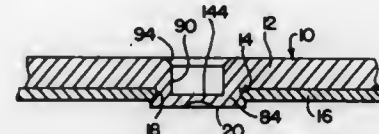
3,828,517

METAL LAYER RIVETFORM AND TWO LAYER ASSEMBLY

Verner A. Johnson, 31460 Myrna St., Livonia, Mich. 48154
Continuation-in-part of Ser. No. 193,076, Oct. 27, 1971, Pat. No. 3,731,369. This application May 7, 1973, Ser. No. 357,783
Int. Cl. F16b 1/00, 3/00

U.S. Cl. 52—758 D

7 Claims



An assembly of two layers of metallic material, or one layer of metallic and a second layer of non-metallic materials, conjoined by an extruded elongated rivet formed in and from one metallic layer, and further extruded over and about the perimeter of an opening in the second layer, is disclosed. The second extrusion results in a lateral deformation conditioned by the first extrusion. The extruded elongated rivet form is developed through an extrude punch operation leaving a blind hole cavity and a depression on the exposed outer side of the rivet form, axially aligned and in opposing relationship with the cavity depression. Conjunction is obtained with the second perforated layer when the two layers are conjunctively arranged and the rivet form is further extruded. Inventive tooling and process for forming the extruded rivet form and for conjoining the two layers are also disclosed.

3,828,518

FUEL ROD FABRICATION

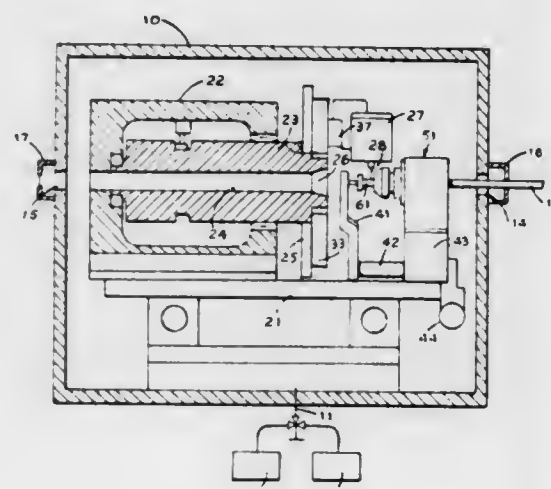
Edmond J. Silk, Lynchburg, and Claude A. Moore, Appomattox, both of Va., assignors to The Babcock & Wilcox Company, New York, N.Y.

Filed Jan. 12, 1971, Ser. No. 105,890

Int. Cl. B65b 31/02, 31/04

U.S. Cl. 53—12

2 Claims



A process of sealing the external junction between an end-closure and a long fuel rod of a slender nature in a controlled gaseous environment by a rotating electrode passing through a predetermined path around the periphery of the junction.

A device for accomplishing the aforesaid process wherein the fuel rod is held in a horizontal attitude at a predetermined position while a rotating electrode operatively fuses the end-closure to such fuel rod.

3,828,519

MEANS FOR TEMPORARILY PRESETTING INTERLOCKING ELEMENTS OF COMBINATION LOCK-TYPE CONTAINER FINISH CLOSURE AND METHOD FOR ASSEMBLING SAME

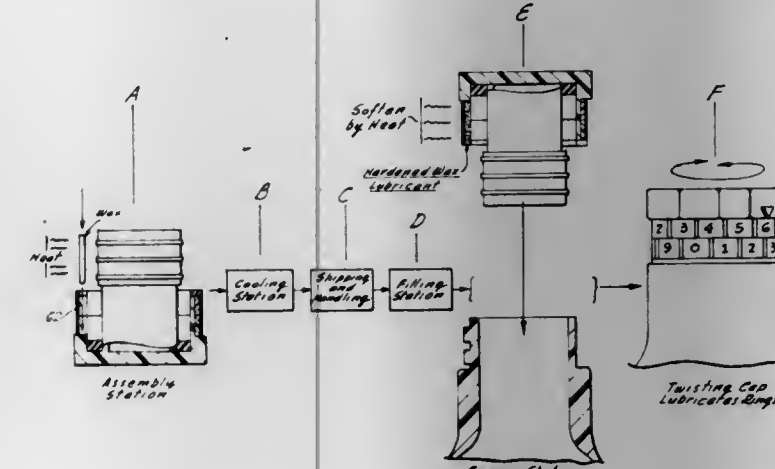
John Levey, 4059 Mariners Cir., Westlake Village, Calif. 91361

Filed Mar. 29, 1972, Ser. No. 239,287

Int. Cl. B65b 7/28; B65d 55/00

U.S. Cl. 53—15

5 Claims



In combination with a cylindrical container "finish" or spout and closure therefor, wherein the latter is securable against removal from the "finish" or spout by a plurality of interlocking projections and recesses, at least some of which are movable circularly relative to the axis of the "finish" cylinder and to the others of said projections and recesses by means of annular elements associated therewith, and also rotatable relative to the cylinder axis, where the closure may be placed on the container "finish" or spout, or removed therefrom only when the annular elements are disposed in certain predetermined positions in which the projections and recesses fall in register; a yieldable composition applied to the projections or recesses prior to the closure being placed upon the "finish" or spout and with the projections and recesses being so in register. This composition, an exemplar of which may be paraffin, should have sufficient rigidity to retain the projections or recesses so in register against inadvertent movement of of register through mishandling, shaking or jarring during shipment or handling, but must, nevertheless be rupturable upon the rotation of such annular elements by the application of modest force thereto, such as manually, to effect rotation thereof; whereupon such composition, upon thereby being ruptured, thereafter serves as a lubricant to facilitate rotation of the annular elements and movement of the projections and recesses relative to each other. The invention also includes a method for using such a composition in assembly operations.

3,828,520

VACUUM PACKAGING METHOD AND PLATEN THEREFOR

Charles Merritt, Corpus Christi, Tex., assignor to Substrate Inc., Corpus Christi, Tex.

Filed Apr. 4, 1973, Ser. No. 347,637

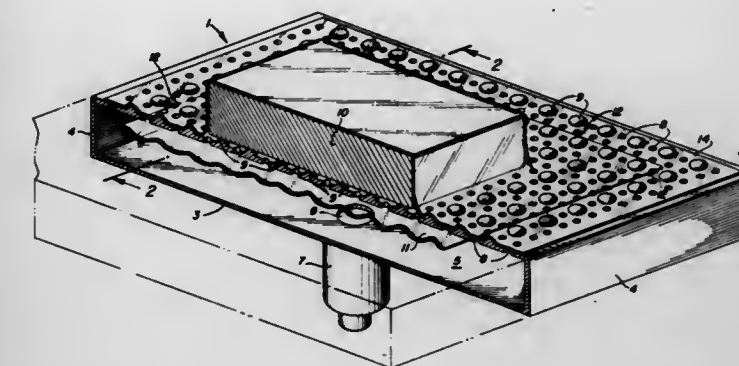
Int. Cl. B65b 31/00

U.S. Cl. 53—22 A

5 Claims

The top surface of a platen is provided with a plurality of apertures, leading to a vacuum chamber therein, and a plurality of protuberances extending upwardly therefrom, the apertures and protuberances being arranged as grids extending over the top of the platen. A first plastic film is placed on the platen top, leaving apertures and protuberances beyond the periphery of the first plastic film uncovered, the said film draping around those protuberances covered thereby, and being dimpled upwardly thereby. The article to be packaged is placed on the first film and a second plastic film is placed over the article and over the first film, covering the entire platen

top, draping around those protuberances not covered by the first film so that the underside of the second film lies directly over those apertures not covered by the first film. The second film lies substantially flat across the tops of the dimples in the first film because of atmospheric air therebetween. Vacuum is applied to the platen, and air around article and between films



is withdrawn through the channels defined by the dimples and thence through the apertures covered by the second film, whereupon atmospheric pressure acting on the top of the second film forces the second film into full contact with the first film around the article to make a completely sealed air tight package for the said article.

3,828,521

HUMANE ELASTIC CINCH

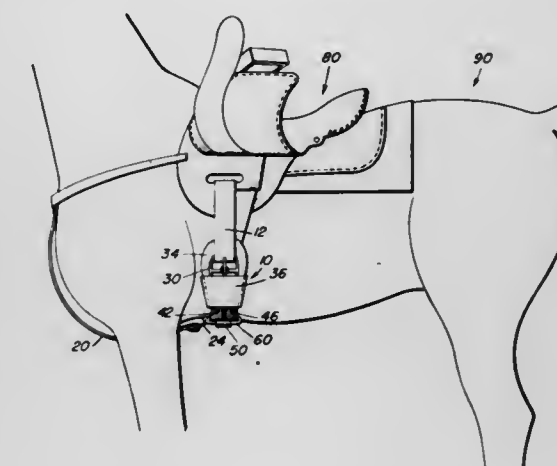
George W. Dulaney, Rt. No. 2, Hampstead, Md. 21074

Filed Nov. 11, 1971, Ser. No. 197,696

Int. Cl. B68c 1/14

U.S. Cl. 54—23

6 Claims



An improved elastic cinch for securing a riding saddle to a horse. This elastic cinch is made of folded, soft leather, with foam rubber padding. There are two elastic strip sections as a part of this cinch assembly, which gives it approximately 4 inches of stretch. On each end of the cinch there are two metal attaching buckles, which have soft leather protective covers. This cinch is designed to give added comfort and to assure greater safety to both the rider and the horse.

3,828,522

BOTTLING SYSTEM

Kazuo Ueda, Tokyo, Japan, assignor to Shikoku Kakooki Co., Ltd., Tokushima, Japan

Division of Ser. No. 231,286, March 2, 1972, Pat. No. 3,792,949. This application Mar. 19, 1973, Ser. No. 342,380

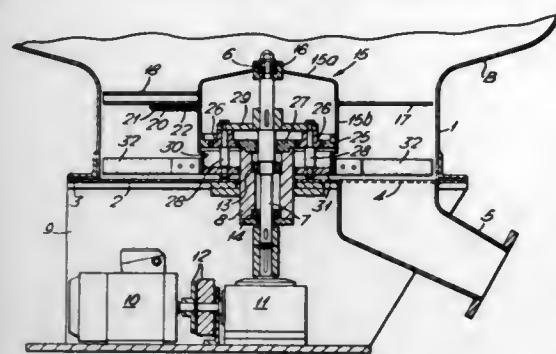
Int. Cl. B65b 3/02

U.S. Cl. 53—167

6 Claims

A bottling system comprising a molding machine for producing synthetic resin bottles, a bottle aligning machine for continuously receiving the bottles and sending them successively out in a row in an upright position, a bottling machine to

be supplied with the bottles from the bottle aligning machine for filling the bottles, a printing machine disposed in the path



of travel of the upright bottles for printing the bottles, and a capping machine such as a heat sealer for capping the filled bottles.

3,828,523

AUTOMATIC INSIDE HEAD HOLDER STRUCTURE

Lawrence A. Brenner, West Chester, and Charles H. Scholl, Adamstown, both of Pa., assignors to Beloit Corporation, Beloit, Wis.

Filed Nov. 20, 1972, Ser. No. 308,113

Int. Cl. B65b 7/04, 11/04

U.S. Cl. 53—380

12 Claims



Inside head holder for a crimping apparatus for folding down and tucking in the ends of a wrapper extending beyond the ends of a roll of paper along an inside protective head. The wrapper is crimped by a paddle supported above the roll on a carriage. The paddle is vertically movable relative to the carriage and moves downwardly into engagement with the wrapper extending beyond the roll to crimp the projecting end of the wrapper about an inside protective head for the end of the roll. The head holder is mounted on the carriage and moves upwardly and downwardly with the crimper paddle half the distance of travel of the crimper paddle to thereby divide the diameter of the roll in half as the crimper senses the diameter of the roll. The head holder, therefore, automatically senses the center of the roll and holds a protective head in centered relation with respect thereto during the crimping operation.

3,828,524

CENTRIFUGAL LYOPHOBIC SEPARATOR

Franklin W. Booth, Hampton, and Robert A. Bruce, Newport News, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 9, 1971, Ser. No. 169,962

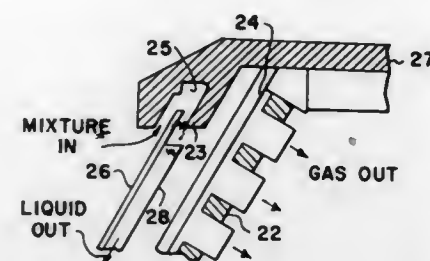
Int. Cl. B01d 19/00

U.S. Cl. 55—43

33 Claims

A centrifugal separator using a lyophobic filter for removing liquid particles from a mixed stream of gas and liquid under

various negative or positive external acceleration conditions as well as zero g or weightless conditions. Rotating the lyophobic filter and inclining the filter to the entering flow improves



the lyophobic properties of the filter, provides gross separation of larger liquid particles and prevents prolonged contact of liquid droplets with the spinning filter which might change the filter properties or block the filter.

3,828,525

WASTE GAS PURIFICATION

William M. Copa, and Louis A. Pradt, both of Wausau, Wis., assignors to Sterling Drug Inc., New York, N.Y.

Filed Apr. 16, 1973, Ser. No. 351,233

Int. Cl. B01d 53/14

U.S. Cl. 55—68

3 Claims

Contaminants and odors are removed from the waste gases emanating from wet air oxidation reactors by passing the gases through an aqueous suspension of activated sewage sludge or the mixed liquor obtained by suspending activated sewage sludge in fresh sewage.

3,828,526

PARTICLE COLLECTOR

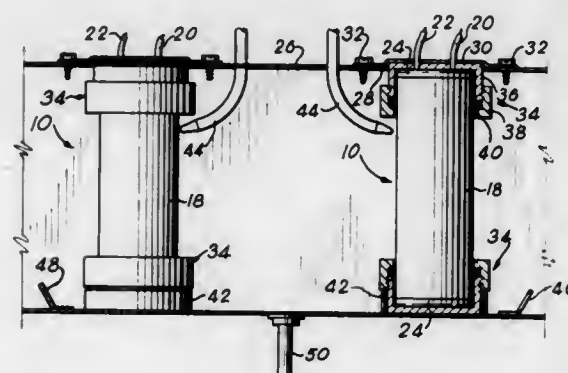
Arthur S. King, 9013 W. 51st Ter., Merriam, Kans. 66203

Filed Oct. 17, 1972, Ser. No. 298,310

Int. Cl. B03c 3/06, 3/78

U.S. Cl. 55—118

4 Claims



A particle collector, such as for installation within a heating duct for removing dust from the air flowing therethrough, is capable of corona-free operation to preclude the generation of ozone within the heating duct. The composite collector has inner and outer tubular electrodes separated by a dielectric casing with a dielectric sheathing around the outer electrode so that a charge is imparted to the sheathing for retention thereby to attract charged particulate matter. A series of the composite collectors charged alternately positive and negative may be utilized to remove both negatively and positively charged particulate matter from a fluid stream, and a spray wash system may be employed to periodically remove collected matter from the units.

3,828,527

LEAK DETECTION APPARATUS AND INLET INTERFACE

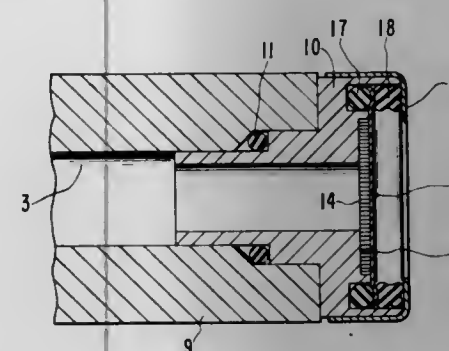
Walton E. Briggs, Lynnfield, and Joseph C. Maliakal, Millis, both of Mass., assignors to Varian Associates, Palo Alto, Calif.

Filed Sept. 28, 1972, Ser. No. 293,206

Int. Cl. B01d 31/00

U.S. Cl. 55—158

4 Claims



A leak detection apparatus having a mass spectrometer tuned to detect helium has an interface with atmosphere in the form of a portable probe containing a gas inlet membrane which is operable without a heater to permit the passage of helium in sufficient quantity for sensitive detection of leaks.

3,828,528

ADIABATIC SATURATION COOLING MACHINE

Sanford A. Weil, Chicago, Ill., assignor to Gas Development Corporation, Chicago, Ill.

Division of Ser. No. 118,196, Feb. 23, 1971, which is a

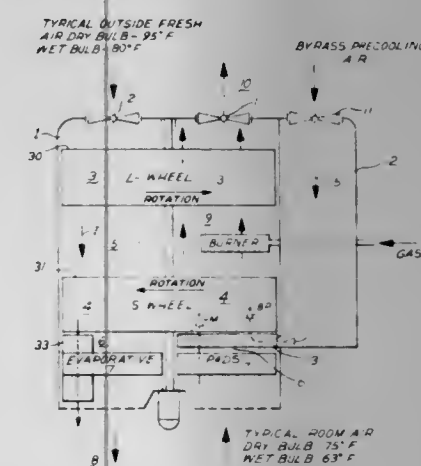
continuation of Ser. No. 791,000, Jan. 14, 1969, abandoned.

This application May 18, 1972, Ser. No. 254,807

Int. Cl. B01d 53/06

U.S. Cl. 55—388

7 Claims



An improved adiabatic saturation cooling machine of the open-cycle type and method of operation in which the capacity of the machine is increased by routing by-pass streams of air through either the S-wheel or the L-wheel. The amount of these by-pass streams are from 0 to 100 percent that of the main exhaust stream of air passing from the room through the S-wheel. In the first embodiment the by-pass air is outside air and is directed to the regenerative "side" of the S-wheel. Such a by-pass stream ranging from 95° to 80° F. will cool the air from the S-wheel an additional 2.6 to 5.9° F. below that capable by the room air exhaust stream alone. The outside air by-pass stream may be passed directly through the S-wheel or pretreated by passing through an E-pad. In the second embodiment, where there is sufficient air supplied to the burner section to regenerate the L-wheel, a portion of the primary room exhaust air stream is recirculated as a by-pass stream to

the input face of the L-wheel. A third embodiment is directed to incoming air bypassing the E-pads from the cooling side of the S-wheel. A fourth embodiment is directed to a return by-pass for directing the first stream of incoming L-wheel air back out the regenerative "side" of the L-wheel.

3,828,529

APPARATUS FOR FILTERING OIL VAPORS

Gunter Frey, Fellbach; Arthur Nikolaus, Hoffacher; Walter Ebing, Stuttgart, and Hans Rolf Kalberer, Winnenden, all of Germany, assignors to Knecht Felterwerke Gesellschaft mit beschraenkter, Haftung, Germany

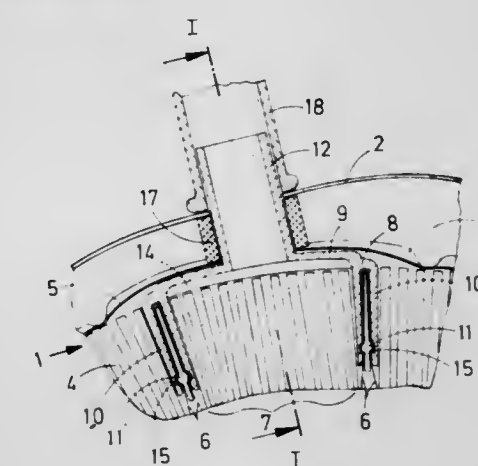
Filed Feb. 20, 1973, Ser. No. 333,795

Claims priority, application Germany, Mar. 1, 1972, 2209718

Int. Cl. B01d 46/52

U.S. Cl. 55—419

8 Claims



Apparatus for filtering oil vapors exhausted from the crank case of a motor or the like, comprising a housing having a frontal cover disk and a star shaped pleated filter element located in the housing. An inlet member comprises a tubular connection having a pair of clamping means spaced from each other and adapted to clamp over a pleat, is formed integrally with the cover disk. The clamping means span a defined sector of the filter element.

3,828,530

FILTER SYSTEM

Max D. Peters, 633 Turnpike Rd., Minneapolis, Minn. 55416

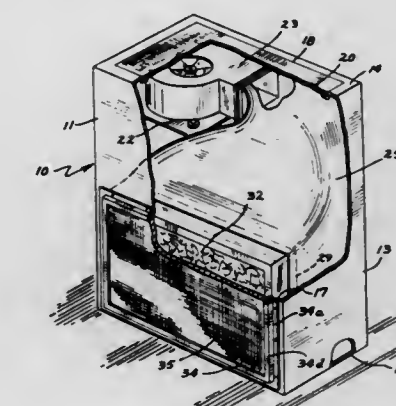
Continuation-in-part of Ser. No. 176,988, Sept. 1, 1971,

abandoned. This application Apr. 27, 1973, Ser. No. 355,079

Int. Cl. B01d 31/00

U.S. Cl. 55—473

14 Claims



A filter system suitable for clean benches, or clean rooms, or wall modules that includes a housing that is closed other than for an air intake opening and an air discharge opening, a prefilter mounted in the air intake opening, a high efficiency filter mounted in the discharge opening, a blower mounted in the housing, a plastic duct having one end sealed to the blower

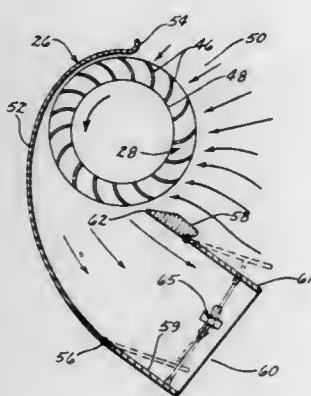
outlet and an opposite end sealed to the high efficiency filter for conducting air under pressure from the duct to the high efficiency filter, the duct other than at the discharge opening being spaced from the walls of the housing whereby any air drawn into the housing, and leakage air between the housing interior and the ambient atmosphere, including adjacent the high efficiency filter, is drawn into the blower to be conducted through the high efficiency filter prior to discharge from the housing.

3,828,531 VORTEX FAN MEANS FOR A CROP GATHERING APPARATUS

Graeme R. Quick, Ames, Iowa, assignor to Iowa State University Research Foundation, Ames, Iowa
Filed Mar. 14, 1969, Ser. No. 807,341
Int. Cl. A01d 45/20

U.S. Cl. 56—12.9

1 Claim

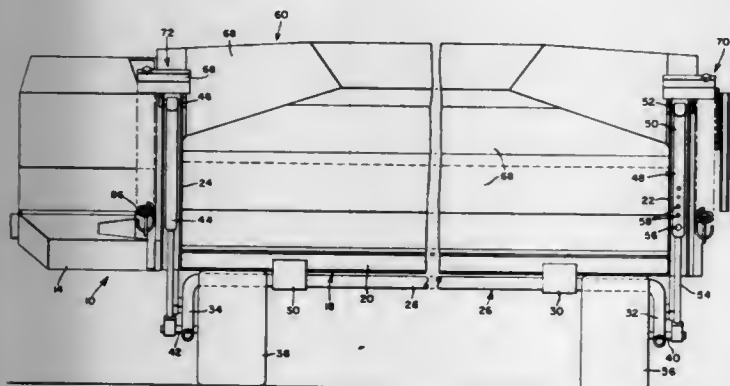


A vortex fan means for a crop gathering apparatus such as a combine or the like. The fan means extends across the forward end of the combine at a position forwardly and above the combine header assembly. The fan means includes a housing partially extending around the fan rotor assembly and has a discharge opening formed in its lower rearward end. The fan means directs air downwardly and rearwardly towards the sickle bar of the header assembly to cause the standing crop to be bent over the sickle bar to improve the cutting action thereof and to aid in the feeding action on the platform.

3,828,532
HARVESTING MACHINE SUSPENSION SYSTEM
J. Clark Fickle; and Ralph August Gerhardt, both of Ottumwa, Iowa, assignors to Deere & Company, Moline, Ill.
Filed Nov. 15, 1973, Ser. No. 416,107
Int. Cl. A01d 43/00

U.S. Cl. 56—14.4

8 Claims



A pull-type mower-conditioner has an L-shaped frame including a transverse beam and a pair of transversely spaced frame members extending upwardly and rearwardly from the beam adjacent the opposite ends of the beam. A harvesting header is disposed generally above and forwardly of the beam and is mounted on the main frame for vertical adjustment by

means of a parallel link-type suspension system. A U-shaped support member has its central portion rotatably supported on the beam and a pair of rearwardly extending arms respectively journaling ground-engaging wheels adjacent the opposite ends of the beam. A remotely actuated hydraulic cylinder extends between a wheel arm and the top of the upright frame member at the left side of the machine and is actuatable to swing the support member and thereby raise and lower the main frame. A pair of telescoping members extend between the other wheel arm and the top of the other upright frame member and are selectively lockable together to lock the main frame in a raised position.

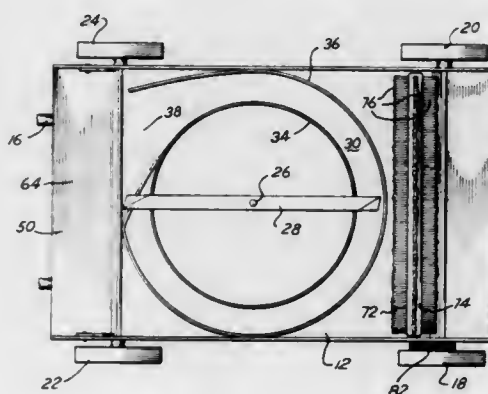
3,828,533 ROTARY MOWER

John L. Finneran, 1724 Turtle Creek North Dr., South Bend, Ind. 46637

Filed Nov. 2, 1972, Ser. No. 303,095
Int. Cl. A01d 35/26

U.S. Cl. 56—320.2

4 Claims



A rotary mower having a handle, a housing mounted on wheels, an engine mounted in a depression in the top of said housing, a shaft extending vertically from said engine into said housing, a circular chamber inside said housing, and a blade or other cutting means mounted on the lower end of said shaft for rotation inside said housing below said depression and a major part of said chamber. Enclosing the underside of said housing is a plate with a deflection along its rear edge extending under the rear portion of said housing and forwardly beyond said shaft but rearwardly from the forward end of the path of rotation of said blade, and a plurality of spaced rods extending forwardly from the forward edge of said plate to a point near the forward edge of said housing. A crossbar member is provided adjacent the forward ends of said spaced rods and a rotary brush means powered by the rotation of one of said wheels is provided inside and near the forward end of said housing above said spaced rods.

3,828,534
ARTICLE PICKUP MACHINE
Leon R. McRobert, Ocoee, Fla., assignor to FMC Corporation, San Jose, Calif.

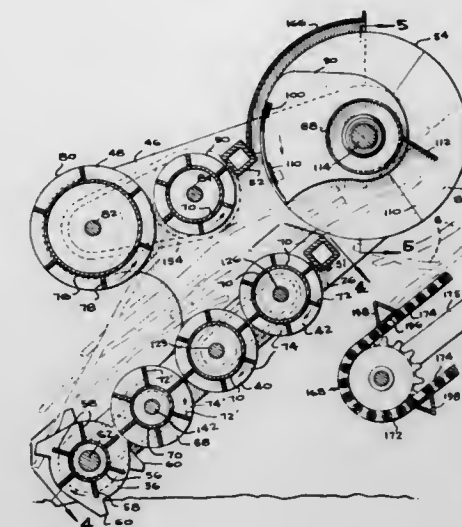
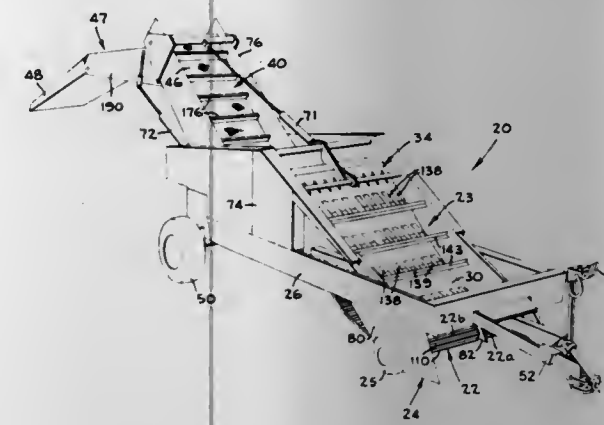
Filed Apr. 27, 1972, Ser. No. 248,146
Int. Cl. A01d 51/00

U.S. Cl. 56—328 R

22 Claims

A mobile article pickup machine for picking up rollable articles such as citrus fruit from a surface which varies in contour both longitudinally and laterally of the path of movement of the machine. The machine includes a rigid elevator frame that is connected to the vehicle chassis by a three point pivotal suspension and has its forward end supported for free floating action on the support surface. A steeply inclined bar elevator is supported by the frame for lifting citrus fruit from the ground or supporting surface, and a weighted draper bears against the fruit and causes the fruit to roll and become par-

tially cleaned as it is moved up the elevator. The weights prevent movement of the fruit down the elevator. A trash separator receives the fruit from the elevator and serves to separate the large trash, non-rollable fruit, and fine debris from the rollable marketable fruit.



separator receives the fruit from the elevator and serves to separate the large trash, non-rollable fruit, and fine debris from the rollable marketable fruit.

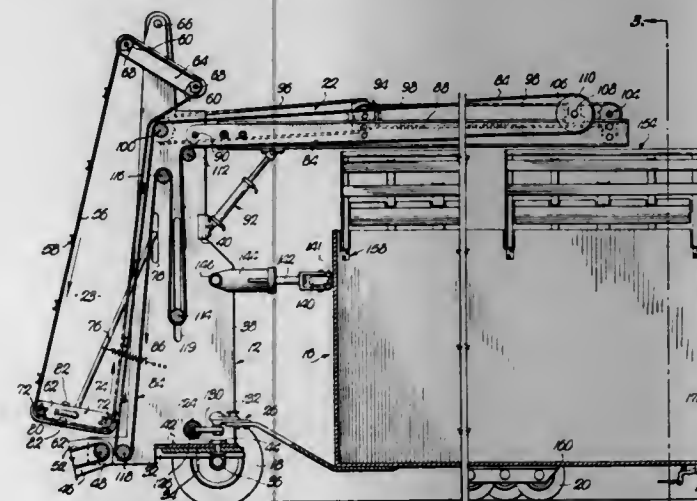
3,828,535 HAY LOADER

Ezra Cordell Lundahl, Providence, Utah, assignor to Hesston Corporation, Hesston, Kans.

Division of Ser. No. 876,944, Nov. 14, 1969, Pat. No. 3,728,849. This application Feb. 7, 1973, Ser. No. 330,248
Int. Cl. A01d 89/00

U.S. Cl. 56—344

16 Claims



A stacking machine for agricultural crops forms a stack in an open top body as the crop is picked up, elevated and conveyed into the body. The hay, fodder or the like is periodically compressed and the stack thereupon unloaded in a manner to maintain its size, shape and compactness.

3,828,536
SUGAR CANE LOADER-CLEANER MACHINE
Larry G. Fowler, Belle Glade, Fla., assignor to Sugar Cane Growers Cooperative of Florida, Belle Glade, Fla.
Filed May 1, 1972, Ser. No. 248,970
Int. Cl. A01d 45/10

U.S. Cl. 56—502

22 Claims

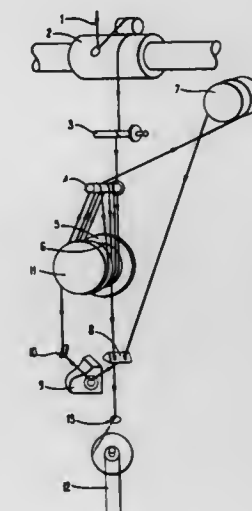
A field operated cane loading and cleaning vehicle is provided with a rotary pickup drum adjacent the ground for picking up windrowed cane, a conveyor conveys the cane to a continuously rotating segmentizer drum which slices the cane into small segments from which it is conveyed to a kicker drum which hurls the segments into a cleaning chamber where they are subjected to an air blast for separating trash from the cane segments which then fall onto a removal conveyor to be

field and the segmentizer drum employs triangular blades which slice through the cane to minimize wastage and cane damage.

3,828,537
PRODUCTION OF TEXTURISED YARN
Werner Doschko, Nußloch, Am Leimbach, and Hermann Rinklin, Oestringen, both of Germany, assignors to Imperial Chemical Industries Limited, London, England
Filed Nov. 6, 1972, Ser. No. 304,033
Claims priority, application Great Britain, Nov. 17, 1971, 53300/71; July 13, 1972, 32813/72
Int. Cl. D02g 1/02

U.S. Cl. 57—34 HS

15 Claims



A process for producing bulk is described by sequentially drawing and false twist texturizing a synthetic yarn wherein the yarn is withdrawn from the texturizing zone at a greater speed than it is fed thereto. In a preferred embodiment, the draw roll for the drawing step also serves as the take-off roll for the texturizing zone and is stepped so that the portion used to take off the texturized yarn is of greater diameter than the part used for drawing. A further preference is that the heater in the texturizing zone is a heated pin.

3,828,538

**HIGH-SPEED DOUBLE TWIST TWISTING APPARATUS
MAINLY ADAPTED TO TWIST STEEL WIRES**

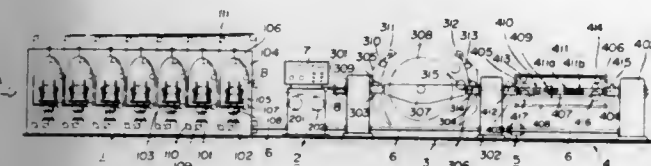
Tokuji Yoshida, and Mitsuzi Amakasu, both of Tokyo, Japan, assignors to Yoshida Engineering Co., Ltd., Tokyo, Japan
Filed Dec. 13, 1972, Ser. No. 314,553

Claims priority, application Japan, Dec. 13, 1971, 46-101296

Int. Cl. D07b 3/08, 3/12

U.S. Cl. 57—58.54

4 Claims



A double twist twisting apparatus adapted to twist steel wires, comprising a plurality of wire suppliers each having a base pedestal, a main shaft rotatable relative to said pedestal, a first flyer fixed to said shaft, a frame mounted on said first flyer, a wire supply source adapted to remain stationary with respect to said pedestal, even while said flyer rotates, and a plurality of guide rollers mounted on said frame, said wire suppliers each imparting two back-twists to a wire delivered from said wire supply source for each rotation of said first flyer; a back tension capstan for imparting back tension to a group of wires delivered from said wire suppliers; an open-shaped twister having a pair of second flyers being C-shaped and diametrically opposed to each other and supporting a take-up motion between said second flyers via a frame, for imparting a first twist to said group of wires; and a third flyer adapted to be rotated in the same direction and at the same speed as said twister, for imparting a second twist to said group of wires; said third flyer having a twist pitch determining capstan, a wire straightener, a coarse winder, and a slip capstan all supported in said flyer via a frame.

3,828,539

OPEN-END TEXTILE SPINNING MACHINES

Fred Croasdale, Whalley; James William Barnes Clayton, Arncliffe, and Keith Norman, Oswaldtwistle, all of England, assignors to Platt International Limited, Oldham, England

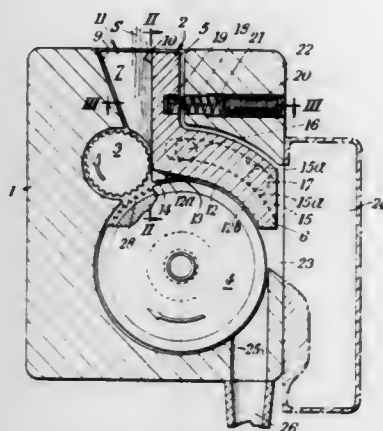
Filed Mar. 12, 1973, Ser. No. 340,082

Claims priority, application Great Britain, Mar. 13, 1972, 11526/72

Int. Cl. D01h 1/12

U.S. Cl. 57—58.91

20 Claims



A sliver feeding device for an open-end spinning machine includes a feed roller, an opening roller, and a displaceable feed pedal biased towards the feed roller. A sliver forming nip is formed between a first surface of the feed pedal and the peripheral surface of the feed roller. The feed pedal also has a second surface adjacent the peripheral surface of the opening roller. The device is provided with constraining means as-

sociated with the feed pedal to constrain the feed pedal whereby displacement of the feed pedal produces no substantial variation in the minimum clearance between the first surface and the peripheral surface of the open roller.

3,828,540

**INDIVIDUAL BOBBIN SPINDLE STOP MOTION FOR A
TWISTER**

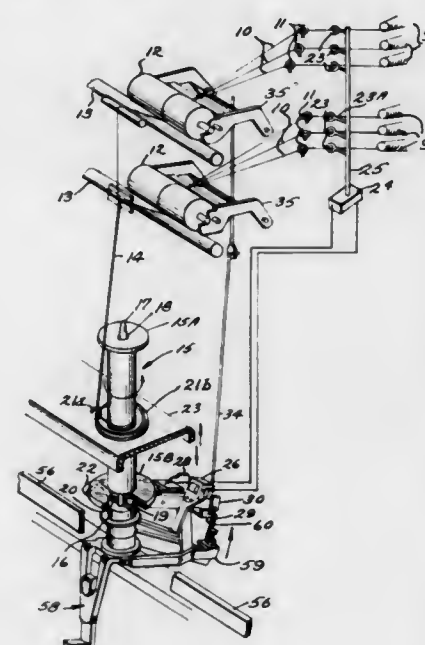
Charles D. Pugh, Burlington, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.

Filed Jan. 16, 1973, Ser. No. 324,215

Int. Cl. D01h 13/16

U.S. Cl. 57—81

16 Claims



The apparatus stops take up and feed functions of a yarn twister while means detects a broken or exhausted yarn feed and activates a control system, which through a linkage mechanism, simultaneously disengages the bobbin from the drive twirl and stops same with a brake. The system may be reset after activation but will again activate if the missing yarn has not been replaced.

3,828,541

FRICTION FALSE-TWIST DEVICE

Josef Raschle, Buetschwil, Switzerland, assignor to Heberlein & Co. AG, Wattwil, Canton of St. Gallen, Switzerland

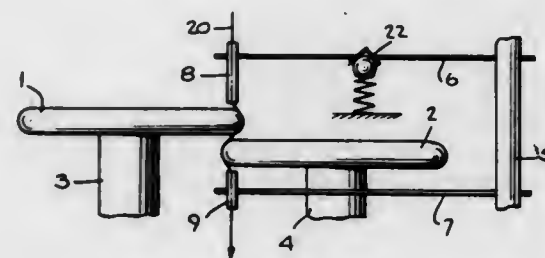
Filed May 1, 1973, Ser. No. 356,206

Claims priority, application Switzerland, May 3, 1972, 6588/72

Int. Cl. D01h 13/04; D02g 1/08

U.S. Cl. 57—106

13 Claims



A friction false-twist device has at least one pair of friction discs mounted on parallel shafts for rotation about the axes thereof and a swivel shaft has at least two thread-guide elements thereon arranged so that at least one guide element is above and one guide element is below the discs.

3,828,542

**NOVEL EFFECT YARNS AND PROCESS FOR
PRODUCING THE SAME**

Alexandre Boutonnet, Dommartin; Georges Clavelet, and Gilbert Morieras, both of Lyon, all of France, assignors to Societe Rhodiaceta, Paris, France

Filed Nov. 18, 1971, Ser. No. 200,104

Claims priority, application France, Nov. 18, 1970, 70.41663

Int. Cl. D02g 3/04, 1/02

U.S. Cl. 57—140 BY

13 Claims



Effect yarns having an irregular and twisted surface formed from at least two components having different physical properties, at least one of which is a thermoplastic material which are intermittently bonded to form the effect. These effect yarns are produced by heating the yarns to soften at least one component and twisting and untwisting the softened yarns.

3,828,543

ANTISTATIC YARN

Reid C. Goodbar, and Arther Mitchell Pressley, both of Ware Shoals, S.C., assignors to Riegel Textile Corporation, Ware Shoals, S.C.

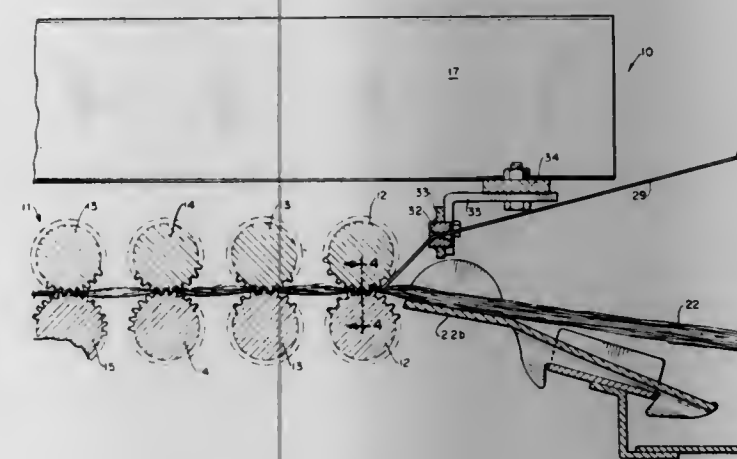
Division of Ser. No. 63,755, Aug. 14, 1970, Pat. No. 3,703,073.

This application July 31, 1972, Ser. No. 276,890

Int. Cl. D02g 3/12

U.S. Cl. 57—140 BY

9 Claims



There is disclosed a method and apparatus for producing yarn having discontinuous staple lengths of metal filaments uniformly interspersed therein by preventing slubbing of the metal multifilament tow during drawing thereof.

3,828,544

TWO-COMPONENT YARNS

Heinrich Alker, Solingen, Germany, assignor to Firma Olbo Textilwerke GmbH, Solingen-Ohligs, Germany

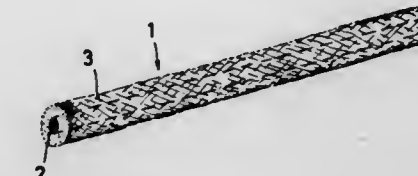
Filed Oct. 3, 1972, Ser. No. 294,674

Claims priority, application Germany, Oct. 4, 1971, 2149426

Int. Cl. D02g 3/36

U.S. Cl. 57—152

9 Claims



A two-component yarn, one of the components consisting of an endless yarn core deformable partly elastically and partly plastically, the other component consisting of staple fibres and slippable with respect to the core if the yarn undergoes appreciable expansion or elongation. The staple fibres may surround the endless yarn in the form of a spun covering, or be twisted around the endless yarn in the form of a thread or yarn. The staple fibres consists of cotton, rayon staple or plastics fibres and the endless yarn of unstretched synthetic material such as Nylon, polyester or similar plastics.

The two-component yarn can be used to produce various threads, fabrics, woven materials, plaited materials, non-woven materials of parallel strands or other flat textiles of high strength and great uniformity.

3,828,545

DRIVING CIRCUIT FOR ELECTRONIC TIMEPIECE

Yuki Tsuruishi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

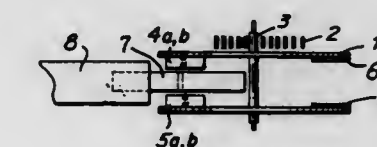
Filed Apr. 6, 1972, Ser. No. 241,603

Claims priority, application Japan, Apr. 8, 1971, 46-21369

Int. Cl. G04c 3/04; H02k 33/04; H03b 5/36

U.S. Cl. 58—28 A

6 Claims



A driving circuit for an electronic timepiece having two pairs of transistors of different conductivity. The driving circuit is coupled to a two-terminal driving coil fixed in the gap between the plates of a balance wheel, said balance wheel being provided with a magnetic circuit formed from two pairs of permanent magnets, one of said pairs being mounted on each of said plates. The pairs of transistors are rendered conductive alternately the moment a relatively large impulse is induced in the coil to apply a driving current to said coil.

3,828,546

**SETTING MEANS FOR TIME ZONE WATCH WITH
CALENDAR DISPLAY**

Toshiaki Saito, Suwa, and Hisashi Kobayashi, Okaya, both of Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Division of Ser. No. 222,261, Jan. 31, 1972. This application

Mar. 26, 1973, Ser. No. 344,616

Claims priority, application Japan, Feb. 3, 1971, 46-3770

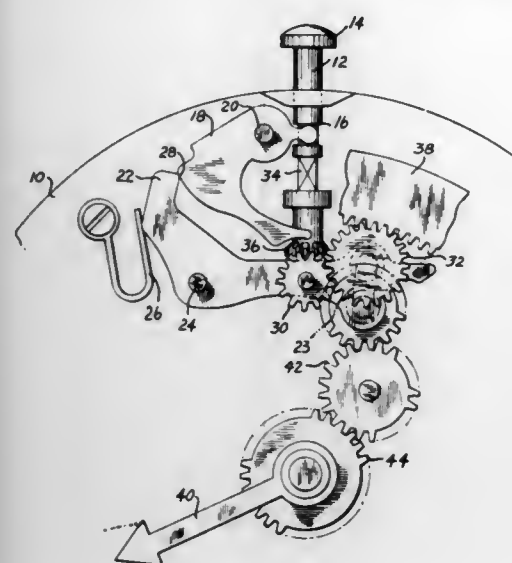
Int. Cl. G04b 19/22, 19/24

U.S. Cl. 58—42.5

3 Claims

A correction device for a watch having a plurality of adjustable time displays utilizes a single control element extend-

ing externally of the watch and adapted to be manually operated to adjust the plurality of time displays. Operating means operatively associates each of the adjustable time displays with the control element whereby the latter is operable



to adjust each of the time displays. By way of example, the control element may be used to adjust a first time display indicating local time and a second time display indicating the hour in a time zone other than that in which the wearer of the watch is located.

3,828,547

QUARTZ CRYSTAL TIMEPIECE

Kinji Fujita, Nagano, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

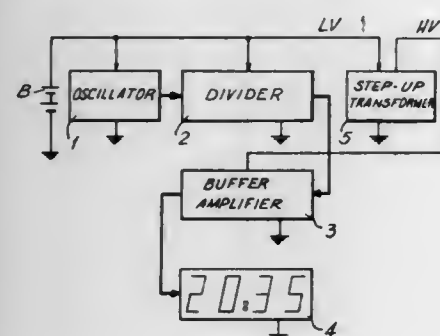
Filed Feb. 4, 1972, Ser. No. 223,666

Claims priority, application Japan, Feb. 18, 1971, 46-7161

Int. Cl. G04b 19/30; H05b 39/00

U.S. Cl. 58-50 R

4 Claims



A timepiece having a quartz crystal vibrator serving as a time standard, a liquid crystal display, and divider and driving circuits formed from COS/MOS transistors dividing the high frequency signal from the vibrator into low frequency timing signals for the direct driving of the liquid crystal display. The driving circuit includes a COS/MOS inverter directly coupled at its output to each liquid crystal display segment.

3,828,548

LIQUID CRYSTAL DRIVE CIRCUIT

Robert C. Martin, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 19, 1972, Ser. No. 263,818

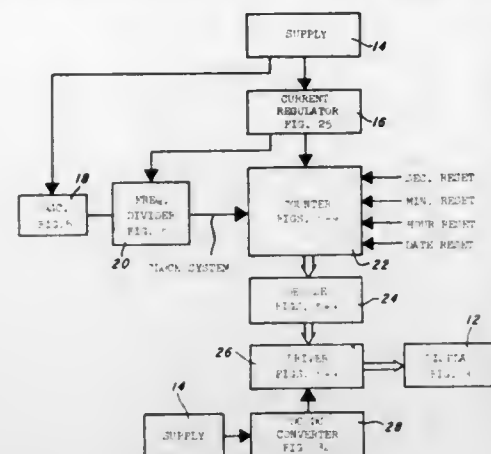
Int. Cl. G04b 19/30

U.S. Cl. 58-50 R

3 Claims

An electronic timekeeping device includes bipolar integrated circuit implemented logic in combination with a liquid crystal display. The bipolar circuitry is configured to effectively implement logic functions with a supply voltage of 1 volt. Drive circuitry is coupled to the liquid crystal display to

effectively impress an a.c. voltage across the liquid crystal cell. Logic of the drive circuitry is effective to provide out of phase voltages across the liquid crystal cell when display is required.



When display is not required the voltages across the liquid crystal display cell are in phase such that effectively no potential difference is generated across the liquid crystal material.

3,828,549

WATERTIGHT WATCHCASE

Hideo Nozawa, Tokyo; Masayoshi Aoki, Funabashi, and Shoji Isono, Tokyo, all of Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

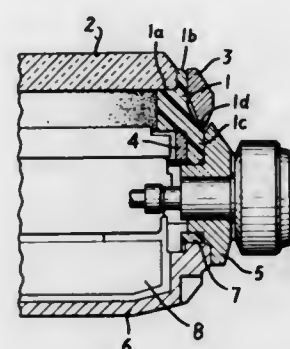
Filed Dec. 14, 1973, Ser. No. 424,890

Claims priority, application Japan, Dec. 18, 1972, 47-145337

Int. Cl. G04b 37/08

U.S. Cl. 58-90 R

7 Claims



A waterproof watchcase having a watch crystal sealed with a bezel circumferentially thereof. The seal is effected by a sealing ring, made of an elastic material, without use of adhesives. The sealing ring has a body provided with a first circumferential annular flange on one side of the body and on an opposite side, in a plane offset from the plane within which the first flange lies, is disposed a second annular flange integral with the body. The bezel compresses the first annular flange between it and the periphery of the watch crystal effecting a waterproof seal therebetween. A tension ring is disposed internally of the second flange and cooperates with a watchcase band externally thereof for compressing the second annular flange therebetween and effecting a watertight seal. The back of the watchcase is closed by a back cover and a gasket cooperative with the watchcase band in effecting a water-tight seal so that the watch is completely waterproof.

3,828,550

COUPLING LINK

Richard H. Fink, York, Pa., assignor to Campbell Chain Company, York, Pa.

Filed Jan. 12, 1972, Ser. No. 217,134

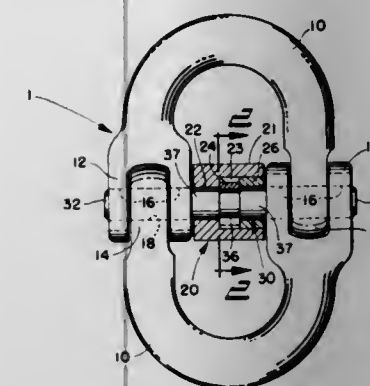
Int. Cl. F16g 15/02

U.S. Cl. 59-85

4 Claims

A coupler link having two U-shape half links hingedly joined at the interdigitated ends thereof by a pin extending

through such ends, the pin being held in place against axial movement by a retaining member interposed between such ends and about the pin. The retaining member includes a body having a bore therethrough with a counterbore at one end thereof and a spring clip positioned and held within the coun-



terbore, such clip being coaxial with the bore and of slightly smaller diameter. The spring clip is adapted slightly to expand upon the insertion of the pin until an annular groove on the pin is in alignment with such spring clip allowing the same to contract embracingly against the pin, thereby to lock the pin in position.

3,828,551

MAIN STREAM LIQUID-FUEL ROCKET ENGINE CONSTRUCTION AND METHOD OF STARTING A LIQUID-FUEL ROCKET ENGINE

Gunther Schmidt, Unterhaching, Germany, assignor to Messerschmitt-Bolkow-Blohm Gesellschaft Mit Beschränkter Haftung, München, Germany

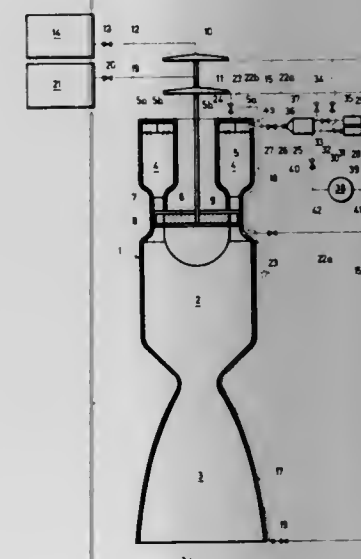
Filed Nov. 1, 1972, Ser. No. 302,772

Claims priority, application Germany, Nov. 10, 1971, 2155786

Int. Cl. F02k 9/02

U.S. Cl. 60-204

5 Claims



A method of starting a liquid-fuel rocket engine of the so-called "main stream" construction which has at least one precombustion chamber, a main combustion chamber and a turbine located in the flow path of the gases between the two combustion chambers which is operated to drive the propellant component pumps and using at least one ignition chamber comprises, directing propellant components into the ignition chamber and igniting them to produce gases, preferably oxygen-rich gases, directing the produced gases to the precombustion chamber for flow therethrough and through the turbine and main combustion chamber to preheat them and to run the turbine to drive the propellant component pumps, and after the pumps come up to an operating speed, discharging the propellant components to said precombustion chamber

and said main combustion chamber to produce propellant gases in the preheated main combustion chamber. The apparatus which is employed includes valve controls, such as throttle valves, for regulating the supply of the components to the ignition chamber and for shutting off the ignition chamber from operation. The arrangement is such that the ignition chamber can be operated subsequently for the reignition of the rocket engine if desired.

3,828,552

SYSTEM FOR REDUCING TOXIC COMPOUNDS IN EXHAUST GASES FROM INTERNAL COMBUSTION ENGINES

Kouichi Nishiguchi, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan

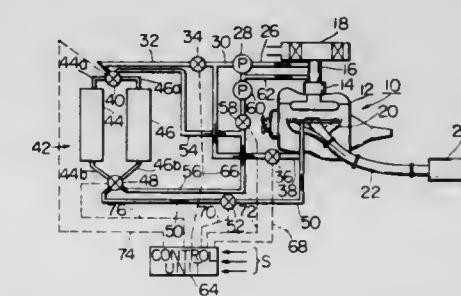
Filed Nov. 8, 1972, Ser. No. 304,679

Claims priority, application Japan, Dec. 10, 1971, 46-100557

Int. Cl. F02b 75/10

U.S. Cl. 60-304

5 Claims



A system for reducing toxic compounds in exhaust gases emitted from a gasoline powered internal combustion engine, which system includes an air-denitrogenating unit which is adapted to separate nitrogen molecules from the atmospheric air. The nitrogen molecules separated by the air-denitrogenating unit is introduced into an air induction passage of the engine so as to enrich an air-fuel mixture to be supplied into the engine for thereby reducing the concentration of nitrogen oxides in the engine exhaust gases. The denitrogenated air containing a large proportion of oxygen therein is supplied into an exhaust manifold of the engine as secondary air for effecting oxidizing reactions of unburned hydrocarbons and carbon monoxide in the engine exhaust gases.

3,828,553

TURBINE HAVING POWERED INNER ROTOR FOR IMPARTING ADDITIONAL VELOCITY TO ENTERING FLUID

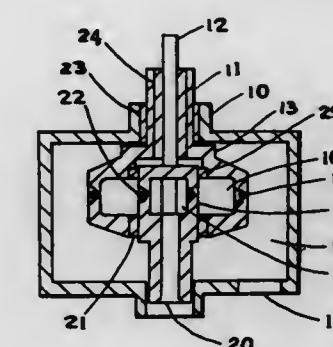
Michael Eskeli, 6220 Orchid Ln., Dallas, Tex. 75230

Filed Feb. 8, 1973, Ser. No. 330,666

Int. Cl. F01d 1/18

U.S. Cl. 60-330

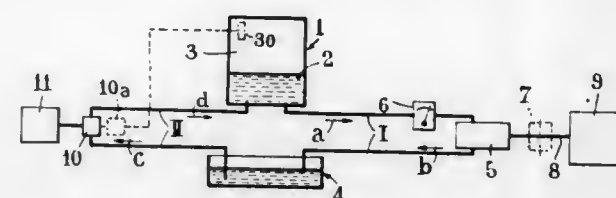
4 Claims



A method and apparatus for generating power in response of a fluid flowing from a higher pressure and enthalpy to a lower pressure and enthalpy in a rotating turbine. Turbine has two rotors, with the inner rotor rotated by external power

source and the outlet rotor being the power output rotor. Work is produced by said outer rotor by a reaction on rotor nozzles by leaving working fluid. Said working fluid is pressurized within said outer rotor cavity by injecting said working fluid to said cavity by nozzles mounted on said inner rotor, with said fluid entering the said outer rotor cavity in the direction of rotation, with the entering velocity of said working fluid being usually higher than the local velocity of said outer rotor in the area of entry. Thus the working fluid is pressurized within said outer rotor cavity, since said fluid will be forced to follow a curved path within said cavity; with the higher pressure, the velocity of fluid leaving said outer rotor nozzles is increased thus producing more torque and more work.

unit is inserted in the other pipe line. This motor-pump unit has a relatively low-rated power output and is continuously



operating at the same speed. This invention is advantageously applicable to automotive vehicles intended for service requiring frequent stops.

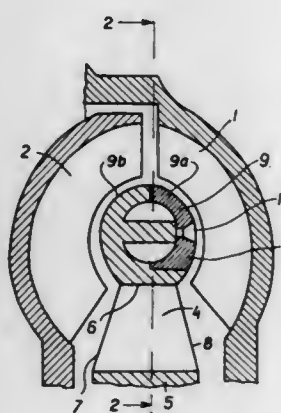
3,828,554 TORQUE CONVERTER

Antonin Hau, Praha, Czechoslovakia, assignor to Ustav pro vyzkum motorovych vozidel, Praha, Czechoslovakia
Filed Feb. 9, 1973, Ser. No. 331,113
Claims priority, application Czechoslovakia, Nov. 26, 1971, 8254-71

Int. Cl. F16h 41/00

U.S. Cl. 60—361

2 Claims



A hydraulic torque converter comprising a pump wheel, a turbine wheel each having radially inward blades of a circular segment shape and a stator conversion unit. The stator unit comprises a plurality of fixed reactor blades uniformly spaced between a pair of coaxial cylindrical rings, each of the blades having its axial leading and trailing edges when viewed in the axial direction offset relative to each other so that they do not overlap. The root of the reactor blades are integrally cast with one cylindrical ring forming a hub and their outer ends are secured to the other ring about which a toroidal riser is secured having an outer surface conforming to the segment shape blades and is located between the outer surface of the outer ring and extend between the pump and turbine wheels.

3,828,555 POWER PLANT FOR VARIOUS VEHICLES

Pierre Capdevielle, Garches, France, assignor to Jean-Loup Giros, Paris and Marcel Capdevielle, Saint Georges Sur Cher, both of, France, part interest to each
Filed Mar. 23, 1972, Ser. No. 237,395
Claims priority, application France, Mar. 24, 1971, 71.10346; Dec. 21, 1971, 71.45900

Int. Cl. F15b 1/02

U.S. Cl. 60—413

20 Claims

In this power plant for self-propelled vehicles two pipelines are inserted between a high-pressure tank and a low-pressure tank containing hydraulic fluid. A hydraulic motor is inserted in the first pipe line and is adapted to actuate the driving shaft of the vehicle through a freewheel coupling. A motor-pump

3,828,557 ELECTRIC GENERATING APPARATUS CONVERTING THE PUSHING ACTION OF WAVES INTO ELECTRICAL POWER

Ashton Mochel, Houston, Tex., assignor to Ocean Power Generation, Inc., Houston, Tex.

Filed Jan. 17, 1973, Ser. No. 324,563

Int. Cl. F03g 7/00

U.S. Cl. 60—503

29 Claims

An apparatus which forms electrical power from the pushing action of waves wherein the waves are intercepted by a boom mounted tee head which incorporates a metal framework supporting a number of shutters, the shutters intercepting the forward motion of a wave but being alternately released to hinge or pivot so as to make the tee head trans-

3,828,556 HYDRAULIC ACTUATOR

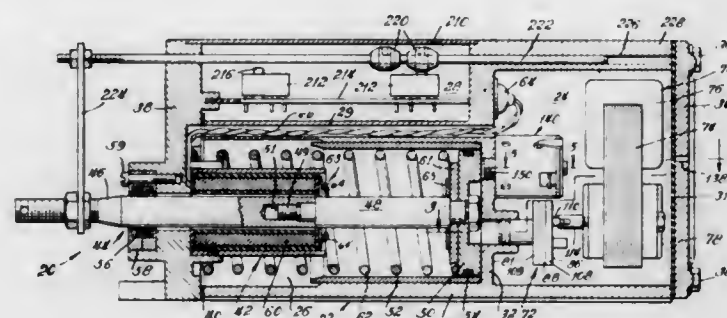
William F. Nolden, Dallas, Tex., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Jan. 26, 1973, Ser. No. 326,855

Int. Cl. F15b 11/12, 15/18

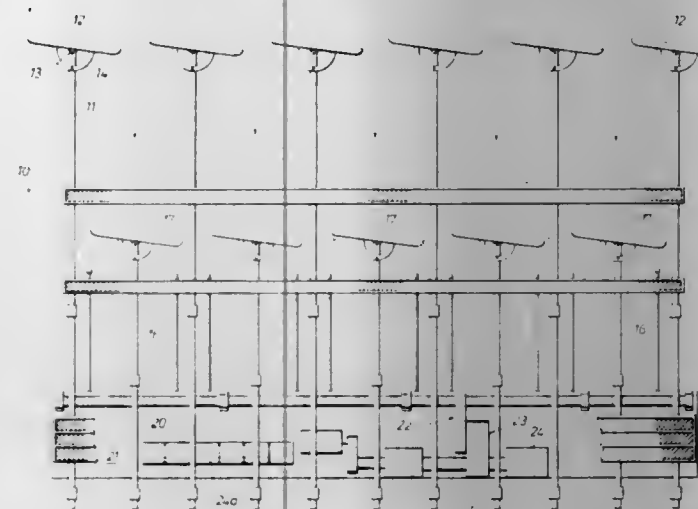
U.S. Cl. 60—432

16 Claims



A hydraulic actuator is constructed in an enclosed housing having an internal wall member which divides its interior into forward and rear chambers. An elongated actuator element is slidably supported in the forward chamber with its forward nose portion extending outwardly through an opening in the wall of the housing. A piston is transversely supported on the rear end portion of the actuator element and is in slidable sealing engagement with a cylindrical wall contained within the forward chamber to define an expandable chamber with this cylindrical wall and the internal wall member. A spring means constantly urges the piston towards the internal wall member. Pump means contained in the rear chamber introduces a fluid under pressure through a passageway formed through the internal wall member into the expandable chamber to force the piston and associated actuator element outwardly of the housing to an extended position. The relative location of the actuator element is detected by a position sensing means which provides a variable control signal in response to the movement of the actuator element for energizing the pump means.

parent to wave action on return to an extended position on said boom, said booms supported by an onshore structure which includes a drive shaft extending along the shoreline, the drive shaft being rotated by a plurality of such booms, and the drive shaft being extended to a substantial flywheel which is



connected to an electric generator. All of the apparatus is mounted on a carriage which moves up and down the shore. The booms are rotated about an axis to raise and lower the tee head to accommodate variations in wave action, tide, seasons of the year and the like.

3,828,558 MEANS AND METHOD FOR PREVENTION OF PISTON CREEP IN FREE-PISTON RECIPROCATING DEVICE

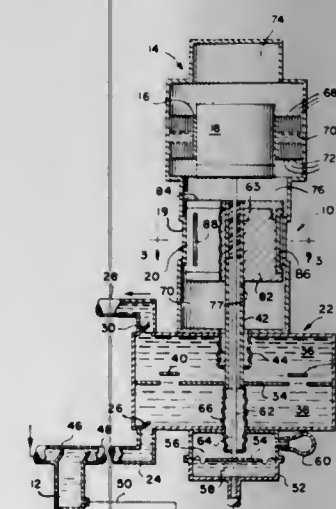
William T. Beale, Athens, Ohio, assignor to Research Corporation, New York, N.Y.

Filed Apr. 12, 1973, Ser. No. 350,656

Int. Cl. F02g 1/04

U.S. Cl. 60—520

9 Claims



A free-piston motion device is provided having means associated with either the cylindrical surface of the free-piston or with its co-acting cylinder or both to maintain the mid-point of the stroke of the piston in a predetermined relation to its cylinder during reciprocation of the piston.

3,828,559 TEMPERATURE RESPONSIVE CONTROL DEVICE

Sidonius Volkert Siemensma, Groningen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 4, 1971, Ser. No. 195,747

Claims priority, application Netherlands, Nov. 4, 1970, 7016113

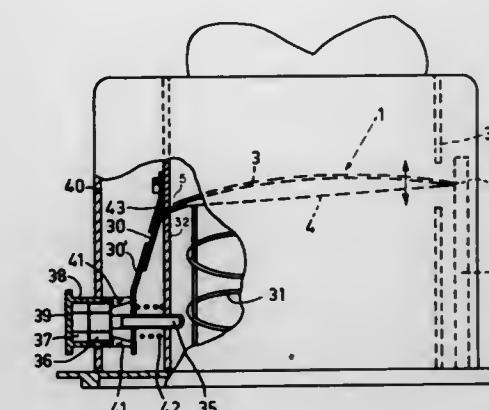
Int. Cl. F03g 7/06; A47j 27/62

U.S. Cl. 60—529

6 Claims

A temperature responsive control device used in toasters and the like, has a thermosensitive element comprising a rod

of a material having a very low coefficient of thermal expansion and a thin strip made of a material having a high coefficient of thermal expansion. The thin strip is held in a stressed condition between the ends of the resiliently curved rod. The



element may be clamped at one end, the movement of the other end being used for switching purposes. Because of the small heat capacity of the thin strip the element will rapidly respond to changes in the ambient temperature.

3,828,560 SELF-PROPELLED MACHINE WITH A DRIVEN WORK-PERFORMING MEMBER

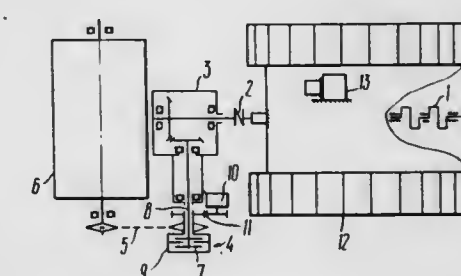
Grigory Artemovich Larjukhin, Mikroraiion Serelryanka, 27 kv. 74, Moskovskaya oblasti, poselok Pravda; Valentin Vasilievich Chernyshev, Nikrasovskaya ulitsa, 28, Pushkino Moskovskoi oblasti; Vladislav Iosifovich Nikitin, ulitsa Lesnaya 64, kv. 26, Pushkino Moskovskoi oblasti; Jury Mitrofanovich Serikov, Institutskaya ulitsa, 13, kv. 2, Pushkino Moskovskoi oblasti, and Vyacheslav Georgievich Kosinov, Institutskaya ulitsa, 10, kv. 11, Pushkino Moskovskoi oblasti, all of U.S.S.R.

Filed Mar. 5, 1973, Ser. No. 338,225

Int. Cl. B62d 55/00

U.S. Cl. 60—709

2 Claims



A self-propelled machine with a driven work-performing member includes a prime mover rotating the work-performing member through a transmission including a torque-limiting safety clutch of which the driven part is positively connected with the shaft of a liquid pump. The chassis of the machine is driven by a hydraulic motor communicating via a supply conduit with this liquid pump. If the work-performing member should get jammed in operation, the shaft of the liquid pump discontinues its rotation, whereby the supply of the working liquid under pressure to the hydraulic motor is also discontinued, and the machine is brought to a halt.

3,828,561

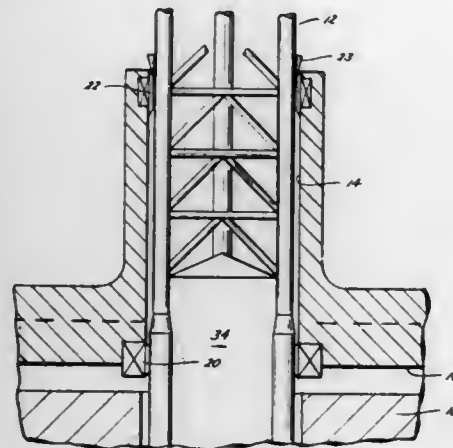
DRILLING PLATFORM

William H. Moore; George T. Richardson, and Floyd T. Pease, all of Houston, Tex., assignors to The Offshore Company, Houston, Tex.

Continuation of Ser. No. 202,350, Nov. 26, 1971, abandoned, which is a division of Ser. No. 819,623, April 28, 1969, Pat. No. 3,628,336. This application June 8, 1973, Ser. No. 368,236

Int. Cl. E02b 17/00; F16l 37/14; F16b 12/40
U.S. Cl. 61—46.5

3 Claims



A floating vessel suitable as a drilling platform in which the vessel has legs extending therethrough which in their upper position are tightly held by the vessel and each leg includes a footing which can be secured thereto or to the vessel when the legs are lowered to raise the vessel into operating position to provide the lower end of the legs with an extended bearing surface for engagement with the bottom.

3,828,562

METHOD AND APPARATUS FOR INSTALLING ANCHORS

Stephen Anthony Petres, Forest Park, Ill., assignor to Joslyn Manufacturing and Supply Company, Chicago, Ill.

Filed Nov. 17, 1972, Ser. No. 307,548

Int. Cl. E02d 5/80; G01l 3/02

U.S. Cl. 61—53.5

17 Claims



A method and apparatus for installing an anchor utilize the rotational power and the axial thrust from a mechanical power source. The novel method and apparatus are particularly adapted for installing an earth anchor of the type having at least one helical screw portion attached to a polygonally shaped hub portion and having an elongated portion extending from the hub portion and include the placement of an

elongated drive tube for telescopically receiving the elongated portion extending from the hub portion of the anchor in engagement with the hub portion. An elongated shear pin is utilized to securely retain the anchor in the installation apparatus. An adapter for connecting the drive tube to the mechanical power source includes a force transducer comprising a spring and spline assembly for measuring and indicating the axial thrust applied to the anchor by the mechanical power source and for transmitting the axial thrust through the installation apparatus to the anchor. After the earth anchor is installed to a desired depth, the installation apparatus is removed from the anchor merely by a reverse axial thrust from the mechanical power source sufficient to shear the shear pin.

3,828,563

METHOD AND APPARATUS FOR TIGHTENING THE WATER-SUBMERGED JOINTS BETWEEN WALL-FORMING ELEMENTS

Heinz Saucke, Hamburg, Germany, assignor to Weill & Reineke GmbH, Hamburg, Germany

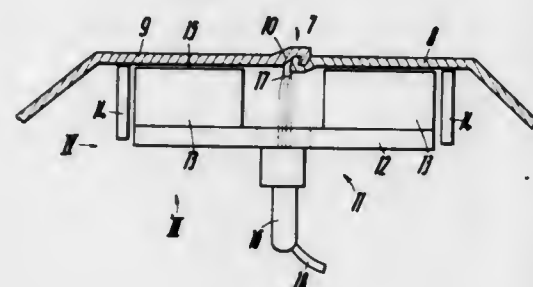
Filed Aug. 8, 1972, Ser. No. 278,875

Claims priority, application Germany, Aug. 11, 1971, 2140250

Int. Cl. E02d 5/00

U.S. Cl. 61—60

5 Claims



A method and apparatus for tightening the water submerged joints between wall forming elements, particularly the interlocking joints of steel sheet pilings, characterized by the use of a compound to be injected into the joint and curing inside said joint to an elastic body but under the pressure against which the tightening has to be effected into a sufficiently stable body.

3,828,564

CLOSED REFRIGERANT CYCLE FOR THE LIQUEFACTION OF LOW-BOILING GASES

Anton Spies, Icking; Alfred Stephan, Munich, and Alfons Sellmaier, deceased, late of Munich, all of Germany (by Anne-Rose Sellmaier, Co-Heir), assignors to Linde A.G., Hohlriegelskreuth, Germany

Filed Mar. 1, 1971, Ser. No. 122,605

2009401

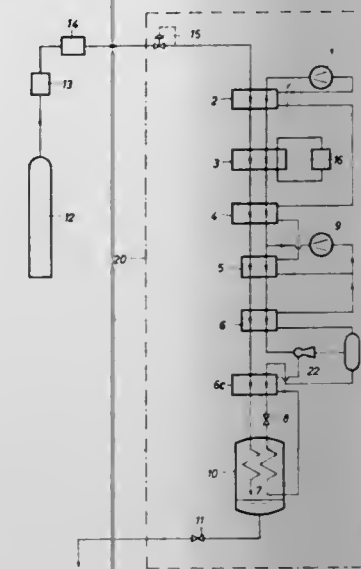
Int. Cl. F25j 1/00

U.S. Cl. 62—9

4 Claims

In a process for the liquefaction of a cryogenic gas such as helium, comprising cooling and liquefying said gas by indirect heat exchange with a refrigerant circulating in a closed refrigeration cycle, the improvement comprising conducting said heat exchange with the refrigerant from a single refrigerant cycle, said refrigerant being subjected to both en-

gine expansion and at least partially isenthalpic expansion, whereby the refrigerant is cooled sufficiently to effect



liquefaction of all the cryogenic gas in a single pass, thereby avoiding the necessity of additional compressor or purification capacity for recycled gas.

3,828,565

OFFSHORE LIQUID STORAGE FACILITY

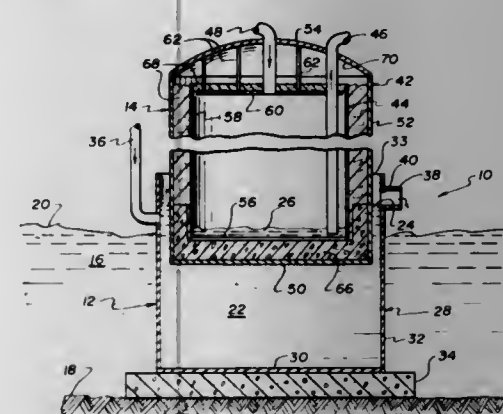
John Stanton McCabe, Naperville, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Continuation-in-part of Ser. No. 333,218, Feb. 16, 1973, abandoned. This application Sept. 28, 1973, Ser. No. 401,858

Int. Cl. F17c 1/02

U.S. Cl. 62—45

11 Claims



An offshore liquid storage facility includes a receiver tank having an open top and being mountable on the sea floor with its top above sea level, means for maintaining water or other liquid in the receiver tank at a predetermined level above sea level, a liquid storage tank received in the receiver tank and movable telescopically up and down therein, and means for alternately supplying a liquid to the storage tank for storage therein and withdrawing the liquid therefrom, whereby the storage tank is held captive in the receiver tank while water or other liquid may be maintained in the receiver tank at the predetermined level for stabilizing the facility, and variations in buoyancy during liquid withdrawal and supply are accommodated by up and down gravity movement of the storage tank in the liquid maintained in the receiver tank.

3,828,566

DRY ADSORPTION REFRIGERATION SYSTEM

Charles W. Wetzel, 2237 Oriole St., New Orleans, La. 70122

Filed Feb. 5, 1973, Ser. No. 329,821

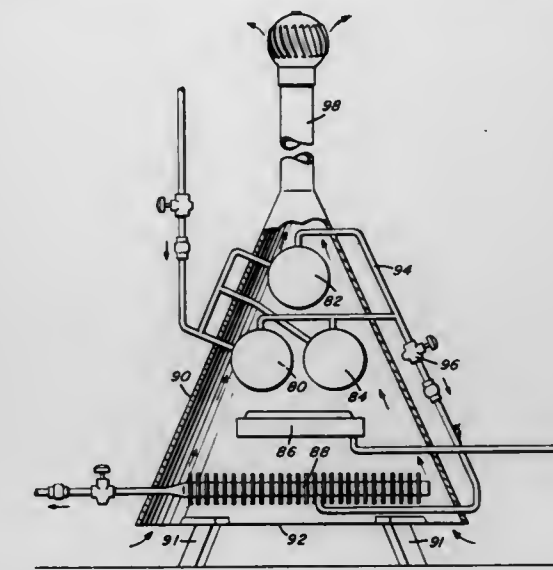
Int. Cl. F25b 17/08

U.S. Cl. 62—143

11 Claims

Dry adsorption refrigeration apparatus includes a plurality of compression/heating units packed with silica gel, a con-

denser, an expansion valve and an evaporator, which apparatus can utilize waste energy, such as internal combustion exhaust energy, to excite and operate the refrigeration cycle. The apparatus operates at temperatures and pressures approaching the critical values for the refrigerant, thereby allowing condensation to take place at ambient temperatures by natural convective currents, i.e., without fans or cooling



liquids. Convective cooling can be enhanced by arranging the apparatus in a generally conical configuration wherein the condensing coils are disposed adjacent the base of the cone and the compression/heating units are situated above the condenser coils such that ambient air enters the bottom of the cone, flows upward over the coils and units and exits through a flue opening in the apex of the cone.

3,828,567

LEVEL CONTROLLER AND LIQUID REMOVER FOR A REFRIGERATION SYSTEM

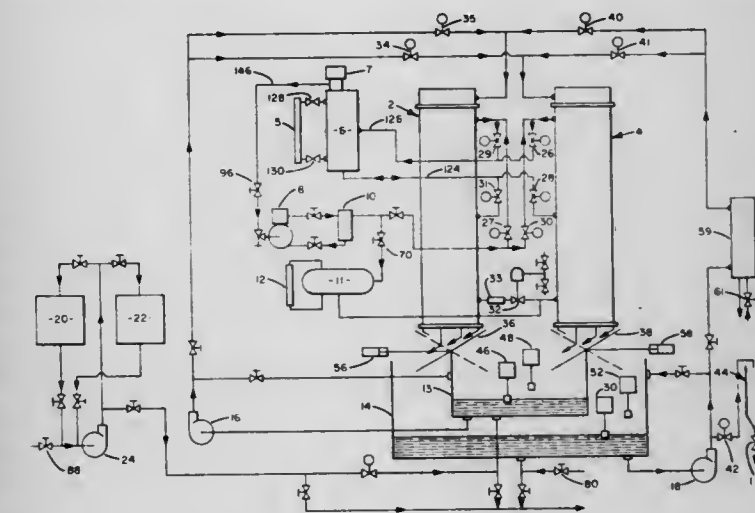
Michael Lesczynski, Chittenango, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed May 1, 1973, Ser. No. 356,277

Int. Cl. F25b 41/04

U.S. Cl. 62—160

3 Claims



An apparatus in a refrigeration circuit for removing liquid entrained in refrigerant vapor on the suction side of the compressor and for controlling the level of refrigerant in the evaporator. The apparatus includes a chamber for holding liquid refrigerant at its lower portion, and for containing refrigerant vapors above the liquid for discharge to the compressor. The level of liquid refrigerant in the chamber is maintained at the level of liquid refrigerant in the evaporator, and a valve in the refrigerant line from the condenser to the evaporator is regulated according to the liquid refrigerant level in the apparatus to maintain a predetermined refrigerant level in the evaporator.

3,828,568

ICE MAKER

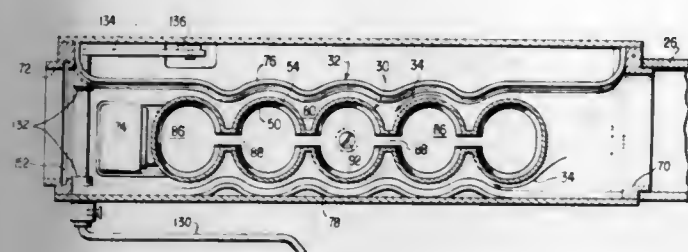
Lauren L. Frazier, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Dec. 27, 1972, Ser. No. 318,715

Int. Cl. F25c 1/06

U.S. Cl. 62-186

6 Claims



There is disclosed an icemaker for installation in a household refrigerator. An increase in ice production capability is provided by providing a cold air flow path around the exterior of the ice mold. Means can be provided to prevent cold air passage across the mold during ice harvesting.

3,828,569

AUTOMOTIVE AIR CONDITIONING SYSTEM

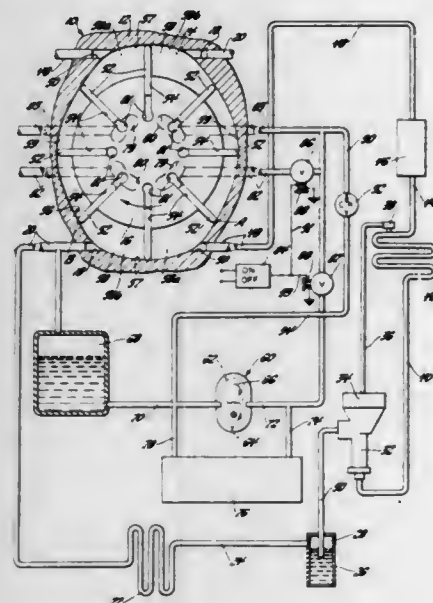
Thomas W. Weisgerber, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed July 11, 1973, Ser. No. 378,228

Int. Cl. F25b 1/00

U.S. Cl. 62-227

3 Claims



An air conditioning system including a condenser, an expansion means, an evaporator and a vane-type refrigerant compressor. The housing of the compressor encloses an oblong chamber in which a rotor member is turned. Radially extending vanes are mounted within slots in the rotor which extend across the radial space between rotor and housing. The vanes are in fluid contact with undervane control chambers. Fluid force in the control chambers is selectively applied to the vanes to press them across the radial space into engagement with the opposite wall of the compressor, whereby compression chambers are formed between adjacent vanes.

3,828,570

HEAT EXCHANGE APPARATUS

Robert C. Stutz, Kenmore, N.Y., assignor to Niagara Blower Company, Buffalo, N.Y.

Filed May 24, 1973, Ser. No. 363,515

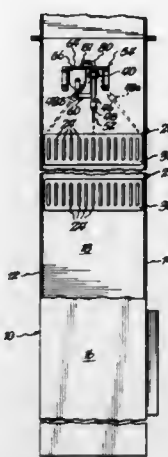
Int. Cl. F25d 21/00

U.S. Cl. 62-282

9 Claims

In cooling a gas, such as air, the finned cooling coils are flooded with a recirculated organic antifreeze medium to

prevent icing of the coils. At very low temperatures, say -40°F , this medium becomes very viscous and difficult to apply without insufficiencies in some areas and overflowing in other areas. Either condition, results in obstruction and reduction of air cooling efficiency of the finned coils. The present



invention provides moving spray nozzles applying the viscous antifreeze medium in a pattern avoiding both of these conditions. Preferably the spray nozzles are oscillated and discharge flat fan-shaped, overlapping streams. Preferably they are turbine-driven by a small by-passed part of the pressurized medium supplied to the nozzles.

3,828,571

COVER FOR MICROTOME AND ULTRAMICROTOME FREEZING CHAMBER

Gunther Lechner, Vienna, Austria, assignor to C. Reichert Optische Werke, AG, Vienna, Austria

Filed Sept. 5, 1973, Ser. No. 394,593

Claims priority, application Austria, Sept. 6, 1972, 7638/72

Int. Cl. B26d 7/08

U.S. Cl. 62-320

9 Claims



A transparent cover having a conical depression with an elliptical opening to control the passage of coolant gas from the freezing chamber of a microtome or ultramicrotome provides improved cooling with increased versatility and permits microtome techniques to be practiced heretofore not considered practical.

3,828,572

MACHINE FOR PRODUCING FROZEN CONFECTIONS

Thomas F. Calim, P.O. Box 158, Jackson Center, Ohio 45334

Filed May 2, 1973, Ser. No. 356,400

Int. Cl. F25c 7/10

U.S. Cl. 62-340

2 Claims

A machine for producing frozen confections such as ice creams or the like, wherein liquid mix is delivered from a storage tank through a freezing chamber to a draw-off valve from which the frozen mix is dispensed to cones or cups. The machine is characterized by a draw-off or dispensing valve construction that comprises relatively thin discs positioned in intimate relationship with the freezing chamber so as to main-

3,828,574

ROTARY-INJECTOR TYPE DISTRIBUTOR

Jean Louis Boy-Marcotte, Orsay; Jacques Louis Paul Simonet, Gif sur Yvette; Philippe Albert Hippolyte Marchal, Boulogne; Jean Prudent Fernand, and Rene Verrien, both of Paris, all of France, assignors to Bertin & Cie, Plaisir France and Entreprise De Recherches Et D'Activites Petrolieres Elf, Paris, both of, France

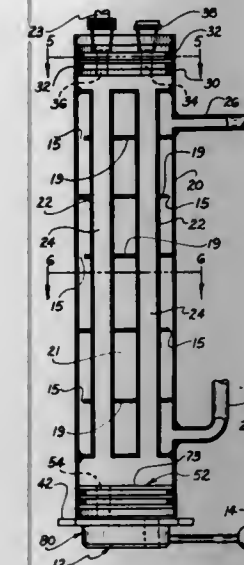
Filed Oct. 11, 1972, Ser. No. 296,643

Claims priority, application France, Oct. 15, 1971, 71.37113

Int. Cl. F25b 9/00; F16k 11/00

U.S. Cl. 62-467

7 Claims



terized by a structural arrangement that provides large volumetric discharge of frozen mix at the threshold of opening of the valve.

3,828,573

HEATING AND COOLING WHEEL

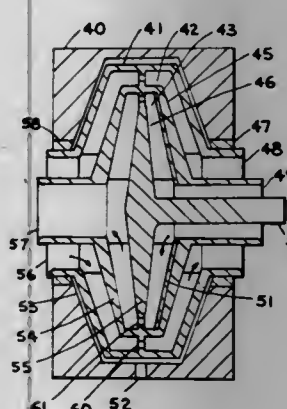
Michael Eskeli, 6220 Orchid Ln., Dallas, Tex. 75230

Continuation-in-part of Ser. No. 216,938, Jan. 11, 1972. This application June 20, 1973, Ser. No. 371,939

Int. Cl. F25b 3/00

U.S. Cl. 62-401

9 Claims



A method and apparatus for producing heating or cooling by passing two fluids in heat exchange relationship with each other within a rotating rotor wherein said fluids are compressed to a higher pressure. The first fluid is a compressible fluid, such as air, which when compressed will also have a temperature increase; the second fluid may be either a compressible fluid or may be a non-compressible fluid, which when compressed may not have a temperature raise or the temperature raise for said second fluid will be less than for said first fluid. Heat then will be transferred from said first fluid to said second fluid, so that when said fluids are discharged from said rotor, said first fluid will be at lower temperature at exit than it was at entry; also, said second fluid will leave said rotor at higher temperature than said fluid entered. For the first fluid, air or other compressible gases may be used; said air may be at ambient temperature. For said second fluid, air, water or other fluids may be used; said water or air may be at ambient or natural temperature. Said apparatus may be used for air conditioning where both fluid streams are air; also, it may be used to heat water.

3,828,575

COMPACT HEATING AND COOLING SYSTEM

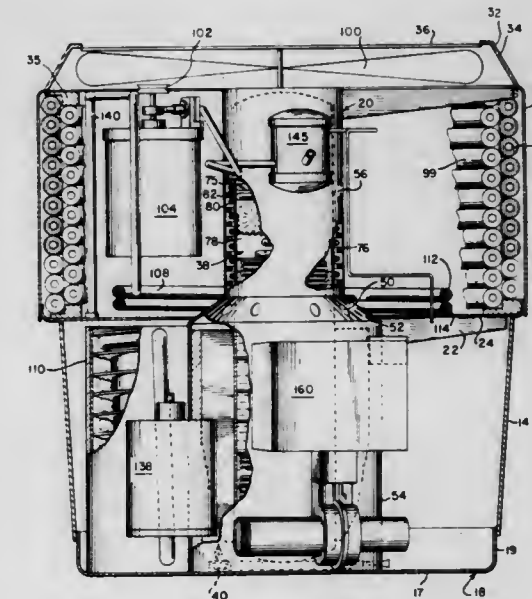
Norman D. Malcosky; Ronald H. McLean, both of Columbus; Kanwal N. Singh, Westerville, and Chung M. Auh, Columbus, all of Ohio, assignors to Columbia Gas System Service Corporation, Wilmington, Del.

Filed Apr. 13, 1973, Ser. No. 350,822

Int. Cl. F25b 15/04

U.S. Cl. 62-476

17 Claims



A compact absorption refrigeration unit has a central mounting core containing a generator about which substantially all of the components of the refrigeration system are

mounted in a predetermined configuration. The generator has heat transfer fins secured to its surface which have a predetermined configuration that allows the fins and generator to absorb heat at the optimum rate at which heat can be transferred thereto without damage to the fins. The unit also includes an evaporator having a centrally positioned reservoir and a helical passageway providing a flow path for a heat exchange medium and containing a fluted helical heat exchanger tube which provides a countercurrent refrigerant, thereby to chill said heat exchange medium. In one embodiment of the invention the unit is provided with a compact boiler for use in heating the heat exchange medium, thereby permitting the unit to be selectively operated for both heating and cooling.

3,828,576

COMBINED BOILER AND HEAT EXCHANGER FOR AN ABSORPTION REFRIGERATION UNIT OPERATING ON INDIFFERENT GAS

Hakon Eidet, Sarpsborg, Norway, assignor to K. Pettersens Sonner A/S, Sarpsborg, Norway

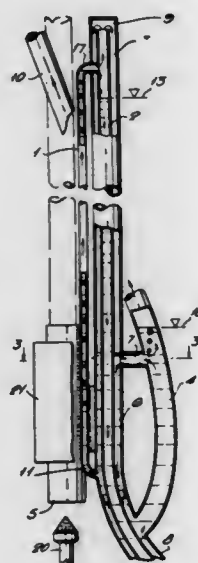
Filed Apr. 13, 1973, Ser. No. 350,786

Claims priority, application Norway, Apr. 20, 1972, 1392/72

Int. Cl. F25b 15/10

U.S. Cl. 62-490

1 Claim



A combined boiler and heat exchanger for an absorption refrigeration unit operating with indifferent gas, in which a circulation pump transports vapour admixed with liquid to a stand pipe in a vapour tube, and vapour through the vapour tube and a rectifier outside the boiler to the condenser of the unit.

3,828,577

NOSE ORNAMENT AND SACHET

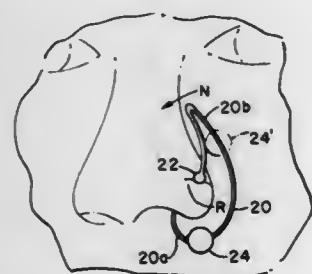
Grover Haynes, 3317 Army, San Francisco, Calif. 94110

Filed Apr. 19, 1972, Ser. No. 245,464

Int. Cl. A44c 25/00, 7/00

U.S. Cl. 63-2

7 Claims



A nose ornament mountable to an unpierced nose is provided in the form of an open loop. The ends of the loop preferably terminate in small spheres spaced apart a distance adapted to permit engagement of one of the outer nostril walls

therebetween. The bight of the loop may be formed in any desired decorative configuration. In one embodiment, an odorous element or sachet is carried on the bight of the nose ornament and thereby suspended adjacent the wearer's nostril.

3,828,578

U-JOINT LUBRICATION SPIDER

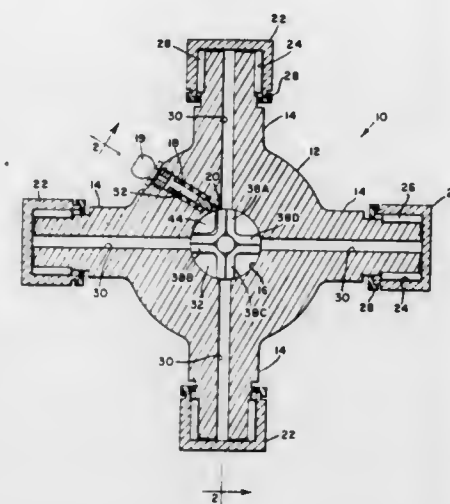
Saul Herscovici, Waterloo, Iowa, assignor to Deere & Company, Moline, Ill.

Filed May 10, 1973, Ser. No. 359,206

Int. Cl. F16n 7/36

U.S. Cl. 64-17 A

5 Claims



A universal joint spider includes a central recess which is in communication with bearing chambers contained on the outer end of each of the pins of the spider. Received in the recess is a lubrication selection member which is automatically movable to successively place individual bearing chambers in fluid communication with a grease inlet port so that the bearing chambers can be individually greased.

3,828,579

CENTRIFUGAL MECHANISM

Walter Joseph Groom, Sutton Coldfield, England, assignor to Joseph Lucas (Electrical) Limited, Birmingham, England

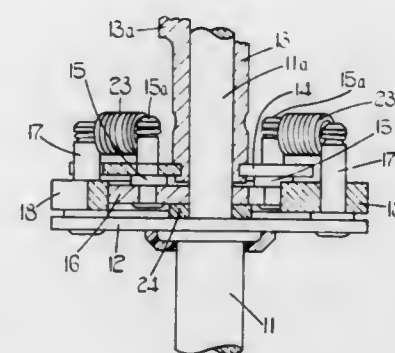
Filed Jan. 15, 1973, Ser. No. 323,531

Claims priority, application Great Britain, Jan. 15, 1972, 2021/72

Int. Cl. F16d 5/00

U.S. Cl. 64-25

2 Claims



A centrifugal mechanism, for an internal combustion engine ignition distributor, includes a driven shaft and a cam shaft coupled to the driven shaft and having its axis coextensive with the driven shaft axis. Secured to the cam shaft is a first plate, and secured to the driven shaft is a second plate generally parallel with the first plate. A control weight is pivotally mounted on the second plate for movement about an axis parallel to the axis of the driven shaft and the control weight engages a cam carried by the first plate. Positioned between the first and second plates is a moulded synthetic

resin spacer which maintains the first and second plates spaced apart by predetermined distance. In addition, the spacer is engaged by the control weight in the rest position of the weight.

3,828,580

COUPLING CONSTRUCTION

Gerhard Armbruster, Stuttgart, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany

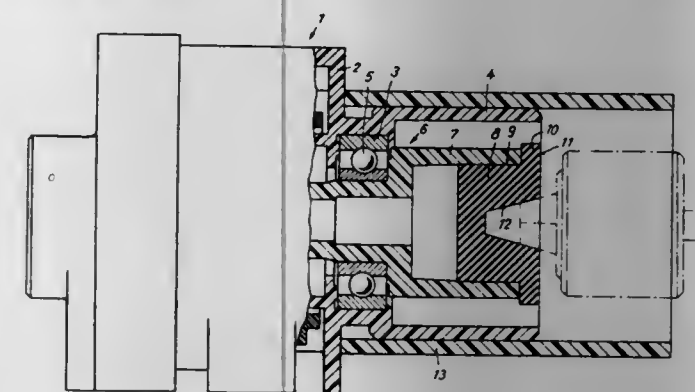
Continuation of Ser. No. 139,612, May 3, 1971, abandoned.

This application June 21, 1973, Ser. No. 372,407

Int. Cl. F16d 7/02

U.S. Cl. 64-30 A

6 Claims



An attachment for transmitting power between a motor-driven tool and an auxiliary tool has a rotary shaft one end portion of which is drivingly connectable with an auxiliary tool and the other end portion of which carries a coupling member of elastomeric material. An end face of the coupling member extends transversely of the axis of rotation of the shaft and is provided with a conical recess into which a rotary component of a motor-driven tool can be inserted so that, when axial pressure is exerted, the rotary component will frictionally engage and transmit power to the coupling member and via the same to the shaft.

3,828,581

APPARATUS FOR POSITIONING JACKS IN SLOTTED PATTERN WHEEL RINGS ACCORDING TO A PREDETERMINED PATTERN

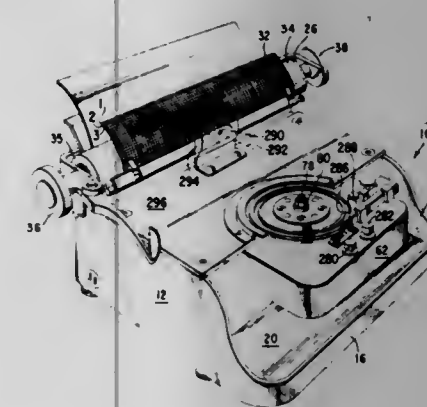
Lester Mishcon, Miami Beach, and Donald W. Reagan, Hialeah, both of Fla., assignors to The Singer Company, New York, N.Y.

Filed Sept. 15, 1972, Ser. No. 289,393

Int. Cl. D04b 37/04

U.S. Cl. 66-1 R

9 Claims



A carriage is provided to carry a paper, card or the like on which a jack position is indicated for each of the slots of pattern wheels to be used in knitting a patterned cloth. Indexing movements are imparted to the carriage (or to a marker or pointer) to successively align consecutive jack indications for a selected wheel with the marker or pointer and also to a rotatably mounted pattern wheel ring in which, jacks are to be

set, to consecutively register successive slots of the ring with a jack actuator, the indexing movements being so controlled that each indexing movement of the carriage (or marker or pointer) is accompanied by an indexing movement of the ring, and the jack actuator may be operated according to the indications in alignment with the pointer or marker to set jacks in the wheel.

3,828,582

IMPROVED KNITTING MACHINE EQUIPPED WITH TWO PART NEEDLES

Albert Henry Widdowson, and George William Wells, both of Leicester, England, assignors to Wildt Mellor Bromley Limited, Leicester, England

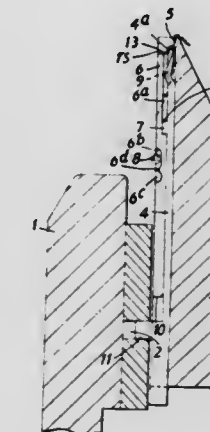
Filed Aug. 11, 1972, Ser. No. 279,794

Claims priority, application Great Britain, Aug. 28, 1971, 40456/71

Int. Cl. D04b 9/12

U.S. Cl. 66-13

15 Claims



A knitting machine equipped with two-part needles each having a latchless hooked element and a relatively slidable loop-controlling element having a loop retaining shoulder and a point for closing the hook. The hooked element has only one operating butt co-operable with cams of a single cam track. The two elements have abutments for contact with one another to effect movements of the elements together in both directions. Provision is made for lost motion between the elements. The stem of the loop-controlling element of each needle is formed for engagement with means in the machine for holding or restricting movements of the loop-controlling elements at required times.

3,828,583

DEVICE FOR STORING PRE-SELECTED PATTERNS FOR CIRCULAR KNITTING MACHINES HAVING A PLURALITY OF SYSTEMS

Gerhard Hamma, Spaichingen, Wurttemberg, Germany, assignor to Maschinenfabrik Spaichingen GmbH, Spaichingen/Wuertt, Germany

Filed May 1, 1972, Ser. No. 249,056

Claims priority, application Germany, May 10, 1971, 2122912

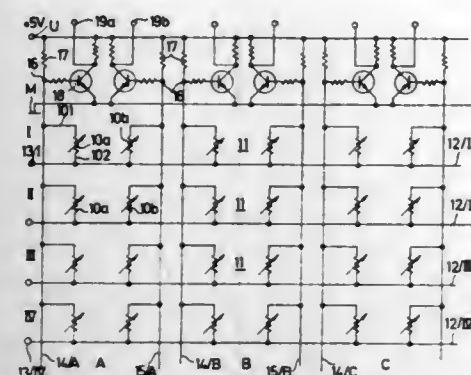
Int. Cl. D04b 15/78

U.S. Cl. 66-50 R

6 Claims

A device for storing preselected patterns for circular knitting machines. The device includes a peg board having openings for receiving differently shaped pegs for each loop of a knitted pattern. The peg board is matrix-like having rows and columns of peg-receiving openings arranged according to loop rows and rods. Each peg-receiving opening has at least

one resistance which is dependent on its corresponding magnetic field, and which is located in the electronic circuit



switching circuit and the magnetic trans-flux of which can be influenced by a peg-like control member which can be inserted in the peg-receiving opening.

3,828,584

SINKER CAP WITH ACCESS SLOT

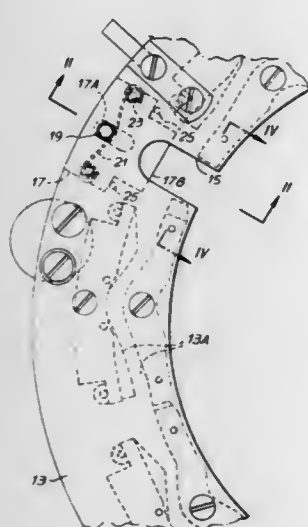
Massimo Bianchi, and Gianni Conti, both of Firenze, Italy, assignors to Billi S.p.A., Firenze, Italy

Filed Aug. 8, 1972, Ser. No. 278,726

Int. Cl. D04b 15/06

U.S. Cl. 66—107

2 Claims



A radially elongated access slot extends vertically through an otherwise conventional sinker cap to permit easy withdrawal and replacement of damaged sinkers positioned under the slot without disassembly of machine elements. A retainer plate, resiliently urged in a centripetal direction and slidably attached to the underside of the sinker cap, extends into the area beneath the access slot and provides a stop means limiting centrifugal movement of sinkers and thus prevents inadvertent removal or displacement of sinkers during operation of the machine.

3,828,585

DENIM SOCK AND METHOD OF KNITTING SAME

James L. Thorneburg, Statesville, N.C., assignor to Thorneburg Hosiery Mills, Inc., Statesville, N.C.

Filed Nov. 13, 1972, Ser. No. 305,849

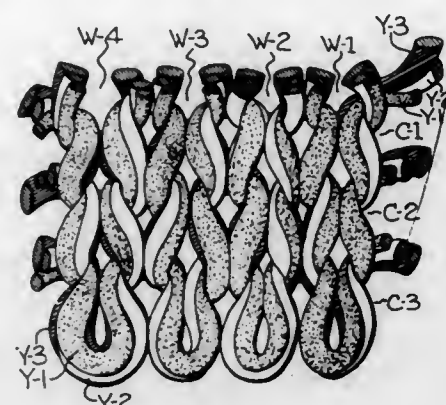
Int. Cl. D04b 9/34, 9/46

U.S. Cl. 66—136

9 Claims

Three yarns are knit in plated relationship throughout the major portion of at least the leg of the sock with the first of the yarns being positioned predominantly on the outside, the third of the yarns being positioned predominantly on the inside and the second of the yarns being normally positioned between the first and third yarns but appearing on the outer surface of the sock in portions of irregularly spaced stitch loops to provide a

variegated pattern resembling denim. The second yarn is of a different color than the first yarn and is approximately one and one-half times as large as the first yarn while the third yarn is approximately twice as large as the second yarn. The tension and feeding positions of the three yarns are controlled to



maintain the three yarns in plated relationship with the first yarn on top of the second yarn but the relatively thin or smaller first yarn will not always stay on top of the larger second yarn so that the second yarn is irregularly exposed as it moves from one side to the other of the smaller first yarn to produce the variegated pattern resembling denim.

3,828,586

TENSION BAR FOR WARP KNITTING MACHINE

Karl Kohl, 10 Chlorodont Strasse, Obertshausen, Germany (6053)

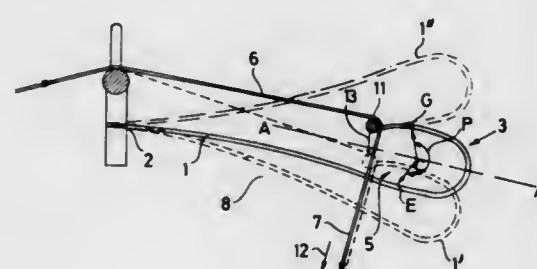
Filed Mar. 15, 1973, Ser. No. 341,629

Claims priority, application Germany, Mar. 15, 1972, 2212478

Int. Cl. D04b 15/44, 27/12, 27/14

U.S. Cl. 66—146

3 Claims



There is provided a novel form of tension bar for permitting directional change of threads in a warp knitting machine. The novel device comprises substantially of a rigid bar, plurality of substantially J-shaped springs wherein the short end of the "J" spring is attached to the carrier bar and means for anchoring the "J" springs so that the shafts thereof lie in a substantially common plane to which the axis of the carrier bar is parallel.

3,828,587

FABRIC TREATMENT APPARATUS

William J. Holm, Springfield, Vt., assignor to Riggs & Lombard, Inc., Lowell, Mass.

Filed Apr. 3, 1972, Ser. No. 240,602

Int. Cl. B05c 5/00

U.S. Cl. 68—3 SS

6 Claims

A running fabric web is fed in flat tubular or openwidth form by means of an openwork conveyor belt below a battery of spray bars which apply a liquid such as a scouring solvent onto the fabric. The spray bars are provided with arcuate baffles which convert a spray discharge into a continuous sheet of liquid which pours onto the web. Excess liquid is then removed by a suction box disposed under the belt. A pair of tapered curtains trails along the top of the belt on either side

thereof to cover the suction box slot beyond the edges of the fabric which forces the suction action through the fabric. The curtains are wound on a reefing roller by which the curtains

withdrawn axially of the drum to blank off or open up perforations in the drum. Preferably the sleeve is of telescopic form and barrier means are provided to control the flow of treat-



may be selectively extended or retracted according to the width of the fabric being processed. The fabric is then delivered through a drying chamber where the material is dried and the excess solvent is recovered.

3,828,588

WIG CLEANING DEVICE

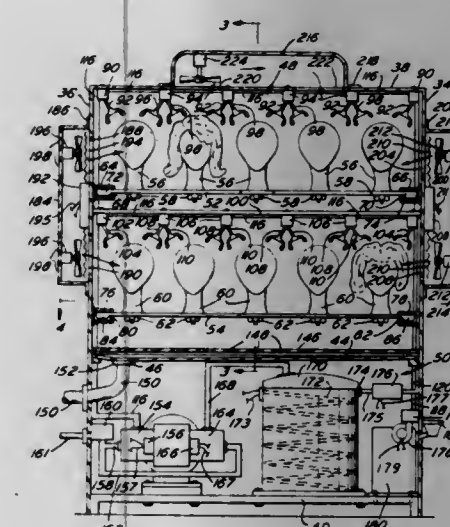
Theodore Duncan, 902 Burnside Rd., Sharon Hill, Pa. 19079

Filed Nov. 10, 1972, Ser. No. 305,628

Int. Cl. B05b 13/04

U.S. Cl. 68—5 C

10 Claims



A wig treatment machine including a wig treatment chamber. A pair of wig holding shelves is disposed within the chamber. Each shelf includes plural wig holding forms mounted thereon. A plurality of rotatable spray heads is provided in the chamber adjacent the wig forms. The machine also includes means for providing shampoo, water and a conditioning mist to the spray heads. The machine also includes means for drying the wigs within the chamber.

3,828,589

MACHINERY FOR TREATING TEXTILES IN SHEET FORM WITH A FLUID MEDIUM

Robert Alan Collinge, Rochdale, England, assignor to F. Smith & Co. (Whitworth) Limited Great Britain

Filed Oct. 26, 1972, Ser. No. 301,180

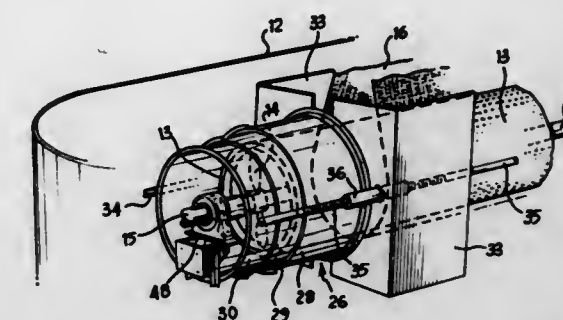
Claims priority, application Great Britain, Oct. 30, 1971, 50563/71

Int. Cl. B05c 3/132

U.S. Cl. 68—158

4 Claims

The machinery comprises a rotatable perforated drum with an impeller inside the drum to cause a fluid to pass through the perforations and through a textile web on the drum to treat the web, such as cleaning it. In order to deal efficiently with webs of varying widths in a simple manner an adjustable shroud is provided in the form of a sleeve which can be extended and



ment fluid to resist any tendency for the web to lift, at its edges, from the drum and to flatten edge curl on textile webs arriving at the drum.

3,828,590

WHEEL CLAMP

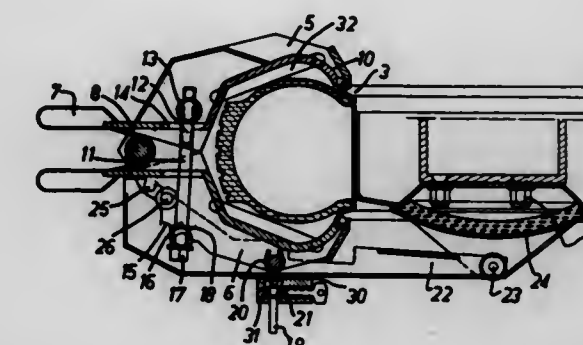
Robert Thiebault, Paris, France, assignor to Prefecture De Police

Filed Jan. 27, 1972, Ser. No. 221,290

Int. Cl. E05b 73/00

U.S. Cl. 70—19

2 Claims



A clamp for positively holding a motor vehicle, notably in case of infringement of traffic regulations, by gripping a wheel thereof, which comprises essentially a pair of inner and outer jaws formed with handle extensions and having an arm pivotally mounted to the outer jaw, for carrying the wheel hub covering means and prevent the removal of the wheel nuts, a screw-threaded rod pivoted to the outer jaw and engaged by a nut, an aperture in said arm and a slot extension of said diameter greater than said rod but smaller than said nut, whereby the arm can be tightened between said outer jaw and said nut when said arm is moved perpendicularly to said rod, and safety lock means pivotally mounted and adapted in their locked position to cover the aforesaid aperture and slot. (FIG. 2).

3,828,591

LOCK ASSEMBLY

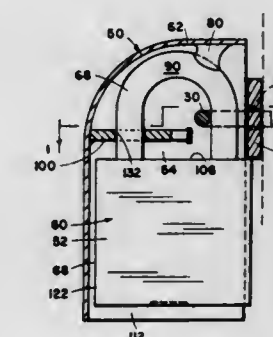
Commodore E. Beaver, Council Bluffs, Iowa

Filed Aug. 14, 1972, Ser. No. 280,550

Int. Cl. E05b 67/38

U.S. Cl. 70—56

6 Claims



A guarded lock assembly in which a guard surrounds three sides of a padlock and is attached to its shackle, the assembly

having a combination rib and barrier interconnecting the sides of a guard to prevent them from being pried apart by a crow-bar.

3,828,592

ROLLING BOLT LOCK

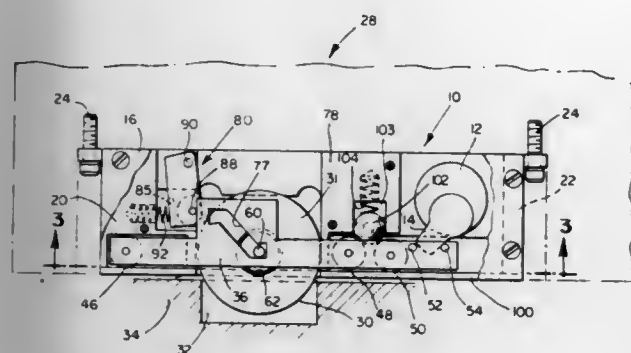
William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Filed Jan. 22, 1973, Ser. No. 325,607

Int. Cl. E05b 65/06; E05c 1/06

U.S. Cl. 70-134

10 Claims



A lock has a cylindrical bolt rotatable about its axis which is advanced and retracted in a plane transverse to its axis by a slide mechanism operable in a direction transverse to the direction of movement of said bolt along the path of advancement and retraction. The slide mechanism coacts with the axial mounting means of the bolt to prevent jimmying of the lock.

3,828,593

ANTI-THEFT DEVICE FOR VEHICLES

Robert Benjamin Bolton, 14, Middle Dr., Ponteland, England

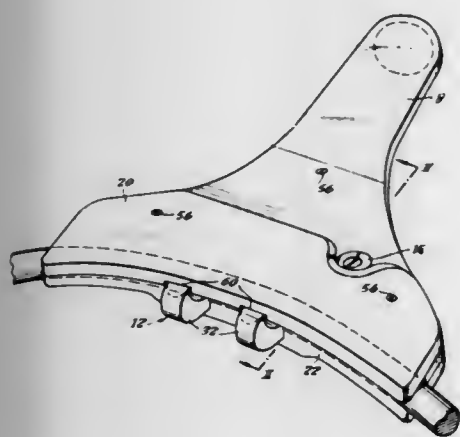
Filed Mar. 19, 1973, Ser. No. 342,624

Claims priority, application Great Britain, Mar. 24, 1972, 14005/72

Int. Cl. B60r 25/02

U.S. Cl. 70-209

6 Claims



A device for holding the steering wheel of a vehicle against rotation is arranged to grip a sector of the wheel, and has a projecting element which abuts against part of the vehicle if any attempt is made to turn the wheel sufficiently to enable the vehicle to be driven. The device has a channel to receive the steering wheel sector, which is held therein by retaining means which is movable towards and away from the channel, and which can be locked in a retaining position by suitable locking means, but is releasable so that the device may be removed from the wheel and from the vehicle.

3,828,594 LOCKING DEVICE FOR A MOTOR VEHICLE STEERING MECHANISM

Yukio Yamamoto, Ohmiya, Japan, assignor to Nissan Motor Company, Limited, Yokohama and Kanto Seiki Company, Limited, Ohmiya, Saltama Prefecture, both of, Japan

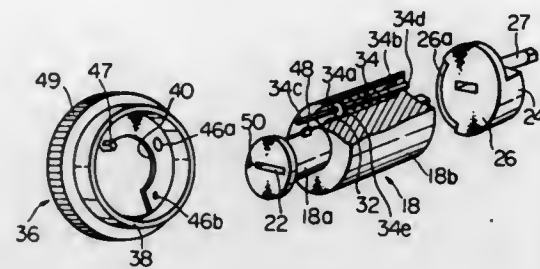
Filed May 21, 1973, Ser. No. 362,298

Claims priority, application Japan, May 31, 1972, 47-53957

Int. Cl. B60r 25/04

U.S. Cl. 70-252

19 Claims



A key operated mechanism with one locked position and at least one unlocked position, by which it is not possible to return from an unlocked position to a locked position using the key until a mechanical member is actuated, all operations capable of being performed with one hand.

3,828,595

KEY HOLDER

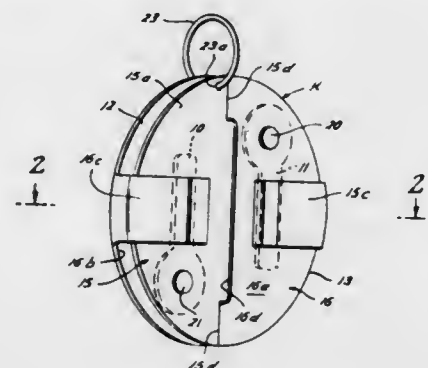
Donzle W. Williams, Jr., 4126 Drake, Houston, Tex. 77005

Filed Sept. 1, 1972, Ser. No. 285,874

Int. Cl. A47g 29/10

U.S. Cl. 70-457

6 Claims



A multi-compartment key holder including a plurality of sheets of flexible material that cooperate to form first and second key holding compartments, a key holder mounted in each compartment; and, connecting means connecting the compartments together to form a multi-compartment key holder that is easily and conveniently confined to a pocket, purse or the like. In one aspect of the invention, releasable means allow the first and second compartments to be released from connection to each other to provide separate key holding units.

3,828,596

AUTOMATIC CONTROL SYSTEM FOR DRAW-FORMING WITH VIBRATORY ENERGY

Genichi Usui, Zushi, and Isamu Komine, Yokohama, both of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 17, 1973, Ser. No. 324,416

Claims priority, application Japan, Dec. 29, 1971, 46-1324

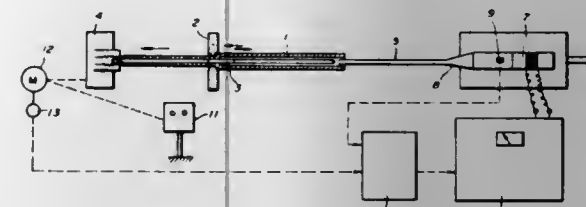
Int. Cl. B21c 3/00

U.S. Cl. 72-8

4 Claims

In a tube-drawing system employing vibratory energy, many difficulties appear as a diameter of said tube, e.g. a chattering

mark or a seizure on the surface of said tube, which is based on local friction heat. These phenomena are avoided by an au-



tomatic control of which the ratio of amplitude of vibrating energy to tube-drawing speed is adjusted to be in a suitable range of from 1.6 to 11.0.

3,828,597

GEAR WORKING TOOL

Herbert Loos, Munich, Germany, assignor to Carl Hurth Maschinen-und Zahnradfabrik, Munich, Germany

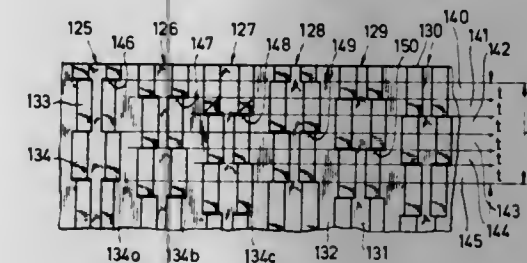
Filed Jan. 18, 1973, Ser. No. 324,846

Claims priority, application Germany, Jan. 22, 1972, 2203098

Int. Cl. B21h 5/02

U.S. Cl. 72-102

4 Claims



A gear or rack-shaped tool is provided with serrated teeth wherein the serrations extend from the addendum to the dedendum of the teeth in any given tooth surface. The serrations define ribs which are of such width and so arranged that throughout the effective width of the tool the ribs in any plane normal to the tool axis and taken around the full circumference thereof will total an area equal to the corresponding area of the ribs in any other such plane. In the illustrated embodiments this is accomplished by providing ribs and grooves which are arranged on circumferentially successive teeth in a manner axially offset with respect to one another and wherein (a) said offsetting is such that the edges of ribs on circumferentially spaced teeth are at least substantially coplanar with respect to each other, (b) the magnitude of such offsetting is a sub-multiple of the combined width of a serration and a rib, preferably, (c) said offsetting is of a magnitude which is a sub-multiple of the axial dimension of said ribs. Further, all of said ribs in such embodiments are of equal dimension in an axial direction with respect to each other, all of said serrations are of equal dimensions in an axial direction with respect to each other, and the serrations themselves are of a dimension in axial direction which is equal to the corresponding dimension of the ribs. In one illustrated embodiment, the edges of adjacent ribs on successive teeth form a helical curve circumferentially around a tool whereas in the other illustrated embodiment ribs which are on teeth circumferentially spaced by two or more tooth positions are helically aligned and the corresponding ribs on intervening teeth define similar axially spaced helical lines. Of course, where the tool is a rack instead of a gear, then the lines above referred to as helical become angling lines across the width of the rack. Thus, the several ribs will bear upon each element of each workpiece tooth an equal number of times and, insofar as possible within the tolerances at which the workpiece is machined without either gap or overlapping.

3,828,598 WRAPPING ROLL ADJUSTMENT FOR A STRIP COILING MACHINE

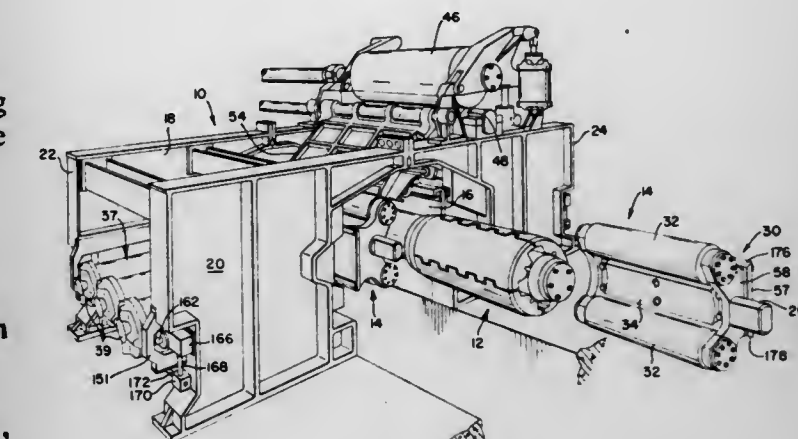
John Gross, Salem, Ohio, assignor to Gulf & Western Manufacturing Company, New York, N.Y.

Filed May 7, 1973, Ser. No. 357,806

Int. Cl. B21c 47/00

U.S. Cl. 72-148

19 Claims



A strip coiling machine is disclosed comprising a frame, a mandrel rotatably supported for receiving sheet metal to be coiled thereon, and pairs of rotatable wrapper rolls parallel to the mandrel and cooperable therewith to form the initial wraps of a coil of sheet metal on the mandrel. Each pair of wrapper rolls is supported by a carriage movable transversely of the mandrel axis, and the wrapper rolls each have opposite ends independently supported with respect to the corresponding carriage for adjustment of the position of the opposite ends of the wrapper roll relative to the mandrel. The adjustable support provides for aligning, or intentionally misaligning the mandrel and wrapper roll axes. The mechanism further includes apron members mounted on the carriage and pivotal relative to the mandrel for cooperation with the wrapper rolls and mandrel to form the initial wraps of a coil. The pivot axes of the aprons are adjustable relative to the corresponding carriage to provide for adjustment of the apron face relative to the outer surface of the mandrel.

3,828,599

APPARATUS AND METHOD FOR LEVELING METAL STRIP

David A. Withrow, Willoughby, Ohio, assignor to Production Machinery Corporation, Mentor, Ohio

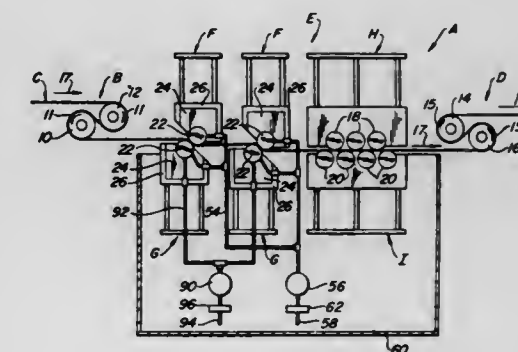
Continuation of Ser. No. 196,985, Nov. 9, 1971, abandoned.

This application Aug. 27, 1973, Ser. No. 391,559

Int. Cl. B21d 1/05

U.S. Cl. 72-163

3 Claims



An apparatus and method for leveling elongated metal strip includes pulling means for pulling the strip under tension in a longitudinal direction and flexing means for imparting flexing forces to the strip. The flexing means includes fluid pressure means for producing the flexing forces.

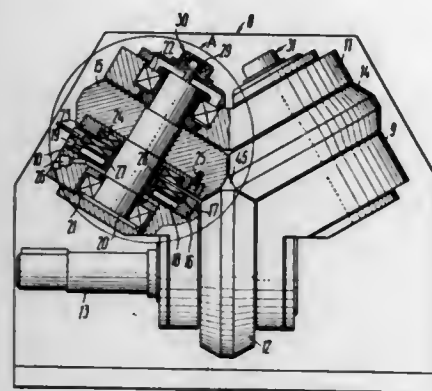
3,828,600 ROLL STAND

Gleb Pavlovich Borisenko, ploschad Oktyabrskaya, 7, kv. 28; Jury Sergeevich Chernobryvenko, ulitsa Dzerzhinskogo, 16, kv. 7; Jury Kutsov, ulitsa Kirova 8, kv. 9; Arkady Alexeevich Gorbanev, ulitsa Serova 1a, kv. 4; Oleg Nikolaevich Kukushkin, ulitsa Suvorova 13, kv. 21; Vladimir Nikolaevich Krivobokov, ulitsa G. Pushkina; Grigory Gavrilovich Pobegailo, pereulok Urtskogo, 11, kv. 3, and Vitaly Dmitrievich Nashivanko, ulitsa G. Pushkina, 1b, kv. 57, all of Dnepropetrovsk, U.S.S.R.

Filed June 11, 1973, Ser. No. 368,575
Int. Cl. B21b 35/00

U.S. Cl. 72-249

7 Claims



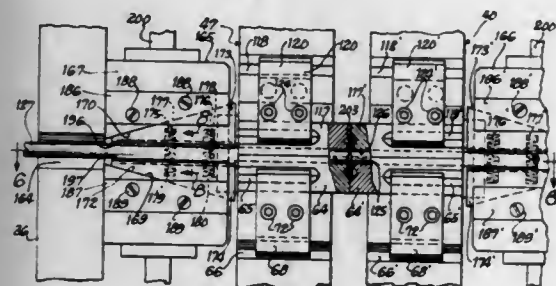
The roll stand comprises a frame with pads housing one drive working roll connected to a drive and adapted to deform a bar being rolled, and idle rolls connected to drives to be accelerated and to synchronize the rates of rotation thereof with that of the drive working roll. The drives designed to accelerate and synchronize idle rolls are fashioned as combined flange-type non-contact electric motors having armatures which are mounted on the axles of idle rolls, and the stator windings are mounted in the pads of the roll stand, the stator windings of the drives being connected to a.c. supply sources. The present invention has as its objective to increase the speed of rolling of the stand and decrease of its over-all dimensions and weight.

3,828,601 METHOD AND APPARATUS FOR PRODUCING A FINISHED JOINT BETWEEN ENDS OF WIRES, RODS AND THE LIKE

Alfred H. Tessmann, 13761 Joyce Dr., Largo, Fla. 33540
Continuation of Ser. No. 259,495, June 5, 1972, abandoned.
This application July 19, 1973, Ser. No. 380,575
Int. Cl. B21f 15/08

U.S. Cl. 72-334

21 Claims



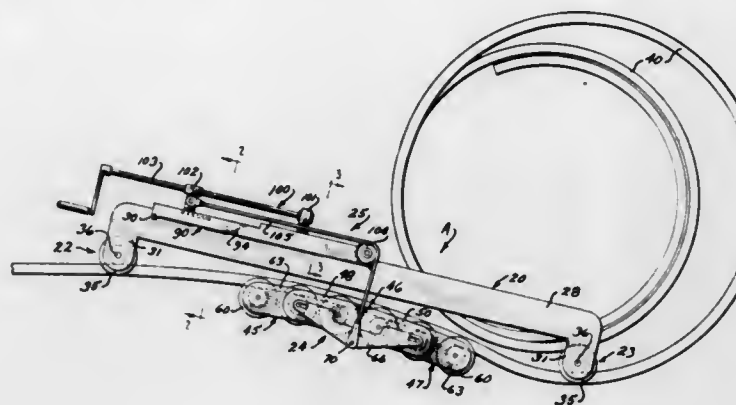
A method and apparatus for producing a finished joint between the ends of wires or rods of like material and sectional size and shape by completely upsetting joined workpieces, thereby to thoroughly remove all heat-affected metal and to effect the establishment of bonds having properties or characteristics which equal or exceed those of the parent material, and which, as completed by the method and apparatus, preserve the uniformity of size, shape and smooth

finish of the wires or rods at and adjacent the joint without added manual operations, and to the extent required to avoid having the joint interfere with further operations, such as coating, twisting into cable, insulating or further drawing of the wire or rod.

3,828,602 ASSEMBLAGE FOR FORMING AND STRAIGHTENING George L. Leithiser, R.D. No. 3, York, Pa. 17404 Filed Mar. 5, 1973, Ser. No. 337,986 Int. Cl. B21d 5/02

U.S. Cl. 72-383

6 Claims

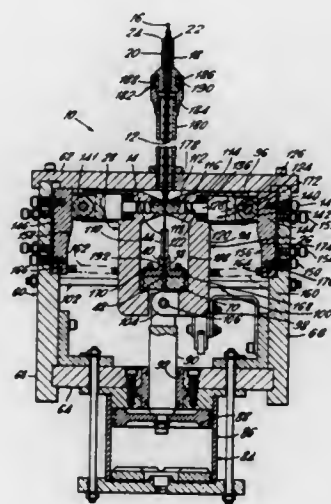


An assemblage for forming and straightening elongated articles in which the primary forming and straightening force is exerted through an elongated articulated member defining a relatively elongated segment engageable with a portion of the elongated article, such segment extending axially of the elongated article engaged thereby and being selectively generative from a linear configuration and through various arcuate configurations from one having an infinite radius to one forming a tangent arc at the apex of engagement thereof with the elongated article.

3,828,603 RIVETING APPARATUS David John Sheffield, St. Albans; Paul Edward Prosser, Hemel Hempstead, and Bernard William Charman, Weybridge, all of England, assignors to Aerpat A.G., Zug, Switzerland Filed May 26, 1972, Ser. No. 257,200 Int. Cl. B21j 15/18

U.S. Cl. 72-391

32 Claims



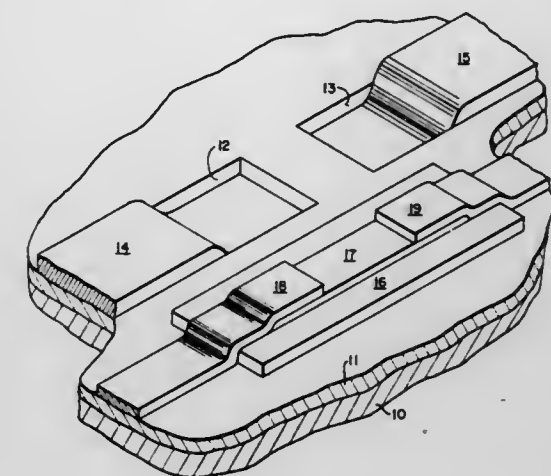
Riveting apparatus which, when actuated, automatically performs a cycle of operations including supplying a tubular rivet to a setting station and setting the rivet, is of the kind comprising an elongate mandrel having an enlarged head at its forward end, and pulling jaws for holding and pulling the mandrel rearwardly to draw the enlarged head through the rivet

3,828,606 METHOD FOR DETERMINING THERMAL FATIGUE OF ELECTRONIC COMPONENTS Allan Roy Wolter, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Dec. 6, 1972, Ser. No. 312,482
Int. Cl. G01n 25/00

U.S. Cl. 73-15 R

15 Claims



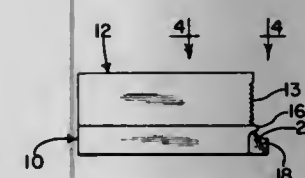
A method for determining thermal fatigue of electronic circuits and parts therefor includes the use of a thin-film thermal strain gage made from metals including metal alloys which are deposited on a preselected substrate by vacuum evaporation, sputtering, co-evaporation or similar techniques. The substrate material is selected in relation to the resistor gage material in such a manner as to create a predetermined mismatch of thermal expansion coefficient. The resistivity of the gage is responsive to a spectrum of temperature changes and reveals the progress toward ultimate failure of the circuit. The gage may take the form of a narrow strip-like assembly which is arranged immediately adjacent to an electronic device, component or other parts subject to failure due to thermal fatigue.

3,828,604 METHOD AND APPARATUS FOR FORMING TIPS OF SCREWS Orville Allen Shelton, Elgin, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed June 8, 1973, Ser. No. 368,409
Int. Cl. B21h 3/06

U.S. Cl. 72-469

6 Claims

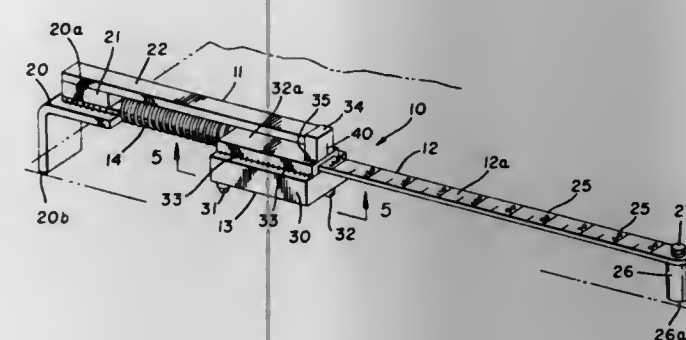


The invention is directed to a method of forming a tip on a fastener through the use of thread rolling dies in which the tip portion of the blank is first deformed at a point axially above the extremity to start the metal flowing or to achieve a state of plasticity followed by swaging the tip portion upwardly and inwardly to achieve the desired point configuration.

3,828,605 SURFACE FRICTION ANALYZER Charles Fazekas, Charlotte, N.C., assignor to Elias Productions Incorporated, Akron, Ohio Filed Apr. 6, 1973, Ser. No. 348,491 Int. Cl. G01n 19/02

U.S. Cl. 73-9

5 Claims



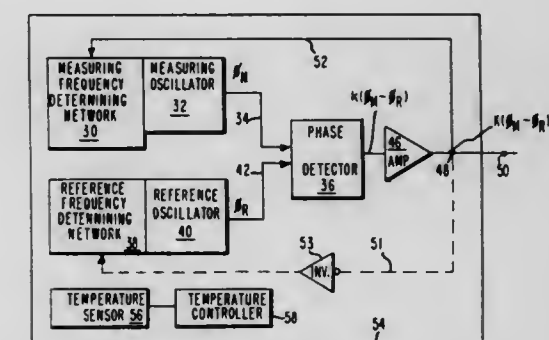
A device and a method of utilizing the device to obtain frictional uniformity on selected surfaces, such as a bowling lane, with the apparatus including a lightweight frame member having a spring-urged carriage movable across a scale indicia to measure the friction in the particular localized area being tested, with the carriage member having friction means in the form of a rubber glider provided thereon for engagement with the floor surface. The device contemplates establishing uniformity in bowling lane conditions, for example, by establishing a master friction standard so that testing of an individual lane will reveal the presence of either too much or too little friction, thus permitting the lane to be treated to comply with the preferred standard.

3,828,607 PHASE LOCK DETECTION AND CONTROL FOR PIEZOELECTRIC FLUID ANALYZERS Dennis W. Janzen, and Curtis G. Dell, both of Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 24, 1973, Ser. No. 326,239
Int. Cl. G01n 31/06

U.S. Cl. 73-23

5 Claims



Phase lock detector for an analyzer employing piezoelectric elements in electrical circuits. In general the piezoelectric elements differentially absorb a particular constituent in an analyzed fluid. This weight change of the crystal induces a change in the oscillator circuit containing this piezoelectric element. A phase detector detects the resultant phase change between the electrical circuits containing the piezoelectric elements, and provides a measurement of the amount of the

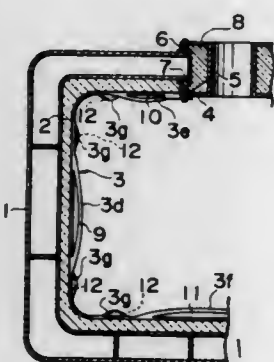
particular substance sorbed and, thus, within the fluid. The phase detector output also feeds back to one or more of the electrical circuits and forces them to oscillate at the same frequency.

3,828,608
METHOD OF HYDRAULICALLY TESTING LOW TEMPERATURE LIQUEFIED GAS TANK OF A MEMBRANE TYPE

Katsuro Yamamoto, Tokyo, Japan, assignor to Bridgestone Liquefied Gas Company, Ltd., Tokyo, Japan
Filed Oct. 17, 1972, Ser. No. 298,407
Claims priority, application Japan, Dec. 20, 1971, 47-83791
Int. Cl. G01m 3/02

U.S. Cl. 73-37

3 Claims



A method of hydraulically testing low temperature liquefied gas tanks of a membrane type, said tank comprising a rigid outer vessel, a heat insulating intermediate layer and an inner membranous vessel, wherein said inner membranous vessel is of an angular shape including substantially flat portions and curved edge and corner portions and is adapted to be smoothly supported by the inside surface of the heat insulating intermediate layer under contraction due to low temperature as well as expansion by internal pressure when the inner vessel is loaded with low temperature liquefied gases, though the inner vessel is formed as over-sized at atmospheric temperature than a space defined by the inside surface of the heat insulating layer in consideration of said contraction, the method being characterized by positively supporting said flat portions of the inner vessel in an expanded condition when the inner vessel is filled with water at atmospheric temperature so that no wrinkling due to margins for said contraction is formed at the time of hydraulic test executed at atmospheric temperature.

3,828,609
TUBE INSPECTION SYSTEM WITH INTERLACED SCANNING

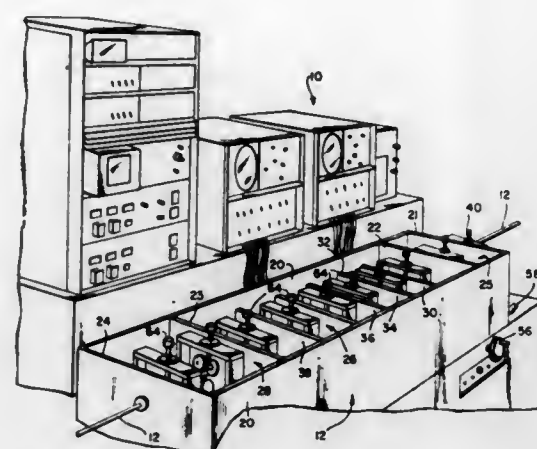
Leon D. Furon, Woodland Hills; John A. Robinson, Chatsworth, both of Calif., and Jack E. Menick, Wilmington, N.C., assignors to Automation Industries, Inc., Los Angeles, Calif., by said Furon and Robinson
Filed Sept. 5, 1972, Ser. No. 286,150
Int. Cl. G01n 29/04

U.S. Cl. 73-67.8 S

3 Claims

An ultrasonic nondestructive testing system is disclosed herein for inspecting elongated workpieces such as tubing at high rates of speed by means of an interlaced scanning system.

The interlaced scanning system insures the entire volume of the workpiece being scanned at a variety of different angles



and in a plurality of different overlapping and interlaced scan patterns whereby a high speed inspection of the entire volume of the workpiece is possible.

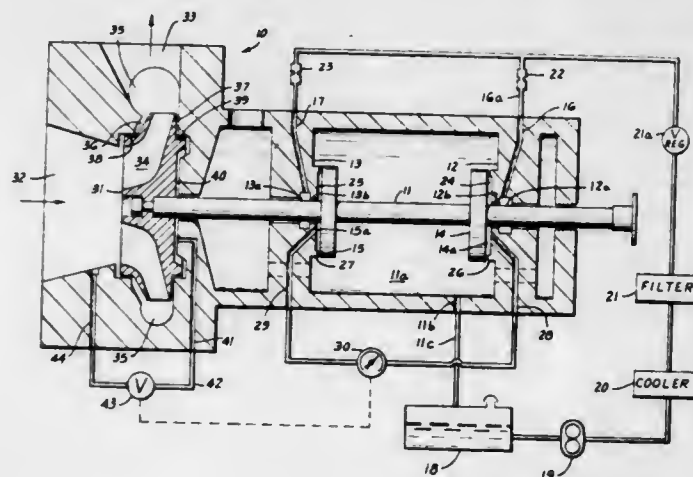
3,828,610
THRUST MEASUREMENT

Judson S. Swearingen, 500 Bel Air Rd., Los Angeles, Calif. 90024

Continuation-in-part of Ser. No. 1,130, Jan. 7, 1970, abandoned. This application Dec. 22, 1971, Ser. No. 210,705
Int. Cl. G01l 5/12

U.S. Cl. 73-140

10 Claims



A method of determining the axial thrust on a thrust bearing assembly having a fixed and a rotating component in which a lubricant is being forced between the mated faces of the respective components and where zones of pressure are built up during operation, comprising monitoring the pressure of the lubricant between the mated faces. The invention also provides for determining the axial thrust by measuring the pressure differential of the lubricant between the mated faces or as it enters therebetween and as it emerges from between said faces. To measure the axial thrust on a pair of opposing thrust bearing assemblies, the pressure differential of the lubricant between the respective mated faces of the two assemblies is obtained. The axial thrust measurement can be utilized in a method of adjusting the axial thrust on the bearing assemblies by changing manually or automatically a balancing means separate from the thrust bearings and their lubricant and used to adjust the net thrust on the bearings in response to the respective pressure measurement. The invention also encompasses the combination of suitable pressure measuring devices with thrust bearing assemblies with and without balancing means to carry out the above measurement and control methods.

3,828,611
PORTABLE UNDERWATER INDICATING INSTRUMENT FOR DIVERS

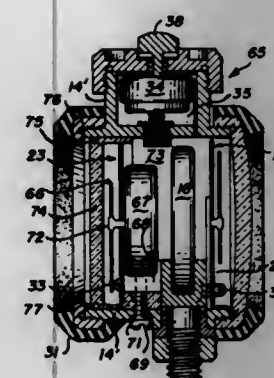
Ralph B. Shamlian, Belmont, and Ashley J. Hollingsworth, Atherton, both of Calif., assignors to Farallon Industries, Inc., Belmont, Calif.

Filed Nov. 10, 1972, Ser. No. 305,232

Int. Cl. G01f 23/14

U.S. Cl. 73-300

8 Claims



A portable underwater indicating instrument includes means for measuring a quantity of interest, such as time, pressure, temperature, magnetic field direction, or the like, and indicating means for indicating to the diver the measured quantity. The indicating means includes a dial having a face portion for viewing by the diver through a transparent window of a fluid tight housing. The dial face includes a fluorescent background with contrasting indicia of the measured quantity thereon. A light is provided in the housing for illuminating the fluorescent background portion of the dial. A manually operated switch controls energization of the light. The fluorescent background improves the visibility of the dial and also allows the lighted fluorescent dial to serve as an emergency light source. In a preferred embodiment, a pair of back-to-back pressure gauges are included within a common housing, one of the pressure gauges measures the diving depth and the second gauge measures the air pressure in the diver's scuba tank as communicated to the gauge over a flexible hose.

3,828,612
METHOD AND MEANS FOR INDICATING TEMPERATURE VARIATIONS IN A PRODUCT, PREFERABLY A FOOD PRODUCT

Karl Gunnar Eriksson, Rankhus Kyrkbyn, Kungsängen; Sven Erik Wahlgren, Dressyrvagen 15, Jakobsberg, and Carl Arnold Mangen, Rosenborgsgatan 27, Karlstad, all of Sweden
Filed Apr. 24, 1972, Ser. No. 246,578

Claims priority, application Sweden, Apr. 22, 1971, 5271/71

Int. Cl. G01k 11/06, 11/12

U.S. Cl. 73-356

12 Claims

A method for indicating whether a product such as foodstuffs, biological preparations or the like have been subjected to conditions that would have resulted in a substantial deterioration or at least in a defective in quality of the product by means of an indicating system resulting in a permanent visible indication after a predetermined temperature level has been attained. Said indicating system comprising at least one component which is solid at the intended storage temperature and a dissolving agent for said solid component, whereby said component is partially or completely dissolved in said solvent when the system during a predetermined period of time has been subjected to a temperature exceeding the storage temperature, thereby resulting in a non-reversible visible indication.

3,828,613
TUNER DRIVE ASSEMBLY WITH RESETTING FINE TUNING SHAFT

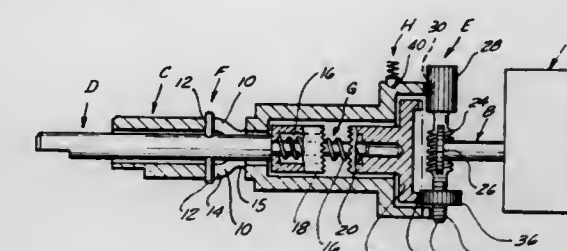
Alfred Sfreddo, Stafford Springs, Conn., assignor to General Instrument Corporation, Newark, N.J.

Filed Apr. 2, 1973, Ser. No. 346,864

Int. Cl. F16h 35/18; H03j 1/14

U.S. Cl. 74-10.41

10 Claims



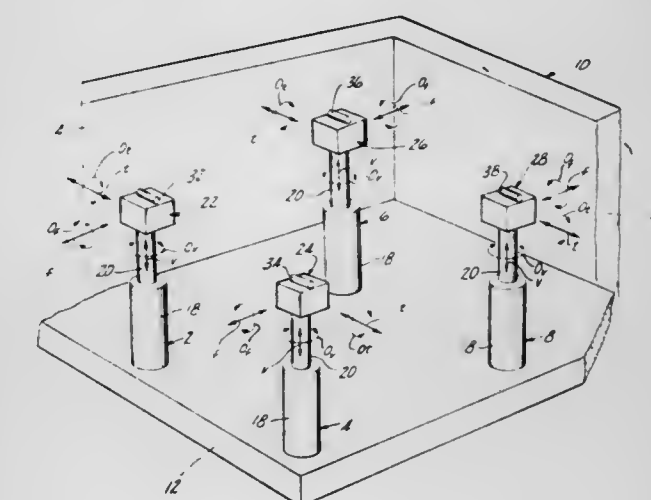
A tuner drive assembly for use with a tuning mechanism in a T.V. receiver or the like having a coarse tuning shaft and a fine tuning shaft. The fine tuning shaft is rotatably and axially movable relative to the coarse tuning shaft. Means are provided for driving the tuning mechanism and for operatively connecting the drive means to the fine tuning shaft and the coarse tuning shaft so that the tuning mechanism is activated in accordance with the rotation of the coarse tuning shaft and the rotation of the fine tuning shaft. The fine tuning shaft is axially movable between a first position wherein the fine tuning shaft is operably connected to the drive means and a second position wherein the fine tuning shaft is operably disconnected from the drive means. Additionally, means are provided for releasably retaining the fine tuning shaft in a fixed relative position with respect to the coarse tuning shaft such that relative rotation between the shafts is prevented. Further, the assembly contains means for returning the fine tuning shaft to the fixed relative position as the fine tuning shaft is moved from the first position.

3,828,614
VEHICLE TEST FIXTURE

Henry A. Borg, 444 Morton St., Romeo, Mich. 48065
Division of Ser. No. 312,418, Dec. 5, 1972. This application July 12, 1973, Ser. No. 378,487
Int. Cl. F16m 1/12

U.S. Cl. 74-16

3 Claims



A test fixture for an all-wheel drive vehicle provides a vertical hydraulic ram for each wheel position. Universal joint type connecting means are used to secure the vehicle atop the rams in the same way that the vehicle is secured to the wheels. Each connecting means, with its ram, permits 6° of movement to the wheel spindle to allow the spindle to move in accordance with the dictates of the wheel suspension geometry as the ram raises and lowers the wheel spindle to simulate irregularities in

terrain. The fixture has input capabilities for fore-and-aft as well as transverse forces, and torque input to the wheel drives is provided for separate dynamometer loading of the wheel drives. The rear connection is shown provided with means to adjust the tapered roller bearings remotely, including a long-handle socket wrench which remains in place and is accessible after removal of the dynamometer connection, without disassembling the means by which the wheel spindle is mounted on the ram.

3,828,615

ROLLER BAND ACTUATOR

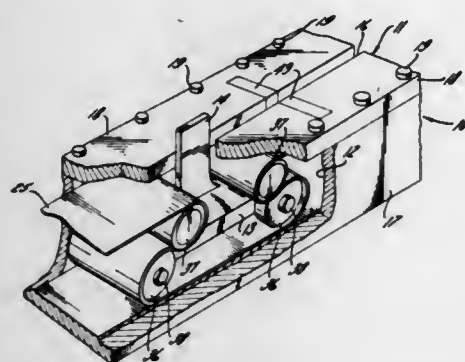
Chadwell O'Connor, 2024 Galaxy Dr., Newport Beach, Calif. 92660

Filed Feb. 15, 1973, Ser. No. 332,900

Int. Cl. F16h 27/02

U.S. Cl. 74-89.22

6 Claims



An actuator is disclosed employing back-to-back roller band clusters coupled to a trolley in a housing chamber with the trolley having an arm extending through a slot in the housing. The band closes the slot and also closes the chamber at the locations of the clusters on either side of the arm so that the introduction of expansible gas at one end of the chamber drives the trolley to the opposite chamber end. Preferably, the band is formed of steel ribbon and is held in place by magnets. The chamber is formed of a number of housing segments so that the chamber length can be widely varied. As a modification, a backup roller can be mounted on the trolley to help resist the gas pressures.

3,828,616

TRAFFIC SIGNAL CONTROLLER

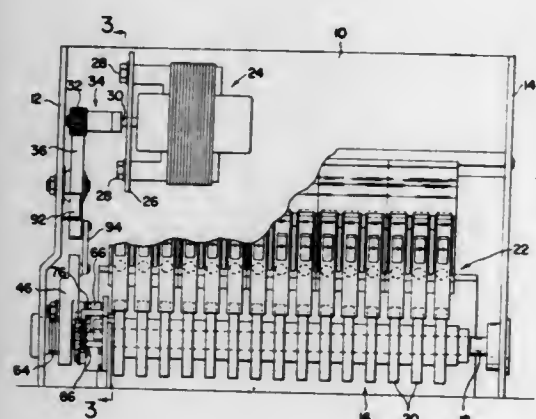
Richard A. De Lille, Moline, and Frederick E. Erickson, Port Byron, both of Ill., assignors to Gulf Western Industries, Inc., New York, N.Y.

Filed Aug. 29, 1973, Ser. No. 392,679

Int. Cl. F16h 29/00

U.S. Cl. 74-112

18 Claims



Structural arrangements are disclosed for achieving stepped advancement of a cam drum of a traffic signal controller. The arrangements include a ratchet and pawl assembly cooperable to step the drum in a given direction and a motor driven gear

arrangement for achieving actuation of the ratchet assembly. The gear arrangement includes a motor driven pinion in meshing engagement with an oscillatable gear segment which is connected to the ratchet assembly by a pivotal link member. A slip clutch arrangement is provided between the pinion and motor drive shaft to provide for the shaft to rotate relative to the pinion when the gear segment is stopped during movement thereof in opposite directions about its axis.

3,828,617

CAM PAWL ACTUATOR

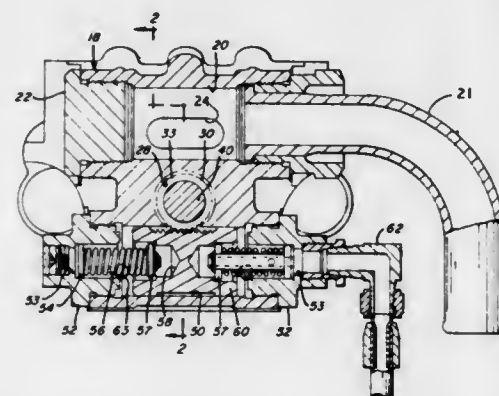
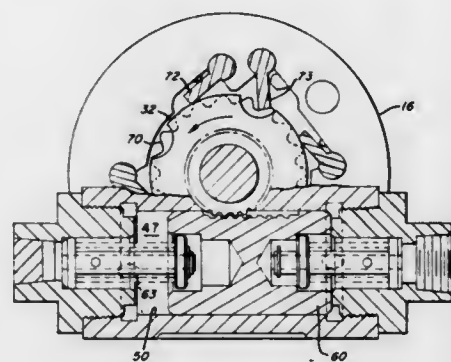
Louis H. Le Blanc, 10 Glenwood Rd., Claremont, N.H. 03743

Filed Jan. 8, 1973, Ser. No. 321,795

Int. Cl. F16h 27/02

U.S. Cl. 74-127

10 Claims



A rifle bar rotation mechanism for a pneumatic drill wherein remote control of rotation modes is accomplished by rotation of a cam element to control the engagement of pawl elements with a toothed ratchet member.

3,828,618

CONSTANT SPEED HYDRAULICALLY CONTROLLED TORIC TRANSMISSION WITH CONCENTRIC, TWO PISTON VALVE, GOVERNOR AND CONSTANT RATIO MEANS

Raymond Sharpe, Mirfield, and James Christopher Herbert Triffitt, Baildon, both of England, assignors to Rotax Limited, Birmingham, England

Filed Aug. 2, 1972, Ser. No. 277,252

Claims priority, application Great Britain, July 27, 1971, 35381/71

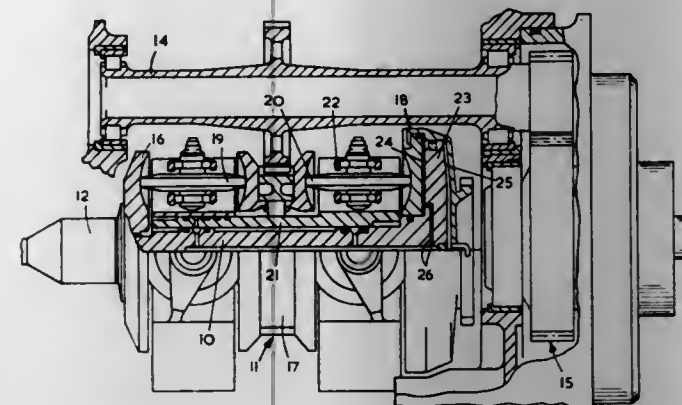
Int. Cl. F16h 15/38

U.S. Cl. 74-200

5 Claims

A variable-ratio frictional drive gear comprises two axially spaced torus discs between which there is a set of circumferentially spaced drive rollers in frictional rolling contact with toroidal surfaces on the discs. Each roller is rotatably mounted in a roller carriage which can tilt about an axis at right angles to the axis of rotation of the roller so as to vary the distances from the gear axis at which the roller engages respectively the two discs, thus varying the drive ratio of the gear. The variable-ratio frictional drive gear further includes a

first piston which is slidable in a second hollow piston under the influence of hydraulic fluid wherein axial movement of the first piston is arranged to effect tilting movement of at least one of the roller carriages. First means are provided to reduce the pressure, which, in use, is applied to the first piston by the hydraulic fluid, such reduction occurring when the first piston



reaches a predetermined axial position relative to the second piston. The latter is slidable in a cylinder under the influence of control fluid supplied by a governor and second means are provided which tend to maintain the ratio of the pressures of the hydraulic fluid supplied to the governor and the control fluid supplied by the governor at a constant or substantially constant value.

3,828,619

HUB OR BEARING HOUSING, PULLEY AND METHOD OF MAKING THE SAME

Charles C. Frost, Kentwood, and Siegfried K. Weis, Grand Rapids, both of Mich., assignors to C. L. Frost & Sons, Inc., Grand Rapids, Mich.

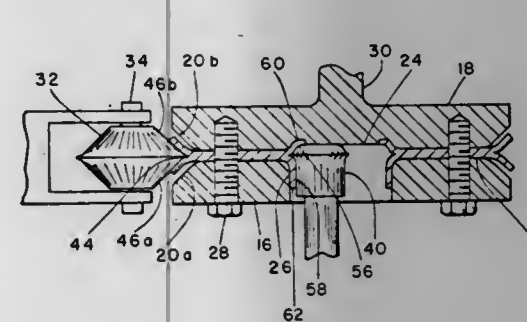
Division of Ser. No. 199,985, Nov. 18, 1971. This application

Apr. 12, 1973, Ser. No. 350,342

Int. Cl. F16h 55/36; B21d 53/26

U.S. Cl. 74-230.01

7 Claims



This invention relates to a novel hub or bearing housing, pulley, and the like and to the method of fabricating such hub or bearing housings, grooved metal pulleys, and the like in which a hub flange forming the housing is formed from a one-piece metal disk utilizing metal-splitting techniques. The disk is provided with an inner opening in its central portion and is held between a pair of die members between the inner opening and its outer diameter thereby leaving the inner opening free so that the disk may be split and expanded toward the die. Flanges formed on the inner diameter of the die are shaped to receive and form a hub or bearing housing in the disk as the material is split and expanded toward the die. In another embodiment of the invention, a pulley groove and bearing housing are formed from a one-piece metal disk in a simultaneous splitting operation. Flanges on the inner and outer diameters of a pair of cooperating die members are shaped to receive and form a hub or bearing housing about the inner diameter while simultaneously receiving and forming the rim or pulley groove about the outer diameter of the disk.

3,828,620

DRIVE SYSTEM

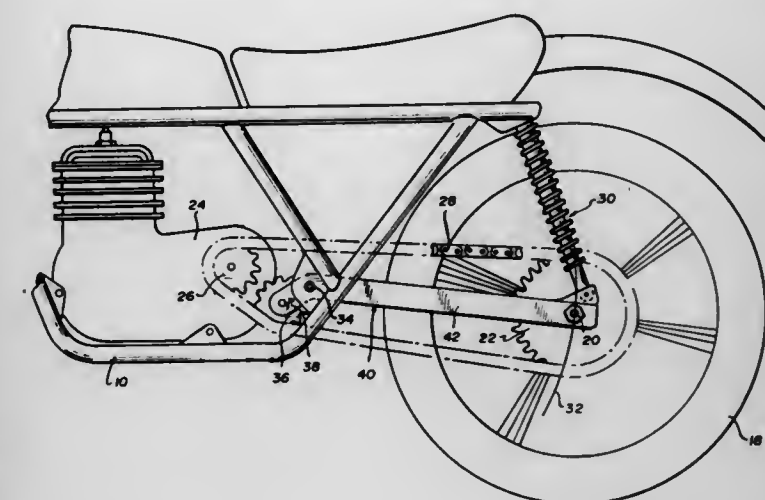
Hewart H. Heathwaite, and Robert H. Mead, both of Ithaca, N.Y., assignors to Borg-Warner Corporation, Chicago, Ill. Division of Ser. No. 284,691, Aug. 29, 1972. This application

Nov. 15, 1973, Ser. No. 416,157

Int. Cl. F16h 7/10

U.S. Cl. 74-242.15 B

2 Claims



A power driven vehicle having a drive chain transmitting power from an engine to a driven wheel capable of moving between various positions and means for maintaining substantially constant final drive chain tension for all wheel positions.

3,828,621

BICYCLE DRIVES

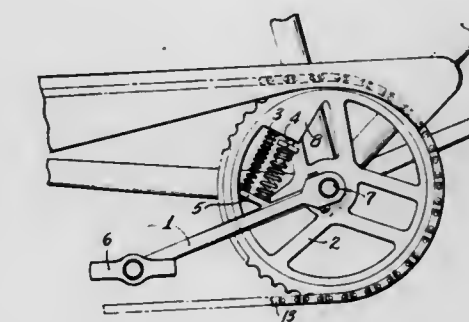
Kunio Uchino, 410-10 Oaza Miyake, Fukuoka, Japan

Filed May 14, 1973, Ser. No. 360,038

Int. Cl. F16h 55/30

U.S. Cl. 74-243 PC

2 Claims



A bicycle in which the pedals drive the sprocket wheel through intermediate spring means so as to provide drive from energy stored in the springs at dead center positions.

3,828,622

ELECTRONIC READOUT CONTROL

Frederick R. Neff, 2993 Curtis Ave., Des Plaines, Ill. 60018 Continuation-in-part of Ser. No. 192,422, Oct. 26, 1971. This application Dec. 11, 1972, Ser. No. 314,112

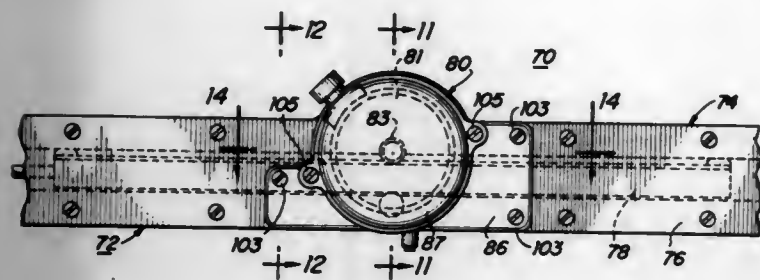
Int. Cl. F16h 55/18

U.S. Cl. 74-409

9 Claims

There is provided a numerical readout detector for a machine tool and the like having a movable machine element, the position of which is to be accurately determined. In accordance with the present invention the readout detector includes a rack gear movable in response to the position of the movable machine element and a pinion gear mating therewith.

A slight backlash pressure is maintained on the pinion gear to maintain engagement between the pinion gear and rack gear.



Adjustable means may be provided for reducing the backlash between the rack gear and the pinion gear substantially to zero.

3,828,623

REMOTE OUTSIDE REARVIEW MIRROR

Gunter Zillner, Fliesteden/Bergheim, Germany, assignor to Ford Motor Company, Dearborn, Mich.

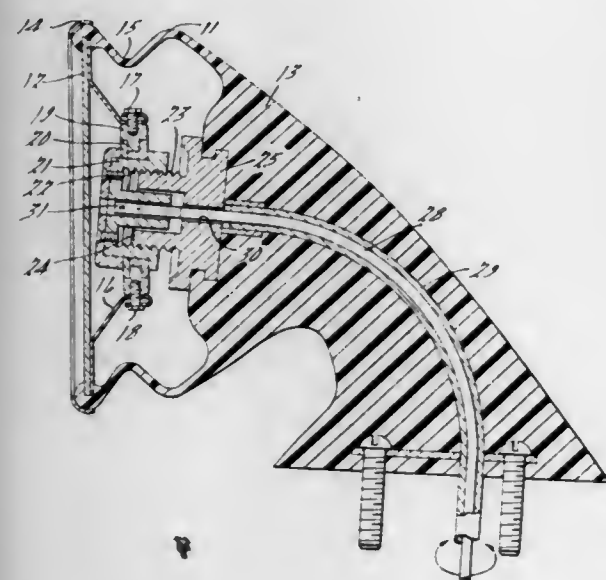
Filed Feb. 12, 1973, Ser. No. 331,924

Claims priority, application Germany, July 12, 1972, 2234191

Int. Cl. G05g 1/00

U.S. Cl. 74-491

7 Claims



A remote-adjustable outside rearview mirror for motor vehicles having an adjuster mechanism arranged in the mirror housing operable through a rotatable, flexible drive shaft, from the vehicle interior.

3,828,624

ACTUATOR ASSEMBLY

Hans Wiegand, Boyertown, Pa., assignor to Teleflex Incorporated, North Wales, Pa.

Filed Nov. 24, 1971, Ser. No. 201,731

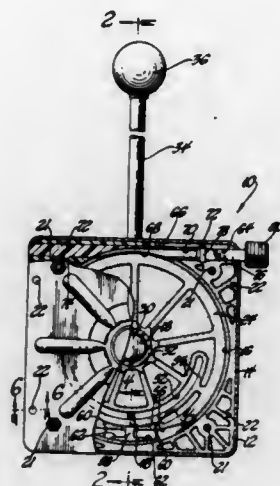
Int. Cl. F16c 1/18

U.S. Cl. 74-501 R

22 Claims

An actuator assembly of the type for moving a flexible transmitting core element in a curved path including a housing comprising a plastic half covered by a metal plate. The plastic half has a circular cavity for receiving a circular drive wheel which has a groove circumferentially thereabout for receiving the core element. The plastic half has a pocket and a plastic bushing is disposed in the pocket. A rod extends through the housing through the plastic bushing and through an arcuate slot in the circular drive wheel and into threaded engagement with the metal half of the housing whereby upon rotation of the rod the bushing is urged into frictional sliding engagement with the circular drive wheel for controlling the rotation thereof or to act as a brake. The housing also has a channel ex-

tending therethrough across the top and a core guide disposed in the channel. The channel has an enlarged portion adjacent each end and the guide includes a shoulder disposed in one of the enlarged portions. An insert is disposed at the other end of



the channel and has a shoulder at the end thereof which is in abutting engagement with the other end of the guide, the insert and guide having passages therethrough through which a core element extends to engage the peripheral groove in the circular drive member.

3,828,625

ADJUSTABLE LINKAGE

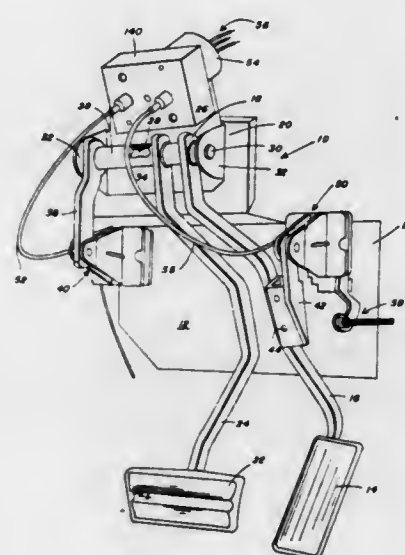
Max R. Bruhn, Jr., Spring Lake, Mich., assignor to Grand Haven Stamped Products Company, Grand Haven, Mich.

Division of Ser. No. 200,357, Nov. 19, 1971, Pat. No. 3,765,264. This application Apr. 23, 1973, Ser. No. 353,603

Int. Cl. G05g 1/14

U.S. Cl. 74-512

3 Claims



The present invention discloses an adjustable linkage mechanism adapted for use with foot-operated pedals, i.e., brake, accelerator and clutch, of a motor vehicle. The spacing between the seat of a motor vehicle and the pedals may be varied to suit the requirements of an individual operator through use of an actuator mechanism operatively connected between the pedal arm and the associated linkage mechanisms. Basically, the invention provides a powered means for automatically lengthening or shortening the associated linkage to pivot the pedal either toward or away from the seat to vary the spacing therebetween.

3,828,626

HAND OPERATED VARIABLE SPEED REDUCERS

Modesto Ochoa Scott, Mexico City, Mexico, assignor to Humberto Viadas Enriquez, Calle, Mexico

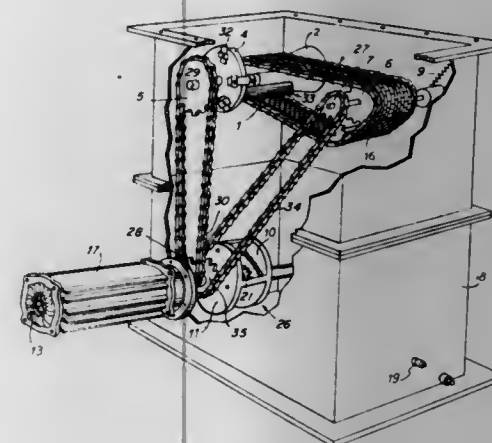
Filed Dec. 17, 1971, Ser. No. 209,306

Claims priority, application Mexico, Dec. 18, 1970, 124231

Int. Cl. F16h 37/00, 1/38

U.S. Cl. 74-689

10 Claims



A hand operated reducer or speed changer for use in connection with transmission gears which comprises motor and driving axles on one single line, lodged in a housing and jointed by a ball-bearing, which allows the axle to rotate in an inverted movement in order to transmit variable speed to a differential gear in relation to the steady speed derived from a driving source.

3,828,627

MULTIPLE-SPEED HUB

Hans-Joachim Schwerdhofer, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs AG, Schweinfurt am Main, Germany

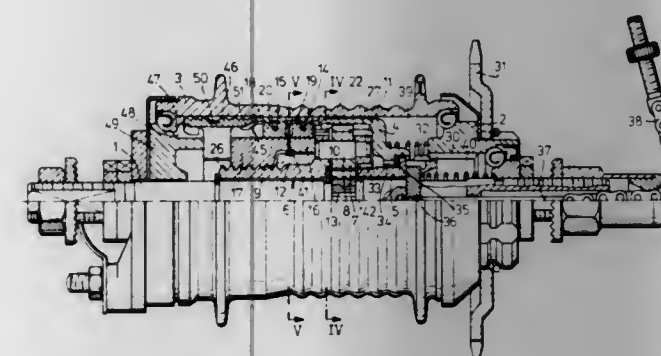
Filed Nov. 28, 1972, Ser. No. 310,138

Claims priority, application Germany, Dec. 2, 1971, 2159770

Int. Cl. F16h 3/44

U.S. Cl. 74-750 B

10 Claims



A three-speed hub for a bicycle or like vehicle has a driver and a hub shell coaxially rotatable on a stationary shaft, planetary gearing, and a coupling sleeve manually shifted for coupling the driver to the ring gear or the planet carrier of the gearing. One of two pawl-and-ratchet clutches is normally coupled to the ring gear to transmit torque to the hub shell but is released when cooperating abutments on the coupling sleeve and the ring gear axially retract the ring gear whereupon torque is transmitted from the planet carrier to the hub by the second clutch. The pawl carrier of the latter may simultaneously carry the brake cone of a coaster brake. Three transmission ratios are available.

3,828,628

METHODS OF EXTRUDING HELICAL GEAR BLANKS

Yves Roger, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt and Automobiles Peugeot, Paris, both of, France

Division of Ser. No. 199,987, Nov. 18, 1971. This application

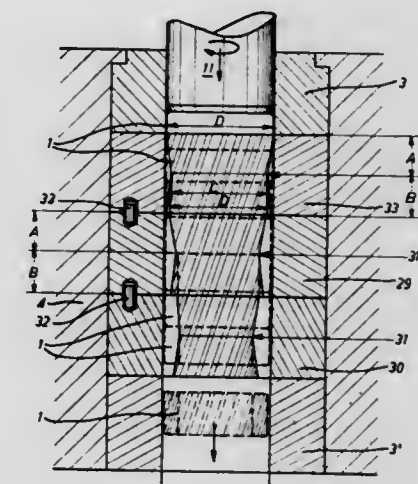
July 12, 1973, Ser. No. 378,501

Claims priority, application France, Nov. 24, 1970, 70.42073; Nov. 3, 1971, 71.39420

Int. Cl. B21k 5/20

U.S. Cl. 76-107 R

4 Claims



Method of manufacturing helical gear blanks by cold extrusion, characterized in that it comprises the steps of passing successive billets through a die formed with internal helical teeth in order to impress these internal helical teeth by extrusion in the billet for forming external helical teeth in the cylindrical surface of said billets, said billets being driven through said die by a punch adapted to rotate freely.

3,828,629

MULTI-POWER RATCHET WRENCHES

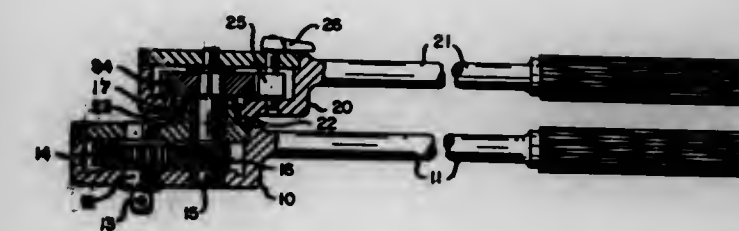
Gerald Moore, Turtle Creek, Pa., assignor to Eugene F. Buell, a part interest

Filed May 9, 1973, Ser. No. 358,655

Int. Cl. B25b 17/00, 13/46

U.S. Cl. 81-57.3

5 Claims



A multiple powered ratchet wrench and handle are provided having a main housing and handle, a driven shaft in said housing for rotation, an external drive member on said shaft, a first pinion on said shaft within the housing, a second drive shaft in said housing parallel to said first shaft and carrying a second pinion engaging said first pinion, said first and second pinion being arranged to provide a desired multiplication of power from the second shaft to the first shaft, a second drive pinion on said second shaft, a second handle journaled for rotation about said second shaft and ratchet drive means on said second handle engaging said second driven pinion to rotate said second shaft.

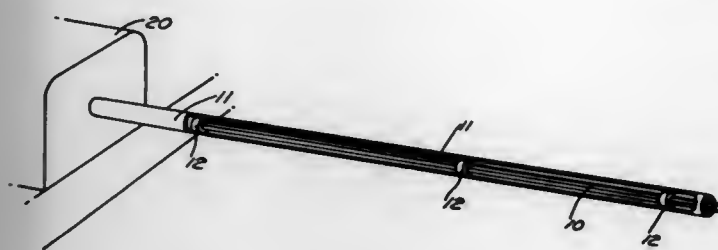
3,828,630

SOUND DEADENING MEANS FOR USE ON A BAR FEEDING AND BAR WORKING MACHINE

William Argereu, Hickory Dr., North Scituate, R.I. 02857
 Division of Ser. No. 159,672, July 6, 1971. This application
 Jan. 9, 1973, Ser. No. 322,140
 Int. Cl. B23b 13/00

U.S. Cl. 82-2.5

8 Claims



One or more resilient discs having an opening in the center to receive therethrough an elongated bar stock which is to be fed into and worked upon by a machine tool such, for instance, as a screw machine and which serves to deaden the sound caused by a vibration of the bar in being fed into the machine.

3,828,631

CUTTING DIE AND PROCESS

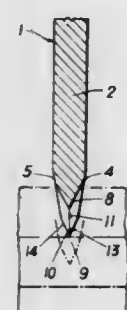
Ernst Maximilian Spengler, Heusenstamm, and Rolf Karl Sturberg, Haan, both of Germany, assignors to Martin Miller Gesellschaft m.b.H., Vienna, Austria
 Division of Ser. No. 216,464, Jan. 10, 1972. This application
 Jan. 10, 1973, Ser. No. 322,458

Claims priority, application Germany, Jan. 14, 1971, 2101543; Jan. 14, 1971, 7101204

Int. Cl. B26d 1/04

U.S. Cl. 83-20

1 Claim



The cutting die is made from strip steel and comprises a die blade having a cutting edge formed with sawteeth and chamfered surfaces extending along said cutting edge on opposite sides of said blade. To cut through a material which comprises a fabric having first filament portions extending in a predetermined direction and second filament portions extending transversely to said predetermined direction, said material is cut into at a plurality of discrete points which are spaced apart on an intended line of cut extending in said predetermined direction and said first filament portions which are disposed adjacent to said line of cut are pushed laterally away from said line of cut. At the same time, the cutting into said material is continued along said line of cut until said second filament portions extending across said line of cut have been severed.

3,828,632

ROTARY PUNCH

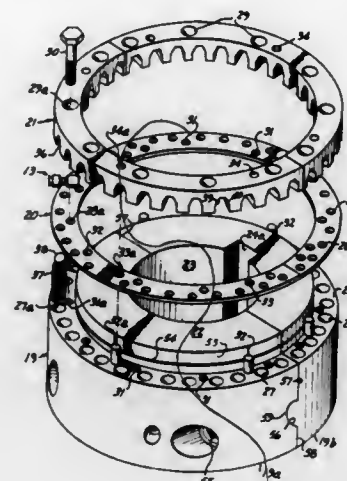
James V. Grano, Temple City, Calif., assignor to Tools and Production, Inc., Temple City, Calif.

Filed Oct. 24, 1972, Ser. No. 300,100

Int. Cl. B23d 25/12

U.S. Cl. 83-345

11 Claims



There is disclosed a rotary punch for punching a series of holes through paper or cardboard or the like, comprising a pair of counter-rotating rolls one of which has punch elements protruding from the periphery to mate with corresponding die holes at the periphery of the other roll. Each of the punch elements, which may be removed and replaced without disassembling the punch, comprises a cylinder with a punch head at one end, held in place by a pair of converging walls against which the cylinder is held by a spring-loaded ball pressing against a recess in the cylinder. The die holes are serrated and are of harder material than the punch, which initially is unserrated and of slightly larger diameter than the internal diameter of the die serrations so that the punch head becomes correspondingly serrated upon a punching operation.

3,828,633

METHOD AND APPARATUS FOR SLITTING MATERIALS SUCH AS ALUMINUM OR THE LIKE

Heinrich Klingen, Dusseldorf, Germany, assignor to Jagenberg-Werke AG, Dusseldorf, Germany

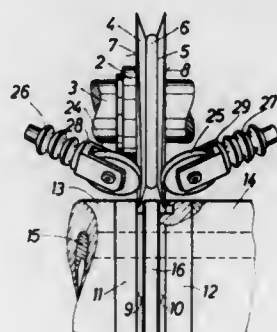
Filed June 15, 1973, Ser. No. 370,510

Claims priority, application Germany, July 7, 1972, 2233433

Int. Cl. B23d 19/04; B26d 3/00

U.S. Cl. 83-56

6 Claims



In the slitting of a web of material such as aluminum by passage of the web over at least one pair of symmetrically-arranged circular knives and respective counterknives to excise a narrow waste strip from two between newly formed sub-webs, the improvement which comprises temporarily and elastically deforming said circular knives over a portion of their peripheries downstream of their points of cut whereby said knives at such portions will be prevented from contacting

the edges of said sub-webs. To this end, in an apparatus as described a pair of rotatable wheels are resiliently urged against said circular knives just downstream of the points where the knives disengage the counterknives.

3,828,634

AUTOMATIC ENVELOPE OPENER

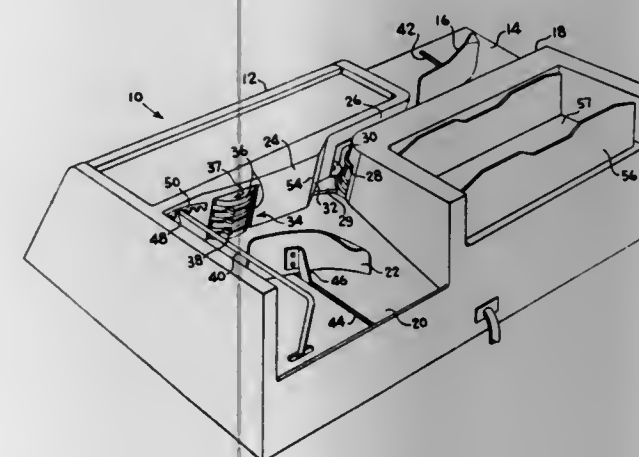
Harry E. Luperti, Wilton, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.

Filed June 25, 1973, Ser. No. 373,518

Int. Cl. B26d 1/28

U.S. Cl. 83-94

12 Claims



An automatic envelope opener is described wherein a housing having an envelope infeed platform and envelope outfeed platform enables envelopes to be automatically opened. The envelopes are retained on edge in a generally vertical orientation on the platforms and moved one at a time from the infeed platform along a travel path, where a cutter is located, to the outfeed platform for stacking. The envelopes have a small edge segment severed by a cutter horizontally operative in the travel path and are automatically stacked against a movable retainer at the outfeed platform with a stacker and a diverter wall placed in the travel path to deflect envelopes towards the retainer. An envelope jogger is mounted on the housing to urge envelope contents to one edge and enable envelope opening without damage to the contents.

3,828,635

SAWMILL WITH ADJUSTABLE GUIDES AND SPREADERS

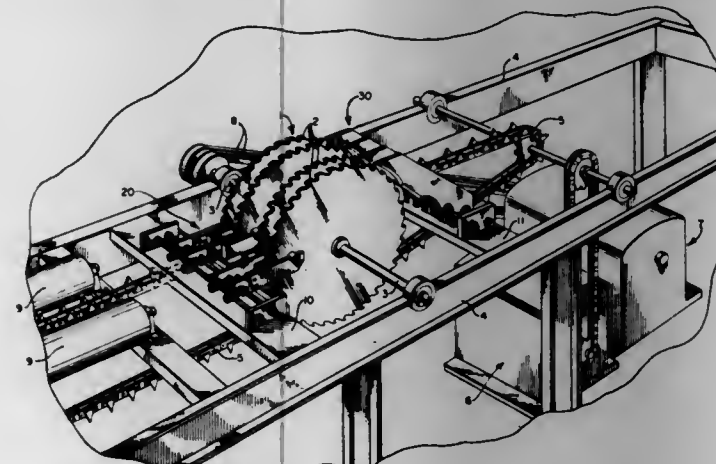
Lawson A. Smith, 1550 E. Canal, Picayune, Miss. 39466

Filed May 23, 1973, Ser. No. 363,003

Int. Cl. B27b 5/34; B27g 19/08

U.S. Cl. 83-102.1

10 Claims



A sawmill including a multiple number of rotating circular sawblades wherein the guides maintaining the sawblades in their proper position and the spreaders adjacent the exit side of the sawblades are mounted by means which are easily ad-

justable and allow for easy removal and insertion of the guides and spreaders. The guides and spreaders are each mounted on two horizontally disposed, threaded bars having appropriately positioned and spaced nuts thereon. The mounting portion of the guides and spreaders include two slots, a curved one in the bottom edge and a straight one in the end edge on the end away from the sawblades, the slots mating with the horizontally disposed rods when the guides and spreaders are mounted thereon. Positioning nuts are included on the threaded rods for locking the guides and spreaders onto the rods and for allowing easy and precise lateral and angular adjustments thereof. Restraining rings are included about the terminal portions of the curved slots in the spreaders which cooperate with the nuts to further lock the spreaders onto the rods.

3,828,636

ROTARY CUTTING APPARATUS

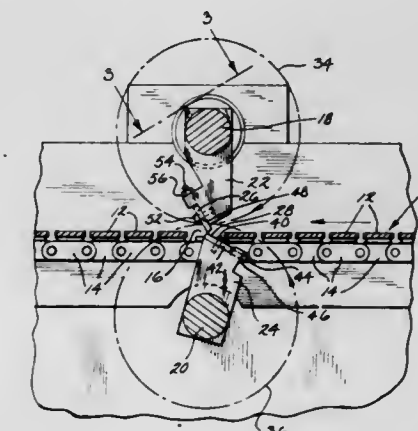
Richard W. Smith, Racine, Wis., assignor to Pratt Manufacturing Corp., Milwaukee, Wis.

Filed Mar. 21, 1973, Ser. No. 343,582

Int. Cl. B23d 25/12; B26d 1/12

U.S. Cl. 83-341

8 Claims



Two elongated knives are synchronously rotated into and out of cutting engagement with each other about separate axes of rotation. A linearly-moving web of material is moved between the two knives and is positioned to be cut thereby when the knives meet in cutting engagement. The distance between the cutting edge of one knife and its axis of rotation is greater than the distance between the cutting edge of the other knife and its axis of rotation, whereby the cutting edges travel at different lineal speeds. The cutting edges are skewed with respect to one another so that the faster moving cutting edge wipes across the other cutting edge when they meet in cutting engagement. The cutting edges meet at a contact point which moves along the length of the two cutting edges as the faster moving cutting edge wipes across the slower. This produces a shear cutting action.

3,828,637

WEB CUTTER

William Frederick Slack, Andover, N.J., assignor to Van Dyk Research Corporation, Whippany, N.J.

Filed Feb. 7, 1972, Ser. No. 224,170

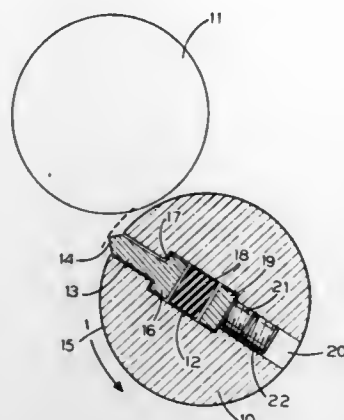
Int. Cl. B23d 25/12; B26d 7/06

U.S. Cl. 83-348

4 Claims

A paper cutter in the form of a knife mounted in a slot of a first roller closely spaced and parallel to a second roller. The knife protrudes from the first roller and engages the second

roller when the first roller is rotated, the paper to be cut being fed between the rollers. An elastomeric material is pressed against the back edge of the knife to prestress the knife blade so that the force on the blade remains essentially constant during the cutting process.



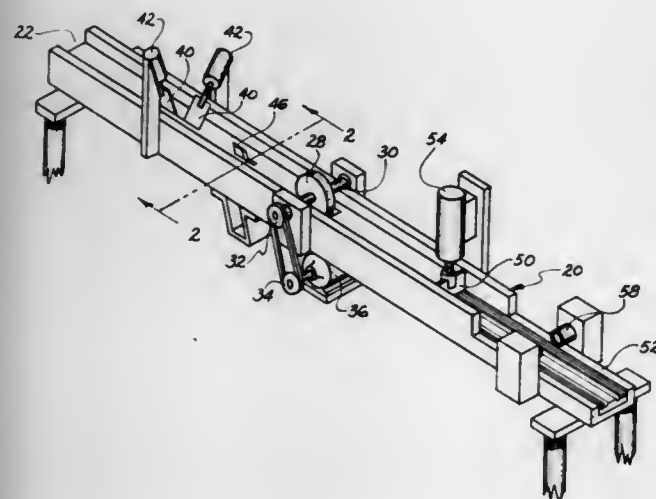
against the back edge of the knife to prestress the knife blade so that the force on the blade remains essentially constant during the cutting process.

3,828,638 METHOD AND APPARATUS FOR PRODUCING WINDSHIELD WIPER BLADES

John L. V. Bonney, Jr., Columbus, Ohio, assignor to Perma-Blade, Inc., Columbus, Ohio
Filed Aug. 2, 1972, Ser. No. 277,387
Int. Cl. B26d 9/00

U.S. Cl. 83-356.1

1 Claim



A method and apparatus for continuously producing wiper blades from a continuous strip of moving flexible material such that the blades are provided with longitudinally extending cavities as well as side orifices which communicate with the cavity and adapt the blade to expel washing fluid to the blade edge along the entire longitudinal extent of the blade.

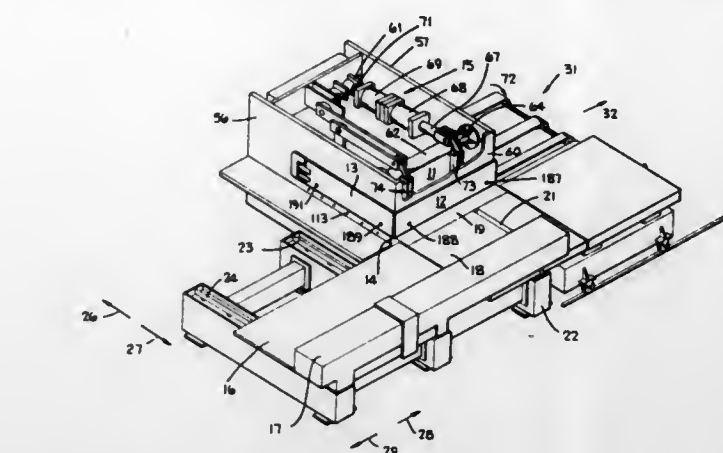
3,828,639 SHEAR MOUNTING FOR CORNER SHEARING MACHINE

Gerald V. Roch, Indianapolis, Ind., assignor to Hurco Manufacturing Company, Inc., Indianapolis, Ind.
Filed Aug. 14, 1972, Ser. No. 280,248
Int. Cl. B26d 5/42

U.S. Cl. 83-390

33 Claims

A corner shearing machine has two pairs of shears, the lower blade of one pair intersecting the lower blade of another at a right angle, and the upper blade of one pair intersecting the upper blade of the other pair at a right angle, the lower blades being mounted to a base and the upper blades to a reciprocable ram. Adjusting wedge assemblies, with screw drives and manually operable cranks facilitate adjustment of blade clearance, and hydraulically energized pressure pads



3,828,640 CARDIOGRAPHIC TRACING CUTTING UNIT

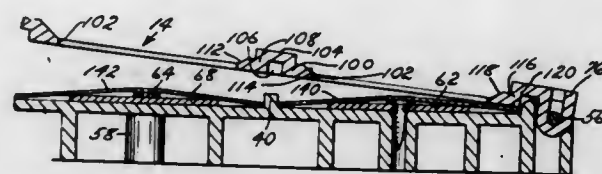
Herbert Gottlieb, Edison, N.J., and Frank Guthart, Syosset, N.Y., assignors to Instrumed Products, Inc., Port Chester, N.Y.

Filed Oct. 18, 1972, Ser. No. 298,507

Int. Cl. B26d 7/02

U.S. Cl. 83-464

8 Claims



An improved cardiographic tracing cutting unit for trimming and preserving the pertinent portions of the trace. The unit has a plastic base upon one side of which are mounted three different size dies. A transparent plastic cover plate is pivotally hinged to a side edge of the base and has windows defined therein, overlaying the dies, the edges of the windows being the same configuration but of somewhat larger dimensions than the dies to act as a cut-out guide for any blunt edge bearing against the dies.

3,828,641 APPARATUS FOR ADJUSTING THE ELEVATION OF A SPECIMEN IN MICROTOMES, PARTICULARLY ULTRAMICROTOMES

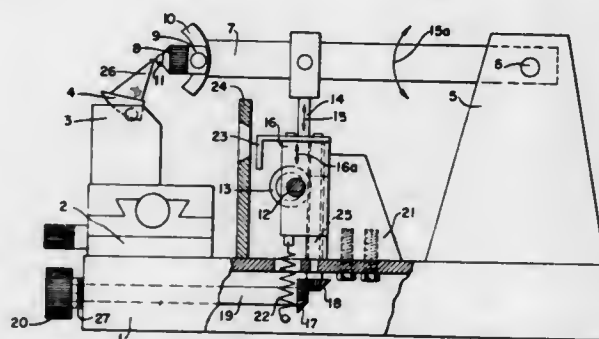
Hellmuth Sitte, Humburg/Saar, Germany, assignor to C. Reichert Optische Werke AG, Vienna, Austria

Filed Nov. 10, 1972, Ser. No. 305,627

Claims priority, application Austria, Nov. 12, 1971, 9764/71
Int. Cl. B26d 7/06

U.S. Cl. 83-703

1 Claim



Adjustment of the specimen holder arm with respect to the knife in microtomes and ultramicrotomes is desirable to com-

pensate for eccentrically located specimens in the plastic bedding. Moving the specimen holder arm eccentrically is accomplished by manual movement of the driving means which isolates the specimen holder arm. Preferably, the movement is accomplished through mechanical linkage providing precision control under the movement.

3,828,642 CIRCULAR SAW

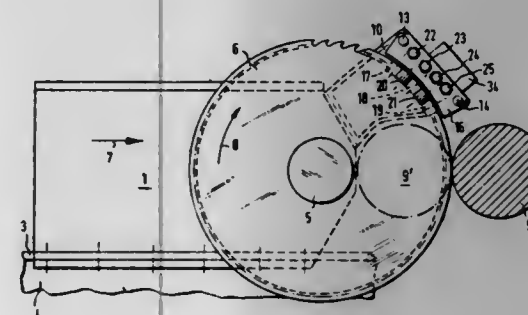
Roderich Orendi, Reutlingen-Sondelfingen, Germany, assignor to Gustav Wagner Maschinenfabrik, Reutlingen, Germany
Filed Feb. 26, 1973, Ser. No. 335,898

Claims priority, application Germany, Mar. 1, 1972, 2209711

Int. Cl. B23d 47/02

U.S. Cl. 83-823

7 Claims



The present circular saw includes rollers for guiding the saw blade, preferably at its periphery when it enters into a work-piece. The guide rollers are attached to a pair of roller carrier members so that a gap is formed between opposing guide rollers through which the saw blade passes. The roller carrier members are spring biased relative to a support and toward the saw blade. Preferably the biasing is such that the saw blade is bent outwardly slightly away from a saw housing.

3,828,643 SCANNER FOR ELECTRONIC MUSICAL INSTRUMENT

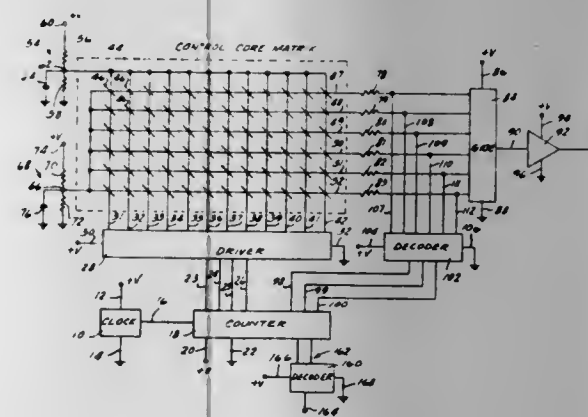
Eugene S. Morez, Bensenville, Ill., assignor to Chicago Musical Instrument Co., Chicago, Ill.

Filed Feb. 20, 1973, Ser. No. 333,984

Int. Cl. G10f 5/00; G10h 1/00

U.S. Cl. 84-115

15 Claims



A scanner for an electronic musical instrument employs a matrix having two sets of current conducting lines forming intersecting rows and columns, with a plurality of magnetic cores arranged at the intersections of the matrix. Individual ones of both sets of lines are energized successively to individually scan the cores, and the lines of one set are con-

nected to a gate which produces a train of output pulses on a single output line, in response to cores which are operative to magnetically couple the lines of one set to the lines of the other set. The cores are normally maintained in inoperative condition by exposing them to a saturating magnetic field. The cores are each selectively rendered operative by moving the magnetic field, relative to the core enabling the core to effect a magnetic coupling between intersecting lines of the two sets by operation of a key of the keyboard of the instrument, or by operation of an actuating member of a switch for selecting a control function for the instrument.

3,828,644 DETACHABLE VIEWFINDER ARRANGEMENT FOR USE IN A PHOTOGRAPHIC CAMERA

Isamu Uchida, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-fu, Japan

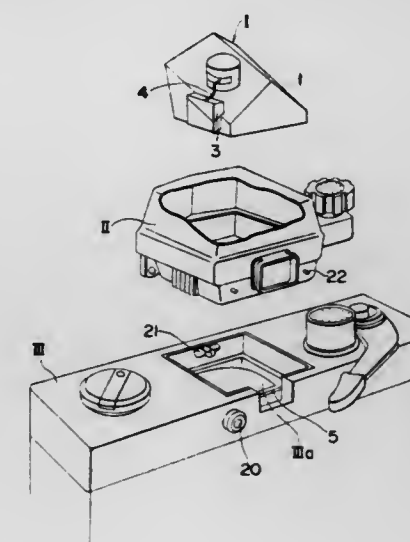
Filed Dec. 13, 1972, Ser. No. 314,551

Claims priority, application Japan, Dec. 20, 1971, 46-121021

Int. Cl. G03b 13/02

U.S. Cl. 88-54

7 Claims



A detachable viewfinder arrangement for use in a photographic camera of the type designed to accommodate such detachable viewfinder, which essentially comprises a main prism of pentagonal shape having a pair of oppositely sloping surfaces and a small prism composed of a pair of upper and lower portions bonded to each other, the boundary therebetween being formed with a semitransparent mirror surface which extends in the same plane as that of one of the sloping surfaces of the main prism and substantially forms a partial extension of the one of the sloping surfaces of the main prism. This arrangement is effective to project at least one indicating mark disposed above the upper surface of the upper portion of the small prism into the field of view of the finder.

3,828,645 SAFETY WIRE INTERRUPTER ASSEMBLY

Joseph E. Testerman, and Louis A. Robertson, both of Edgewood, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation of Ser. No. 111,896, Feb. 2, 1971, abandoned.

This application Jan. 9, 1973, Ser. No. 322,259

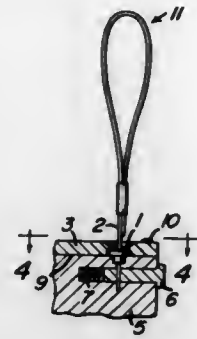
Int. Cl. B64d 1/04

U.S. Cl. 89-1.5 D

2 Claims

An improved safety wire interrupter and method of arming munitions wherein a plastic member, such as high or low den-

sity polyethylene, is fused onto the safety wire to prevent withdrawal of the safety wire from a safety pin until tension is



applied to a lanyard means fixedly connected to the safety wire.

3,828,646

APPARATUS FOR APPLYING SOLID LUBRICANT TO THE MATERIAL WORKING FACE OF A TOOL

Dietrich Borse, Norderstedt; Albert Lockemann, Hamburg, and Gerd Cordsen, Helmsdorf-Ulzburg, all of Germany, assignors to Ernst Winter & Sohn, Hamburg, Germany

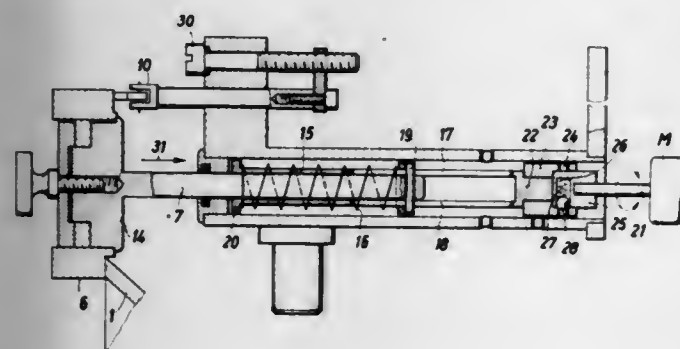
Filed Aug. 8, 1972, Ser. No. 278,882

Claims priority, application Germany, Aug. 9, 1971, 2139829

Int. Cl. B23b 9/00; B24b 55/02

U.S. Cl. 90—11 R

19 Claims



A rotary tool has a material-removing face and is rotated at a first speed about a first axis. A body of solid lubricant is located axially adjacent the material-removal face and is rotated about the second axis at a slower second speed. An advancing arrangement advances the rotated body of solid lubricant longitudinally of the first axis against the material-removal face of the tool.

3,828,647

METHOD OF MILLING WORKPIECES

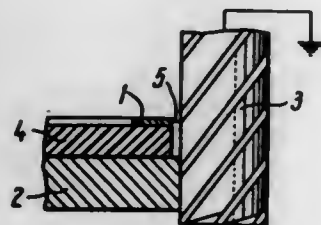
Jury Dmitrievich Vragov, prospekt Lenina, 26, kv. 51; Vladimir Egorovich Danyayev, ulitsa Pisareva, 10, kv. 1; Anatoly Petrovich Trubin, ulitsa Lyadova, 31b, kv. 1, and Sergei Gavrilovich Slnichkin, ulitsa Krasnoflotskaya 8, kv. 3, all of Gorky, U.S.S.R.

Filed Sept. 27, 1972, Ser. No. 292,836

Int. Cl. B23q 33/00

U.S. Cl. 90—11 C

3 Claims



A pattern made from a conductive material is bound with a workpiece to be machined. The pattern is electrically insulated

lated from the latter and placed on the table of a machine-tool. The pattern and a cutter disposed in proximity thereto are so connected to a machine control circuit that an electric discharge is produced therebetween. Parameters of the electric discharge determined by the value of a clearance between the cutter and the pattern are used as control signals for the control system of the machine. The control system provides the travel of the cutter along the pattern contour. At the same time the workpiece is machined by the cutter according to a predetermined outline.

3,828,648

PLASTIC-LENS CUTTER

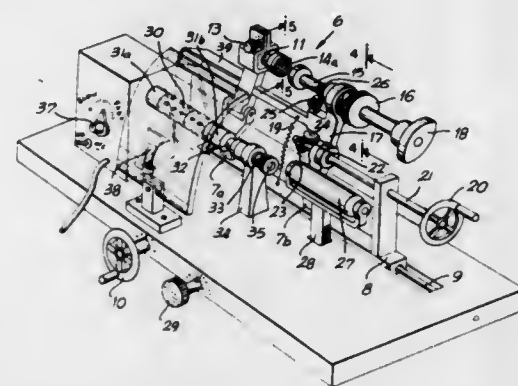
John H. Geula, 150 E. 69th St., New York, N.Y.

Filed Jan. 18, 1973, Ser. No. 324,752

Int. Cl. B23b 1/18; B24b 7/00

U.S. Cl. 90—13.3

19 Claims



A plastic lens cutting device having a rotatable cutter, lens support structure, means to rotate a lens about an axis parallel to the axis of the cutter and a pattern and follower to control the shape of the lens being cut.

3,828,649

MILLING HEADS

Pierre Lecaillet, and Bruno Dressler, both of Billancourt (Hauts de Seine), France, assignors to Regie Nationale Des Usines Renault, Billancourt and Automobiles Peugeot, Paris, both of, France

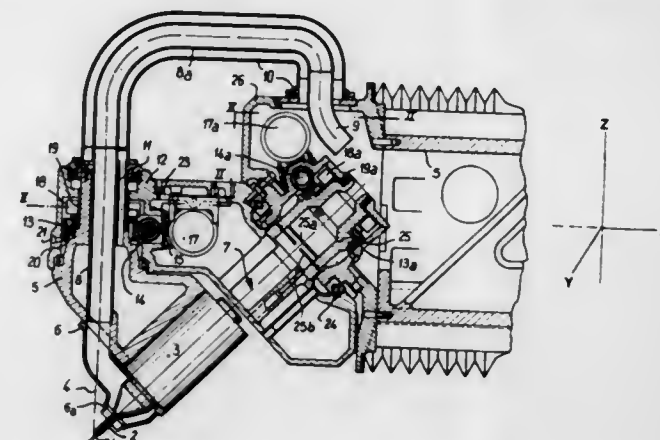
Filed Oct. 26, 1972, Ser. No. 300,965

Claims priority, application France, Oct. 26, 1971, 71,38489

Int. Cl. B23c 1/12

U.S. Cl. 90—15

6 Claims



This milling head intended for machining complex evolutive surfaces in easily machinable materials for manufacturing mock-ups and patterns comprises a tool holder spindle having its axis adapted to pivot about a first axis inclined to the spindle axis and converging therewith to the tool point, said spindle pivot axis pivoting in turn about the second pivot axis while forming therewith the same angle as with the spindle

axis, said first and second pivot axes being also coincident at a point corresponding to the tool point, said second axis being rigid with the frame structure supporting the milling head and being subjected to three movements along the conventional reference axes X, Y and Z of the machine. Thus, the tool holder spindle can swivel in all directions about the tool point.

3,828,650

MULTISPEED HYDRAULIC OR PNEUMATIC DEVICE

Anders Ivar Bryntse, Mjölby, and Karl Erik Berkestad, Linköping, both of Sweden, assignors to AB Bygg-och Transportekonomi (BT), Mjölby, Sweden

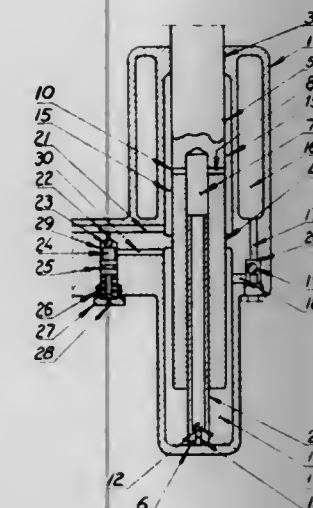
Filed Mar. 16, 1973, Ser. No. 342,216

Claims priority, application Sweden, Mar. 24, 1972, 3859/72

Int. Cl. F15b 11/16

U.S. Cl. 91—411 A

7 Claims



A hydraulic or pneumatic device is provided with a cylinder and piston system for providing a rapid stroke and a power stroke. The piston part of said system comprises a piston-rod like plunger piston, which at its lower end slidably surrounds a tube extending upwardly from, but not secured to the bottom of the cylinder. The cylinder is also provided with two working chambers, which at least partly peripherally surround said piston. Passages are formed in said piston and in said tube for connection of the two working chambers.

3,828,651

COLUMN OF ADJUSTABLE LENGTH

Nikolaus Dörner, Koblenz-Karthause, and Herbert Freitag, Koblenz-Lutzel, both of Germany, assignors to Stabilus Industrie Und Handelsgesellschaft GmbH, Koblenz-Neuen-dorf, Germany

Continuation of Ser. No. 777,768, Nov. 21, 1968, abandoned.

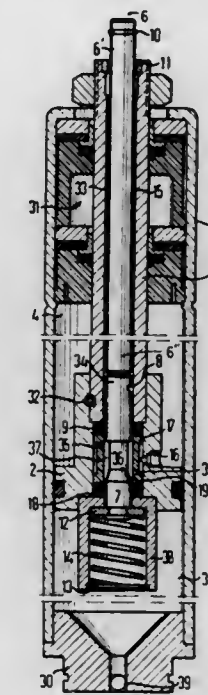
This application Sept. 27, 1972, Ser. No. 292,814

Int. Cl. F15b 15/17

U.S. Cl. 91—416

13 Claims

A column of adjustable length for use as a table leg or the like having a cylinder, a piston movable in the cylinder, a hollow piston rod attached to the piston and axially projecting from the cylinder, and an operating rod axially slidable in the piston rod with ample clearance for operating a first valve which connects the two cylinder compartments on opposite



mosphere through the clearance space in the piston rod when the operating rod is displaced axially beyond the distance required for operating the first valve.

3,828,652

BACK-UP LOCKING CYLINDER

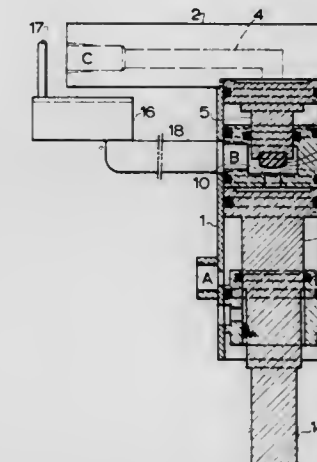
Donald J. Beneteau, 1333 Front St., Amherstburg, Ontario, Canada

Filed Dec. 15, 1972, Ser. No. 315,686

Int. Cl. F15b 11/08

U.S. Cl. 91—445

2 Claims



A compressed air or hydraulic fluid cylinder for attaching a back-up electrode in resistance welding operation containing two pistons with corresponding piston rods. Compressed air entering through a port in the cylinder holds the two pistons in the normal inactive position. When the pistons are activated, pressurized non compressible fluid acts upon the front piston and extends its piston rod until contact is made with the welding work. The pressure at the welding point is maintained by means of the rear piston which is activated by compressed air to lock the existing pressure against the front cylinder. For recycling the procedure is repeated.

3,828,653

SLIDE SHOE AND PISTON ARRANGEMENT

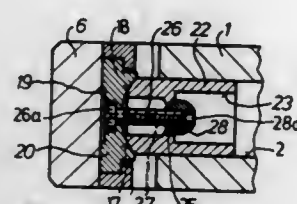
Ulrich Aldinger, Gunter Kersten, and Emil Knodel, all of Stuttgart, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Apr. 10, 1972, Ser. No. 242,485

Claims priority, application Germany, Apr. 17, 1971, 2118712

Int. Cl. F01b 13/04

U.S. Cl. 91—488



4 Claims

In a hydrostatic rotary pump or motor having a cylinder block with cylinders, pistons are mounted which are provided with slide shoes engaging an eccentric annular actuating guide means so that the pistons are reciprocated. Each piston has a spherical end face in sliding contact with a spherical inner slide shoe face having the same radius and center. Mechanical connecting means mount the slide shoe on the piston for angular movement about the center.

3,828,654

PISTON FOR TORQUE TRANSMITTING APPARATUS OF THE SWASH PLATE TYPE

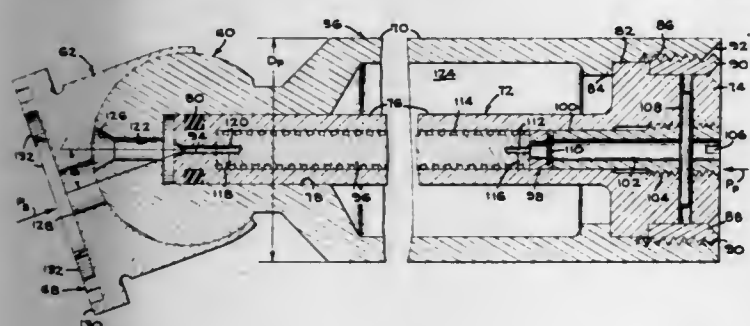
Roger H. Wiethoff, Wayzata, Minn., assignor to FMC Corporation, San Jose, Calif.

Filed Aug. 3, 1972, Ser. No. 277,540

Int. Cl. F01b 31/10; F16j 1/00; F04b 1/00

U.S. Cl. 91—488

6 Claims



A piston for a hydraulic swash plate motor or pump is provided with an internal helical capillary passage of extended length for conducting part of the operating fluid, directed against the head of the piston, at a controlled pressure and flow rate to the swash plate and to the bearing shoe between the ball end of the piston and the swash plate for lubrication purposes and for providing a hydraulic balance for the thrust load on the piston.

ERRATUM

For Class 91—497 see:
Patent No. 3,828,400

3,828,655

COAXIAL ENGINE

Bobby J. Williams, 21731 Canon Dr., Topanga, Calif. 90290

Filed Oct. 6, 1972, Ser. No. 295,518

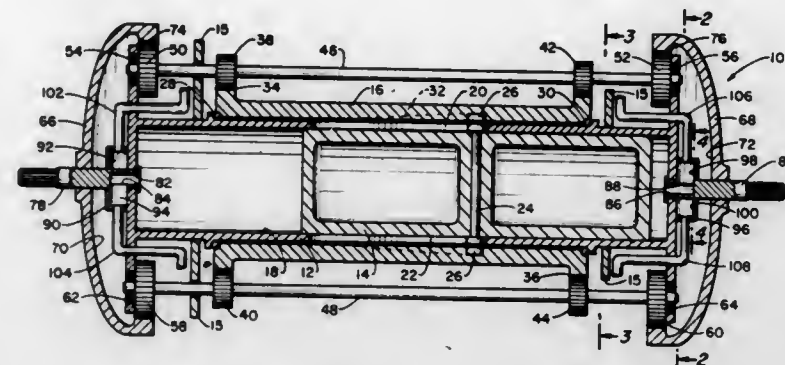
Int. Cl. F01b 3/06, 7/02

U.S. Cl. 92—31

3 Claims

An engine which is composed of a piston reciprocally movable in a cylinder, the follower connected to the piston which communicates with a substantially sinusoidal groove in a

sleeve, the sleeve surrounding a portion of the cylinder, a power take-off assembly coupled to the sleeve and effects transfer of the rotational movement of the sleeve to an output



shaft, the longitudinal axis of the output shaft in alignment with the longitudinal axis of the cylinder and the longitudinal axis of the sleeve and the longitudinal axis of the piston.

3,828,656

ANNULAR PISTON STOP STRUCTURE

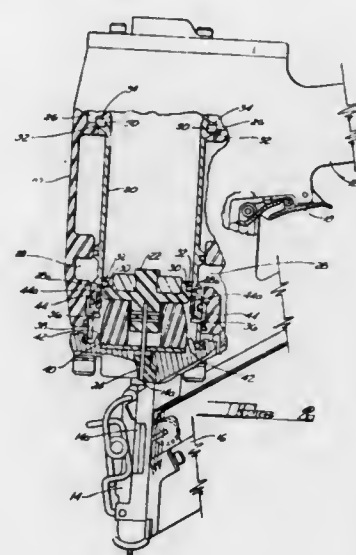
Franklin Keith Biddle, and Carl T. Becht, both of Cincinnati, Ohio, assignors to Senco Products, Inc., Cincinnati, Ohio

Filed Jan. 22, 1973, Ser. No. 325,263

Int. Cl. F01b 11/02

U.S. Cl. 92—85

4 Claims



A structure for stopping a high energy piston, operating within a cylinder, in a short distance at the end of its stroke. There is provided an annulus of resilient material secured to said cylinder and extending slopingly into the path of said piston. As the piston nears the bottom of its stroke, the interference between the piston and annulus, which gradually increases by virtue of said sloping arrangement, brings the piston to a stop in a short distance.

3,828,657

PISTON FOR SWASH PLATE PUMP

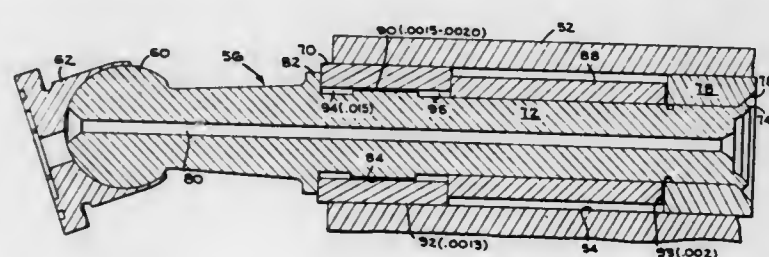
Milton C. Neuman, Golden Valley, Minn., assignor to FMC Corporation, San Jose, Calif.

Filed June 29, 1972, Ser. No. 267,299

Int. Cl. F16j 1/00

U.S. Cl. 92—258

6 Claims



A piston assembly for a hydraulic swash-plate pump is provided with a floating bearing which compensates for lateral

flexure of the piston to achieve substantially total contact with the cylinder wall regardless of piston flexure and thus minimize the tendency of the piston to wear the open end portion of the cylinder out of round.

3,828,658

METHOD AND APPARATUS FOR PRODUCING CIGARETTE FILTER SLEEVES

Helmut Brodbeck, and Hans Haller, both of Trossingen, Germany, assignors to Ekka-Werke Fritz Kiehn GmbH, Trossingen/Wurt., Germany

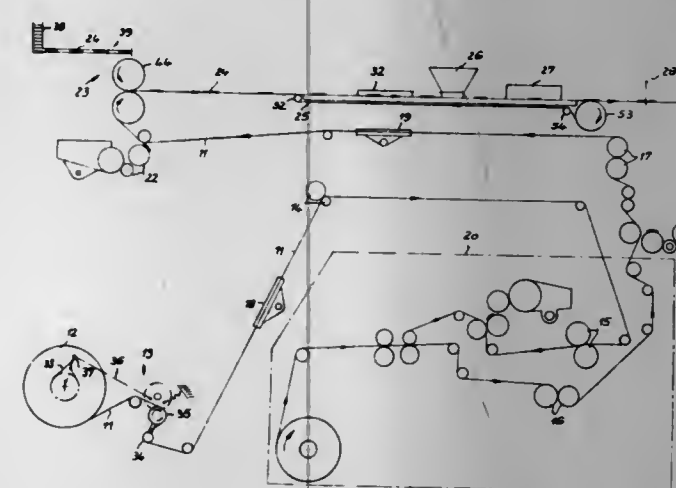
Filed May 19, 1972, Ser. No. 255,107

Claims priority, application Germany, May 21, 1971, 2125118

Int. Cl. A24c 5/50

U.S. Cl. 93—1 C

28 Claims



In a method of producing cigarette filter sleeves, a paper tape is moved at constant velocity and spaced, single or double, filters are placed and adhesively fixed to the tape. Once the filters have been fixed to the tape the tape is wrapped, with the exception of a projecting edge portion of the tape, around successive filters using an endless moulding belt to feed the tape. An adhesive is then applied to the projecting edge portion, which is closed to form a continuous sleeve. The continuous sleeve is cut into individual cigarette filter sleeves.

3,828,659

METHOD OF FOLDING A BOX BLANK

Donald G. Reichert, Tarpon Springs, Fla., assignor to ABC Packaging Machine Corporation, Largo, Fla.

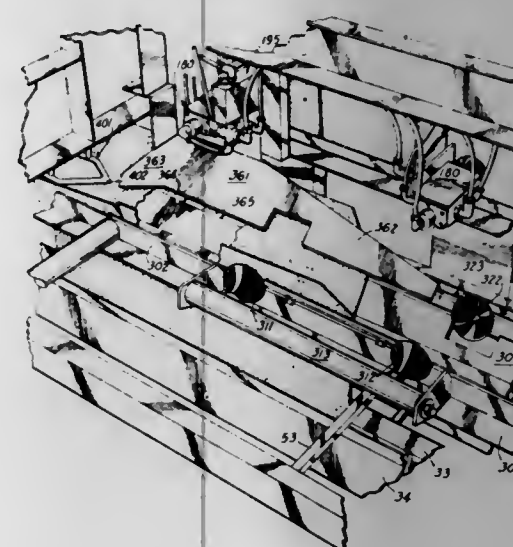
Division of Ser. No. 222,617, Feb. 1, 1972, Pat. No. 3,763,750.

This application May 11, 1973, Ser. No. 359,307

Int. Cl. B31b 1/36, 49/02

U.S. Cl. 93—49 M

11 Claims



A machine for forming a box from a collapsed blank that includes four interconnected sidewalls having four alternately

interconnected end flaps extending therefrom, in which each blank is folded flat with one pair of interconnected end flaps facing the other pair of interconnected end flaps in juxtaposition to one another. The box forming machine includes a magazine assembly for supporting a plurality of blanks in vertically oriented planes and includes means for successively dispensing individual blanks to the receiving end of the box forming machine. The receiving end of the box forming machine includes means for spreading the extended end flaps wherein one pair of interconnected end flaps is angularly disposed to one side of the plane of the collapsed blank and the second interconnected pair of end flaps is angularly disposed on an opposite side of the plane of the collapsed blank. Means is provided for retaining the flaps in their spread relationship while conveyor means advances the collapsed blank to an end flap folding station which includes means for folding the pairs of end flaps back against their respective connected sides. The collapsed carton blank is then moved to a box opening station having means for engaging and angularly displacing one side of the collapsed blank to an open position while an adjacent interconnected side is engaged and held in a fixed position by stabilizing means. After the box has been opened, the bottom end flaps are folded upwardly to a position aligned with the bottom of the box.

3,828,660

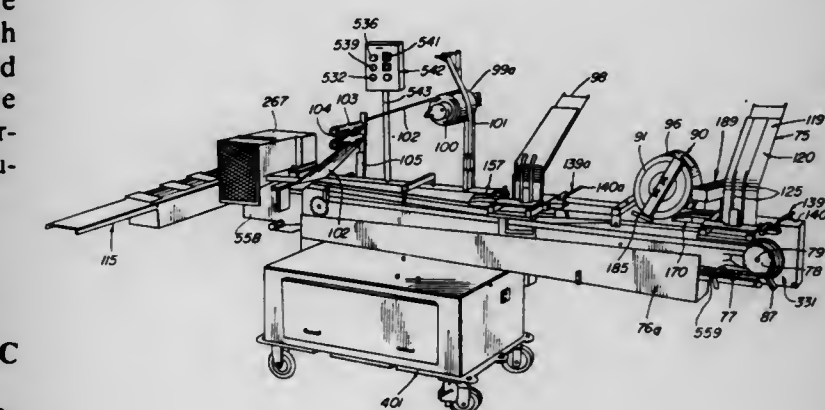
MACHINE FOR MAKING ICE CREAM COOKIE SANDWICHES AND SIMILAR FOOD PRODUCTS
Martin Mueller, Glenview, Ill., and Mason C. Wingo, Roanoke, Va., assignors to Bates Packaging Service, Inc., Des Plaines, Ill.

Filed May 26, 1972, Ser. No. 257,400

Int. Cl. A21c 9/04, 15/02; B65b 9/06

U.S. Cl. 99—450.4

39 Claims



A machine for making ice cream cookie sandwiches and similar edible food products such, for example, as soft cheese cookie or wafer sandwiches; all hereinafter referred to as ice cream cookie sandwiches. At the first work station a first storage magazine or hopper is provided for the first or bottom cookies, wafer, or the like, from which the first or bottom cookies are deposited, one at a time, onto a guideway, or trackway along which they are moved by an endless conveyor unit which embodies article-advancing means, and by which the first or bottom cookie or wafer is carried to a second work station where a measured quantity of ice cream, or like edible body, is deposited from a rotary extruder head device onto the upper surface of the first or bottom cookie or wafer to form the edible filler body in the completed ice cream cookie sandwich, or the like. The first or bottom cookie or wafer with the ice cream filler body thereon is then moved along the guideway or trackway by the endless conveyor and the article-advancing means thereon to a third work station where a second or top cookie or wafer is deposited from a second storage magazine or hopper onto the upper surface of the edible filler body of ice cream, or the like. The thus formed ice cream cookie sandwich is then moved along the guideway or trackway by the endless conveyor and its article-advancing

means to a fourth work station where it is wrapped in a web of flexible, heat-sealable water-resistant sheet wrapping material such, for example, as waxed paper, flexible plastic wrapping film, or the like. The wrapped ice cream cookie sandwich is then moved further along the guideway or trackway by the endless conveyor and its article-advancing means to a fifth work station where the parallel bottom edge portions of the flexible, heat-sealable water-resistant wrapper are heat-sealed to each other; then to a sixth work station at which the parallel end edge portions of the flexible, heat-sealable water-resistant wrapper are heat-sealed together; and finally to a seventh and final work station at which the thus wrapped and heat-sealed ice cream cookie sandwiches are severed or cut from each other, in a chain of the same, by a web-cutting or web-severing device and are delivered to a take-away or delivery conveyor for delivery to a freezer for storage or for use.

3,828,661

APPARATUS FOR THE PRODUCTION OF FOOD PELLETS FROM A FLOUR PRODUCT

Johannes Albertus Vink, Breukelen, Netherlands, assignor to CPM/Europe N.V., Amsterdam, Netherlands

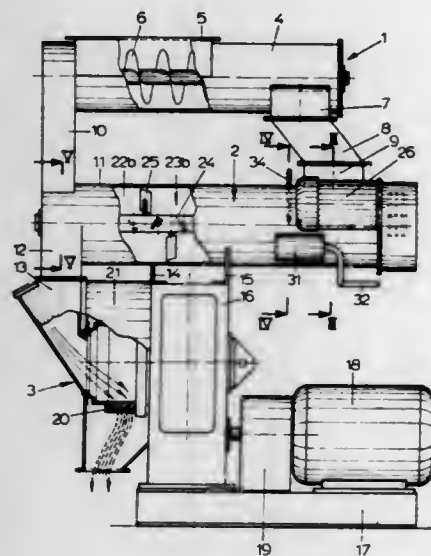
Filed Aug. 25, 1972, Ser. No. 283,814

Claims priority, application Netherlands, Sept. 3, 1971, 7112111

Int. Cl. A23k 1/20

U.S. Cl. 99—483

7 Claims



Apparatus for the production of food pellets from a flour product comprising a feeding section, a conditioning section for blending the flour product with additives and for heating and moistening the mixture, and a press section for pressing out the prepared flour product into pellets. The conditioning section includes two separate parallel adjacently and substantially horizontally disposed identical conditioning chambers each with a mixing and conveying means, both conditioning chambers having one common inlet duct connected to the feeding section arranged immediately thereabove and having one common outlet duct connected to the press section arranged immediately therebelow whereby the stream of flour flowing from the feeding section to the press section is, in the intermediate conditioning section, divided into two parallel product streams allowing a more effective processing of the flour passing through said chambers.

3,828,662

SYSTEM AND APPARATUS FOR HANDLING GREEN LEAF TOBACCO AT THE WAREHOUSE LEVEL

Jesse R. Pinkham, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Nov. 6, 1972, Ser. No. 304,284

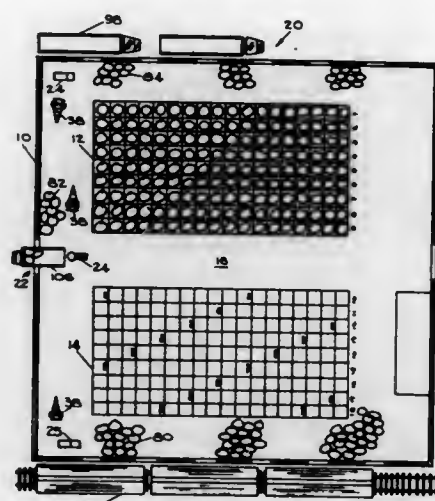
Int. Cl. B65b 13/20

U.S. Cl. 100—7

2 Claims

A system and apparatus for use in baling sheets of tobacco at a warehouse so that the tobacco can be handled and trans-

ported more easily, including a lift and transfer vehicle and a compactor. The lift and transfer vehicle is used to stack a plurality of sheets of tobacco into the compactor so that the stack can be compressed. A set of cross straps are used to secure the



compressed stack together to form a bale. The lift and transfer vehicle removes the bale from the compactor and loads it on another vehicle which will transport the bales to other tobacco processing facilities.

3,828,663

COMPACTOR FOR USE IN COMPACTING AND DISCHARGING LOOSE MATERIAL

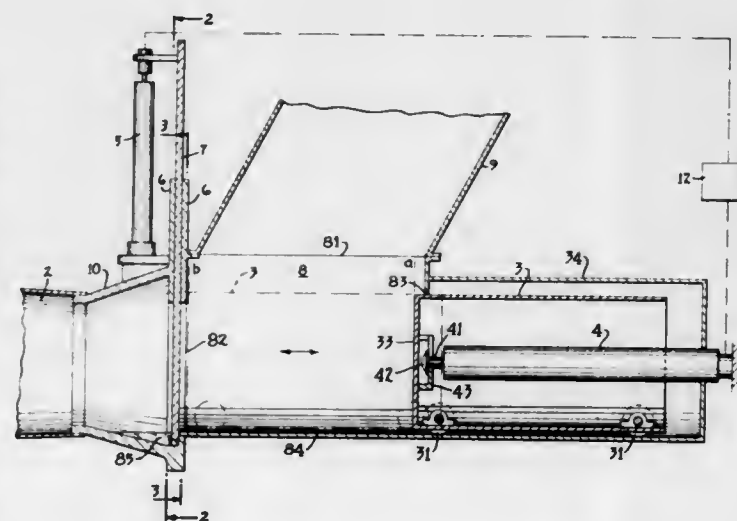
Charles A. Poplinski, 48 Urban Ave., Long Island, N.Y. 11590

Filed Nov. 17, 1971, Ser. No. 199,549

Int. Cl. B30b 1/32, 15/32

U.S. Cl. 100—42

19 Claims



Disclosed is a compactor for loose material such as garbage, including a compacting chamber having a feed opening and a discharge opening; an outwardly tapering discharge funnel; gate means operable for closing and opening the discharge opening; a hydraulic ram operable to compact the loose material in the chamber when the gate is closed and to expel a major portion of the compacted material when the gate is open; means for selfcleaning the gate and means for controlling the operation of the gate and of the ram.

3,828,664

CHECK PROTECTOR

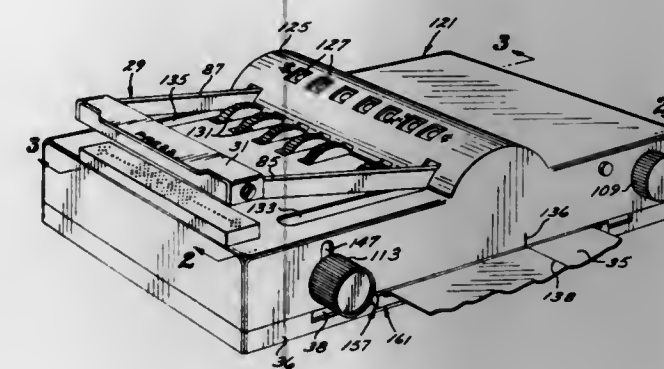
Joseph K. Dikoff, 5949 Lemona Ave., Van Nuys, Calif. 91401

Filed Nov. 3, 1972, Ser. No. 303,534

Int. Cl. B41k 3/08

U.S. Cl. 101—19

7 Claims



A check protector including a base having a check receiving tray carried thereon and a floating chassis disposed over such base. Guide pins project upwardly from the base and engage the chassis to guide it vertically downwardly as it is moved downwardly against the force of biasing springs interposed between the base and chassis. A horizontal shaft is carried by the chassis and has a plurality of printing wheels mounted thereon for independent rotation, each of such wheels having printing numbers spaced about its periphery for selective alignment over the check. A lever is interconnected between the base and chassis and is formed on its free end with a handle for depression to urge the chassis downwardly toward the check tray to bring the selected numbers on the printing wheels into engagement with a check carried on such tray.

3,828,666

SIMULTANEOUS EMBOSsing AND PRINTING

Anthony Apicella, 138 Bodman Pl., Marbella, 07701

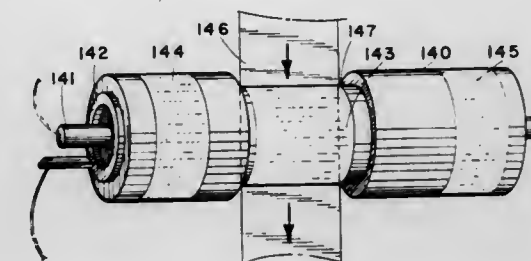
Continuation-in-part of Ser. No. 191,935, Oct. 22, 1971, abandoned.

Filed July 25, 1973, Ser. No. 382,563

Int. Cl. B44b 5/00

U.S. Cl. 101—24

22 Claims



A hot stamping printing press has type dies higher than stamping dies so that more than one print die and stamping die and foil can simultaneously print without interference with each other at a single press stroke.

3,828,667

LABEL PRINTING MACHINE

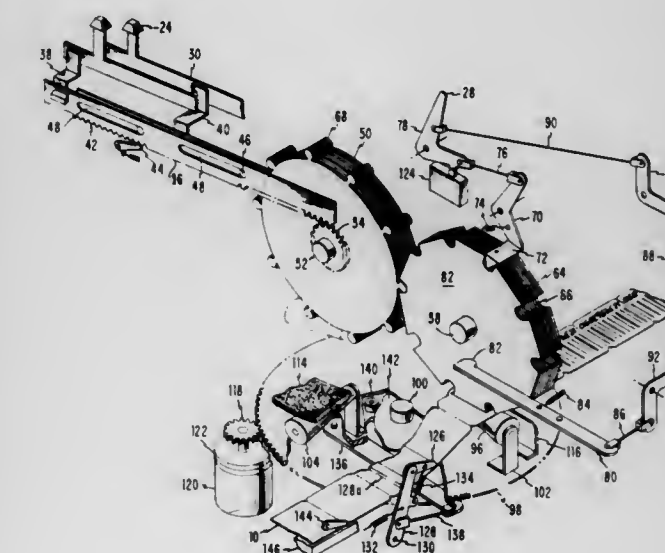
Wilbur M. Davis, and Robert E. Yates, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 20, 1972, Ser. No. 317,019

Int. Cl. B41j 1/44

U.S. Cl. 101—66

2 Claims



A machine for printing identical characters on a series of connected labels including a stack of type wheels each having a series of different bossed print characters on its periphery. A rotatable disk carries an ink transfer roll and a pressure roll. The ink transfer roll rolls across aligned print faces of the type wheels, and the pressure roll then forces a label of the connected series of labels into printing contact with the print faces as the disk rotates. The connected labels are fed one at a time into registry with the aligned print faces of the type wheels for printing the labels one after the other. A manually operated linkage is connected with each of the type wheels for adjusting each type wheel with respect to the other type wheels so as to change the character printed by each of the wheels at will, and the wheels are held against relative rotation during a single run of the connected labels.

3,828,665

MARKING APPARATUS FOR ELONGATED OBJECTS

Katsutoshi Ogura, and Katsuchi Chikazawa, both of Kanagawa, Japan, assignors to Sumitomo Electric Industries Ltd., Osaka, Japan

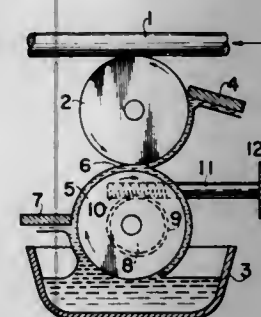
Filed May 21, 1970, Ser. No. 39,407

Claims priority, application Japan, May 27, 1969, 44-48974; May 27, 1969, 44-48975

Int. Cl. B41l 27/08

U.S. Cl. 101—36

1 Claim



Marking apparatus for printing on the surface of elongated objects, comprising a rotatable marking roll adapted to engage the object, a rotatable feeding roll partially immersed in an ink trough and being in engagement with the marking roll to transfer ink thereto, an assembly for causing the feeding roll to rotate at a lower speed than the marking roll, and an automatic ink feed device which supplies ink to the trough.

3,828,668

IDENTIFICATION SYSTEM

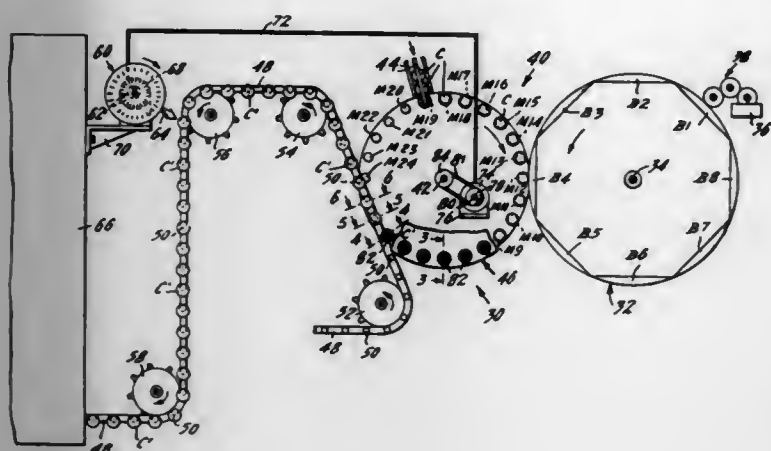
Joseph Paul Zugic, Morganville, N.J., assignor to American Can Company, Greenwich, Conn.

Filed Oct. 6, 1972, Ser. No. 295,420

Int. Cl. B41f 17/22; B65g 43/00

U.S. Cl. 101-40

27 Claims



Identification system and method of correlating downstream work pieces with upstream working members for a work operation such as a can decorator line wherein a rotatable correlator disc having indicia radially thereon, located downstream adjacent a conveyor, correlates workpieces and/or their sites on an adjacently passing workpiece conveyor with upstream working members so that downstream identification can be made of working members that were in register or working relationship with the workpieces and/or their corresponding sites during operation of the working members. Direct relationship is established preferably by servo means between the rotation of the correlator disc and the working members.

3,828,669

PRINT LINE REGISTRATION INDICATOR FOR TYPE BELT

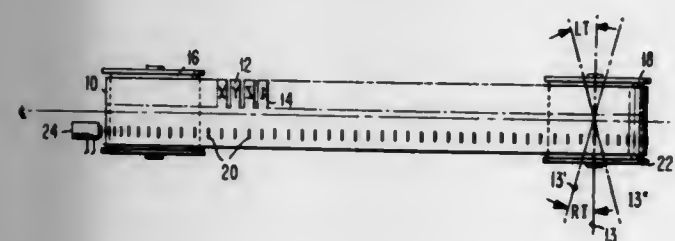
Edward J. Bonafino, Endwell; Richard L. Gilbert, Endicott, and John Mako, Vestal, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 8, 1972, Ser. No. 287,323

Int. Cl. B41j 1/20

U.S. Cl. 101-111

1 Claim



A type belt having spaced apart type characters thereon, also has a plurality of timing marks, one for keeping track of the different character positions. A transducer is positioned to sense the timing marks as they move in a horizontal direction for operating print controls in timed relation with the positions of the type characters as they move along the print line and also detect differences in amplitude of the transducer output signals caused by vertical movement of the type belt. The output is used to operate indicating means which tells which position will print next, and which can also be used to enable the operator to detect misregistration of the type belt, so that the operator may correct it.

3,828,670

METHOD AND APPARATUS FOR ELECTROSTATIC PRINTING USING TRIBOELECTRIC INKING DEVELOPERS

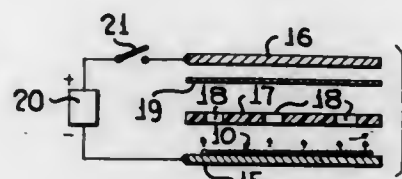
John B. Kennedy, Oak Forest, Ill., assignor to Continental Can Company, New York, N.Y.

Division of Ser. No. 772,438, Oct. 31, 1968, Pat. No. 3,504,624, which is a continuation of Ser. No. 386,182, July 30, 1964, abandoned. This application Feb. 17, 1970, Ser. No. 11,952. The portion of the term of this patent subsequent to Apr. 7, 1987, has been disclaimed.

Int. Cl. B41f 15/00; B05b 5/02

U.S. Cl. 101-114

9 Claims



An electrostatic coating and printing process and apparatus wherein electrically conductive carrier particles and electrically non-conductive toner particles are actuated by an electric field to cause at least some of the carrier particles and toner particles to impinge upon a substrate for applying a selective coating thereto. A stencil screen may be interposed along the path of movement of the particles such that the substrate is coated in a pattern defined by apertures in the stencil screen.

3,828,671

SQUEEGEE AND FLOOD BAR ACTUATOR WITH PEELING SCREEN CLAMP

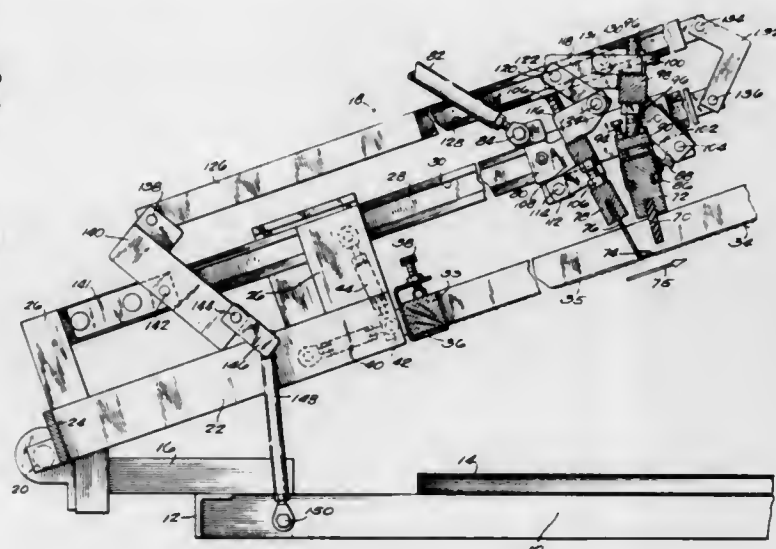
Alvin J. Fuchs, Milwaukee, Wis., assignor to Medalist Industries, Inc., Milwaukee, Wis.

Filed Nov. 16, 1972, Ser. No. 307,322

Int. Cl. B41f 15/36, 15/42

U.S. Cl. 101-123

16 Claims



The squeegee and flood bar assemblies of a screen printing machine are reciprocally moved along a spaced pair of parallel rails to alternately effect a printing stroke and a flood stroke. The rails are part of a frame which is pivoted for tilting movement between a printing position and a flood position. The squeegee assembly is slideably engaged in a third rail or control rail which is raised and lowered in coordination with the movement of the frame to lower the squeegee into contact with the printing screen at the start of the printing stroke and to raise it above the screen at the start of the flood stroke. The flood bar assembly is linked to the squeegee assembly to raise the flood bar when the squeegee is lowered and to lower the flood bar when the squeegee is raised. The front end of the printing screen is held in a clamp which is suspended below

the parallel rails and includes a rod rotatably attached to the frame along an axis which is transverse to the rails, a pair of spaced lever arms projecting from the rod, and a linear clamp member suspended from the lever arms. The rear end of the screen is suspended from the frame by turnbuckles which allow the position of the screen to be manually adjusted.

3,828,672

APPARATUS FOR FITTING FLEXIBLE PRINTING PLATES AND RIGGING TO PRINTING PRESS CYLINDERS

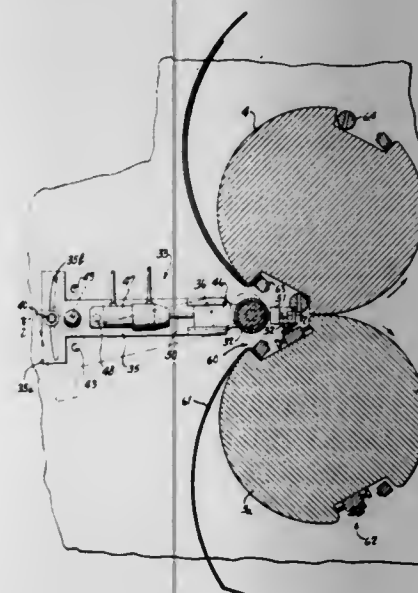
Ivaldo Gazzola, deceased, late of Lausanne, Switzerland; by Eles Gazzola; by Lanfranco Gazzola, both of Lausanne, Switzerland (heirs); Salvatore F. D'Amato, Floral Park, and Chauncey P. Foote, Jr., Katonah, both of N.Y., assignors to American Bank Note Company, New York, N.Y.

Filed Oct. 17, 1972, Ser. No. 298,376

Int. Cl. B41f 13/24; B65h 37/00

U.S. Cl. 101-247

7 Claims



This printing press includes improved mechanism for clamping the edges of a flexible printing plate adjacent the leading and trailing edges of the saddle of a printing press cylinder. An auxiliary roll mechanism permits the flexible printing plate or rigging sheet to be held smooth and under tension during its installation on the cylinder.

3,828,673

PAPER FEED MECHANISM FOR CYLINDER PRESS

Ivaldo Gazzola, deceased, late of Lausanne, Switzerland (by Eles Gazzola and Lanfranco Gazzola, heirs); Salvatore F. D'Amato, Floral Park, and Chauncey P. Foote, Jr., Katonah, both of N.Y., assignors to American Bank Note Company, New York, N.Y.

Filed Oct. 17, 1972, Ser. No. 298,444

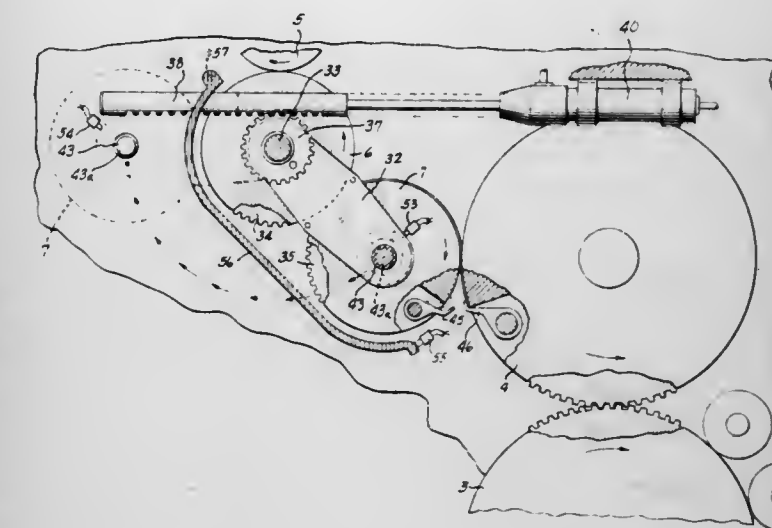
Int. Cl. B41f 21/08

U.S. Cl. 101-232

11 Claims

Apparatus for supplying sheets to be printed to the impression cylinder of an intaglio press, including a first sheet feeding cylinder for transferring sheets to the impression cylinder. The first sheet feeding cylinder is fixed on a shaft journaled on the ends of a pair of links, which are pivoted at their other ends for rotation about a fixed axis. A second sheet feeding cylinder and a gear are fixed on a shaft which rotates about that axis. The links are rotatably mounted on that shaft, which is driven in synchronism with the plate cylinder of the press. A gear fixed on that shaft meshes with another gear fixed on the shaft of the first sheet feeding cylinder. The links may be driven by a motor and appropriate gearing to swing the first

sheet feeding cylinder between a printing position where it is in rolling contact with the impression cylinder and a retracted position where it is spaced from the impression cylinder far



enough to allow access to the impression cylinder and the plate cylinder.

Latches may be provided for holding the paper feed cylinder in either its printing position or its retracted position.

3,828,674

PRINTING PRESS INK SUPPRESSION APPARATUS

Jerold L. Underwood; Floyd D. Edmondson, and Milton M. Dolezal, all of Houston, Tex., assignors to Houston Chronicle Publishing Company, Houston, Tex.

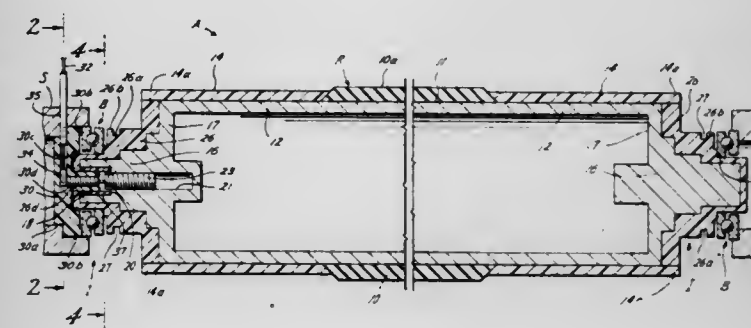
Continuation of Ser. No. 230,776, March 1, 1972, abandoned.

This application Apr. 25, 1973, Ser. No. 354,444

Int. Cl. B41f 31/26

U.S. Cl. 101-349

5 Claims



The present invention provides a new and improved method and apparatus for suppressing ink mist in and around printing presses, reducing the risk of fire and waste of ink.

3,828,675

MUNITION

Charles L. Brohawn, Halethorpe, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 10, 1957, Ser. No. 319,803

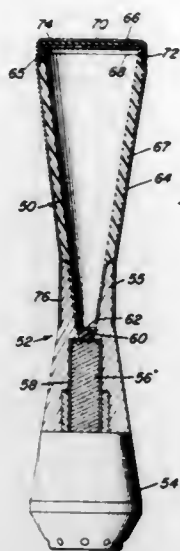
Int. Cl. F42b 25/00

U.S. Cl. 102-2

5 Claims

1. A bomb comprising an enlarged weighted nose portion, a constricted neck portion and an enlarged tail portion, said tail

portion comprising an ampule having a conical wall and having its smaller end mounted within said restricted neck portion, a closure for the larger end of said ampule wall, a cover surrounding and in contact with the larger end and the conical wall of said ampule and secured to said constricted neck portion,



tion, said ampule and cover forming a casing having a conical cavity, the larger end of which is relatively fragile as compared to the walls thereof; and an explosive charge mounted within said enlarged nose portion adjacent to the smaller end of said ampule.

3,828,676 CONSUMABLE EXPLOSIVE CARTRIDGES

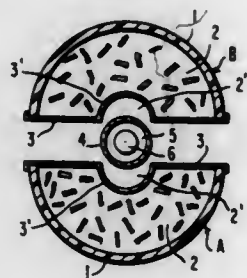
Ralph Daniel Junker, 33 N. Main St., Southampton, N.Y. 11968

Filed Jan. 18, 1973, Ser. No. 324,669

Int. Cl. F42b 9/00

U.S. Cl. 102-39

11 Claims



A consumable explosive cartridge includes an explosive charge defining therewithin a recess. A primer material is disposed within the recess and is of less volume than the volume of the recess to resist premature detonation of the cartridge.

A method for making the cartridge includes the steps of providing a pair of cartridge half sections, each containing an explosive charge and a recess section. A primer material is inserted within one of the recesses and the half sections are secured together with the primer material being disposed within a recess formed by the recess sections.

3,828,677 ELECTRIC IGNITION ELEMENT WITH SECONDARY IGNITION CAPABILITY

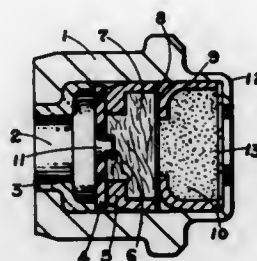
Stanley J. Kaszupski, Philadelphia, Pa., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 11, 1973, Ser. No. 368,927

Int. Cl. F42b 5/08, 9/08

U.S. Cl. 102-46

9 Claims



An electric ignition element having primary and secondary ignition circuits. If the primary ignition circuit fails, the secondary ignition circuit is activated.

3,828,678 JACKETED BULLET

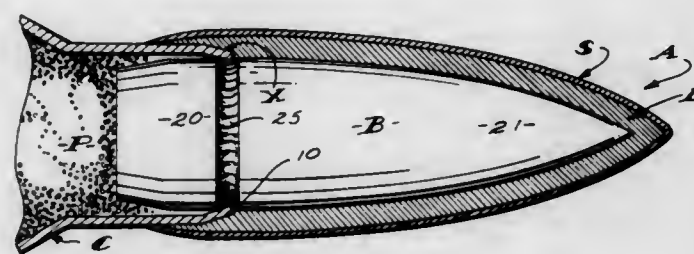
John Bernath, c/o Du-Kote Corporation, 39651 Esplanade, San Jacinto, Calif. 92382

Filed Sept. 21, 1972, Ser. No. 290,961

Int. Cl. F42b 31/02

U.S. Cl. 102-92

10 Claims



A self-lubricating, vapor trailing ammunition round including a jacket about the forward portion of the bullet and extending rearwardly about the forward portion of the casing, said jacket comprising an inner layer of plastic lubricous material with a low latent temperature of vaporization and a thin outer layer of hard, dry, frangible material. The jacket seals the annulus between the casing and the bullet. The jacket material about the casing lubricates the chamber of the fire arm on which it is engaged to prevent freezing of the casing on the chamber. A portion of the jacket material on the bullet lubricates the bore of the fire arm to extend bore life and creates an improved gas seal. A portion of the jacket remains on the bullet after it leaves the fire arm and is vaporized by friction heat between the jacket material and the air to produce a vapor trail.

3,828,679 TOOL FOR BALLAST COMPACTING MACHINE

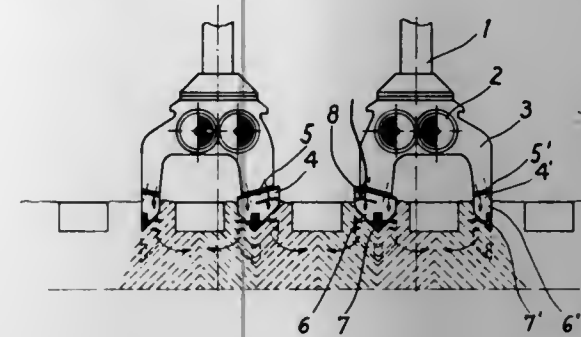
Joseph Eisenmann, and Heinrich Helgemeir, both of Allmannshausenerstrasse 306, Munich 25, Germany

Filed May 30, 1972, Ser. No. 257,954

Int. Cl. E01b 27/16

U.S. Cl. 104-12

6 Claims



Railway track ballast compressing and shifting apparatus wherein there is provided at least one vibrating compacting tool acting on the ballast between sleepers for simultaneously compressing and shifting the ballast to fill voids beneath the sleepers.

3,828,680 STORAGE SYSTEM

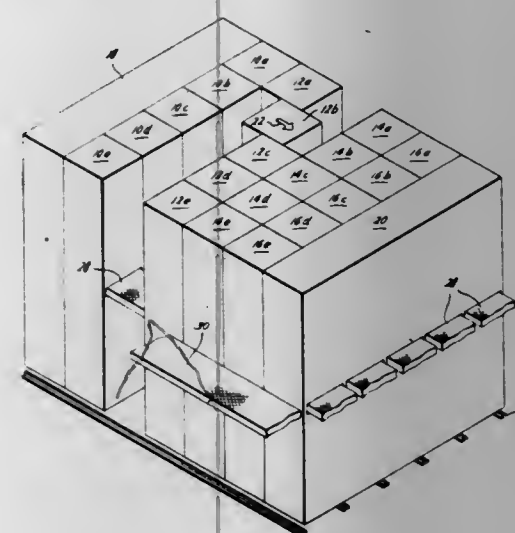
Paul Lester Farren, 309 Westminster, Houston, Tex. 77024

Filed June 8, 1972, Ser. No. 260,892

Int. Cl. B61k 1/00

U.S. Cl. 104-88

20 Claims



A multi-level storage system in which a plurality of storage units are supported in side by side relation, and are movable laterally with respect to one another to open and close aisles therebetween and provide access to various ones of the storage units, said storage units being provided with support means which support fixed flooring panels. In preferred embodiments of the invention the flooring panels extend through aligned storage units so that the storage units may be moved longitudinally of the flooring panels, and access to upper portions of the storage units is gained by walking on the flooring panels. Means are disclosed to bridge openings between the panels, such means being opened and closed by the movement of the storage units. A suspended storage unit is also disclosed.

3,828,681 CONVEYOR SYSTEMS

Svend Christensen, Risskov, and Jacob August Nielsen, Viby J., both of Germany, assignors to Crisplant A/S, Risskov, Denmark

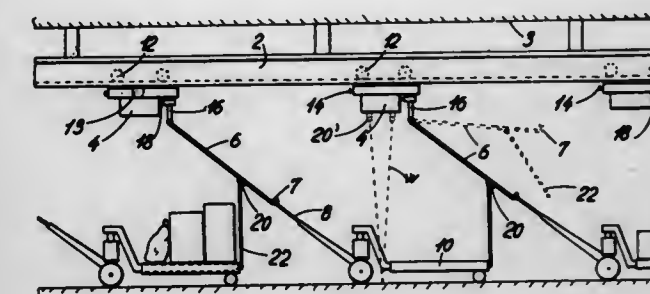
Filed June 15, 1971, Ser. No. 153,391

Claims priority, application Great Britain, June 15, 1970, 28861/70

Int. Cl. B61b 5/00, 7/06, 13/12

U.S. Cl. 104-88

23 Claims



A conveyor system comprising guide rails for a plurality of each of dogs which are provided with a driving motor so as to be individually driven along the guide rail. The dogs releasably connected to load carrier vehicles so as to pull these vehicles along between loading stations and unloading stations in which the vehicles may be released from the dogs. A spacing control arrangement is provided for maintaining sufficient spacing between consecutive vehicle loaded dogs according to the space requirements of the vehicles. The spacing control arrangement is rendered inoperative between an idle dog and the foregoing or following dog so as to enable an idle dog to catch up with a foregoing dog or to be caught up by a following dog. The system is well suited for automatic sorting conveyors, since the individually movable dogs may be guided over rail switches to any desired unloading station.

3,828,682 INSTALLATION FOR TRANSPORTING SPOOLS

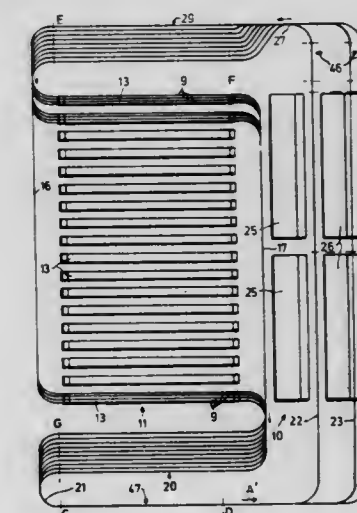
Konrad Klein, Ebersbach-Sulpach, Germany, assignor to Zinser-Textilmaschinen GmbH, Ebersbach, Germany

Filed June 4, 1973, Ser. No. 366,683

Int. Cl. E01b 25/22

U.S. Cl. 104-91

21 Claims



An installation for transporting filled spools produced in at least one first spinning machine to at least one second spinning machine having a spool railing and for transporting backward the empty spools to the first spinning machine or machines. This installation is preferably for transporting the spools between two groups of spinning machines concerned with different production steps. The second machine or group of machines constitutes the subsequent stage(s) of production. A

common rail system is operatively associated with the spinning machines on whose rails a plurality of carriages are disposed for transporting the spools. Spool holders for holding the spools are provided on each carriage. At least one rail runs along each spinning machine, this rail forming part of the rail system. The spool railing (gripper rail, frame or lattice) of the second spinning machine is formed by the at least one rail running along the side of this machine in combination with the carriages brought on that rail which at their arrival carry full spools.

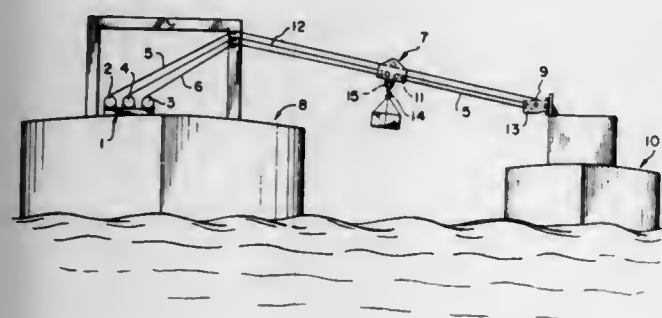
3,828,683 MARINE LOAD TRANSFER SYSTEM

Alexander Lehrer, 1141 Greenway Rd., Alexandria, Va. 22308

Filed Dec. 4, 1972, Ser. No. 311,546
Int. Cl. B65g 67/58

U.S. Cl. 104-114

3 Claims



This system for transfer of a load at sea includes a three-drum winch that controls three lines, a set of sheaves mounted on a kingpost or mast on the supply ship, a block to be mounted to a padeye on the receiving ship, and a trolley that rides the lines between ships and raises, lowers and transports the load. The lines are maintained under relatively constant tension, responsive to motion of ships.

3,828,684 ELEVATED MONORAIL URBAN OR SUBURBAN TRANSPORTATION SYSTEM

Jorge Galvez Figari, Capitan Haya, 3 and 5, Madrid, Spain

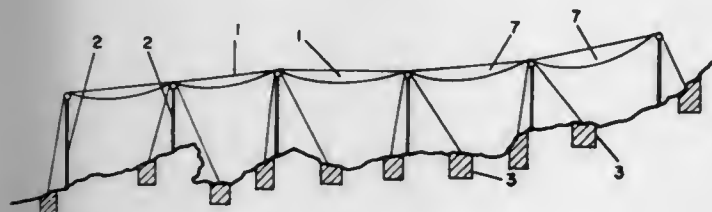
Filed May 30, 1972, Ser. No. 257,493

Claims priority, application Spain, May 28, 1971, 391695

Int. Cl. E01b 25/14

U.S. Cl. 104-124

3 Claims



An elevated monorail transportation system employing a vehicle track consisting of a series of lengths of high strength cable each extending between and supported adjacent its end portion on adjacent support towers spaced along the track. The individual lengths of track cable act as one conductor for supplying electric power to the vehicles moving thereover, and a second cable extending generally parallel to and below the track cables acts as the second conductor. The ends of the track cables are supported on pulleys on the towers and are guided downwardly and laterally thereby in a direction to avoid interference with vehicles suspended on and moving over the track, with the ends of the respective track cables being anchored and retained under high tension at each support tower.

3,828,685 ROUTE CONTROL SYSTEM FOR GUIDED VEHICLES AND THE LIKE

Akinao Nara; Michio Hara, both of Kodaira; Seichi Kanema, and Minoru Kano, both of Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

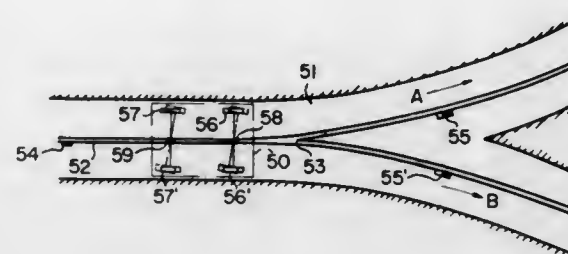
Filed Sept. 28, 1972, Ser. No. 293,039

Claims priority, application Japan, Sept. 29, 1971, 46-75457

Int. Cl. E01b 25/06

U.S. Cl. 104-130

9 Claims



A route control system for guided vehicles and the like in which a guiding member provided on the guided vehicle is inserted into a guiding groove provided along a roadbed on which the guided vehicle is to be driven and a side wall of the guiding groove imparts contact pressure to the guiding member, said contact pressure being detected for producing a detection signal which is utilized for controlling the route of the vehicle.

3,828,686

MAGNETIC GUIDE FOR A RAILWAY VEHICLE

Ulf Steenbeck, Miesbach, and Hans Weidinger, Ottobrunn, both of Germany, assignors to Messerschmitt Bolkow-Blohm GmbH, Munchen, Germany

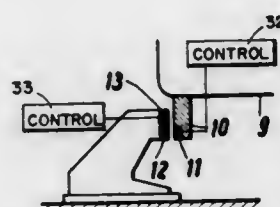
Filed Aug. 3, 1972, Ser. No. 277,782

Claims priority, application Germany, Aug. 10, 1971, 2140103

Int. Cl. B601 9/18

U.S. Cl. 104-148 MS

9 Claims



Lateral guide means for a magnetically supported and track controlled vehicle. In a magnetically supported vehicle lateral guide means are provided for guiding same both along a straight or slightly curving portion of a track and for guiding same through a switch. One set of magnets is provided along one side of the vehicle and another set of magnets is provided along a guide rail adjacent the track. In one embodiment, either of said sets of magnets is a set of electromagnets and the other is a set of permanent magnets while in another embodiment all magnets are electromagnets. A similar arrangement is provided on the opposite side of the vehicle. By creating repelling forces between some of said magnets and attracting forces between others thereof, an accurately controllable lateral guide is developed for said vehicle by which same is caused to maintain an accurately controllable spacing between the vehicle and the side guiding means. A further modification includes combinations of linear motors on either side of the vehicle together with guiding magnets between the vehicle and a laterally positioned track.

3,828,687

TRANSPORT SYSTEM UTILIZING FLUID POWER

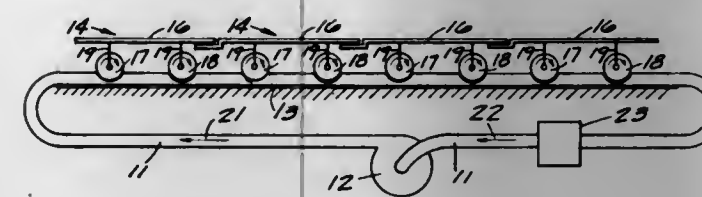
Joseph E. McKeen, 10861 Elm Ave., Lynwood, Calif. 90262

Filed Nov. 13, 1972, Ser. No. 306,074

Int. Cl. B61b 13/00

U.S. Cl. 104-154

10 Claims



A system is disclosed wherein a platform is advanced by utilizing fluid flowing through a flexible tube. The platform, in general, is supported by the fluid pressure within the tube thereby causing a pinching action in the tube, and in turn a resulting force component is produced that is directed upward and forward. This force acts on the platform, propelling it forward. In the preferred embodiment the platform comprises a pair of wheeled trucks pivotally mounted and spaced apart in relationship for and aft on a body. The trucks each have a pair of rollers, and each roller rests on respective flexible tubes, spaced apart like railroad tracks. Suitable means are provided to keep the rollers on the tubes as the platform is propelled. In addition, means are provided to prevent excess lifting to the platform when the platform is light in weight, and means are provided to prevent complete pinching of the tubes by the rollers when the platform is overloaded. The respective platform bodies, when used as moving sidewalks, are made flat with the body of the front platform overlapping the body on the aft platform, and the two bodies are suitably pinned to allow the system to move around corners without interrupting the continuity of the sidewalk.

3,828,688

DYNAMIC STOP

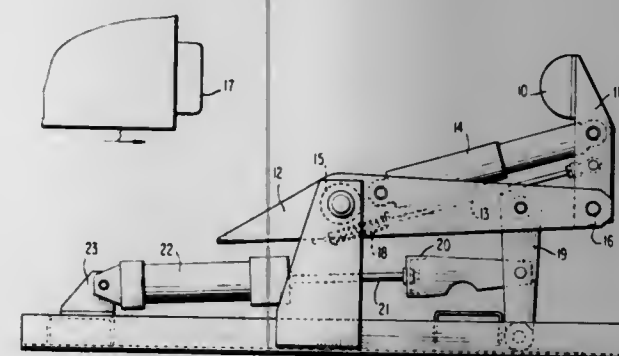
Bernard G. Bradbury, Chico, Calif., assignor to Rexnord Inc., Milwaukee, Wis.

Filed Nov. 24, 1972, Ser. No. 309,026

Int. Cl. B61k 7/18

U.S. Cl. 104-252

6 Claims



A dynamic stop for an operator-less railway transportation system consisting of an arm positioned between the tracks of the transportation system and pivotally mounted so that it does not interfere with the passage of the cars of the railway transportation system when not in use, but may be rotated up so that an absorbent stop plate mounted thereon will contact an absorbent bumper mounted on the front of the car which it is desired to stop. The dynamic stop may be mounted on a reciprocating device to further absorb the energy of contact.

3,828,689

DEVICE FOR RERAILING RAIL VEHICLES

Bruno Raffenberg, Dortmund, Germany, assignor to Hoesch Maschinenfabrik Deutschland Aktiengesellschaft, Dortmund, Germany

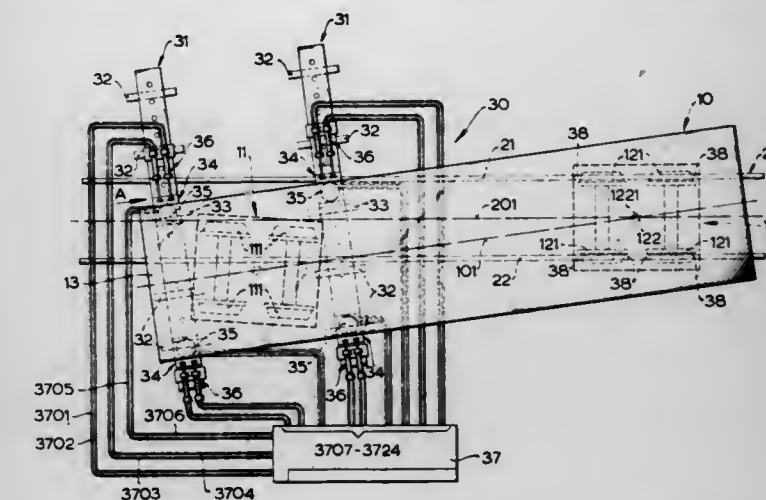
Claims priority, application Germany, July 8, 1972, 2233756

Filed June 4, 1973, Ser. No. 366,503

Int. Cl. B61k 5/00

U.S. Cl. 104-273

10 Claims



A device for returning derailed rail vehicles to the rails on which the vehicle runs which includes bridge means extending laterally of the rails and disposed fore and aft of the derailed wheel set of the vehicle. Trucks are mounted on the bridge means and having hoists thereon for engaging the underneath side of the vehicle to lift the vehicle so that the wheels are above the rails. With the vehicle so lifted, the trucks are moved on the bridge means to locate the bridge means over the rails and the vehicle is then set down so that the wheel set again engages the rails. The hoists are mounted on plates which are pivotal about vertical axes on the respective trucks while having freedom of movement on the respective trucks in a direction substantially parallel to the longitudinal axis of the vehicle.

3,828,690

PORTABLE RAILWAY CAR MOVER

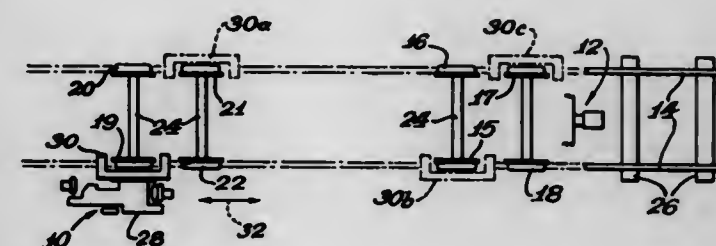
T. Dale Stewart, New Kensington; Thomas D. Stewart, Murrysville, both of Pa., and Charles F. Hautau, Oxford, Ohio, assignors to Shippers Automation, Inc., New Kensington, Pa.

Filed Feb. 14, 1972, Ser. No. 225,913

Int. Cl. B61b 13/12, 15/00; B61j 3/12

U.S. Cl. 105-90 A

8 Claims



Power attachment made to the lower portion of a rail car wheel, at the outer side thereof, to render a railway car self-propellable bidirectionally. The structure includes a roller-carrying C-clamp which, from a side entry position relative to the car to be moved, draws in with a power clamping action against the tread of the wheel at that side so as to interpose first rollers between the jaws of the clamp and the wheel, and other rollers between the clamp and the rail beneath the car wheel. The structure also includes a power unit for bidirectionally driving the first rollers, for collapsing the C-clamp under power to partially support the wheel on the rail, and for bidirectionally driving a set of extendible ground

transport wheels which are provided for the structure and which, when extended from a retracted position, render the attachment self-propellable on the ground independently of the car and the rail.

Primarily involved herein are the feature of broad spacing between two end wheels among the ground transport wheels and reversible wheel motors connected thereto for accurate positioning of the structure on the ground, the feature of an outboard-located dirigible wheel among the ground transport wheels and mutually at the positions of the apices of a triangle for said positioning and for stability of the structure on the ground, and the feature of individual power extension cylinders controlling the set of extendible ground transport wheels for precise levelling of the structure as a stable platform.

3,828,691 RAILWAY VEHICLE

Bernd Purath, Wetter, Germany, assignor to DEMAG Aktiengesellschaft, Duisburg, Germany

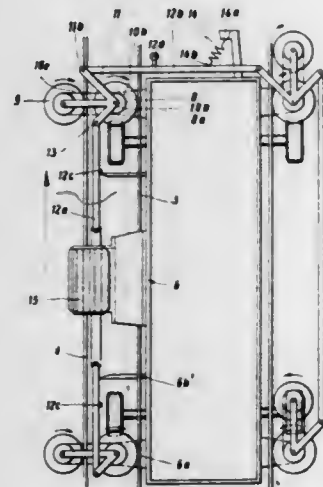
Filed Sept. 7, 1973, Ser. No. 395,041

Claims priority, application Germany, Sept. 7, 1972, 2243910

Int. Cl. E01b 23/12

U.S. Cl. 105-145

14 Claims



Disclosed herein is a new and improved railway vehicle supported by rimless support wheels and guided by special guide wheels and control wheels on a unique track system comprising horizontal main rails having horizontal surfaces upon which traction wheels mounted on horizontal axes for the railway car are supported, guide rails having vertical control surfaces spaced above or below (depending upon whether the railway vehicle is bottom supported or suspended) in non-branching portions of the rail system, and auxiliary or directional rails also having vertical control surfaces. The vertical surfaces of the directional rails contact the control wheels mounted on the railway vehicle for controlling the direction that the railway vehicle takes in traversing a branch. The guide wheels and control wheels are mounted on vertical axes for rotation in horizontal planes and are supported on a unique linkage which is adapted, under a dynamic control influence applied from within the vehicle itself or from a static camming control influence applied by a steering rail disposed in the railway path prior to a junction (in which pairs of tracks are merging or diverging), to pivot the control wheels about the guide wheels to contact a selected one of the directional rails for the purpose of properly and safely directing the railway vehicle as it traverses the junction.

3,828,692 SYSTEM FOR TRANSMITTING TRACTION AND BRAKING FORCES IN A RAIL VEHICLE

Ernst Florian Kreissig, Seuzach, Switzerland, assignor to Schweizerische Lokomotiv-und Maschinenfabrik, Zurich, Switzerland

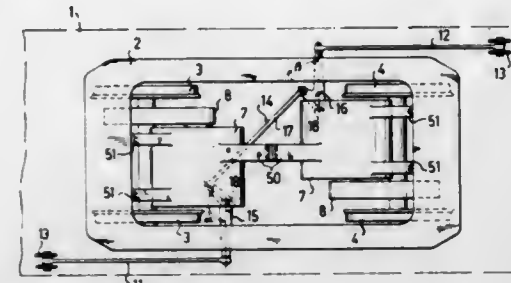
Filed Sept. 25, 1972, Ser. No. 291,933

Claims priority, application Switzerland, Sept. 24, 1971, 13967/71

Int. Cl. B61f 5/24

U.S. Cl. 105-165

8 Claims



The running gear and vehicle body have a linkage connecting each to transmit traction and braking forces in a smooth kinetically accurate manner. The linkage includes a pair of draw bars which are pivotally connected to either the body or running gear and are longitudinally inclined to the horizontal. These bars are interconnected together at their opposite ends by a coupling means.

The coupling means can be in the form of an assembly including a connecting rod and a pair of levers; a connecting rod, guide arm and a pair of levers; a single pivotally mounted connecting rod; or a pair of fluid pressure cylinders which interact with pistons on the ends of the draw bars.

3,828,693 SLIDING WALL ARRANGEMENT FOR COVERED RAILROAD FREIGHT CARS AND CONTAINERS

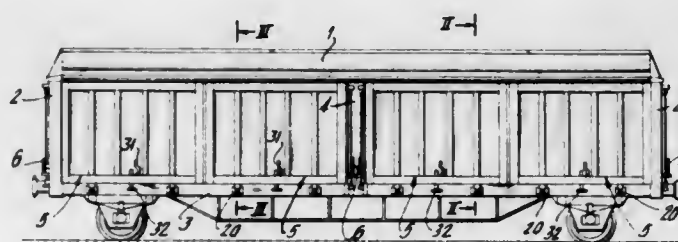
Gerhard Kampmann, Netphen-Dreis-Tiefenbach, and Felix Schneider, Netphen-Eckmannshausen, both of Germany, assignors to Waggon Union GmbH, Siegen, Germany

Filed Apr. 16, 1973, Ser. No. 351,811

Int. Cl. E01b 17/00

U.S. Cl. 105-378

16 Claims



Sliding wall sections are co-planar in the closed state and are movable out of the closing plane and into a shifting plane by operation of respective hand levers and actuating linkage connected to the hand levers. The wall sections are displaceable longitudinally, to open the sliding walls, on rolls engaging fixed wall-parts and intermediate posts of a side wall frame having an upper stringer, a lower outer beam and corner posts. Sealing of the vertical edges of the sliding wall sections to each other and to the corner and intermediate posts of the side wall frame is effected by labyrinth packings. Each actuating linkage is operable to oscillate a respective upper shaft about a longitudinal axis, and each upper shaft has at least two levers extending therefrom and rotatably mounting rollers in their free ends. Brackets are supported on the floor of the container, adjacent the lower outer beam, by parallel linkages for substantially horizontal movement transversely of the container, each bracket including a vertical web plate on its outer

end extending longitudinally of the container, and each web plate, in the outer position of each bracket, conformingly fitting in a cutout in a depending leg of the lower outer beam. The respective parallel linkages include levers secured to respective lower shafts oscillatable about a longitudinal axis by the associated actuating linkage. Arms on the upper portion of each wall section support runner rolls rotatable about horizontal axes, and have supporting cams cooperating with the first mentioned rolls. Lower supporting arms on each wall section rotatably support rolls for rotation about vertical axes and have channel-shaped guide clamps embracing the web plate of the associated bracket and operable to embrace the vertical leg of the lower outer beam. Each wall section, when moved into the shifting plane by oscillation of the upper and lower shafts, is displaceable longitudinally by engagement of its runner rolls with a continuous runner rail and by engagement of its lower rolls with the outer surface of the dependent leg of the outer beam. Interengageable metallic seals are provided on the ends of the wall sections, with each seal including a series of sealing sections arranged along the associated vertical end, the sealing sections having bevelled outer sealing surfaces which alternately slant in respective opposite directions. Profile strips at each corner and intermediate post are arranged to rotate about vertical axes and engage the ends of a wall section when the latter is being moved into the closing plane to guide the section obliquely toward the longitudinal center line of the container to effect tight sealing engagement of the sealing surfaces of the section with the mating sealing surfaces of an adjacent wall section already in the closing plane.

3,828,694 ADJUSTMENT- AND ARRESTING MECHANISM ESPECIALLY FOR A DRAFTING TABLE

Richard Nestler, Lahr, and Peter Doetsch, Altdrossenfeld, both of Germany, assignors to Massstabfabrik Schaffhausen AG, Schaffhausen, Switzerland

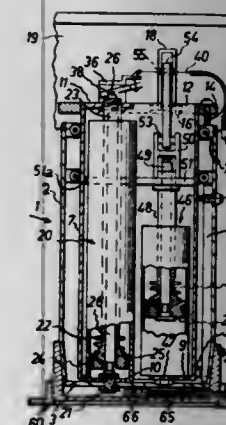
Filed Jan. 18, 1971, Ser. No. 107,047

Claims priority, application Switzerland, Jan. 19, 1970, 706/70

Int. Cl. A47f 5/12

U.S. Cl. 108-10

17 Claims



There is disclosed an adjustment and arresting mechanism, especially for a drafting table, although other uses are contemplated, wherein adjustments are to be carried out substantially along a straight line and/or about at least one axis. The mechanism of the invention comprises an adjustment and arresting cylinder for each adjustment to be performed along the aforementioned straight line or about the aforementioned axis, each such cylinder possesses a predetermined swept volume filled with a fluid medium. Furthermore, piston arrangement is provided for each such cylinder and includes a piston rod and a double-acting piston member within the associated cylinder for sub-dividing the swept volume into two partial chambers. There are also provided means defining a communication channel between both of the partial chambers to permit the flow of the fluid medium from one partial

chamber to the other and shut-off valve means for such communication channel. The cylinder is operatively connected with one of two relatively movable members while the piston rod is operatively connected with the other of two relatively movable members.

3,828,695 TABLE APPARATUS

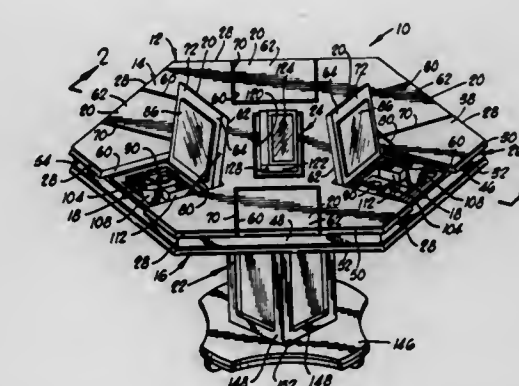
Floyd E. Skarky, 3431 N. Utah, Oklahoma City, Okla. 73120

Filed Aug. 8, 1972, Ser. No. 278,794

Int. Cl. A47b 85/00, 81/00

U.S. Cl. 108-26

5 Claims



An improved table apparatus for displaying supporting predetermined objects, particularly useful for teaching patients personal oral hygiene while functioning as a consultation and decorator table, in one form; the table apparatus having a table top removably supporting a plurality of support modules; lids movably connected to the table top enclosing the support modules in a closed position thereof, the upper faces of the lids cooperating to form a portion of the upper surface of the table top in closed positions thereof; and a table base enclosing a utility storage area.

3,828,696 SAFETY KNEEBOARD

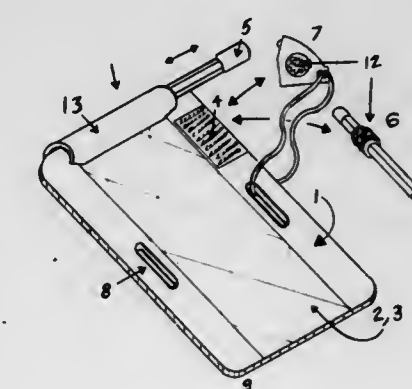
James E. Lockridge, Kailua, Hawaii

Filed Mar. 20, 1972, Ser. No. 236,062

Int. Cl. A47b 23/00, 37/00

U.S. Cl. 108-43

7 Claims



This invention relates to a flexible flat safety kneeboard for use in ejection seat aircraft to prevent injury to the wearer and, physically, jamming the aircraft controls. The surface may be a write-on/erasable type. A phosphorescent layer may be used between the structural surface and a write-on/erasable surface whereupon writing may be effected with a common pencil and may be read in otherwise total darkness. Non-metallic plastic slide lock clamps may be used to hold flight forms or note paper. Velcro, may be used to receive and hold a pencil, or miniature flashlight. A lanyard attaching means may be attached to the kneeboard piano.

3,828,697

WORKING SURFACE FOR RADIANT ENERGY BEAM CUTTER

Georgette S. Egan, Granada Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

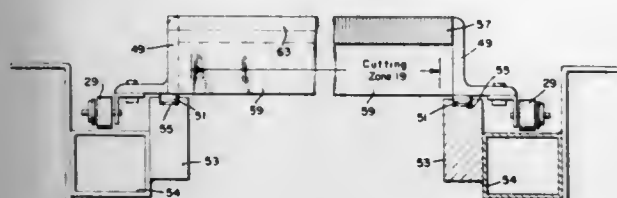
Division of Ser. No. 218,896, Jan. 19, 1972. This application

Mar. 8, 1973, Ser. No. 339,471

Int. Cl. B65d 19/00; B23k 9/00

U.S. Cl. 108—51

4 Claims



A cutting surface for a laser cutter is formed of a plurality of slats assembled into an endless conveyor belt, or alternatively into a slidable tray, for carrying material toward and away from the cutting area. In order to prevent damaging reflection of the laser beam the slats have a honeycomb core held rigid by knife-edged support members.

3,828,698

DEAL DRAWER SAFETY DEVICE

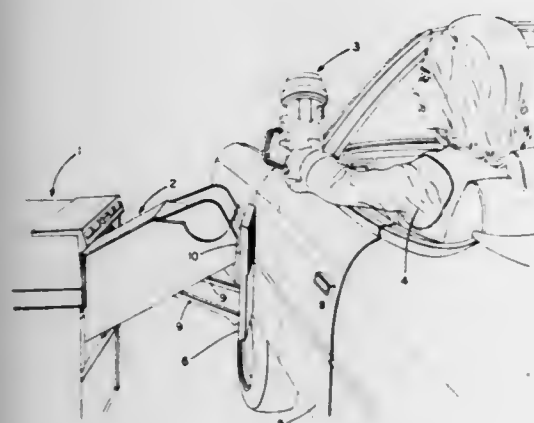
Charles E. Delamater; Herbert C. Obermiller, both of Canton, and John C. Kryah, Akron, all of Ohio, assignors to Diebold, Incorporated, Canton, Ohio

Filed Apr. 16, 1973, Ser. No. 351,555

Int. Cl. E06b 7/32

U.S. Cl. 109—19

9 Claims



A mounting construction for rectangular resilient bumper pad loosely mounted with limited movement in any direction with respect to a rectangular closure head mounted on the end of a movable deal drawer for banking or business equipment. The bumper pad has switch means mounted thereon adjacent at least two of its four corners. The deal drawer closure head has grooved channel-like actuator members located operatively adjacent each switch so that relative movement of the bumper pad at any location thereof, either toward or away from the deal drawer head, actuates at least one switch. These switches are connected in control circuits with a motor drive for the deal drawer so as to stop or reverse movement of the deal drawer upon actuation of any switch.

3,828,699

ARMOUR

Dennis Herbert Bowen, North Stoke, England, assignor to United Kingdom Atomic Energy Authority, London, England

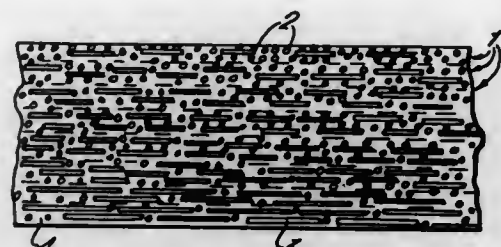
Filed Aug. 18, 1972, Ser. No. 281,779

Claims priority, application Great Britain, Aug. 19, 1971, 39075/71

U.S. Cl. 109—80

Int. Cl. F41h 5/00

10 Claims



An armour comprising a composite material consisting of a mixture of hard particulate material and fibrous material dispersed throughout a matrix material, the distribution of the particulate and fibrous materials through the matrix material being such that the properties of the composite material change progressively from predominantly hard at one surface to predominantly resilient at another surface, and a method of manufacturing the armour in which a plurality of sheets of material the compositions of which may vary so far as the ratio of particulate to fibrous material is concerned are stacked together and hot-pressed at a temperature sufficient to cause the matrix material to flow so as to form a unified voidfree composite material the properties of which vary progressively throughout the material from predominantly hard at one surface to predominantly resilient at the opposite surface.

3,828,700

PROCESS FOR THE SMOKELESS BURNING OF RESIDUES, AND APPARATUS THEREFOR

Raymond Ragot, Melle, France, assignor to Speichim, Paris, France

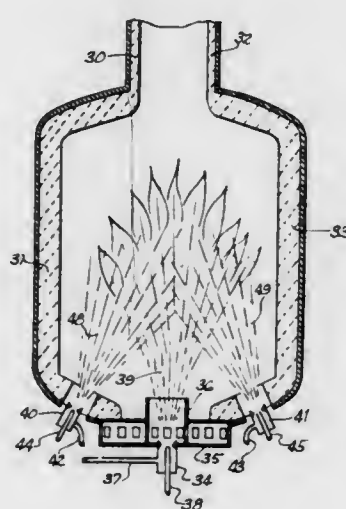
Filed Apr. 4, 1973, Ser. No. 347,852

Claims priority, application France, Apr. 6, 1972, 72.12702

Int. Cl. F23g 7/00

U.S. Cl. 110—7 S

8 Claims



A process and apparatus for use in treating industrial residues such as chemical waste which are in a liquid form but which are substantially uncombustible. The invention provides for the combination of the residues with at least 30 percent by weight combustible substances, preferably substances which are also waste materials, and the burning of the combination at the base of a chimney. The chimney is designed for the introduction of air into the burning zone, and a mechanism for producing a spray of the residue and substances introduced is utilized.

3,828,701

INCINERATOR

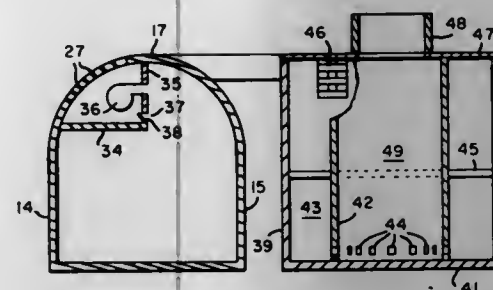
Robert F. Atkin, San Jose, Calif., assignor to Pyrocom, Inc., Campbell, Calif.

Filed May 29, 1973, Ser. No. 364,898

Int. Cl. F23g 5/12

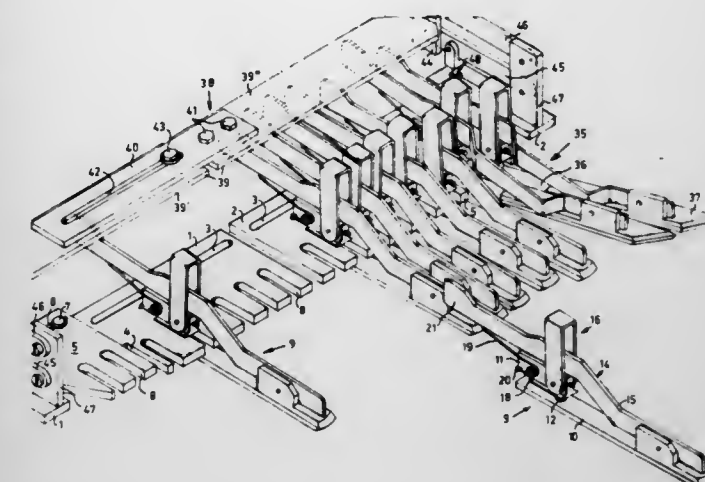
U.S. Cl. 110—8 A

5 Claims



The present invention relates to a commercial or industrial type incinerator and more particularly to an incinerator which is capable of disposing of combustible waste containing a substantial percentage of plastic materials without creating attendant atmospheric pollutants.

consists of essentially a base plate having a plurality of spaced slot-shaped clearances in which can be received a plurality of



clamping means corresponding to the size and shape of the workpieces.

3,828,704

COMBINED UPPER AND LOWER FEED FOR SEWING MACHINES

Wolf-Rudiger Von Hagen, Grotzingen, and Hermann Gauch, Affalterbach, both of Germany, assignors to Union Special Maschinenfabrik, Stuttgart, Germany

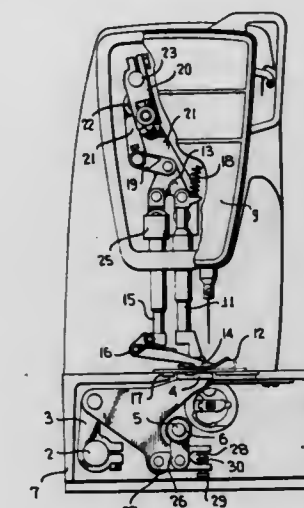
Filed Feb. 15, 1973, Ser. No. 332,549

Claims priority, application Germany, Feb. 19, 1972, 2207897

Int. Cl. D05b 27/06

U.S. Cl. 112—212

11 Claims



3,828,702

RICE FARMING IMPLEMENT

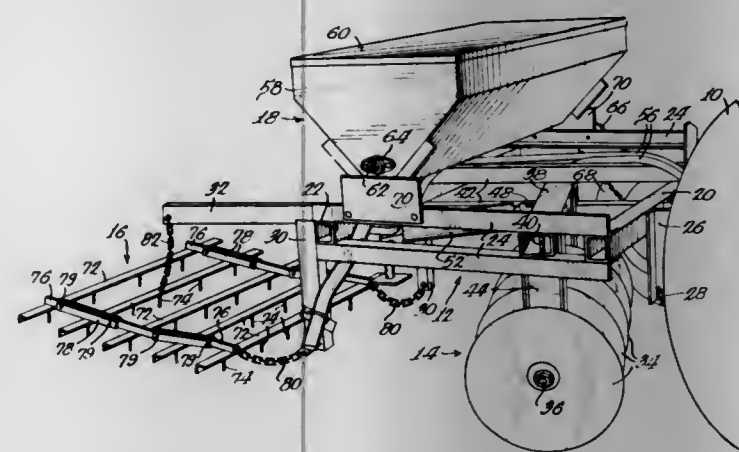
David N. Bowman, Newport, Ark., assignor to Morris L. Bowman, Newport, Ark., a part interest

Filed May 16, 1972, Ser. No. 253,823

Int. Cl. A01c 5/00

U.S. Cl. 111—52

4 Claims



A farm implement particularly adapted for rice farming for increasing the productivity of rice fields by allowing the cultivation of land immediately adjacent the levees in a rice field. The implement includes a frame adapted to be connected to a tractor and mounts, from front to rear, a disc gang, a seeder and a harrow. The disc gang is arranged so that one end thereof is lower than the other end thereof to fill the furrows customarily generated during the formation of levees so as to allow seeding by the seeder and smoothing by the harrow, all in a single pass of the implement.

This disclosure relates to a feed mechanism for sewing machines wherein the upper feed assembly includes a pressure foot and a separate upper fabric slide which operates in conjunction with a lower fabric slide. The pressure foot is constantly resiliently urged towards the needle plate and the mounting means for the upper fabric side includes a spring and means for compressing the spring and tightly applying the upper fabric slide against fabric during the feeding movement thereof with the force required to compress the spring reacting against the means resiliently retaining the pressure foot in place so as to reduce the pressure exerted by the pressure foot during the feeding of fabric relative thereto while at the same time permitting the restoring of the pressure on the pressure foot during the retracting movement of the fabric slides. The lower fabric slide may also have incorporated therein a spring resiliently urging the same towards the pressure foot with the combined reactive forces of the fabric slides springs being less than that applied on the pressure foot.

3,828,703

TEMPLATE

Wolfgang Sugland, Herford, Germany, assignor to Kochs Adler AG, Bielefeld, Germany

Filed Dec. 27, 1972, Ser. No. 318,841

Claims priority, application Germany, Dec. 27, 1971, 2164862

Int. Cl. D05b 21/00

U.S. Cl. 112—121.15

5 Claims

A template for use in controlled sewing devices for sewing pieces of material together along their edges. The template

3,828,705

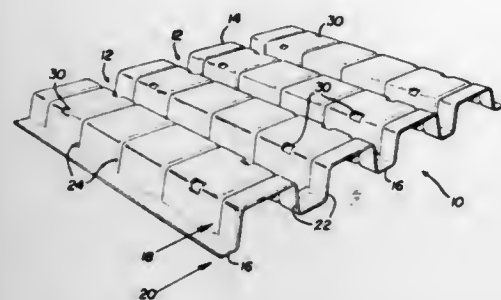
METHOD OF MANUFACTURING A PALLET

James J. Morrison, Windsor, Ontario, Canada, assignor to Kasle Steel Corporation, Detroit, Mich.

Division of Ser. No. 317,261, Dec. 21, 1972, Pat. No. 3,776,146. This application June 22, 1973, Ser. No. 372,727
Int. Cl. B21d 28/06

U.S. Cl. 113—116 R

3 Claims



A one-piece pallet having parallel corrugations and parallel reinforcing ribs transverse to the corrugations. The tops of the corrugations define a load supporting surface and the bottoms of the corrugations define a pallet supporting surface parallel to and below the load supporting surface. The reinforcing ribs project below the load supporting surface and above the pallet supporting surface. Thus, the reinforcing ribs do not substantially reduce the area for supporting either the load or the pallet. Both support surfaces provide maximum contact area for better weight distribution.

The method includes forming the corrugations, by free flow within the forming portion of the die, and forming the ribs by drawing within the die. The drawing occurs after the corrugations are formed and as an uninterrupted continuation of the step of forming the corrugations. The entire operation may be done in a conventional blanking press.

The method may be practiced to continuously make pallets from coil stock by feeding the coil stock and cutting the stock into a pallet blank which remains connected to the stock by an integral tab. The blank and stock are incrementally advanced to a work station where the corrugations and ribs are formed while the next succeeding blank is being cut. After incremental advancing, the connecting tab is removed from the first pallet while the corrugations and ribs are being formed in the second blank and while the third blank is being cut to size.

3,828,706

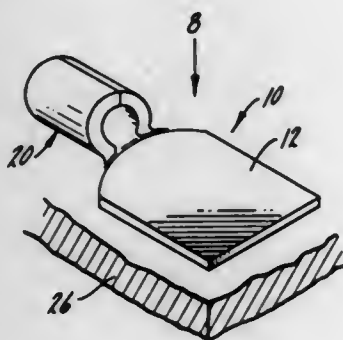
METHOD OF MAKING A TERMINAL

William J. Scott, Sycamore, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill.

Filed Jan. 2, 1973, Ser. No. 320,489
Int. Cl. B21d 53/00

U.S. Cl. 113—119

7 Claims



An improved method of making a terminal connector, having a barrel at one end for mechanical deformation or crimping about a conductor and a snap spade blade at the other end that locks over threads of screws or studs.

3,828,707

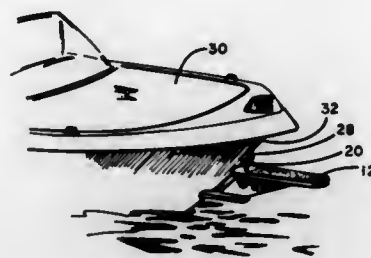
BOAT BOW STEP

John P. Young, 4000 Via Vaquero Ave., Las Vegas, Nev. 89102

Filed Feb. 12, 1973, Ser. No. 331,784
Int. Cl. B63b 35/00

U.S. Cl. 114—.5 R

9 Claims



A device for providing a step on the bow of a boat comprises a flat upper step member, a lower stabilizing member having a notched cavity for engaging the bow of the boat and a support member attached to and extending between the upper and lower members.

3,828,708

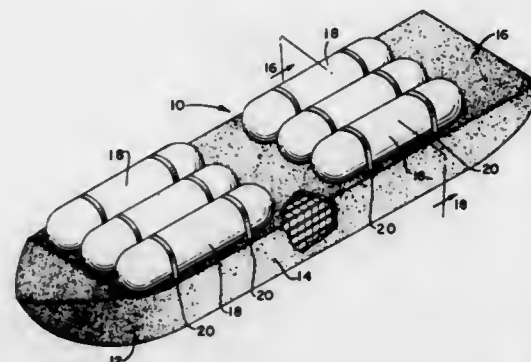
MODULAR PRESTRESSED CONCRETE MARINE VESSELS AND METHOD OF MAKING SAME

Ben C. Gerwick, Jr., 500 Scansom St., San Francisco, Calif. 94111; William J. Talbot, Jr., 3601 Sarsalite Dr., Coronado Del Mar, Calif. 94965; Keith E. Hughes, 2570 Qued Way, Laguna Beach, Calif. 92651, and Arnold L. Brown, Snowdon Ct., Walnut Creek, Calif. 92651

Filed Apr. 9, 1973, Ser. No. 349,405
Int. Cl. B63b 5/14, 5/18

U.S. Cl. 114—65 A

17 Claims



A preferred method of fabricating a prestressed concrete barge is disclosed in which the hull is constructed from a plurality of longitudinal modules. All modules, including the bulkhead modules, are cast in a horizontal plane as a full-transverse cross-sectional element with appropriate spaced openings. Then the modules, which have ducts extending therethrough and a gasket sealing one end of each duct, are rotated 90° to a normal, or vertical, orientation, post-tensioned in two complementary directions, and transported to an assembly site. Steel tendons are passed longitudinally through the ducts so that the modules can be lightly prestressed until the adjacent modules are in alignment. The joints defined by adjacent modules are then temporarily sealed by applying a putty-like cement or grout thereinto; an adhesive epoxy is subsequently pumped into the temporary joint to form a full-strength, long-lived, water-tight bond. The procedure is repeated until the hull has been completed, and then the entire hull is longitudinally prestressed by applying considerable force to the tendons. Grout is then pumped into the ducts and allowed to harden to maintain the tensioning forces of the tendons, which act in a third complementary direction. Storage tanks are then installed from the open ends of the assembled hull onto saddles located in the interior of the hull. Concrete plugs are then sealed in the openings of the

bulk-head modules. The bow and stern, which are cast as separate, doublecurved, non-prestressed concrete sections, are then joined to the modular hull. Lastly, the barge is launched and a plurality of tanks are secured to saddles on the deck.

The unique method outlined above, with minor variants, is applicable to the fabrication of concrete barges for transporting liquid petroleum gas (LPG), liquid natural gas (LNG), vinyl chloride and various cryogenic cargoes. Furthermore, such method may be utilized to fabricate diverse modular floating platforms well-suited for use as self-contained electrical power generating stations, waste treatment facilities, fish canneries, heliports, and the like.

3,828,709

LNG CARGO TANK INSULATION SYSTEM

Ragnar Bognaes, Jeloy, and Olav Solberg, Oslo, both of Norway, assignors to Kvaerner Brug AS, Oslo, Norway

Continuation-in-part of Ser. No. 81,101, Oct. 15, 1970, Pat. No. 3,680,323. This application July 28, 1972, Ser. No. 275,893. The portion of the term of this patent subsequent to Aug. 1, 1989, has been disclaimed.

Int. Cl. B63b 25/08

U.S. Cl. 114—74 A

9 Claims



In a marine vessel having a hull structure for transporting or storing a cargo tank adapted to contain liquified and/or compressed gas, the tank is supported within the hull in any convenient manner by a support structure, with the exterior surface of the tank substantially entirely covered by a thermal insulation material. The insulation material also covers a portion of the support structure and extends from the point of juncture of the support structure with the tank towards a termination point spaced from the hull. The insulation material covering the support structure is tapered from a maximum thickness adjacent the point of juncture of the support means with the tank to a minimum thickness at the termination point so as to create a controlled temperature gradient in the support structure thereby to minimize the thermal stresses in the tank at the point of juncture thereof with the support structure.

3,828,710

EXTENSIBLE STANCHION

Henry Sause, Jr., 3829 N.E. Flanders, Portland, Oreg. 97232

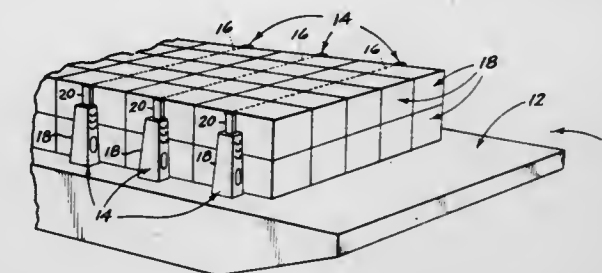
Filed Aug. 18, 1972, Ser. No. 281,837
Int. Cl. B63b 25/28

U.S. Cl. 114—75

6 Claims

A vertically extensible-contractible telescopic stanchion usable on a deck in a vessel such as a barge for holding a load. The stanchion includes a somewhat pyramidal base (for anchoring to a deck), and a pair of independently movable extension members mounted on the base. The base and extension members include generally upright planar load-support

surfaces, all of which occupy a substantially common upright plane. Chains in the stanchion that are connected to the extension



sion members are utilized to raise and lower these members; and also to lock them in different selected extended positions.

3,828,711

WING GENOA JIB

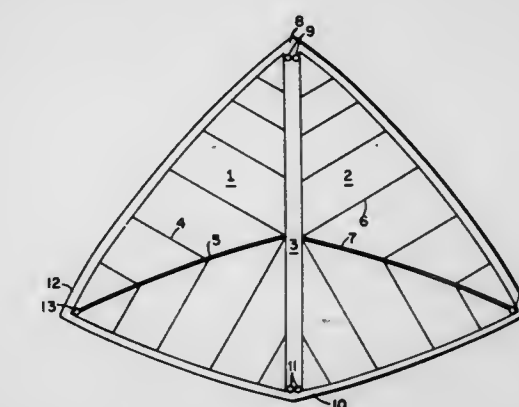
Charles W. Russell, 2005 Paul Spring Rd., Alexandria, Va. 22307

Filed July 27, 1972, Ser. No. 275,873

Int. Cl. B63h 9/04

U.S. Cl. 114—103

3 Claims



A wing genoa jib for a sailboat has two identical halves joined along the luff and provided at the head with fittings for a halliard and fitted at the tack with a tack line, each half of the wing genoa jib having a sheet. When used as a genoa jib the luff is brought into engagement with the head stay, the tack secured, and the halliard hoisted while the clews of the two halves are joined to form a double layer genoa jib having its luff bearing on the head stay. When off the wind or when reaching, the tack is released and the sheets of the two halves of the genoa jib properly adjusted so that the jib opens to form either a running spinnaker or a reaching spinnaker.

3,828,712

SAIL LAUNCHING DEVICE

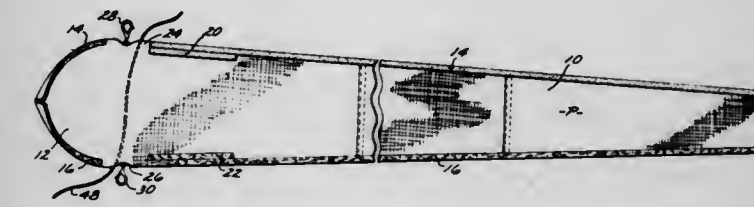
Montague R. Mintey, 10580 Arnwood Rd., Lake View Terrace, Calif. 91342

Filed May 14, 1973, Ser. No. 360,395

Int. Cl. B63h 9/04

U.S. Cl. 114—104

6 Claims



A sail launching device for initially-furled sails, such as a spinnaker or other sails. The device includes a panel which is initially encircled about the furled sail. The edges of the panel are provided with readily disengageable Velcro fasteners. When the panel is raised, the Velcro fasteners are disengaged by the pressure of the sail as the latter is unfurled.

3,828,713

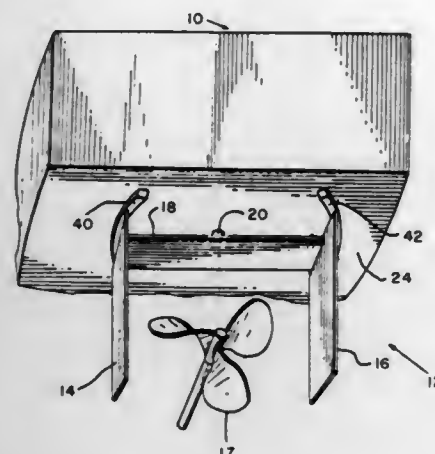
BOAT FLANKING RUDDER SYSTEM

Charles S. Duryea, 168 N. Bridge, Somerville, N.J. 08876
Continuation-in-part of Ser. No. 113,247, Feb. 8, 1971, Pat.
No. 3,710,749. This application Oct. 19, 1972, Ser. No.
298,863

Int. Cl. B63h 25/06

U.S. Cl. 114—163

8 Claims



A flanking rudder system for small, propeller driven boats including at least two transversely spaced rudder blades mounted in flanking positions on opposite sides of a boat propeller, with blade portions extending to pivot about the propeller, and single control means for varying the effective rudder angles and positions with respect to the longitudinal axis of the boat and the propeller. The rudders are connected by a transverse bridge member and the assembly may be detachable to provide simplicity of mounting and permit blade interchangeability. The improved rudder system may also include a hydro-foil or a planing bar.

3,828,714

MARINE HARDWARE

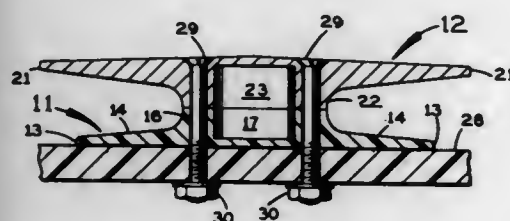
Marvin S. Perkins, North Miami Beach, Fla., assignor to Perkins Marine Lamp and Hardware Corporation, Miami, Fla.

Filed June 16, 1971, Ser. No. 153,603

Int. Cl. B63b 21/08

U.S. Cl. 114—218

1 Claim



A marine accessory device such as a cleat, bow light, ventilator, tank filler pipe or the like, consists of a pair of inter-connected members one of which is formed of a relatively flexible polymeric resin such as a polycarbonate resin and the other is formed of a rigid metal. The device is mounted on a marine vessel by securing the polymeric resin member to a vessel surface.

3,828,715

AIR CUSHION TYPE FENDER FOR USE WITH A QUAY-WALL

Kazuo Matsushita, Hiratsuka, Japan, assignor to The Yokohama Rubber Co., Ltd., Tokyo, Japan
Filed Feb. 12, 1973, Ser. No. 331,566

Claims priority, application Japan, June 23, 1972, 47-74117

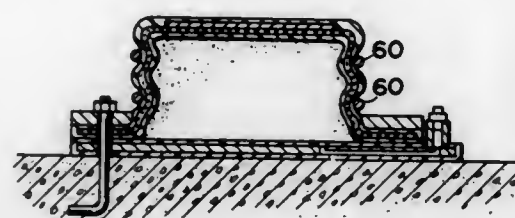
Int. Cl. B63b 51/02; E02b 3/22

U.S. Cl. 114—219

8 Claims

An air cushion type fender for use at a quay-wall is provided having a hat-shaped body made of a rubbery resilient material

and a bottom plate adapted to seal and close the bottom opening of the hat-shaped body which is filled with pressurized air. The hat-shaped body has a flange extending outwardly from the edge of its bottom opening, permitting mounting on the



quay-wall by anchor bolts. This fender provides excellent damping of the initial impact at the instant of first contact of a vessel moored parallel to or at an angle with the quay-wall, by slipping and restoring to its original shape.

3,828,716

MOORING DEVICE

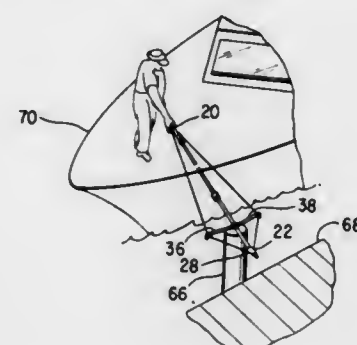
Robert P. Bernardi, Harrisburg, Pa., assignor to Bernardi Bros., Inc., Harrisburg, Pa.

Filed Sept. 13, 1973, Ser. No. 396,672

Int. Cl. B63b 21/00

U.S. Cl. 114—221 R

7 Claims



A mooring device includes an elongate mooring pole and a spreader assembly having a pair of spreader arms pivotally mounted on the mooring pole movable from an inoperative position lying along the mooring pole to an operative position extending away from the mooring pole, the spreader arms having channels formed in the ends thereof cooperating with a leg extending from a distal end of the mooring pole to define a three-point support for a mooring line forming a loop to be released to drop over a mooring.

3,828,717

WATER SKIING APPARATUS

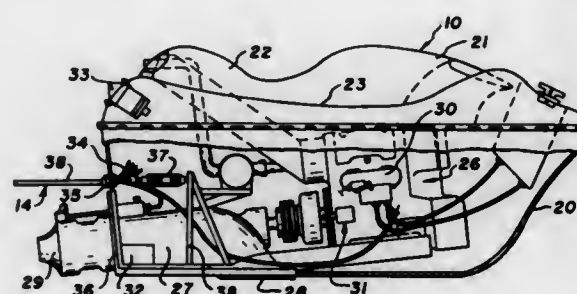
Ronald A. Nichols, No. 253-10202 149th St., Surrey, B. C., and George Rakuson, 4554-48B St., Delta, B. C., both of Canada

Filed July 2, 1973, Ser. No. 375,831

Int. Cl. A63c 11/10

U.S. Cl. 115—6.1

4 Claims



Water skiing apparatus including a boat propelled by an engine and capable of being steered from a point remote from

the vessel. A control float is connected to the boat by a line and the water skier uses a two-handed grip on separate handles attached to the float. One handle is fixed to the float and the other can be rotated through an arc and about a substantially horizontal axis. The movable handle is used to operate hydraulic means which actuates a steering nozzle on the boat. The fixed handle has a trigger-like control lever which opens and closes the engine throttle through operating means. Circuit means including two switches one on each handle enables the skier to start the motor as well as to bring it to a fast stop in an emergency.

3,828,718

AUXILIARY RUDDER

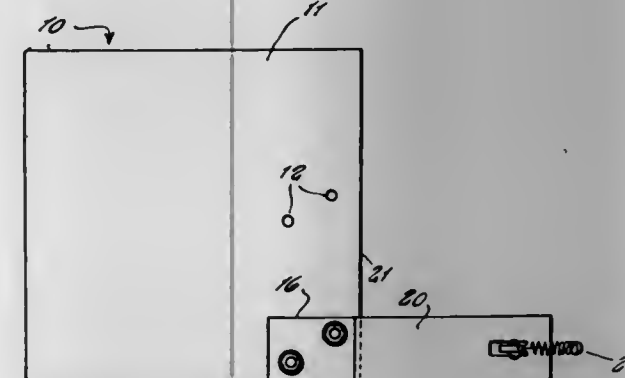
Ray L. Jolin, P.O. Box 146, Tracyton, Wash.

Filed June 27, 1972, Ser. No. 266,568

Int. Cl. B63h 21/26

U.S. Cl. 115—18 R

1 Claim



An auxiliary rudder that is attachable to any outboard motor so to serve as a steering device; the auxiliary rudder consisting of a flat steel plate to each opposite side of which an offset bracket is secured, a pair of shims between each bracket and the plate, each bracket extending beyond a side edge of the plate and supporting a tension coil spring therearound so to be securely fitted to the outboard motor.

3,828,719

HYDRAULIC PROPULSION UNIT

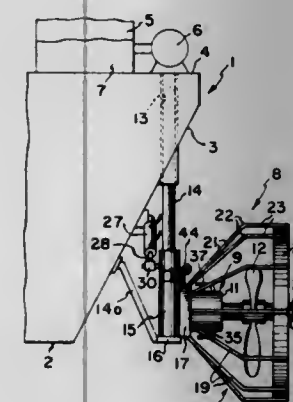
Clifford M. Cooke, P.O. Box 236, Thessalon, Ontario, Canada

Filed Apr. 3, 1972, Ser. No. 240,570

Int. Cl. B63h 1/14

U.S. Cl. 115—35

6 Claims



Hydraulic propulsion apparatus particularly adapted for use on a marine vessel such as a barge comprises a propeller and hydraulic driving motor mounted at one end of the vessel for vertical adjustment and rotary steering movements. The propeller is housed within a protective cage or shroud which normally extends below the level of the bottom of the vessel for engagement with the bottom of a shallow body of water whereupon the propeller may be adjusted vertically upwardly

automatically. A preferably hydraulically operated steering mechanism is connected to the propeller assembly for imparting rotary steering movements to the latter, the mechanism permitting vertical adjustment of the propulsion apparatus.

3,828,720

DUAL PURPOSE DIAL MECHANISM

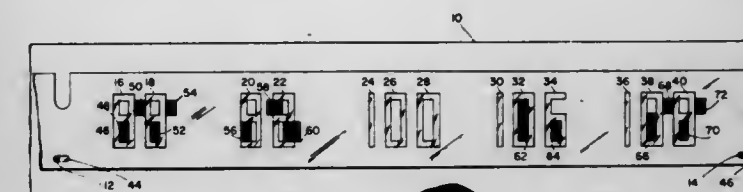
Richard J. Herst, Woodland Hills, Calif., assignor to Car Tapes, Inc., Chatsworth, Calif.

Filed Apr. 9, 1973, Ser. No. 348,967

Int. Cl. H03j 1/02

U.S. Cl. 116—124.1

7 Claims



A dial and mask combination enables alternate selection of AM or FM broadcast frequencies. The movement of the mask is directly controlled by an FM-AM selector switch. Selecting the FM portion moves the mask to a first position, displaying a portion of the dial representing FM frequencies. Selecting the AM portion moves the mask to a second position, displaying a portion of the dial representing AM frequencies.

3,828,721

AUTOMATIC SPRAY-PAINTING MACHINE

Harry Szczepanski, 900 Clancy, N. E., Grand Rapids, Mich. 49503

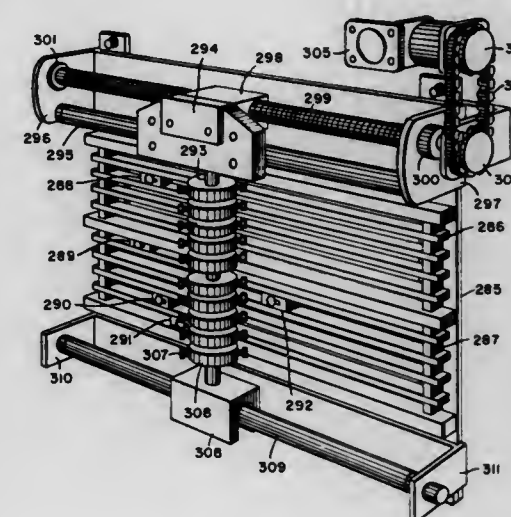
Division of Ser. No. 79,012, Oct. 8, 1970, Pat. No. 3,716,022.

This application Feb. 7, 1973, Ser. No. 330,330

Int. Cl. B05c 5/00, 11/16

U.S. Cl. 118—7

4 Claims



A conveyor extends into a spray station from an exterior loading station. At least one fixture for supporting a mask and work pieces is engageable with the conveyor for movement into the spray station. The conveyor preferably continues the movement on through the spray station, and out the opposite side, so that the enclosure forming the spray station can be shorter than the length of the fixture assembly in the direction of movement of the conveyor. Space under one side of the conveyor is utilized for mask-washing equipment. Lateral transfer means, together with an elevator system, moves the work support and mask from the conveyor to and through the washing station. A program controller determines the painting cycle according to easily preset adjustments, and spray gun assemblies can be lifted out and installed as a unit for each job set-up. A down-draft ventilation system in the work station accommodates the wide range of painting conditions the machine is capable of handling.

3,828,722

APPARATUS FOR PRODUCING ION-FREE INSULATING LAYERS

James L. Reuter, and Jagtar S. Sandhu, Fishkill, both of N.Y., assignors to Cogar Corporation, Wappingers Falls, N.Y.

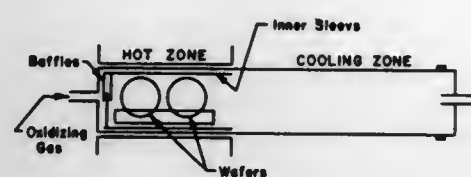
Division of Ser. No. 33,701, May 1, 1970, Pat. No. 3,666,546.

This application Nov. 22, 1971, Ser. No. 200,821

Int. Cl. C23c 13/08

U.S. Cl. 118—48

5 Claims



Ion contamination of insulators, such as thermally grown silicon dioxide layers on silicon wafers is virtually eliminated, if, after oxide growth, the wafers are cooled in an ion-free zone. A cylindrical, inner, quartz sleeve, preferably baffled, is interposed between the reaction tube and a wafer containing boat while a purging gas such as argon, nitrogen, helium and other inert gases is directed into the sleeve over the oxidized wafers to prevent contamination of the wafer by ions out-gassing from the walls of the reaction tube during the cooling cycle. Alternatively, the portion of the tube designated for wafer cooling is continuously baked before and during the oxide growth process and cooled simultaneously with the wafers thereby preventing the buildup of ions on the walls in the wafer cooling portion of the tube. Alternatively, a quartz sleeve is interposed between the wafer boat and reaction tube and extends from the hot zone and through the portion of the tube designated for wafer cooling. The inner sleeve is removed for wafer cooling.

3,828,723

GALVANIZING APPARATUS FOR WIRE AND THE LIKE

Joseph L. Herman, Pompano Beach, Fla., assignor to Emily Herman Thompson

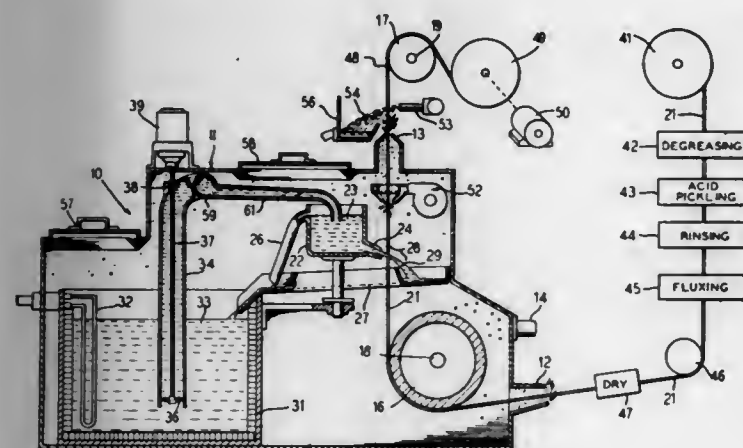
Division of Ser. No. 360,556, May 17, 1973. This application

July 23, 1973, Ser. No. 381,794

Int. Cl. B05c 5/00, 11/06, 11/16

U.S. Cl. 118—63

5 Claims



A method and apparatus for evenly and uniformly galvanizing wire, strip steel and the like. A descaled, dry wire or the like is passed vertically and upwardly through a transversely flowing stream of molten zinc without touching anything solid while the zinc and the wire are in an oxygen free atmosphere. The so coated wire is preferably quenched in a flowing water bath.

OFFICIAL GAZETTE

3,828,724

APPLICATOR APPARATUS FOR DEPILATORY COMPOSITION

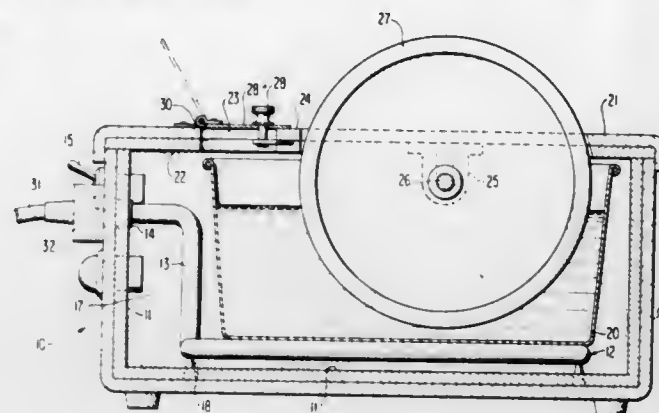
Miklos Korodi, 925 E. 79th St., New York, N.Y. 10021

Filed Jan. 30, 1973, Ser. No. 327,928

Int. Cl. B05c 1/08

U.S. Cl. 118—258

1 Claim



Sections of sheet plastic are hand-wiped across an applicator roller which is supported for rotation in a melted depilator composition. The container for said depilator composition is mounted in close proximity to an electrical heating element near the bottom of an exterior insulated housing. A removable cover for the housing carries bearings for the rotational support of the applicator roller and a hinged closure to facilitate adding to the composition when necessary.

3,828,725

CURTAIN COATER WITH RESTRICTED FLOW

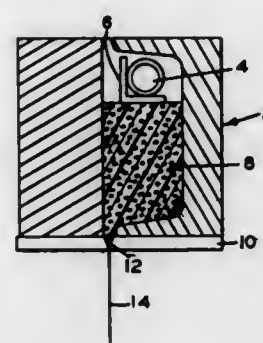
Walter J. Lewicki, Jr., Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed Sept. 29, 1970, Ser. No. 76,427

Int. Cl. B05c 5/00

U.S. Cl. 118—324

3 Claims



Curtain coaters are utilized to provide a curtain of coating material through which an object to be coated passes. The coater head cavity herein is provided with means to restrict the flow of material from the curtain coater and thereby prevent the flooding of a slow moving article which is meant to be coated with a controlled, relatively thin layer of material. The means restricting the flow may be an open-celled material or a group of nested spheres.

3,828,726

FIXTURE FOR POSITIONING SEMICONDUCTOR DISCS IN A DIFFUSION FURNACE

Wolfgang Dietze, Munich; Konrad Reuschel, Groebenzell, and Hans Stut, Vaterstetten, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed June 12, 1972, Ser. No. 261,944

Claims priority, application Germany, July 7, 1971, 2133843

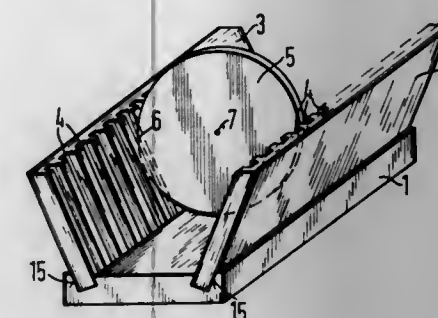
Int. Cl. B05c 11/14

U.S. Cl. 118—500

7 Claims

A fixture for positioning semiconductor discs in a diffusion furnace for diffusing doping material therein including a

trough-shaped holder having sidewalls composed of a semiconductor material, the sidewalls having opposed grooves therein proportioned to receive individual semiconductor



discs therein, the sidewalls being positioned to engage the peripheries of said discs along limited areas of contact which lie approximately at the horizontal plane including the center of gravity of the discs.

3,828,727

OMNI ANGLE ROTARY TABLE

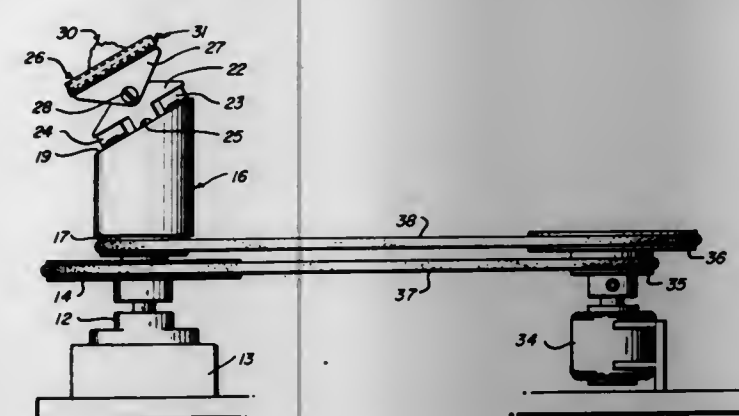
John F. Bauerle, 208 S.W. St., Mansfield, Ill. 61854

Filed Apr. 23, 1973, Ser. No. 353,302

Int. Cl. B05c 11/12

U.S. Cl. 118—500

11 Claims



An omni angle rotary table having a cam cylinder with an angularly disposed cam surface on its end, and a shaft which is axially and rotatably disposed with respect to the cam cylinder. A platform assembly is pivotally affixed to the end of the shaft and supports cam means which slidably engage with the cam surface on the cam cylinder, so that the platform assembly is caused to rotate and to pivot back and forth as the shaft and/or cam cylinder is rotated.

3,828,728

XEROGRAPHIC DEVELOPMENT SYSTEM

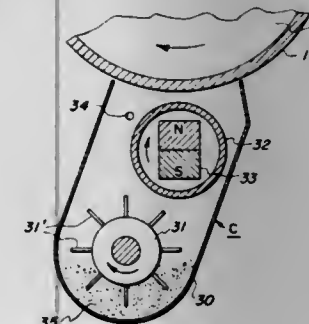
Frank Y. Yang, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 11, 1971, Ser. No. 197,874

Int. Cl. G03g 13/00

U.S. Cl. 118—637

9 Claims



An apparatus for maintaining a substantially uniform distribution of toner particles within the developer flow in a

latent electrostatic image development system in which an electrically conductive member positioned adjacent the flow path of the developer material is connected to a source of electrical potential and biased to a polarity opposite from the polarity on the toner particles in the developer flow. The electrically conductive member is moved in a direction generally transverse to the direction of developer flow. Toner particles are attracted to the conductive member from developer material in portions of the developer flow having greater quantities of toner particles dispersed therein and as the conductive member is transported across the developer flow, toner particles are attracted from the conductive member to portions of the developer flow having lesser quantities of toner particles dispersed therein.

3,828,729

ELECTROSTATIC FLUIDIZED BED

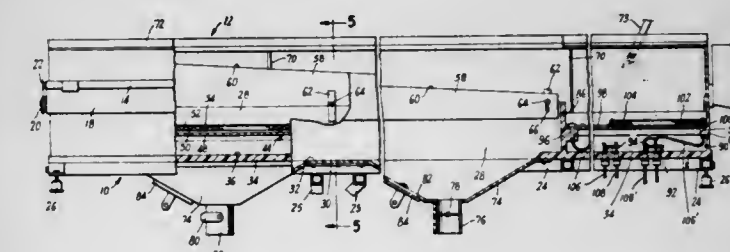
William C. Goodridge, West Haven, Conn., assignor to Electrostatic Equipment Corporation, Stratford, Conn.

Filed May 18, 1972, Ser. No. 254,472

Int. Cl. G03g 13/00

U.S. Cl. 118—634

23 Claims



Objects are coated in electrostatic fluidized or fluidic bed apparatus which includes a mechanical barrier effectively interposed between the cloud of charged particles and the travel path for objects conveyed therethrough. The barrier means includes an upstanding baffle having an edge portion configured to expose different vertical portions of the object as it is conveyed thereby. Generally, at the beginning of the travel path the lower portions of the objects will be masked by the baffle so as to promote deposition of the particles upon the upper surfaces initially. As it proceeds along the travel path, progressive exposure of the lower portions of the object will permit the complete and uniform coating thereof.

3,828,730

ELECTROSTATIC RECORD DEVELOPING APPARATUS

Keitarou Yamashita, Saitama-ken, and Shogo Tanaka, Kumagaya, both of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

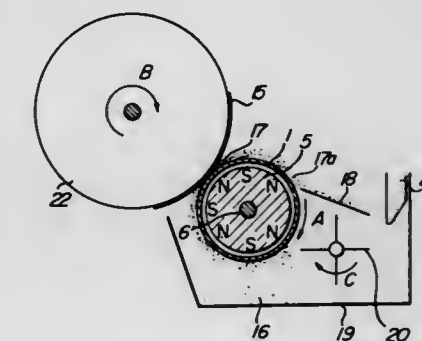
Filed May 16, 1972, Ser. No. 253,900

Claims priority, application Japan, May 21, 1971, 46-40598; Aug. 11, 1971, 46-71359

Int. Cl. G03g 13/00

U.S. Cl. 118—637

4 Claims



A cylindrical permanent magnet having an odd number of axially extending magnetic poles on the surface thereof is

disposed coaxially within a hollow rotary cylinder of non-magnetic material. The cylindrical permanent magnet is fixed in such a position that one of the magnetic poles of one polarity adjacent to a pair of the magnetic poles of the other and same polarity is disposed opposite to the image carrying surface of an electrostatic recording sheet, and a powdery developer attracted to the surface of the hollow rotary cylinder under rotation passes beneath the image carrying surface of the recording sheet and then over the magnetic poles of the other and same polarity. The powdery developer attracted to the surface of the hollow rotary cylinder forms a magnetic brush on such surface for developing a latent electrostatic image recorded on the image carrying surface of the recording sheet.

3,828,731

ANIMAL LITTER

Percy LaVerne White, Arthur, Ontario, Canada

Filed Apr. 3, 1972, Ser. No. 240,828

Claims priority, application Canada, Mar. 6, 1972, 136334

Int. Cl. A01k 29/00

U.S. Cl. 119-1

11 Claims

A litter or bedding for animals, particularly for domestic pets, and a method for making same is disclosed. The litter is biodegradable in water and soil environments and is flushable through normal household sanitary disposal systems in which aqueous medium it quickly decomposes to minimize pollution products. The litter consists primarily of high purity alphacellulose paper stock fibres in the form of pieces cut from a sheet of such material and into which has been incorporated at least one microbial inhibitor to inhibit the formation of odour-causing bacterial, and may include surface active agents to increase liquid absorbability of the cellulose stock material, as well as including a chlorophyll-containing compound. Minor amounts and up to 50 percent of sulphite cellulose paper stock may be combined with the alpha-cellulose material.

3,828,732

REVERSE FLOW FLUSHING APPARATUS FOR ANIMAL HOUSING SYSTEMS

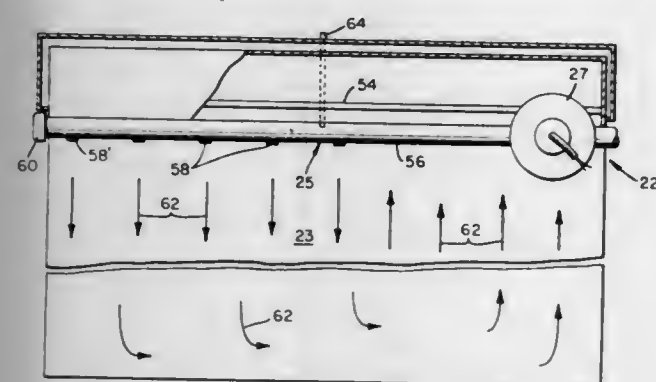
Robert Hill, 150 Rolino Way, Los Gatos, Calif. 95050; George D. Bliss, 852 Southampton Dr., Palo Alto, Calif. 94303, and Janos B. Szakacs, 535 Everett Ave., Palo Alto, Calif. 94058

Filed June 12, 1972, Ser. No. 261,824

Int. Cl. A01k 01/00

U.S. Cl. 119-22

11 Claims



A self-cleaning cage system which includes a combination of features. Reverse flow flushing apparatus may be fed via an integral tubular frame assembly, which thus doubles as a water delivery system and a support means for the cages. A readily tiltable drain system is contemplated integral with the reverse flow flushing apparatus, to provide a water drain system which allows draining the waste water from the left or the right side of the cage. The invention combination contemplates removal of animal or bird excreta by releasing a large volume of water of relatively low pressure into the flush pan of a cage. The flush pan bottom has a relatively shallow slope to thus allow a deep build-up of water introduced at the low side of the slope.

The resulting build-up of water floats the excreta from the flush pan rather than forcing it off via high pressure jets of water. The water input and drain systems are disposed at the same side (the low side) of the flush pan.

3,828,733

PORTABLE MILKING STALL

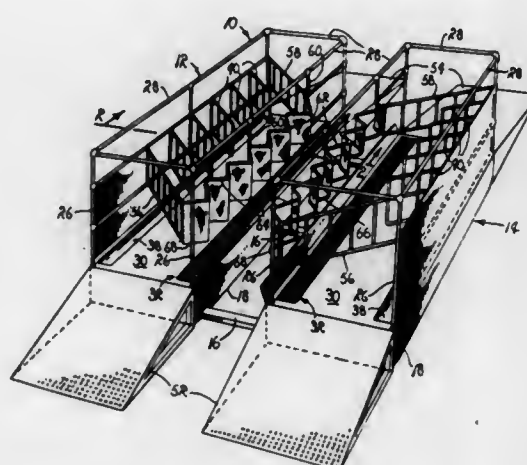
Manuel G. Correia, 13075 Ave. 200, Tulare, Calif. 93274

Filed May 15, 1972, Ser. No. 253,408

Int. Cl. A01J 05/00

U.S. Cl. 119-14.03

3 Claims



A pre-fabricated milking stand characterized by a pair of laterally spaced, elongated and elevated milking stalls, each stall being supported by skids for accommodating its displacement into an operative environment, and restraining means for simultaneously restraining a plurality of obliquely oriented cows, whereby access to their udders is afforded for milking purposes. A particular feature of the invention resides in the portability of the milking stand which facilitates conversion of "flat" milking barns to "herringbone" milking barns, at minimal economic costs.

3,828,734

ANIMAL COLLAR OR HARNESS AND LEASH WITH QUICK CONNECTOR

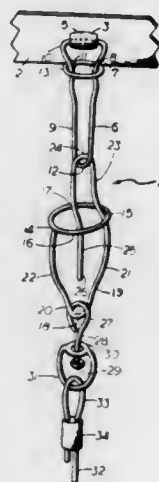
Welbourne D. McGahee, Melbourne, Fla., assignor to Loop A Liner, Inc., Melbourne, Fla.

Filed Jan. 2, 1974, Ser. No. 430,323

Int. Cl. A01k 27/00

U.S. Cl. 119-109

10 Claims



Animal collar or harness and leash having a quick connector therebetween including a stud on the collar for receiving an elongated eye member with retaining ring of sufficient length to mate with a bend between a central shaft extending centrally through an oval horizontal eye member having a pair of upstanding members connected to the short sides of the

oval horizontal eye member. The pair of upstanding members is provided with a lower bend that connects to a swivel element with an eye that receives an animal leash. In a modification the order of the connector elements are reversed.

3,828,735

BOILER TUBE SHIELDING WALL

Robert G. Graham, Farmington, and Douglas J. Frame, St. Clair Shores, both of Mich., assignors to C & H Combustion Co., Birmingham, Mich.

Filed Jan. 15, 1973, Ser. No. 323,872

Int. Cl. F23m 9/10

U.S. Cl. 122-6 A

56 Claims



A shielding or insulating wall of discrete tiles is removably secured in front of the impingement surfaces of boiler tubes in the burner region of the boiler furnace chamber for shielding the lower regions of the boiler tubes against excessive heating in order to force combustion gases to rise into the superheat and reheat regions of the boiler to develop and maintain required higher temperatures in such latter regions, or to protect the boiler tubes from direct impingement of burner flames which tend to generate and accelerate their premature deterioration. The shielding wall of tile is free-floating with the expansion and contraction of the boiler tubes, whose load and temperature variation in the burner region of the furnace area normally results in cracking and decay of a fixed continuous shielding wall material as currently practiced.

3,828,736

METHOD AND APPARATUS FOR OPERATING COMBUSTION ENGINES

Christian Koch, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

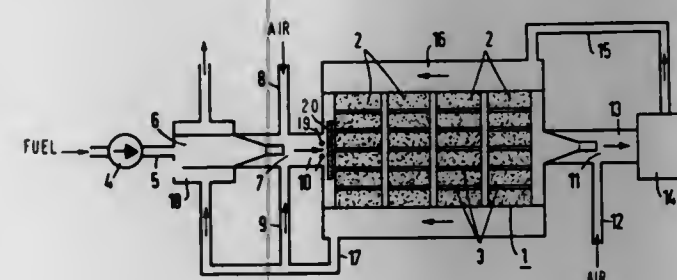
Filed Jan. 18, 1972, Ser. No. 218,696

Claims priority, application Germany, Jan. 22, 1971, 2103008

Int. Cl. F02m 25/06

U.S. Cl. 123-3

14 Claims



Method and apparatus for the combustion of a fuel, free of detrimental substances, in a combustion engine. The fuel, together with oxygen containing gas, is passed over a catalyst for conversion into a gas mixture of methane and carbon monoxide. Passing the gas mixture together with additional oxygen containing gas to the combustion engine whereat the

gas mixture is burned producing an exhaust gas. Feeding part of the exhaust gas to the fuel, prior to the conversion of the fuel.

3,828,737

CONTROL SYSTEM FOR ONCE-THROUGH BOILERS

Masaru Fujii; Syuji Oyagi; Tutomu Kamei, and Inosuke Mori, all of Nagasaki, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

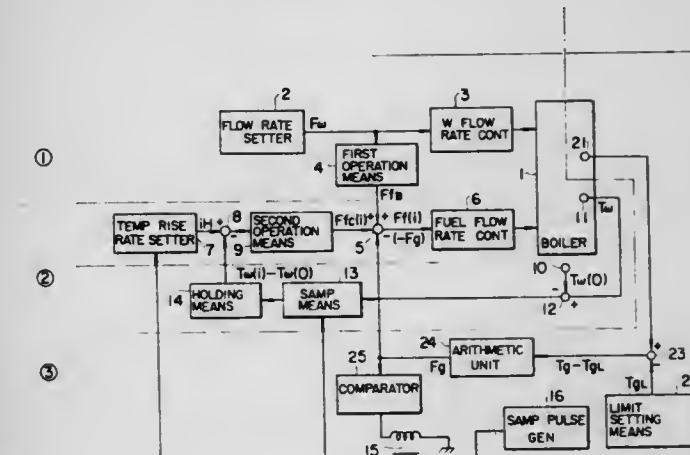
Filed Aug. 2, 1973, Ser. No. 384,839

Claims priority, application Japan, Aug. 4, 1972, 47-78207

Int. Cl. F22b 35/14

U.S. Cl. 122-406 ST

8 Claims



The control system controls the fuel flow rate, during starting of a once-through boiler, and includes detectors measuring the feed water temperature at the outlet of a water-cooled furnace wall and the gas temperature at the outlet of the furnace. The system includes further detectors detecting abnormal conditions with respect to the feed water temperature and the gas temperature, and setting means for setting the final desired temperature of the feed water during starting and the temperature of the feed water during full operation. The control is effected by pulses from a pulse generating circuit operable to generate a starting pulse, control pulses having a predetermined duration and predetermined intervals, and holding pulses having a phase and timing equal to those of the control pulses. A setting point generating circuit is selectively switched into a follow-up mode in which there is no starting pulse and a setting point equal to the actual temperature of the feed water at the outlet of the water-cooled furnace wall is generated, a temperature rise mode in which the start pulse is generated and the holding pulses are generated, and the setting temperature is varied during predetermined time intervals in accordance with a generated temperature change rate, and a holding mode in which the setting temperature is held at a constant level.

3,828,738

FEED WATER CONTROL IN FORCED CIRCULATION STEAM GENERATORS

Paul Frei, Lindau/Schweiz, Switzerland, assignor to Sulzer Brothers Ltd., Winterthur, Switzerland

Filed May 9, 1973, Ser. No. 358,828

Claims priority, application Switzerland, May 16, 1972, 215/72

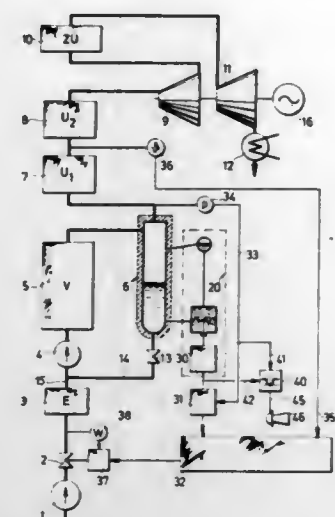
Int. Cl. F22d 5/00

U.S. Cl. 122-504.2

3 Claims

The forced circulation steam generator is provided with a means for measuring the difference in pressure between two levels in the water separator in order to measure the water

level in the separator. The water feed rate to the evaporator is controlled in dependence on the measured pressure difference



in the separator when the separator contains water and in dependence on another variable, such as the temperature at the outlet of a superheater, when the separator is dry.

3,828,739

ARRANGEMENT AND EMBODIMENT OF A SPARK PLUG WITH A DIESEL RECIPROCATORY PISTON INTERNAL COMBUSTION ENGINE

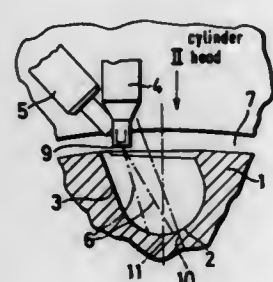
Gerhard Finsterwalder, Porz-Eil, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Cologne-Deutz, Germany

Filed Sept. 30, 1971, Ser. No. 185,159

Int. Cl. F02b 3/02

U.S. Cl. 123-32 R

14 Claims



A reciprocating piston internal combustion Diesel engine, which includes a spark plug which when viewing in the direction of the combustion air flowing at the end of the compression stroke into the combustion chamber provided in the piston is located behind a fuel jet but outside the direct sphere of influence of the fuel jet, while the spark path of said spark plug is located within the region of the piston gap as it exists at the start of the fuel injection, the spark path being protected against air flow by housing means having a maximum of four windows totaling a maximum of half the circumference of said housing means.

3,828,740

ROTARY INTERNAL COMBUSTION ENGINE AND METHOD OF COOLING THE SAME

Ray T. Townsend, Des Moines, Iowa, assignor to Townsend Engineering Company, Des Moines, Iowa

Continuation-in-part of Ser. No. 286,189, Sept. 5, 1972, Continuation-in-part of Ser. No. 301,096, Oct. 26, 1972. This application Apr. 16, 1973, Ser. No. 351,606

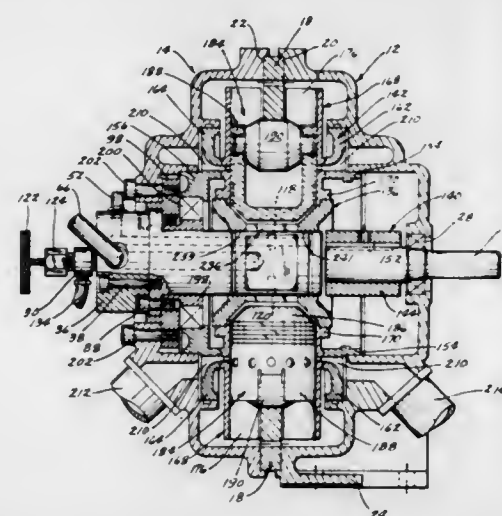
Int. Cl. F02b 57/00

U.S. Cl. 123-44 E

9 Claims

A rotary internal combustion engine is disclosed and generally comprises a rotor means which is rotatably mounted on a stationary core mounted in an engine frame. The rotor

means has a plurality of cylinders spaced radially thereon. A free floating piston is slidably mounted in each of the cylinders with the heads of the pistons being positioned towards the center of the rotor. A roller is mounted in the skirt end of the piston which rides against a circular cam. The centrifugal force created by the rotation of the rotor causes the pistons to follow the internal cam surface of the cam during rotation. The inner end of the core is provided with fuel and air ports adapted to communicate with the cylinders as the rotor rotates with respect to the core. An air passageway is formed in the core and is in communication with the air port and an air pump to provide a supply of air for purging, cooling and charging the cylinders. A fuel passageway is provided in the core and is in communication with the fuel ports and a supply of fuel to supply fuel under pressure to the fuel ports. An adjustable needle valve is provided in the fuel passageway to permit the precise adjustment or metering of the fuel being the cam being shaped so that the compression is increased as the piston approaches its position of maximum compression. The



cam is shaped to provide a dwell adjacent the area of maximum compression to permit the piston to be maintained at the position of partial expansion to permit complete combustion of the fuel-air mixture to increase combustion efficiency. The cylinders are exhausted by means of openings extending around the cylinder. The exhaust from each cylinder is exhausted through its individual exhaust openings with the exhaust in the cylinder being purged by the air being supplied thereto from the air pump. The air also permits the cylinders to be recharged and forces the pistons radially outwardly into engagement with the cam. The air also cools the inside surface of the cylinder. The preferred embodiment includes an even number of cylinders, ordinarily two or four with a cam plate having a pair of oppositely disposed lobes. The preferred cam plate is designed to condense the compression stroke and the expansion stroke into a shorter period of time so that less heat is lost to the walls of the cylinder therefore requiring less cooling. The shortened compression and expansion time also permits additional time for the cooling cycle.

3,828,741

INTERNAL COMBUSTION ENGINE

Antonio Bixier, 266 Geoffroy St., Pont Viau, Laval, Province of Quebec, Canada

Filed Jan. 11, 1973, Ser. No. 322,826

Claims priority, application Canada, Jan. 13, 1972, 132392

Int. Cl. F02b 75/26

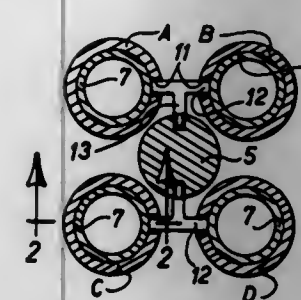
U.S. Cl. 123-58 AB

3 Claims

An internal combustion engine in which the usual crankshaft is replaced by a grooved drum connected to the pistons by rigid links passing through a slot into the lateral wall of each cylinder and into which engine the cylinders are closed at both ends and form a combustion chamber at each end of each piston. The rigid links couple the pistons in pairs to prevent rotation of the pistons on themselves while producing rotation of the grooved drum by converting the rectilinear

movement of the pistons into rotary movement of the drive shaft of the engine.

A preferred embodiment defines a two-stroke engine having a novel intake system formed by each piston including an in-



ternal cavity, an intake member transversely projecting into the internal cavity of each piston dividing the same into two intake chambers, and with check valves and channels associated with each intake chamber.

3,828,742

ENGINE CONTROL SYSTEM

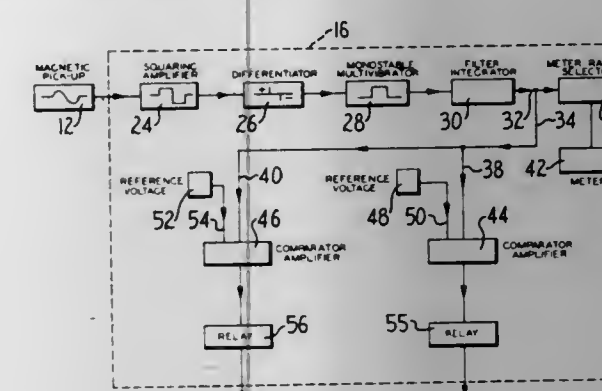
Roger R. Weis, Chillicothe, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 26, 1972, Ser. No. 247,651

Int. Cl. F02p 11/00

U.S. Cl. 123-102

4 Claims



A control system for monitoring and controlling an engine as a function of engine speed is provided. The control system includes a control device which continuously monitors engine speed sensed through a magnetic pickup means and causes engine shutdown by means of an engine shutdown device when an overspeed condition occurs. In addition, the control device actuates a warning device when an underspeed condition occurs.

3,828,743

George Ludwig, Troy, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Feb. 2, 1973, Ser. No. 329,288

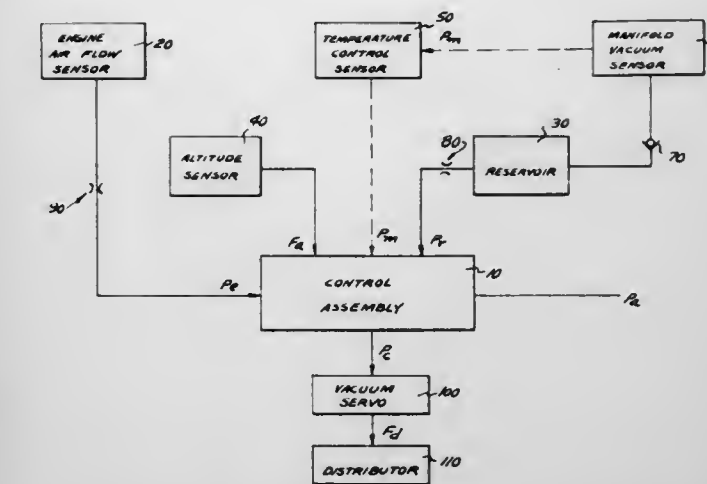
Int. Cl. F02p 5/04

U.S. Cl. 123-117 A

12 Claims

A mechanical device is located between the carburetor spark port and distributor breaker plate servo the device being fed by vacuum reservoir. The device provides a modulated vacuum control signal to the distributor breaker plate servo which is a function of spark port vacuum and the vehicle's altitudinal location by means of a pressure sensitive valving means operatively connected to an aneroid. The vacuum reservoir is charged by connection with the intake manifold, and a temperature responsive member may be added so that the vacuum control signal will be responsive to manifold pressure when the engine is subject to predetermined adverse temperature conditions. By placing a restriction means between

the reservoir and the mechanical device gradual changes in spark advance settings is accomplished during light vehicle accelerations, and upon rapid recovery of subsequent momenta-



ry decelerations; during times of heavy acceleration the vacuum control signal is vented to atmosphere through the valving means, thereby quickly lowering the spark advance setting to avoid engine detonation.

3,828,744

INTERNAL COMBUSTION ENGINE CRANK CASE OIL VAPOR CONDENSING MEANS

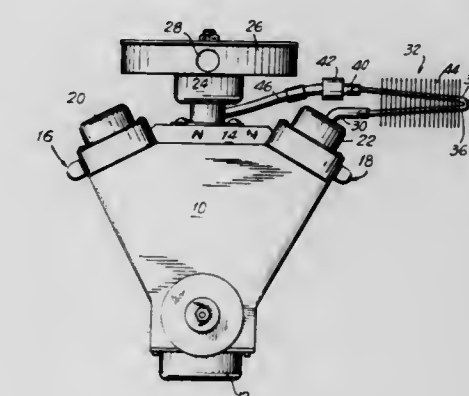
Jesse R. Hollins, 40 Stoner Ave., Great Neck, N.Y. 11521

Filed Apr. 19, 1973, Ser. No. 352,699

Int. Cl. F02m 25/06; F02f 9/00

U.S. Cl. 123-119 B

1 Claim



A motor vehicle having an internal combustion engine which includes a fuel-air intake manifold and an oil crank case. Means is provided for transferring emissions from the oil crank case to the fuel/air intake manifold and while so transferring the emissions cooling the same. Some of the oil vapors in the emissions, as a result of being cooled, condense and form oil dribbles which are accumulated and returned to the oil crank case.

3,828,745

AUTOMATIC CHOKE CONTROL FOR ENGINES

John D. Medrick, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 26, 1972, Ser. No. 317,888

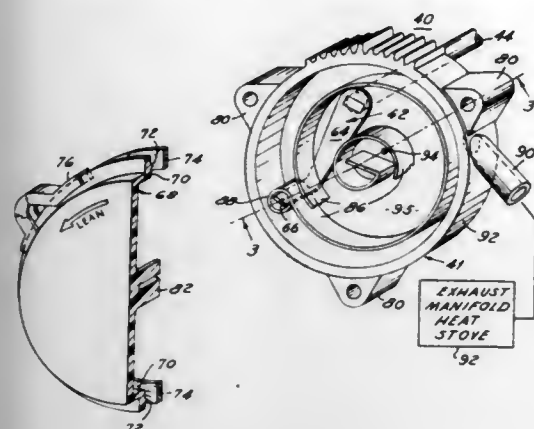
Int. Cl. F02m 1/10

U.S. Cl. 123-119 F

8 Claims

An automatic choke control for a carburetor of an internal combustion engine having a loosely coiled bi-metallic thermostatic spring generally centered in a cylindrical housing means. One end of the spring is anchored in the housing means and the other end is operatively connected with a movable choke valve pivotally mounted in the air-fuel induction passage of a carburetor. Means are provided for passing a stream of heated

air over the thermostatic spring and this means includes an air induction passage in the cylindrical housing means extending generally tangentially with respect to the housing and with



respect to the coils of the thermostatic spring and an air exhaust passage located generally centrally of the housing. This structure forms a vortex of heated air in heat transfer relationship to the thermostatic spring.

3,828,746

METERING EXHAUST GAS RECIRCULATION APPARATUS AND SYSTEM

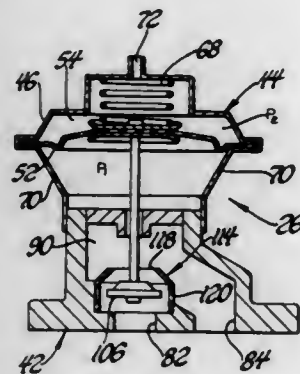
David L. De Martelaere, Southfield, Mich., assignor to Colt Industries Operating Corp., New York, N.Y.

Filed Dec. 1, 1972, Ser. No. 311,168

Int. Cl. F02m 25/06

U.S. Cl. 123—119 A

16 Claims



A valve assembly has a spring-loaded pressure responsive diaphragm connected to a stem carrying a valve which is moveable to any of several general operating positions; a chamber in the housing of the valve assembly is exposed to the comparatively low pressure of the interior of the intake manifold of an associated internal combustion engine while the moveable valve is effective for opening and closing an associated port leading to the chamber but operatively connected to a source of exhaust gas of the associated internal combustion engine as, for example, the engine exhaust manifold or, as is often employed, the exhaust cross-over conduit which, generally, physically extends or passes over the associated engine.

3,828,747

AUTOMOTIVE AIR-FUEL MIXTURE HEATING SYSTEM

Shyuya Nambu, Yokohama City, Japan, assignor to Nissan Motor Company, Limited, Yokohama City, Japan

Filed Dec. 14, 1972, Ser. No. 315,000

Claims priority, application Japan, Dec. 24, 1971, 46-1393

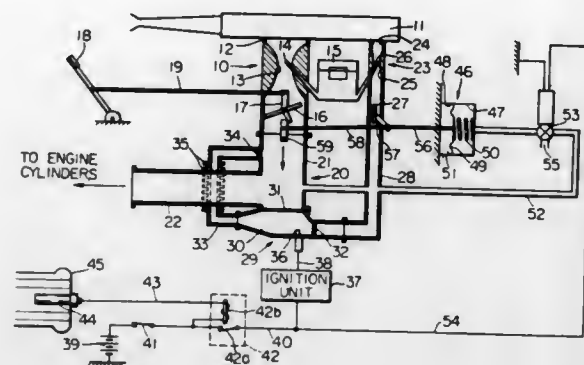
Int. Cl. F02m 25/06, 31/02; F02n 17/04

U.S. Cl. 123—122 AB

27 Claims

For the purpose of reducing toxic combustible compounds remaining in exhaust gases from an automotive internal combustion engine which usually demands an enriched air-fuel mixture during cold driving, a combustion chamber is posi-

tioned in contact with an interior of a mixture supply passage for the engine so as to positively heat the mixture passing through the mixture supply passage when the engine is being driven cold, whereby the vapourization of the air-fuel mixture



in the mixture supply passage is promoted and even distribution of the mixture to individual engine cylinders is achieved. The hot exhaust gases produced in the combustion chamber may be recirculated into the mixture supply passage to contribute to further heating of the mixture therein.

3,828,748

INJECTOR

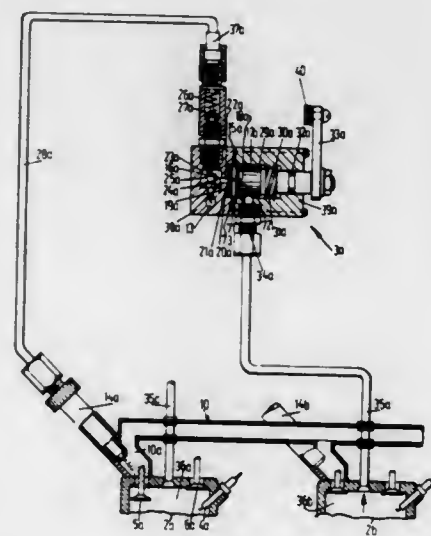
Bernard Breukink, Enschede, Netherlands, assignor to Holec N. V., Hengelo, Netherlands

Filed Apr. 3, 1972, Ser. No. 240,470

Int. Cl. F02m 39/00; F02b 33/04

U.S. Cl. 123—139 AJ

19 Claims



Injector for delivering fuel to at least one fuel inlet of a combustion engine, the pump chamber of at least one fuel pump communicating via an inlet valve with a fuel supply and via an exhaust valve with a fuel discharge to be connected to the fuel inlet of the combustion engine and said pump chamber being adjoined by at least one membrane, wherein a motor chamber for driving the fuel pump comprises a connection for connecting said motor chamber to a space of the combustion engine, said space having a pressure fluctuating per combustion cycle of the combustion engine is constructed more simple and compact and with a greater durability in that one and the same membrane adjoins at its one side the pump chamber and at its other side the motor chamber.

3,828,749

FUEL INJECTION APPARATUS

Heinrich Knapp, Leonberg-Silberberg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

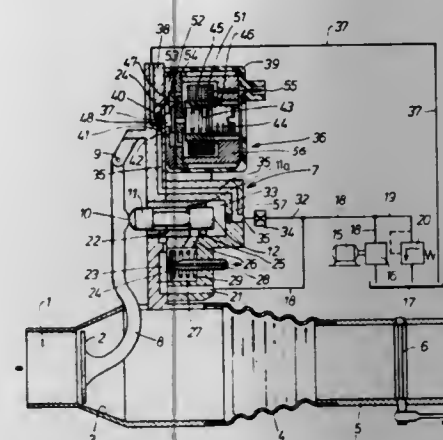
Filed July 5, 1972, Ser. No. 269,175

Claims priority, application Germany, July 5, 1971, 2133434

Int. Cl. F02m 39/00; F02b 3/00

U.S. Cl. 123—139 E

6 Claims



In a fuel injection apparatus in which an air sensor deflected as a function of the intake air quantities maintains the air-to-fuel ratio at a constant value and wherein the return force affecting the air sensor and opposing the deflecting force of the air flow is derived from pressurized liquid, the pressure of said liquid is varied by altering, in response to the oxygen content of the exhaust gas, the energizing current of a solenoid forming part of a pressure control valve.

3,828,750

OVERVOLTAGE AND ELECTRONIC RELAY CIRCUIT FOR CAPACITOR DISCHARGE IGNITION SYSTEMS

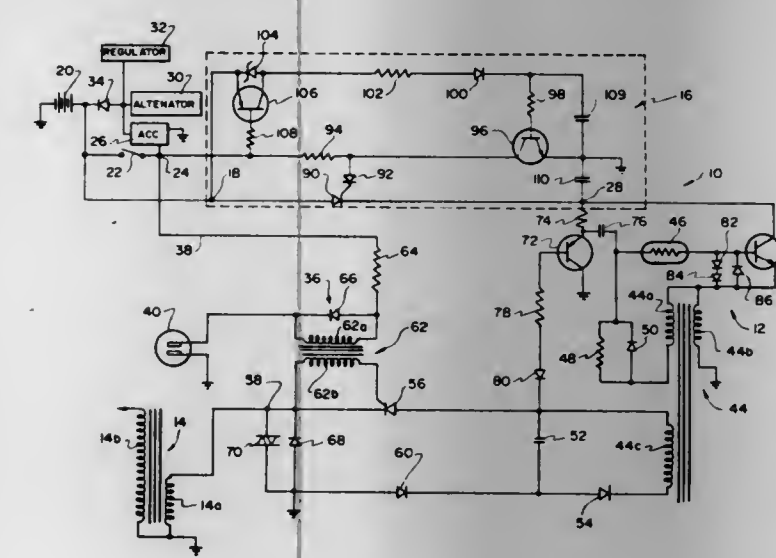
Gunter G. Schuette, Addison, and William J. Warner, Schaumburg, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Continuation of Ser. No. 1,597, Jan. 9, 1970, abandoned. This application Oct. 28, 1971, Ser. No. 193,601

Int. Cl. F02p 1/00

U.S. Cl. 123—148 OCD

12 Claims



An energy pulsing circuit is provided for applying energy pulses to an ignition coil in synchronization with external switching means such as the breaker-points of an automobile. A power switching circuit is connected between the energy pulsing circuit and an external power source to apply operating potential to the ignition system involved under normal voltage conditions, and to automatically disconnect power to the ignition system upon sensing abnormal voltage conditions.

3,828,751

ELECTRONIC IGNITION SYSTEM

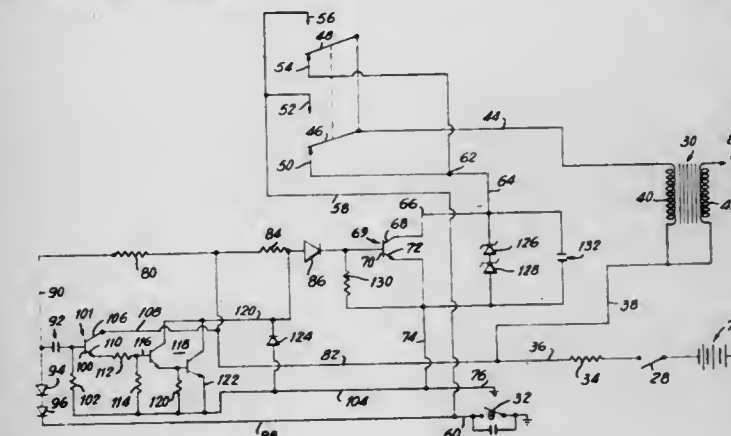
Guy E. Adams, Monroe, N.Y., assignor to Solitron Devices, Inc., Tappan, N.Y.

Filed Aug. 11, 1972, Ser. No. 279,994

Int. Cl. F02p 3/02

U.S. Cl. 123—148 E

7 Claims



A solid state control unit for switching a device having means to smooth a control signal and protect the unit from transitory voltages and means to permit bypass of said control unit.

3,828,752

IGNITION SYSTEM FOR AN AUTOMOTIVE ENGINE HAVING EXHAUST RECIRCULATION ARRANGEMENT

Kazuo Hioki, and Michio Onoda, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

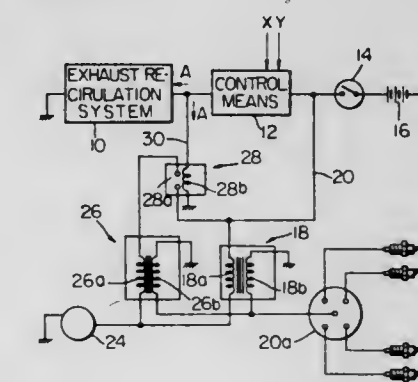
Filed Nov. 28, 1972, Ser. No. 310,102

Claims priority, application Japan, Nov. 29, 1971, 46-96060

Int. Cl. F02p 3/02

U.S. Cl. 123—148 DS

3 Claims



3,828,753

FLYWHEEL MAGNETO IGNITION SYSTEM

K. Narashimha Reddy, Beloit, Wis., assignor to Fairbanks Morse Inc., New York, N.Y.

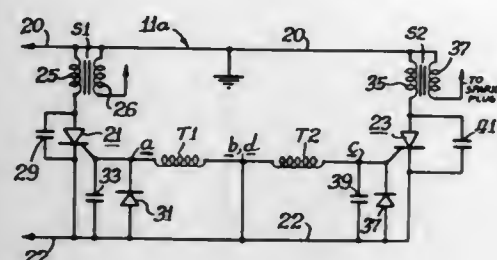
Continuation of Ser. No. 83,363, Oct. 23, 1970, abandoned.

This application Feb. 21, 1973, Ser. No. 334,395

Int. Cl. F02p 1/00

U.S. Cl. 123-148 R

3 Claims



A flywheel magneto ignition system of the breakerless type using solid state devices to control the firing of the spark plugs.

3,828,754

FLYWHEEL MAGNETO IGNITION DEVICE WITH CAPACITOR-THYRISTOR IGNITION COMBINED WITH GENERATOR

Hans Thorsten Henrik Carlsson, Amal, Sweden, assignor to Aktiebolaget Svenska Elektromagneter, Amal, Sweden

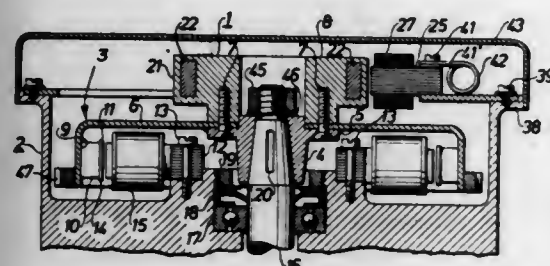
Filed Aug. 30, 1972, Ser. No. 284,737

Claims priority, application Sweden, Sept. 1, 1971, 11081/71

Int. Cl. F02p 3/06

U.S. Cl. 123-149 D

5 Claims



A flywheel magneto ignition device with capacitor-thyristor ignition combined with generator comprises a first component group for producing an ignition effect and a second component group for generating current for lighting and/or battery charging purposes, the first component group comprising a rotor having mounted therein permanent magnets the pole of which are arranged to coact with coils containing at least one coil core and intended for the capacitor-thyristor-ignition circuit, and the second component group comprising a system of coils provided with iron cores and fixedly mounted in a rotating magnetic field from a body corotating with the rotor in the first component group, the rotor and the corotating body being mechanically connected together but with the respective magnetic fields shielded from each other.

3,828,755

AUXILIARY STARTER FOR DIESEL ENGINES

Hartmut Glatzel, Stuttgart, and Herbert Langen, Altbach, both of Germany, assignors to J. Eberspacher, Esslingen/Neckar, Germany

Filed July 31, 1972, Ser. No. 276,856

Claims priority, application Austria, Aug. 2, 1971, 6730/71

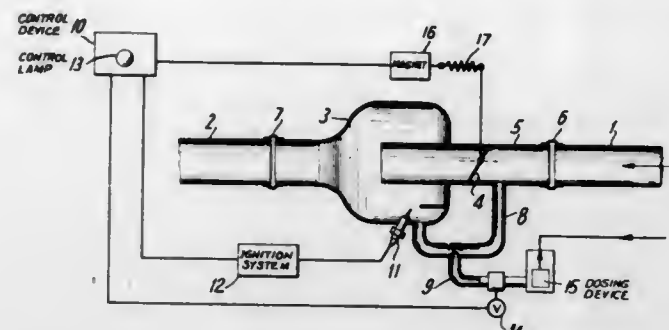
Int. Cl. F02n 17/02; F02p 21/02; F02m 31/06

U.S. Cl. 123-179 H

5 Claims

An auxiliary starter, for diesel engines having combustion chambers connected to an intake air pipe through which com-

bustion air, heated directly by a fuel burning device, is supplied to the combustion chambers, comprises an annular combustion chamber on the intake air pipe. A flap-type throttle valve is mounted in tee air intake pipe in advance of the combustion chamber, and may be closed by a magnet through a spring, the magnet being controlled by a control device. A bypass is connected into the intake air pipe upstream of the



flap valve and is connected to the combustion chamber. A valve, controlled by the control device, controls flow of fuel into the bypass, and an ignition device in the form of a spark plug or a glow plug is provided in the combustion chamber to ignite the fuel air mixture. Preferably, the bypass opens tangentially into the combustion chamber. The flap valve is so arranged that the air necessary for combustion is controlled automatically in dependence on the underpressure.

3,828,756

METHOD AND APPARATUS FOR REBUILDING VALVE GUIDES

Donald J. Kammeraad, 4563, Venessa Ave., and James A. Kammeraad, Rt. 2, both of Holland, Mich. 49423

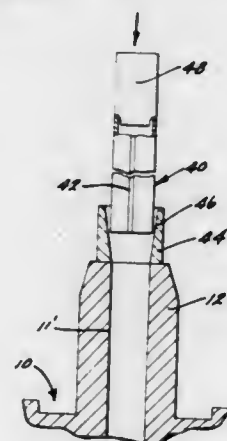
Continuation of Ser. No. 847,927, Aug. 6, 1969, abandoned.

This application Dec. 30, 1971, Ser. No. 214,261

Int. Cl. F011 3/08; B23p 7/00

U.S. Cl. 123-188 GC

4 Claims



This disclosure relates to a method and system for rebuilding valve guides for internal combustion engines wherein the old worn guides are first reamed and then have slitted tubular members forced into the reamed guides. The tubular member inserts can then be reamed to size. The operation can also include knurling and broaching of the tubular members after insertion of the tubular member into the reamed valve guide. The tubular member has an outer diameter greater than the inner diameter of the reamed guide so that a press fit between the tubular member and the guide results.

3,828,757

SPRING BIASED ARROW RESTS

Robert L. Finlay, 325 Garfield St., Emporia, Kans. 66801

Filed Nov. 15, 1972, Ser. No. 306,696

Int. Cl. F41b 5/00

U.S. Cl. 124-41

7 Claims

An arrow rest is provided to be suitably attached, as by the use of pressure-sensitive adhesive, to an archery bow and in-

3,828,759

PORTABLE BARBECUE ASSEMBLY

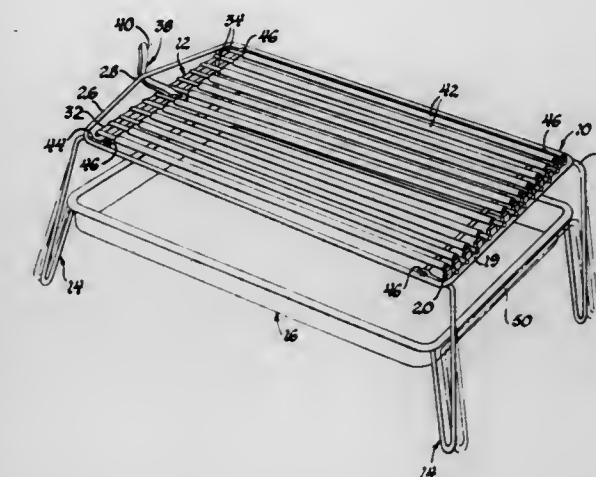
George F. Cooper, 215 W. Fifth Ave., Flint, Mich. 48503

Filed Jan. 3, 1972, Ser. No. 214,692

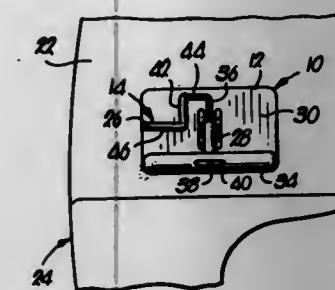
Int. Cl. F24c 1/16; F24b 3/00; A47j 37/07

U.S. Cl. 126-9 R

8 Claims



cludes a swingable arrow support and an adjustable support-positioning mechanism which cooperate together to support and selectively locate the arrow a predetermined distance from the side of the bow; the support and adjustable positioning mechanism further serve to cushion or dampen the inherent side thrust of the arrow upon its release from the bowstring. The positioning mechanism has a single yieldable element in the form of a compression spring which serves the



dual purpose of continuously urging the support in the direction of its arrow-supporting position prior to the release of the arrow and, by virtue of its interconnection with the support, to cushion the side thrust of the arrow after its release and during the time that the arrow is traversing the support while at the same time permitting the support to yield so as not to impede or alter the flight of the arrow as the fletching or other stabilizing structure of the arrow passes by the support.

3,828,758

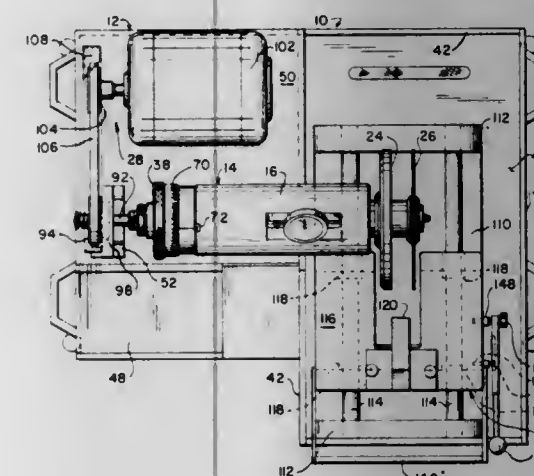
MACHINE FOR PRODUCING THIN SECTION SPECIMENS

Paul O. Cary, 423 E. Mayfield Dr., Grand Junction, Colo. 81501

Filed Sept. 27, 1972, Ser. No. 292,847

Int. Cl. B28d 1/04

U.S. Cl. 125-13 R



A versatile apparatus for both cutting and grinding, lapping and polishing solid material to produce thin section specimens for analysis and quality control is disclosed herein and includes a support base upon which a quill assembly is mounted. The quill assembly is provided for imparting longitudinal movement to a power-driven rotationally movable spindle, grinding wheel, and cutting wheel, the latter two being connected with the spindle for rotational movement therewith. In this regard, the apparatus includes a differential screw and annular micrometer dial for effecting accurate longitudinal adjustment of the spindle. A sliding cross-plate is also mounted on the aforesaid support base and is designed to be manually moved both toward and away from the grinding and cutting wheels. A specimen holder removably mounted on the sliding cross plate is designed to bring a pair of spaced apart specimens into contacting engagement with the wheels whereby one of the specimens will be in contacting engagement with a corresponding one of said wheels when the cross plate is moved toward the latter.

3,828,760

OVEN

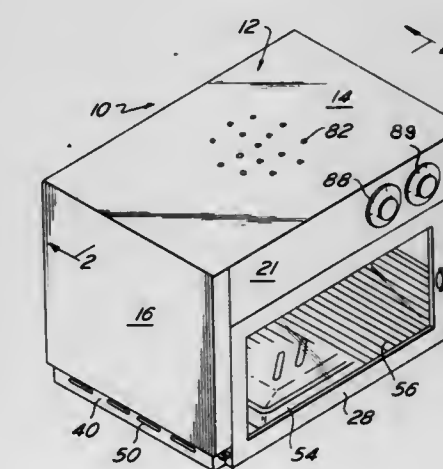
Milton H. Farber, Bronxville, and Irving R. Belinkoff, Queens Village, both of N.Y., assignors to LCA Corporation, Yonkers, N.Y.

Filed May 23, 1973, Ser. No. 363,293

Int. Cl. A21b 1/00

U.S. Cl. 126-21 A

20 Claims



A broiling, cooking, roasting, and baking oven, which may be used for defrosting as well, is disclosed wherein heated air in the upper portion of a cooking chamber moves downwardly in a cyclonic turbulent pattern, then meets at a vortex in the center bottom portion of the chamber, and then is moved upwardly while maintaining its cyclonic form. The cooking chamber is insulated from a motor chamber by means of an intermediate insulation chamber and through which air may or may not flow.

3,828,761

SPACE HEATER CONSTRUCTION PARTICULARLY FOR MOTOR VEHICLES

Wolfgang Rich, Esslingen/Neckar, Germany, assignor to J. Eberspacher, Esslingen/Neckar, Germany

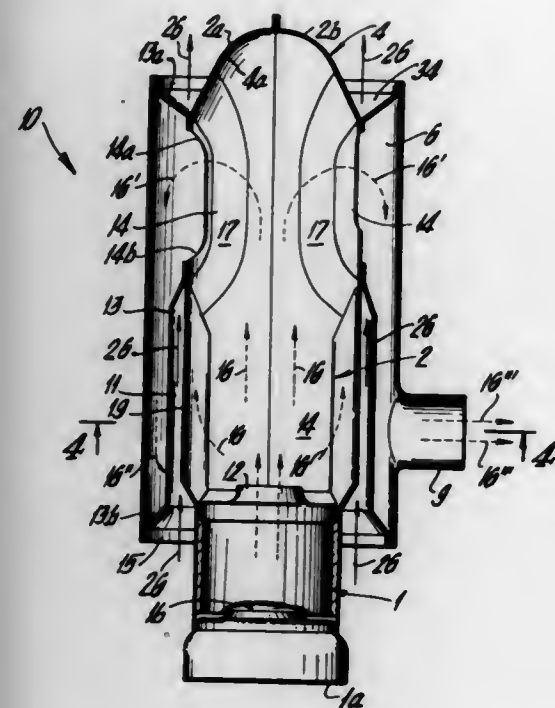
Filed Feb. 16, 1973, Ser. No. 333,362

Claims priority, application Germany, Mar. 14, 1972, 2212173

Int. Cl. F24c 3/00

U.S. Cl. 126-90 R

4 Claims



A space heater particularly for vehicles comprising an inner tubular wall defining a combustion chamber for the generation of heating gases having an inner closed end and a side wall with opposite heating gas flow openings. An outer tubular member surrounds the inner tubular member and has a heating air inlet surrounding said combustion chamber and an opposite end adjacent the end of the inner tubular member for the discharge of the heating air. The heating gas flow openings are a tear drop configuration and the heating gases flow from the combustion chamber axially within the inner tubular member, out through the openings, and then rearwardly in reverse flow over the heating air flow in a flow passage between the outer tubular member and an outside casing.

3,828,762

TUBULAR HEAT EXCHANGER

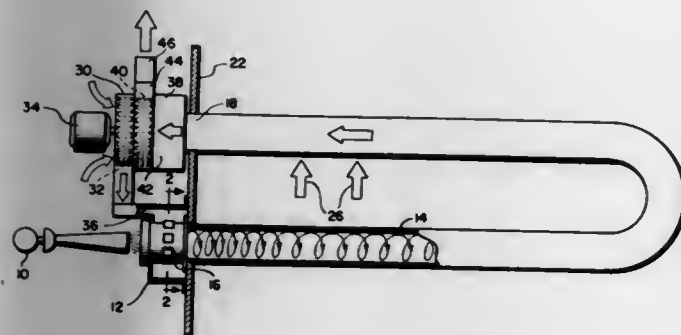
Ozbek Duzey, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Sept. 21, 1972, Ser. No. 290,902

Int. Cl. F24c 3/00

U.S. Cl. 126-91 A

2 Claims



A heat exchanger, especially useful for warm air furnaces alone or in combination with air-conditioning apparatus, in which a flame is directed into the end of an elongated tube,

the hot products of combustion flowing into the tube and being vented from the opposite end. Novel features include a push-pull, forced draft blower arrangement combined with positive pressure, tangential air entry to the heat exchanger tube in order to control the combustion rate and promote heat flux in said tube.

3,828,763

OVEN DOOR CONSTRUCTION WITH FRONT GLASS PANEL

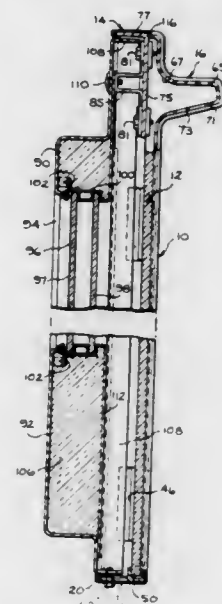
Arthur C. Wilson, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed May 14, 1973, Ser. No. 360,042

Int. Cl. F24c 15/04

U.S. Cl. 126-200

9 Claims



A windowed door construction for use as an insulated oven door for an electric or gas domestic oven. The door has a large front glass panel and a metal inner door liner with a small window opening and a multiple glazed window assembly and thermal insulation combined in the door. A sheet metal decorative trim frame encircles the front glass panel along the bottom edge and up the two opposite sides of the glass panel. An inner support strip is attached to the decorative trim frame for engaging the adjacent edges of the front glass panel. An elongated handle assembly joins the free ends of the inner support strip and comprises the top portion of the door construction. All fastening screws are hidden from view when the oven door is in its closed position.

3,828,764

NON-MIGRATING REVERSIBLE MAKE STERILIZATION COUPLER

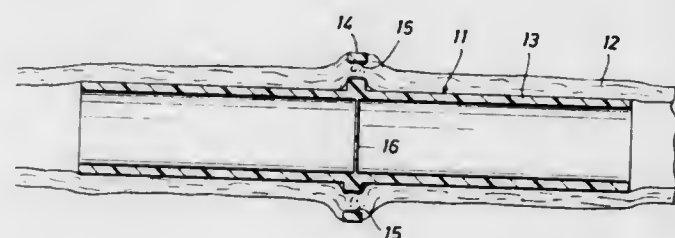
Len M. Jones, Houston, Tex., assignor to Well-Saver, Inc., Houston, Tex.

Filed Jan. 22, 1973, Ser. No. 325,233

Int. Cl. A61b 19/00

U.S. Cl. 128-1 R

2 Claims



A coupler and method for connecting the severed ends of a vas deferens having particular application and use in perform-

ing reversible male sterilization which generally includes an elongated tubular member having the ends thereof dimensioned for insertion into the ends of the vas to be connected. The tubular member also has at least one annular flange intermediate its ends, and with said flange being susceptible to the passage of a micro-surgical needle through selected portions thereof and accommodate suturing and tissue growth therethrough, whereby one or both of the ends of the v may be sutured to said annular flange to prevent migration of the coupler in the vas. In certain embodiments, the periphery of the tubular member may be provided with two spaced annular flanges such that one end of the severed vas may be sutured to one of said flanges, and the other end of the severed vas sutured to the other flange. In certain instances, the tubular member may be provided with a transverse wall blocking the passageway therethrough, so as to prevent fluid flow through the vas. This particular embodiment of the coupler has application in performing a reversible male sterilization such that subsequently the transverse wall may be surgically removed to restore fertility.

3,828,765

GENITOURINARY TEST INSTRUMENT

Bernard McDonald, Malibu, Calif., assignor to Medical Testing Systems, Inc., Beverly Hills, Calif.

Filed Nov. 24, 1971, Ser. No. 201,777

Int. Cl. A61b 10/00

U.S. Cl. 128-2 B

7 Claims



An inexpensive instrument for collection of genitourinary secretions, particularly for detection of gonorrhea in females is provided in practice of this invention. The elongated instrument has a head at one end for collection of samples from the cervical canal, and the other end has a head for sample collection within the urethra. In a preferred embodiment each head has a crescent-like cross section with an enlarged region on the convex side which tends to compress the wall of a body passage in which the head is inserted. A recessed region on the concave side exerts a decreased lateral pressure on the side of the passage. As the instrument is rotated within a passage the alternating increased and decreased pressures tend to "milk" various glands and ducts to induce and collect secretions.

3,828,766

DISPOSABLE MEDICAL ELECTRODE

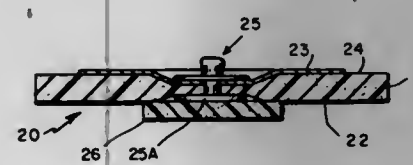
David L. Krasnow, Canton, Mass., assignor to Jet Medical Products Inc., Braintree, Mass.

Filed Aug. 14, 1972, Ser. No. 280,350

Int. Cl. A61b 5/04

U.S. Cl. 128-2.1 E

11 Claims



A disposable medical electrode comprising a support member made of a closed cell plastic material having an adhesive surface. A centrally located contact element is embedded therein so as to leave an exposed portion thereof at the adhesive side of the support member. A smaller pad member made up of an open cell plastic material is adhered to the adhesive

3,828,767

ANGIOGRAPHIC AND ARTERIOGRAPHIC CATHETERS

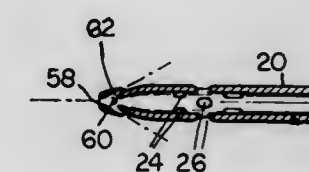
Carl M. Spiroff, Granite City, Ill., assignor to Joseph A. Fenton, Jr., St. Louis County, Mo., a part interest

Filed Oct. 29, 1973, Ser. No. 410,629

Int. Cl. A61m 25/00, 31/00

U.S. Cl. 128-2.05

13 Claims



An angiographic catheter through which material passes toward a tapered tip and which includes several series of discharge holes arranged in axially spaced radial planes, the total cross sectional area of the holes in each of said planes decreasing as the planes are placed closer to the tip, and which also includes a discharge chamber immediately adjacent the tip, there being a set of proximal holes also aligned in a radial plane and leading backwardly away from the chamber and a small end hole in the tip which also leads to the chamber, all of the holes being formed by punching them from the inside of the catheter outwardly.

3,828,768

METHOD AND APPARATUS FOR DETECTING CARDIAC ARRHYTHMIAS

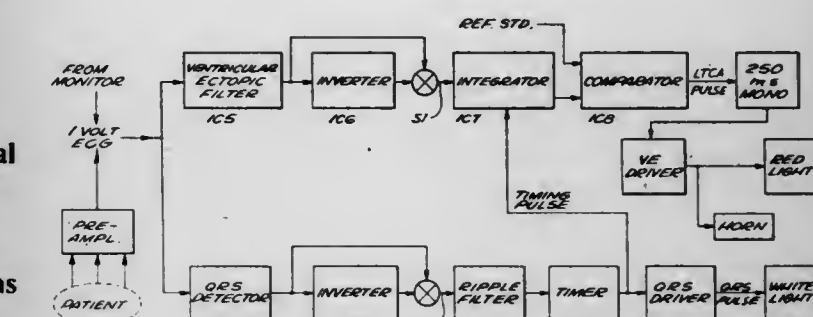
David W. Douglas, Columbia, Mo., assignor to Physiological Electronics Corporation, San Marino, Calif.

Filed July 13, 1972, Ser. No. 271,373

Int. Cl. A61b 5/04

U.S. Cl. 128-2.06 A

21 Claims



A continuous electrical wave representing the electrical action of a patient's heart is produced (the ECG wave). Frequency components of the ECG wave that lie predominantly below the frequency range of the normal QRS complex are sensed, these frequency components being typically in the range of about two Hertz to about eight Hertz. These frequency components are integrated upon the occurrence of a QRS complex, and the magnitude of the result is then compared to a reference standard. If the magnitude of the integral exceeds the reference standard an output signal indicative of a cardiac arrhythmia is then produced.

3,828,769

METHOD AND APPARATUS FOR ULTRASONIC TREATMENT OF LOWER TISSUES SIMULTANEOUS WITH HEATING OF SUBCUTANEOUS, OUTER MUSCLE AND LOWER TISSUES

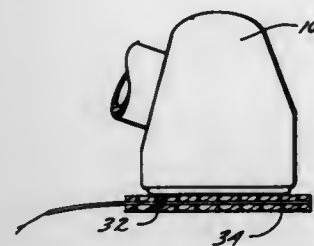
Hal C. Mettler, 16621 Carousel Ln., Huntington Beach, Calif. 91103

Filed Feb. 28, 1973, Ser. No. 336,783

Int. Cl. A61h 1/00

U.S. Cl. 128-24 A

24 Claims



An ultrasonic frequency electro-mechanical therapeutic method and apparatus for treating an afflicted member, having skin, subcutaneous outer muscle and lower tissues, of a patient's body, the lower tissues including muscle, nerve, bone or joint tissues. A therapeutic applicator has an electrically energizable crystal for generating a mechanical energy wave and has a first pair of substantially parallel sides spaced apart a distance determinative of a first resonant frequency and a second side normal to the first pair of sides determinative of a second resonant frequency of at least 150 kHz selected for heating the lower tissues of a patient's body. The applicator includes a metallic electrode on each of the pair of sides, a housing in which the crystal is mounted and protective coating covering at least one of the pair of sides and forming an applicator side facing out of the housing. An ultrasonic energy generating circuit is coupled across the metallic electrodes and generates across the crystal an ultrasonic electrical signal and thereby a mechanical vibratory energy wave in the crystal, both having at least one frequency component equal to the second resonant frequency. Means generates heat adjacent the applicator side simultaneously with the mechanical vibratory energy and in the subcutaneous and outer muscle tissues of a patient's body in the afflicted member. The heat is sufficient to cause a heat rise in the subcutaneous and outer muscle in a range of 1°C to 24°C.

3,828,770

ULTRASONIC METHOD FOR CLEANING TEETH

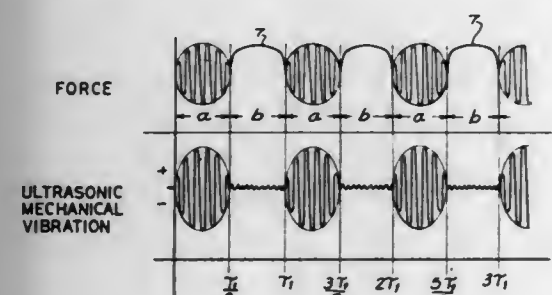
Arthur Kuris, Riverdale; Lewis Balamuth, Southampton, and Manuel Karatjas, Glen Oaks, all of N.Y., assignors to Ultrasonic Systems, Inc., Farmingdale, N.Y.

Continuation-in-part of Ser. No. 119,298, Feb. 26, 1971, and a continuation-in-part of Ser. No. 209,971, Dec. 20, 1971. This application Dec. 26, 1972, Ser. No. 318,428

Int. Cl. A61h 7/00

U.S. Cl. 128-62 A

20 Claims



A method for cleaning teeth by providing bursts of ultrasonic mechanical vibration at an applicator repeated at a sonic frequency to produce both ultrasonic and sonic vibratory motion and effect during use of said applicator.

3,828,771

ORAL HYGIENE DEVICE

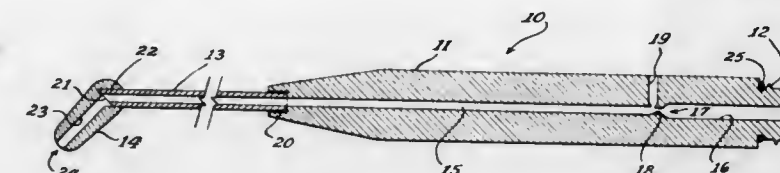
William Joseph Gartner, Bartlett, Ill., assignor to Gartner Research & Development Co., Bartlett, Ill.

Filed Nov. 10, 1972, Ser. No. 305,296

Int. Cl. A61h 9/00

U.S. Cl. 128-66

11 Claims



A bubble-containing water jet is provided in order that oral tissues may withstand a more rapid moving jet so that a non-pulsating jet of water can be more effectively utilized to provide cleansing of teeth and stimulation of oral tissue. The bubbles are produced by passing the water constituting the jet through a Venturi section of a tube which is vented in the low pressure section so that air is drawn into the water which is forced through the tube providing innumerable tiny bubbles in the water jet which issues from the outlet of the tube.

3,828,772

METHOD OF FUSING BONES

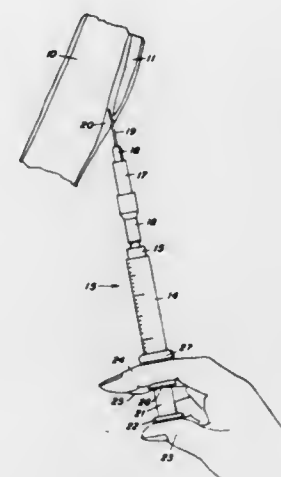
Geraldine H. Thiele, Rt. 1, Box 12, Windber, Pa. 15963

Filed Aug. 25, 1972, Ser. No. 283,663 The portion of the term of this patent subsequent to June 26, 1990, has been disclaimed.

Int. Cl. A61f 5/00

U.S. Cl. 128-92 G

17 Claims



Bones can be fused together by injecting a liquefied composition containing a non-necrotic vascular sclerosing agent into the interface region between the bones. Normally a cast or brace is not used. The preferred non-necrotic vascular sclerosing agent is sodium oleate. Splints and diffused splints can be prepared using the bone fusing technique.

3,828,773

NEBULIZING APPARATUS AND SYSTEM

Roman Buch, Mundelein; Louis L. Kocsis, Elmhurst, and Max S. Sadove, River Forest, all of Ill., assignors to Theratron Corporation, Wheeling, Ill.

Filed Sept. 22, 1972, Ser. No. 291,232

Int. Cl. A61h 1/00

U.S. Cl. 128-194

17 Claims

An ultrasonic nebulizing apparatus and system including a pzt crystal, supported in a container adapted to support a nebulization cup at a position spaced from the transducer; the container also adapted to contain a fluid coupling column. An

3,828,775

SELF-PACKAGED HYPODERMIC SYRINGE

Jack Armel, New York, N.Y., assignor to Iso Nuclear Corp., Ballston Spa, N.Y.

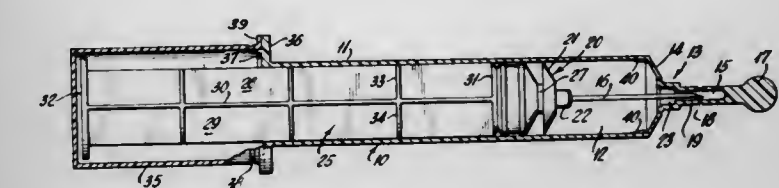
Continuation of Ser. No. 797,095, Feb. 6, 1969, abandoned.

This application June 28, 1971, Ser. No. 157,744

Int. Cl. A61m 05/32

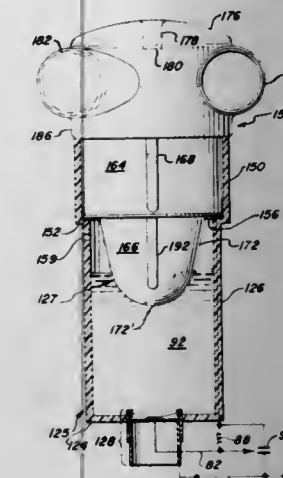
U.S. Cl. 128-218 N

8 Claims



The invention contemplates a self-packaged hypodermic syringe wherein the body of the syringe is itself an important part of the package. Removable end seals complete the packaged article and respectively provide actuating access to the plunger at the rear end, and to the needle at the forward end. As long as the syringe is stored, the needle is in a retracted position, protected against mechanical abuse or contact; upon plunger actuation, the needle is displaced to its forwardly projected position, in readiness for use. In the preferred forms which are described, the syringe body and the seal or closure structures are of a suitable plastic, shaped for localized frangibility when exposed to gamma irradiation of such dosage as to achieve sterility of the entire contents of the sealed structure.

oscillator, when energized causes the crystal to oscillate at its ultrasonic mechanical resonant frequency, the oscillator being designed to oscillate at a frequency governed by the mechanical resonant frequency of the crystal. The system includes a



safety circuit associated with the oscillator and including the container, the cup and the coupling column, which is effective to deenergize the system in the absence of operational conditions within the system.

3,828,774

ADJUSTABLE RECTAL APPLICATOR WITH DRAINING SLEEVE

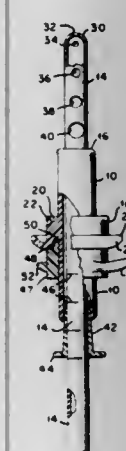
Alexander A. Vass, 309 E. 87 St., New York, N.Y. 10028

Filed Nov. 27, 1972, Ser. No. 309,668

Int. Cl. A61m 3/00

U.S. Cl. 128-241

10 Claims



An adjustable rectal applicator in which an applicator tube is reciprocable within a sleeve for adjusting its discharge end within the rectum. The sleeve fits closely within the anal canal and is provided on its exterior with a surrounding enlargement that is engageable against a perianal surface to seal the anal opening. Means are provided for maintaining the applicator tube in adjusted position within the sleeve and also to seal the distal end of the sleeve bore. In one form, the applicator tube is formed with longitudinally spaced openings at its discharge end portion. In another form, a nozzle having a soft, resiliently flexible head section and a coupling section is secured to the applicator tube adapted to close the proximal end of the sleeve, and permitting the drainage of the rectum through the sleeve, when in non-closing position through an opening formed in the distal portion of the sleeve.

3,828,776

TEAT DISINFECTING CUP FOR USE AFTER MILKING

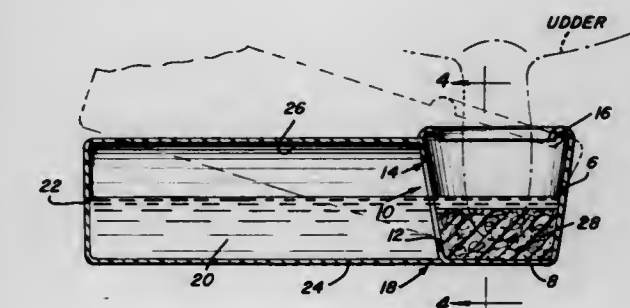
Anders V. Sparr, Sr., Rt. 1, Box 272 Milligan Rd., Waupun, Wis. 53963

Continuation-in-part of Ser. No. 233,111, March 9, 1972, abandoned. This application Apr. 9, 1973, Ser. No. 350,132

Int. Cl. A61m 7/00

U.S. Cl. 128-248

2 Claims



A manually applicable and removable teat disinfecting device expressly adapted for use after milking a cow comprising a hollow cylindrical handle closed at one end and open at its opposite end and provided with an integral coordinating teat dipping cup. One side wall of the cup is provided with a restricted but suitable inlet-outlet opening registering with the open end of the handle. The hollow portion of the handle provides a reservoir in which the antisepticizing solution is stored and from which it is poured by tilting and angling the handle. The upper open mouth of the cup is provided with an endless overhanging flange which constitutes an anti-splashing and protecting guard for the user. The device is self-standing when set aside and not in use and the cup is equipped with an optionally usable hanger hook which can be releasably hooked over the user's belt for out-of-use convenience.

3,828,777

MICROPOROUS OCULAR DEVICE

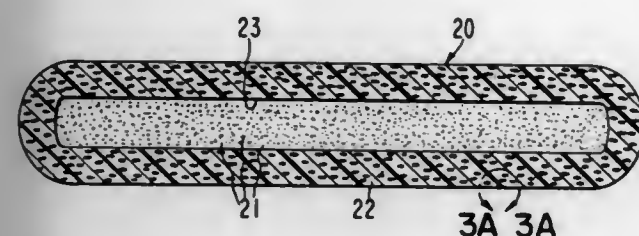
Richard A. Ness, Fergus Falls, Minn., assignor to Alza Corporation, Palo Alto, Calif.

Filed Nov. 8, 1971, Ser. No. 196,642 The portion of the term of this patent subsequent to Nov. 9, 1988, has been disclaimed.

Int. Cl. A61m 31/00

U.S. Cl. 128-260

9 Claims



An ocular device for the controlled and continuous administration of a predetermined dosage of drug to the eye comprising a body of microporous drug release rate controlling material which is insoluble in tear fluid, the pores of which are filled with a medium permeable to the passage of drug by diffusion. The body contains a reservoir of drug formulation confined therein which is of limited solubility in the medium, and is of a shape which is adapted for insertion and retention in the sac of the eye bounded by the surfaces of the bulbar conjunctiva of the sclera of the eyeball and the palpebral conjunctiva of the lid. The body continuously meters the flow of a therapeutically effective amount of drug to the eye and surrounding tissues at a controlled and reproducible rate over a prolonged period of time. The device is so constructed that the metering is determined by the rate of diffusion of drug in the diffusive medium.

3,828,778

DISPOSABLE OINTMENT APPLICATOR

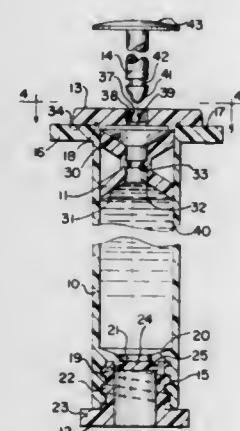
Martin Weinhart, Lincolnwood, Ill., assignor to Master Molded Products Corporation, Skokie, Ill.

Filed Jan. 22, 1973, Ser. No. 325,858

Int. Cl. A61m 35/00

U.S. Cl. 128-261

2 Claims



An ointment applicator for use by doctors and by women and which is designed for a single use, after which it is discarded for sanitary reasons. The applicator is molded from a suitable plastic material, such as polyethylene, or polypropylene, or polyvinyl chloride, and made in a plurality of parts which are finally assembled when the applicator is to be used. One part is precharged with a prescribed dosage of a medication or ointment which may be discharged into a body cavity when the several parts are finally assembled for use.

3,828,779

FLEX-O-JET

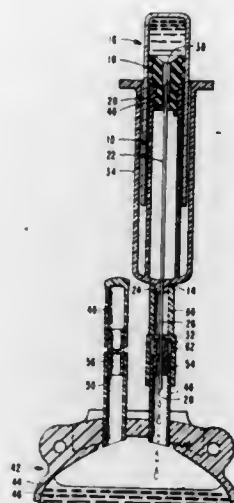
Robert Water Ogle, Newport Beach, Calif., assignor to IMS Limited, Wilmington, Del.

Filed Dec. 13, 1972, Ser. No. 314,705

Int. Cl. A61j 5/00; A61m 5/32

U.S. Cl. 128-272

2 Claims



A device for the introduction of liquid medication into a flexible bag for the administration of intravenous solutions. The device comprises an elongated generally cylindrical hollow tubular member having an open end and a closed end, a boss extending from the closed end, carried by the boss a cannula having a sharpened outer end, and a rigid sheath surrounding the cannula and carried by the boss. The sheath serves to limit the advancement of the cannula into an orifice having a diameter greater than that of said cannula. A thrust portion is provided within the tubular member and a fluid passage extends longitudinally through the center of the thrust portion. The lower end of the fluid passage communicates with the upper end of the cannula. A cylindrical vial having a resilient stopper in its open end seals on the inside walls of the vial. There are threads on the thrust portion and cooperating threads on the stopper adapted to be interlocked, whereby the plug can be interlocked with the thrust portion.

3,828,780

COMBINED ELECTROCOAGULATOR-SUCTION INSTRUMENT

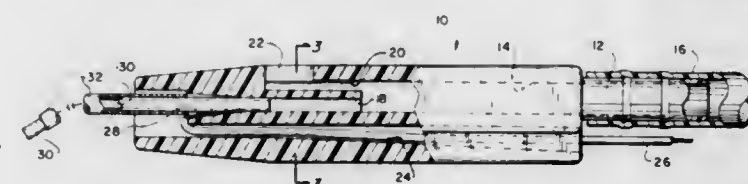
Charles F. Morrison, Jr., Boulder, Colo., assignor to Valleylab, Inc., Boulder, Colo.

Filed Mar. 26, 1973, Ser. No. 344,872

Int. Cl. A61m 1/00; A61b 17/40

U.S. Cl. 128-275.1

4 Claims



A combined electrocoagulator-suction instrument useful for coagulating bleeding capillaries and veins within a surgical field and for sucking out blood and other liquids from the field either during, before or after the coagulation procedure. An elongate body of electrically non-conductive material is formed with a main flow passage terminating at one end of the body in a nipple for connecting the passage to a vacuum source. A second passage through the body receives an electrical conductor connected to an electro-surgical generator, the end of the conductor passing through the second passage and having its bared end bent back to extend into the interior of the first passage. An open ended metal tube has one end formed to be inserted into the main passage at the end op-

posite to said nipple, the tube being mechanically seated within the passage in electrical contact with the bared wire end. An electrically non-conductive sheath surrounds all of the exposed surface of the tube with the exception of a short section at the opposite end or tip. A branch passage extends through the wall of the body to communicate with the main passage at a location intermediate the ends of the main passage, the opposite end of the branch passage opening at the exterior of the body at a vent opening which can be fully or partially covered by the surgeon's finger to regulate the degree of suction within the main flow passage. The vent opening is offset from the location at which the branch passage communicates with the main passage in an upstream direction with respect to the direction of flow of fluid through the main passage.

3,828,781

METHOD FOR WITHDRAWING MENSTRUAL FLUID

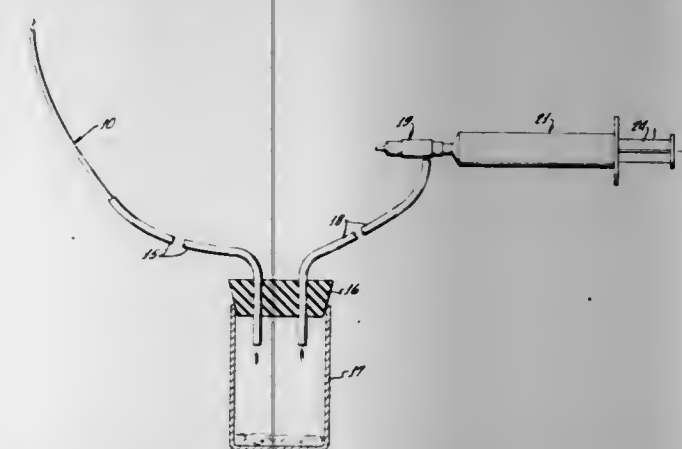
Evelyn Lorraine Rothman, 2460 E. Balfour Ave., Fullerton, Calif. 92631

Filed Dec. 6, 1971, Ser. No. 205,144

Int. Cl. A61m 1/00

U.S. Cl. 128-278

6 Claims



A method and apparatus whereby substantially all of the menstrual fluid incident to a normal monthly "period" may be removed in a small fraction of an hour. A simple plastic syringe is employed in combination with a valve to create a suction pump incapable of injecting air into the uterus. Such pump and an associated receptacle are connected to a semirigid plastic cannula having an outer diameter of about 4 mm, and such cannula is inserted through the undilated cervix. The cannula fits snugly into the cervical lumen so that the applied suction draws fluid out of the uterus. The menstrual extraction procedure is performed at the time when the normal monthly period starts, or is estimated to start.

3,828,782

TEMPORARY COLOSTOMY TUBE

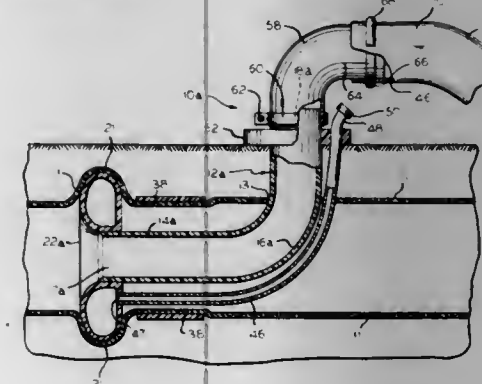
Stanton G. Polin, 2848 Fargo Ave., Chicago, Ill. 60645

Filed Apr. 10, 1972, Ser. No. 242,624

Int. Cl. A61f 5/44

U.S. Cl. 128-283

22 Claims



A temporary colostomy tube for inserting through an incision in the colon and including an open ended excrement tube

having an inflatable balloon at one end thereof. A retainer means secures the opposite end of the tube on the outside of the body, which prevents the tube from moving further inward in the colon. A band is positioned around the colon adjacent the balloon. The balloon is inflated to occupy the entire lumen and is slightly larger in circumference than the band. The cooperation of the band with the balloon blocks the tube from moving toward the incisions. The cooperation of the retainer means and the band with the balloon prevents the fecal stream from seeping around the balloon and tube. A disposal bag is secured to the tube on the outside of the body for receiving the fecal matter.

3,828,783

ABSORBENT FACING MATERIAL

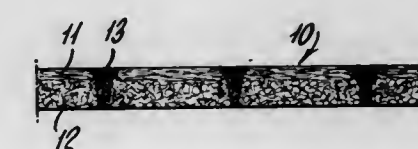
John Wilson Kennette, Somerville, and Irving Stanley Ness, Princeton, both of N.J., assignors to Johnson & Johnson, New Brunswick, N.J.

Filed May 24, 1973, Ser. No. 363,459

Int. Cl. A41b 13/02; A61f 13/16

U.S. Cl. 128-284

6 Claims



An absorbent facing material comprising 10 to 30 percent cellulosic, staple length, textile fibers, 60 to 80 percent of fluff wood pulp, and 5 to 25 percent of a resin binder material. The cellulosic fibers are substantially only on one surface of the material and the wood pulp substantially only on the opposite surface. The binder is distributed in a predetermined pattern with the surface containing the cellulosic fibers having a higher concentration of binder than the surface containing the wood pulp fibers.

3,828,784

CONFORMABLE BABY DIAPER

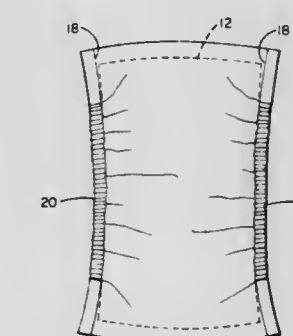
Richard L. Zoepfel, Lake Villa, Ill., assignor to The Kendall Company, Napole, Mass.

Filed Aug. 21, 1972, Ser. No. 282,117

Int. Cl. A61f 13/16

U.S. Cl. 128-287

6 Claims



A diaper is micropleated along a portion or all of its borders to shape the diaper for better conformability when applied to an infant and provide extensibility along at least the side portions to provide a fit for various leg sizes and reduce the likelihood of leakage between the legs and the encircling diaper portion.

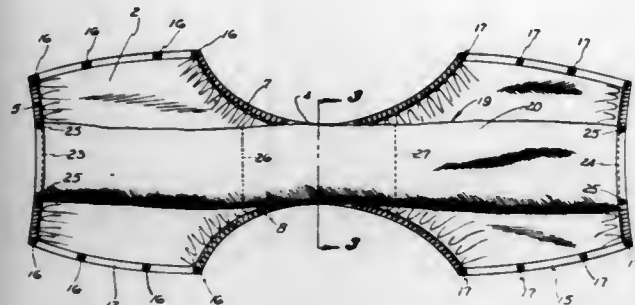
3,828,785

LINER FOR INCONTINENT PANTS

Paul B. Gamm, Cincinnati, Ohio, and Billy C. Clare, California, Ky., assignors to Jung Products, Inc., Cincinnati, Ohio
Filed July 17, 1972, Ser. No. 272,434
Int. Cl. A61f 13/16

U.S. Cl. 128—288

2 Claims



A removable and washable liner for incontinent pants in the form of an essentially seamless flattened tubular sleeve formed from a porous hydrophobic knitted fabric enclosing one or more layers of an hydrophilic material, the hydrophobic sleeve acting as a barrier to prevent discharged body fluids absorbed by the enclosed hydrophilic material from wicking into contact with the wearer's body on its inner surface and with the enclosing pants on its outer surface, yet the liner, due to the porosity and tubular construction of the sleeve, being readily washable and free from obstructions which would retain or inhibit the removal of absorbed fluids during washing.

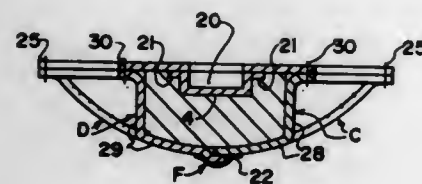
3,828,786

SANITARY NAPKIN

Joyce P. Cervantes, 9815 C St., Oakland, Calif. 94603
Filed May 21, 1973, Ser. No. 362,413
Int. Cl. A61f 13/16

U.S. Cl. 128—290 R

2 Claims



My sanitary napkin has a filler of sponge rubber which is enclosed in a cover whose top piece covers the top of the filler and which has an elongated opening that registers with an elongated recess formed in the top of the filler. The bottom piece of the cover, which is treated with a waterproofing agent, is in two halves and the inner edges of these two halves overlap each other. The outer edges of both of the top and bottom pieces are stitched together so as to enclose the filler. A special liner covers the floor and side walls of the elongated recess in the top of the filler and this liner has tabs that are sewn to the undersurface of the top piece. The ends of the cover extend beyond the ends of the filler and are provided with snaps for attachment to a sanitary belt. The cover ends have transversely extending slots disposed near the ends of the filler and when the sanitary napkin is worn with panties, the outermost cover ends are looped back on themselves and inserted through the slots so as to underlie the napkin, and the snaps nearest the filler are used to attach the napkin to the panties.

3,828,787

COLLET FOR HOLDING HEART VALVE

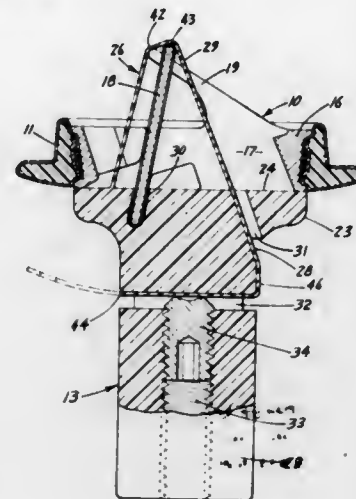
Lawrence Anderson, and Bruce D. Bentzen, both of Minneapolis, Minn., assignors to Medical Incorporated, Minneapolis, Minn.

Filed Sept. 8, 1972, Ser. No. 287,420

Int. Cl. A61b 17/00

U.S. Cl. 128—303 R

17 Claims



A holder for a pivoting disc heart valve used to implant the valve in a heart. The holder has an elongated handle carrying a disposable collet. The collet has a body adapted to be releasably connected to the end of the handle. One end of the body has an enlarged head having a groove for accommodating a portion of the valve disc to hold the disc in the open position. Integral with the head is an elongated flexible band adapted to be positioned over the side arms and disc of the valve to cover the side arms and disc. A portion of the band is attached to the body to hold the band in engagement with the side arms and disc.

3,828,788

LASER OPHTHALMOSCOPE

Mikhail Mikhailovich Krasnov, ulitsa Usievicha 11, kv. 83; Mitrofan Fedorovich Stelmakh, Universitetsky Prospekt, 5, kv. 528; Boris Nikolaevich Malyshev, ulitsa Butlerova 24, kv. 219; Vladimir Nikolaevich Prozorov, Varshavskoe shosse, 87, kv. 89; Pavel Ivanovich Saprykin, ulitsa Narodnogo Opolchenia 44 Korpus 1, kv. 12, and Maria Grigorievna Batrukova, ulitsa Novatorov, 18, korpus 2 kv. 3, all of Moscow, U.S.S.R.

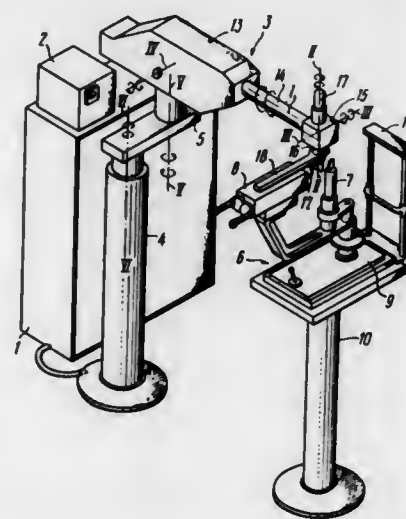
Filed Nov. 24, 1972, Ser. No. 308,936

Claims priority, application U.S.S.R., Aug. 31, 1972, 1821987

Int. Cl. A61b 17/36

U.S. Cl. 128—303.1

5 Claims



A laser ophthalmoscope is disclosed comprising a pulse laser the radiation of which passes through a light-guide

system and an aiming system so as to be directed to the ophthalmologic object which is observed with the help of an illumination system. The light-guide system comprises a light-adding means, a mirror and a rotary focusing element which are sequentially mounted along the path of the laser beam and secured on a body hinge-coupled with the mount of the ophthalmoscope. The illumination system comprises a laser source of coherent radiation secured on the same body and operating at a wavelength close to that of the pulse laser. The mirror is mounted so that it can rotate about two orthogonal axes one of which coincides with the direction of the laser beam incident on the mirror; the rotary focusing element can rotate about the axis which coincides with the direction of the laser beam incident on the element, and the laser source of coherent radiation is mounted so that its beam is combined with that of the pulse laser in the light-adding device.

3,828,789

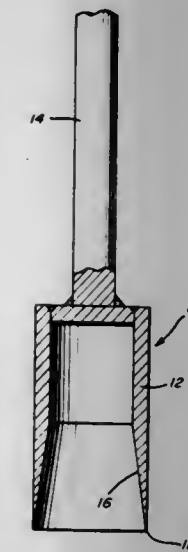
YOUNG CALF DEHORNER

LaVern L. Young, P.O. Box 353, Wellington, Utah 84542
Filed Feb. 23, 1973, Ser. No. 335,140

Int. Cl. A61b 17/36

U.S. Cl. 128—303.1

1 Claim



A device for dehorning young calves in the form of a tubular member having a tapered inner surface defining a sharp edge. The tubular member includes a bar stock handle which enables the dehorner to be heated by placing it in a fire and then used to dehorn small calves by simultaneously removing the horn and cauterizing the ends of blood vessels and the surface area from which the removed portion was cut out.

3,828,790

SURGICAL SNARE

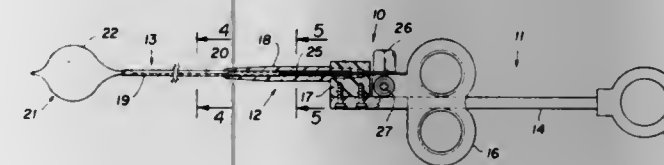
Lawrence F. Curtiss, Englewood, N.J., and Richard W. Hall, New Canaan, Conn., assignors to American Cytoscope Makers, Inc., Pelham, Mass.

Filed Feb. 28, 1973, Ser. No. 336,631

Int. Cl. A61b 17/00

U.S. Cl. 128—320

8 Claims



Surgical snare has an operating loop formed with a resilient spiral sleeve through which a core member extends. The core member is flat and resilient, forming a spring which has greater flexibility in the direction parallel to the rest plane of

the operating loop than normal thereto, thereby providing a surgical snare with a loop which, though having the thickness of the spiral sleeve, has substantially the flexibility of the much thinner core member in the direction parallel to the plane of the loop.

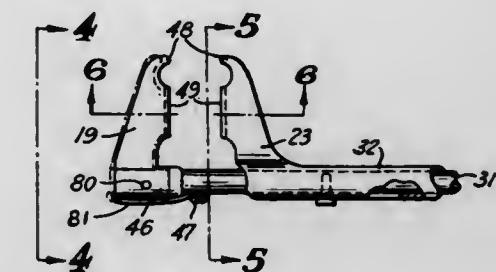
3,828,791

SURGICAL INSTRUMENTS

Manuel V. Santos, Soutelo Branca, Aveiro, Portugal
Filed Mar. 21, 1973, Ser. No. 343,529
Int. Cl. A61b 17/00

U.S. Cl. 128—321

1 Claim



Surgical instruments, particularly rectal hemo-clip applicators have a handle consisting of two parts which are interconnected pivotally and resiliently. The two handle parts are connected to two elongated members located one within the other and movable relatively to each other when the handle is actuated. The outer ends of the two members have jaws which are movable toward and away from each other to carry out surgical operations.

3,828,792

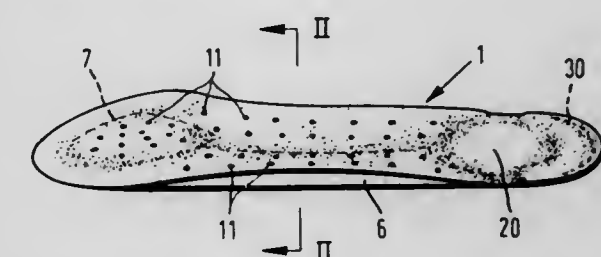
SHOE LINERS

Antonin Valenta, Seestrasse 9, 714 Ludwigsburg, Germany
Continuation-in-part of Ser. No. 875,246, Nov. 10, 1969, abandoned. This application Jan. 4, 1972, Ser. No. 215,367
Claims priority, application Germany, Nov. 18, 1968, 6807480

Int. Cl. A61f 5/14

U.S. Cl. 128—619

8 Claims



A shoe liner, which in one embodiment comprises a covering layer having fine nodules, a pad underneath the layer for supporting the arch of the foot, a support part supporting the foot arch, a heel bone support with a kidney shape cooperating with the support part to form a heel through whose rear limit is formed by the heel bone support; and in another embodiment, the shoe liner comprises two outer layers between which is sandwiched a contoured arch support that extends under the central portion of the wearer's foot.

3,828,793

CROP FEEDING MECHANISM FOR AXIAL FLOW COMBINES

Carroll Q. Gochanour, Moline, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed June 29, 1973, Ser. No. 375,207

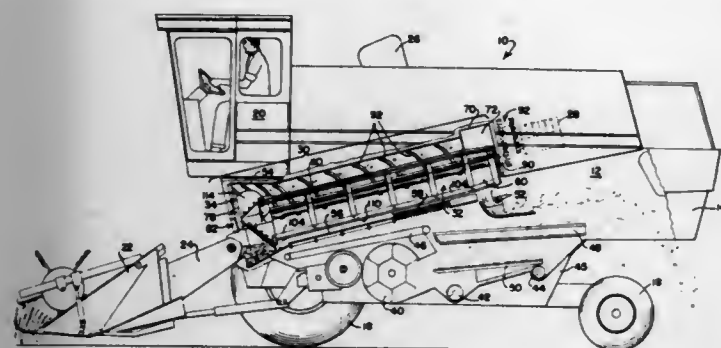
Int. Cl. A01f 12/18

U.S. Cl. 130—27 T

8 Claims

An axial flow combine of the type embodying threshing and separating means in the form of a generally cylindrical casing

within which a vaned rotor operates and which defines a threshing region and a separating region. Helical impeller vanes on the forward end of the rotor impel the crop material rearwardly into the threshing region for conduction therethrough and from thence into and through the separating region. To enhance the capacity of the casing and rotor to handle crop material, a pair of transverse sheets which extend



at a slight angle to each other so that one sheet is slanted in one direction relative to the rotor axis and the other sheet is slanted in the opposite direction, cooperate to establish, in effect a front wall for the casing. These sheets cooperate with the rotating impeller vanes to receive the backlash material which issues from the impeller and direct it forwardly into the working region of the latter.

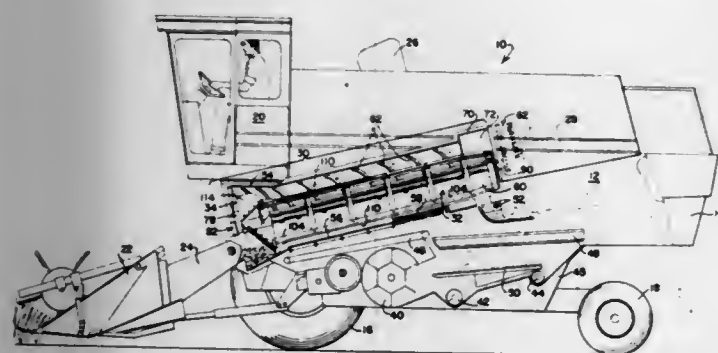
3,828,794

CROP-DIVERTING SHED BAR AND BEARING PROTECTOR FOR AXIAL FLOW-TYPE COMBINES
Carroll Q. Gochanour, Moline, and Richard A. DePauw, East Moline, both of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed June 29, 1973, Ser. No. 375,270
Int. Cl. A01f 7/06

U.S. Cl. 130—27 T

11 Claims



A combined crop-diverting shed bar and bearing protector for the rotor shaft of an axial flow-type combine. A unitary casting is fixedly secured to a structural element of the combine chassis and serves the multiple purpose of diverting the crop material, which is fed endwise against a rotating impeller, radially outwardly and away from the centrally located bearing which supports the rotor shaft, and of affording a protective shield for the bearing against the infiltration of dust or other foreign matter.

3,828,795

TOBACCO PRODUCT

Joseph N. Schumacher, and Charles R. Green, both of Winston-Salem, N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed June 21, 1973, Ser. No. 372,006
Int. Cl. A24b 15/02

U.S. Cl. 131—17

6 Claims

Addition of indanones and indenones to tobacco to enhance the flavor and/or aroma thereof.

3,828,796
CIGARETTE CUTOFF AND FILTER TIP ATTACHMENT REGISTRATION APPARATUS

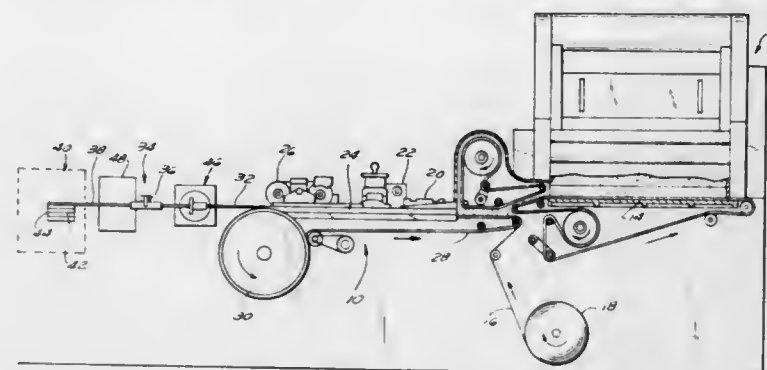
Everett N. Finn, Louisville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Dec. 20, 1972, Ser. No. 316,681

Int. Cl. A24c 05/28, 05/31

U.S. Cl. 131—21B

6 Claims



Cigarette paper with printed registration marks is utilized in the formation of a cigarette rod on a making machine. The cigarette rod is cut at prescribed intervals along the registration mark. In view of variations in repeat lengths of paper between registration marks, the cut of the rod is automatically adjusted to register with the mark by a control which operates to sense the location of the mark in relation to the cutting knife. In the manufacture of filter tip cigarettes employing the cut rods having registration marks thereon, a filter tip attachment machine is located at the discharge end of the cigarette making machine. The operation of the attachment machine is in timed relationship with the cutting of the rod, whereby any adjustment in the latter is reflected by a corresponding adjustment in the drive of the attachment machine. This synchronization insures against jamming of the cut rod entering the filter tip attachment machine.

3,828,797

TOBACCO EXPANSION PROCESS UTILIZING MICROWAVE ENERGY

Calvin L. Neumann, Clemmons, and Freddie W. Best, Winston-Salem, both of N.C., assignors to Reynolds Leasing Corporation, Jacksonville, Fla.

Filed July 7, 1971, Ser. No. 160,543

Int. Cl. A24b 3/18

U.S. Cl. 131—140 P

13 Claims

The filling capacity of tobacco is increased by exposing tobacco having a moisture content in excess of ten percent by weight impregnated with a volatile organic liquid to a source of microwave energy having a frequency of 300 MHz to 300 GHz whereby to volatilize the liquid and concomitantly expand the tobacco.

3,828,798

AROMATIC TOBACCO FORMING PROCESS

Patrick H. Harper, Louisville; Charles F. Gregory, Middletown, and Phillip R. Fisher, Louisville, all of Ky., assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Nov. 20, 1972, Ser. No. 308,162

Int. Cl. A24b 03/12, 07/00

U.S. Cl. 131—145

5 Claims

A method of forming aromatic tobacco by heating the tobacco to a predetermined temperature and then cutting the tobacco while hot, for example, at a temperature such as 140 to 150 F. to thereby obtain improved smoke, aroma and appearance characteristics of the tobacco. The tobacco is moisturized before the cutting so that it manifests a moisture content of 21%–26%. During the cutting the tobacco is maintained under a pressure of 2,000–5,000 pounds externally applied.

3,828,799

TOBACCO SMOKING EQUIPMENT

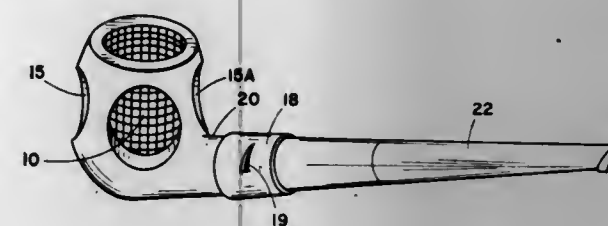
Jon W. Beam, 510 E. Cherry St., Cushing, Okla. 74023

Filed Feb. 2, 1973, Ser. No. 328,921

Int. Cl. A24f 1/22, 5/04

U.S. Cl. 131—195

10 Claims



Tobacco smoking equipment comprising a disposable charge housing formed by compressing a folded section of porous and absorbent paper within a folded section of small mesh metal screen which is subsequently shaped into a sleeve-like unit wherein the opposite ends of the assembly are in overlapping relationship. The thusly formed charge housing is fully inserted in the ventilated bowl section of a smoking holder having a stem section affixed thereto in a pipe like configuration. Additionally, a small hole is provided in the forward portion of the stem section which penetrates into the longitudinal smoke channel within said stem section, said hole being covered by a tapered sleeve like member having a triangular shaped opening in the sidewall thereof. The tapered sleeve member is slidably installed on the aforesaid stem section so as to provide an adjustable valve member for blending air with the tobacco smoke in controllable amounts.

3,828,800

TOBACCO SMOKE FILTER MATERIAL

Elmer Francis Litzinger, Louisville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Division of Ser. No. 75,772, Sept. 25, 1970. This application

Sept. 11, 1972, Ser. No. 287,633

Int. Cl. A24f 7/04

U.S. Cl. 131—262

5 Claims

An improved cigarette filter material is formed from the porous, granular salt of a weakly basic anion exchange resin, said salt being formed by the at least partial neutralization of the basic resin by a weak acid. The salt is characterized by a surface area of from about 1 to 100 square meters per gram, a pore volume of from 0.2 to 0.5 cubic centimeters per gram, an average pore diameter of from about 0.1 to 1.0 microns and the salt is formed by the at least partial neutralization of the basic resin by a weak acid having a pKa between 3.5 and 5.5.

3,828,801

FILTER FOR REMOVING POLYNUCLEAR AROMATIC HYDROCARBONS FROM TOBACCO SMOKE

Edward W. Merrill, Cambridge, Mass., assignor to Hans H. Estlin, Leonard W. Cronkhite, Jr. & William W. Wolbach, trustees of The Charles River Foundation

Division of Ser. Nos. 888,505, Dec. 29, 1969, Pat. No.

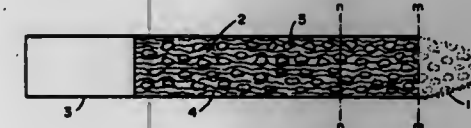
3,679,625, and Ser. No. , Division of Ser. No. 233,935, March 13, 1972, Pat. No. 3,774,623. This application May 4, 1973,

Ser. No. 357,361

Int. Cl. A24b 15/02

U.S. Cl. 131—265

8 Claims



Polynuclear Aromatic Hydrocarbons (PAH) can be absorbed and thereby removed from tobacco gas-smoke by

polysiloxane compositions. The polysiloxanes employed have a molecular weight greater than 100,000 and can be located in the filter section of a tobacco smoking device in admixture with an endothermically dissociable hydrate or carbonate filler. The latter functions to limit the temperature rise of the polysiloxane and thus prevents the desorption of hydrocarbons adsorbed thereon.

3,828,802

DRY COLOR APPLICATOR FOR HAIR

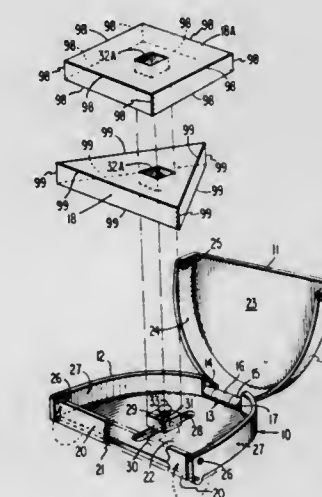
Abram N. Spanel, 344 Stockton St., Princeton, N.J. 08540

Filed Apr. 14, 1972, Ser. No. 244,064

Int. Cl. A45d 19/00

U.S. Cl. 132—9

16 Claims



Compact enclosures adapted to receive and fully utilize multi-sided blocks of wax including coloring material in intimate mixture therein for pressure-coloring human hair. In one preferred embodiment, the block of wax is rotatable within the enclosure so that in turn different sides of the block of wax can be aligned with and then moved through an open end of the enclosure.

In another preferred embodiment, the enclosure has a plurality of open ends to enable different sides of the block of wax in turn to be pushed through the open ends for pressure application to the hair. Brush and comb attachments may be rigidly, pivotally, or releasably attached to the container in a position substantially coextensive and adjacent to an open-end portion for stroking the hair as the wax is pressure-applied.

3,828,803

EYELASH APPLICATOR

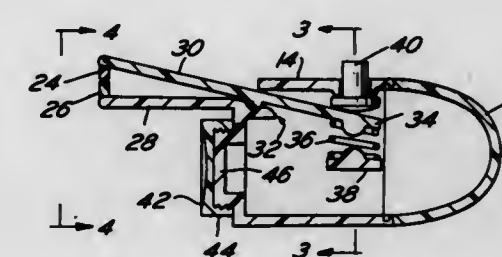
Robert K. Windsor, 417 Spruce St., Philadelphia, Pa. 19106

Continuation-in-part of Ser. No. 262,384, June 13, 1972. This application Sept. 24, 1973, Ser. No. 400,294

Int. Cl. A45d 2/00

U.S. Cl. 132—31 A

8 Claims



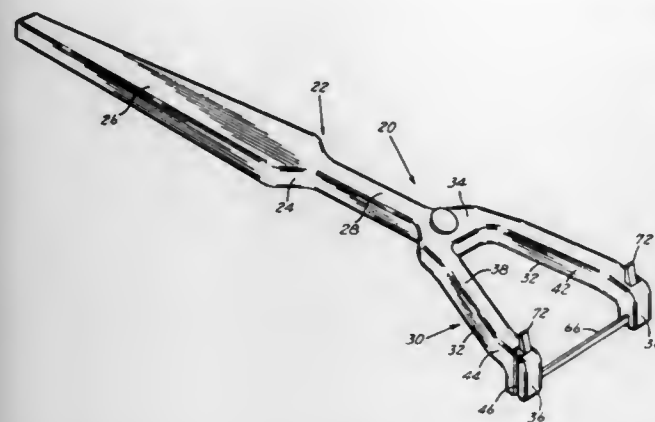
An eyelash applicator having at least one pivotable jaw provided to assist in supporting and applying artificial eyelashes in a manner whereby the applicator of the eyelash may be observed by a mirror on the applicator.

3,828,804 DENTAL DEVICE

Richard N. Ely, Apt. 362, Brooks Towers, Denver, Colo. 80202
Filed Jan. 30, 1973, Ser. No. 328,046
Int. Cl. A61c 15/00

U.S. Cl. 132-91

10 Claims



A hand-held device for cleaning between the teeth and in the sulcus between the gingiva and the crown of a tooth includes a handle having forwardly extending spaced arms adapted to retain an elastomeric band under tension so that the band bridges the gap between the spaced arms and can be passed between the teeth and into the sulcus to remove food particles, plaque and other like substances. The band is disclosed in two embodiments, one of which comprises a straight band having a relatively thin intermediate portion and enlarged integral heads which flare outwardly from opposite ends of the intermediate portion and are adapted to seat in notches provided in the arms of the handle. Raised ridges are provided in the intermediate portion of the band to provide an abrasion surface for facilitating removal of plaque from the teeth. An endless band embodiment is also disclosed which bridges the gap between the spaced arms and is anchored to an anchor post on the handle to establish the desired tension in the elastomeric band.

3,828,805

SELF-CLOSING UMBRELLA FRAME

Klaus Thur, Solingen, Germany, assignor to Telesco Brophy Limited, East Montreal, Quebec, Canada
Filed May 22, 1973, Ser. No. 362,758

Claims priority, application Germany, June 2, 1972, 2226754

Int. Cl. A45b 25/16

U.S. Cl. 135-22

4 Claims



A self-closing automatic umbrella of the type which can be opened from a closed position to an umbrella erect position by applying pressure to the end of the stick to telescope the umbrella stick, such as pressing the stick against the ground and which can be closed by releasing a suitable release. An inde-

pendent locking device is provided for locking the stick in a stick extended position so that the umbrella, when closed, can be used as a walking stick and whereby the independent locking device can be released to allow the umbrella stick to be telescoped for opening the umbrella.

3,828,806

TWO-WAY VALVE HAVING FREELY PIVOTABLE VALVE ELEMENT

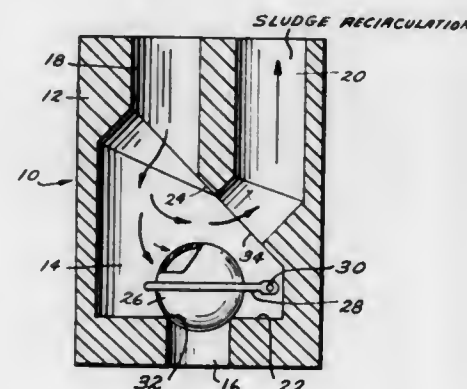
Edmond A. Glos, II, Sarasota, Fla., assignor to Davis Water & Waste Industries, Inc., Thomasville, Ga.

Filed June 15, 1972, Ser. No. 263,211

Int. Cl. G05d 11/00; F16k 15/04

U.S. Cl. 137-111

1 Claim



The invention is related to an automatic two-way valve especially useful with the discharge of sludge effluent from a tank, but having other uses. The valve has a dual purpose and function in that it can be responsive to two different conditions of the sludge effluent. In one particular use the valve includes a member having a predetermined specific gravity correlated to the density condition of the sludge so that variations in sludge density vary the buoyancy of the valve member to cause it to move between alternative flow controlling positions. In another particular use the valve member is responsive to the variations in conditions of sludge flow so as to cause it to also move between alternative flow controlling positions.

3,828,807

PRESSURE REGULATOR

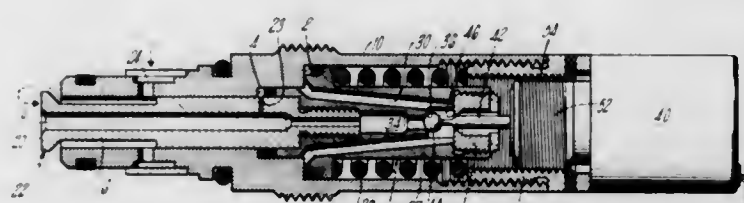
Michael H. Dawes, Rexford, N.Y., assignor to Chandler Evans Inc., West Hartford, Conn.

Filed Aug. 13, 1973, Ser. No. 388,028

Int. Cl. F16k 31/14

U.S. Cl. 137-495

10 Claims



A regulator device which will selectively regulate about one of two pressure levels is disclosed. The regulator device includes a regulator poppet which defines two pressure sensing areas and a solenoid actuated valve for controlling application of the regulated pressure to either one or both sensing areas to selectively establish, in cooperation with a biasing spring, balanced positions of the poppet commensurate with the two pressure levels. The poppet is disposed in a valve housing and cooperates therewith to modulate the flow from a pressurized fluid source to the region wherein the pressure level is to be regulated.

3,828,808

EXHAUST VALVE FOR INTERNAL COMBUSTION ENGINE

Aurelio Orrelli, Bologna, Italy, assignor to Riva Calzoni S.p.A., Milan, Italy

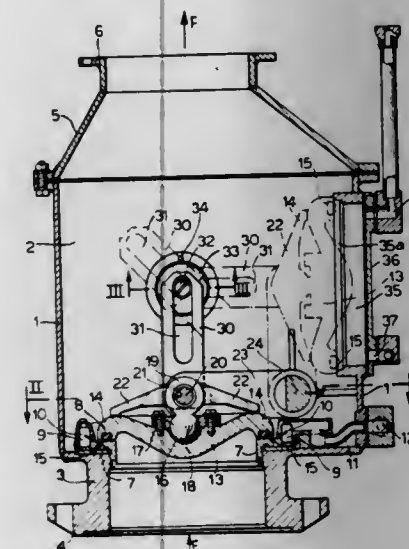
Filed Feb. 6, 1973, Ser. No. 330,151

Claims priority, application Italy, Feb. 28, 1972, 21124/72

Int. Cl. F16k 31/44, 1/16

U.S. Cl. 137-340

4 Claims



A valve for sealing the exhaust passage of an internal combustion engine to prevent the ingress of fluids under pressure when the engine is not working. The valve comprises an annular valve seat closable by a circular valve shutter disc or plate which is carried at the ends of two pivoted arms. The valve shutter plate is pivoted with respect to the two arms and provided with a mechanism for turning the plate with respect to the arms automatically as the valve is opened, to turn the operating face of the shutter plate away from the stream of hot exhaust gases which pass through the port surrounded by the annular valve seat, when the engine is running. Means for cooling the operating face of the shutter plate while the engine is running are also provided.

3,828,809

TRAIL LINE SHOE

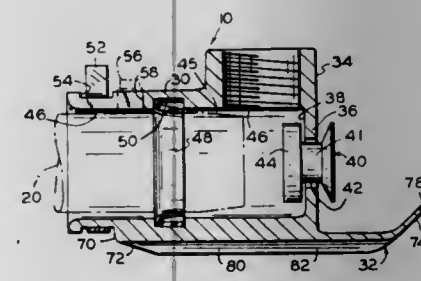
Lloyd W. Clements, Woodland, Calif., assignor to Ireco Industries, Inc., Eugene, Oreg.

Filed Dec. 13, 1972, Ser. No. 314,763

Int. Cl. F16k 45/00

U.S. Cl. 137-344

7 Claims



An irrigation move has a trail line pulling a trail line shoe provided with a skid plate tapering at its forward end to a cylindrical, coupler body and having a sloping rear end to permit reverse movement of the trail line. The skid plate has a longitudinal groove which causes the skid plate to slide over mud.

3,828,810

TEMPERATURE RESISTANT SEAL AND VALVE ASSEMBLY

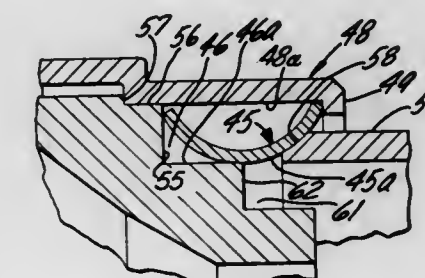
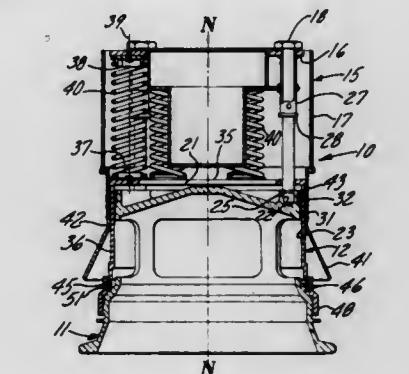
James D. Evers, deceased, late of Corry, Pa.; Louisa E. Bender, and Donald A. Bender, executors, both of North Haven, Conn., assignors to Midland-Ross Corporation, Cleveland, Ohio

Filed Sept. 25, 1972, Ser. No. 291,983

Int. Cl. F16k 1/42

U.S. Cl. 137-494

14 Claims



Structure providing a seal, e.g., in pressure relief valves typically to be provided in the servo-modulating or shutoff type, wherein a sealing ring of C-shaped cross section is supported on one of two relatively movable members of the valve housing for continuous contact by the other member when engaged thereby. The sealing ring of C-shaped cross section is particularly useful where the seal is subjected to repetitive opening and closing cycles accompanied by the movement of fluid at elevated temperatures between the seal ring and the valve lip portion of the member which moves into and out of contact with the ring.

3,828,811

VALVE ASSEMBLY

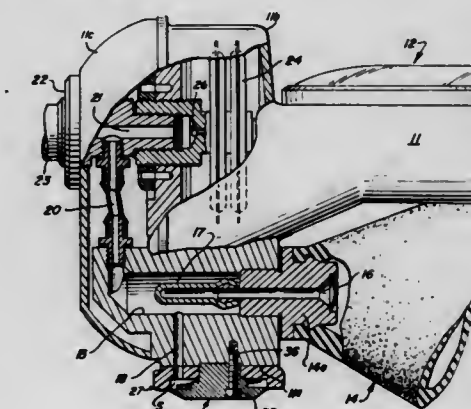
Zygmunt Natkanski, Chicago, Ill., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 31, 1973, Ser. No. 365,600

Int. Cl. F16k 37/00

U.S. Cl. 137-556

9 Claims



A valve assembly is provided for use in a sphygmomanometer and includes a housing provided with an elongated first air

passageway and a second air passageway having one end thereof communicating with the first passageway and the second end thereof terminating at an exterior surface portion of the housing. A valve piece overlies the housing exterior surface and is mounted thereon for manual rotation through a predetermined sector, delimited by first and second positions of adjustment. Rotation of the valve piece is about an axis disposed transverse of the exterior surface portion. The valve piece is provided with a passageway which interconnects first and second surface portions. The valve piece first surface portion is in sliding sealing engagement with the housing surface portion. One of the engaging surface portions is provided with an elongated groove extending from the end of the passageway terminating at the one engaging surface portion. The cross-sectional size of the groove diminishes uniformly from a maximum at the passageway end to zero at the distal end of the groove. When the valve piece is at the first position of adjustment the housing second passageway and the valve piece passageway are aligned with one another. When the valve piece is at the second position of adjustment, the housing second passageway is closed off by the valve piece.

3,828,812

PRESSURE-MONITORING RELIEF VALVE

Brian Read, 18 Wheatland Rd., Heswall, Wirral, England

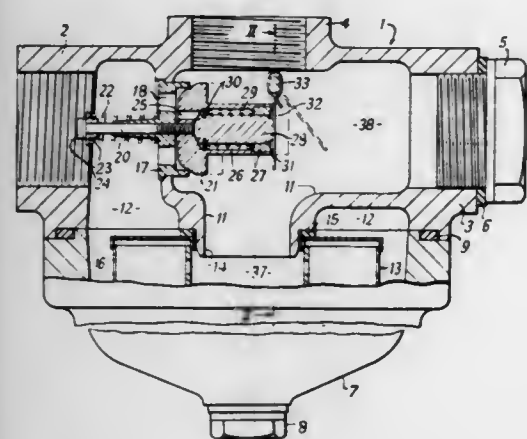
Filed June 14, 1972, Ser. No. 262,879

Claims priority, application Great Britain, June 14, 1971, 27819/71

Int. Cl. F16k 37/00

U.S. Cl. 137—557

7 Claims



A pressure-monitoring relief valve for a filter comprises a pressure-monitoring member slidable in a bore in a relief valve member against a spring in response to differential pressure between its ends, one of which bears against a lever on a shaft carrying an indicator. The relief valve member is applied against its seat by a further spring. The indicator gives a progressive external indication of increasing pressure drop across the filter and a further external indication movement when the relief valve opens due to the filter being clogged.

3,828,813

CONTROL DEVICE FOR LOAD-INDEPENDENT FLOW REGULATION

Hubert Haussler, Neuheim, Switzerland, assignor to Beringer Hydraulik R. Beringer & Co., Neuheim, Switzerland

Filed Feb. 14, 1973, Ser. No. 332,274

Claims priority, application Switzerland, Feb. 18, 1972, 2385/72

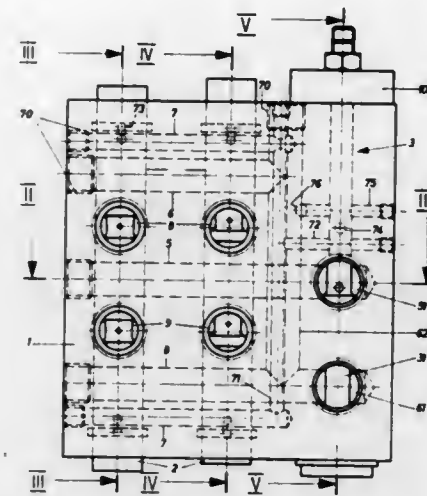
Int. Cl. F16k 13/00; F16b 1/00

U.S. Cl. 137—596.13

8 Claims

A control apparatus for load-independent flow regulation, with at least one control unit having a slide valve, a pressure difference balance, conduits leading to a pump and to a consumer and a conduit communicating the pressure in the consumer unit to the pressure difference balance, is disclosed.

This last conduit has first and second sections. The first section passes through the slide valve and, when the slide valve is moved out of the neutral position, opens into an annular groove provided in the slide valve bore. The second section



extends from this annular groove and has located therein an operating piston which in one position connects a chamber of the pressure difference balance containing the pressure spring to this conduit and in the other position connects this chamber to a return conduit to a tank.

3,828,814

ELECTRICAL CONTROL ARRANGEMENT FOR GAS OR STEAM TURBINES

Klaus Neumann, and Wolfgang Fritz, both of Berlin, Germany, assignors to VEB Bergmann-Borsig/Goerlitzer Maschinenbau, Berlin, Wilhelmsruh, Germany

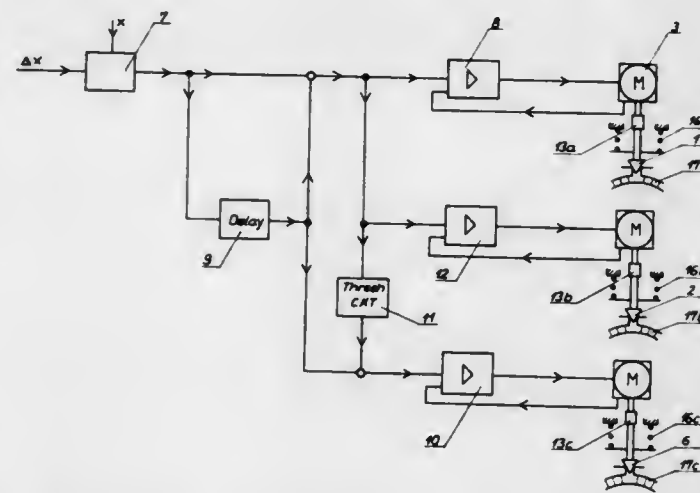
Filed Oct. 16, 1972, Ser. No. 297,990

Claims priority, application Germany, Sept. 15, 1971, 7115772; Nov. 20, 1971, 7115916

Int. Cl. F01d 17/00; F03b 15/06

U.S. Cl. 137—599

7 Claims



The basic flow rate for any given output is controlled by main valves driven by a relatively slow electrical drive having a high operating force. Small output changes are rapidly corrected by error valves driven by an electrical system having a very short time constant and a relatively low operating force. Only one error valve is used for correcting flow rate in conjunction with any of the main valves. All valves operate under spring pressure, so that release of a mechanical coupling coupling the valves to the drive system causes a very rapid closing of the valves.

3,828,815

FIXTURE SHUTOFF VALVE WITH DRAIN

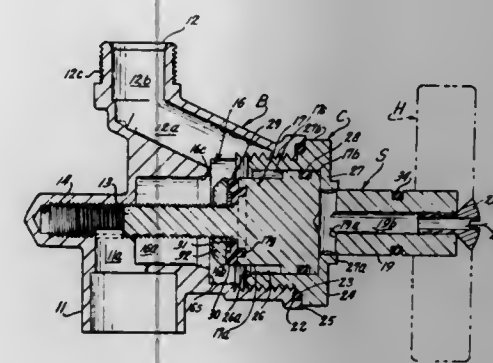
Irlin H. Botnick, 3155 Kerdale, Pepper Pike, Ohio 44124

Filed July 26, 1973, Ser. No. 382,946

Int. Cl. F16k 11/02

U.S. Cl. 137—625.26

12 Claims



A compact, low cost shutoff valve for a fixture water supply line, which blocks flow by the front of a stem-carried main piston advanced into and slidingly sealing a bore forming part of the inlet-to-outlet flow path; and with closing motion continued after shutoff, a trailing part of the stem as a sealing piston leaving a sealed relation with a cylindrical body cap part exposes drainage openings in a hollow stem.

A novel main seal eliminates possibility of seal damage by overtightening after shutoff.

3,828,816

FLUID FLOW CONTROL VALVES

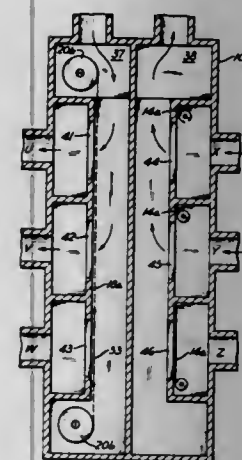
Herbert L. Barnebey, Columbus, Ohio, assignor to Barnebey-Cheney Co., Columbus, Ohio

Continuation of Ser. No. 218,114, Jan. 17, 1972, Pat. No. 3,773,077. This application Apr. 16, 1973, Ser. No. 351,290

Int. Cl. F16k 13/00

U.S. Cl. 137—625.28

3 Claims



This disclosure relates to valves and valving systems for controlling the flow of fluids, particularly vapors and gases, through ports of relatively large area with relatively low pressure drops. The type of valve disclosed I call a "curtain valve"; it is comprised of an impervious flexible sheet (the curtain) movably installed to cover and uncover an opening or port on the upstream side so that the curtain seals around the edges of the port under the pressure differential across the port. To prevent deflection of the central part of the flexible sheet through the port opening a grid coextensive in area with the port opening may be provided on the downstream side, the bars of the grid being sufficient in number and spacing to support the flexible sheet or curtain which covers (or throttles) the port area. The particular type of curtain valve illustrated and described in this disclosure is characterized by an impervious sheet between reels at opposite ends of the grid, the sheet sliding across the grid as the reels are rotated together.

3,828,817

VALVE ASSEMBLY

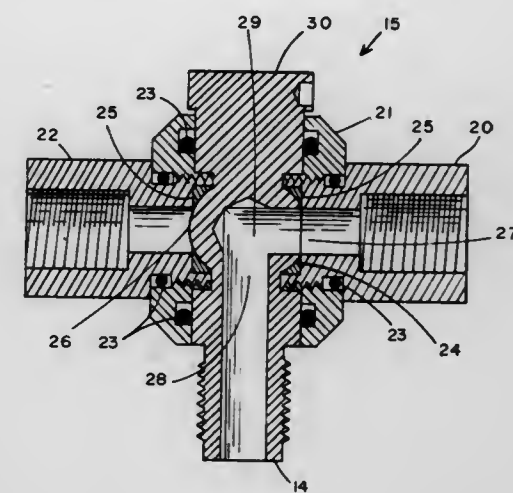
Arthur A. Anderson, St. Paul, Minn., assignor to Speciality Manufacturing Company, St. Paul, Minn.

Filed Feb. 9, 1973, Ser. No. 330,992

Int. Cl. F16k 11/02

U.S. Cl. 137—625.47

7 Claims



A chamber housing contains a number of outlet passageways through its walls and an inlet passageway is provided through another member located in the chamber. The housing can be adjusted with respect to the other member to selectively close off the outlet passageways or to place them in communication with the inlet passageway. In its preferred application spray heads are attached to the outlet passageways to be selectively coupled to the inlet passageway.

3,828,818

FLUID CONTROL VALVES

Norman Hunt, Rugby, England, assignor to Associated Engineering Limited, Leamington Spa, England

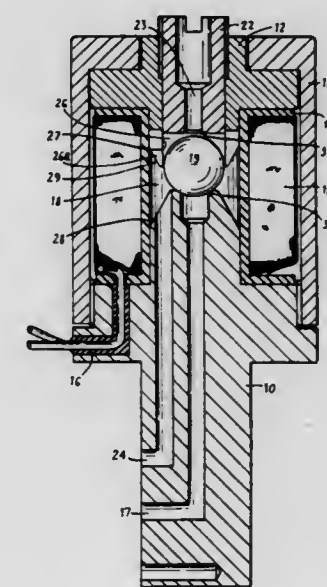
Filed Jan. 8, 1973, Ser. No. 321,675

Claims priority, application Great Britain, Jan. 14, 1972, 1962/72

Int. Cl. F16k 31/06

U.S. Cl. 137—625.65

6 Claims



A fluid control valve comprises a solenoid for generating an electromagnetic field, a fluid passage and a ferromagnetic ball for controlling fluid flow through the fluid passage. When the solenoid is energized with electricity the ferromagnetic ball is moved from a first position to a second position, in one of which positions the ball closes said fluid passage and in the other position the fluid passage is open.

3,828,819

TANK WITH INTERNAL FAIL-SAFE VALVE

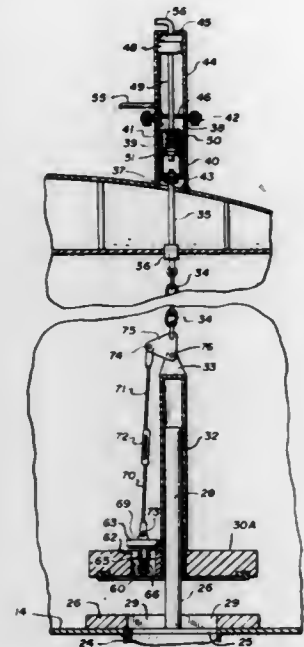
Erik E. Brogren, Wheaton, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Sept. 7, 1972, Ser. No. 286,984

Int. Cl. F16k 31/16

U.S. Cl. 137—630.15

9 Claims



An improved enclosed storage tank, for a liquid product, having a bottom opening communicating with a discharge pipe, and a fixed-position roof, comprising a fail-safe apparatus for closing the bottom opening internally of the tank, said apparatus including the valve means inside of the tank, the valve means having a valve seat around the bottom opening and a valve closure adapted to span the bottom opening and contact the valve seat in closing the opening, and suspending means extending from the valve closure to a control means, said control means being capable when activated to raise and hold the suspending means in raised position with the valve closure above the valve seat and the valve thus open, and when deactivated to permit the suspending means to drop and the valve closure to automatically contact the valve seat and close the bottom opening.

3,828,820

TWO-WAY FLAP VALVE

Herbert Schrader, Finkenhaus, Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

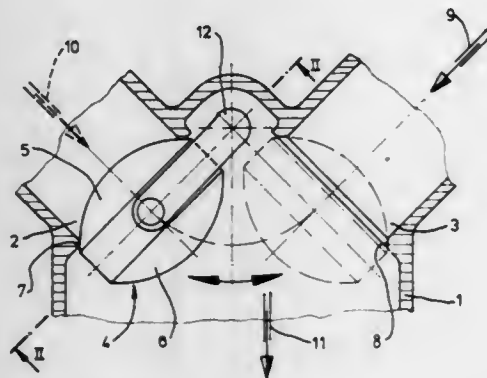
Filed Jan. 12, 1973, Ser. No. 323,078

Claims priority, application Germany, Jan. 14, 1972, 2201601

Int. Cl. F16k 11/02

U.S. Cl. 137—625.4

4 Claims



A two-way flap valve that has two selectively closable flow passages formed in it includes a housing and two valve seats in the housing, each valve seat being associated with a different flow passage. A valve body has two spherical sealing surfaces

formed on it, and each sealing surface engages a corresponding valve seat to close an associated flow passage. The valve body is mounted on a pivotable axle for limited movement in a plurality of directions to permit the valve body to center itself relative to each valve seat when the valve seat is engaged by a corresponding sealing surface. In one embodiment of the invention, the valve body is mounted on the axle by a fork-like member defined by two spaced-apart posts and a portion of the axle to which the posts are connected. A shaft extends between the posts and passes through a bore formed in the valve body. The bore is tapered inwardly from the exterior surface of the valve body and is dimensioned to permit movement of the valve body relative to the shaft.

3,828,821

PRESSURE REGULATOR FAUCET SLIDE VALVE

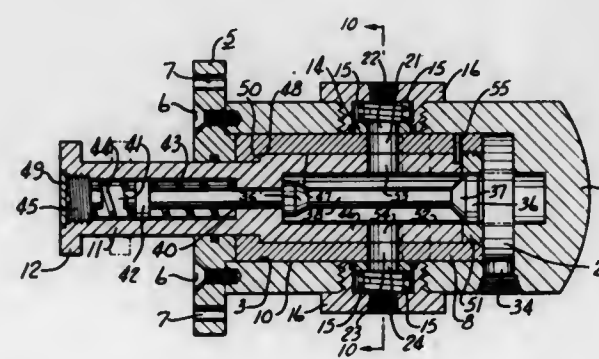
John Henry Dotter, 810 Ocean Monarch Condominium, 133 N. Pompano Beach Blvd., Pompano Beach, Fla. 33062

Continuation-in-part of Ser. No. 765,776, Oct. 8, 1968, abandoned. This application Mar. 2, 1971, Ser. No. 120,177

Int. Cl. F16k 11/18; G05d 16/00

U.S. Cl. 137—636.4

15 Claims



A pressure regulating faucet that maintains a predetermined discharge pressure less than the supply pressure regardless of the amount of water issuing from the faucet in combination with parts in a flat face slide valve surface to regulate the amount of water issuing from the faucet or the proportionate mixture of different or hot and cold water and in combination with a concentric rotary proportioning selector valve having an axial bore containing the pressure regulator valve operable axially within the bore of the rotary selector valve. The slide valve and the rotary proportioning valve and the pressure regulating valve are coaxially concentric to each other cooperating in performing their valvular function upon the water entering the housing radially and discharging axially.

3,828,822

ADJUSTABLE PRESSURE CONTROL VALVE

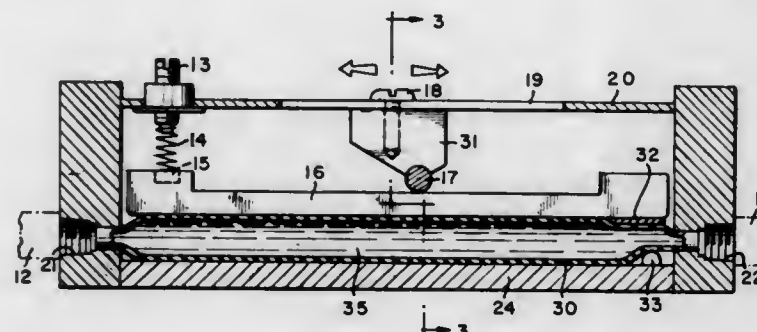
Theo Witte, 1630 Emerald Way, Perris, Calif. 92370

Filed May 21, 1973, Ser. No. 362,397

Int. Cl. F15d 1/02

U.S. Cl. 138—45

3 Claims



A pressure regulating valve which is readily adjustable in continuous operation, for regulating the outlet pressure of a fluid, liquid or gas, flowing through the valve, said valve being

capable of maintaining a uniform outlet pressure despite variations in the rate of flow or in the inlet line pressure. The valve contains a flexible tubing or bladder through which the fluid flows, with a lever arm resting along the length of the tubing. The lever arm is backed against a roller which may be located at any point along the length of the lever arm, so as to vary the pivot point of the lever arm as rotated by the pressure exerted by the tubing against both sides of the pivot point. Rotation of the lever arm in the closing direction acts to clamp the input end of the tubing so as to restrict the flow of fluid into the tubing and thus restrict the outlet fluid pressure.

3,828,823

LINED CONDUIT JOINTS

Burke Douglas, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

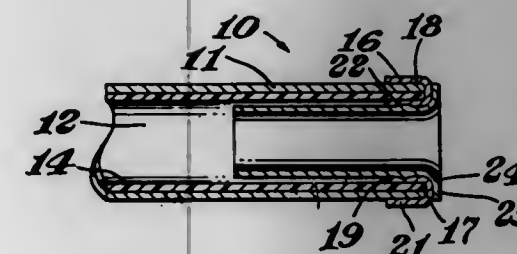
Division of Ser. No. 75,427, Sept. 25, 1970, Pat. No.

3,742,590. This application Nov. 20, 1972, Ser. No. 308,273

Int. Cl. F16l 9/00, 19/00

U.S. Cl. 138—109

3 Claims



Joints are prepared in ductile metal conduits having thermoplastic lining by affixing the lining to the terminal portion of the conduit and deforming the conduit and lining simultaneously to form an outwardly extending flange adapted to mate with a like flange wherein the lining material may contact a like lining material of similar conduit end.

3,828,824

DEVICE FOR ENGAGING AND DISENGAGING THE DOBBY SHAFT AND PICKING SHAFT OF LOOMS

Helmut Macho, Konstanz, Germany, assignor to Adolph Saurer Ltd., Arbon, Switzerland

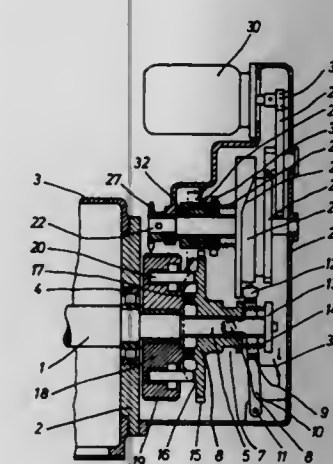
Filed Nov. 27, 1972, Ser. No. 309,635

Claims priority, application Switzerland, Jan. 11, 1972, 377/72

Int. Cl. D03d 51/00

U.S. Cl. 139—1 E

7 Claims



The device includes means for permitting coupling of the dobbie shaft and picking shaft in only two angular positions which are displaced by 180°, and includes an auxiliary shaft which is selectively driven either by an electric motor or by a hand operated chain and sprocket drive and which includes a cam for actuating a shifting lever for the purpose of moving a settable coupling member rotatable with the dobbie shaft axially

ally between two axially spaced positions. A first coupling is engageable to connect the coupling member to the drive member in a first axial position of the coupling member, and a second coupling is engageable to connect the coupling member to the auxiliary shaft in a second axial position of the coupling member. The drive member is driven by the picking shaft and is freely rotatable on the dobbie shaft, and includes a roller which bears against a side of the settable coupling member to prevent it from engaging the first coupling except when a selected relative angular position of the settable coupling member and the drive member is attained. The cam actuates the shifting lever to displace the coupling member axially of the dobbie shaft to disengage the first coupling and to engage the second coupling responsive to selective rotation of the auxiliary shaft. Springs normally bias the coupling member to engage the first coupling and to disengage the second coupling. When the shifting lever is moved to shift the coupling member to engage the second coupling, it actuates a switch connected in a circuit for the electric motor for selectively driving the auxiliary shaft.

3,828,825

APPARATUS FOR MANUFACTURING SLIDING CLASP FASTENERS HAVING COUPLING LINKS WOVEN INTO THE EDGE OF A SUPPORTING TAPE

Friedrich Glindmeyer; Karl Limpens, both of Stolberg, and Wilhelm Hennenberg, Alsdorf, all of Germany, assignors to Firma William Prym-Werke KG, Stolberg, Germany

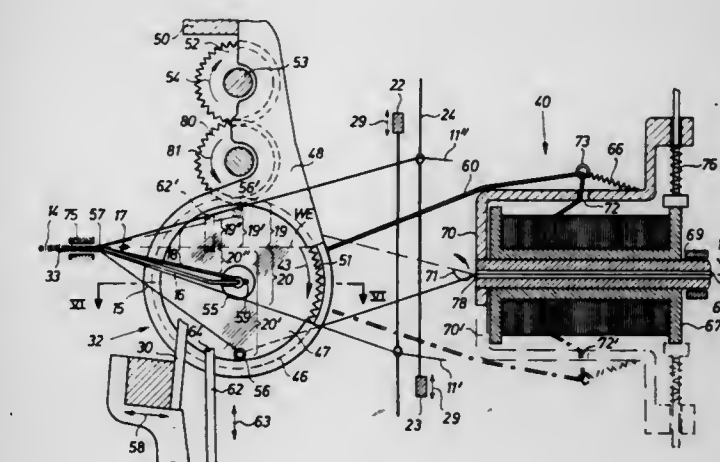
Filed July 17, 1972, Ser. No. 272,667

Claims priority, application Germany, July 20, 1971, 2136154

Int. Cl. D03d 41/00

U.S. Cl. 139—35

5 Claims



An apparatus for manufacturing sliding clasp fasteners having coupling links formed by a deformed thread material woven into the edge of a supporting tape, which comprises a device for feeding a plurality of warp threads to a weaving zone, which warp threads define weaving sheds. A device for laying weft threads in the weaving sheds. A rotor is mounted for rotation about an axis parallel with the weft threads and lies in a plane adjacent one limit of the weaving sheds. A loop-forming mandrel associated with the rotor and having one end supported substantially on the axis of rotation of the rotor and being of sufficient length to extend to the weaving zones. The rotor defines an aperture remote from the axis of rotation thereof for feeding the deformable warp thread to a mandrel such that the deformable thread is shaped by the mandrel to form a row of loops woven into a supporting tape, and the apparatus comprises at least two weaving zones, each being provided with its own of the rotors and mandrels for the simultaneous formation of at least two tapes having a deformable thread woven into the edge thereof. The axes of rotation of said two rotors being located at opposite sides of the shed, and the rotors are capable of being driven in opposite directions.

3,828,826

JACQUARD MECHANISM

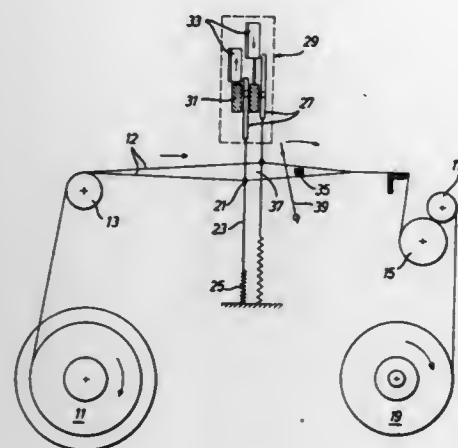
Rene Hurler, Dietikon, Switzerland; Antonius Vinnemann, Stuttgart, and Peter Doslik, Bonlanden, both of Germany, assignors to Sulzer Brothers, Ltd., Winterthur, Switzerland
Filed June 12, 1972, Ser. No. 263,753

Claims priority, application Germany, June 19, 1971, 2130502

Int. Cl. D03c 3/00, 3/22

U.S. Cl. 139—59

34 Claims



The weaving machine is provided with control elements which are flexed or moved between one of two positions by magnetic, electrical or thermal forces as to program the movement of the healds in forming a shed. The use of jacquard cards to interdict or to permit dropping of jacquard needles connected to the healds can thus be eliminated. The control elements are used in single-lift and in double-lift jacquard mechanism.

3,828,827

MANUFACTURE OF WOVEN WIRE TIRE CORD FABRIC

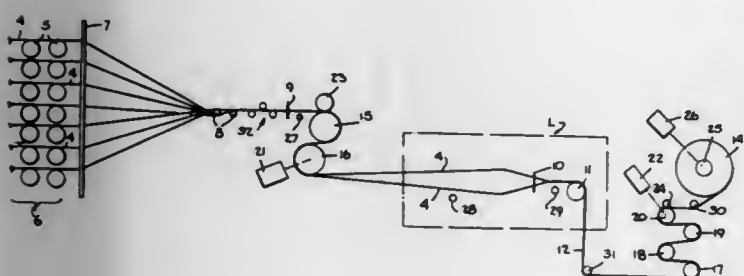
Jerry L. Witt, Winnsboro, and Allen Layson, Columbia, both of S.C., assignors to Uniroyal, Inc., New York, N.Y.

Filed July 31, 1972, Ser. No. 276,483

Int. Cl. D03d 49/04, 15/02

U.S. Cl. 139—99

11 Claims



A novel method and apparatus for producing plain or leno woven wire tire cord fabric, in which fabric the metal wire cord warps are interwoven with relatively widely spaced continuous textile filament picks and which is characterized by high dimensional stability and maintenance of uniformity of cord distribution during take-up as well as during calendaring and subsequent tire building operations, are disclosed. The fabric can be woven on a textile loom of generally conventional construction but provided with special auxiliary equipment designed to maintain a required tension control on the tire cords both when they enter the loom and when they leave the loom as components of the woven fabric. This abstract is not to be taken either as a complete exposition or as a limitation of the present invention, however, the full nature and extent of the invention being discernible only by reference to and from the entire disclosure.

3,828,828

GUIDING COMB FOR PICKING THE WEFT BY A STREAM OF GASEOUS PRESSURE MEDIUM

Jiri Cernocky; Miloslav Riha, both of Rybniky, and Josef Martinec, Luh, all of Czechoslovakia, assignors to Zbojovka Vsetin Narodni, Vsetin, Czechoslovakia

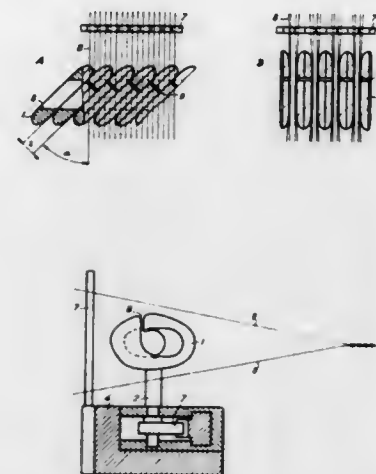
Filed Feb. 22, 1972, Ser. No. 227,875

Claims priority, application Czechoslovakia, Oct. 2, 1970, 667870

Int. Cl. D03d 47/30

U.S. Cl. 139—127 P

3 Claims



A guiding comb for shuttleless looms for picking the weft thread into the shed of the loom, having teeth which can be adjusted in two angular positions, in the first one where the picking openings of the teeth form a practically completely closed channel, and in a second one, where gaps are created between adjacent teeth, enabling their entrance into and removal from the system of warp threads forming the shed.

3,828,829

WEFT INSERTING ARRANGEMENT OF FLUID-JET LOOM

Miyoki Gotoh; Yukio Mizuno, and Kazuo Shibata, all of Tokyo, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

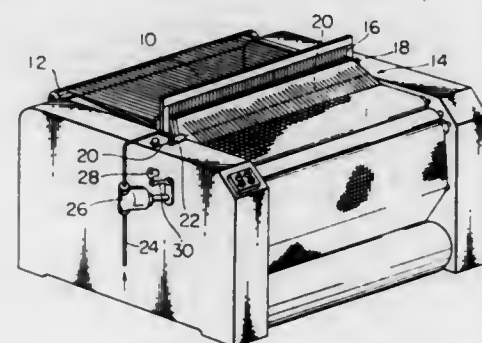
Filed Feb. 7, 1973, Ser. No. 330,309

Claims priority, application Japan, Feb. 15, 1972, 47-15915; Feb. 7, 1972, 47-13484

Int. Cl. D03d 47/30; B65h 17/32

U.S. Cl. 139—127 P

4 Claims



A weft inserting arrangement for use in a fluid-jet shuttleless loom using a solenoid-operated fluid flow control valve so that it is opened and closed in accordance with electric signals generated in synchronism with operating cycles of the loom and also so, that the timing and duration of the weft inserting cycles can be adjusted easily and precisely in accordance with the operating conditions of the loom and/or depending upon the types and counts of the weft yarns woven into cloth. The weft inserting arrangement may further have a fluid accumulator for projecting the weft yarn at a decreasing velocity so that the weft yarn in the shed of warp yarns is under a uniform tension.

3,828,830

APPARATUS FOR WINDING AND PLACING COILS IN THE SLOTS OF A STATOR

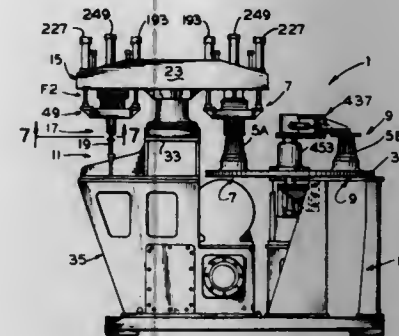
Donald E. Hill; Stanley D. Payne, both of Fort Wayne, Ind., and Robert G. Walker, Brighton, Mich., assignors to Industrial Products Inc., Fort Wayne, Ind.

Filed Jan. 16, 1969, Ser. No. 791,704

Int. Cl. B21f 3/04

U.S. Cl. 140—1

15 Claims



Apparatus for winding and placing coils in the slots of a stator, comprising a rotary index table carrying two sets of placer fingers spaced at 180° intervals, each set being adapted to hold two pole windings for a stator, a rotary indexing winding head carrying two pairs of coil forms spaced at 180° intervals, and a flyer for winding a wire into two groups of coils constituting two pole windings on the pair of coil forms at a winding station. After winding of the two pole windings on the pair of coil forms at the winding station, the winding head is indexed to bring this pair to a transfer station, where the two pole windings are transferred to a set of fingers on the table at the transfer station. After the transfer, the table is indexed to bring this set of fingers carrying the two pole windings to a placing station, where the two pole windings are pushed into the slots of a stator applied to the fingers.

3,828,831

METHOD OF MANUFACTURING A CHAIN OF FILAMENTS FOR FILAMENT LAMPS, DISCHARGE TUBES OR THE LIKE

Goslines Philippus Gullielmus Moeyss, Varese, Italy, and Johannes Martinus Wittkamper, Amiens, France, assignors to U.S. Philips Corporation, New York, N.Y.

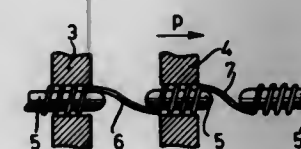
Filed Feb. 26, 1973, Ser. No. 335,944

Claims priority, application Netherlands, Mar. 16, 1972, 7203462

Int. Cl. B21f 3/04

U.S. Cl. 140—71.5

4 Claims



The invention relates to a method of manufacturing a chain of filaments in which a wire which is wound on a mandril is expanded by means of two jaws to form a straight intermediate member. As a result of this the mandril breaks between the jaws. The part of the wire and the mandril which is present between the jaws is preferably heated by the passage of current.

3,828,832

SCREEN REPAIR MACHINE

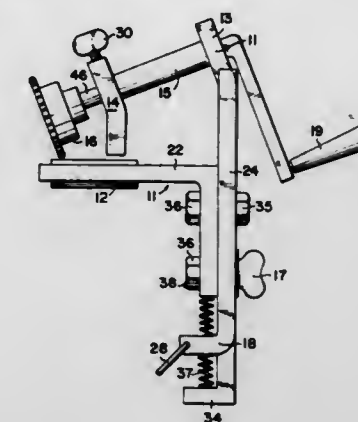
Wyatt Hartman, Lakeview, Iowa, assignor to The Raymond Lee Organization Inc., New York, N.Y.; a part interest

Filed July 17, 1973, Ser. No. 380,073

Int. Cl. B21f 33/00

U.S. Cl. 140—109

3 Claims



A machine to install screening into the frame of a window or door, which gives an improved seal between the screen and the frame, as well as increasing the production efficiency of the installation. The machine consists of a wheel manually driven by a handle mounted on a frame fitted with rollers, with the wheel serving to roll screening into a groove in the screen frame as the device is rolled along the screen frame.

3,828,833

ASEPTIC CONTAINER FILLING APPARATUS

Richard A. Smith, Gibsonia, and Chester L. Gutowski, Pittsburgh, both of Pa., assignors to H. J. Heinz Company, Pittsburgh, Pa.

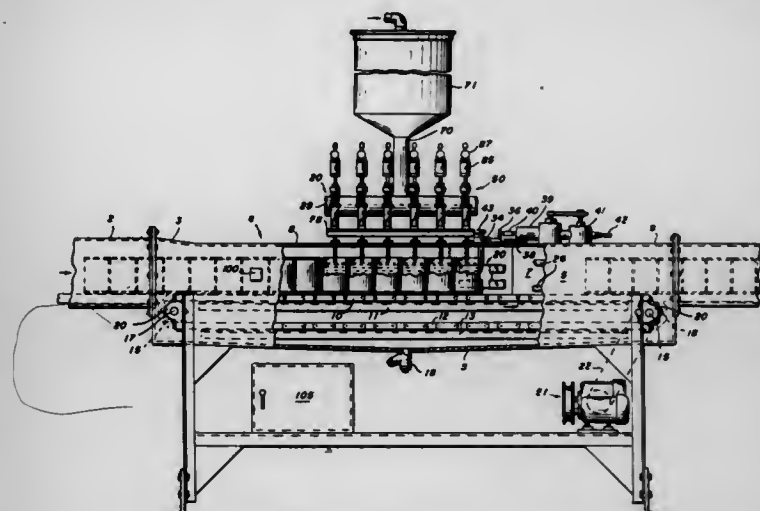
Continuation-in-part of Ser. No. 823,010, May 8, 1969,

abandoned. This application June 14, 1971, Ser. No. 152,704

Int. Cl. B65b 3/12

U.S. Cl. 141—85

19 Claims



There is disclosed an apparatus for filling containers in a steam-filled sterile atmosphere. The containers move in a single line from a sterilizing chamber onto a continuously-moving conveyor in the elongated filling apparatus. Means interposed across the path of travel of the containers arrests the motion of the containers in such location that each of several containers is under a filling tube. When the containers are so arrested, an electric probe is lowered into each container, whereupon a filling valve for each tube opens and the product flows into the containers. When the product reaches the probe in each container, the valve for that container is closed. When all containers are filled, the probes lift, and the means that arrested the travel of the containers is released to let the filled containers pass until all filled containers are discharged and the following empty containers are arrested in position for a repetition of the filling cycle. Means are provided to prevent operation of the filling cycle if there is not a container under each filling tube.

3,828,834

ASSEMBLY FOR CONVERTING A DRILL PRESS TO A WOOD LATHE

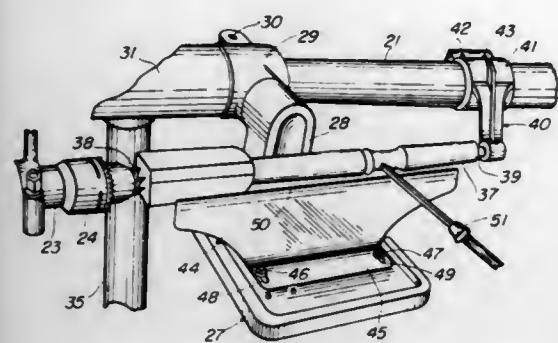
Glenn B. Morse, 321 Fountain St. N.E., Grand Rapids, Mich. 49502

Filed Nov. 29, 1972, Ser. No. 310,649

Int. Cl. B27c 9/02

U.S. Cl. 144-1 C

3 Claims



A drill press of a type in which the column is mounted on a fulcrum stand is provided with attachments through which work pieces are supported and rotatively driven, and the drill press table is used as a support for a tool rest adapted to both wood-turning and block-turning procedures.

3,828,835

DELIMBING METHOD AND APPARATUS

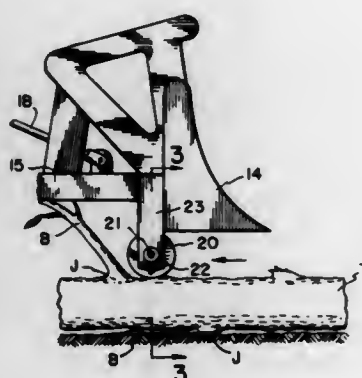
J. Stanton Cross, Sr., 1601 7th Ave., Conway, S.C. 29526

Filed Aug. 16, 1973, Ser. No. 388,854

Int. Cl. B27c 9/02

U.S. Cl. 144-309 AC

5 Claims



An apparatus and method for removing limbs from trees in which a roller is mounted for vertical displacement on a skidder or other vehicle and operates during successive passes of the vehicle over a plurality of generally parallel arranged felled trees to crush or strip the branches from above and below the trunks.

3,828,836

SAFETY WHEEL AND TIRE SECURING ASSEMBLY

Curtis E. Bradley, 4517 Calle Ventura, Phoenix, Ariz. 85018

Filed Dec. 13, 1972, Ser. No. 314,538

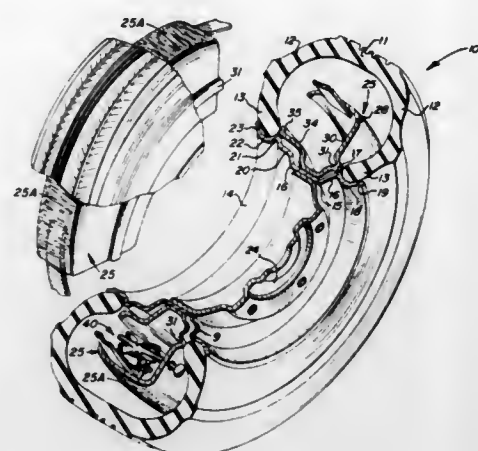
Int. Cl. B60c 5/16, 7/24, 17/04

U.S. Cl. 152-158

20 Claims

This specification discloses four basic embodiments of a safety wheel and tire assembly that is mounted on the rim of a conventional vehicle wheel. In each embodiment, a safety wheel is provided in the form of a two-part safety rim which is erected into a position in which the beads of the tire are clamped against the flanges of the wheel rim and a lubricated rolling surface is provided at a radius appreciably less than the radius of the tire when inflated. Mechanism is provided to ad-

just the safety rim into a position for installation and removal by applying lateral pressure to the side walls of the tire. Latches hold the safety rim in erected position and are



released either by the lateral pressure aforesaid or by a tool that is inserted through a hole in the wheel rim that is normally closed by a removable plug.

3,828,837

APPARATUS FOR EVAPORATING LIQUID FROM A SOLUTION OR SUSPENSION

Jorgen Damgaard-Iversen, Birkerød; Ove Emil Hansen, Li Vaerloese, and Bjorn Lund, Frederiksberg, all of Denmark, assignors to Aktieselskabet Niro Atomizer, Soborg, Denmark

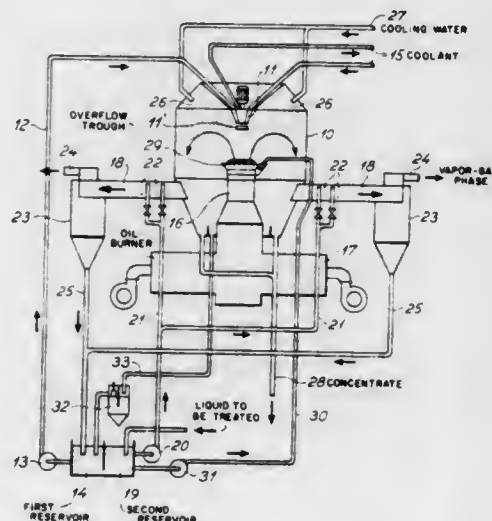
Filed Sept. 11, 1972, Ser. No. 287,867

Claims priority, application Denmark, Sept. 10, 1971, 4465/71

Int. Cl. B01d 1/16

U.S. Cl. 159-4 R

9 Claims



The present invention relates to evaporation of liquid from a solution or suspension in general and in particular to spray drying or spray concentrating. In such processes suspension or solution is sprayed into an evaporating or drying chamber to which heated drying gas is currently supplied, warm gas phase being simultaneously discharged from the evaporating or drying chamber through one or more discharge conduits or tubes. According to the invention solution or suspension is sprayed into at least one of the discharge tubes, for example by means of spraying or atomizing nozzles, liquid phase is separated from gas phase downstream of these nozzles, for example by means of cyclones, and the said solution or liquid being sprayed into the evaporating or drying chamber is the pre-concentrated separated liquid phase. Thereby a two-step evaporation may be obtained by the use of a single evaporating or drying chamber.

3,828,838

VENETIAN BLIND HAVING TILT-LIMITING ATTACHMENT

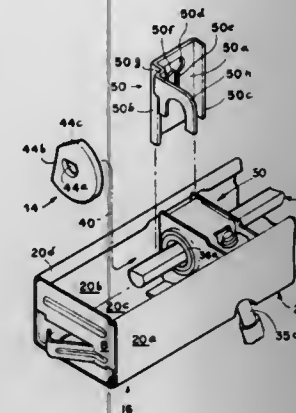
Joseph A. Anderle, Clifton, and George Neira, Teaneck, both of N.J., assignors to Levolor Lorentzen, Inc., Hoboken, N.J.

Filed Mar. 8, 1973, Ser. No. 339,245

Int. Cl. D06h 9/26; E06b 9/307

U.S. Cl. 160-176

9 Claims



The head of the blind is provided with a two-part attachment which serves to limit the tilting movement of the slats. For a different limit of forward and/or backward tilt, one part of the attachment is replaced by a part which is similar but which establishes the different limit or limits.

3,828,839

PROCESS FOR PREPARING FIBER REINFORCED METAL COMPOSITE STRUCTURES

Ashok Kumar Dhingra, Claymont, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 11, 1973, Ser. No. 350,128

Int. Cl. B22d 19/02

U.S. Cl. 164-97

13 Claims

An economical process is disclosed for the preparation of strong composites of magnesium-containing metals reinforced with alumina-containing refractory oxide fibers. In the process alumina-containing fibers in a solid matrix of a soft, flexible organic polymer are loaded into a mold and the organic polymer is burned off. The remaining fibers are then aligned and uniformly distributed within the mold and the mold heated to about the temperature of the magnesium-containing metal to be used. Finally, the magnesium-containing metal is forced into the mold in a molten state by applying pressure. In this manner strong alumina fiber/magnesium-containing metal composites are formed which are useful as turbine blades, and structural beams and shafts, and the like.

3,828,840

CYCLICLY-OPERABLE MACHINE ADAPTED TO PRODUCE AND ASSEMBLE COPE AND DRAG MOLD PARTS

Robert S. Lund, Elmhurst, and Vernon J. Koss, Niles, both of Ill., assignors to Pettibone Corporation, Chicago, Ill.

Filed Mar. 10, 1972, Ser. No. 233,438

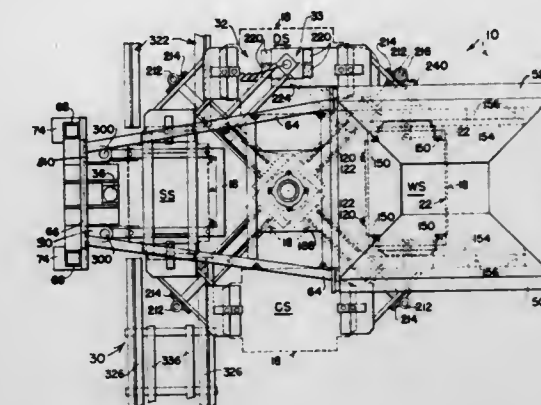
Int. Cl. B22c 15/28

U.S. Cl. 164-195

18 Claims

A cyclicly-operable molding machine for producing and assembling cope and drag mold parts. A rotary turntable which supports four pairs of flask sections is repeatedly indexed to move the pairs repeatedly and successively in a circular path through four stations, namely, (1) a working station where the flask sections are variously and automatically handled and in cooperation with a pattern-carrying match plate are filled and compacted with foundry sand so as to produce the two mold parts, (2) a core-setting station where, if required or desired, a core may be applied to one of the formed mold parts, (3) a stripping station wherein the flask sections are again variously

handled to strip the sections from the mold parts and the latter are assembled and then deposited on a bottom board which is ejected from the machine, and (4) an idle or dwell station



where an empty pair of flask sections awaits handling of a preceding pair of flask sections at the working station before being returned to such station for refilling thereof at the commencement of the next machine cycle.

3,828,841

TWIN-BELT METAL CASTING MACHINE HAVING REMOVABLE CORE ASSEMBLY INCLUDING COOLANT APPLICATORS AND BACK-UP ROLLERS

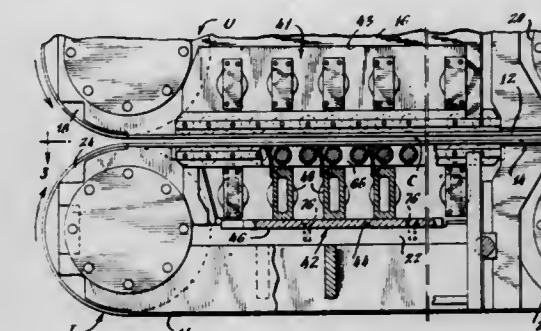
Robert William Hazelett, Winooski, and Robert J. Carmichael, Colchester, both of Vt., assignors to Hazelett Strip-Casting Corporation, Winooski, Vt.

Filed May 3, 1973, Ser. No. 356,726

Int. Cl. B22d 11/06

U.S. Cl. 164-278

6 Claims



A twin-belt continuous metal casting machine is described having a pair of removable core assemblies each comprising coolant applicators and back-up rollers for supporting and cooling the respective casting belts. These removable core assemblies are fitted into large open channels in the respective upper and lower belt carriages adjacent to the region in which the molten metal is solidified. The core assemblies are conveniently removable for inspection and maintenance, and they are pre-assembled separately from the machine to facilitate accurate assembly and alignment of the segmented finned back-up roller assemblies and coolant applicators which include rigid rectangular conduits serving as transverse stiffening beams in the core assemblies.

3,828,842

APPARATUS FOR FIXING MOUNTING MEANS ON SPECTACLE LENSES

Luc Andre Tagnon, Saint Mandé, France, assignor to Essilor International, Paris, France

Filed Aug. 15, 1972, Ser. No. 280,800

Claims priority, application France, Aug. 25, 1971, 71.30817

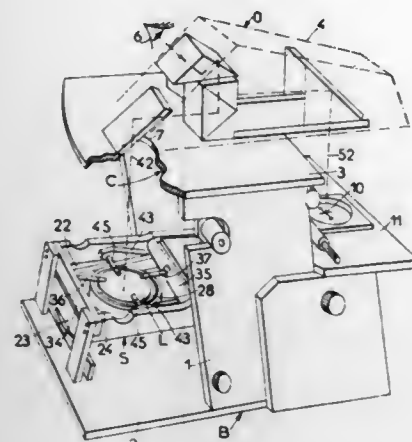
Int. Cl. B22d 19/00

U.S. Cl. 164-334

10 Claims

This apparatus is intended for fixing to the convex surface of a spectacle lens, by casting, a metal block provided with

means for subsequently properly engaging same on the spindle of a trimming and/or bevelling machine, notably in the manufacture of ophthalmic lenses having complex optical characteristics, such as cylindrical, toroidal, multifoci lenses, as well as lenses having a gradually increasing optical power and, in addition, a certain general prismatic character. This apparatus



comprises essentially lens holding means, sighting means, and means for casting a low-melting metal for forming said block in which reference means are adapted to be engaged in and on said spindle with the assistance of a reference cross-line and sighting axes, whereby an automatic and accurate positioning of the lens in the trimming and/or bevelling machine is obtained.

3,828,843

PROCESS FOR HANDLING FLUIDS IN HEAT TRANSFER EQUIPMENT

Abraham C. Miselem Asfura, No. 60-22, Mexico 21 D.F., Mexico

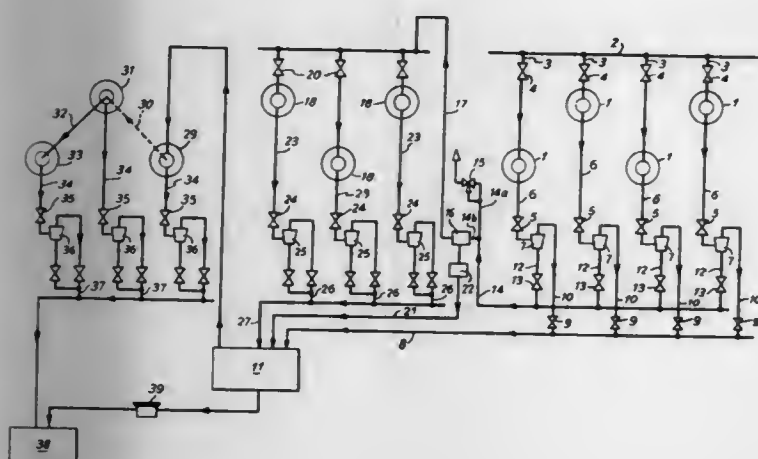
Filed Jan. 9, 1973, Ser. No. 322,192

Claims priority, application Mexico, Aug. 14, 1972, 137744

Int. Cl. F28b 3/00

U.S. Cl. 165-1

11 Claims



This invention provides a novel process of handling fluids which increase heat transfer efficiency in all types of heat transmission equipment. This process is applicable both to single and multiple units; in both cases, heat transfer is enhanced and steam consumption reduced.

Basically, the process consists in extracting, along with the condensate, some of the steam from inside of a steam heated unit, separating this steam from the condensate and noncondensable gases, before and after feeding this extraction steam to another unit or group of units working at a lower pressure.

3,828,844

HEAT EXCHANGING APPARATUS

Masao Kitano, and Yasuo Kondo, both of Anjo, Japan, assignors to Nippondenso Co., Ltd., Aichi-ken; Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi and Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, all of, Japan

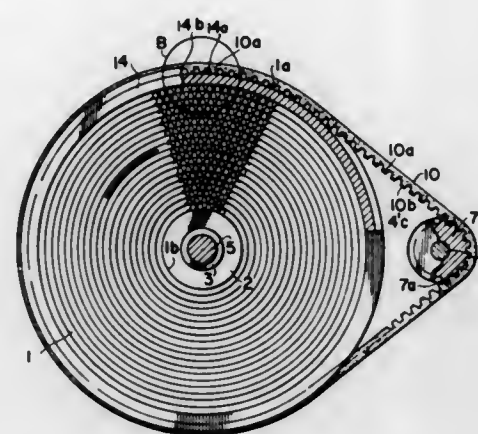
Filed Dec. 22, 1971, Ser. No. 210,786

Claims priority, application Japan, Dec. 26, 1970, 45-128992

Int. Cl. F28d 19/00

U.S. Cl. 165-8

3 Claims



A heat exchanging apparatus having a disc-like body of a perforated material adapted to be rotated in heat transfer contact with fluid to be heat-exchanged. A driven ring secured to the outer peripheral surface of the disc-like body is driven by an endless belt which is driven by a gear wheel rotated with the teeth thereof being in meshing engagement with the teeth formed on the inner periphery of the endless belt. The latter is made of a resilient material whereby the variation in the rotational drive force of a power source and exterior vibration and shock are taken up by the resiliency of the belt for the stable and uniform rotation of said disc-like body and for the guard thereof against the exterior vibration and shock.

3,828,845

PERMAFROST STRUCTURAL SUPPORT WITH INTERNAL HEAT PIPE MEANS

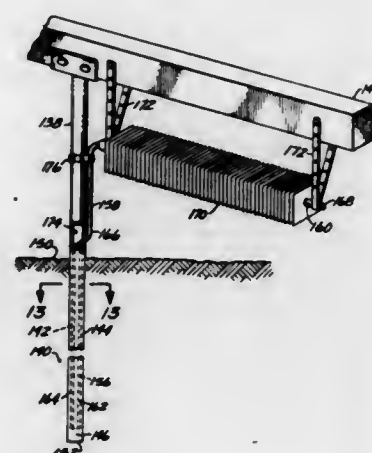
Elmer D. Waters, Richland, Wash., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.

Continuation-in-part of Ser. No. 174,687, Aug. 25, 1971. This application Mar. 30, 1973, Ser. No. 346,622

Int. Cl. F28d 15/00

U.S. Cl. 165-45

12 Claims



Structural support assembly for use in arctic and subarctic (permafrost) areas or in any areas where the upper ground layer is subject to a severe annual freeze-thaw cycle, including the cooperative combination of a support structure and a heat pipe element installed in generally frozen soil. The heat pipe is of a suitably complementary configuration and/or disposition with respect to the support structure to provide appropriate

stabilization of the surrounding frozen soil. In one embodiment, the heat pipe element is disposed externally of the support structure and, in another embodiment, it is disposed internally of such structure. The external embodiment further includes one version employing a linear (straight) heat pipe element and another version employing an angular (helical) element. The internal embodiment further includes one version wherein a heat pipe is integrally combined with a support structure and another version wherein a heat pipe is cooperatively installed inside a support structure.

3,828,846

RADIATOR FOR CENTRAL HEATING

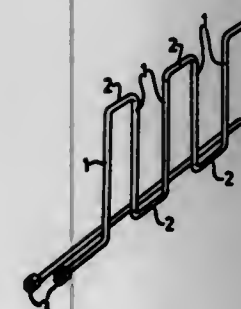
Edsger Wybe Van Dijk, Albert Neuhysstraat 25, Utrecht, Netherlands

Filed July 23, 1973, Ser. No. 381,718

Int. Cl. F24h 9/02

U.S. Cl. 165-49

1 Claim



In a preferred embodiment, a series of parallel vertical steam-conducting pipes are covered on one side thereof with a metal contoured sheet of an area sufficient to be contoured to the profile of the pipes to an extent making possible the snapping-on of the sheet onto the pipes, together with top and bottom covers respectively to cover the tops and bottoms of the pipes to thereby substantially conceal them from view, and the metal sheet being connected to the respective pipes by heat-conducting metallic connectors.

3,828,847

HOT WATER HEATER

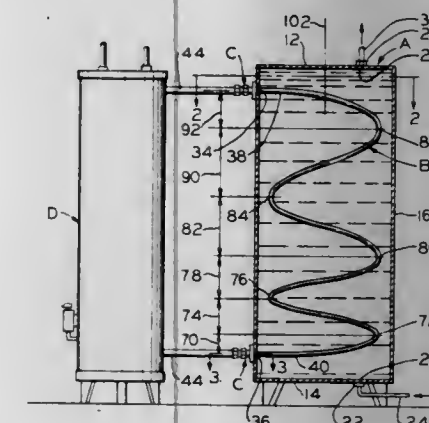
Robert E. Stein, North Royalton, Ohio, assignor to The Glass Lined Water Heater Co., Cleveland, Ohio

Filed Feb. 14, 1973, Ser. No. 332,260

Int. Cl. F28f 7/00

U.S. Cl. 165-76

3 Claims



A hot water heater includes a substantially cylindrical upright tank having vertically-spaced upper and lower openings in its peripheral wall. A substantially helically coiled cylindrical conduit is threadable into the tank through the upper sidewall opening until its opposite end portions extend through the upper and lower sidewall openings. The helically coiled conduit is also threadable out through the upper sidewall opening for replacement. A hot liquid flows through the helically coiled conduit for heating water within the tank.

3,828,848

NOVEL DIAMOND PARTICLE PARTICULARLY FOR USE IN HEAT SINKS

Joseph Lambert Maria Custers, and Frederick Anton Raal, both of Johannesburg, South Africa, assignors to De Beers Industrial Diamond Division Limited, Johannesburg, South Africa

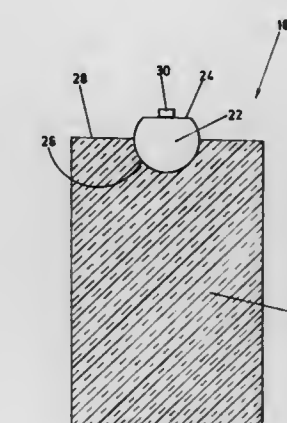
Filed July 21, 1972, Ser. No. 273,977

Claims priority, application South Africa, July 30, 1971, 71/5111; Aug. 24, 1971, 71/5666; Nov. 19, 1971, 71/7816

Int. Cl. H01l 1/12

U.S. Cl. 165-80

5 Claims



The invention provides a rounded diamond particle, which is preferably of the Type IIa, truncated by a single planar surface or by a planar surface at each of opposed poles. These particles find particular use in heat sinks for electronic devices, the heat sink consisting of a body of a metal of good heat conductivity such as copper and a truncated diamond particle in thermal contact with the body such that a planar surface is presented away from the body and thus able to make thermal contact with an electronic device.

3,828,849

HEAT TRANSFER DEVICE

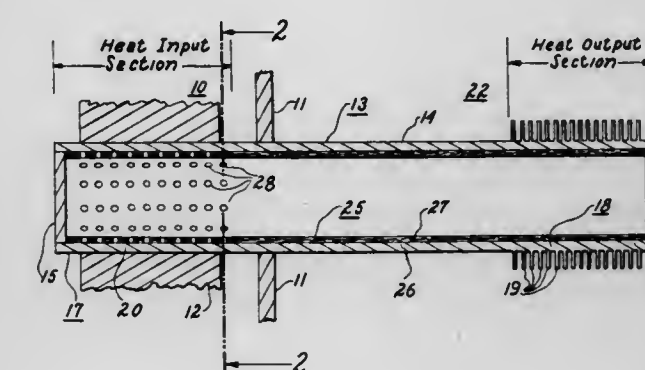
James C. Corman, Scotia, and Gunnar E. Walmet, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 16, 1971, Ser. No. 124,806

Int. Cl. F28d 15/00

U.S. Cl. 165-105

4 Claims



In a heat pipe, the portion of the wicking which supplies the evaporator section of the heat pipe with liquid is provided with a plurality of openings of relatively low impedance to vapor flow therethrough and extending orthogonally from the surface in contact with the heat input surface of the evaporator section to the opposing surface thereof to minimize vapor accumulation which blocks the flow of the liquid to the evaporator surface.

3,828,850

HIGH TEMPERATURE MATERIAL INTRODUCTION APPARATUS

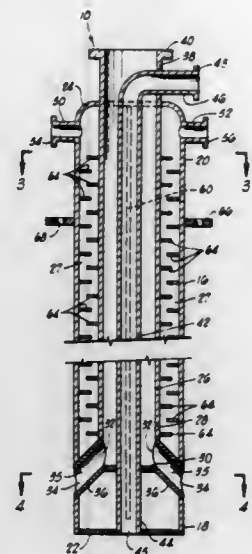
Robert E. McMin, and Mickey B. Jamison, both of Houston, Tex., assignors to Black, Sivals & Bryson, Inc., Houston, Tex.

Filed July 12, 1973, Ser. No. 378,499

Int. Cl. F28f 13/12

U.S. Cl. 165—109

6 Claims



This invention relates to the introduction of various materials such as oxidizing agents into high temperature environments. More particularly, the invention is directed to improved apparatus for introducing two or more separate such materials into highly heated chambers or vessels such as metal refining furnaces, reactors, converters and the like.

3,828,851
HEAT EXCHANGER

Kiyosumi Takayasu, No. 2 5-chome, Horita, Mizuho-ku, Nagoya, Japan

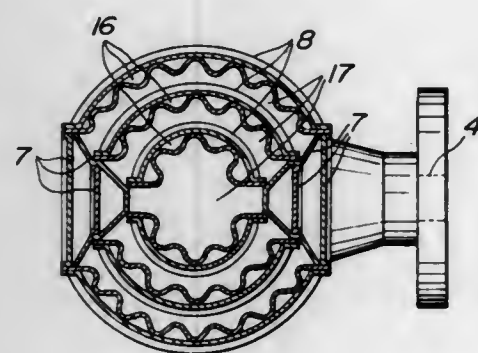
Filed May 31, 1973, Ser. No. 365,598

Claims priority, application Japan, June 20, 1972, 47-61469

Int. Cl. F28d 7/02

U.S. Cl. 165—165

1 Claim



A multipass type heat exchanger comprising a plurality of composite cylindrical shells concentrically arranged and spaced apart one from the other and welded together by means of spacers. Each composite cylindrical shell is composed of a pair of trough shaped elements. Each element consists of two segments made integral into one body and one of these segments has a number of longitudinal ribs spaced apart one from the other and extending in a lengthwise direction throughout the total length of the segment and another segment has a number of peripheral ribs spaced apart one from the other and extending in a peripheral direction throughout total periphery of the segment. The latter segments surrounds the former segment to form a number of first elongate passageways for hot or cold medium which is fed from a top open-

ing of said composite cylindrical shells and flows downward to a base opening. The composite cylindrical shells are closed at their substantially upper and lower portions to form a plurality of second elongate passageways for fluid to be heated or cooled which is fed from a lower side opening of said composite cylindrical shells and flows upward to an upper diametrically opposite side opening.

3,828,852

APPARATUS FOR CEMENTING WELL BORE CASING

Charles G. Delano, 430 Sharon, Corpus Christi, Tex. 78412

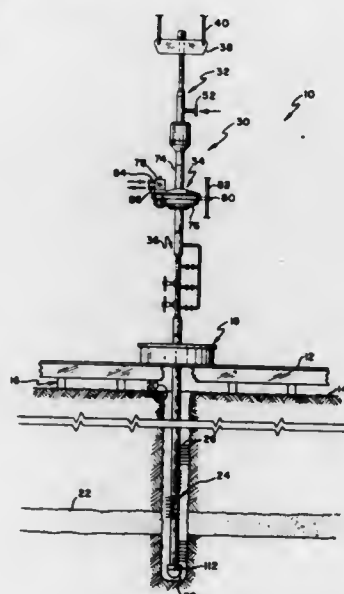
Division of Ser. No. 251,191, May 8, 1972, Pat. No. 3,777,819.

This application Nov. 30, 1973, Ser. No. 420,676

Int. Cl. E21b 33/05

U.S. Cl. 166—78

4 Claims



There is disclosed an apparatus for cementing a tubular string in a well bore wherein the tubular string is simultaneously rotated and reciprocated while passing a cementing slurry into the well bore.

3,828,853

KICK-OVER TOOL

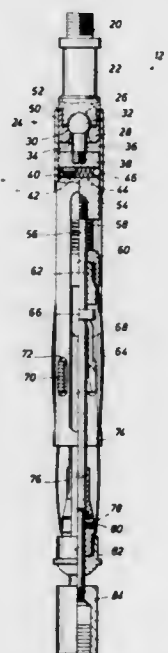
William C. Neal, Rt. 2, Box 23 B, Cut Off, La. 70345

Filed Mar. 5, 1973, Ser. No. 338,105

Int. Cl. E21b 7/06

U.S. Cl. 166—117.5

9 Claims



For use with a setting tool or a retrieval tool in installing or removing gas lift valves in side pockets of a gas lift well, a kick-over tool which incorporates a knuckle capable of rotating the

tool and a sleeve which slides over the knuckle to lock the knuckle in a straight position. The sleeve locks a set of bow springs against deflection. Means are included to enable the tool to function on upward movement whereby the sleeve is moved downwardly. When it is moved downwardly, the knuckle is freed to rotate and four bow springs expand. The bow springs contact the inner wall and find the side pocket causing the lower portions of the kick-over tool to extend into the side pocket, thereby positioning the attached apparatus for installation or retrieval of the gas lift valve.

higher temperature rise to permit the plug to be expelled by fluid pressures below the pressure floor.

3,828,856

FIRE BLANKET PACK

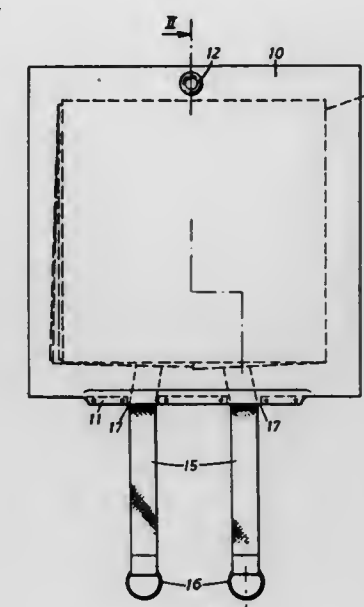
Norman William Henry Wallis, Old Preston House, Dorset, England

Filed July 31, 1972, Ser. No. 276,406

Int. Cl. A62c 7/00

U.S. Cl. 169—50

7 Claims



3,828,854

DISSOLVING SILICEOUS MATERIALS WITH SELF-ACIDIFYING LIQUID

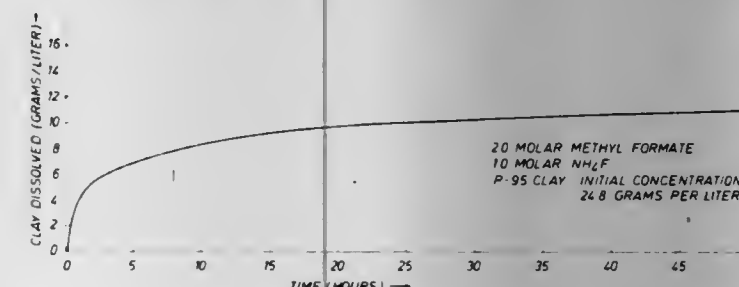
Charles C. Templeton; Evan H. Street, Jr., and Edwin A. Richardson, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 351,739, April 16, 1973, abandoned. This application Oct. 30, 1973, Ser. No. 411,132

Int. Cl. E21b 43/27

U.S. Cl. 166—307

20 Claims



Siliceous materials in or around a well are dissolved by contacting them with a self-acidifying aqueous liquid system comprising an aqueous solution of at least one water-soluble fluoride salt mixed with a relatively slowly-reactive acid-yielding material that subsequently converts the salt solution to a hydrofluoric acid solution that has a relatively high pH but is capable of dissolving siliceous material.

3,828,855

FIRE EXTINGUISHING SYSTEM NOZZLE

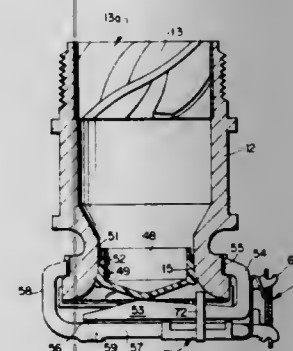
Richard V. Woodward, and Richard A. McMahon, both of Pittsburgh, Pa., assignors to Factory Mutual Research Corporation, Norwood, Mass.

Filed Jan. 19, 1973, Ser. No. 324,981

Int. Cl. A62c 37/12

U.S. Cl. 169—40

17 Claims



The discharge outlet plug of a fire extinguishant nozzle is retained by an external lever system that is conditioned by the operation of a heat fusible means in response to the presence of a first temperature rise to permit release of the plug under fluid pressure in the nozzle. Holding mechanism preferably associated with the lever system is provided to prevent release of the plug unless the nozzle fluid pressure exceeds a predetermined pressure floor, and a temperature responsive override arrangement associated with the lever system is provided to disable the holding mechanism in the presence of a materially

A fire-blanket pack comprising a fire-resistant blanket inside a polygonally-shaped closed container or bag. The latter is openable along one edge which has strip means provided with apertures attached thereto. The strip means have releasable snap-fastening means closing the container along said one edge. The blanket has handling tapes sewn to it at spaced locations close to one edge thereof so as to project obliquely from the blanket and extend through said apertures externally of the bag or container. The externally projecting portions of the tape are pullable to open the container along said one edge and release the fire-resistant blanket.

3,828,857

APPARATUS FOR FILLING AND EMPTYING CONTAINERS FOR USE IN FIREFIGHTING

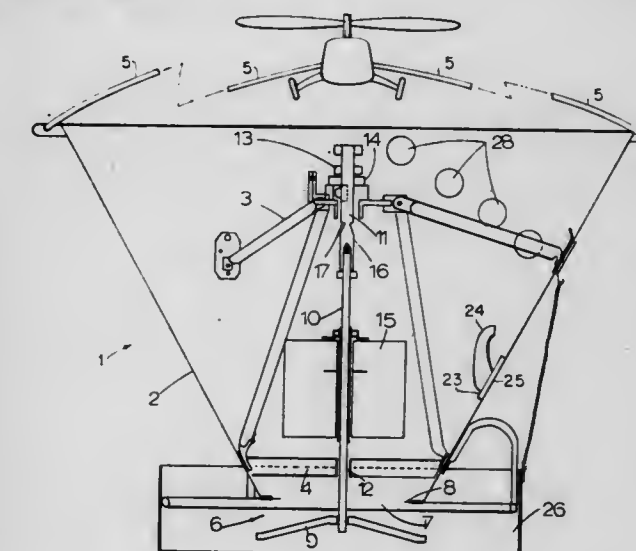
Athol James Malcolm Mason, 6 Ingle Ave., Box 298, Taupo, New Zealand

Filed Dec. 7, 1971, Ser. No. 205,507

Int. Cl. A62c 9/00

U.S. Cl. 169—53

22 Claims



A container which may be filled by immersing the lower portion thereof into a fluid and allowing the fluid to enter the

container through a main valve and a number of one-way secondary valves in this lower portion. The main valve is connected to a float which closes the valve when a predetermined level of fluid has entered the container. The secondary valves are closed by the action of the fluid when the container is raised from the reservoir of fluid. The main valve is held closed by a latch mechanism which may be tripped from a remote station allowing the valve to open and discharge the fluid from the container.

3,828,858

FIRE ESCAPE AND FIRE FIGHTING CAPSULE

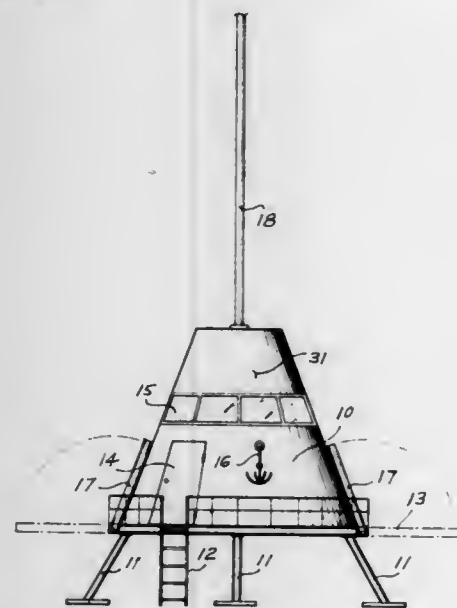
Calvin Richter, and William E. Van Wyck, both of Fresno, Calif., assignors to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Nov. 6, 1973, Ser. No. 413,360

Int. Cl. A62c 3/00

U.S. Cl. 169-62

4 Claims



A fire fighting and fire escape capsule which is tied to a helicopter for air delivery to the site of a fire in a forest, skyscraper building or other inaccessible location. The unit is in the form of an enclosed housing supplied by an attached umbilical cable with air fire retardant materials, electricity and other support items.

3,828,859

METHOD AND APPARATUS FOR PROCESSING SOIL FOR PLANTING

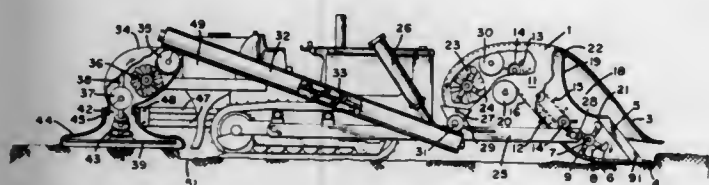
Guillermo Diaz Alvarez, Netcong, N.J., assignor to Gee-Dee International, Inc., Rockaway, N.J.

Filed June 27, 1972, Ser. No. 266,714

Int. Cl. A01b 49/02

U.S. Cl. 172-50

41 Claims



A method and apparatus which in one single pass can take cleared acreage whether or not previously farmed, and leave the soil with improved texture, substantially free of all harmful weed seeds, insects, insect eggs and larvae and other harmful living matter, and in condition for planting. This is accomplished without the use of herbicides, insecticides or the like. A layer of topsoil of predetermined depth is peeled from the surface and vigorously worked by milling, crushing and other means. Liquid or solid fertilizer may, if desired, be blended into the soil. Seeds may be planted, and the treated soil redistributed to cover them to a preselected depth, all in the one pass.

**3,828,860
AGRICULTURAL IMPLEMENT WITH FOLDABLE WINGS**

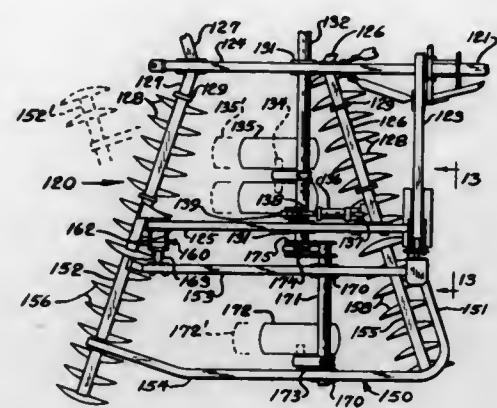
Robert L. Poland, Kewanee, Ill., assignor to Kewanee Machinery & Conveyor Co., A Division of Chromalloy American Corporation, Kewanee, Ill.

Filed Feb. 28, 1973, Ser. No. 336,897

Int. Cl. A01b 49/00

U.S. Cl. 172-311

15 Claims



An agricultural implement is disclosed having a center frame and wings hinged to either side thereof on which are supported soil working tools. First remotely controlled hydraulic means actuate links which swing the wings between stable horizontal "transport" positions at rest on the center frame and horizontal "field working" positions to opposite sides of said frame. The links hold the wings against movement when in their "transporting" position and allow the wings freedom to swing when in their "field working" position to follow the contour of the field over which the implement is moved. Further hydraulic means operate other linkages which include screw-threaded swivel links on or by the axes about which the wings swing to interconnect the soil working tools and/or pivotally mounted wheels on the wings with those on the center frame so that the tools on the wings move into their working positions with corresponding movement of the tools on the center frame under the remotely controlled operation of the further hydraulic means.

3,828,861

ICE AUGER WITH SLIP CLUTCH IN DRIVE

Steven M. Verkuil, 350 Sunny Crescent, Box 1895, Schefferville, Quebec, Canada

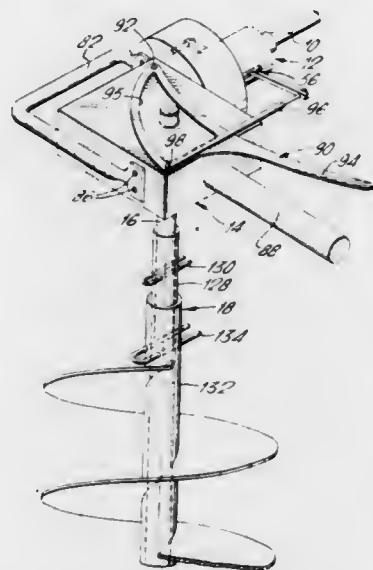
Filed Jan. 11, 1973, Ser. No. 322,706

Claims priority, application Canada, Jan. 26, 1972, 133237

Int. Cl. F25c 5/04

U.S. Cl. 173-26

10 Claims



A portable ice auger for use with snow vehicles is provided having a slip clutch in the auger head and a clutch control lever adjacent a clutch handle for control of the clutch slip by an auger operator, during operation of the auger.

3,828,862

TRAVELLING OVERHEAD CARRIAGE MINING MACHINE WITH ARTICULATED, TOOL CARRYING BOOM

Kenneth Hazelton Dabell, Great Longstone, and Raymond Jeffrey Phillips, Darley Dale, both of England, assignors to Lemand Engineering Limited, Matlock, Derbyshire, England

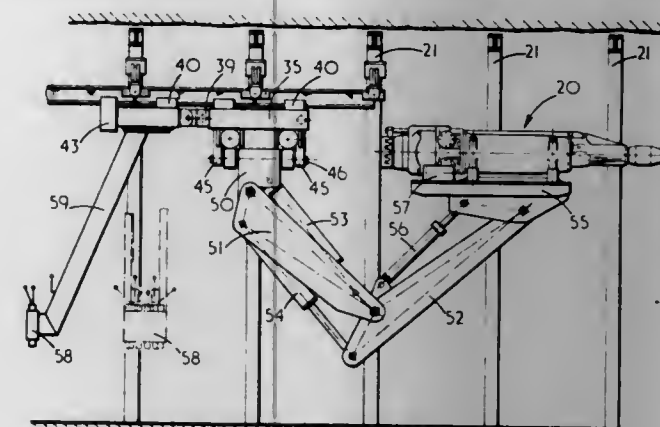
Filed Sept. 21, 1972, Ser. No. 291,150

Claims priority, application Great Britain, Sept. 22, 1971, 44134/71; July 15, 1972, 33245/72

Int. Cl. E01q 3/03

U.S. Cl. 173-43

11 Claims



A handling device such as a coal cutting tool in which a carriage is mounted on overhead rails for movement therealong and supports a depending articulated arm arrangement to which can be secured a tool such as an impact hammer. Means is provided for moving the articulated arm and hammer transversely, forwardly, upwardly and downwardly.

3,828,863

COMBINED PORTABLE ELECTRIC IMPACT WRENCH AND CHIPPING HAMMER

Manfred Bleicher, Leinfelden; Jorg Falchle, Bempflingen; Reinhard Hahner, Kemnat; Gernot Hansel, Stuttgart-Pfeningen; Wolfgang Schmid, Plattenhardt, and Karl Wanner, Echterdingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

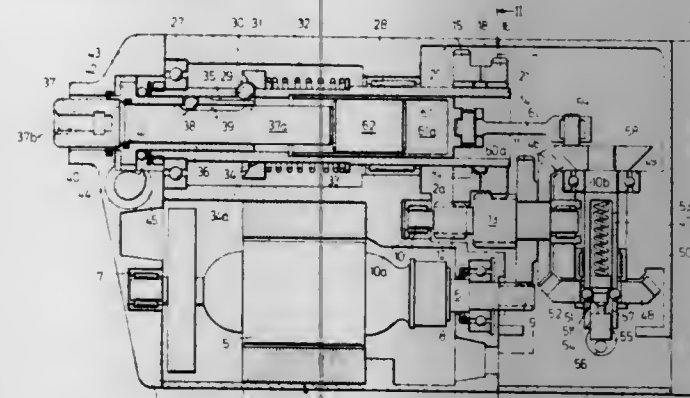
Filed July 6, 1973, Ser. No. 376,935

Claims priority, application Germany, Aug. 31, 1972, 2242944

Int. Cl. E02d 7/02; E21b 5/00; E21c 3/02

U.S. Cl. 173-48

26 Claims



A combined portable electric impact wrench and chipping hammer wherein the tool holder is movable axially by a pneumatic impeller which receives motion from the output shaft of an electric motor by way of a first transmission and a clutch which latter can be disengaged at the will of the user, and wherein the tool holder is rotatable by way of a multi-speed second transmission having a neutral position. By placing the second transmission in neutral position, the user can reciprocate the tool holder by way of the first transmission when the clutch is engaged. When the clutch is disengaged, the user can rotate the tool holder at one of several speeds by

way of the second transmission. The second transmission can drive the tool holder at a selected speed while the clutch is engaged so that the tool holder moves axially and rotates about its axis. The second transmission embodies or is combined with a safety clutch which is disengaged when the tool holder offers excessive resistance to rotation.

3,828,864

PILE DRIVER AND EXTRACTOR

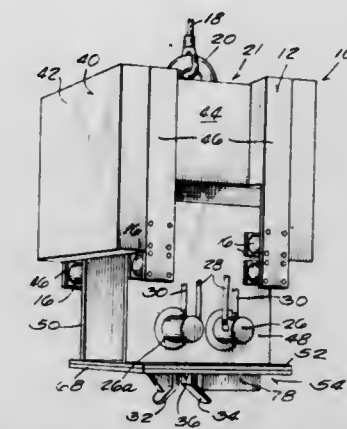
Edwin Haverkamp, Grandville, and George J. Morren, Zeeland, both of Mich., assignors to H & M Vibro, Inc., Grandville, Mich.

Filed Feb. 26, 1973, Ser. No. 335,443

Int. Cl. E02d 7/06, 7/18

U.S. Cl. 173-49

17 Claims



First and second support frames are detachably interconnected to each other by rubber torsion discs which permit resilient damping movement between the two frames. A bias weight is attached to the first frame and an eccentric weight is rotatably mounted to the second frame and driven by a hydraulic motor to develop vibratory motion. The second frame also includes first and second jaws for clamping the piling therebetween. The device is cable suspended by a crane attached to the first frame and is insulated from the vibratory motion by the torsion discs. Preferably, two eccentric weights are driven about separate shafts in counter-relative rotation synchronized out of phase to exert uniaxial vibratory force on the piling while cancelling lateral forces.

3,828,865

HAMMER DRILL

Albrecht Schnizler, Jr., Nurtigen, Germany, assignor to Metabowerke K.G., Closs, Rauch & Schnizler, Nurtigen, Germany

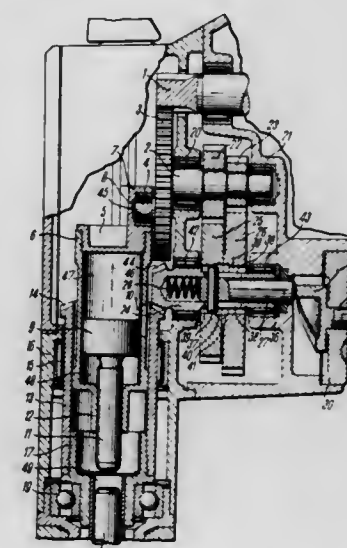
Filed July 29, 1970, Ser. No. 64,889

Claims priority, application Germany, July 30, 1969, 1938660

Int. Cl. B25d 11/00

U.S. Cl. 173-104

14 Claims



A percussion or hammer drill with a gear unit which is preferably driven by an electric motor and permits the ratio

between the speed of rotation of the drilling tool and the frequency of the impacts of the striker upon this tool to be varied.

3,828,866

IMPULSE DRIVING APPARATUS

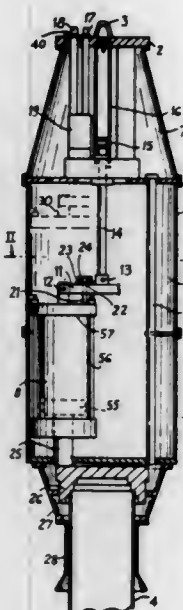
Joost Werner Jansz, The Hague, Netherlands, assignor to Hollandsche Beton Groep N.V., Rijswijk Z.h., Netherlands
Filed Aug. 14, 1972, Ser. No. 280,412

Claims priority, application Great Britain, Sept. 9, 1971, 42192/71

U.S. Cl. 173-101

Int. Cl. E02d 7/10

7 Claims



An impulse driving apparatus, for use for example in pile driving, in which a plurality of striker members are released from a given height above an object to which impulses are to be given in such a way that the striker members deliver impulses to the object either simultaneously or at pre-determined intervals of time.

3,828,867

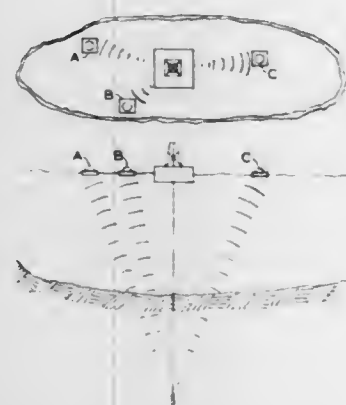
LOW FREQUENCY DRILL BIT APPARATUS AND METHOD OF LOCATING THE POSITION OF THE DRILL HEAD BELOW THE SURFACE OF THE EARTH

Albert A. Elwood, P.O. Box 10592, Riviera Beach, Fla. 33404
Filed May 15, 1972, Ser. No. 253,544

Int. Cl. E21b 47/024

U.S. Cl. 175-45

7 Claims



An earth drill bit locating apparatus and method of detecting and locating the position of a drill bit below the surface of the earth utilizing very low frequency electromagnetic energy. The apparatus includes a transmitter located adjacent the drill bit for transmitting a very low-frequency electromagnetic wave below 5,000 Hz and a plurality of receivers including antennae placed adjacent to the earth's surface for detecting the low-frequency wave and computing the position of the drill bit

by triangulation. Each receiver is a directional indicating receiving means for obtaining raw data in order to display and plot the movement of the drill head as it moves into the earth. The transmitter is powered by an alternator driven by a turbine in the mud supply conduit or collar just above the bit. The drill collar is fitted with electrodes or wire loops which are connected to the transmitter output to cause the drill collar to act as an electric or magnetic radiating dipole.

3,828,868

FUEL ASSEMBLY FOR A NUCLEAR REACTOR

Felix S. Jabsen, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New York, N.Y.

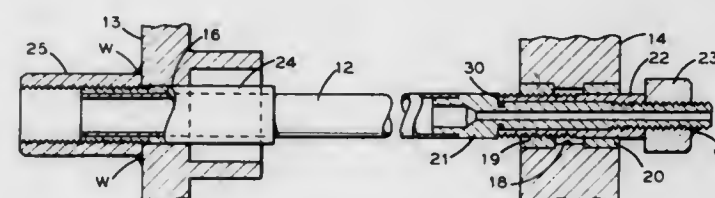
Continuation of Ser. No. 880,267, Nov. 26, 1969, abandoned.

This application Jan. 12, 1973, Ser. No. 323,015

Int. Cl. G21c 3/14, 7/12

U.S. Cl. 176-78

2 Claims



A nuclear reactor fuel assembly in which both fuel rods and control rod guide tubes are held in a predetermined parallel spacing relation by a pair of spaced end grids. The guide tubes are secured to the end grids by releasable connection means that allow the tubes to be installed and individually replaced with the fuel rods already installed in the assembly.

3,828,869

WEIGHT CONTROL SYSTEM

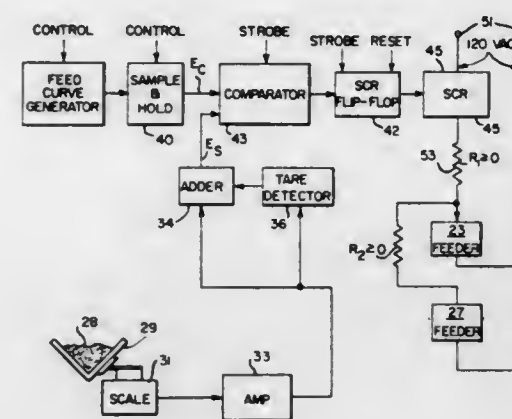
Kenneth W. Sellers, Dallas, Tex., assignor to Frito-Lay Inc., Dallas, Tex.

Filed Aug. 30, 1972, Ser. No. 284,708

Int. Cl. G01g 19/52

U.S. Cl. 177-50

8 Claims



A weight control system is disclosed for accurately dispensing a preselected quantity of material. The system includes a circuit for generating an optimum weight profile curve which represents the desired quantity of material in terms of net weight to be dispensed with respect to time. The curve is an exponentially increasing function of time having a rate of increase that progressively decreases so that the curve approaches an asymptotic level which represents the total net weight of the material to be dispensed. The curve is segmented into small time intervals, and at each interval the weight of the material dispensed is compared with the optimum weight defined by the curve. Depending on whether the accumulated weight of the material dispensed at each time interval is greater or less than the optimum weight, a circuit is enabled

for conducting current to one or more material feeders which in turn dispense the material into a charge hopper.

A circuit is provided which detects a change in the tare weight of a scale due to the accumulation of foreign materials on the scale. The circuit automatically compensates for these accumulations which would otherwise cause an undesirable variance in the weight of the charge of material.

3,828,870

SCALE

Josef Schwarz, Balingen/Wurt, Germany, assignor to Bizerba-Werke Wilhelm Kraut KG, Balingen/Wurt, Germany

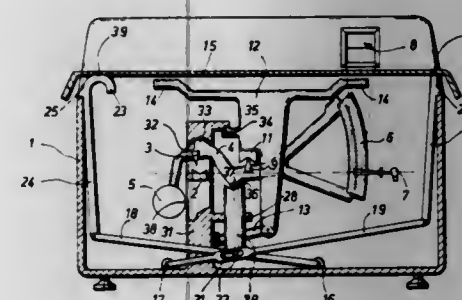
Filed Aug. 24, 1973, Ser. No. 391,290

Claims priority, application Germany, Aug. 30, 1972, 2242570

Int. Cl. G01g 23/02

U.S. Cl. 177-155

4 Claims



A scale has a housing and an indicating mechanism in the housing, and a weighing platform outside the housing. A movable balance arm connects the platform with the mechanism. The platform is removably connected with the arm so that it can be taken off the same. An arresting arrangement is provided for the arm and is so arranged in the interior of the housing that it can engage the arm or be disengaged from the same, only when the platform is removed from the arm.

3,828,871

TRACTOR-SET RESULTING FROM THE COUPLING OF A TRACTOR TO A STRADDLE TRACTOR, ABLE TO BE DRIVEN BY A SINGLE DRIVER

Emile Bobard, 17, Rue de Reon, Beaune, France

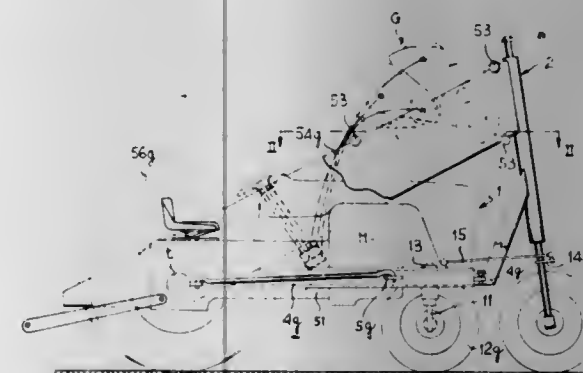
Filed May 25, 1972, Ser. No. 256,951

Claims priority, application France, May 27, 1971, 71.19405; Dec. 10, 1971, 71.44578; Dec. 13, 1971, 71.44769; Dec. 20, 1971, 71.45813

Int. Cl. B62d 49/00

U.S. Cl. 180-1 F

8 Claims



The disclosure of the present invention is a set resulting from the coupling of two tractors each comprising a frame equipped with an engine, driving and steering means, and each carried by four wheels of which two at least are drive wheels and two at least are steerable wheels. One of the two tractors is a relatively low and narrow tractor which is covered by a

straddle tractor sufficiently high and wide for such covering. Means are provided to ensure the driving and steering of this set from a single driving post.

3,828,872

VEHICLE FOR USE ON SNOW, ICE OR THE LIKE

Toshio Tsuchiya, Ooi, and Atsushi Abe, Asaka, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

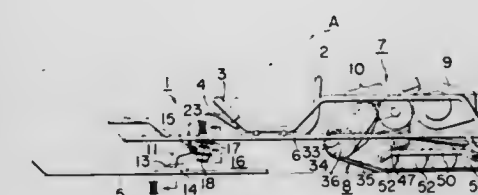
Filed Mar. 7, 1973, Ser. No. 339,006

Claims priority, application Japan, Mar. 8, 1972, 47-23741

Int. Cl. B62m 27/00

U.S. Cl. 180-5 R

1 Claim



A pleasure vehicle comprised of a sleigh, front riding portion and an endless tracked rear drive portion and steerable by the rider's bodily movement to shift his own weight right and left relative to his seat. It is particularly attractive to the rider for the driving technique required. Also, it can run with a substantial stability irrespective of the irregularities of the snow, ice or the like surface.

3,828,873

HIGH DRIVE-TRACK-TYPE VEHICLE

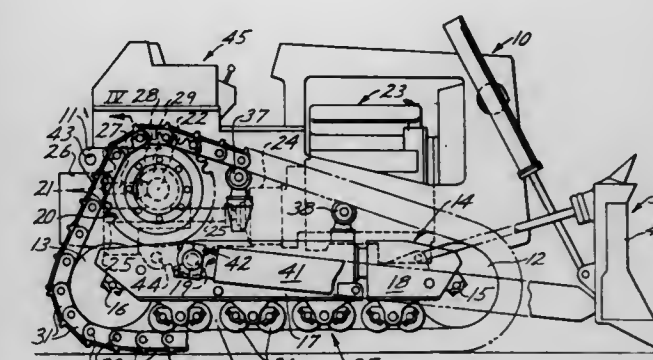
Eldon D. Oestmann, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Aug. 28, 1972, Ser. No. 283,968

Int. Cl. B62d 55/12

U.S. Cl. 180-9.5

20 Claims



A track-type vehicle comprises a main frame having a pair of longitudinally spaced idlers rotatably mounted on each side thereof. A drive sprocket is rotatably mounted directly on the frame, between each pair of idlers. Each drive sprocket is positioned vertically above and substantially closer to a first idler of each pair of idlers than to a second idler thereof. A triangularly shaped endless track assembly is entrained about each respective drive sprocket and pair of idlers and a bogey system is mounted on the frame to engage the track assembly, between the idlers.

3,828,874

CRAWLER UNDERCARRIAGE

Malcolm N. Council, Richardson, Tex., assignor to Gardner-Denver Company, Quincy, Ill.

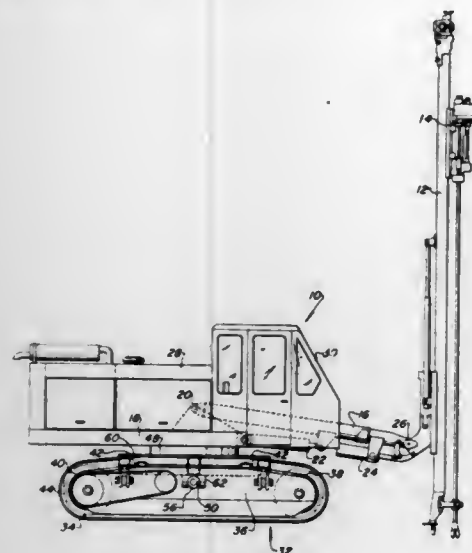
Continuation of Ser. No. 100,228, Dec. 21, 1970, abandoned.

This application Oct. 27, 1972, Ser. No. 301,701

Int. Cl. B62d 55/10

U.S. Cl. 180—9.6

3 Claims



A crawler undercarriage for a mobile rock drill unit or the like comprising spaced apart parallel crawler assemblies having crawler frames which are pivotally interconnected by a transverse axle located substantially midway the length of the crawler frames. A pair of transverse equalizer beams substantially equally spaced on each side of the transverse axle are pivotally connected to the crawler frames and to a main support platform for the rock drill unit by means of spherical self-aligning bearings.

3,828,875

HYDRAULIC CONTROL APPARATUS FOR A MOBILE SLURRY HANDLING SYSTEM

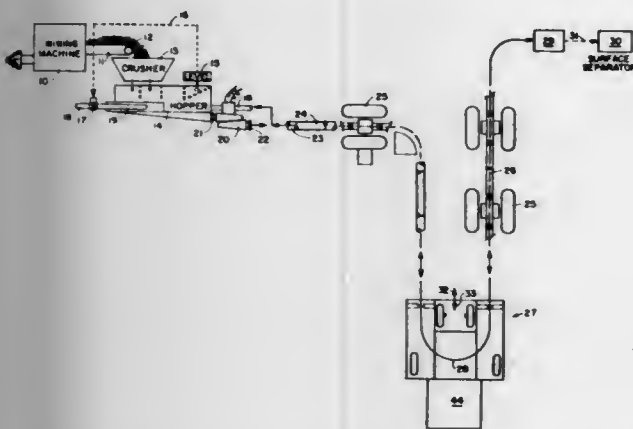
James H. Tarter, Royal Oak, Mich., assignor to Continental Oil Company, Ponca City, Okla.

Filed Dec. 29, 1972, Ser. No. 319,828

Int. Cl. B62d 59/00

U.S. Cl. 180—14 A

3 Claims



A hydraulic control apparatus for a slurry hose transportation system consisting of one or more powered carts and one or more unpowered carts where the powered carts include a propulsion system such as wheels which are driven by hydraulic motors. An electric motor provides power for a hydraulic pump which is coupled through a first system to one set of hydraulic motor ports and through a second system to the second set of hydraulic motor ports. Each of the first and second systems includes a check valve and a flow sensing valve parallelly coupled therein. The hydraulic pump can pass

hydraulic fluid under pressure through either the first or the second system, causing the motors to rotate in one direction or the other. A hydraulically operated piston may also be coupled across the flow sensing valve so that, when the pressure increases on the flow sensing valve, the piston will move, transferring a mechanical output to a second powered cart, commanding the second powered cart to follow in the same direction as the first-mentioned powered cart.

3,828,876

MOTOR VEHICLE HAVING WHEELS IN A DIAMOND PATTERN

Alberto Morelli, Strada Va Salice 72, Turin, Italy

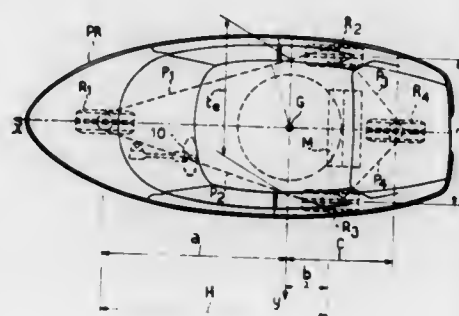
Filed Oct. 5, 1972, Ser. No. 295,327

Claims priority, application Italy, Oct. 8, 1971, 70311/71

Int. Cl. B62d 61/04

U.S. Cl. 180—21

4 Claims



This invention relates to a motor vehicle with a rhomboidal or diamond configuration of road wheels, with a front steerable wheel, two driven side wheels and a free-wheeling rear wheel with a non-steering axis. For good stability the ratio of the distance from the centre of gravity of the vehicle of the rear and side wheels is between 1.5 and 3, and the ratio between the inter-axis distance of the front and side wheels and the distance between said centre of gravity and the front wheel is between 1.225 and 1.66.

3,828,877

DIFFERENTIAL FOR FOUR-WHEEL DRIVE

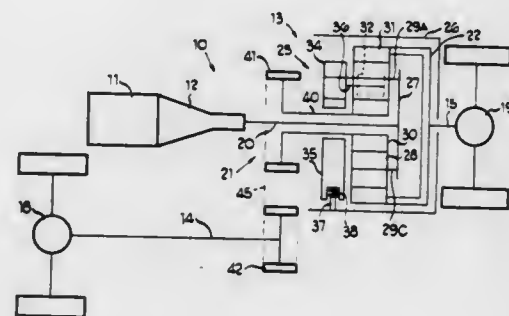
Mark J. Fogelberg, Muncie, Ind., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed July 18, 1973, Ser. No. 380,443

Int. Cl. B60k 17/30

U.S. Cl. 180—44 R

15 Claims



A planetary differential mechanism suitable for use in a multiple path drive system including planet gears, a pair of gear elements, and a locking gear which meshes with a planet gear. The differential is arranged such that during normal operation one of the gear elements normally overspeeds the other and the locking gear is held out of engagement with either of said gear elements permitting differentiation between them, but when the normally overspeeding gear element overspeeds the normally overspeeding gear element, the locking gear is caused to mesh with one of the gear elements and prevents differentiation between the gear elements.

3,828,878

VEHICLE POWER TAKE-OFF ASSEMBLY

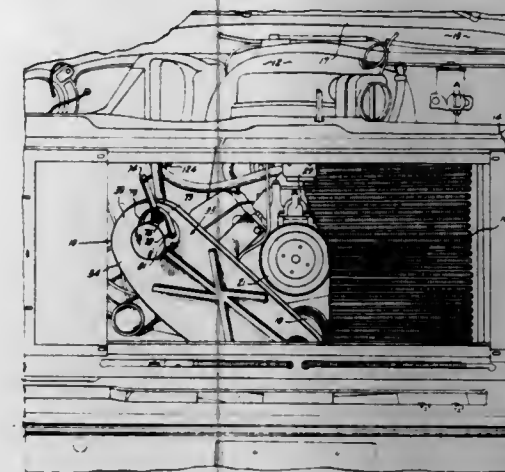
George S. Clapsaddle, Jr., Conrad, Iowa, assignor to Clapsaddle Sales and Service Inc., Whitten, Iowa

Filed Jan. 22, 1973, Ser. No. 325,365

Int. Cl. B60k 25/02

U.S. Cl. 180—53 FE

4 Claims



The power take-off assembly is compact and adapted for installation on the front end of a vehicle engine and within the engine compartment. The assembly is directly connected to the engine crankshaft and includes a driven rotary power unit, such as a hydraulic pump, the operation of which is controlled independently of and without interruption of engine operation.

3,828,879

SPARE TIRE MOUNTED, MOTOR VEHICLE RADIATOR COOLING APPARATUS

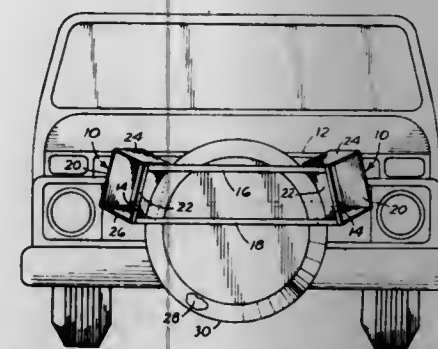
Fred W. Harkey, and Thelma F. Harkey, both of 333-32nd Ave., Longview, Wash. 98632

Filed Mar. 16, 1973, Ser. No. 342,188

Int. Cl. B60k 11/02

U.S. Cl. 180—54 A

6 Claims



Apparatus for directing a flow of cooling air against the radiator of a moving motor vehicle vertically mounting a spare tire at the front of the vehicle across the radiator face comprises at least one air scoop arranged to deflect a flow of air generated by the motion of the vehicle against the radiator face behind the tire, and means for mounting the scoop gravitationally on the upper portion of the tire.

3,828,880

VEHICLE POWER SYSTEM

William H. Smith, 532 W. Washington, Sullivan, Ind. 47882

Filed Aug. 27, 1973, Ser. No. 391,743

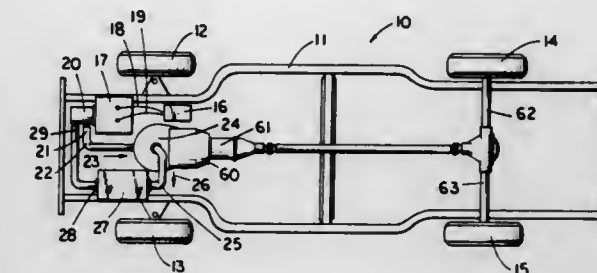
Int. Cl. B60k 3/04

U.S. Cl. 180—66 R

9 Claims

A power system for propelling a vehicle. The vehicle includes a source of electrical energy connected to a motor which powers a liquid pump. The pump forces liquid from a central source through at least one nozzle which directs the

pressurized liquid against concave fins of a turbine wheel. A generator for recharging the source of electrical energy includes a second turbine wheel with concave fins located adjacent the concave fins of the first turbine wheel to receive the pressurized liquid forced through the first turbine wheel fins. A sump pump returns the liquid to the central source.



adjacent the concave fins of the first turbine wheel to receive the pressurized liquid forced through the first turbine wheel fins. A sump pump returns the liquid to the central source.

3,828,881

ANNULAR DESSICANT TANK FOR AIR LEVELING SYSTEMS

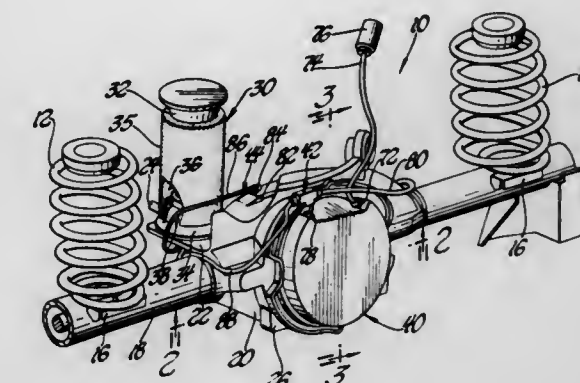
Robert E. Owen, Grand Blanc, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1972, Ser. No. 310,777

Int. Cl. B60k 23/00

U.S. Cl. 180—75

2 Claims



A dryer system for a pressurized air system on a motor vehicle includes a differential having a rear housing which is normally cold at vehicle start-up and which is heated by operation of the vehicle through heat generated within the differential mechanism. A dessicant tank of annular configuration is supported on the rear cover of the differential. Dessicant in the tank dries air to prevent freeze-up within the pressurized system during cold weather. It receives heat from warm axle oil to dry the dessicant during highway driving. The tank fits between an inlet filter and a fitting on the low pressure or the return side of the system to dry incoming air and to be purged by warm outgoing air when the pressurized system is exhausted thereby to regenerate the system.

3,828,882

STEERING MECHANISM FOR ARTICULATED VEHICLE

Edward J. Biskup, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 24, 1973, Ser. No. 391,492

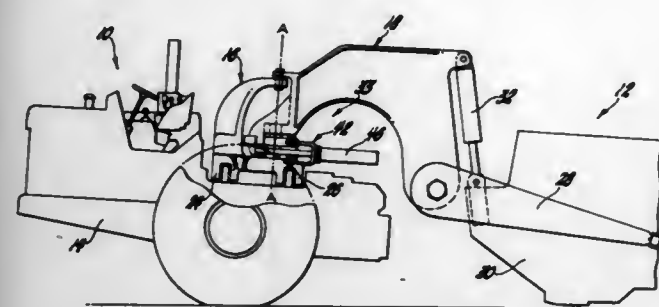
Int. Cl. B62d 5/06

U.S. Cl. 180—79.2 B

3 Claims

A steering mechanism for an articulated vehicle including first and second frame sections between which a pair of

hydraulic steering cylinders extend that are connected to the frame sections by pivotal connections located on a common



circle. The mechanism is provided with steering cylinder stabilizing means formed integrally with the two frame sections of the vehicle.

3,828,883

ASSISTED STEERING CONTROL WITH AUTOMATIC RETURN, ESPECIALLY FOR AUTOMOBILE VEHICLES
Michel Rist, Boulogne, France, assignor to Societe Anonyme Francaise Du Ferodo, Paris, France

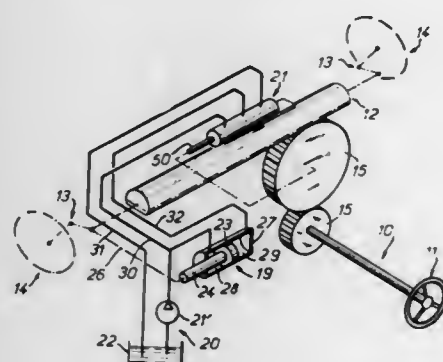
Filed June 14, 1973, Ser. No. 369,908

Claims priority, application France, June 22, 1972, 72.22498

Int. Cl. B62d 5/06

U.S. Cl. 180—79.2 R

11 Claims



An assisted control system for the steering of automotive vehicles, comprises a steering column, a detector responsive to rotation of the column and acting on a toothed rack coupled to the steerable wheels of the vehicle so as to modify the turning angle of the wheels by the movement of the rack, and a double acting hydraulic jack system acting on the rack in either direction. A distribution device actuated by the detector is interposed between the jack system and a controlling source of energy comprising a hydraulic power station. The distribution device comprises an assistance element controlled by the detector and a centering device which brings the assistance element into a mean position of rest, and a restoring element controlled by an operating member responsive to a modification of the turning angle and comprising a reversing device ensuring a reversal of the direction of actuation of the jack system after the return of the assistance element to its position of rest. Both the assistance element and the restoring element of the distribution device comprise gating passages successively interposed between the hydraulic station and the jack system.

3,828,884

LOW PROFILE TRANSPORTER

Robert E. Burdick, Santa Barbara, Calif., assignor to Rolair Systems, Inc., Santa Barbara, Calif.

Filed Dec. 1, 1972, Ser. No. 311,293

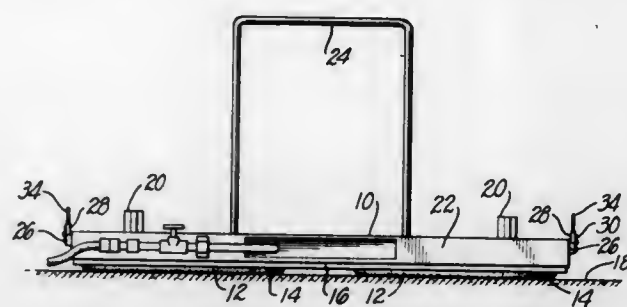
Int. Cl. B65g 7/06

U.S. Cl. 180—125

2 Claims

A transporter movable on an inflatable air bearing member and having a pair of load engagement support blocks posi-

tioned on opposite sides of the transporter below the top surface thereof. A control arm extending from the rearward end



of the transporter pivots the support blocks to a raised load engagement position extending above the top surface of the transporter.

3,828,885

HOOD AUXILIARY HOLD-DOWN DEVICE

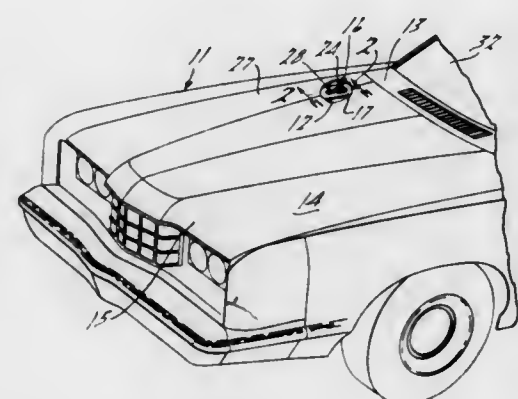
Ramon C. Eissinger, and Ronald W. Provancher, both of Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Apr. 18, 1973, Ser. No. 352,396

Int. Cl. B62d 25/10

U.S. Cl. 180—69 C

4 Claims



A vehicle compartment having an elongated closure or hood structure hinged at one end of the compartment for swinging movement between closed and opened positions. The compartment closure in closed position has side edge means in contiguous relationship to side edge means of the compartment side walls. A plurality of large headed studs per side are mounted on one of the side edge means in cooperative relationship to keyhole slotted reinforcing members on the contiguous side edge means. Upon longitudinal displacement of the closure as a result of an endwise vehicle impact or collision, the headed studs interlock with the keyhole slotted members. This provides a strong hold-down force effective to minimize the extent of possible longitudinal displacement of the closure.

3,828,886

GEOPHYSICAL EXPLORATION APPARATUS

William P. Holloway, deceased, late of Austin, Tex. (by Frances F. Holloway, executrix)

Continuation-in-part of Ser. No. 354,358, Sept. 3, 1964, abandoned, and a continuation-in-part of Ser. No. 504,529, Oct. 24, 1965, abandoned, and a continuation-in-part of Ser. No. 552,668, May 2, 1966, abandoned, and a continuation-in-part of Ser. No. 842,814, July 7, 1969, Pat. No. 3,623,570.

This application Nov. 29, 1971, Ser. No. 202,889

Int. Cl. G01v 1/00

U.S. Cl. 181—.5 NC

7 Claims

The disclosure is to geophysical exploration apparatus most importantly directed to apparatus comprising a detonator providing an upper chamber into which a fuel and a com-

3,828,888

PLASTIC FOAM BELL FOR A BABY CARRIAGE

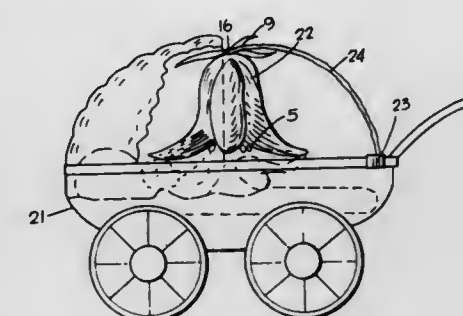
Charlotte H. Gottschalk, Aldergrove, B.C., Canada, assignor to The Raymond Lee Organization Inc., New York, N.Y., a part interest

Filed Aug. 15, 1973, Ser. No. 388,605

Int. Cl. E04b 1/84

U.S. Cl. 181—33 R

3 Claims



A bell-shaped plastic foam device with miniature bells which is attached to a flexible rod connected to the side of a baby carriage for hanging over the carriage. This device simultaneously amuses the baby while muffling the noise of a crying baby.

3,828,889

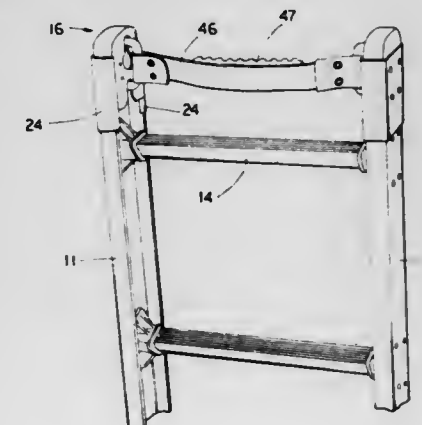
MULTIPLE ACCESSORY ATTACHMENT FOR LADDERS
Roger P. Rehm, Orrville, Ohio, assignor to Bauer Corporation, Wooster, Ohio

Filed Sept. 13, 1973, Ser. No. 396,825

Int. Cl. E06c 7/42, 1/36

U.S. Cl. 182—107

23 Claims



lower chamber, a check valve provided to communicate with the interior of the lower chamber below the escape passage or restriction means first remains closed to open as the pressure falls to permit air to be drawn into the lower chamber so that vacuum does not result therein following the blast. A means is also provided to admit a purge gas into the upper chamber to purge any residual products of combustion downwardly through the escape passage or restriction means.

3,828,887

UNDERWATER SPEAKING DEVICE

David Ord Alexander, Washington, D.C., assignor to Sol B. Wizer, Washington, D.C., a part interest

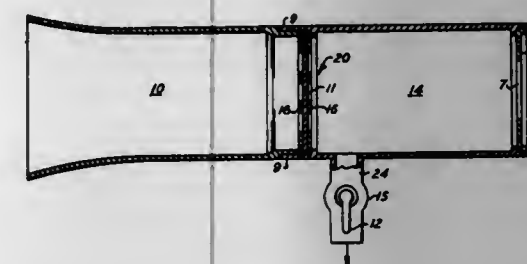
Continuation of Ser. No. 731,774, May 24, 1968, abandoned.

This application Sept. 10, 1969, Ser. No. 860,154

Int. Cl. H04b 13/02

U.S. Cl. 181—126

10 Claims



An underwater speaking tube employs a free-flooding speaking section which fits over the speaker's mouth. A venting tube to expel water is separated by a sound-transferring diaphragm from a sound distribution section.

Top end caps are fixed to side rails of a ladder, each end cap having a pair of linearly aligned longitudinal slots therein, each slot having a closed upper end and an enlarged entrance at its lower end. A spring loaded latch is provided at the entrance of the lower slot and normally closes the entrance, but is resiliently deflectable to open the lower slot entrance and admit the lug of an accessory, to thereupon return to closing position and preclude separation of the accessory from the cap assembly. Various accessories are provided with end lugs and shafts extending therefrom and spanning the space between side rails by rigid or flexible means, to facilitate various types of positioning of the upper ends of ladders.

3,828,890

CABLE LUBRICATING DEVICE

Roger A. Schott, 13559 Rutland, Detroit, Mich. 48227, and Lawrence A. Schott, 15940 Warwick, Detroit, Mich. 48223

Filed Mar. 14, 1973, Ser. No. 341,168

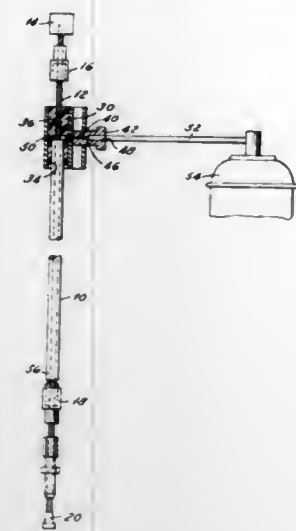
Int. Cl. F16n 7/00

U.S. Cl. 184—15 R

3 Claims

A lubricating fixture for sheathed slide cables which is readily attached and removed in a manner to seal one end of a

sheath and the adjacent cable. The fixture has an opening for receiving lubricant under pressure wherein lubricant may be



forced through the sheath around the cable to flush out foreign matter while supplying the necessary lubricant.

3,828,891

SEISMIC PULSE GENERATOR

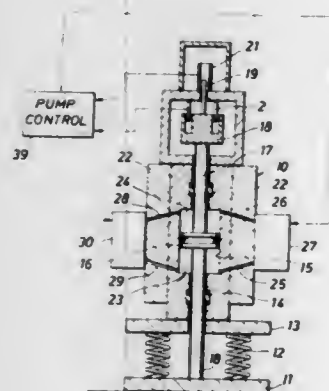
Elmer Eisner, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Dec. 27, 1972, Ser. No. 318,811

Int. Cl. G01v

U.S. Cl. 81-119

4 Claims



Disclosed is a system for minimizing distortion in the continuity of the input energy of a seismic energy generator. In a hydraulically operated oscillatory seismic generator, the continuity of the seismic energy input to the ground is affected by the valve operation. The present system employs a differential pumping system to control the pressure input to the hydraulic seismic generator without requiring valves thereby eliminating distortion due to valves.

3,828,892

ELEVATOR SYSTEM

Charles L. Winkler, and Alan F. Mandel, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 12, 1973, Ser. No. 340,620

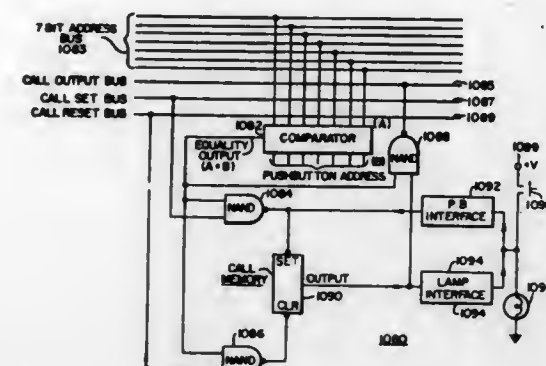
Int. Cl. B66b 1/18

U.S. Cl. 187-29 R

13 Claims

An elevator system including an elevator car mounted to serve a plurality of landings in a structure. A car station is disposed in the car which includes a plurality of circuit modules, one for each landing. The circuit modules each include a pushbutton for registering a car call for its associated

landing, and a memory element for storing the car call. The memory elements are connected in parallel with a common



call bus, and the car calls are serialized directly from the circuit modules by accessing their memory elements in a predetermined sequence.

3,828,893

SERVO-DRIVE POSITIONING DEVICE

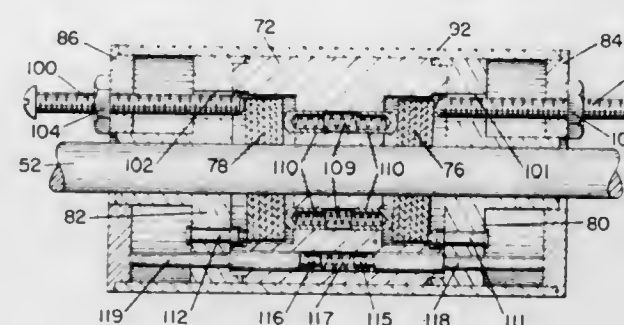
Thomas R. Clark, Utica, Mich., assignor to The National Cash Register Company, Dayton, Ohio

Filed Nov. 22, 1972, Ser. No. 308,652

Int. Cl. B65h 59/10

U.S. Cl. 188-67

6 Claims



A linkage connects an off-center point of a motordriven assembly to a pivot point on a reference or frame member and is used for holding a movable member in a fixed position relative to the reference member. The linkage includes a double-locking clutch with two sets of springloaded washers carried on a shaft in canted manner, and a pair of opposed plungers positioned between the sets of washers to maintain position of the washers on the shaft. A small force applied to a trigger sleeve, which encloses the clutch, unlocks one set of the washers to release a locking sleeve to move in the direction of the applied force and thereby adjust the position of the locking sleeve in relation to the reference member, and when the force is removed, the locking sleeve is locked on the shaft in a self-centering position.

3,828,894

TELESCOPIC PISTON FOR ADDED BRAKE WEAR ADJUSTMENT

Richard L. Crossman, Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 27, 1972, Ser. No. 318,882

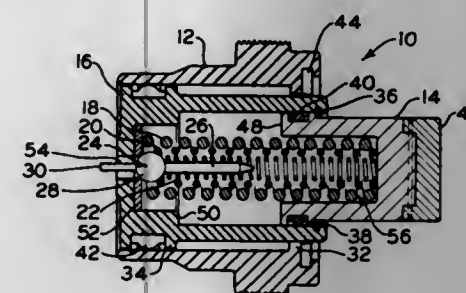
Int. Cl. F16d 65/54

U.S. Cl. 188-71.8

12 Claims

Disclosed is a telescopic brake piston and return mechanism which provides a means for compensating for the wear affected reduced thickness of the brake disk stack of an aircraft braking system. Fundamentally, the telescopic brake piston comprises two interfitting pistons received within a brake housing. The smaller of the two pistons brings the brake disks of the brake disk stack into frictional engagement with each other at which time the second piston causes the application of the working brake force. The smaller piston is provided

with a sufficient travel distance to be capable of causing such frictional engagement regardless of reduced thickness of the brake disk stack due to wear. When the smaller piston causes such engagement and the second piston begins to apply the braking force, the smaller piston becomes sealed so as to constitute a solid hydraulic column. The telescopic return mechanism associated with the telescopic piston is such as to return the pressure plate of the brake disk stack a predetermined distance after each braking operation, such distance



being independent of the amount of wear experienced in the brake disk stack. Consequently, the return mechanism guarantees that the free travel distance of the pressure plate will be consistent throughout the life of the brake disk stack. Fundamentally, this return mechanism comprises a slotted tubular threaded spring follower which receives a tubular threaded sleeve which in turn receives a still smaller slotted tubular threaded member. The various threads on the elements of the return mechanism interlock and provide the means for compensating for brake disk wear.

3,828,895

SELF-ENERGIZING AND SELF-ALIGNING DOUBLE-ACTING BRAKE ASSEMBLY

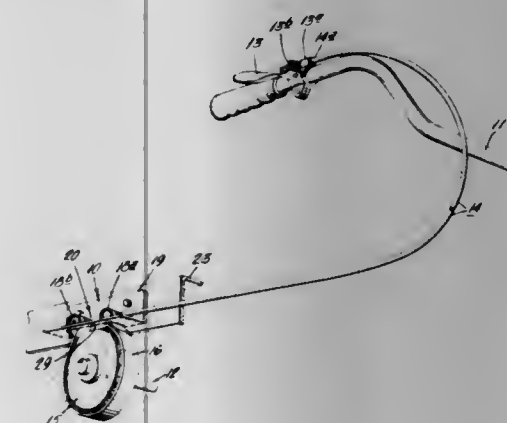
Edward G. Boaz, P.O. Box 60, Ottsville, Pa. 18942

Filed Feb. 22, 1973, Ser. No. 334,564

Int. Cl. F16d 51/04

U.S. Cl. 188-77 R

13 Claims



A double-acting brake assembly comprising a drum mounted on a rotary shaft, a brake band with looped ends surrounding the drum, and actuator means to displace ends of the band toward one another, is provided with a mounting bracket having spaced reaction surfaces which cooperate with the ends of the band to permit the band to wrap onto the drum for braking the drum when rotating in either the clockwise or counterclockwise directions. The reaction surfaces extend widthwise of the band adjacent the periphery of the drum, and a pair of guide surfaces extend alongside the ends of the band for aligning the band axially of the drum. In one embodiment, the bracket has an L-shaped cross-section with a flange overlying the drum and the reaction and guide surfaces are provided by the edges of an aperture in the flange. Other forms of brackets, including a bracket combined with a dust cover, are also disclosed. A preferred form of actuator includes a flexible sheath and cable assembly having one end connected to an

operating lever and the other end connected to the ends of the band. The actuator draws the looped ends of the band together to engage the band with the drum, but allows lost motion between the end loops and the reaction surfaces of the mounting bracket. The end loops are free to move against either reaction surface, so that no matter which direction the drum is rotating, it will be the end loop at the leading end of the band which engages a reaction surface, and the trailing end of the band will in every case be free to wrap about the drum to provide a servo or self-energizing braking action. This will provide self-energizing braking on both forward and reverse rotation of the drum.

3,828,896

BRAKE ADJUSTER

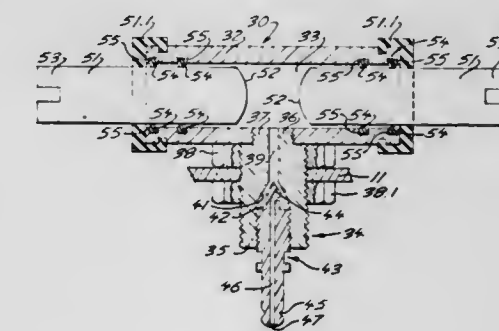
Tuomas Paimen, 918 Fir St., Campbell River, B. C., Canada

Filed Jan. 18, 1973, Ser. No. 324,894

Int. Cl. F16d 65/44

U.S. Cl. 188-79.5 SC

5 Claims



A brake adjuster for adjusting spacing of brake shoes of an automobile brake assembly which includes an adjusting cylinder secured to the brake drum between adjacent ends of the brake shoes opposite the brake cylinder ends thereof, the adjustment cylinder having a cylindrical bore from opposite ends of which project a pair of pistons for engaging the brake shoes. A grease nipple is fitted to adjusting cylinder between the pistons through which a lubricating grease can be injected to move the pistons apart and move the brake shoes into engagement with the drum. The grease nipple is fitted with a screw-type closure valve for closing the grease nipple when the brake shoes are suitably adjusted.

3,828,897

SPECIAL PISTON SEAL

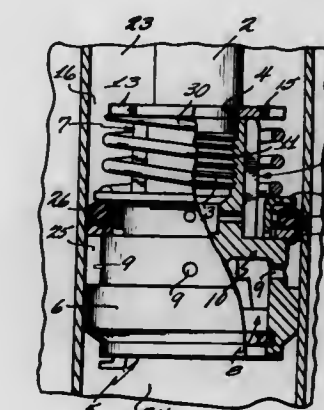
Srinath Nandyal, Park Forest, Ill., assignor to Maremont Corporation, Chicago, Ill.

Filed Dec. 27, 1972, Ser. No. 319,023

Int. Cl. F16f 9/34

U.S. Cl. 188-317

2 Claims



A ring with a non-circular cross section which functions both as a seal between the piston and cylinder wall and also acts as a spring for a compression regulating valve in the piston of a double action hydraulic shock absorber.

3,828,898 HYDRAULIC ACTUATING MEANS FOR VEHICLE BRAKES

Charles Newstead, Walsall, and Andrew Charles Walden Wright, Lapworth, both of England, assignors to Girling Limited, Birmingham, England

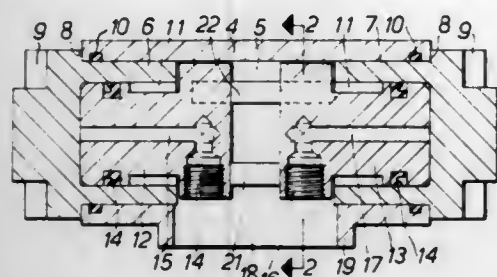
Filed Feb. 10, 1972, Ser. No. 225,088

Claims priority, application Great Britain, Feb. 17, 1971, 4874/71

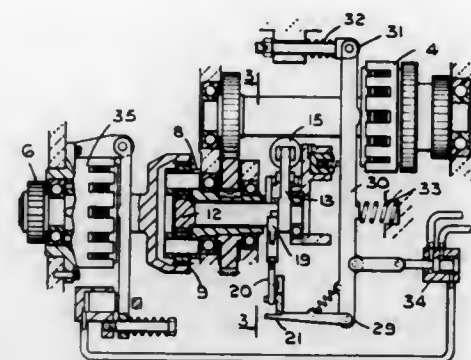
Int. Cl. B60t 11/24

U.S. Cl. 188—345

6 Claims



In a brake actuator comprising a double-ended hydraulic cylinder in which work opposed pistons acting on movable friction members of the brake, an outer piston working in each end of the cylinder has in its inner end a blind axial bore in which works an inner piston, and fluid under pressure is supplied to the closed end of the bore to urge the outer and inner pistons apart, axial movement of each inner piston being transmitted mechanically to the outer piston working in the opposite end of the cylinder.



epicyclic gear and according to the load transmitted the torque arm is deflected and arranged to give unidirectional movement to a second arm to which is attached an adjustable rod which trips a latch member to release a friction type clutch in the gear transmission upstream of the epicyclic gear.

3,828,899 ORIENTATION SENSITIVE LUGGAGE LATCH

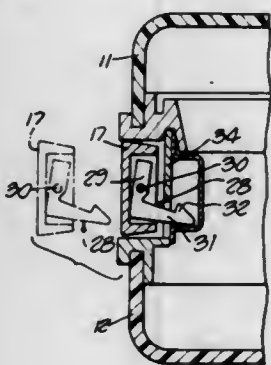
Charles J. Scott, Denver, Colo., assignor to Samsonite Corporation, Denver, Colo.

Filed Feb. 18, 1972, Ser. No. 227,352

Int. Cl. A45c 3/02

U.S. Cl. 190—41 R

5 Claims



A luggage case latch mechanism is provided with a gravity operated detenting device which prevents unlatching when the case is wrongside-up.

3,828,900 OVERLOAD CUT-OUT MECHANISM FOR MINING MACHINE MECHANICAL HAULAGE MECHANISM

Forrest Symington Anderson, Carlisle, Scotland, assignor to Anderson Mavor Limited, Motherwell, Lanarkshire, Scotland

Filed May 30, 1973, Ser. No. 365,131

Claims priority, application Great Britain, May 31, 1972, 25464/72

Int. Cl. F16d 67/02, 13/22

U.S. Cl. 192—12 A

3 Claims

The invention relates to overload cut-out mechanism for mineral mining machine haulage mechanism in which a torque reaction trip-out device is associated with an epicyclic gear in-

3,828,901 ELECTRIC COUPLING CONTROL MEANS

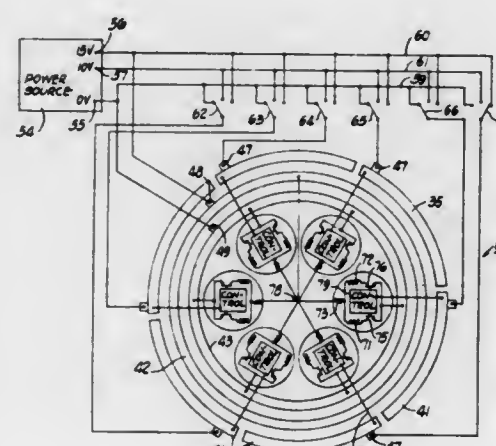
Noah Flueckiger, Solon, Ohio, assignor to Acme-Cleveland Corporation, Cleveland, Ohio

Filed Aug. 1, 1973, Ser. No. 384,475

Int. Cl. F16d 67/02

U.S. Cl. 192—12 D

18 Claims



An electrical coupling control system is disclosed for a multiple spindle automatic machine tool which has an indexable spindle carrier with a plurality of rotatable spindles. An electrical clutch and brake unit with a neutral condition is provided for each spindle and the clutch, brake, or neutral condition is selectively established by different values of a single polarity control DC voltage. This selector means controls each particular spindle for each spindle position of the spindle carrier. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,828,902 IMPROVED SINGLE LEVER REMOTE CONTROL DEVICE FOR ENGINES

Masaru Saito; Norio Hasegawa, and Kenaki Murase, all of Tokyo, Japan, assignors to Starting Industry Company Limited, Tokyo, Japan

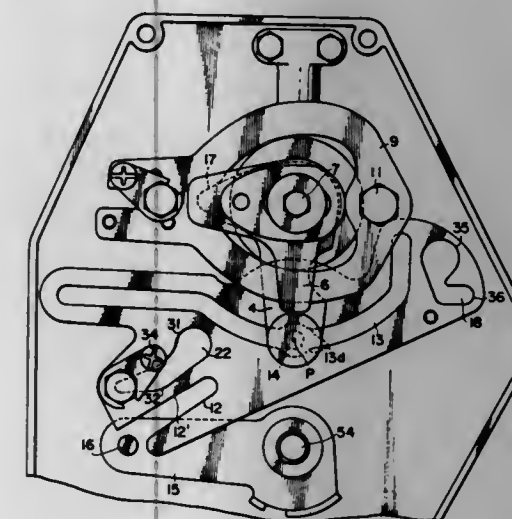
Filed Sept. 8, 1972, Ser. No. 287,409

Claims priority, application Japan, Sept. 9, 1971, 46-69872; Jan. 25, 1972, 47-9276; Jan. 26, 1972, 47-11092; Jan. 26, 1972, 47-11093; Jan. 26, 1972, 47-11094; Jan. 26, 1972, 47-11095; Apr. 1, 1972, 47-38715; Apr. 1, 1972, 47-38716; Apr. 1, 1972, 47-38717; Apr. 1, 1972, 47-38718

Int. Cl. B60k 29/00

U.S. Cl. 192—.096

5 Claims



This invention relates to a remote control device utilizing a single control lever for both the clutch and throttle of the engine to be controlled, together with a free acceleration lever for adjusting the engine throttle independently of the single control lever. A mechanical interlock is provided between the free acceleration lever and the throttle actuating plate controlled by the single lever so that the free accelerator lever is automatically returned to neutral position before actuation of the engine clutch by the single control lever. Preferred arrangements for adjusting the strokes of the several actuating plates embodied in the device are also disclosed and the device is designed to be interchangeable for pushing or pulling actuation of the control cables.

3,828,903 VEND CONTROL WITH ESCROW UNTIL AVAILABLE PRODUCT SELECTION

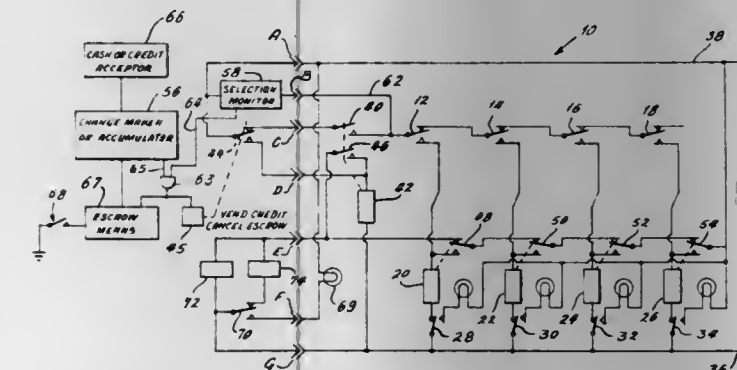
Joseph L. Levasseur, St. Louis, Mo., assignor to H.R. Electronics Company, High Ridge, Mo.

Filed Feb. 12, 1973, Ser. No. 331,380

Int. Cl. G07f 5/24

U.S. Cl. 194—1 N

17 Claims



A control circuit which provides escrow capability at all times after money is deposited in a vending machine and until selection is made of a product which is available, the control circuit including accumulator means, vend selection means, escrow means, and monitor selector means which respond to

operation of the vend selection means under certain conditions to control other operations of the circuit including enabling a vend cycle.

3,828,904 AUTOMATIC VENDING MACHINE INCLUDING A PLURALITY OF CUSTOMER UNITS INTERCONNECTED WITH A SINGLE PROCESSING AND DISPENSING UNIT

Nobuyosi Naitou; Keizi Baba; Sige-hisa Huziwara, all of Kyoto, Japan, and Takesi Yamanaka, Mountain View, Calif., assignors to Omron Tateisi Electronics Company, Kyoto, Japan

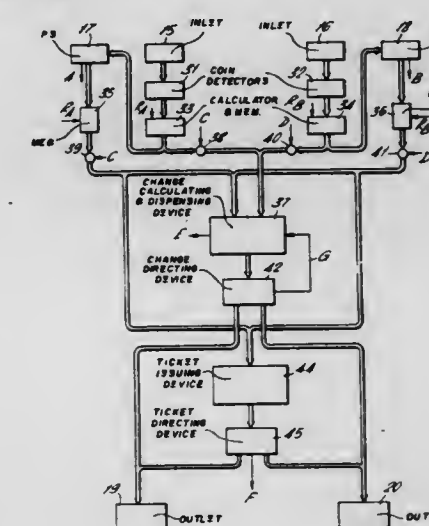
Filed Jan. 22, 1973, Ser. No. 325,577

Claims priority, application Japan, Jan. 27, 1972, 47-11567

Int. Cl. G07f 11/02

U.S. Cl. 194—10

10 Claims



An automatic vending machine which comprises at least two customer serving units which are individually used by customers to input purchase data into the machine and a single processing unit commonly serving the customer serving units so that in accordance with the input data the processing unit causes an article to be dispensed through the outlet of that customer serving unit through which the purchase data have been entered.

3,828,905 VENDING MACHINE CIRCUITRY

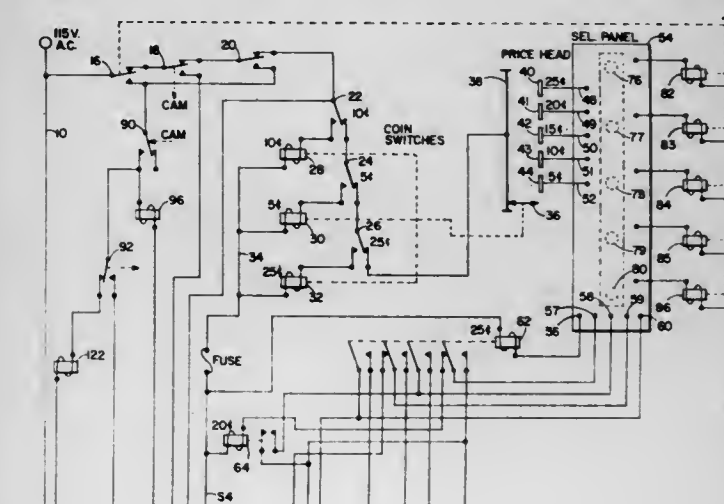
Edmin L. Van Meter, St. Paul, Minn., assignor to Gross-Given Mfg. Company, St. Paul, Minn.

Filed June 25, 1973, Ser. No. 373,198

Int. Cl. G07f 11/00

U.S. Cl. 194—10

5 Claims



Circuitry for controlling a vending machine to prevent cheating. If after the change-maker is set, a vend is not initiated within a predetermined interval, the change-maker is reset.

3,828,906

AUTOMATIC VENDING DEVICE FOR PACKAGED CONTAINERS SUCH AS BOTTLES, CANS OR SIMILAR ARTICLES

Walter Schellhorn, Bad Kreuznach, and Edwin Koch, Rockenhausen, both of Germany, assignors to Seitz-Automaten GmbH

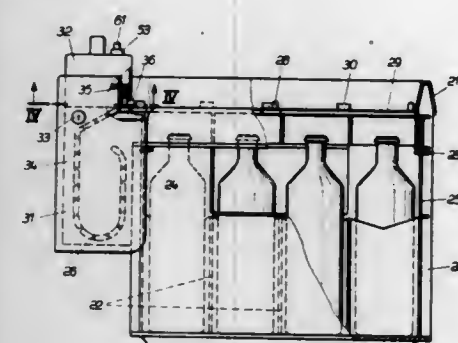
Filed Aug. 2, 1971, Ser. No. 167,934

Claims priority, application Germany, Aug. 6, 1970, 2039151

Int. Cl. G07f 1/14

U.S. Cl. 194—59

18 Claims



The specification discloses a vending device adapted for being mounted on top of a container, such as a container for articles, such as bottles, in which the articles are arranged in the container in a predetermined pattern. The vending arrangement comprises a cover adapted for being fixed to the open side of the container and having moveable portions thereon for exposing the contents of the container. According to the invention, the moveable portions of the cover are normally locked against movement and are released for exposing a predetermined number of articles for removal under the control of a coin operated mechanism. The device for locking the moveable portions of the cover against movement is advantageously in the form of a belt-like element lockingly engaging the portions but being moveable to permit release of the portions singly and for movement a predetermined distance to expose the desired number of articles, for example, one or two.

3,828,907

DEFERRED TIME METER

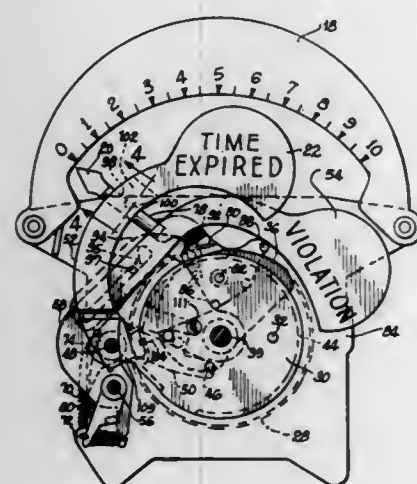
Walter R. Bock, Chicago, Ill., assignor to Qonaar Corporation, Elk Grove Village, Ill.

Filed Apr. 16, 1973, Ser. No. 351,235

Int. Cl. G07f 17/24

U.S. Cl. 194—72

10 Claims



A meter construction, such as a parking meter, wherein a clock mechanism is provided along with means for winding the clock mechanism in response to the insertion of coins. The meter includes indicator means to visually indicate the

amount of time purchased, and retaining means are employed to engage the indicator means for preventing movement thereof to an indicating position. A contacting mechanism is associated with release means for the retaining means. Upon the insertion of a sufficient number of coins to accomplish the purchase of a pre-selected amount of time, the contact means engage the retaining means whereby the indicator means are permitted to move to provide a visual indication of the time purchased. The meter thus avoids any display of time purchased until the minimum legal amount of coins have been inserted in the meter.

3,828,908

MOSAIC PRINT HEAD

Winfried Schneider, Schloß Neuhaus, Adlerweg 16, Germany

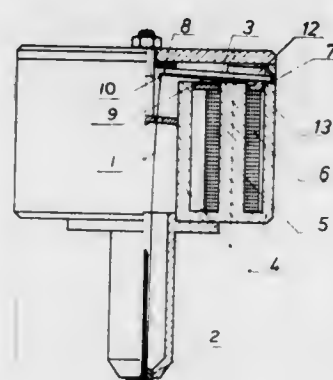
Filed Dec. 26, 1972, Ser. No. 318,487

Claims priority, application Germany, Jan. 11, 1972, 2201049

Int. Cl. B41j 33/00

U.S. Cl. 197—1 R

10 Claims



A mosaic print head comprises a centrally arranged needle guide for holding individual printing needles substantially vertically and for permitting substantially vertical axial movement thereof for printing. A plurality of electromagnets are arranged around the upper ends of the needles and each includes an armature which is movable relative to a core. A leaf spring is disposed between the armature and the core and its outer end is engaged on an associated needle which is moved by the armature to actuate the needle during printing.

3,828,909

CODE KEYBOARD FOR TYPEWRITERS AND SIMILAR OFFICE MACHINES

Domenico Roano, Parella, and Armando Quarisa, Cascinetta D'Ivrea, both of Italy, assignors to Ing. C. Olivetti & Co., S.p.A., Ivrea (Torino), Italy

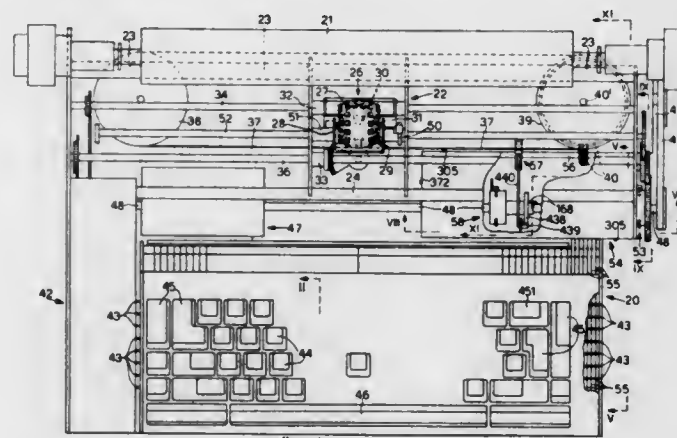
Filed June 5, 1972, Ser. No. 259,895

Claims priority, application Italy, June 11, 1971, 68987/71

Int. Cl. B41j 23/02

U.S. Cl. 197—16

25 Claims



A code keyboard for typewriters has a plurality of keys, a series of code bars and a plurality of sliders. The setting sliders are urged back by corresponding springs and are normally

lathed by hooks controlled by the keys. The released slider engages a starting clutch and is successively shifted forward by a setting lug for setting the code bars. The lug is operated by a setting spring and is controlled by the clutch.

3,828,910

CODING KEYBOARD

Guy-Paul Glay, Argenteuil, France, assignor to Societe D'Applications Generales D'Electricite et de Mecanique, Paris, France

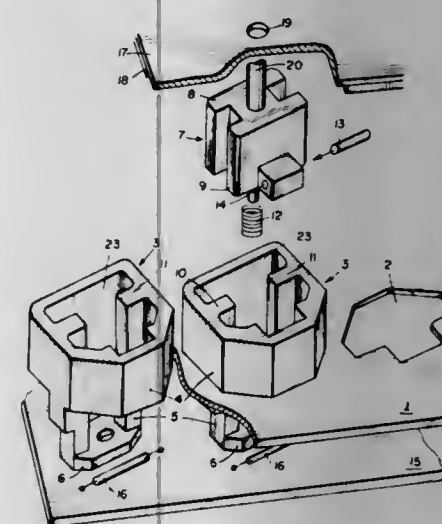
Filed Nov. 14, 1972, Ser. No. 306,286

Claims priority, application France, Dec. 30, 1971, 71.47578

Int. Cl. B41j 5/08

U.S. Cl. 197—98

1 Claim



Coding keyboard for a teleprinter. It comprises a central plate, a lower plate which is a printed circuit panel and an upper plate forming a cover, these three plates being parallel to one another. The central plate has holes in which are inserted push-button guides. Push-buttons may slide in said guides such that, when a key connected to a push-button is lowered, a magnet fixed to the push-button controls the closing of a switch with flexible blades fixed on the upper face of the printed circuit panel.

3,828,911

PLATEN INDEXING ACTUATOR

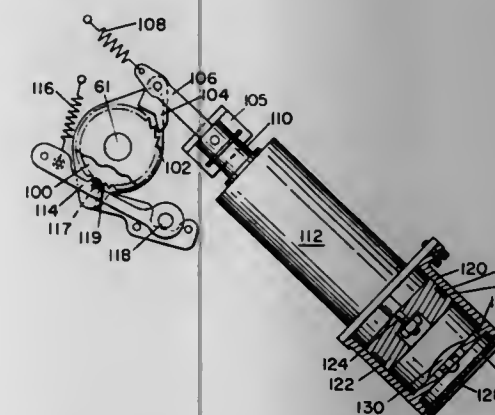
Melvin A. Soderstrom, Rural Hall, N.C., assignor to The National Cash Register Company, Dayton, Ohio

Filed Mar. 7, 1973, Ser. No. 338,655

Int. Cl. B41j 19/76

U.S. Cl. 197—114 R

3 Claims



A controlled motion is applied to drive a pawl and ratchet mechanism in incremental steps for indexing the platen of a business machine. A pneumatic dashpot is attached to the plunger of an axial-pull solenoid wherein the use of both an orifice and a flip-type seal within the dashpot balances the available actuating forces and results in a smoother indexing action under varying loads on the platen.

3,828,912

PAGE END INDICATOR MECHANISM FOR TYPEWRITERS OR LIKE MACHINES

Wolfgang Prade, Nisou, Czechoslovakia, assignor to Zbrojovka, Narodni podnik, Brno, Czechoslovakia

Continuation-in-part of Ser. No. 883,557, Dec. 9, 1969, abandoned, which is a continuation-in-part of Ser. No.

810,543, March 26, 1969, abandoned. This application Feb.

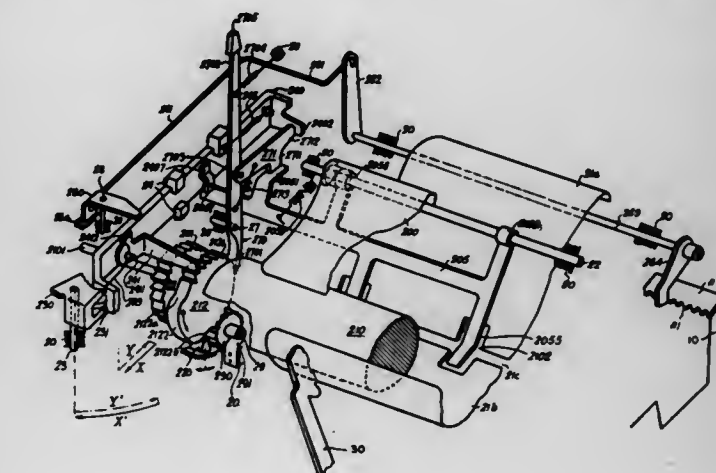
14, 1972, Ser. No. 226,091

Claims priority, application Czechoslovakia, Mar. 28, 1968, 2379-68

Int. Cl. B41j 29/44

U.S. Cl. 197—189

4 Claims



A typewriter or similar machine provided with controls for automatically terminating the operations when the last line imprinted on a sheet is at least approximately at a given distance from the bottom edge of a sheet. A feeler coacts with the sheet to determine when the bottom edge of the sheet reaches a given location. At this moment a toothed wheel operates to store a given number of lines which are imprinted on the sheet subsequent to arrival of its bottom edge at this given location. After the toothed wheel receives this given number of lines, a line controlling pawl is automatically brought out of engagement with a ratchet wheel which is operatively connected to a platen thereby preventing further advance of the sheet. At the same time a blocking unit is automatically actuated to block the movement of the carriage of the machine.

3,828,913

LIFTING ARRANGEMENT FOR CANTILEVER ARMS OF CONVEYORS

Gerhart Scholler, Bad Schwartau, Germany, assignor to Orenstein & Koppel AG, Lubeck, Germany

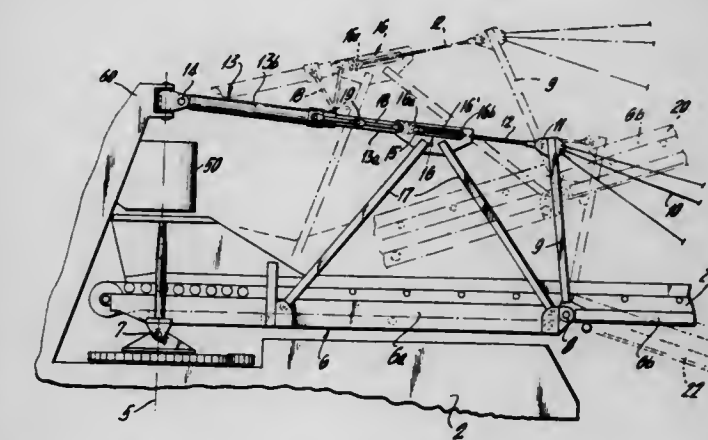
Filed July 10, 1973, Ser. No. 377,896

Claims priority, application Germany, Aug. 5, 1972, 7229102

Int. Cl. B65g 65/16

U.S. Cl. 198—9

8 Claims



A lifting arrangement particularly for cantilever support arms of conveyors of such devices as excavators, comprises a

first rear arm part which is supported for pivotal movement adjacent one end about a horizontal axis. A second front cantilever arm part is pivotally mounted about a second horizontal axis which is carried on the first cantilever arm. Lifting means in the form of a fluid pressure cylinder is pivotally connected to a mast which extends above the rear pivot of the first cantilever arm part and it is connected through a tow connection which is braced to the first cantilever part. The tow connection, for example, includes two diagonal braces pivoted at spaced locations to the first cantilever part and connected at their upper ends to a holding plate which is moved by a piston movable in the fluid cylinder of the lifting device. The tow connection also includes a connection to the second front conveyor part. The connection is such that the first part may be pivoted downwardly in respect to the first conveyor part only up to a predetermined amount and it may be lifted upwardly to a position level with the first part and then the first and second cantilever arm parts of the conveyor are lifted together upwardly. The apparatus is advantageously carried on an excavator vehicle having a carriage for moving it over the ground and carrying a bucket-wheel cantilever arm support structure at its end opposite to the conveyor cantilever arm structure.

3,828,914

ARTICLE UNSCRAMBLER

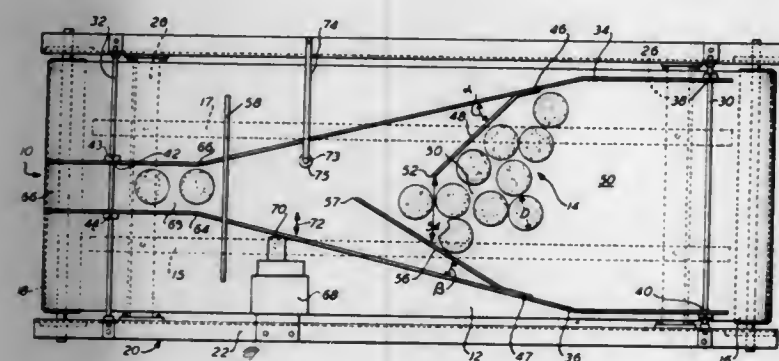
Alonzo E. Tull, Madison; Ernest J. Benson, Berkeley Heights, and William V. Weiverts, Union, all of N.J., assignors to Bentul Equipment Corporation, Berkeley Heights, N.J.

Filed Aug. 7, 1972, Ser. No. 278,296

Int. Cl. B65g 47/26

U.S. Cl. 198—30

11 Claims



Apparatus for arranging an advancing group of randomly distributed hamburger patties or similar bodies into an aligned pattern for conveyance to a packaging station or the like. A pair of generally converging side rails are rigidly restrained at their respective end points, and each carries a deflector surface extending into the conveyance zone, which surfaces in combination, effects the required regrouping. The side rails are vibrated at a point intermediate to the restrained ends as an anti-bridging expedient. The conveying surface may be defined by a belt divided along the direction of conveyance into a central narrow sub-belt and a pair of wider flanking sub-belts, with the central belt preferably moving more rapidly than the bordering belts to aid in the aligning process.

3,828,915

MATERIAL HANDLING APPARATUS

Eric Reginald Cox, Ashchurch, and John Shiel Clements Wall, Cheltenham, both of England, assignors to Babcock & Wilcox Limited, London, England

Filed Feb. 22, 1973, Ser. No. 334,566

Claims priority, application Great Britain, Feb. 22, 1972, 8166/72

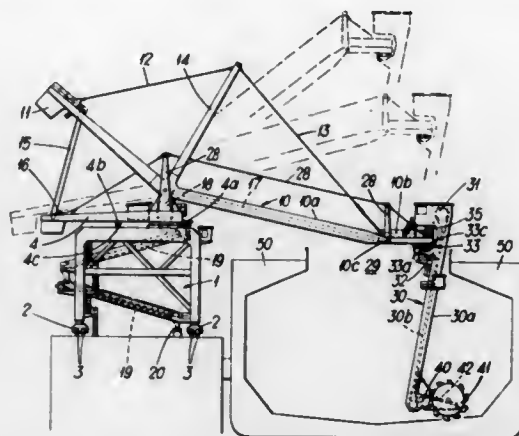
Int. Cl. B65g 37/00

U.S. Cl. 198—88

5 Claims

The invention relates to material handling equipment having an elevator unit depending from a conveyor boom. Means

is provided for loading the elevator unit at a location spaced along the elevator unit from said boom. The connection between the elevator unit and the conveyor boom is such that



the former can swivel about an axis transverse to the latter and means is also provided whereby material can pass from the former to the latter at any of the angles that the former can occupy relatively to the latter.

3,828,916

MULTISECTION CONVEYOR HAVING ADJUSTABLE ELBOW BETWEEN ADJACENT CONVEYOR SECTIONS

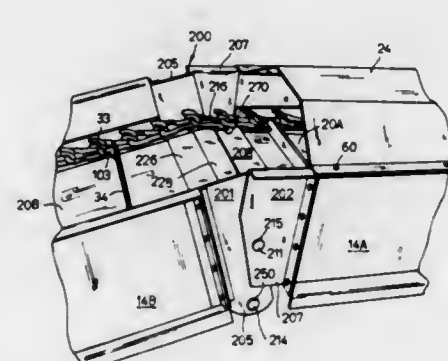
Paul Patz, Pound, Wis.

Filed Sept. 26, 1973, Ser. No. 400,885

Int. Cl. B65g 21/12

U.S. Cl. 198—115

15 Claims



A multisection chain-flite conveyor for moving comminuted material such as cattle feed has an adjustable elbow between the juxtaposed ends of two conveyor sections to enable relative vertical pivotal adjusting movement between the two sections. Each conveyor section comprises a supporting framework and a bed mounted thereon and sprockets are located at the remote ends of the multisection conveyor for supporting an endless chain arranged alongside the beds which has spaced apart flites attached thereto. The elbow comprises two pivotably interconnected elbow sections, each attached to the inner end of a conveyor section, and each elbow section comprises a pair of laterally spaced apart side plates joined together by a cross brace which also serves to support one end of its associated conveyor bed. The two elbow sections are relatively pivotable about a horizontal upper pivot shaft. A horizontal lower shaft is mounted between the side plates of one of the elbow sections below the upper shaft. Upper and lower chain guide rollers are rotatably mounted on the upper and lower shafts, respectively, and the upper and lower sides of the chain ride on the upper sides of the upper and lower rollers, respectively. A curved flite guide is mounted over the hub of the lower roller to prevent interference with the flites on the lower side of the chain. Overlapping tilt shields connected to the cross braces of the two elbow sections bridge the gap between the juxtaposed ends of the conveyor section beds. The upper roller rotates on the upper pivot shaft and thus prevents ear on the tilt shields.

3,828,917

DIRECTION REVERSING DEVICE FOR TRANSPORT EQUIPMENT

Henrik William Stig Oestergren, Enskede near Stockholm, Sweden, assignor to Aktiebolaget Fredr. Wagner, Stockholm, Sweden

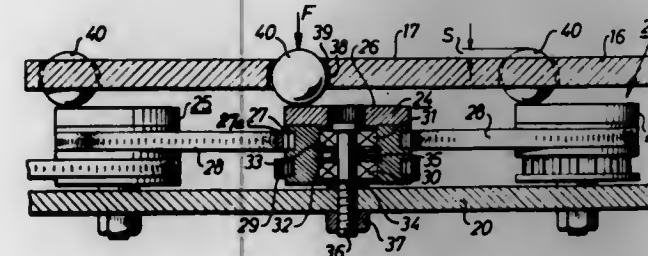
Filed Dec. 27, 1972, Ser. No. 319,081

Claims priority, application Sweden, Jan. 11, 1972, 275/72

Int. Cl. B65g 13/02

U.S. Cl. 198—127 R

12 Claims



A direction reversing or changing device, especially for transporting or conveying equipment for piece goods or materials, such as plates, newspaper bundles, cardboard or the like, comprising a number of balls forming a conveying surface for the materials. The balls are mounted to be rotatable in all directions, and are driven in random directions with the aid of an adjustable drive mechanism arranged beneath each ball.

3,828,918

SLUG CONVEYOR FOR CONVEYING SLUGS OF ARTICLES AND RELEASING THE SLUGS OF ARTICLES FOR PACKAGING

Richard C. Talbat; Edward Rose, both of Skokie, and Robert A. Roth, Chicago, all of Ill., assignors to Peters Machinery Company, Chicago, Ill.

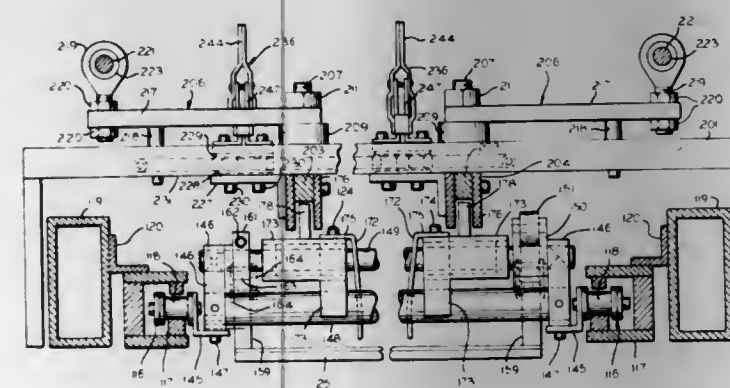
Division of Ser. No. 173,473, Aug. 20, 1971, Pat. No.

3,719,020. This application Nov. 30, 1972, Ser. No. 311,005

Int. Cl. B65g 15/24

U.S. Cl. 198—155

15 Claims



Endless chain type of slug conveyor for slugs of articles, such as cookies, in which the chain has upper and lower runs and flights in the form of drop gates are spaced along the chains in the space between the upper and lower runs. The flights are suspended from attachments pivotally carried by certain links of the chain and are biased by springs in slug carrying positions and are pivoted by cam and follower means in the slug release positions. The conveyor also includes side guides extending along the material carrying run of the conveyor which are adjustably moved toward and from each other in accordance with the number of slugs conveyed by the conveyor.

3,828,919

FEED CONVEYOR WITH SELECTIVE DISCHARGE

Robert G. Holtsclaw, and Jerrell D. Holtsclaw, both of Switz City, Ind.

Continuation-in-part of Ser. No. 207,201, Dec. 13, 1971, Pat.

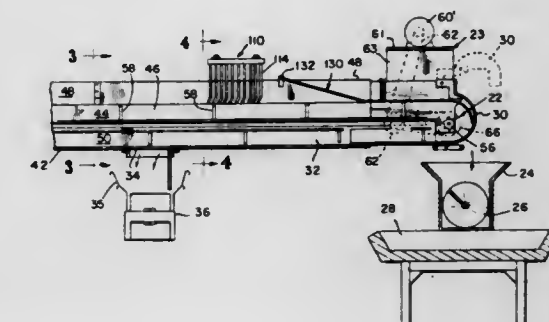
No. 3,750,861. This application Feb. 23, 1973, Ser. No.

335,361

Int. Cl. B65g 15/00

U.S. Cl. 198—160

6 Claims



A single-chain feed conveyor for silage and the like, having a series of flights on a central bottom chain, which normally discharges at its forward end, is modified to provide discharge at intermediate points. Silage is received from a silo in irregular amounts and conditions. Leveling means over the forward-conveying trough breaks up any large clumps of the silage, and distributes the material more evenly along the conveyor pockets. A pressure plate over the end portion of the conveyor presses any high-standing material into the pockets and holds the material in the pockets as the flights swing part way about the sprocket at the forward discharge end. A shroud at such discharge end has an open condition in which it permits normal forward-end discharge from beneath the pressure plate, and has a closed condition in which it forms a return bend channel to receive the conveyed material from beneath the pressure plate and guide it to the return trough containing the return stretch of the conveyor chain. The returning flights then convey the material along the return trough to an opening in any desired point therein. The return bend shroud is shaped with wide clearance from the conveyor flights at the top to permit freedom of movement of the pressure plate and permit the flights to free themselves of overlying material, and with close clearance at the bottom where the flights swing toward the return trough to pick up the material cleanly from the bottom of the shroud.

3,828,920

HARPOON CONVEYOR

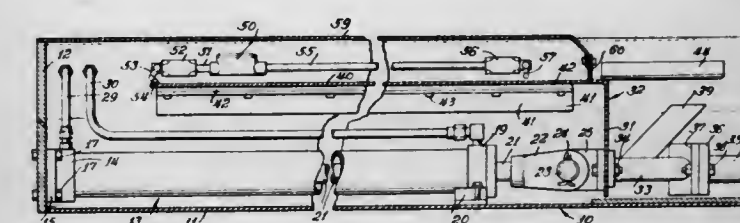
Roger T. Becker, Kalamazoo; Stephen L. Hatter, Portage, and Donald McMullin, Jr., Kalamazoo, Mich., assignors to Kalamazoo Conveyor Company, Kalamazoo, Mich.

Filed Apr. 13, 1972, Ser. No. 243,632

Int. Cl. B65g 25/08

U.S. Cl. 198—221

6 Claims



A harpoon or chip conveyor is provided having a trough fitted with material retaining members or bars on its inner sides and a plurality of interconnected plows driven in backward and forward or reciprocal motion by a reciprocating hydraulic power unit. Some of the retaining members or bars are provided in the form of wedge-shaped or L-shaped angles affixed to the trough wall at their free ends by suitable means

such as welding. The material retaining members are so oriented that a small vertical portion faces the direction of travel of the material being conveyed. As a further improvement, a cover is provided over the hydraulic power unit and piston rod in the form of a pair of telescoping bulkhead members, thereby protecting the hydraulic power unit from being fouled by chips and permitting trough loading at areas very close to the hydraulic unit without fouling the hydraulic unit. As a further improvement, for certain applications flexible barbs formed of a sheet plastic material may be utilized as a safety measure.

3,828,921

SHALLOW CUP FEEDER AND ORIENTER

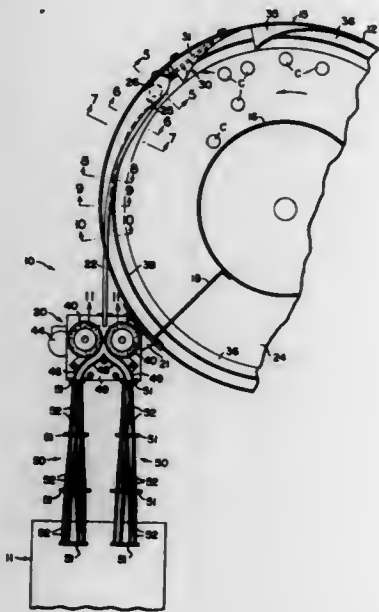
Marcus Tackett, Jr., Indian Rocks Beach, Fla., assignor to Tange Drives, Inc., Clearwater, Fla.

Filed Aug. 21, 1972, Ser. No. 282,115

Int. Cl. B65g 47/24

U.S. Cl. 198—287

8 Claims



A feeder for shallow cups, typically milk bottle caps and the like, is disclosed which includes a rotary centrifugal feeder, a pickup plow and tube tangentially mounted to the rotary feeder to deliver the cups generally in rolling configuration but randomly oriented as to the direction of the side walls into a power sorter which sorts the same and separates them so that the oriented cups leave the power sorter in two tracks oriented in the same direction. The power sorter has a pair of driven counter rotating wheels having resilient outer walls, preferentially made of closed cell neoprene. The diverging tracks are made up of a pair of pick up walls which tangentially engage the counter rotating rollers, and an opposed pair of sorter walls which define the two tracks delivering the oriented parts from the counter rotating rollers which respectively divert the path of the caps fed therebetween in the direction of the orientation of the opposed side walls of the cup.

3,828,922

ANTI-THEFT PACKAGING DEVICE

Howard P. Holkestad, Minnetonka, Minn., assignor to J.L. Marsh, Incorporated, Minneapolis, Minn.

Filed July 31, 1972, Ser. No. 276,657

Int. Cl. B65d 55/04, 85/67

U.S. Cl. 206—1.5

11 Claims

An anti-theft packaging device is disclosed including an enclosure having an opening for insertion of the article to be

packaged with the enclosure including a lip extending the dimensions of the enclosure and thus the article to be packaged and including resilient projections around and about the opening of the enclosure with the projections allowing the



insertion of the article into the enclosure and preventing ease of withdrawal of the article from the enclosure without the use of a removal tool. The removal tool allows the simultaneous bending of all resilient tabs to thus allow removal of the article from the anti-theft device.

3,828,923

COMPOSITE SLIDEABLE DISPENSING CARTON

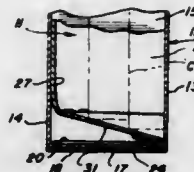
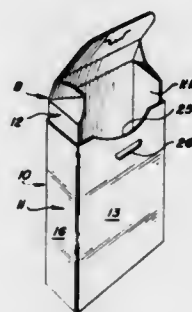
Floyd L. Phillips, Jr., Winston-Salem, N.C., assignor to R.J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Dec. 7, 1972, Ser. No. 312,822

Int. Cl. B65d 5/38, 85/10

U.S. Cl. 206—254

10 Claims



A composite dispensing carton is provided which includes an outer member closed at the bottom and open at the top, and an inner member mounted within the outer member for movement between extended and retracted positions relative to the outer member. The inner member is affixed to the outer member so as to restrict movement of the inner member to a predetermined extended position. The inner member is provided with a cover for closing the top of the outer member when said inner member is in said retracted position.

3,828,924

COILED STRIP OF COLLATED FASTENERS

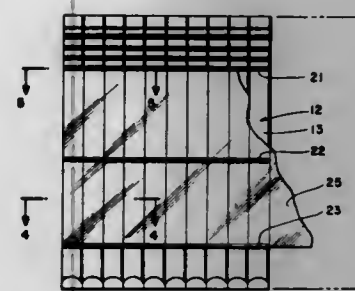
Garry R. Perkins, Palatine, Ill., assignor to Spotnails, Inc., Rolling Meadows, Ill.

Filed Nov. 20, 1972, Ser. No. 307,972

Int. Cl. B65d 83/02, 85/24

U.S. Cl. 206—343

4 Claims



A coiled strip of collated fasteners is provided wherein the fasteners thereof are arranged in abutting side-by-side relation. Corresponding portions of the fastener shanks are interconnected. A continuous flexible plastic film is applied to exposed portions of the fasteners to effect collating thereof.

3,828,925

STUD MAGAZINE

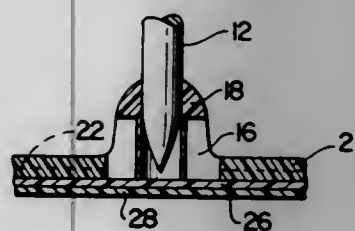
Charles Magyar; Lewis A. Root, both of Stamford, and Edwin C. Senger, Fairfield, all of Conn., assignors to Hilti Aktiengesellschaft, Furstentum, Liechtenstein

Filed Mar. 13, 1972, Ser. No. 234,217

Int. Cl. B65d 85/24

U.S. Cl. 206—347

7 Claims



This invention relates to a stud magazine for use with a stud driving device comprising a strip of material having a plurality of apertures therein, and stud means mounted in said apertures in a manner such that the tips thereof do not project beyond the plane of the material.

3,828,926

MULTI-UNIT PACKAGE WITH CURVED CONTOUR

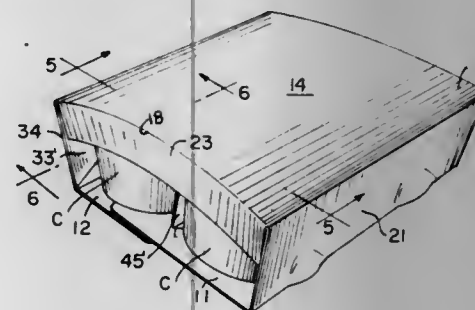
Harry J. Rossi, Parsippany, N.J., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Filed Mar. 17, 1972, Ser. No. 235,644

Int. Cl. B65d 5/08, 65/06

U.S. Cl. 206—427

6 Claims



A package characterized by a double row of product containers which are in the form of tubs each having its side wall tapering downwardly and inwardly from an outwardly

directed top flange on the top face of which the margins of a sheet-like cover member are sealed, and a wrapper forming blank of foldable sheet material which is tightly drawn about the top, bottom and oppositely disposed portions of the inner side walls of the containers and forms the top wall into a generally convex or relatively shallow peaked contour in close contact with top portions of the container cover members so as to prevent damage thereto, with a relatively narrow gusset panel at each end of the tube formed by the wrapper which depends from a hinge line formed by inwardly bowed or inwardly directed scores and which is held at opposite ends by a folded web section integrally connected to the associated side wall of the wrapper.

3,828,927

PLASTIC BOTTLE CRATES

Alexander Schoeller, Karl-Marr Str. 10, Munchen-Solln, Germany (8000)

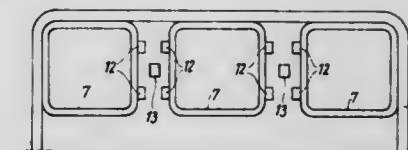
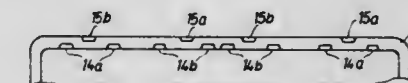
Filed Sept. 24, 1971, Ser. No. 183,597

Claims priority, application Switzerland, Sept. 28, 1970, 14333/70

Int. Cl. B65d 21/02

U.S. Cl. 206—511

1 Claim



A plastic bottle crate having interengaging tops and bottoms which are so constructed to permit the crates to be transported on roller-type conveyors without rattling or bouncing. The particular construction permits the crates to be stacked in vertical alignment as well as in displaced fashion.

3,828,928

LOG-SORTING APPARATUS

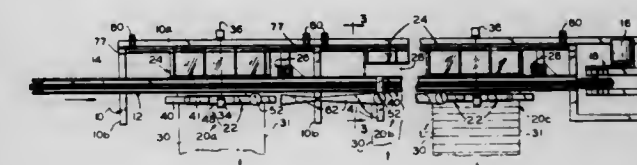
Olsen Roderick, Jr., Beaverton, Oreg., assignor to Kockum Industries Incorporated, Talladega, Ala.

Filed Nov. 24, 1972, Ser. No. 308,953

Int. Cl. B07c 3/06

U.S. Cl. 209—74 R

29 Claims



A log-sorting apparatus includes a trough conveyor having a continuously driven endless chain moving closely spaced logs endwise past several sorting stations spaced along the conveyor. Kicker arm devices at one side of the conveyor at each station rotate across the log path to push a selected log from the opposite side thereof. The displaced log engages both a backstop and an endstop which limit its lateral and endwise movement and deflect it downwardly to an appropriate cross conveyor. Each kicker arm device has a pair of horizontal kicker arms radiating in opposite directions from a common vertical shaft. In their inactive conditions, the arms extend alongside the conveyor. When activated by the presence of a selected log, the shaft rotates through one-half a revolution so that only one of the two arms of each device swings horizontally across the conveyor to push the selected log therefrom.

3,828,929

HOMOGENIZING METHOD AND APPARATUS

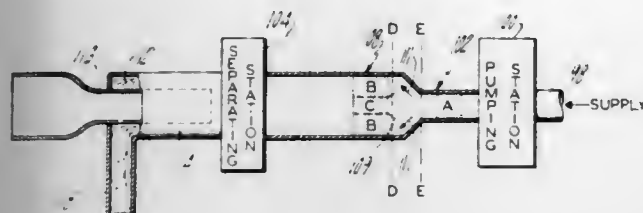
William E. Hickey, Jr., West Hartford, Conn.

Filed Jan. 22, 1973, Ser. No. 325,135

Int. Cl. B01d 21/26

U.S. Cl. 210-70

21 Claims



A method and apparatus for treating flow media at a pumping station wherein an additive is mixed with the flow media at the pumping station and conveyed thereby to a separating station where the conveyed material is subjected to centrifugal force to at least partially separate the material into portions of different specific gravity. A separated portion of the material is removed downstream of the separating station.

3,828,930

FILTER SCREEN INSTALLATION

Klaus Eimer, Ratingen, and Heinz Thal, Lintorf, both of Germany, assignors to Ludwig Taprogge (Cleaning Installations for Pipe Heating Exchanger), Düsseldorf, Germany

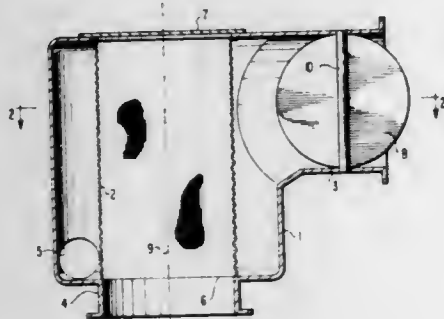
Filed May 25, 1973, Ser. No. 363,797

Claims priority, application Germany, May 26, 1972, 2225727

Int. Cl. B01d 29/42

U.S. Cl. 210-137

9 Claims



A filtering device is described for separating solid impurities from a liquid stream in a pipeline of the shell filter type used in cooling lines of power plants. An adjusting valve is pivotally arranged in the inlet connection to the device in such a manner that the liquid stream flows in a swirling stream around a cylindrical filter screen basket thereby removing deposited solids from the surface of the filter.

3,828,931

SUBMERGED LITTER COLLECTOR

Evan R. Henricksen, 245 W. Las Flores, Arcadia, Calif. 91006

Continuation-in-part of Ser. No. 198,712, Nov. 15, 1971, abandoned. This application Dec. 21, 1972, Ser. No. 317,102

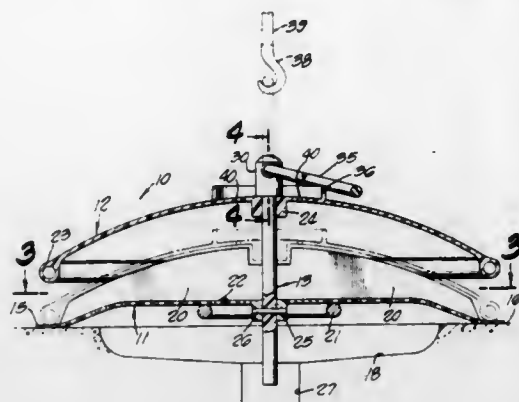
Int. Cl. E03f 5/06; B01d 35/28

U.S. Cl. 210-163

17 Claims

A litter collector for the outlets of swimming pools and the like liquid containers, the trap being formed of non-corrosive

material and having a movably supported buoyant cover open while the trap is submerged but which closes automatically



while being lifted thereby to trap collected litter. The cover is held in an extended open position when submerged and closes by gravity when not submerged.

3,828,932

ROTARY SWIMMING POOL VALVE

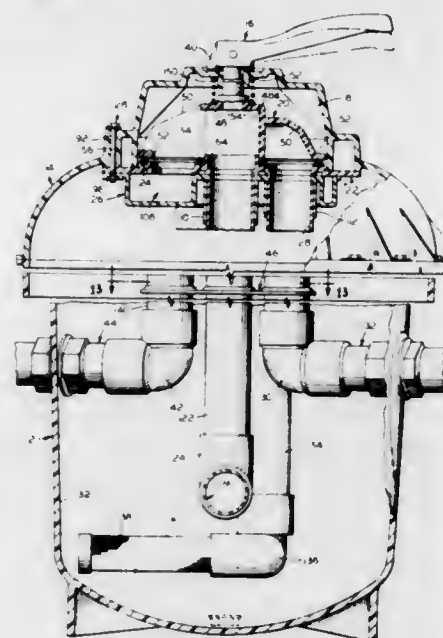
Marcel Schneer, Montreal, Quebec, Canada, assignor to Coleco Industries, Inc., Hartford, Conn.

Filed Apr. 18, 1973, Ser. No. 352,108

Int. Cl. E04h 3/20

U.S. Cl. 210-169

10 Claims



A multiport rotary valve is provided which is particularly adapted for use in connection with the filtering system for a swimming pool. The rotary valve is capable of being mounted directly onto a filter tank unit whereby in the resulting assembly all of the piping connections between the rotary valve and the filter tank unit are made internally, i.e., within the assembly. The rotary valve includes a dome-shaped cover which comprises a housing for the components of the valve. An externally accessible handle is supported on the housing and is operable for selectively connecting the input ports of the valve to one of the various other ports thereof. For this purpose, the handle is operatively connected to a distributor which is rotatably mounted in a central chamber portion formed in the valve. The rotary valve further includes a gasket carrier which supports a gasket, and an end plate in which there is formed an inlet pressure port as well as a plurality of outlet ports. The gasket carrier and gasket are cooperatively associated with the distributor whereby input fluid flows from a pump through an opening provided in the gasket carrier and gasket to the central chamber portion of the valve. After reaching the central chamber portion of the valve, the fluid is directed downwardly by the distributor to another opening provided in the gasket

and gasket carrier which is in communication with a preselected outlet passage. The selection of the latter passage is accomplished by rotating the handle to thereby cause the distributor to also be rotated. As the distributor rotates, it is lifted off the gasket. When the handle is in any one of the six operating positions, thereof other than the winterize position, the distributor compresses the gasket thereby to provide a seal between the various openings which are formed in the gasket carrier to prevent leakage therebetween of the fluid which is supplied to the central chamber portion of the valve.

3,828,933

PLANT FOR WASTEWATER TREATMENT

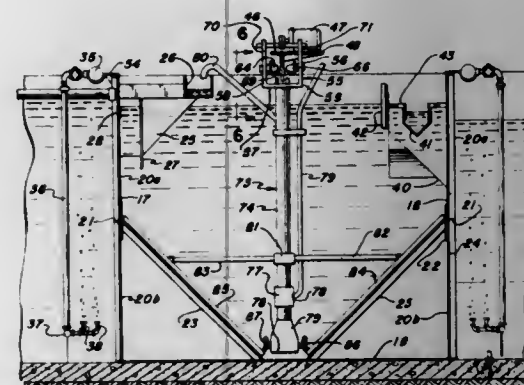
Quentin L. Hampton, Ormond Beach, Fla., and Edward J. Matras, Rolling Meadows, Ill., assignors FMC Corporation, Chicago, Ill.

Filed Feb. 14, 1972, Ser. No. 225,984

Int. Cl. C02c 1/02

U.S. Cl. 210-195

8 Claims



A method and apparatus are provided for converting a basic unitary tank structure into a series of communicating treatment zones, through introduction of a self-supporting modular settling tank member having liquid fillable fillets as part of the structure so that the member may be anchored in position to provide watertight tank member segments which operate as cooperative treatment zones, the modular tank member providing the basic support structure for the aeration means required to convert an adjacent tank segment into an aeration zone and for support of means for effecting removal of sludge separated in the modular tank member from mixed liquor received from the aeration zone so that part of the sludge can be returned to the aeration tank and the balance discharged to any additional treatment zones and for means by which clarified effluent may be discharged from an upper portion of the modular member.

3,828,934

MEDIA FOR WOUND FILTER ELEMENTS

John S. Green, Lebanon; John E. Luttrell, Tell City, and James E. Schmitz, Indianapolis, all of Ind., assignors to The Carborundum Company, Niagara Falls, N.Y.

Continuation of Ser. No. 223,167, Feb. 3, 1972, abandoned.

This application Oct. 9, 1973, Ser. No. 404,840

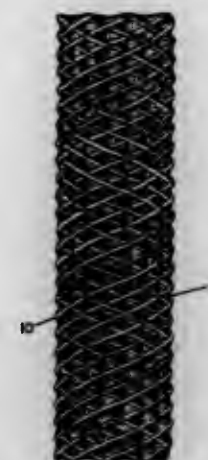
Int. Cl. B01d 27/00

U.S. Cl. 210-457

9 Claims

Filter cartridges formed by winding yarn or roving in a honeycomb pattern around a center core are made with improved porosity control and filtration capacity by using a substrate to which fibers are attached or flocked before winding.

Substrates of varying diameter and composition may be used and may have fibers of varying length, diameter and composi-



tion attached, depending on the porosity and filtration rate desired in the finished cartridge.

3,828,935

DEVICE FOR REMOVING FLOATED MATERIAL IN FLOTATION PROCESSES

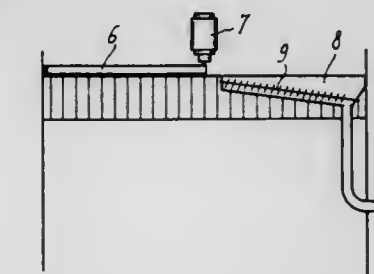
Jean-Marie Rovet, Versailles, France, assignor to Degremont Societe Generale D'Epuraton et D'Assainissement, Rueil-Malmaison, France

Filed Apr. 17, 1972, Ser. No. 244,472

Int. Cl. B01d 12/00

U.S. Cl. 210-523

7 Claims



Device for giving a reinforced structure to the cake of floated materials in flotation processes during the operation of removing the floated materials.

The device comprises essentially a grillage of vertical walls inserted in the liquid containing the materials in suspension to be floated.

3,828,936

BICYCLE HANGER

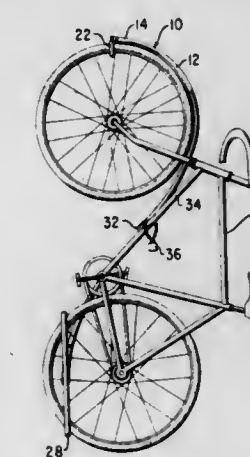
Karl Blake Hoenig, 4582 MacArthur Blvd., Washington, D.C. 20007

Filed Feb. 27, 1973, Ser. No. 336,337

Int. Cl. A47f 7/00

U.S. Cl. 211-19

8 Claims



A bicycle hanger comprising a main body portion provided with means adjacent the opposite ends thereof for mounting

the hanger on a supporting surface. A wheel hanging member extends laterally from the top of the main body portion and is formed to receive and support a rim of the bicycle. A cradle member extends laterally from the opposite end of the main body portion to receive and support the other wheel of the bicycle when the bicycle is suspended from the hanger. The main body portion is generally semi-circular in its upper region to provide lateral stability, and the main body portion extends throughout its length in contiguous engagement with the supporting surface thereby to provide vertical stability.

3,828,937

ADJUSTABLE POLE SUPPORT SYSTEM

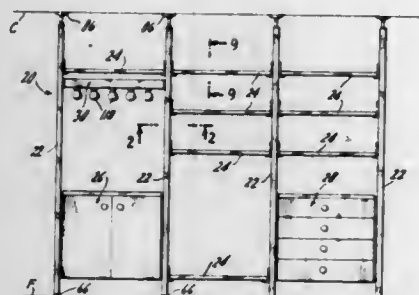
Gerald C. Nash, 809 Georgina Ave., Santa Monica, Calif. 90402

Filed Aug. 9, 1972, Ser. No. 279,179

Int. Cl. A47I 5/10

U.S. Cl. 211-86

14 Claims



A system of shelves, cabinets, lighting fixtures and other accessories is adjustably horizontally supported on vertical poles removably located between the floor and ceiling of a dwelling or other structure without structural damage thereto. The poles are designed for easy vertical alignment, provide numerous locations for article support mounting pins and may be easily decorated with caps which conceal mounting pin apertures from view. The wide variety of articles supportable by the pole system are prevented from relative rotational movement with respect to the poles by coaction between article supports and channels formed in the poles.

3,828,938

LUFFING CRANE

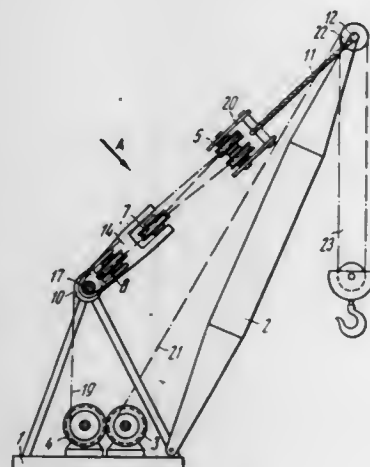
Mikhail Fedorovich Glushko, prospekt Shevchemko 15/5, k.v. 17, and Ilia Fedorovich Pakhomov, ulitsa Lenina 44/46 k.v. 55, both of Odessa, U.S.S.R.

Filed Dec. 20, 1972, Ser. No. 316,708

Int. Cl. B66c 23/12

U.S. Cl. 212-3

2 Claims



The crane boom is hinged to a frame on which is mounted a winch operating the boom through a pulley tackle. The fixed pulleys of the boom tackle are mounted on the crane frame and the movable pulleys thereof are linked to the boom head.

The boom tackle has auxiliary pulleys mounted on symmetrically positioned brackets pivoted to the crane frame parallel to the boom luffing plane. The rope is reeved so that its parts connecting the movable and fixed pulleys run parallel to the boom luffing plane and the auxiliary pulleys are each connected to the movable pulleys by the same number of rope parts. Another winch mounted on the frame raises and lowers the load. The drums of both winches are kinematically interconnected so that they simultaneously rotate in opposite directions, whereby the boom is elevated while the load is lowered. Thus, the load is moved in a true horizontal path while the reach of the crane boom is varied.

3,828,939

THREE-STAGE SELF-PROPELLED CRANE

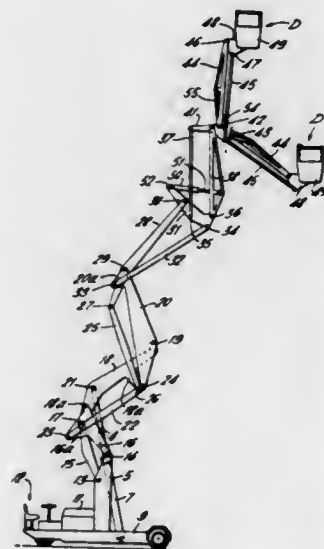
Jacques Tranchero, Via Villanovetta, 2 Piasco, Italy

Filed June 6, 1973, Ser. No. 367,463

Int. Cl. B66c 23/14

U.S. Cl. 212-8

5 Claims



The present invention relates to a crane that is provided with a principal or first hydraulic lifting stage, co-operating with a first lever system and with two secondary hydraulic stages for controlling the movement of two further lever systems that are mutually pivoted with respect to each other and with respect to the first stage through an intermediate lever mechanism which does not have its own hydraulic plunger and which is actuated in movement by the movement of the first lifting stage.

3,828,940

SPREADER LIST, TRIM AND SKEW ADJUSTMENT MEANS

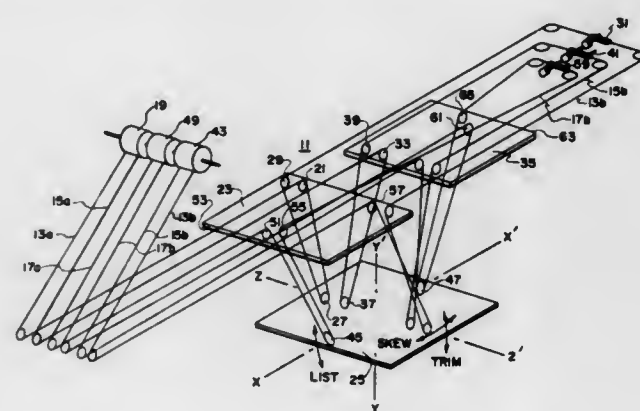
George W. Cooper, San Leandro, Calif., assignor to Fruehauf Corporation, Detroit, Mich.

Filed Sept. 3, 1971, Ser. No. 177,711

Int. Cl. B66c 17/20

U.S. Cl. 212-14

4 Claims



A spreader list, trim, and skew adjustment system for a variable centers rope suspension system used on a gantry crane in-

cluding individual rope operating means located at the outer end of the boom of the crane connected to the load and sway-stop lines to permit adjustment of the lines.

3,828,941

HYDRAULIC JIB

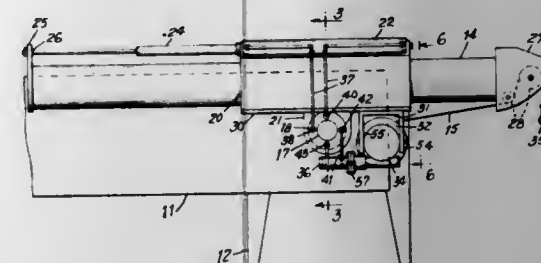
John Coutinho, Chester Tnpk., Auburn, N.H. 03032

Filed Apr. 10, 1973, Ser. No. 349,765

Int. Cl. B66c 23/68

U.S. Cl. 212-144

10 Claims



A dielectric jib at the end of a hydraulically operated boom in which the jib is slidably supported in a sleeve, the sleeve being connected to a rotatable bushing surrounding a shaft extending to the boom. The bushing is connected on the inside of the boom to a hydraulic actuator for rotation. The bushing is also drilled with hydraulic passages for providing hydraulic power to operate a winch for raising and lowering a hook on the end of the jib and also for powering an actuator such as a double acting hydraulic piston for sliding the jib back and forth in the sleeve.

3,828,942

PANEL LIFTING DEVICE

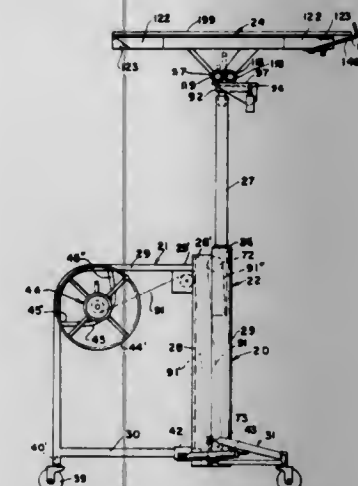
Roland O. Young, 1208 Chestnut, Grand Forks, N. Dak. 58201

Filed Apr. 27, 1972, Ser. No. 248,129

Int. Cl. B66f 9/12

U.S. Cl. 214-1 SW

4 Claims



The invention comprises a lifting device for lifting ceiling panels into place flush against the ceiling beams for installation. The device has a supporting structure for supporting the panel and telescoping sleeves for raising and lowering the panels. The device also has a cable and pulley connecting structure for telescoping the sleeves with a drum or spool for winding the cable and a brake mechanism for the drum. The supporting structure may also be pivoted at an angle and carry thereon panels for installation against the upright wall framework.

3,828,943

DRILL ROD HANDLING APPARATUS

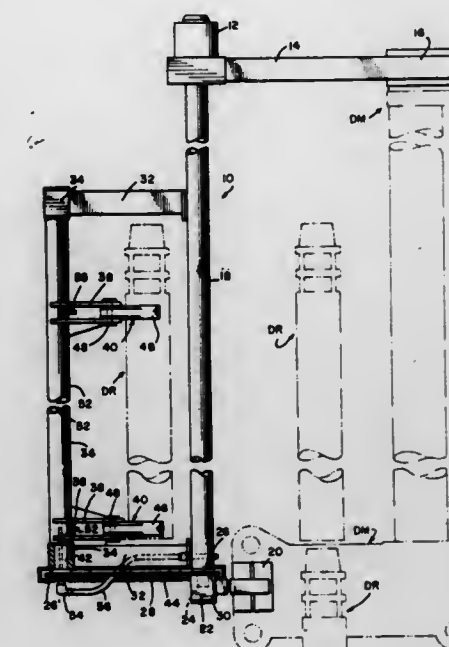
Karlheinz A. Simon, Seattle, Wash., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Oct. 15, 1973, Ser. No. 406,606

Int. Cl. E21b 19/00

U.S. Cl. 214-2.5

15 Claims



The apparatus comprises means, for use with an earth drilling machine, effecting powered handling of drill rods for moving drill rods from an earth drilling machine to a horizontal storage position, and vice versa. The primary components of the apparatus comprise powered, parallel, double-linkage arms for moving drill rods, by means of gripping assemblies carried by the arms, in a vertical disposition, or in inclined dispositions: from vertical to 30° from horizontal, through an arc between a location alongside the machine, and a location within the machine (for alignment therein of the drill rod with a drill head or drill rod string). Included is an elevating, powered, tilt cradle having a platform for receiving a drill rod horizontally thereupon. The cradle has uprights set on one side thereof to prevent drill rods from sliding off the platform. Additionally, the cradle has a stop which abuts the lowermost portion of the drill rod to prevent axial displacement of the rod on the cradle. The stop also correctly positions the drill rod, longitudinally on the cradle, for a proper clamping of the drill rod by the gripping assemblies. Further, the cradle has a two-part, pin-type closure, webbed strap to aid in securing the cradle-borne rods.

3,828,944

PIG PILING DEVICE

Vasily Vasilievich Turchaninov, ulitsa 3 Sovetskaya, 69, kv. 58; Jury Petrovich Shelkovnikov, ulitsa Dekabrskikh Sobyty, 65, kv. 30; Gennady Maximovich Machkov, ulitsa Studencheskaya, 16, kv. 18, and Oleg Alexandrovich Korolev, ulitsa 5 Armia, 46, kv. 11, all of Irkutsk, U.S.S.R.

Filed May 4, 1973, Ser. No. 357,277

Claims priority, application U.S.S.R., May 5, 1972, 1781748

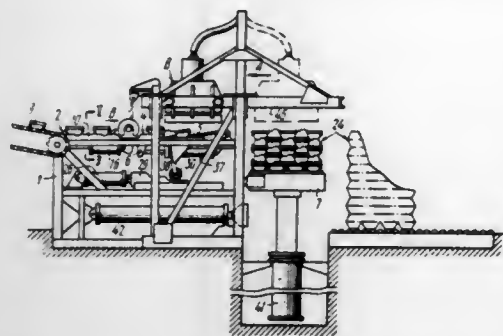
Int. Cl. B65g 57/00

U.S. Cl. 214-6.5

6 Claims

A pig-piling device comprising a first conveyor delivering pigs to a manipulator and onto an intermediate support. An accumulating table is located after the intermediate support in the direction of regular operation and is mounted with provision for vertical movement for connecting the pig it carries with the pig located on the intermediate support. A second

conveyor is installed below the accumulating table which shifts the interlocked pigs from the intermediate support onto



the accumulating table. The rows of pigs are carried and formed into a pile by a grip mounted on a driven trolley.

3,828,945 REMOTE CONTROL MECHANISM FOR A BALE UNLOADING WAGON

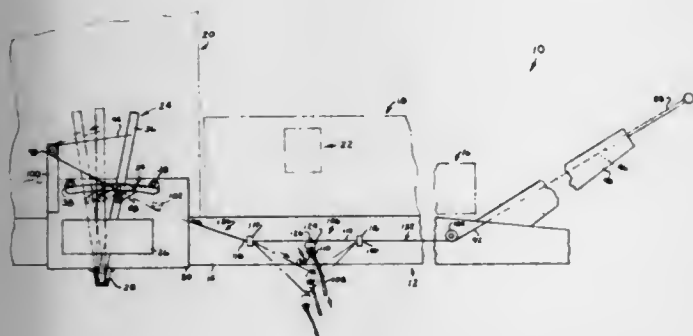
Gene R. Butler, Kingsburg, Calif., assignor to Sperry Rand Corporation, New Holland, Pa.

Filed Sept. 4, 1973, Ser. No. 393,878

Int. Cl. B65g 60/00

U.S. Cl. 214-8.5 R

8 Claims



A remote control mechanism is provided which may be utilized by the operator of a bale wagon to control the operation of a bale unloading means while the operator is at a location remote from the wagon, such as in a hay mow of a barn or on the top of a stack of bales. Heretofore, in order to control the bale unloading operation, the operator must have been located at the side of the wagon in order to directly move a lever for actuating the bale unloading means or located at the front of the wagon in order to pull forwardly on a control rod which moves the lever by pulling forwardly a control cable being attached at one end to the lever and at the opposite end to the control rod. The mechanism includes a rope or the like secured at one end to an intermediate portion of the control cable and being of a length capable of reaching to the operator at the location remote from the wagon, and a pair of guide tabs each of which are secured to a chassis of the wagon respectively adjacent one of the opposing ends of the intermediate portion of the control cable and through each of which runs the control cable. The one of the tabs nearer to the location of the lever confines one end portion of the control cable, respectively extending from one of the opposing ends of the intermediate portion of the cable to the one end of the cable, to movement in the aforementioned forwardly direction when the rope is pulled in a direction lateral to the forwardly direction of the cable which pulls the intermediate portion in the same lateral direction. The other of the tabs nearer to the control rod of the wagon restricts the other end portion of the cable, respectively extending from the other of the opposing ends of the intermediate portion of the cable to the opposite end of the cable, from movement in the aforementioned lateral direction when the rope is pulled in the lateral direction which pulls the intermediate portion of the cable in the same

lateral direction and thereby pulls the one end portion of the cable in the forwardly direction and moves the lever. Preferably, a loop is clamped in the intermediate portion of the control cable to which is fastened a releasable latch on the one end of the rope whereby when the operator completes the unloading operation the rope may be released from its securement with the loop of the control cable.

3,828,946

BOTTOM UNLOADING MEANS FOR SILO

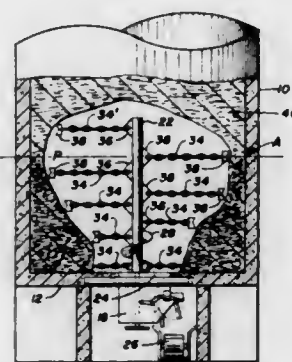
James W. Lepley, Smithville, Ohio, assignor to Flying Dutchman, Inc., Smithville, Ohio

Filed Aug. 6, 1973, Ser. No. 386,196

Int. Cl. B65g 65/46

U.S. Cl. 214-17 DA

6 Claims



A silo arranged for unloading from the bottom by means of a central auger extending upwardly from the bottom a distance greater than the interior radius of the silo and flexible dislodging members connected at one end to said auger at vertically spaced locations between the upper and lower ends thereof, the length of said dislodging members being shortest at the lowermost member and increasing progressively among the members toward the uppermost, the longest member being next to the uppermost and the outer end of the longest being spaced from the interior of the silo wall at least 1 foot when fully extended to provide an arched ceiling in the cavity formed in the silage by said dislodging members and auger and form an annular wall of silage around the outermost boundary of the cavity which is not unduly compressed and flakes away to permit gradual descent of the mass of silage above the cavity.

3,828,947

MATERIAL DISLODGING MEANS FOR SILO

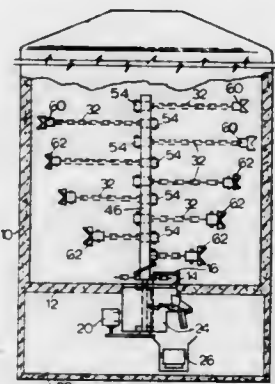
James W. Lepley, Smithville, Ohio, assignor to Flying Dutchman, Inc., Smithville, Ohio

Filed Aug. 17, 1973, Ser. No. 389,141

Int. Cl. B65g 65/46

U.S. Cl. 214-17 DA

13 Claims



Material dislodging means for a bottom unloading type silo having a central vertical shaft projecting upwardly from the

bottom adjacent an outlet opening therein and including a series of chains connected at one end to said shaft in vertically spaced relationship and of progressively greater length with the shortest being lowermost, said connections comprising openings extending diametrically through said shaft to receive said ends of said chains to provide effective, long lasting flexible connections for said chains. The outer ends of the chains have digging and raking elements connected thereto by means of sockets on said elements which receive at least the terminal outer link of each chain. Pin means connect the opposite ends of the chains respectively within said openings in said shaft and said sockets on said elements.

3,828,948

PNEUMATIC HOPPER CAR DOOR ACTUATING SYSTEM

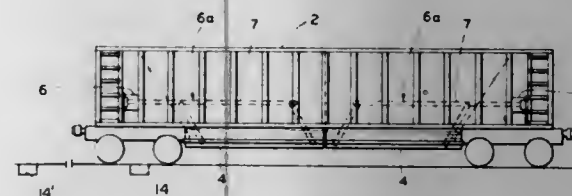
William H. Peterson, Homewood, Ill., assignor to Pullman Incorporated, Chicago, Ill.

Filed Jan. 3, 1972, Ser. No. 214,795

Int. Cl. B61d 7/08, 7/28, 7/30

U.S. Cl. 214-63

15 Claims



In a hopper car arrangement, a hopper car door pneumatic actuating system including the standard air reservoir tank and a railroad car actuated ground-mounted induction coil, and a solenoid valve energized thereby, for opening the hopper doors, and a railroad car actuated ground-mounted induction coil and a solenoid valve for closing the doors whereby a supply valve and a four-way pilot valve is actuated to supply pressurized air from the tank to selectively operate a two-way acting air cylinder attendant to opening and closing of the hopper doors, and a latch for holding the supply valve open until the doors are closed and a flow control check valve in the train-line adjacent the air receiver tank to block off any rapid drop in pressure in the air reservoir tank to prevent application of the air brakes when operating the hopper doors.

3,828,949

POWER-ACTUATED DISTRIBUTING CONVEYOR SYSTEM FOR A READY-MIX CONCRETE TRUCK

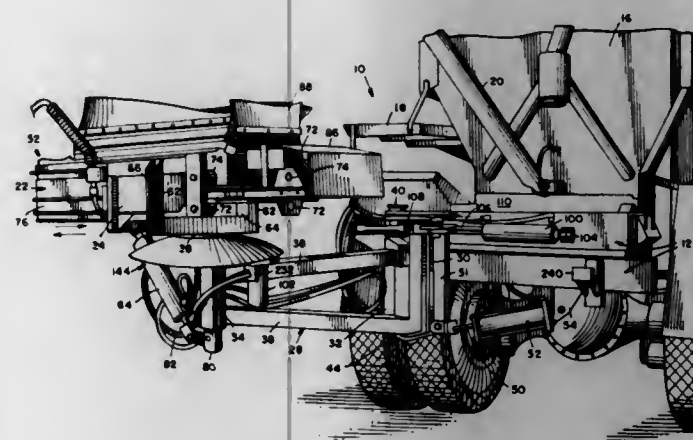
Francis T. Spellman, Blue Springs, Mo., assignor to Symons Corporation, Des Plaines, Ill.

Filed May 23, 1973, Ser. No. 362,950

Int. Cl. B60p 1/36; B28c 7/16

U.S. Cl. 214-83.26

20 Claims



A distributing conveyor system embodying a pivot arm hingedly connected to the rear end of a ready-mix concrete truck, a rotary carrier frame on the distal end of the pivot arm, and a

belt-type conveyor including a boom which is slidable endwise through the carrier frame, together with hydraulically powered means for swinging the pivot arm toward and away from the truck, and for rotating the carrier frame.

3,828,950

UNIVERSALLY MOVABLE CONTROL LEVER ASSEMBLY

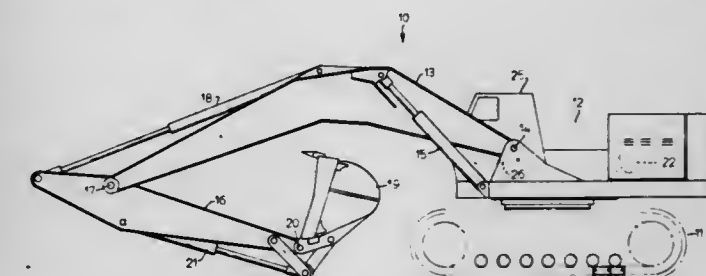
Herbert A. Schwantes, Cedar Rapids, Iowa, assignor to Harnischfeger Corporation, W. Milwaukee, Wis.

Filed Aug. 24, 1972, Ser. No. 283,477

Int. Cl. B66f 9/00

U.S. Cl. 214-138 R

14 Claims



A backhoe comprises a horizontally rotatable and vertically pivotable boom, a vertically pivotable stick mounted on the boom and a vertically pivotable dipper mounted on the stick, all of which components are movable by hydraulic actuators in response to operation of four control valves. The four control valves are independently operated by four generally parallel control rods which are axially movable by two separate universally movable operator's manual control levers located on a control platform on the backhoe, along with other operator controls. Each of the two universally movable manual control levers is pivotably movable in a first plane to move one backhoe component; in a second plane (normal to the first) to move a second backhoe component; and in other planes transverse to the first and second planes to effect simultaneous but proportional movement of the two backhoe components.

3,828,951

PROPORTIONAL FLUID DISTRIBUTION ASSEMBLY FOR BACK HOE HAVING RECIPROCATING TEETH

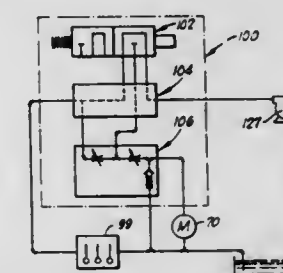
Ancel H. Fleming, 3715 Tulsa, Oklahoma City, Okla. 73112

Filed Feb. 15, 1973, Ser. No. 332,727

Int. Cl. E02f 3/32

U.S. Cl. 214-138 R

5 Claims



A back hoe apparatus including an articulated boom having a bucket affixed to one end of the boom, and hydraulic power fluid conveying lines extending along the boom to the bucket. Mounted in the bottom of the bucket are a hydraulic motor, a plurality of reciprocally mounted teeth, and means drivingly interconnecting the motor and the teeth. A fluid distribution assembly is provided between a source of hydraulic fluid and the hydraulic motor for the purpose of proportionately distributing hydraulic power fluid to the hydraulic motor to drive the teeth in reciprocation, and the hydraulic cylinder employed to roll or pivot the bucket about the end of the articulated boom upon which it is mounted. The fluid distribution assembly may be generally described as including three major subassemblies; a solenoid valve, an adapter block and a flow divider block.

3,828,952

COMPACT MATERIAL-HANDLING LOADER

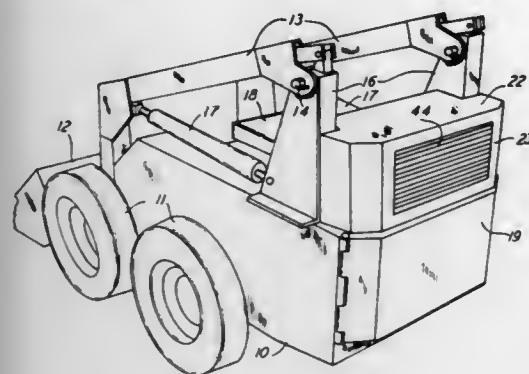
Maurice Klee, Burlington, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed June 19, 1972, Ser. No. 264,263

Int. Cl. B66f 9/00

U.S. Cl. 214-140

2 Claims



A compact material-handling loader including a vehicle body having ground supporting wheels thereon and having up-standing stanchions and arms pivotally connected thereto and supporting a loader bucket forwardly of the vehicle. An operator's seat is disposed between the pivotal arms, and an engine is at the lower rear end of the vehicle body. The vehicle body defines a compartment above the engine, and a radiator is disposed in the compartment but neither the radiator nor the vehicle body extends up to the upper ends of the stanchions, so the low silhouette and compact nature of the compact loader is retained while the engine is a water-cooled engine and has a water-cooling type of radiator connected therewith.

3,828,953

TRACTOR WHEEL DOLLY

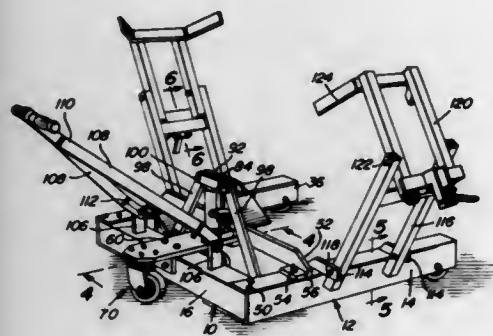
Frank Reznicek, 1412 7th St., Columbus, Nebr. 68601

Filed Oct. 5, 1972, Ser. No. 295,189

Int. Cl. B65g 7/00

U.S. Cl. 214-332

6 Claims



A generally U-shaped horizontally disposed dolly including support wheels on the free ends of the leg portions of the dolly journaled for rotation about axes extending between the leg portions and an additional caster wheel assembly journaled from the mid-portion of the bight portion of the dolly extending between the base ends of the legs thereof. A pair of downwardly inclined lifting flaps are pivotally supported from the adjacent sides of the legs and are downwardly convergent and motor means is operatively connected between the U-shaped portion of the dolly at a location disposed in at least general vertical alignment with the caster wheel. The motor means is operatively connected to a vertically shiftable lifting head and downwardly divergent connecting bars are pivotally secured to opposite sides of the lifting head at their upper ends and to the free swinging adjacent lower marginal portions of the lifting flaps at their lower ends, whereby the motor means may be utilized to swing the free swinging edge portions of the

flaps upwardly toward horizontal positions. In this manner, a large heavy wheel in upright position with its lower peripheral portion loosely embraced by the flaps may be engaged by the latter and lifted clear of the surface upon which the dolly is disposed.

3,828,954

MACHINES FOR DISPLACING BUILDING SECTIONS

Cornelis van der Lely, 7 Bruschenrain, Zug, and Hendricus Jacobus Cornelis Nieuwenhoven, Hirssattelweg, 6340, Baar, both of Switzerland

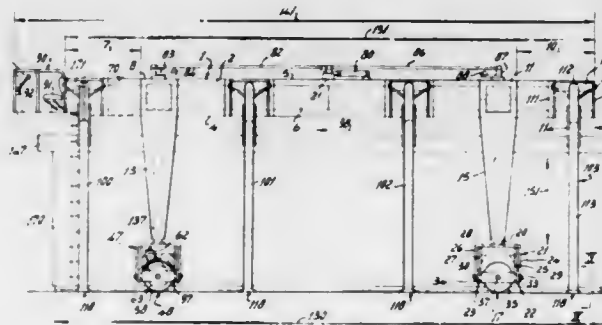
Filed Feb. 16, 1973, Ser. No. 333,030

Claims priority, application Netherlands, Feb. 17, 1972, 7202064

Int. Cl. B60p 3/00

U.S. Cl. 214-392

46 Claims



A machine for displacing building sections of parallelepiped configuration intended for construction of prefabricated buildings which has a main girder and four extensible legs adapted to straddle a section with the girder above the section. Four carrying arms each having generally the configuration of an inverted "L" depend from each side of the girder, are pivotally connected to the girder, and through hydraulic cylinders are selectively movable relative thereto. At the base of each arm is a strip extending inwardly having responsive means for signalling when the strip is properly engaged under a section. Each leg has a group of steerable ground wheels with the forward groups being powered by hydraulic motors, the steering, motive and carrying functions of the machine also being part of a hydraulic system and controlled from a driver's platform in the forward part of the machine, signals from the responsive means on each strip being displayed at the driver's platform.

3,828,955

TIRE CHANGING TOOL

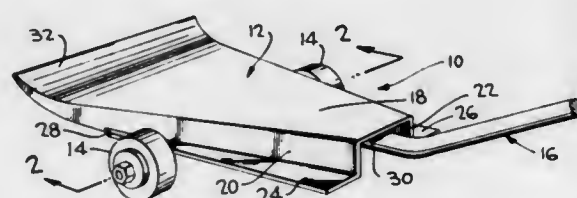
Andrew D. Harkey, Rt. 2, Caddo, Okla. 74729

Filed Jan. 3, 1973, Ser. No. 320,728

Int. Cl. B60b 29/00

U.S. Cl. 214-332

1 Claim



A tire changing tool including a lever plate having a flat surface terminating at an upturned lip for supporting a tire, a solid handle extending upwardly from the lever plate, and a pair of wheel assemblies mounting the lever plate and having soft rubber tires to resist rotation about their axes such that the tire changing tool will not freely roll.

3,828,956

EJECTION APPARATUS AND METHOD FOR EMPTYING REFUSE CONTAINERS

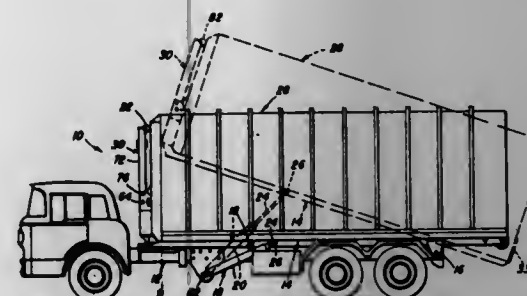
Harry H. Dubo, 36 Yates Dr., Hamilton, Ontario, Canada

Filed Aug. 3, 1972, Ser. No. 277,525

Int. Cl. B60p 1/16

U.S. Cl. 214-510

10 Claims



A refuse dumping apparatus having a pivotal and displaceable container in which a normally stored ejector blade can be disposed in the rearward path of the container and in which power means can move the container onto the rearwardly directed ejector blade causing impacted refuse to be pushed toward the rearward, dump opening of the refuse container; the ejector blade being fixed in either an operative or stored position; being raised by movement of the container and a cooperating cam means or by mechanical means such as a fluid motor, screw or the like; and the ejector blade being extensible by power means.

3,828,957

CONTAINER WITH SAFETY CLOSURE

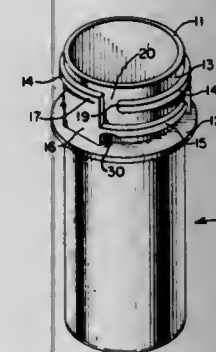
Paul A. Marchant, Kansas City, Mo., assignor to Ethyl Development Corporation, Kansas City, Mo.

Filed Aug. 2, 1972, Ser. No. 277,418

Int. Cl. B65d 55/02

U.S. Cl. 215-9

5 Claims



A container and one-piece safety closure which is substantially childproof. The container includes a cylindrical neck portion having a pair of opposed, semi-circular, discontinuous upper threads and a pair of opposed, discontinuous lower threads. The proximate ends of opposed upper threads and lower threads are attached to a pair of opposed, vertically extending stop members formed integrally on the neck of the container. The distal ends of each of the upper and lower thread members terminate short of the opposed stop member. A cup-shaped, generally cylindrical cap is provided which has a pair of opposed projections on its interior wall adjacent the lower periphery thereof. The projections are adapted to be received between the upper and lower thread members and, upon counterclockwise movement followed by clockwise movement, lock the closure on the container neck. Reversal of the sequence with applied pressure permits the removal of the safety cap from the container.

3,828,958

SAFETY BOTTLE CAP

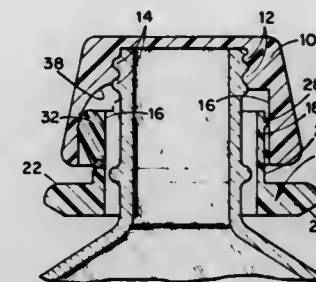
John J. Shannon, 425 Foster Rd., Tewksbury, Mass. 01872

Filed Nov. 20, 1972, Ser. No. 307,818

Int. Cl. B65d 55/02

U.S. Cl. 215-9

9 Claims



A threaded-type bottle cap is lockable on the bottle to preclude inadvertent removal of the cap as by a child. The cap is usable with conventional bottles having threaded necks. It includes a slidable ring which may be moved axially on the cap when the cap is screwed on the bottle, which motion of the ring causes a detent to engage the end of the lower thread on the bottle and precluding rotation and, therefore, removal of the cap.

3,828,959

SAFETY CAP OPERATED BY A KEY

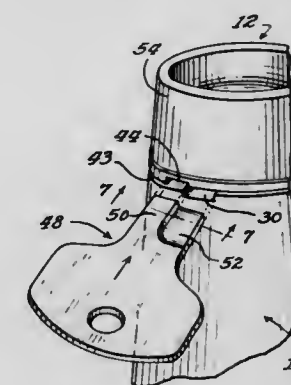
Nathan B. Lerner, Chicago, Ill., assignor to W. Braun Company, Chicago, Ill.

Filed Jan. 12, 1973, Ser. No. 323,040

Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215-9

10 Claims



A closure cap in combination with a container in which the container is provided with a shoulder having a key slot and in which the cap is rotatably supported on the container with the bottom edge of the cap having a key slot and in which the only way to remove the cap from the container is to position the two key slots relative to each other so that a key may be inserted into said cooperating key slots and the cap may be pried off only by turning the key.

3,828,960

HEAT INSULATING CONTAINER HAVING PLASTIC WALLS RETAINING VACUUM

Wilhelm E. Walles, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 10, 1972, Ser. No. 305,451

Int. Cl. A47j 41/02

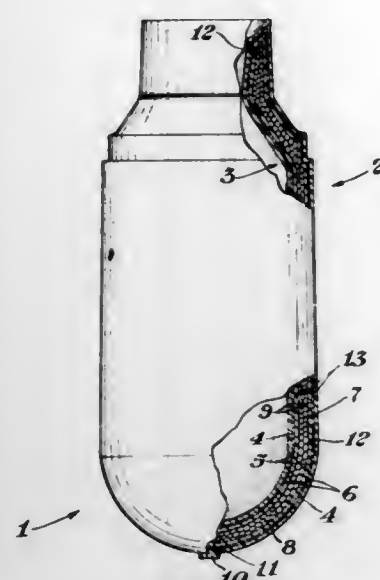
U.S. Cl. 215-13 R

10 Claims

A container having a double wall construction of a structural plastic material is provided with improved thermal insulative properties by (1) metallizing at least one surface of each wall of the container with metal such as silver to provide a

light reflective surface and to produce a partial barrier to atmospheric gases, (2) coating the metallized surface with a bar-

shaped member having a downwardly-extending skirt a snap-lock liquid-tight sealing arrangement internal of the skirt and



rier plastic such as saran, (3) evacuating the space enclosed by the walls of the container, and (4) adding to the evacuated space a gas-absorbing material.

3,828,961

SAFETY PILL CONTAINERS

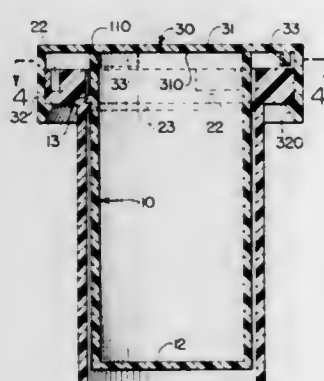
Gerald F. Lewis, 1850-Columbia, Berkley, Mich. 48072

Filed Sept. 15, 1972, Ser. No. 289,302

Int. Cl. A45c 13/10; B65d 83/04

U.S. Cl. 215-223

8 Claims



A safety pill container for the protection of children and others from obtaining free or easy access to medicinal items such as pills, capsules and the like whereby to prevent the ingestion of harmful and sometimes fatal medicines, either capriciously or accidentally.

3,828,962

BOTTLE CLOSURE

Herbert Ashley Atkins, Maidenhead, England, assignor to Beecham Group Limited, Brentford, Middlesex, England

Filed May 19, 1972, Ser. No. 254,923

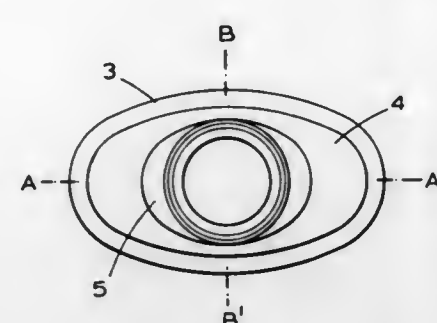
Claims priority, application Great Britain, May 20, 1971, 16053/71

Int. Cl. B65d 41/06, 41/22

U.S. Cl. 215-321

6 Claims

A bottle and cap combination wherein the upper region of the body of the bottle is elliptical or oblong, the neck of the bottle is elliptical and is joined to the body by a shoulder portion having sloping sides; and the cap comprises a hollow cup-



at least one internal rib which is adapted to ride over the shoulder portion and which rib also serves as a guide means to position the cap on the bottle.

3,828,963

RECESSED CROWN CAP

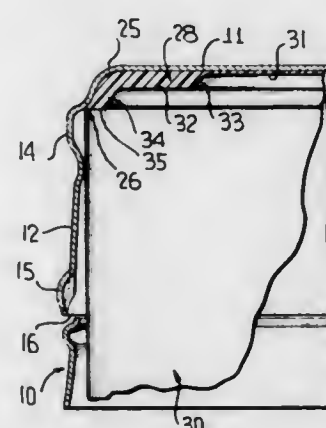
Jens L. Moller, Westmont, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Feb. 11, 1972, Ser. No. 225,508

Int. Cl. B65d 53/06

U.S. Cl. 215-337

7 Claims



This disclosure relates to a roll-on closure for bottles wherein an end panel is connected to a depending skirt through a radiused portion and a transition portion with the radiused portion being recessed relative to the skirt. The cap configuration permits a liner molding punch of the necessary diameter to fully mold the liner to be inserted into the closure. It further permits the molding punch to be substantially centered relative to the end panel whereby a portion of the molded liner engaging the radiused portion is of a substantially uniform thickness and the thickness thereof may be held to a minimum while still capable of producing optimum sealing results. The roll-on closure construction and liner configuration permits the closure to be applied utilizing much less than normal pressure.

3,828,964

POLYVALENT PLIABLE CONTAINER

Pierre Edmond Michel Bonnot, 3 Place Marine 78, Maisons-Laffitte, France

Filed Apr. 20, 1972, Ser. No. 246,023

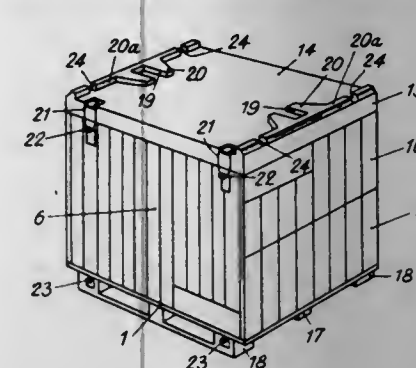
Int. Cl. B65d 87/00

U.S. Cl. 220-1.5

7 Claims

A folding container that is used by all forms of transportation, such as rail, ship and air including a floorboard provided with means of assembly for the placement of side and end panels to thus form an enclosure, the rigidity of which is assured by placing a top on the structure obtained. The surface of this top is embossed to correspond with reliefs and spaces on the bot-

tom of the floorboard facilitating the stacking of several containers either folded or unfolded for use. The resulting folding,



multipurpose container is compact in size and is strong enough to resist the great accelerations and decelerations of air travel.

3,828,965

CONTAINER HAVING RESILIENT SUPPORT MEANS

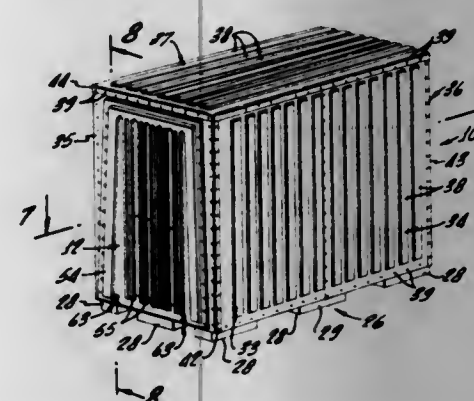
James G. Yarbrough, Mission Viejo, Calif., assignor to Jet Forwarding, Inc., Santa Ana, Calif.

Filed Feb. 29, 1972, Ser. No. 230,238

Int. Cl. B65j 1/02

U.S. Cl. 220-1.5

7 Claims



A container including a metal frame over which are plastic sheets secured to it by fasteners, a bottom support for the container including spaced pads filled with foam material capable of withstanding compression loads and providing shock absorbing properties, the door of the container having a peripheral flange which overlaps a comparable flange around the door opening, the flanges having convergent portions so that they can be wedged together, with a gasket providing a seal, while latches hold the door in the secured position.

3,828,966

COLLAPSIBLE BAKING PAN

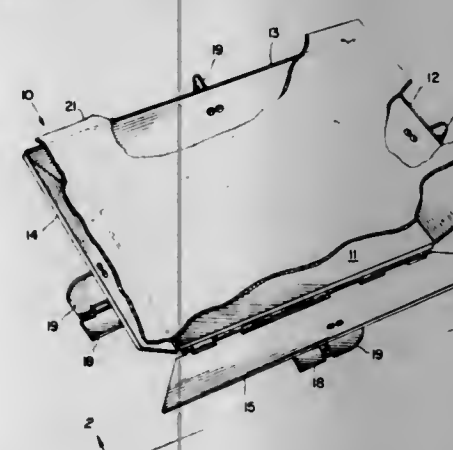
John J. Martin, Lafayette Towers, 10a, Norfolk, Va. 23508

Filed Nov. 8, 1972, Ser. No. 304,820

Int. Cl. B65d 7/24

U.S. Cl. 220-7

2 Claims



This invention relates to a collapsible baking pan having a disposable liner of aluminum foil. The pan can be collapsed to a substantially flat position for ease of packing.

3,828,967

INSULATOR DEVICE

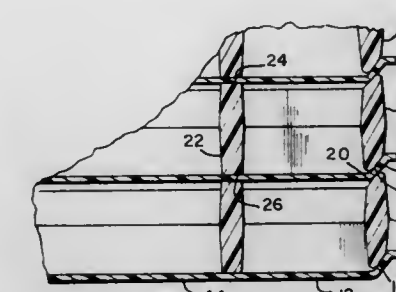
Robert H. Grabhorn, Indianapolis, and Norman A. Westcott, Wanamaker, both of Ind., assignors to Westcott & Grabhorn, Ltd., Indianapolis, Ind.

Filed Nov. 20, 1972, Ser. No. 307,997

Int. Cl. A47g 19/00; B65d 21/00, 25/18

U.S. Cl. 220-23.86

12 Claims



A plastic, heat insulating ring whose lower perimeter is formed with an exterior bevel surface proportioned and designed to conform to, and be supported upon, the upwardly and outwardly flared lip of a conventional serving tray and whose upper perimeter is formed with a corresponding interior bevel surface proportioned and designed to conform to and support the external surface of such a tray lip, and a transverse divider within the ring which, in some instances, may be selectively positioned at various locations within the ring, and in some instances may be nonrectilinear. In one embodiment, the ring is an integral mold of urethane foam with a heat-formed sealing skin and in another embodiment it may be integrated from mating molded plastic shells filled with such foam and subsequently welded or otherwise secured together.

3,828,968

CLOSURE PLUG

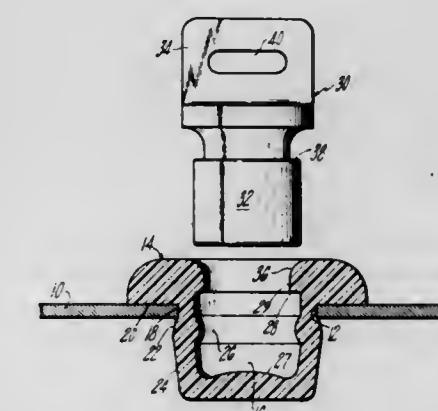
Eugene Kask, Willimantic, Conn., assignor to Rogers Corporation, Rogers, Conn.

Filed Mar. 31, 1972, Ser. No. 240,133

Int. Cl. B65d 39/12; F611 55/12

U.S. Cl. 220-24.5

7 Claims



A closure plug is presented having a flexible hollow cup and a rigid insert adapted to form an interference fit with the interior of the cup whereby the cup is expanded into locking engagement with an opening to be sealed. The rigid insert physically displaces a contoured segment on the interior of the cup whereby the outer surface is brought into locking engagement with the opening to be sealed. A shoulder on the flexible cup retains the rigid insert in place, the shoulder being displaceable to allow removal of the rigid insert.

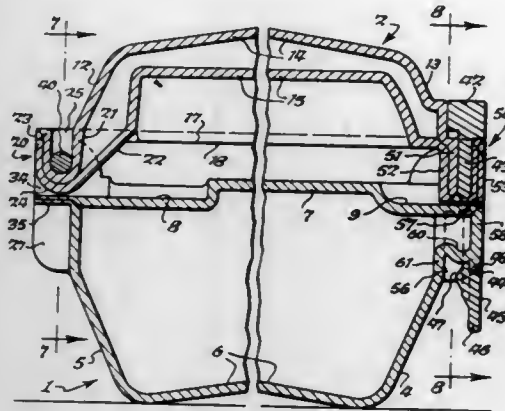
3,828,969

PLASTIC CONTAINER

Peter T. Schurman, Woodbridge, Conn., assignor to The Plastic Forming Company, Inc., Woodbridge, Conn.
Division of Ser. No. 9,529, Feb. 9, 1970. This application Oct. 4, 1971, Ser. No. 186,356
Int. Cl. B65d 43/16

U.S. Cl. 220—31 S

11 Claims



A plastic container having blow-molded cover and body parts and compression molded interfitting hinge parts formed integral therewith providing hinge pin bearing sections of double wall thickness. A latch also is provided.

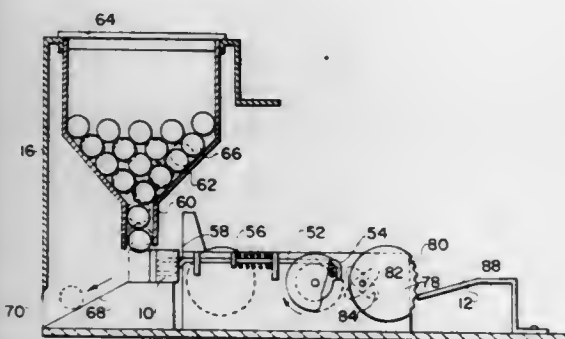
3,828,970

COMBINATION ARTICLE DISPENSING-AMUSEMENT DEVICE

Hideyuki Yamamoto, Tokyo, Japan, assignor to Tomy Kogyo Co., Ltd., Tokyo, Japan
Filed Mar. 20, 1973, Ser. No. 342,991
Int. Cl. A24f 15/04

U.S. Cl. 221—24

13 Claims



A device for simulating the packing and rolling of cigarettes, after which a real cigarette is dispensed. The device consists of a casing provided with a chamber within which the real cigarettes are stored. As the user actuates a motor within the casing, mechanism visible to the user simulating the packing and rolling of cigarettes is rendered operative through a gear train. At a predetermined time, one of the cigarettes is automatically released from the chamber. To the user, it thus appears that the dispensed cigarette has just been packed and rolled.

3,828,971

DIVIDED SHELF STRUCTURE FOR HELIX TYPE PRODUCT DISPENSING MACHINES

Elmer Bradley Offutt, Independence, and Edward Babich, Kansas City, both of Mo., assignors to The Vendo Company, Kansas City, Mo.

Filed June 27, 1973, Ser. No. 374,270

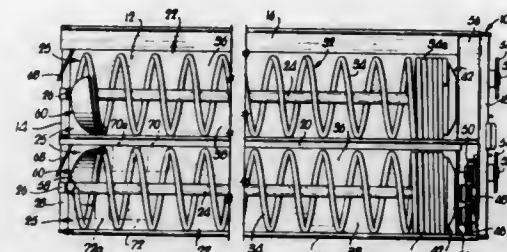
Int. Cl. G07f 11/36

U.S. Cl. 221—75

4 Claims

The top-loading drawer assembly of a helix-type dispensing machine has a vertical divider extending through the center of

the helix to separate the compartment controlled by the helix into a pair of adjacent sections on opposite sides of the helix. Two rows of products, on opposite sides of the divider, may thus be filled between the convolutions of the helix, and upon rotation of the helix, the products are dispensed alternately from opposite rows. A special ejector on the final convolution of the helix, set back from the terminus thereof, assures posi-



tive release of the products from opposite sides of the divider during successive 180° rotating cycles of the helix, and a resilient deflecting finger for the rearwardly leaning products on one side of the divider cooperates with the ejector to prevent tumbling of such products as they are dispensed. The forwardly leaning products on the opposite side of the divider topple from the drawer assembly at a point spaced rearwardly from the discharge end thereof.

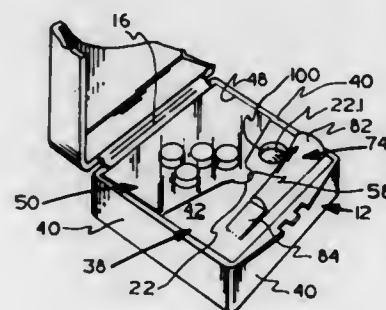
3,828,972

PILL DISPENSER WITH CARTRIDGE AND PILL ADVANCED INDICATOR

Louis Bender, 4 Heather Ln., Scotch Plains, N.J. 07076
Division of Ser. No. 189,647, Oct. 15, 1971. This application Feb. 12, 1973, Ser. No. 331,643
Int. Cl. B65d 83/04

U.S. Cl. 221—197

11 Claims



Mechanisms are disclosed for storing pills and dispensing them one at a time at indicated intervals. The dispenser includes a time interval read-out, and a mechanism for advancing the read-out by one pill time interval whenever a pill is withdrawn from storage. If the mechanism is operated but no pill is withdrawn, the time read-out does not advance. Replaceable pill cartridges and safety covers for the dispensing mechanism are also disclosed.

3,828,973

METHOD OF AND MEANS FOR DISPENSING

Peter Leslie Birrell, Delta, Br. Columbia, Canada, assignor to The Cornelius Company, Golden Valley, Minn.
Filed Oct. 25, 1972, Ser. No. 300,505
Int. Cl. B67b 7/12

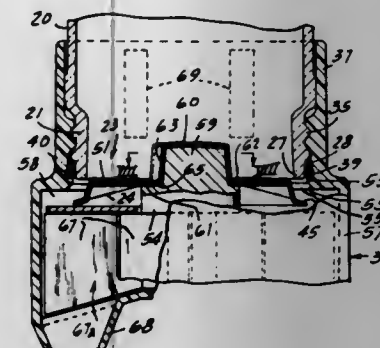
U.S. Cl. 222—1

40 Claims

Method and means for dispensing from replaceable containers provided with diaphragm-like closures, wherein the

closure is movably controlled to control the flow of contents from the container. Several forms of dispensers are provided,

and closed positions and to dispense the preselected quantity subsequently at the desired time in the washing cycle. Pressure-producing means are provided for urging the treating



adapted for containers for flowable particulate material, liquids, or gas. Several forms of closures especially adapted therefor are also disclosed.

3,828,974

PROCESS FOR THE EMERGENCY INTERRUPTION OF THE FLOW OF MELT IN A GRAVITY CASTING PLANT

Oskar Tenner, Rossatz nr. Niederosterr, Austria, assignor to Gravicast Patentverwertungsgesellschaft m.b.H.

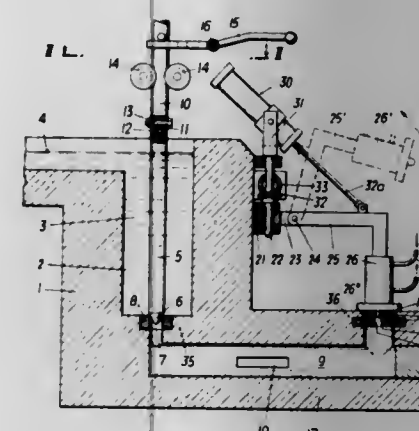
Filed Jan. 11, 1973, Ser. No. 322,627

Claims priority, application Austria, Jan. 13, 1972, 286/71

Int. Cl. B22d 37/00

U.S. Cl. 222—1

5 Claims



In a gravity casting plant the melt is dammed up in a supply chamber up to a level which is higher than the level of the mouth of a casting nozzle. The melt flows from the supply chamber into an oblong equalization chamber and from this into the casting nozzle, and the flow of melt when operating the casting plant under normal conditions is controlled by a valve situated between the supply chamber and the equalization chamber. To avoid undesired outflow of melt from the casting nozzle at least the melt in the region of the mouth of the casting nozzle is cooled until same melt is solidified. A cooling member having an internal cooling system is provided on the nozzle to provide for the necessary cooling thereof.

3,828,975

DISPENSER FOR WASHING APPARATUS

William F. Robandt, II, St. Joseph, and Jack F. Clearman, Stevensville, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

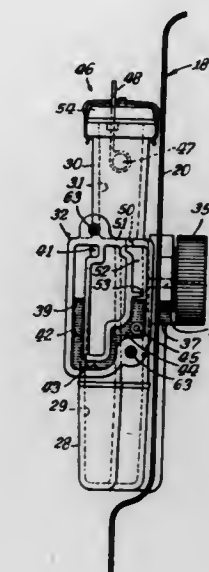
Filed June 4, 1973, Ser. No. 366,371

Int. Cl. B67d 5/30

U.S. Cl. 222—70

11 Claims

A washing apparatus such as a dishwasher having a dispenser for dispensing treating liquid such as a rinse additive at a preselected time in the dishwashing cycle. The dispenser is arranged to measure a preselected quantity of the additive as an incident of moving the dishwasher door between opened



liquid into the washing chamber in effecting the dispensing operation. The liquid is effectively pumped upwardly by the pressure-producing means to an outlet opening to the washing chamber.

3,828,976

METHOD AND APPARATUS FOR DEGASSING AEROSOL CANS AND THE LIKE

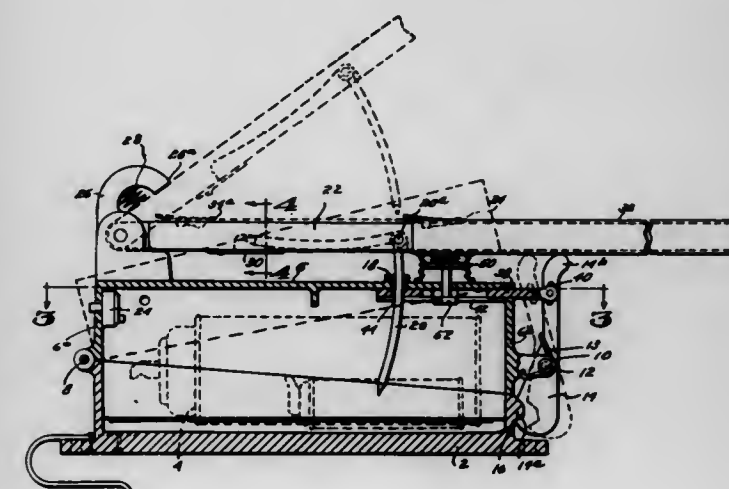
Wilson S. Sidelinker, 111 Forest St., Reading, Mass. 01867

Filed Mar. 2, 1973, Ser. No. 337,436

Int. Cl. B67b 7/24

U.S. Cl. 222—83.5

5 Claims



Release of residual pressure in a used aerosol can or similar pressurized enclosure is carried out in a closed container in a controlled manner to avoid safety hazards. A collapsible puncture element adjustably received in an operating handle supported on the container is arranged to be guided into the container and to pierce the aerosol can. Pressurized gas leaving the aerosol can is momentarily confined and allowed to discharge through suitable vent means. The container is provided with a hinged top section fastened to a lower can-supporting section by a latch mechanism. Safety locking means located through the hinged top section prevents disengagement of the latch mechanism while gas pressures of significantly dangerous nature are present in the container after the aerosol can is punctured.

3,828,977

COMPARTMENT BAG ASSEMBLY FOR DISPENSING CONTAINERS

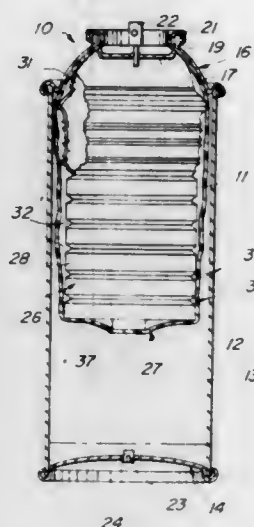
Jerome A. Borchert, Glenwood, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed June 14, 1972, Ser. No. 262,919

Int. Cl. B65d 83/14

U.S. Cl. 222-95

5 Claims



A product dispensing container of the type including a collapsible product containing a bag assembly which is disposed within a rigid container and defines a chamber therein. The chamber is filled with a propellant. A valve dispensing means communicates with the bag assembly for discharging the product therefrom under the force of the propellant. The product containing bag assembly includes a compartment bag constructed so as to be only axially collapsible when subjected to the radial and axial forces of the propellant. The bag assembly further includes a barrier bag or sheath which encloses the compartment bag. The barrier bag is made from an impermeable film material and is flexible so as not to influence the axial collapse of the compartment bag.

3,828,978

HAND WASH SYSTEM

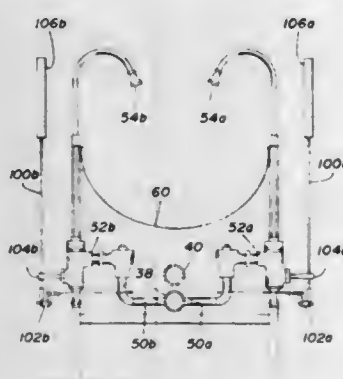
Clarence G. Dawson, Dallas, Tex., assignor to Food Equipment, Inc., Dallas, Tex.

Filed Aug. 11, 1971, Ser. No. 170,788

Int. Cl. F16k 31/00

U.S. Cl. 222-110

4 Claims



The specification discloses a hand wash system for use by personnel working along a food processing line such as the eviscerating trough of a fowl processing plant. A reservoir supplies warm water through a fluid manifold which extends along the eviscerating trough. A return line may be connected between the end of the manifold to the reservoir for recycling unused water. A plurality of wash stations are spaced along both sides of the eviscerating trough and include conduits which communicate with the manifold. A self-limiting valve is connected in each of the conduits and is operable to allow a predetermined amount of warm water to pass therethrough.

An actuating lever is connected to each of the valves and is positioned for movement by an uncontaminated portion of the bodies of the personnel, such as the arms, legs or feet of the personnel. Nozzles are connected to the output of the valves and are disposed over the eviscerating trough for dispensing a metered amount of warm water upon the operation of the actuating levers.

3,828,979

AUTOMATIC GRIT FEED

Joseph C. Sharbaugh, 164 Warrior Rd., Drexel Hill, Pa. 19026

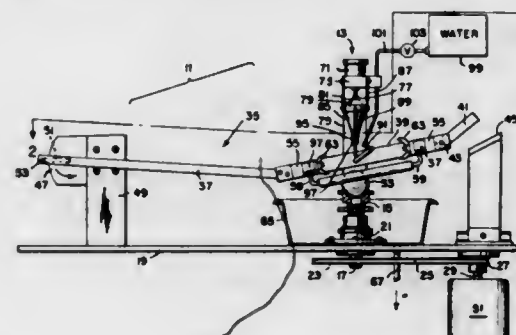
Division of Ser. No. 143,799, May 17, 1971, Pat. No.

3,739,531. This application Sept. 5, 1972, Ser. No. 286,072

Int. Cl. G01f 1/146

U.S. Cl. 222-129

5 Claims



Lapidary apparatus for grinding rocks or stones into polished spheres, which are attractive works of art, comprising an automatic sphere grinder with automatic feeder, said apparatus including a grinding cup rotatable about a vertical axis and adapted to receive a work object to be ground into a sphere, a travelling boom, a pair of legs mounted on said boom and adapted to contact and rotate the work object, said legs contacting the work object on each side of the vertical axis of the cup to hold the work object in the cup, a motor crank arm connected to one end of the boom for reciprocally moving the boom and legs in a direction generally along the longitudinal axis of the boom so as to move the length of the legs over the work object to rotate it about a horizontal axis, a lift member mounted on the other end of the boom adapted to contact a stop member to momentarily lift the legs from the work object to allow the cup to spin the work object to another grinding position, a grit hopper having a feed port, a grit receiving member having an arcuate surface positioned below the feed port a distance such that when in normal position the arcuate surface receives a pile of grit having a positive angle of repose that shuts off the feed port, a shaft rotatably supporting the grit receiving member and having a handle extending downwardly therefrom of sufficient length to be heavy enough to support said arcuate surface in position beneath the feed port, a funnel mounted beneath the grit receiving member and over the work object, an actuating arm mounted on the boom and positioned so as to strike said handle to move the arcuate surface back and forth beneath the feed port to receive and dispense grit material into said funnel, and a water system with a water feed port positioned over the work object for feeding water thereto, said water feed port being positioned away from the funnel tube to prevent water from entering the funnel and clogging it with wet grit.

3,828,980

DISPENSER FOR PRECISELY METERED DISPENSING OF VISCOUS FLUIDS

Albert M. Creighton, Manchester, and William D. Devaney, Methuen, all of Mass., assignors to Chemical Development Corporation, Danvers, Mass.

Filed Nov. 6, 1972, Ser. No. 303,826

Int. Cl. B67d 5/42

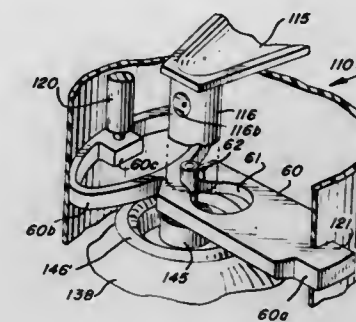
U.S. Cl. 222-137

1 Claim

A dispenser is disclosed for the precise metering of a plurality of viscous fluids, such as the components of an epoxy adhesive

sive in which small amounts to be metered are desired and the proportion of components is critical. The dispenser includes a cartridge, a plurality of pistons operatively located in cylindrical compartments in the cartridge; and means for connecting the ends of the pistons and maintaining the pistons in alignment during dispensing. The cartridge includes a plurality of adjacent cylindrical compartments having adjoining walls, a rear wall at one end of the compartments and having annular openings therein of a diameter equal to the diameter of the respective cylindrical compartments, and forward end closures having orifices leading through channels to adjacent nozzles. The pistons include a piston drive tab, longitudinal ribs

engagement with the top of the can. The actuator consists of a vertical wall section and top walls and a depressible actuator assembly positioned in an opening defined in the top wall. A horizontally biased slide is disposed within the actuator cap and accessible through the side wall. The slide defines an



3,828,983

MIXING AND DISPENSING DEVICE

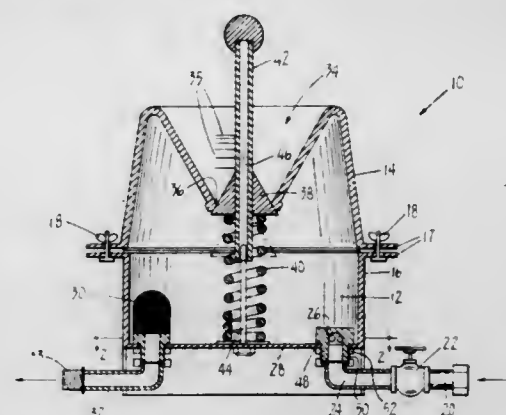
Leonard Russo, 177 Canal St., Apt. 18, San Rafael, Calif. 94901

Filed Dec. 6, 1971, Ser. No. 209,898

Int. Cl. B67d 5/58

U.S. Cl. 222-190

4 Claims



A device, including a mixing chamber, that is adapted to be positioned in a water line between the water source and a dispersion mechanism such as a sprinkler. The device includes a manually operable mechanism for introducing a measured amount of chemical into a normally fluid-tight mixing chamber. The inflow of water is simultaneously dispersed into and agitated within the mixing chamber and the outflow of water restricted so that undissolved chemicals are not allowed to flow out with the irrigation water.

3,828,984

SILLO DRAINING DEVICE

Bruno A. Gmuer, St. Gallen, Switzerland, assignor to Gebrueder Buehler AG, Uzwil, Switzerland

Filed July 16, 1973, Ser. No. 379,590

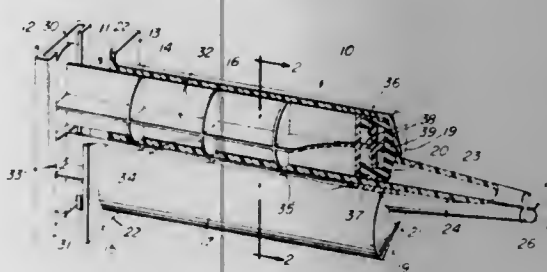
Claims priority, application Switzerland, July 18, 1972, 10744/72; June 21, 1973, 9004/73

Int. Cl. B65g 3/12

U.S. Cl. 222-196

16 Claims

A silo draining or discharge device is shown including a vibration floor of generally frusto-conical shape, having a centrally located outlet or discharge opening, and a vibration generator fastened to the vibration floor. The vibration floor is supported so as to permit it to vibrate freely beneath the outlet



3,828,981

SAFETY DISPENSING DEVICE

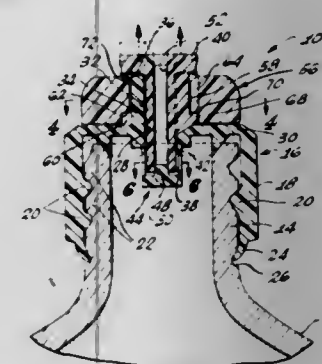
Robert P. Linkletter, 875 Comstock, Los Angeles, Calif. 90024

Filed June 28, 1971, Ser. No. 157,326

Int. Cl. B67b 5/00

U.S. Cl. 222-153

23 Claims



A dispensing device including a dispensing valve mounted on a container for reciprocation between open and closed positions and a rotary safety ring having means for normally holding the valve in the closed position to prevent dispensing of the contents of the container, but allowing the valve to be moved to the open position when the ring is in one preselected angular position relative to the valve.

3,828,982

SAFETY ACTUATOR FOR AEROSOL CONTAINERS

Carl J. Steigerwald, Wauconda, Ill., assignor to VCA Corporation, North Riverside, Ill.

Filed May 10, 1973, Ser. No. 359,203

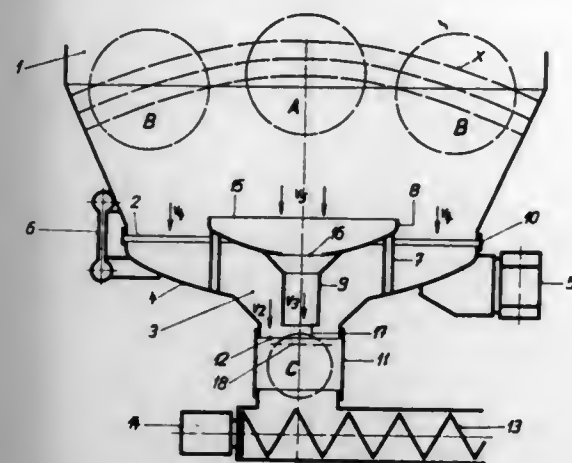
Int. Cl. B65d 83/14

U.S. Cl. 222-153

10 Claims

A child-proof or safety actuator for operating the valve assembly of an aerosol spray can is held in position on the can by

opening of a silo. A funnel-like device is mounted on the vibration floor for vibration therewith, with the circular inlet and outlet openings thereof coaxially aligned above the circu-



lar discharge opening of the vibration floor. Metering means are provided to selectively control the respective flows of material through and around the funnel-like device in order to obtain an even descent of material in the silo.

3,828,985 DOSING VALVE

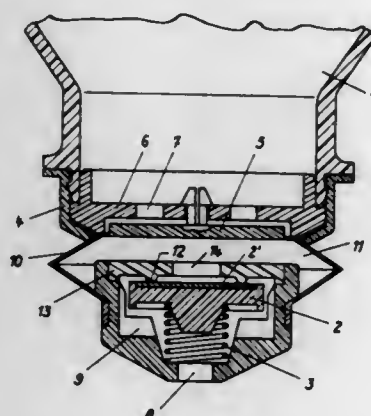
Claude Schindler, Geneva, Switzerland, assignor to Zyma S.A., Nyon, Switzerland

Filed June 26, 1972, Ser. No. 266,357

Claims priority, application Switzerland, July 6, 1971, 9903/71

Int. Cl. B67d 5/42

U.S. Cl. 222-207



A dosing valve for liquid or pasty products includes a hollow valve body with an inner chamber, a normally open inlet communicating with a recipient of a product, and an outlet normally closed by a spring-urged clapper. Part of the body can be elastically deformed to reduce the volume of the chamber and compress the product therein to close the inlet, open the outlet and deliver a discrete dose of the product.

3,828,986 DISPENSING DEVICE WITH ABRUPT EJECTION TERMINATING MEANS

Oscar Roth, Zurich, Switzerland, assignor to Involva AG, Buezen, Switzerland

Continuation-in-part of Ser. No. 225,421, Feb. 11, 1972. This application Mar. 20, 1973, Ser. No. 343,141

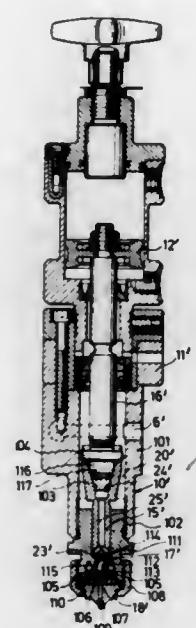
Claims priority, application Switzerland, Mar. 22, 1972, 4298/72

Int. Cl. B67d 5/46

U.S. Cl. 222-375

A piston rod extends longitudinally through a chamber of a cylinder, the latter being provided in one end wall with a dispensing nozzle. A piston surrounds and is slidable along the

piston rod between a retracted position expelling matter through the nozzle, and a forward position. One or more passages are provided in the piston and/or piston rod and these passages connect opposite axial ends of the piston but are open only when the piston is in its forward position. A



supply of material to be dispensed communicates with the chamber rearwardly of the piston. An arrangement is provided for assuring that material expelled from the nozzle will be expelled with at least substantially constant pressure at all times, and includes a means for abruptly terminating the ejection of the material.

3,828,987 DISPENSING MICROPIPETTE APPARATUS HAVING DISPOSABLE PARTS FOR DELIVERING A PRESELECTED QUANTITY OF FLUID

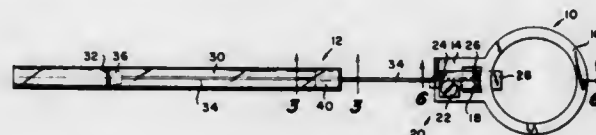
Michael E. Drummond, West Chester, and John E. Robinson, Springfield, both of Pa., assignors to Drummond Instrument Company, Broomall, Pa.

Continuation-in-part of Ser. No. 75,203, Sept. 24, 1970. This application June 2, 1972, Ser. No. 259,177

Int. Cl. G01f 1/100

U.S. Cl. 222-386

6 Claims



This invention is a dispensing micropipette apparatus having disposable parts for delivering a preselected quantity of fluid. The apparatus includes a capillary tube through which a wire plunger extends, the wire plunger being secured at one end to a holder. One end of the capillary tube is reduced in diameter to provide an end wall portion serving as a stop engaged by a stop member mounted on the wire plunger at a predetermined distance from the lower end of the plunger. The engagement of the stop member with the stop means positively and automatically controls the amount of fluid drawn into the capillary tube without visual determination of the amount drawn therein.

3,828,988 TANK FOR BULK TRANSPORT AND STORAGE OF SEMISOLID MATERIALS

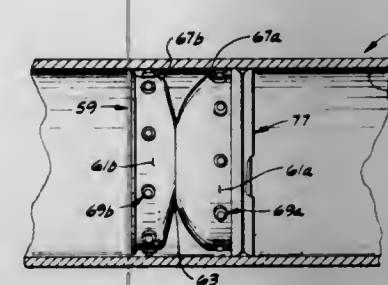
George R. Berry, Wood River, Ill., assignor to Bervy Inc., Bethalto, Ill.

Filed Apr. 4, 1973, Ser. No. 347,845

Int. Cl. B67d 5/06

U.S. Cl. 222-389

18 Claims



A tank for the transport or storage in bulk of semisolid materials, such as lubricating grease, lard, butter or the like, the tank having an outlet at one end thereof, and a piston movable longitudinally within the tank from one end thereof to the other. The piston is forced toward the outlet by compressed air introduced into the tank behind the piston for pressurizing the semisolid material and forcing it toward the outlet. Flexible seals extending beyond the periphery of the piston scrape the semisolid material from the inner tank surface and seal the piston relative to the tank. Two circumferential rows of ball rollers extend around the periphery of the piston and are spaced longitudinally from one another on the piston. The balls are resiliently mounted on the piston so as to prevent canting of the piston in the tank, to hold the balls in engagement with the internal surface of the tank, and to accommodate changes in the internal cross-section of the tank within a limited range as the piston moves longitudinally within the tank.

3,828,989 TEXTILE FOLDING APPARATUS

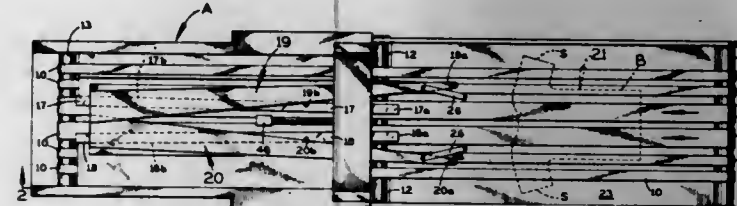
Charles P. Heater, Boca Raton, Fla., assignor to Jensen Corporation, Fort Lauderdale, Fla.

Filed Oct. 18, 1973, Ser. No. 407,640

Int. Cl. A41h 33/00

U.S. Cl. 223-37

13 Claims



An apparatus for folding a T-shirt or other textile article as it is advanced by a conveyor. The middle of the article passes under guide plates that closely overlie the conveyor. The article is folded in from opposite sides over the top of these guide plates by overlying folding plates with inner folding edges that converge toward one another. The opposite side extremities of the article where it is the widest (such as the sleeves of a T-shirt) slide over the top of the folding plates and they are folded out over the top of the in-folded side portions of the article.

3,828,990 HOLSTER FOR PISTOLS

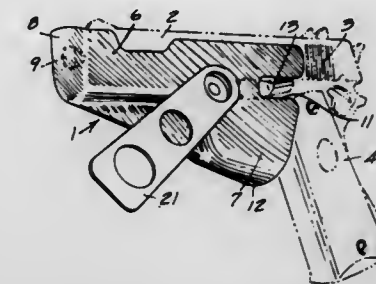
Archie Baldocchi, Edificio Rivas Clevia 707 Calle Arce, San Salvador, El Salvador

Filed Dec. 27, 1972, Ser. No. 319,021

Int. Cl. F41c 33/02

U.S. Cl. 224-2 C

3 Claims



The holster is formed of a channel member shaped to conform to the shape of a pistol from the muzzle of the barrel to the handle. The channel member is of generally U-shaped cross-section of variable dimensions so that the pistol nests therein. The end of the channel member holding the barrel is closed, and a conical inward projection on said closed end fits into the muzzle of the barrel. A cam lock at the tip of the slide stop of the pistol holds the pistol against sliding toward the open end of the channel member. A release finger on the exterior of the channel member is adapted to be manually turned so as to move the cam lock out of the way of the tip of the slide stop. The slide stop itself is held in a slot in the open end of the holster so as to hold the pistol in the channel chamber. An adjustable support member is pivoted on the body side of the channel member and means are provided to adjust the support member to a proper attitude for supporting the holster in suitable position for quick drawing of the pistol.

3,828,991 CARRIER FOR INTERCHANGEABLE CAMERA LENSES

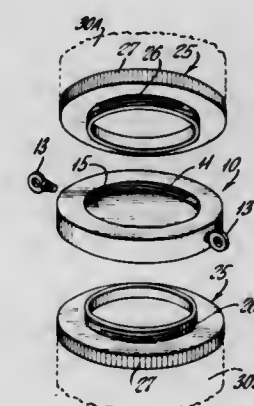
MacDonald S. Moore, 77 Fulton St., New York, N.Y. 10038

Filed Feb. 9, 1973, Ser. No. 330,927

Int. Cl. A45f 5/00

U.S. Cl. 224-5 V

7 Claims



The carrier is for use with lenses, for still cameras, of the type having mounting ends releasably securable in a lens mount on the camera. The carrier is an annular member formed with a pair of coaxial and axially spaced threaded recesses extending in opposite directions from a central diametric plane, and respective lens mounts are threadably engaged in each recess for securement of a respective interchangeable camera lens therein. The lens mount may be threaded for threaded engagement with a lens or may have a bayonet-type joint for engagement with a corresponding bayonet-type joint on the lens. The annular member has an imperforate diaphragm or partition extending thereacross at its central plane providing dust-proof mounting for the lens mounts. A pair of apertured lugs are threaded into the annular member at diametrically opposite points to receive snap hooks on the ends of a neck strap for supporting the carrier.

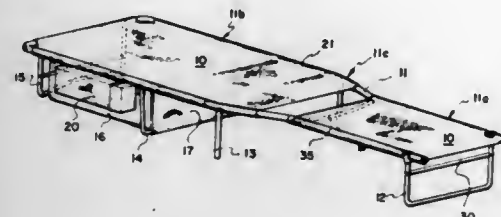
3,828,992 FOLDING COT PACK

Joseph D. Cerchione, 365 Cypress Dr., Idaho Falls, Idaho 83491

Filed Aug. 7, 1972, Ser. No. 278,221
Int. Cl. A45f 4/00

U.S. Cl. 224-9

11 Claims



A combination sleeping cot and back-pack includes sheet material and supporting means attached to a frame, which is foldable from an elongate, sleeping cot condition to a relatively short and compact condition as a back-pack, and vice versa. The frame has a relatively narrow terminal portion adapted to fit against the back of a person carrying the back-pack and to support the lower limbs of a person using the cot, and has an opposite, relatively wide, terminal portion as an outer wall part of the back-pack and for supporting the trunk, upper limbs, and head of a person using the cot. Straps are secured to the frame so as to fit over the shoulders of a person carrying the back-pack. The sheet material attached to the frame preferably forms a pack bag under one of the terminal portions of such frame, usually the wide portion, so as to be inside the back-pack and under the cot to facilitate the loading and carrying of items and to make it unnecessary to unpack when using the cot.

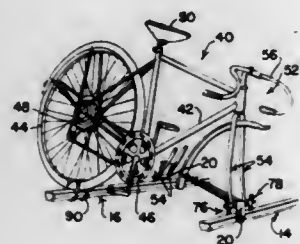
3,828,993 BICYCLE TRANSPORTING RACK

John S. Carter, 979 Debra Dr., Santa Barbara, Calif. 93110

Filed Jan. 20, 1972, Ser. No. 219,440
Int. Cl. B60m 9/10

U.S. Cl. 224-42.1 F

2 Claims



An automotive bicycle rack in the form of a car top adjunct and by means of which one or more bicycles may be fixedly supported in an upright condition above the car roof. A novel supporting bracket releasably holds the front wheel steering fork of each bicycle frame securely in position and application of such steering fork to the bracket, and removal therefrom is easily effected without requiring the use of tools.

3,828,994 APPARATUS FOR TRANSPORTING ARTICLES IN THE SPACE ABOVE THE OUTBOARD PASSENGER PORTION OF THE FRONT SEAT OF A MOTOR VEHICLE

Jesse R. Hollins, 40 Stoner Ave., New York, N.Y. 11021

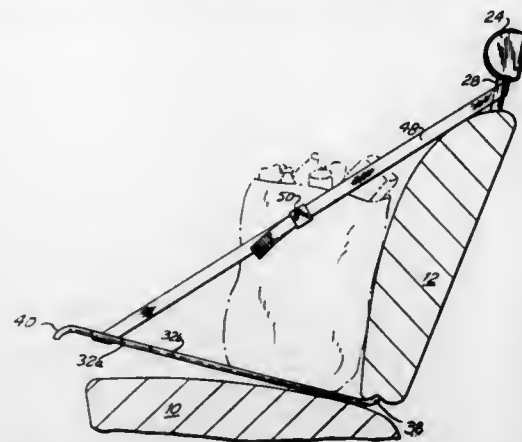
Filed Aug. 7, 1973, Ser. No. 386,376
Int. Cl. B60r 27/00

U.S. Cl. 224-42.46 B

8 Claims

A platform includes a rear portion which extends slightly into the crevice between the front seat and the front seat back at the outboard passenger portion of the front seat and front seat back. A strap is provided and is looped about the pas-

senger head restraint and maintains all but the rear portion of the platform above the front seat so that articles such as



packages can be placed thereon without in any way affecting the motor vehicle ignition starter interlock system and seat belt warning system.

3,828,995 MUFFIN SEPARATOR

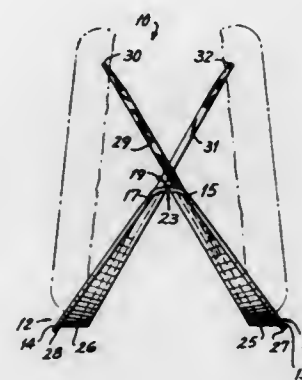
Joseph E. Shorin, New York, N.Y., and Vero Ricci, Collingswood, N.J., assignors to Aggogle Inc., New York, N.Y.

Filed May 21, 1973, Ser. No. 362,551

Int. Cl. B26f 3/02

U.S. Cl. 225-94

7 Claims



The present invention is directed to a muffin separator for breaking English muffins or like bakery products into halves, the device incorporating a pair of generally U-shaped open frame members hinged together about a common pivot axis, each said frame member including a series of tines which extend in a direction generally perpendicular to the pivot axis. The device is used by impaling the muffin on the tines when the same are aligned in parallel and thereafter spreading the halves, the device being characterized in that the tines extend across the pivot axis for a substantial portion of their length, whereby when the frames are shifted from a closed or parallel tine position toward an open position, the tines are shifted to an X configuration, resulting in an improved breaking action on the muffin, as contrasted with separators heretofore known.

3,828,996 RECORD WEB CONTROL AND DRIVE APPARATUS

Henry Ray Warren, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 200,011, Nov. 18, 1971. This application June 13, 1973, Ser. No. 369,736

Claims priority, application Great Britain, Apr. 5, 1971, 8684/71

U.S. Cl. 226-168

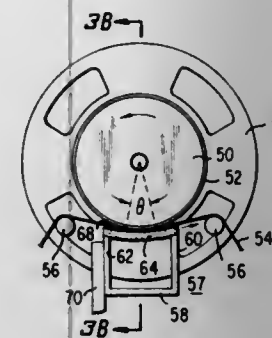
Int. Cl. B65h 17/20

9 Claims

A means for effecting improved web advancing cooperation between a capstan and a recording web is disclosed. The peripheral surface of a rotating capstan which is to contact

one side of a web is covered with a high coefficient of friction material. A member at the opposite side of the web, having a

drical body member upon which is mounted spiral blade members longitudinally diverging about the circumference of the



low coefficient of friction surface and which is stationary with respect to the direction of web motion, urges the web into motion imparting engagement with the capstan surface.

3,828,997 APPARATUS FOR POSITIVELY CONVEYING SHEET MATERIALS

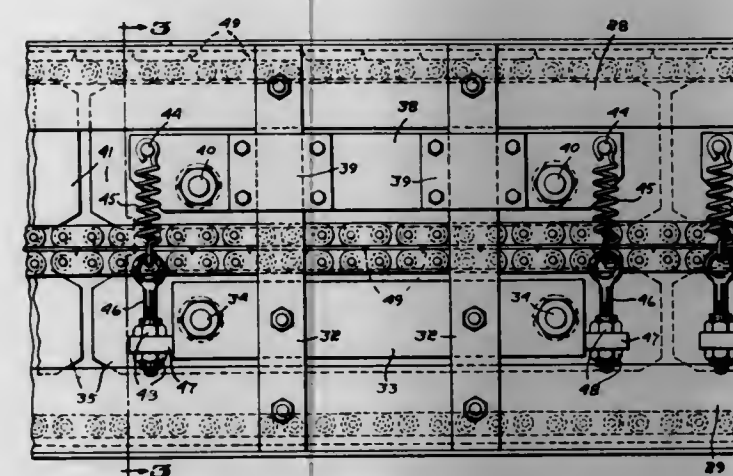
Gerald A. Snow, Cumberland, Maine, assignor to United Industrial Syndicate, Inc., Portland, Maine

Filed May 30, 1973, Ser. No. 365,224

Int. Cl. B65h 17/34

U.S. Cl. 226-172

4 Claims



Apparatus for conveying sheet materials that must be securely held by its margins to ensure its positive advance, through a thermoformer for one example has supporting and hold down conveyors. Each conveyor consists of transversely spaced chains of the roller type trained about sprockets and means are provided maintaining their proximate courses in gripping relation with the margins of the conveyed material. The chains of one conveyor have teeth disposed and dimensioned to pierce the material without interference from the chains of the other conveyor and to extend in back of appropriate ones of their links. The sprockets of the two conveyors are arranged so that the material is engaged by the conveyor whose chains have the teeth before and remains in engagement therewith after the material is also in engagement with the other conveyor.

3,828,998 SCROLL ROLL

Frank R. Gross, 3926 Woodthrust Rd., Akron, Ohio 44313

Filed Feb. 20, 1973, Ser. No. 333,683

Int. Cl. B65h 17/20

U.S. Cl. 226-192

6 Claims

This invention relates to a scroll roll having several unique applications. Fundamentally, the invention consists of a cylin-



cylinder. The blades are removably mounted to the cylindrical body member by engagement between blade supporting flanges secured to the cylindrical member.

3,828,999 PACKAGE INCLUDING DISPOSABLE UTENSIL

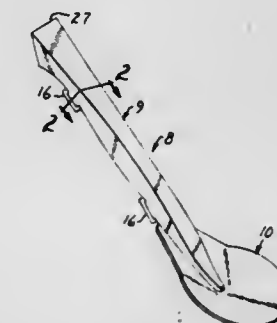
Dallas R. Humphrey, 2780 N. 2nd St., St. Paul, Minn. 55109

Filed Oct. 24, 1972, Ser. No. 300,201

Int. Cl. B65d 77/30; A47j 43/28

U.S. Cl. 229-1.5 C

9 Claims



An eating utensil adapted to be conveniently packaged with vendable foods and easily formed to a shape for aiding the consumption of the packaged food product. The utensil is a thin blank having a rectangular portion and a rounded end portion. The rectangular portion is formed with fold lines dividing it into three long narrow areas. The portion is folded along the fold lines to form the handle and snap fasteners formed on opposite edges of the rectangular portion interlock to hold the areas in the folded position and the handle has a triangular cross section. The fold lines are extended into the end portion causing it to form a bowl as the handle is formed.

The utensil is easily packaged between sealed strips of sheet material and may be placed on a can or carton beneath the product label or the package may form part of the product label.

3,829,000 METHOD FOR FORMING A REINFORCED FIBERBOARD CONTAINER

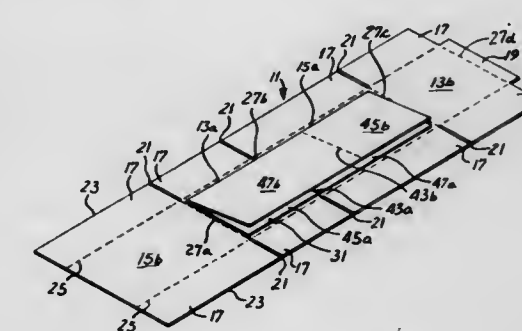
Donald E. Ellison, Clayton, Ind., assignor to Inland Container Corporation, Indianapolis, Ind.

Filed Aug. 28, 1972, Ser. No. 283,952

Int. Cl. B65d 25/14

U.S. Cl. 229-14 BA

10 Claims



A reinforcing liner of improved design is quickly and easily attached to the outer box blank as a part of the formation of the fiberboard container.

3,829,001

COMPARTMENTED BOX

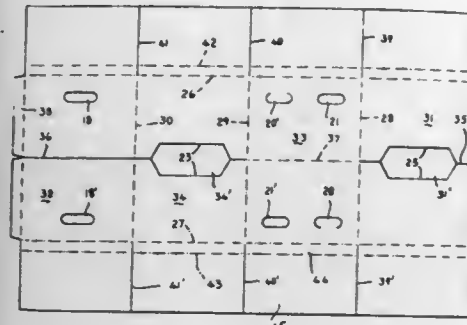
Leonard Arthur Wheeler, P.O. Box 404 Sta. K., Toronto 315, Ontario, Canada

Filed Nov. 9, 1971, Ser. No. 197,029

Int. Cl. B65d 3/24, 5/48

U.S. Cl. 229-15

5 Claims



A compartmented box is folded from a one-piece blank to provide a pair of similar box sections, each box section comprising a rectangular base and four upstanding walls integral with the base, the four upstanding walls of each box section including a first end wall defining an end wall of the box, a second end wall hingedly connected along its upper edge to the corresponding wall of the other box section, and a pair of side walls extending between the end walls, said hingedly connected walls being secured in face to face relation and constituting a double-thickness partition defining a pair of adjacent box compartments.

3,829,002

ONE PIECE COLLAPSIBLE PAPER BOX

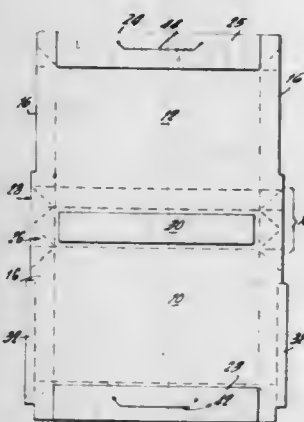
Samuel Kleinhaut, Forest Hills, N.Y., assignor to Bagprint Ltd., Long Island City, N.Y.

Filed July 7, 1972, Ser. No. 269,546

Int. Cl. B65d 5/36, 33/02, 33/06

U.S. Cl. 229-16 A

6 Claims



A collapsible paper box is provided having front and rear panels connected by a bottom portion which lies along one of the panels when the box is collapsed and is movable to permit expansion of the box. The panels are connected along opposite sides by collapsible elements running the length of the box, said elements having a slot along one end thereof. The elements are provided with folds adjacent the slot to permit the upper portion of the front and rear panels to be folded one on the other to close the box. In addition, means for

strengthening the side elements of the box are provided, said means adopted to move into operative position only after the box is expanded.

3,829,003

COMPARTMENTED CONTAINER

Rolf Magnus Dilot, Larkvagen 6, S-222 48 Lund, Sweden

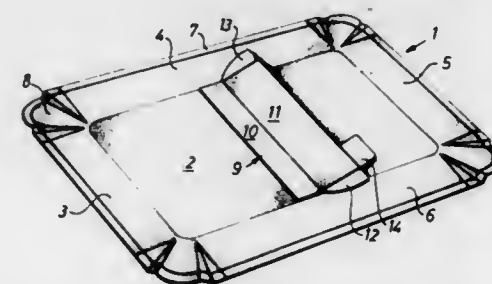
Filed June 14, 1972, Ser. No. 262,810

Claims priority, application Sweden, June 18, 1972, 7965/71

Int. Cl. B65d 5/48

U.S. Cl. 229-31 R

10 Claims



A container is provided for ready-cooked or partially cooked food, having at least one removable partition attached to the bottom and defining at least two compartments.

3,829,004

FOLDING BOX

Adelbert Graser, Spiegel, Koniz, Switzerland, assignor to Steiger A.G. Lithographie, Druckerei, Canton of Berne, Switzerland

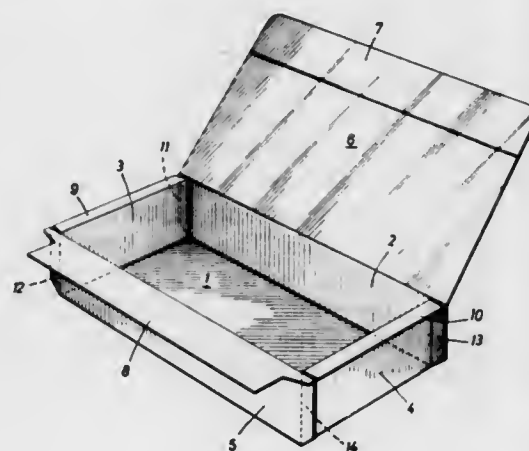
Filed Jan. 4, 1973, Ser. No. 320,993

Claims priority, application Switzerland, Jan. 20, 1972, 857/72

Int. Cl. B65d 5/22

U.S. Cl. 229-33

1 Claim



A folding box is set up from a blank coated on one side with a thermoplastic material, having a rear wall with an articulated lid and closure flap, two side walls, and a front wall, the side and upper edges of the side walls and the upper edge of the front wall being bent outwardly to form closure borders.

3,829,005

FOLDING CONTAINER WITH FOLDING CLOSURE ENDS

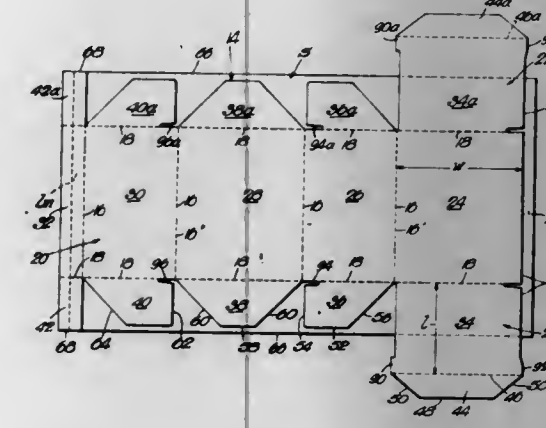
Robert A. Hackenberg, East Lyme; Walter J. Tyrseck, Quaker Hill, and Chapman Berry, Old Lyme, all of Conn., assignors to Robertson Paper Box Company, Inc., Montville, N.J.

Filed July 3, 1972, Ser. No. 268,829

Int. Cl. B65d 5/10, 5/62

U.S. Cl. 229-39 R

11 Claims



A four-sided folding container rectangular in section when set-up, and having four folding closure end flaps at each end, with each container end being closed by infolding a designated first end flap thereat into closed position, then infolding the two end flaps next adjacent to the first end flap, and finally infolding the remaining end flap, and each of these first end flaps is dimensioned substantially to fit the adjacent open end of the set-up container when in its closed position, and has opposite side ears, while the container is at its ends provided with slits into interlock-with which the ears on the respective first end flaps snap when the latter reach correct closing position in the course of their infolding. Each first flap may also be provided with a folding end tongue which an inward folding of the remaining associated end flaps is tucked between the latter.

3,829,006

SHIPPING AND DISPLAY CARTON AND BLANK THEREFOR

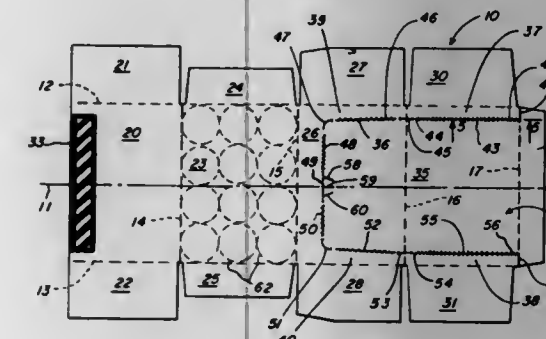
Richard G. Spiegel, 4925 W. Coventry, Hopkins, Minn.

Filed Feb. 1, 1973, Ser. No. 328,840

Int. Cl. B65d 5/54

U.S. Cl. 229-51 TS

12 Claims



An improved folding paper-board carton formed of a unitary blank having longitudinal and transverse fold facilitating score lines whereby the blank is adapted to be formed into a carton, said blank including longitudinal and transverse tear facilitating score lines for the removal of a tear panel whereby the carton is readily convertible from a sturdy shipping container to a display and dispensing enclosure of increased efficiency and attractiveness.

3,829,007

PLASTICS-FILM BAGS

Anthony Alexander Ellison, Stottfold, near Hitchin, England, assignor to British Visqueen Limited, London, England

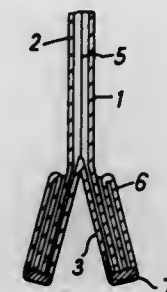
Filed Apr. 28, 1972, Ser. No. 248,488

Claims priority, application Great Britain, Apr. 30, 1971, 12341/71

Int. Cl. B65d 33/02

U.S. Cl. 229-55

9 Claims



Carrier or other bag of plastics, e.g. high density polyethylene, bottom-gusseted and block-ended, in which strips, preferably of the same plastics, are sealed along the base in specified manner, rendering the opened bag substantially free-standing.

3,829,008

COMBINATION GIFT WRAP AND RECEPTACLE

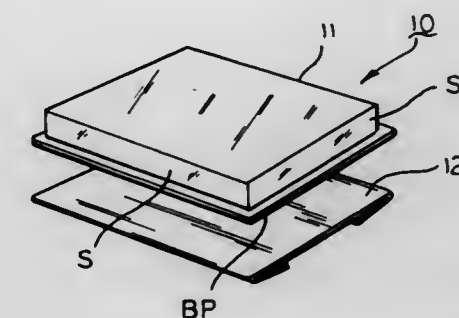
Lowell C. Murray, and John G. Ruble, both of Fort Wayne, Ind., assignors to Container Corporation of America, Chicago, Ill.

Continuation-in-part of Ser. No. 173,153, Aug. 19, 1971, abandoned. This application Jan. 15, 1973, Ser. No. 323,519

Int. Cl. B65d 65/06, 65/28

U.S. Cl. 229-87 R

7 Claims



Soft goods are shipped in a conventional container having a decorative gift wrap secured thereto. The gift wrap is in the form of a folder having an exposed plain obverse side and a decorative reverse side. The folder is formed from a cut and scored sheet and is secured to a receptacle bottom, and includes flaps extending from a main panel thereof having dimensions corresponding to the dimensions of a panel of the receptacle. The main panel may be detachably secured to the receptacle. The flaps are folded upon themselves, and the two outermost flaps are secured to hold all the flaps in place. A tear strip is provided in the overlapping one of such secured flaps, and upon removal of such strip, the flaps are opened and reversed about the receptacle as a decorative wrap. A seal may be tipped on one of the flaps and can be transferred upon completion of the decorative wrap about the receptacle to seal the same.

3,829,009

SOLID BOWL CENTRIFUGAL SEPARATOR

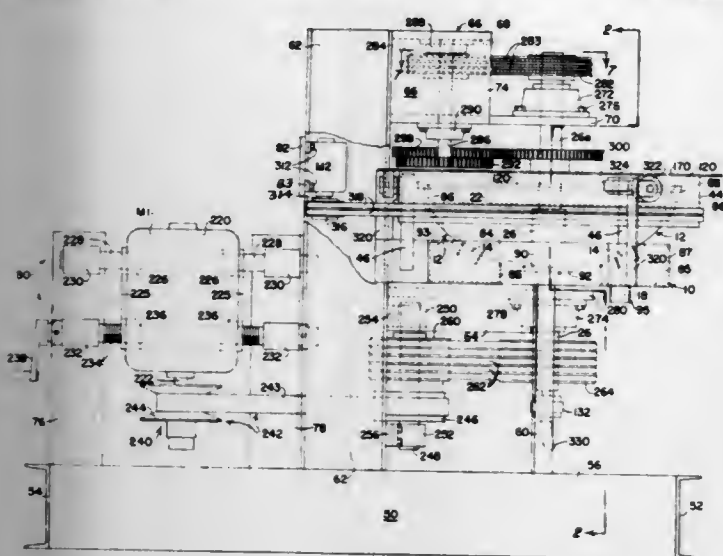
William H. Peck, 2508 Omaha, Pittsburg, Kans. 66762, and Samuel A. Collier, 70290 E. Avenue, Tulsa, Okla. 74112

Filed Mar. 15, 1973, Ser. No. 341,527

Int. Cl. B04b 1/00

U.S. Cl. 233-7

43 Claims



A centrifugal separator for the removal of solids from slurry. A high-speed bowl which rotates about a vertical axis is centrally fed with slurry in its upper region. A circular ceiling plate above the level of slurry feed establishes with the cylindrical upper rim section of the bowl a narrow annulus which becomes sealed with sludge as the solid constituents build up in the vicinity thereof and a series of plows advance slowly around the annulus and through the sludge seal and serve to elevate the sludge above the ceiling plate and into the path of a series of rotatable buckets. The latter orbit at a slightly increased speed around the bowl interior and in connection with rotation thereof assume outside ecliptic positions where they scoop wads of sludge from the sludge seal. Such buckets also in connection with rotation thereof assume inside ecliptic positions where their directional relationship is reversed so that centrifugal force dislodges the wads and causes them to be flung radially outwards over the rim of the bowl. The liquid constituent of the slurry is forced outwardly through an outlet in the bowl bottom wall.

ERRATUM

For Class 235-06 see: Patent No. 3,828,465

3,829,010

THERMOSTAT FOR POWER VENTILATORS AND THE LIKE

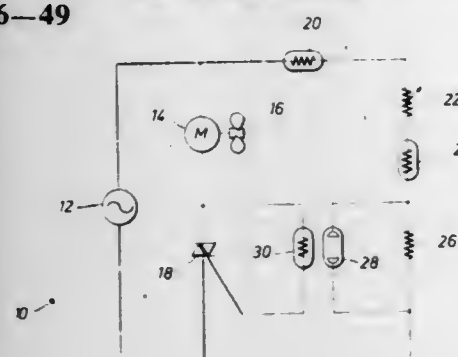
James D. Jones, Houston, Tex., assignor to Wind Wonder, Inc., Houston, Tex.

Filed Dec. 14, 1972, Ser. No. 315,230

Int. Cl. A62c 3/14

U.S. Cl. 236-49

13 Claims



A thermostat for use with a power ventilator which responds to attic or inside temperatures to actuate a motor turning a power ventilator, said thermostat incorporating a first means which is responsive to ambient temperature of the

air causing the apparatus to turn on and a second means responsive to temperature of the ambient air in case of fire or overheating which turns the apparatus off. The circuitry connects directly with conventional AC power lines and includes a pair of separate isolated circuit legs, one of which is temperature responsive in the manner described above so that signals are formed therein and the other leg of the circuit including switching means, switching the current off and on for a motor for such a power ventilator.

3,829,011

PNEUMATIC CONTROL SYSTEM FOR A FUEL BURNING APPARATUS OR THE LIKE

Douglas R. Scott, Elkhart, Ind., assignor to Robertson Controls Company, Richmond, Va.

Division of Ser. No. 197,538, Nov. 10, 1971, Pat. No.

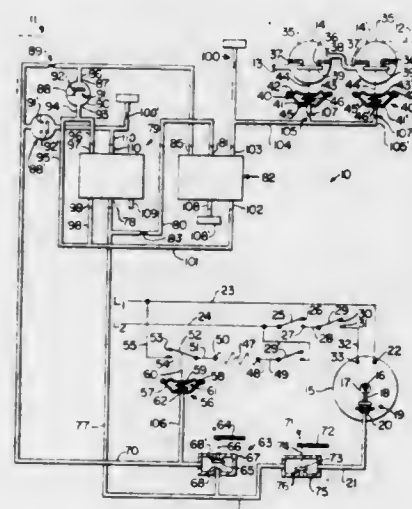
3,754,572, which is a division of Ser. No. 5,709, Jan. 26, 1970, Pat. No. 3,635,645. This application May 21, 1973, Ser. No.

362,092

Int. Cl. G05b 1/58

U.S. Cl. 236-82

1 Claim



This disclosure relates to a pneumatic control system for a clothes dryer wherein the flow of fuel to the main burner means is pneumatically controlled in such a manner that the ignition means for the main burner means must be first pneumatically actuated before the pneumatic control system will pneumatically open the fuel supply means to the main burner means, the control system including a pneumatically operated logic "memory" unit to assure that the ignition means is always pneumatically operated before the main burner means can be pneumatically operated to its on condition by a pneumatically operated "nand" unit each time there is a requirement to turn on the main burner means. The "memory" unit is prevented from transmitting atmosphere therethrough when being switched by its setting signal.

3,829,012

PRESSURE MAINTAINING FOR A LIQUID HEATING PLANT

Gunnar Brejner, Ryne 16, D.K. 2830, Virum, Denmark

Filed Sept. 14, 1972, Ser. No. 289,102

Claims priority, application Denmark, Sept. 17, 1973, 4562/73

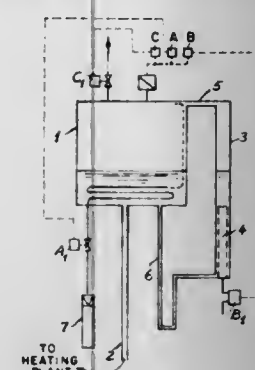
Int. Cl. F24c 3/06

U.S. Cl. 237-8 R

7 Claims

A central heating plant of the closed system type contains a pressure expansion tank connected to a source of pressurized

nitrogen and a steam generator, automatics is provided which, by falling water level in the expansion tank, primarily feeds



steam of the same pressure as the pressure prevailing in the tank and secondarily feeds nitrogen to the tank, in order to maintain the working pressure of the plant.

3,829,013

SNOW MAKING APPARATUS

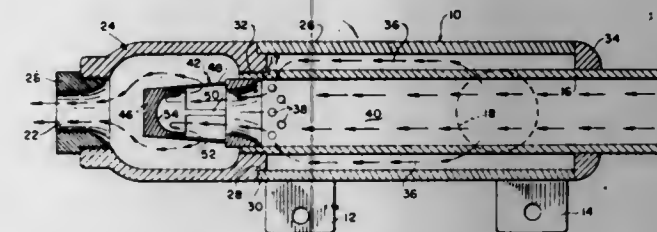
H. Ronald Ratnik, 474 Thurston Rd., Rochester, N.Y. 14619

Filed Nov. 3, 1971, Ser. No. 195,142

Int. Cl. F25c 3/04

U.S. Cl. 239-14

1 Claim



Improved apparatus for making artificial snow by simultaneously releasing a mixture of water and air under pressure through a discharge aperture into the atmosphere. Prior to discharge, the water and air mixture is forced to impinge against the concave surface of a blocking member mounted inwardly of the discharge aperture in the path of the exiting mixture. The blocking member serves to increase atomization of the water and air mixture and reduces the quantity of compressed air required to effect coverage of a given area with the artificially produced snow. In addition, the blocking member serves to significantly reduce the operating noise level of the improved snow making apparatus.

3,829,014

FUEL INJECTOR HAVING SELF-CLEANING FILTER

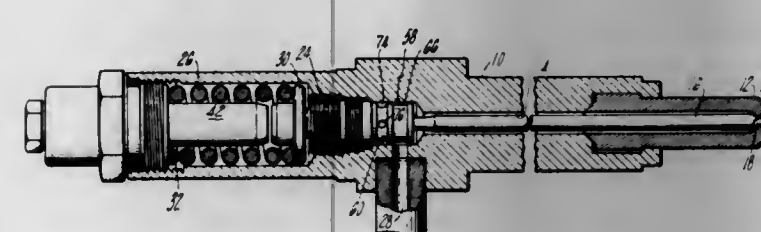
Charles W. Davis, Simsbury, and Vernon D. Roosa, West Hartford, both of Conn., assignors to Stanadyne, Inc., Hartford, Conn., by said Davis

Filed Nov. 29, 1972, Ser. No. 310,269

Int. Cl. F02m 55/00

U.S. Cl. 239-86

2 Claims



A precision fuel injector having an inwardly opening pressure operated valve positioned in a bore forming a valve chamber and guided for reciprocal movement to open and close the valve wherein the valve guide at the end of the valve

chamber opposite the valve tip is provided with a sleeve extending into the valve chamber to provide an integral filter. The sleeve is interposed between the fuel inlet and the valve chamber and provides communication therebetween through a pair of annular clearances having a width which is one-half or less of the diameter of the discharge orifices of the injector to trap solid particles and prevent the blockage thereof. The filter construction retains the trapped particles in the flow path where the velocity of fuel flow is maximum to subject them to the repetitive high pressure hydraulic forces as sequential measured charges of fuel are delivered to the injector to hammer them against the hardened metal edge of the filter and pulverize them to render the filter self-cleaning.

3,829,015

ACOUSTIC NOZZLE

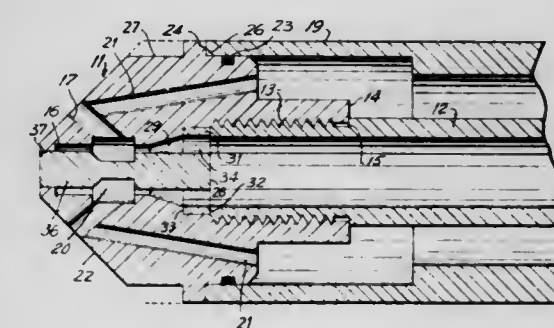
Richard J. Monro, Bronxville, N.Y., assignor to Combustion Equipment Associates, Inc., New York, N.Y.

Filed June 22, 1972, Ser. No. 265,399

Int. Cl. B05b 17/06

U.S. Cl. 239-102

9 Claims



A nozzle for finely dispersing a liquid in a gas stream, usually air or steam, has therein a reverberation chamber for producing acoustic energy in the gas stream. The gas then flows through a plurality of tubular passages which are intersected by tubular passages carrying therethrough a liquid to be nebulized, said liquid usually being oil. The nozzle is particularly useful for nebulizing oil in preparation for combustion thereof.

3,829,016

APPARATUS FOR SPRAYING RESIN AND EXPANDED THERMOPLASTIC SPHERES

James A. Scharfenberger, Indianapolis, Ind., assignor to Ransburg Electro-Coating Corp., Indianapolis, Ind.

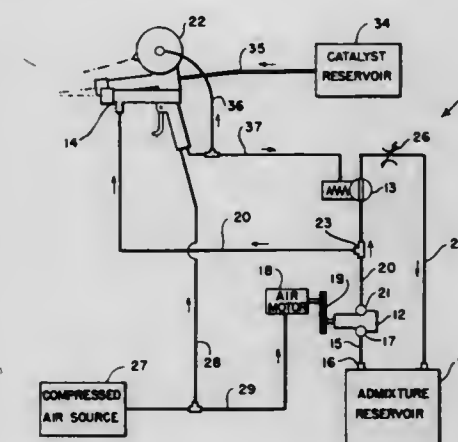
Continuation of Ser. No. 88,579, Nov. 12, 1970, abandoned.

This application Oct. 16, 1972, Ser. No. 297,796

Int. Cl. B05b 9/00

U.S. Cl. 239-127

3 Claims



A system for and a method of dispensing an admixture including a thermosetting or thermoplastic resin and expanded thermoplastic spheres. The system includes a reservoir for the

admixture. A pump, such as a rotary pump, has its inlet connected to the reservoir and is adapted to withdraw the admixture from the reservoir. The length of time that the admixture is subjected to such pressure of the pump is insufficient to either cause harmful rupturing of the expanded spheres or to cause generation of heat of sufficient magnitude to cause harmful curing of the resin. A dispensing apparatus is connected to the outlet of the pump and is adapted to spray the admixture when activated. A valve may be connected between the outlet of the pump and the reservoir. The valve is adapted to terminate the flow of the admixture to the dispensing apparatus upon de-activation of the dispensing apparatus and to return the admixture withdrawn from the reservoir by the pump to the reservoir. The system may include a pressure balancing device to regulate the pressure of the system so that the system experiences little, if any, pressure differences when the system is cycled.

3,829,017

AUTOMATIC FLUX SPRAY DISPENSER

Carl A. Napor, Glenridge, and Charles G. Krumm, Wyckoff, both of N.J., assignors to Kahle Engineering Co., Union City, N.J.

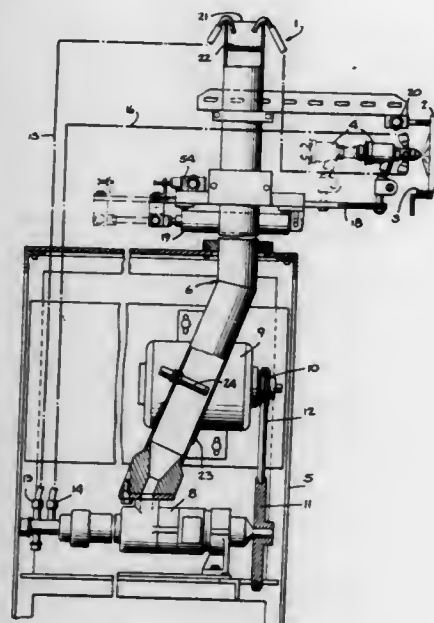
Division of Ser. No. 151,360, June 9, 1971, Pat. No. 3,741,150.

This application June 1, 1973, Ser. No. 366,035

Int. Cl. B05b 1/24; B44d 3/42

U.S. Cl. 239—135

3 Claims



An improved automatic fluxing system is disclosed for applying flux to articles on a production line basis. The system includes an automatic spray gun with a movable mounting for directing the flux onto articles being presented to the spray gun by a conveyor. The system includes automatic nozzle controls and a flux supply system for the nozzle, particularly adapted for handling corrosive, abrasive and highly viscous fluxes. The flux supply system includes a special pump for continuously circulating flux in the reservoir in addition to continuously supply flux to the nozzle. The circulating reservoir eliminates the need for flux agitators and also permits the flux to be heated and maintained at a uniform pre-set temperature making the flux supply independent of pump induced temperature variations and of temperature related viscosity changes.

3,829,018

OSCILLATING WATER SPRINKLER

Edwin L. Oberto, Libertyville, Ill., assignor to Burgess Vibrocrafters, Inc., Grayslake, Ill.

Filed Oct. 15, 1973, Ser. No. 406,323

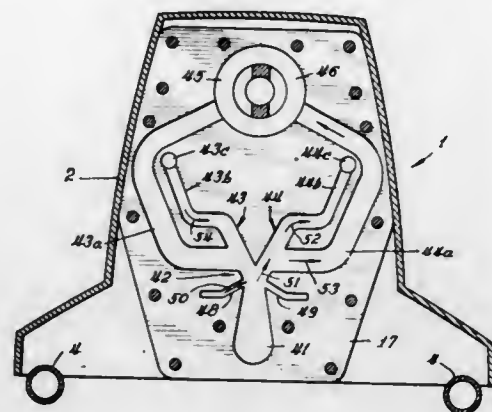
Int. Cl. B05b 3/16

U.S. Cl. 239—242

4 Claims

The sprinkler manifold tube is driven in oscillation about its axis by a fluidic-mechanical system. In both embodiments

described, a single fluidic bi-stable interchange controls the incoming flow. The stream, flowing alternately to one side and the other from the interchange, divides into two branches, one branch flowing to one side of a motor chamber to drive the paddle-piston therein and thus the sprinkler tube which is supplied by the other branch. In one embodiment, a mechan-



ical valve actuated at the adjustably predetermined end of each sprinkler tube sweep switches the stream to its alternate channel system while in another embodiment this flow switching operation is accomplished by an impulse generated in the motor chamber when the paddle-piston reaches the end of its travel.

3,829,019

SPINNER ASSEMBLY

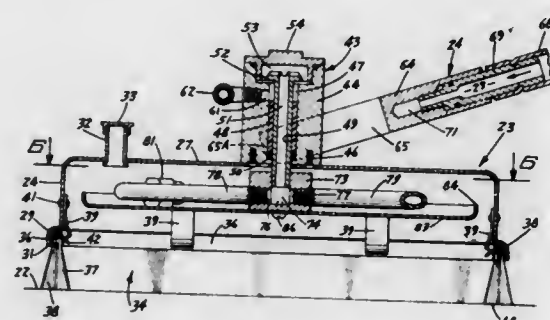
Harold A. Petsch, Excelsior, Minn., assignor to Chaska Chemical Company, Inc., Savage, Mich.

Filed Feb. 2, 1972, Ser. No. 222,836

Int. Cl. B05b 3/06

U.S. Cl. 239—251

20 Claims



A cleaning apparatus having a pan-shaped housing carrying brushes engageable with a surface to be cleaned. Mounted on the top of the housing is a spinner assembly having a body containing a longitudinal passage. A tubular shaft rotatably mounted in the passage carries tubular arms located within the housing. The fluid flows from the hollow shaft into the arms and is discharged through the slots in the nozzles. Nozzles having slit orifices are mounted on the ends of the arms. The shaft has a head located in a chamber at one end of the passage. The diameter of the head is larger than the diameter of the passage and is dynamically balanced by the flow of fluid under pressure through the passage and chamber into the hollow shaft.

3,829,020

TRANSLATING SLEEVE VARIABLE AREA NOZZLE AND THRUST REVERSER

Gabriel E. Stearns, Mercer Island, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed June 13, 1973, Ser. No. 369,697

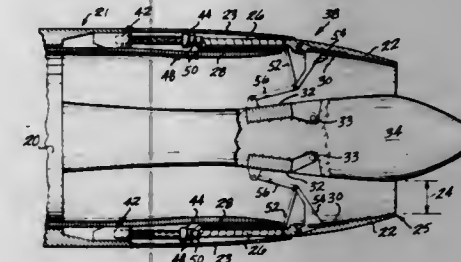
Int. Cl. B64d 33/06

U.S. Cl. 239—265.13

6 Claims

A variable area discharge nozzle and thrust reversing mechanism for a jet engine wherein an annular exhaust nozzle

having a telescopic sleeve, forms the aft section of the exhaust nozzle duct and a fixed plug centerbody is mounted within the duct. For the low speed takeoff and landing mode of airplane operation, the aft section of the exhaust duct is translated rearward thereby withdrawing in combination, a telescopic sleeve section having cascade vanes and an internal cover for the cascade vanes. With the cascade vanes and cover in the aft position, the overall length of the exhaust duct is extended and through the contoured centerbody and inner duct wall, the exhaust nozzle exit area is increased. Also, in this position the



cascades are exposed externally and the thrust reversing mechanism is in the armed position. To reverse the thrust the cover under the cascade vanes is slid forward to expose them and through an interconnecting linkage mechanism, a blocker door downstream of the cascade vanes, blocks the rearward flow of the exhaust fluid and causes it to exhaust through the cascade vanes. As an additional embodiment, for sound suppression, a plurality of acoustically treated struts are hinged to and retract into the centerbody for stowage, and are radially extended into the exhaust duct flow for the sound suppression mode.

3,829,021

JET DEFLECTOR FOR V/STOL-AIRCRAFT

Gerhard Kopp, Munich, Germany, assignor to Messerschmitt-Bolkow-Blohm GmbH, Munich, Germany

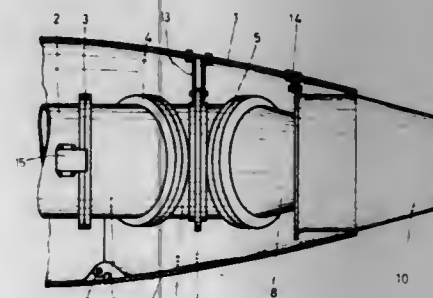
Filed Mar. 12, 1973, Ser. No. 340,227

Claims priority, application Germany, Mar. 16, 1972, 2212649

Int. Cl. B64c 15/04

U.S. Cl. 239—265.35

10 Claims



Improvement in construction for a jet deflector for V/STOL-aircraft. In such aircraft having a curved exhaust gas duct which is rotatable for controlling the magnitude and direction of jet deflection, and wherein there is provided bearings between relatively rotatable portions of said ducts, there is provided locking means by which said duct is locked to and supported by the frame of the aircraft under certain desired conditions. Thus, when the aircraft is in normal cruising flight, the otherwise rotatable duct may be rigidly locked to the frame of the aircraft and thereby be supported on and by said frame to relieve said bearings from a substantial portion of the load otherwise imposed thereon. This minimizes wear on said bearings and contributes to a longer life for same. The locking and unlocking device may be either under the direct control of the pilot or may be automatically responsive to the position of the jet deflector mechanism.

3,829,022

AERATING DEVICE FOR PULVERULENT MATERIAL

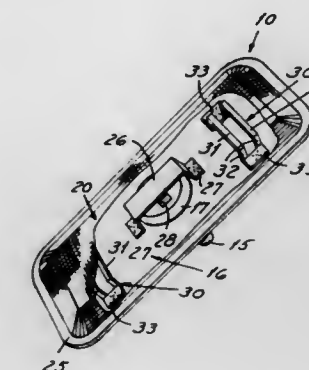
Robert C. Reiter, Aurora, Ill., assignor to Material Control, Inc., Aurora, Ill.

Filed Apr. 4, 1973, Ser. No. 347,853

Int. Cl. B05b 1/00

U.S. Cl. 239—288.5

2 Claims



As installed in multiple on downwardly convergent side wall portions of a pulverulent material storage or delivery bin, the device is an assembly, in a generally oblong shape and relatively shallow front-to-rear depth, of a stamped sheet metal body plate, a steel mesh and fabric laminate affording a diffusion screen of relatively flat, truncated pyramidal cross section, and a nipple unit providing an air discharge orifice centered in relation to the body plate, said unit extending through an aperture in the plate and communicating the aerator with a source of low pressure air. The nipple orifice is forwardly bridged within the screen component by a steel stamping which is spaced somewhat rearwardly of the latter and forwardly of the air orifice; and this part acts solely as an air flow deflector and diffuser baffle directly forward of the orifice sub-assembly. Deformation and damage to said screen and sub-assembly are positively prevented by a pair of like protective steel stiffener stampings of open frame-type outline, which parts are welded to the body plate at zones equally spaced on opposite sides of the orifice unit and come forward into bracing engagement with the screen as they transversely span substantial areas of the latter at said zones.

3,829,023

ATOMIZING DEVICE

Rene Bouillard, and Henry Bouillard, both of 71370 Saint-Germain du Plain, France

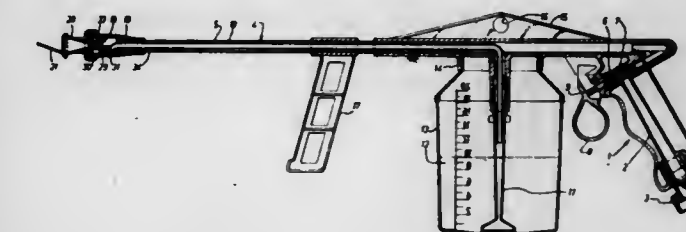
Filed Jan. 23, 1973, Ser. No. 326,016

Claims priority, application France, Mar. 28, 1972, 72.10901

Int. Cl. B05b 7/30

U.S. Cl. 239—318

7 Claims



An atomizing device in the form of a gun provided with a barrel constituted of two coaxial tubes, the outer tube of which communicates with a pipe for delivering water under pressure and the inner tube of which communicates with a tank containing the concentrated liquid product to be atomized and which is fixed to the gun. A venturi member in the form of a bobbin is mounted at the outlet end of the outer tube and it comprises two spaced annular flanges whose diameters are substantially equal to the inside diameter of the outer tube of the barrel, and an intermediate hollow part of

reduced diameter. The venturi member has a first hole passing axially through the center of the upstream flange into an inner chamber of the intermediate hollow part, a second hole passing axially through the center of the downstream flange and into the inner chamber, and a third hole passing radially through the wall of the intermediate hollow part. A tubular coupling is formed integrally with the upstream flange and eccentrically in relation to the axis of the venturi and its inner bore opens into the annular space between the flanges, the tubular coupling being connected in fluid-tight manner to the end of the inner tube of the barrel.

3,829,024

WASHING AND HIGH PRESSURE JET CLEANING APPARATUS

Olle Heden, Alingsas, Sweden, assignor to Euroclean AB, Alingsas, Amal, Sweden

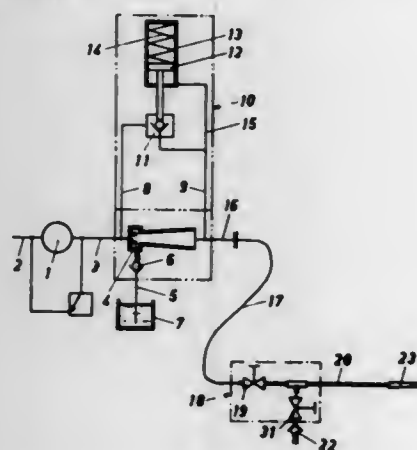
Filed Sept. 4, 1973, Ser. No. 393,782

Claims priority, application Sweden, Sept. 8, 1972, 11574/72

Int. Cl. B05b 7/26

U.S. Cl. 239—310

4 Claims



In a washing apparatus for alternately effecting washing at low pressure and high pressure jet cleaning and having a jet nozzle and an injector for supply of a washing agent to the washing fluid during the washing periods, a first conduit bypassing the injector and provided with means adapted to control the passage through said by-pass conduit in response to variations in the pressure downstream of said injector. Said downstream pressure being variable by means of manually operable valve means fitted close by the jet nozzle of the apparatus.

3,829,025

QUICK LOAD PRESSURE POT

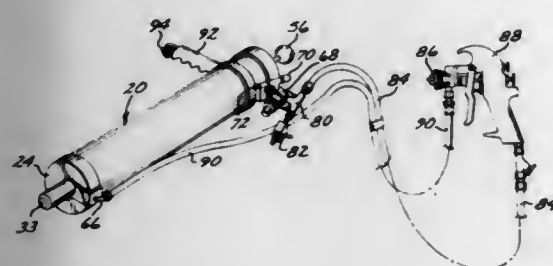
Harold D. McLeod, 11167 Ryerson, Downey, Calif. 90240

Continuation-in-part of Ser. No. 238,595, March 27, 1972, Pat. No. 3,733,032. This application May 11, 1973, Ser. No. 359,506

Int. Cl. B05b 9/00

U.S. Cl. 239—373

3 Claims



A pressurized cylinder for receiving liquids to be sprayed from connected equipment. The cylinder includes a movable piston that facilitates quick loading and cleaning as it is adjusted to predetermined positions.

3,829,026

SPRAY PRODUCING DEVICE

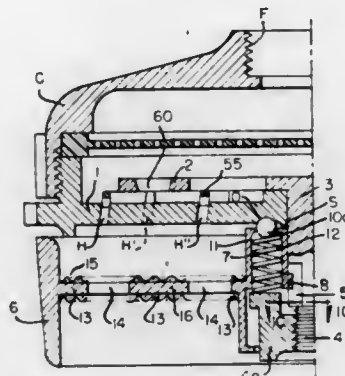
Elie P. Aghnides, 795 Fifth Ave., New York, N.Y. 10021

Filed Mar. 26, 1973, Ser. No. 344,654

Int. Cl. B05b 1/16

U.S. Cl. 239—394

19 Claims



This disclosure relates to a spray producing device having an upstream disc for producing high velocity jets of liquid, and a downstream disc that includes mixing means in the form of screens, but also including certain open areas in place of some of the screens.

The downstream disc is rotatable to enable the user to select between one arrangement, wherein the jets are aerated, and another arrangement, wherein the jets are sharp, needle-like streamlets.

A lost-motion connection is arranged between said upstream and downstream discs so that when the downstream disc is rotated in one direction, the relation between the two discs is such as to result in said first arrangement, providing aeration of the jets, and when the downstream disc is rotated in the opposite direction, the relation of the discs is such as to result in said second arrangement, providing sharp, needle-like streamlets.

3,829,027

VARIABLE VACUUM PRODUCING NOZZLE

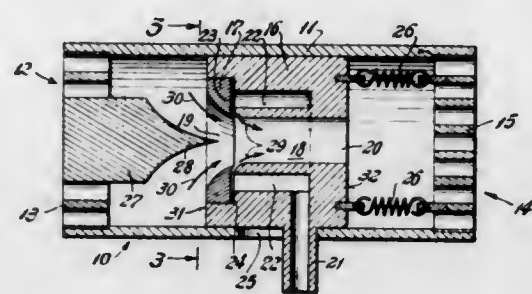
Zenon R. Mocarski, Easton, Conn., assignor to S.R.C. Laboratories Inc., Fairfield, Conn.

Filed Feb. 28, 1973, Ser. No. 336,723

Int. Cl. B05b 7/12

U.S. Cl. 239—410

12 Claims



A nozzle having a through passageway with an intermediate slot connected to a source of pressurized fluid with the flow of pressurized fluid inducing flow of ambient fluid into the entrance and through the passageway and in which the area of the entrance to the passageway through which the ambient fluid may flow is decreased to increase the extent of the vacuum produced by the nozzle to thereby provide a lower absolute pressure at the entrance.

3,829,028

METHOD FOR THE ACTIVATION OF LOOSE INGREDIENTS OF ELASTOMER MIXES

Fedor Danilovich Ovcharenko, ulitsa Kirova, 9, kv. 35; Alexei Dmitrievich Chugai, ulitsa Gvardeiskaya, 21, both of Kiev; Karl Lazarevich Tsantker, ulitsa Gogdya, 19, kv. 4, Poltava; Dmitry Danilovich Logvinenko, ulitsa Kalinina, 5, kv. 5, Poltava; Oleg Parfirovich Shelyakov, ulitsa Kalinina, 5, kv. 100, Poltava; Ljudmila Efimovna Chechik, ulitsa Krasnoarmeiskaya, 58, kv. 2, Kiev; Alla Mikhailovna Belonozhko, ulitsa Frunze, 108, kv. 4, Poltava; Ekaterina Alexandrovna Morozko, ulitsa K.Libknekhta, 22, Poltava; Ljudmila Nikolaevna Kuzmina, ulitsa Almaznaya, 4, kv. 191, Poltava; Nadezhda Vasillevna Vdovenko, ulitsa Kapitonovskaya, 10, kv. 51, Kiev; Nikolai Grigorievich Vasiliev, ulitsa Kapitonovskaya, 6, kv. 8, Kiev, and Nina Ivanovna Soloshenko, Prospekt Nauki, 142, korpus 9, kv. 22, Kiev, all of U.S.S.R.

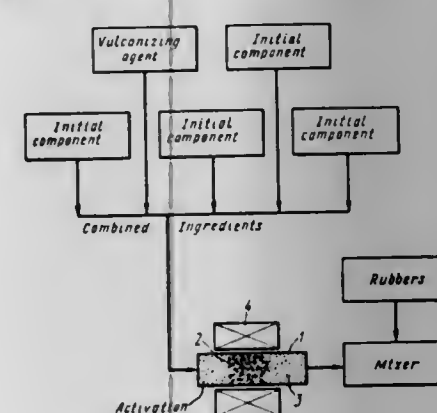
Filed Jan. 12, 1972, Ser. No. 217,244

Claims priority, application U.S.S.R., May 17, 1971, 1653307

Int. Cl. B02c 19/00

U.S. Cl. 241—1

7 Claims



A method for the activation of loose ingredients for elastomer mixes which comprises increasing the specific surface area of said ingredients by subjecting loose ingredient particles to the action of ferromagnetic bodies in a running electromagnetic field.

3,829,029

ABRASIVE BLAST CLEANING SYSTEM

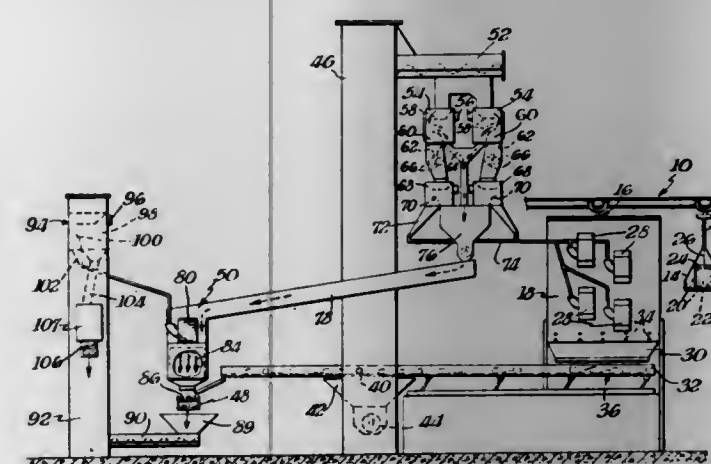
James H. Carpenter, Hagerstown, Md., and Joseph E. Bowling, Jr., Waynesboro, Pa., assignors to The Carborundum Company, Niagara Falls, N.Y.

Division of Ser. No. 108,417, Jan. 21, 1971, Pat. No. 3,716,947. This application Nov. 15, 1972, Ser. No. 306,769

Int. Cl. B02c 19/00, 23/00

U.S. Cl. 241—19

9 Claims



An abrasive blast cleaning system includes blast means for granulating and scouring the sand removed from a no-bake mold whereby the sand is reconditioned for reuse in a subsequent no-bake molding operation.

3,829,030

CAM PLATE ADJUSTMENT FOR RECUTTER SCREEN OF FORAGE HARVESTER

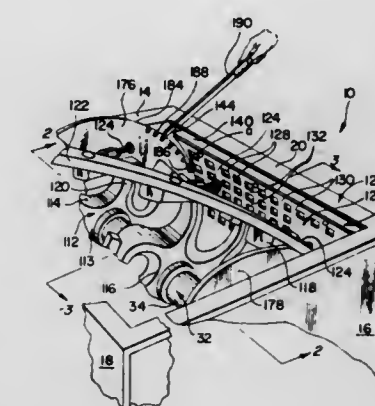
Jerome A. Wallenfang, and Wilmer E. Witt, both of Appleton, Wis., assignors to Koehring Company, Milwaukee, Wis.

Filed Jan. 30, 1973, Ser. No. 328,068

Int. Cl. B02c 13/282

U.S. Cl. 241—89.1

11 Claims



A forage cutter includes a housing having a pair of end walls, a rotary cylinder shaft journaled for rotation in the end walls, a rotary cutter mounted on the shaft and having a plurality of cutting knives, a shapeable recutter screen positioned in coating shearing relation with the cutting knives, and rotatable cam means engaged with the recutter screen. The cam means has a curved abutment edge of decreasing radius about its circumference for positioning and controlling the radius of the recutter screen.

3,829,031

WEAR PLATE

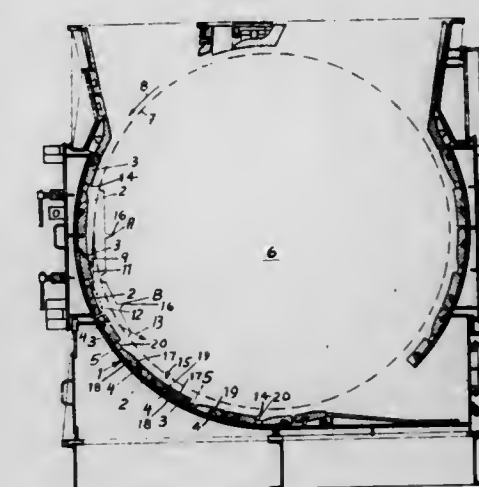
Heinz Kron, Oberhausen, and Helmut Grommes, Duisburg-Meiderich, both of Germany, assignors to Babcock & Wilcox Limited, London, England

Filed Sept. 22, 1972, Ser. No. 291,472

Int. Cl. B02c 17/22

U.S. Cl. 241—182

2 Claims



A beater mill housing liner formed of a plurality of circumferentially spaced and consecutively arranged wear plate sets cooperating with one another to protect the housing and wear plate sets connecting parts from erosion and to promote the passing of particulate matter into the beater zone.

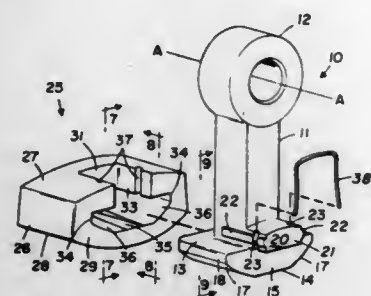
3,829,032

HAMMER ASSEMBLIES WITH REVERSIBLE TIPS FOR HAMMERMILLS

Vernon L. Schrimper, Cedar Rapids, Iowa, assignor to Iowa Manufacturing Company, Cedar Rapids, Iowa
 Filed Oct. 2, 1972, Ser. No. 294,173
 Int. Cl. B02c 13/28

U.S. Cl. 241-197

14 Claims



A hammer assembly for a hammermill employs a reversible hammer tip removably secured to the hammer arm by means of an interlocking joint, preferably of a generally T-shaped configuration. A large portion of the joint is formed by complementary tapered surfaces in order to ease removal of the tip after the joint has become "limed." The remainder of the joint is formed by several pairs of complementary surfaces parallel to the swinging axis of the hammer assembly. These surfaces receive the centrifugal, centripetal and side crushing forces on the tip which otherwise would tend to separate the tip from the arm, especially before the joint has become limed, owing to the tapered portions of the joint. A wire clip temporarily interlocks the arm and the tip until liming of the joint is sufficient to retain the tip on the arm.

3,829,033

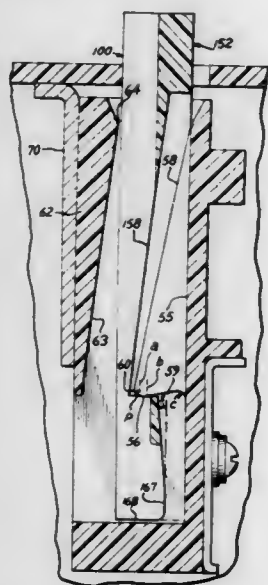
TAPE CARTRIDGE AND PLAYER APPARATUS

Bernard A. Cousino, Toledo, Ohio, assignor to Faraday, Inc., Ann Arbor, Mich.

Filed Oct. 20, 1971, Ser. No. 190,884
 Int. Cl. B65h 17/48; G11b 15/66

U.S. Cl. 242-55.19 A

4 Claims



The disclosure describes apparatus for guiding and releasably locking an endless tape loop cartridge in relationship to the head of a corresponding player unit. The apparatus includes ramp surfaces placed on either side of the cartridge between the top and base thereof that are each terminated in a locking surface. Corresponding ramp and locking surfaces in the player unit cooperate with the cartridge in order to releasably lock it into playing position. The base of the cartridge is preferably cut away to expose tape guide means positioned adjacent the front edge of the cartridge for guiding a

loop of tape across the front of the cartridge. In addition, the pressure pad of the cartridge is arranged so that it normally makes contact with the edge of a rotatable disc that supports the tape in order to perform a braking function.

3,829,034

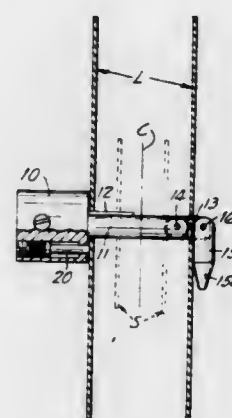
REEL SPINDLE FOR MULTIPLE WIDTH REELS

Maurice G. Mickelson, Minneapolis, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Mar. 16, 1973, Ser. No. 341,965
 Int. Cl. B65h 17/02

U.S. Cl. 242-68.3

3 Claims



This is a reel spindle specifically constructed to accommodate reels of different widths while maintaining the same center line for the reels. This is accomplished by means of a multiple jointed spindle in combination with a spring pressed centering pin.

3,829,035

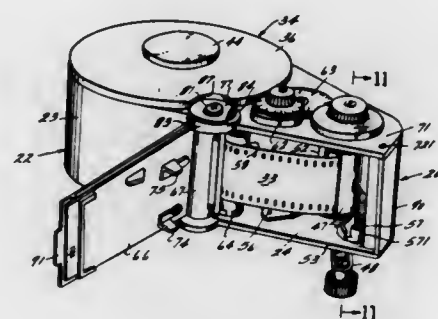
BULK FILM LOADING DEVICE

Nickolas A. Backscheider, 4415 Appleton Ave., Mariemont, Ohio 45209

Filed Nov. 9, 1972, Ser. No. 305,053
 Int. Cl. G03b 17/26

U.S. Cl. 242-71.7

5 Claims



A device for loading bulk film on a cassette having a first film holding chamber and a second cassette holding chamber. Film passes through a slot in a wall between the chambers. A drum member is mounted in the first chamber. The drum member includes a wall provided with an opening therein. The wall of the drum turns inside of and adjacent the wall of the first chamber between a first position in which the opening and the slot are aligned and a second position in which the drum wall closes the slot. A door closes the second chamber. A disc is mounted on the door and is engageable with the drum. A socket in the drum is opposed to the disc when the drum is in slot closed position. A portion of the disc advances into the socket when the door is open to lock the drum against turning when the door is open. When the door is closed, the drum enters a cut away portion of the disc when the drum is turned to slot open position to lock the door against opening when the drum is in slot open position.

3,829,036

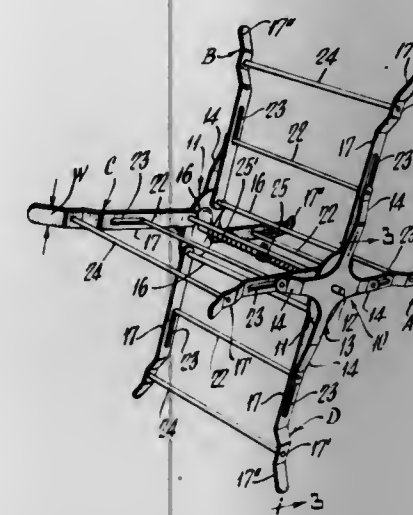
COLLAPSIBLE SWIFT

Ernest D. Meadows, and Robert B. Buffington, both of Atlanta, Ga., assignors to Meadows Industries Inc., Atlanta, Ga.

Filed Nov. 22, 1972, Ser. No. 308,737
 Int. Cl. B65h 75/24

U.S. Cl. 242-110.1

10 Claims



The invention contemplates an improved construction for a swift, being a frame used for the handling of yarn skeins, in the course of textile-yarn finishing. The new swift features radial collapsibility, from a resiliently preloaded or normal outer perimeter of yarn support, to a transiently retainable inner perimeter of yarn support, whereby the swift may be axially inserted within a tensed skein, and then released from its inner-perimeter condition to immediately resiliently engage and support the skein at or near the outer-perimeter condition. Once thus engaged, the swift and skein may be readily handled, stored, and loaded into an unwinder, for development of yarn cones or tubes.

3,829,037

THREAD WINDING APPARATUS

Pierre Sallin, Geneva, Switzerland, assignor to Productions Sarcem S.A., Geneva, Switzerland

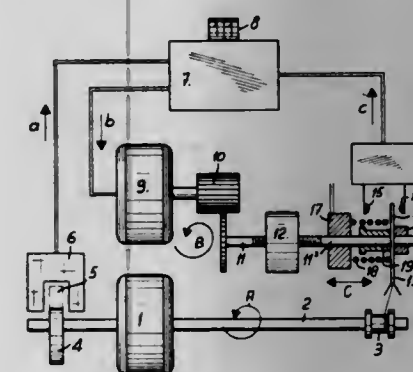
Filed June 12, 1972, Ser. No. 261,808

Claims priority, application Switzerland, June 25, 1971, 9325/71

Int. Cl. B65h 54/28

U.S. Cl. 242-158.2

1 Claim



The invention relates to an apparatus for obtaining a linear displacement of a first element as a function of a rotary movement and can be advantageously used on thread-winding machines. The apparatus comprises means for shifting the linearly displaceable element at the end of the reciprocatory stroke.

3,829,038

TAPE RECORDING TRANSPORT CONTROL SYSTEM

Willi Studer, Althardstrasse 150, Regensdorf, Switzerland

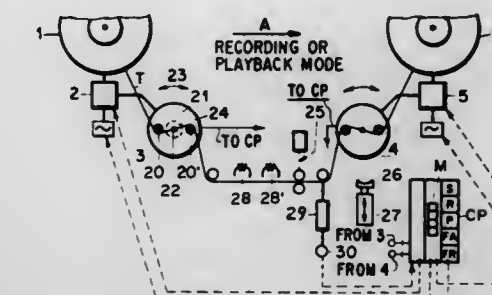
Continuation of Ser. No. 812,208, April 1, 1969, abandoned.
 This application Nov. 29, 1971, Ser. No. 202,903

Claims priority, application Switzerland, July 24, 1968, 11067/68

Int. Cl. B65h 25/22, 25/06, 25/32

U.S. Cl. 242-190

7 Claims



A pair of tape tension sensors are included in the tape path, one each between reel and tape heads, and a motion sensing mechanism, such as a tachometer generator connected to an idler or a guide pulley, provides tension and motion, as well as direction of motion information; tension information is transmitted to pay out and take up motors to effect braking and wind-up, and, upon stopping, the motion sensor combined with tension sensors provides information controlling braking and drag of the motor to prevent tape spill, while maintaining proper tension on the tape during running.

3,829,039

MOTION PICTURE PROJECTOR WITH FILM STRIPPING MECHANISM

Fritz Krumbein, Stuttgart-Mohringen, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

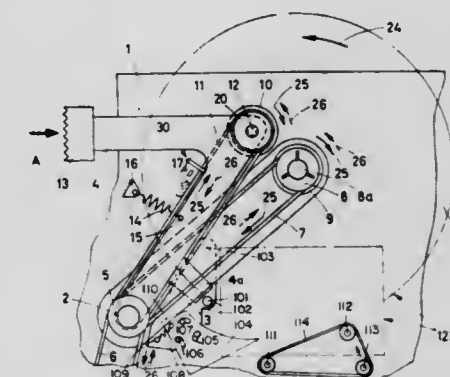
Filed Aug. 28, 1972, Ser. No. 284,380

Claims priority, application Germany, Aug. 17, 1971, 2141083

Int. Cl. G03b 1/04; G11b 15/32

U.S. Cl. 242-192

10 Claims



A motion picture projector wherein a stripping mechanism threads the leader of motion picture film has a manually operable lever which carries a friction coupling serving to rotate the shaft for the core of the supply reel in a direction to collect the film while the band of the stripping mechanism engages the outermost film convolution. The coupling becomes ineffective when the convolutions of the film are tightly packed around the core of the supply reel. The shaft for the supply reel can be rotated by the motor which drives the coupling when the operation of the motor is reversed whereby the supply reel collects the film by drawing it off the takeup reel.

3,829,040

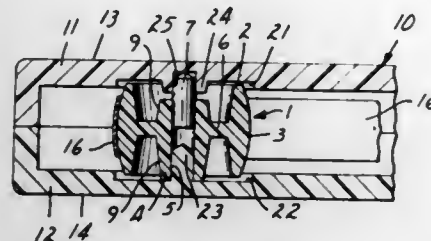
COLLAPSING PIN ROLLER FOR TAPE CASSETTE

Norman E. Nelson, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed June 25, 1973, Ser. No. 373,034

Int. Cl. G03b 1/04; G11b 15/32, 23/04
U.S. Cl. 242—199

7 Claims



A rotatable tape guide roller for a recording tape cartridge is formed with a cylindrical exterior surface and a central bore into which one end of a spindle is inserted to mate therewith in an interference fit. The other end of the spindle protrudes into a bearing formed in a sidewall of the cartridge to aid in rotatably securing the roller therein, and the insertion of the spindle in the bore may be adjusted to vary the end play of the spindle in the bearing to provide an optimum dimensional roller tolerance.

3,829,041

FISHING REEL DRIVE MECHANISM

Alain Robert Nepote, Cluses, France, assignor to Etablissements Carpano & Pons S.A., Cluses, France

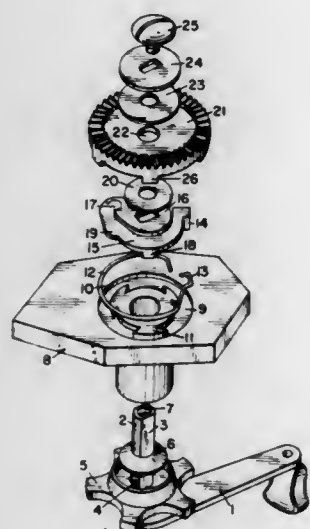
Filed July 24, 1972, Ser. No. 274,794

Claims priority, application France, July 26, 1971, 71.27295

Int. Cl. A01k 89/02

U.S. Cl. 242—218

4 Claims



A fishing reel driving and drag mechanism includes a driving piece secured for rotation with the shaft of a winding handle, and an arcuate lever pivotally mounted on the driving piece about an axis parallel to said shaft. When the handle is rotated in a winding direction, said lever pivots to an outer position in which an outer protuberance on the lever drivable engages a corresponding eccentric protuberance on a driving member which is driven in a corresponding winding direction without slip. If the winding handle is inadvertently rotated in an unwinding direction, or when the driving member is rotated in the unwinding direction, said lever pivots to its inner position in which an inner protuberance jams with a fixed stop to immobilize said handle whilst said driving member can continue to rotate with a certain drag. Pivoting of said lever can, at least partially, be provided by a spring tending to immobilize the free end of the lever.

3,829,042

INSTALLATION FOR PNEUMATIC CONVEYANCE OF CONTAINERIZED LOADS THROUGH A TUBE

Ivan Mikhailovich Torochkov, ulitsa Gorogo, 41, kv. 99, Moscow; Georgy Samsonovich Kobulia, Prospekt Chavchvadze, 11, kv. 9, Tbilisi; Adolf Martitsovich Alexandrov, Federativny Prospekt, 6, korpus 3, kv. 8, Moscow; Ippolit Davidovich Suladze, Prospekt Chavvadze, 11, kv. 41, Tbilisi; Leonid Arkadievich Matskin, Krasnoarmeiskaya ulitsa, 26, korpus 2, kv. 23, Moscow; Zurab Dmitrievich Gambashidze, 1 Tupik Arakishvili, 8, Tbilisi; Ruben Dzhangirovich Balayan, Ljubertsy, Volkovsky ulitsa, 9, kv. 31, Moskovskaya Oblasti; Jury Abramovich Tsimbler, Sojuzny Prospekt, 10, kv. 261, Moscow; Avtandil Semenovich Kakhniashvili, ulitsa Eliava, 37, kv. 41, Tbilisi, and Vladimir Efimovich Aglitsky, Zatspeysky Val, 6/13, kv. 61, Moscow, all of U.S.S.R.

Continuation of Ser. No. 106,017, Jan. 13, 1971, abandoned.

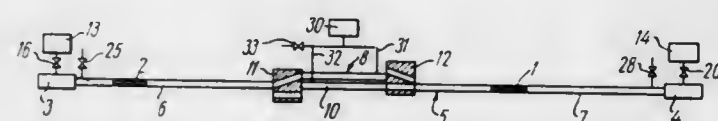
This application Mar. 23, 1972, Ser. No. 237,509

Claims priority, application U.S.S.R., Jan. 20, 1970, 1395307

Int. Cl. B65g 51/34, 51/36

U.S. Cl. 243—3

2 Claims



An installation for the pneumatic conveyance of containerized loads through a tube in which the main tube connecting the loading and unloading stations is divided into two sections with a by-pass section therebetween. The by-pass section consists of two parallel tubes which are connected alternately to the sections of the main tube by means of switches located on both sides of the parallel tubes.

3,829,043

HOVERCRAFT SECONDARY LIFT SYSTEM

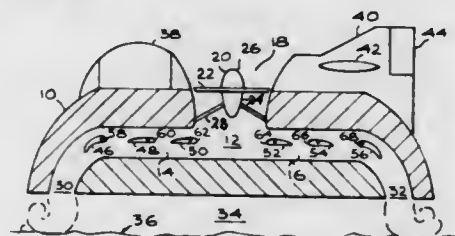
William Benson, P.O. Box 5194, San Bernardino, Calif. 92404

Filed Dec. 13, 1971, Ser. No. 207,380

Int. Cl. B64c 29/00

U.S. Cl. 244—12 R

7 Claims



A secondary lift system for an air cushion supported vehicle of the type having a chamber through which a flow of air is maintained. Air foil surfaces are positioned within the chamber. The flow of air around the air foil surfaces provides secondary lift for the vehicle. The resulting lift from the air foil surfaces is utilized to elevate the vehicle and to control the inclination of the vehicle.

3,829,044

ENGINE ARRANGEMENT FOR HIGH PERFORMANCE STOL AIRCRAFT

Henry R. Leslie, Atlanta, and Roger J. Samways, Marietta, both of Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Mar. 23, 1973, Ser. No. 344,240

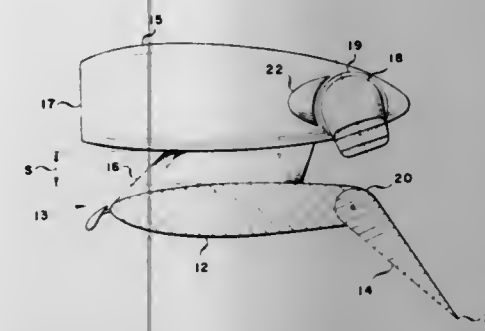
Int. Cl. B64c 3/38

U.S. Cl. 244—13

5 Claims

A form of power augmented high lift for aircraft mounts engine nacelles on overwing pylons. The nozzle system is a vec-

toring device such that the engine exhaust flow is caused to impinge on the upper surface of the flap at any flap angle. The vector device may be any of several types, such as the swivel nozzle illustrated, and is linked to the flap system to ensure op-



timum impingement angle on the surface providing flow attachment and a jet sheet extension to the trailing edge. In cruise the nozzle system directs the exhaust aft so that no flow interference with the wing/flap surface occurs.

3,829,045

RISER CONTROLS FOR GLIDING PARACHUTES

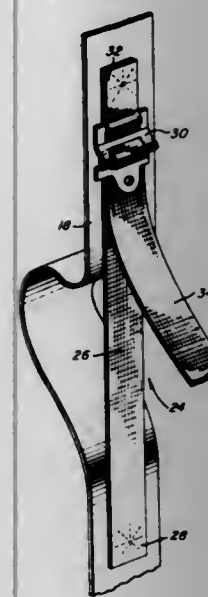
Stephen L. Snyder, 331 Cherry Hill Blvd., Cherry Hill, N.J. 08034

Filed Apr. 14, 1972, Ser. No. 244,034

Int. Cl. B64d 17/34

U.S. Cl. 244—152

11 Claims



The effective length of risers interconnecting a body harness and the suspension lines of a forward glide-type parachute, are differentially varied to exercise control over the canopy for attitude control purposes. Frictional buckle devices and control straps on one or more of the risers enables the chutish to infinitely vary the relative spacing between the ends of the risers.

3,829,046

PROGRAMMABLE, REVERSIBLE DRAG, MULTI-STAGE PARACHUTE

Jon T. Matsuo, and Lawrence E. Neipling, both of El Centro, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 16, 1973, Ser. No. 341,808

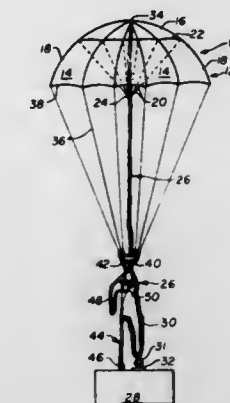
Int. Cl. B64d 17/34

U.S. Cl. 244—152

11 Claims

A multi-stage, variable drag parachute wherein the canopy drag area can be reversibly increased or decreased in programmable increments during deployment by means of one or more variable length, non-elastic control lines. The length of

the control lines are controlled at a point remote from the canopy by releasable connections that deploy the respective



INITIAL DEPLOYMENT FIRST STAGE

canopy increments, each deployed canopy increment being self-sustaining as an independent and integral portion of the entire canopy.

3,829,047

AERIAL BOMB AND OPTICAL LIGHT BEAM GUIDANCE SYSTEM THEREFOR

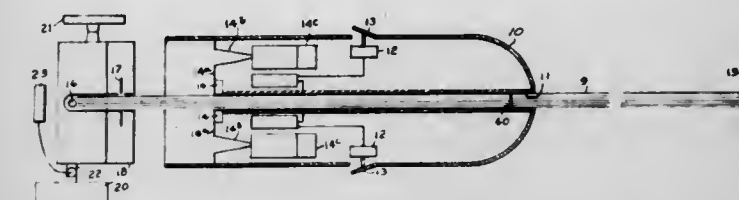
Joseph E. Gonsalves, 5813 40th Ave., Hyattsville, Md. 20782

Filed Sept. 29, 1972, Ser. No. 293,345

Int. Cl. F41g 7/00

U.S. Cl. 244—3.16

36 Claims



An optical light beam guiding system comprising the use of a single concentrated parallel small diameter beam of light rays, which may be of the visible, or invisible, ultraviolet or infra-red, or laser or maser type. They may also be produced by the use of a light source which itself produces a light with a narrow restricted range of wave lengths.

3,829,048

WIRE FABRIC

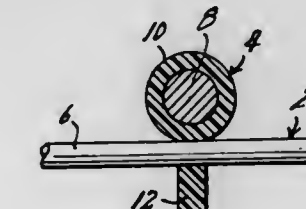
Thomas W. Platt, and Harmon W. Arnold, both of Carthage, Mo., assignors to Flex-O-Lators, Inc., Carthage, Mo.

Filed Sept. 11, 1972, Ser. No. 287,772

Int. Cl. B21f 27/00

U.S. Cl. 245—1

10 Claims



A wire fabric consisting of sets of longitudinal strands and cross strands, at least one of said sets including spring steel wires, the cross strands piercing said longitudinal strands to prevent slippage thereof lengthwise of said longitudinal strands, the cross strands being gripped frictionally in the longitudinal strands, or offset laterally at each of the longitudinal strands, or both, to prevent lengthwise slippage of the cross strands relative to the longitudinal strands.

3,829,049

FURNITURE SUPPORT

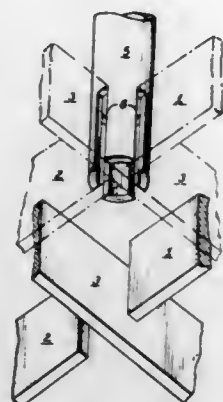
Fred C. Hughes, 119 Mary Rd., and James C. Hughes, 905 Nance Ave., both of High Point, N.C. 27260

Filed Sept. 27, 1972, Ser. No. 292,684

Int. Cl. F16m 11/20; B23k 31/02

U.S. Cl. 248—188.7

13 Claims



A pedestal support for furniture comprising first and second support members affixed to opposite sides of a third support member, intermediate the ends thereof, forming a cross member. A post having longitudinal slots in one end is placed over the cross member with the cross member received in the slots, and is then welded to the cross member, the weld filling the void between the cross member and the post.

3,829,050

SUSPENSION MEANS FOR AWNING HOUSING

Steinar Brautaset, 2040 Klofta, Bakke 77, and Finn Otterbeck, Gravdalsvn. 12b, Oslo 7, both of Norway

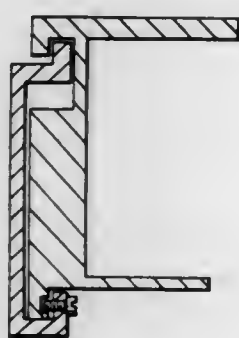
Filed Dec. 12, 1972, Ser. No. 314,454

Claims priority, application Norway, Dec. 30, 1971, 4986/71

Int. Cl. F16m 13/02

U.S. Cl. 248—223

1 Claim



Suspension means for awning housing of the type which securely locks the housing in place and does not permit the housing to be displaced in lateral direction, and makes it possible for unqualified people to mount the awning.

3,829,051

DETACHABLE SUPPORT TRAY FOR LADDERS

George Harvey Emmons, 11 S. 12th St., Marshalltown, Iowa 50158

Filed May 9, 1973, Ser. No. 358,584

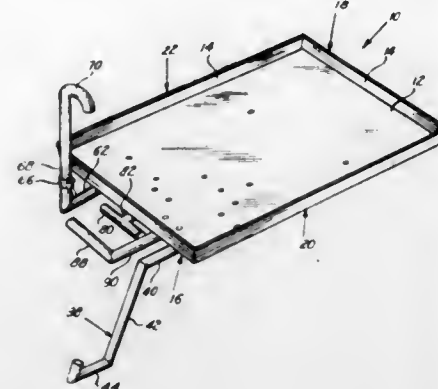
Int. Cl. F16m 13/02

U.S. Cl. 248—238

8 Claims

A tray for supporting paint cans, buckets, tools and the like is quickly and easily removably attachable to or removable from the side rail of a ladder. This tray includes a latch assembly which can be manually manipulated by one hand to secure it to or change it from selected points of attachment on

a ladder as may be desired for convenient access. When mounted, this tray extends laterally outwardly from the ladder so as to not interfere with the normal use of the ladder. It is



foldable into a compact unit for storage or transportation and is adjustable for accommodation to ladder side rails of different thicknesses.

3,829,052

VIBRATION ISOLATOR

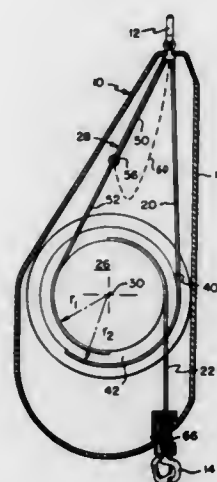
William G. Flannelly, South Windsor, Conn., assignor to Kaman Aerospace Corporation, Bloomfield, Conn.

Filed May 1, 1972, Ser. No. 249,131

Int. Cl. F16f 15/06

U.S. Cl. 248—317

15 Claims



A vibration isolator for reducing the transmission of vibrations between a supporting body and a body suspended from the supporting body employs suspension cables which are wrapped around a rotatable inertial mass in such a manner that the rotations of the mass will reel in one of the cables while other of the cables are paid out. The cables are connected to cylindrical surfaces of different diameters so that loads transmitted from one of the cables through the rotatable mass to the other cables generate a torque which causes the mass to rotate. A resilient tether connected to the mass urges the mass to rotate toward a static position in which the torque applied to the mass by the tether is balanced by the torque generated by the cables. In the presence of vibratory loads, the tether allows the rotatable mass to oscillate about the static position. By appropriate tuning of the mass and the resilient tether, it is possible to generate an antiresonance condition in which the vibrator isolator exhibits a zero impedance or transmissibility characteristic for vibratory loads of a given frequency.

3,829,053

TRIPOD SUPPORTING A FRAMING TABLE FOR CONCRETE WORKS

Jacques Bournazel, Wissous, France, assignor to Societe Pour L'Industrialisation du Materiel "Indumat", Essone, France

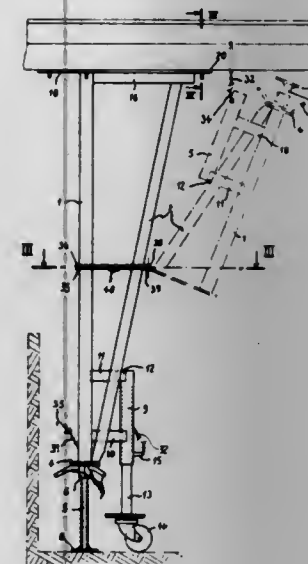
Filed Sept. 7, 1972, Ser. No. 286,961

Claims priority, application France, June 1, 1972, 72.19719

Int. Cl. F16m 13/00

U.S. Cl. 248—354 S

4 Claims



A jack comprises an inverted tripod divided substantially in half in two portions of substantially equal height, the lower portion including a jack structure of small compass.

3,829,054

MOUNTING OF SHEET MATERIAL

Horst Joseph Heilmeier, 107 Struben St., Benoni, South Africa

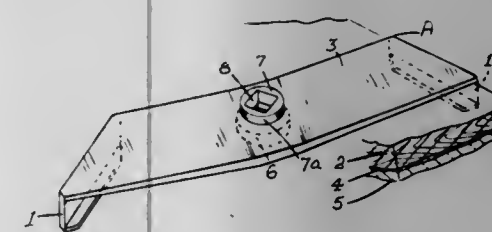
Filed Nov. 21, 1972, Ser. No. 308,505

Claims priority, application South Africa, Dec. 9, 1971, 70/8178

Int. Cl. A47g 1/16

U.S. Cl. 248—490

10 Claims



A pair of spaced apart gripping formations are located at an angle to each other, the gripping formations being operative to engage a pair of adjacent edges of a backing member meeting at a common corner in positions spaced from the common corner and also to engage sheet material superimposed on a front face of the backing member. A resilient locking element connects the two gripping formations and is arranged to extend along the rear of the backing member across the common corner in a position spaced therefrom, and a catch formation extends transversely from the locking element and is engageable and disengageable with a recess in the rear face of the backing member by displacement of the locking element in a direction transverse to the plane of the backing member, the locking element being operative resiliently to bias the catch formation towards engagement with the recess in the backing member.

3,829,055

MOLD FOR LOCATING TRANSVERSE REINFORCEMENTS IN ENDLESS TRACK

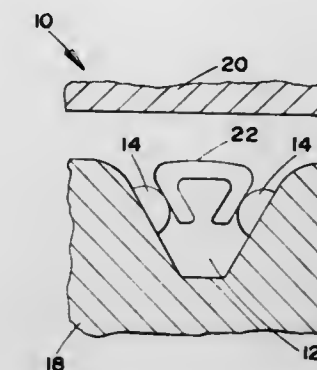
Paul E. Russ, Sr., Englewood, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Filed July 21, 1972, Ser. No. 273,919

Int. Cl. B22d 19/02

U.S. Cl. 249—91

6 Claims



A mold for endless track of the polymeric type. The mold includes small protuberances in the mold concavities for positioning, transversely aligning, and spacing stiffening members of generally rod shape. The stiffeners are preferably prepositioned in a spaced apart manner on a textile strip during the process of track assembly. The stiffeners are held in proper position while the polymer of the track is cured.

3,829,056

APPARATUS FOR FREEZING ICE BODIES

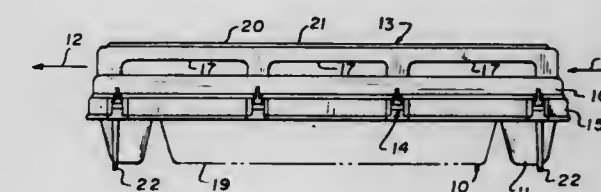
Cecil J. Baker, Newburgh, Ind., and Leo G. Beckett, Henderson, Ky., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed June 12, 1972, Ser. No. 261,948

Int. Cl. B28b 7/24

U.S. Cl. 249—121

6 Claims



An apparatus for freezing ice bodies having a freezing tray and a separable cover connected thereto by improved hinge means and with the cover having edge openings permitting the circulation of subfreezing air beneath the cover and across the surface of water in the freezing tray molds.

3,829,057

CONCRETE FORM

Leo Fuchs, Springfield, Tenn., assignor to The Mansfield Tire & Rubber Company, Mansfield, Ohio

Filed Feb. 9, 1973, Ser. No. 331,102

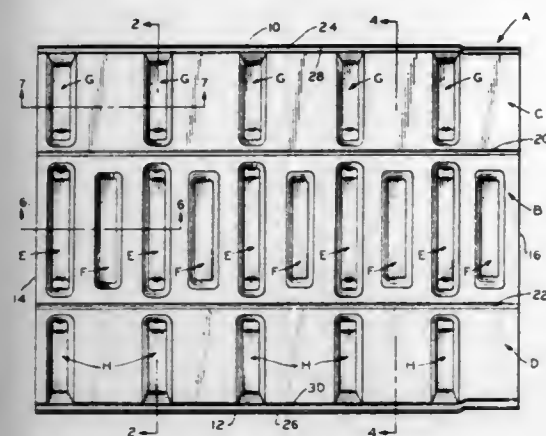
Int. Cl. B28b 7/28; B29c 1/12

U.S. Cl. 249—175

6 Claims

A substantially rigid concrete form of compressed fibers is made in a substantially flat rectangular configuration. The form includes a central section and opposite side sections connected thereto by fold lines defined by rounded grooves. The side sections are foldable along the grooved fold lines relative to the central section to make a substantially U-shaped concrete form. The central section and side sections have longitudinally-spaced transverse stiffening ribs therein. At least

certain of the central stiffening ribs and side stiffening ribs have end portions abutting one another when the form is



folded to its substantially U-shaped configuration. This abutting relationship of the ribs supports the central section on the side sections.

3,829,058

FLUIDIC VALVE MODULATOR

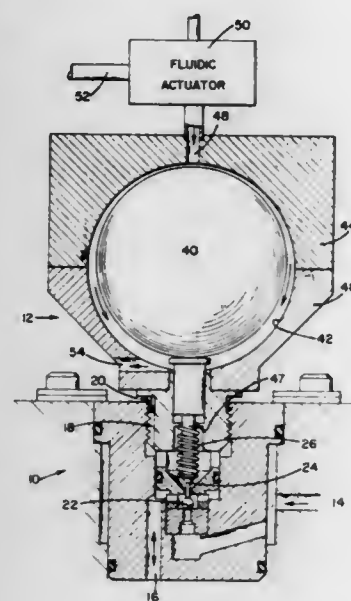
Joseph J. Andersen, Bristol, Conn., assignor to Chandler Evans Inc., West Hartford, Conn.

Filed July 18, 1972, Ser. No. 272,755

Int. Cl. F16k 31/43

U.S. Cl. 251-25

9 Claims



A fluidic valve control which may be operated in a time modulated mode is disclosed. The position of a valve member is modulated by means of the generation of Bernoulli forces in a fluidic actuator which is mechanically coupled to the valve.

3,829,059

AUTOMATIC VALVE ADAPTER

William A. Rupert, San Gabriel, Calif., assignor to Dial Industries, Inc., Los Angeles, Calif.

Filed June 8, 1973, Ser. No. 368,030

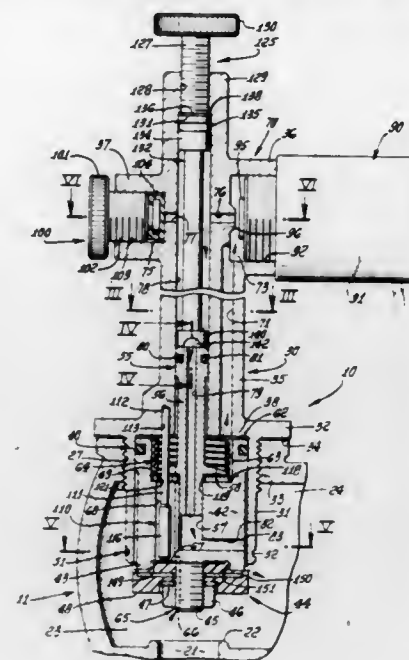
Int. Cl. F16k 31/02

U.S. Cl. 251-26

10 Claims

An adapter attachable to a valve body having an inlet port and an outlet, and including a housing provided with an operating chamber; a piston in the chamber having a larger diameter than the inlet port and provided with a lower closure member sealable with said inlet port, and a spring biasing the piston toward sealing position; an inlet passage through the piston from the inlet port to the operating chamber; pilot valve means for bleeding liquid from the operating chamber to per-

mit inlet water pressure to force the piston closure member upwardly away from the inlet port thus opening the main valve. The pilot valve is desirably solenoid operated, and manual override pilot valve means are provided, which may be incorporated in the solenoid. A washer shiftably mounted in the piston has an aperture constituting an orifice in the piston inlet passage. A control rod fixed to the housing projects



through the orifice to restrict liquid flow therethrough, and has a portion of enlarged section which enters the orifice as the closure member approaches valve closed position, in order to gently close the valve and thus avoid water hammer in the system. A spring wire bail serves during assembly to retain the piston in the housing against the force of the spring. Throttle means limit the upward of opening movement of the piston and closure member.

3,829,060

MAGNET VALVE

Alexander von Lewis, Menar, Mauren, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

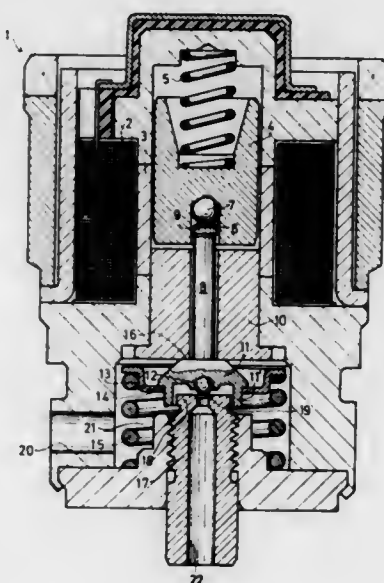
Filed Feb. 8, 1973, Ser. No. 330,515

Claims priority, application Germany, Feb. 22, 1972, 2208183

Int. Cl. F16k 31/06

U.S. Cl. 251-129

7 Claims



A magnet valve is provided with a valve body having a valve seat, and a spherical valve member which is mounted so that it can move in opposite directions into and out of engagement with the valve seat and has freedom of play transversely of its path of movement. Biasing springs bias the valve member in

one of those two directions of movement and an electromagnet is operable for moving the valve member in the opposite direction. A precentering arrangement serves for pre-centering the valve member with reference to the valve seat prior to engagement therewith.

the sealing ring. When a flat member is pressed over the sealing ring the enclosing rings create an expansive pressure throughout the sealing ring, thus urging the central rib against the flat member and urging the enclosing rings against the shoulders.

3,829,061

GATE VALVE SEAL

Eddy K. Dayne, Glendora, and Wilbur G. Land, Anaheim, both of Calif., assignors to Bagdad Plastics Company, Phoenix, Ariz.

Filed Sept. 20, 1971, Ser. No. 181,997

Int. Cl. F16k 31/2, 27/04

U.S. Cl. 251-328

13 Claims

3,829,063

ARTICULATED PLATFORM FOR HAND TRUCKS AND THE LIKE

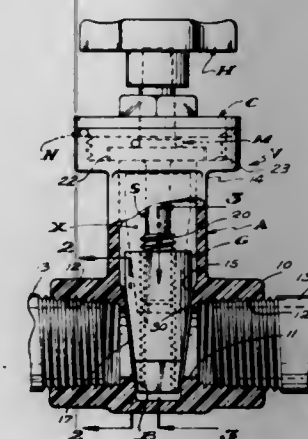
George R. Holzworth, Crove St. R.F.D., Plympton, Mass. 02367

Filed Mar. 14, 1973, Ser. No. 341,309

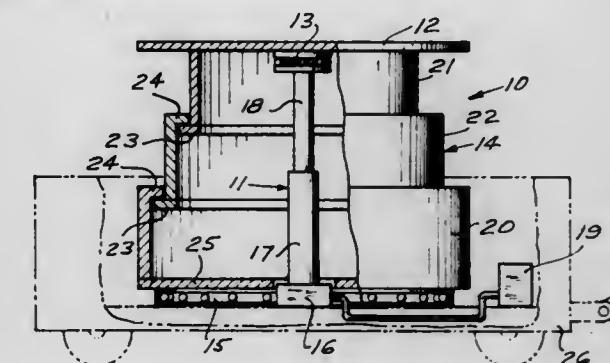
Int. Cl. B60p 1/00

U.S. Cl. 254-2 R

1 Claim



A gate valve structure including a unitary molded plastic body with a horizontal flow passage and a vertical valve chamber intersecting the flow passage and projecting upwardly therefrom; said chamber having flat, axially spaced, substantially oppositely disposed downwardly convergent seat faces on planes transverse the axis of the flow passage to cooperatively accommodate a vertically shiftable valve gate with flat, substantially oppositely disposed, downwardly convergent sealing faces, said seat faces having annular flexible sealing face engaging sealing beads formed integrally therein, about the flow passage; said beads being of uniform major axial extent throughout their circumferential extent and having flat sealing surfaces, the upper and lower portions of which occur on planes substantially parallel with the axis of the chamber and converge downwardly and join the seat faces.



A platform primarily intended for installation on a hand-truck, can be raised and lowered hydraulically and rotated manually.

3,829,064

WINCH SYSTEM

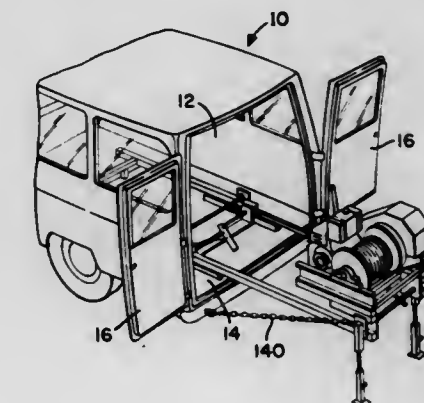
Richard L. Jackson, Lewisburg, Ohio, assignor to Jackson Communication Corporation, Clayton, Ohio

Filed Jan. 5, 1973, Ser. No. 321,210

Int. Cl. B66d 3/00

U.S. Cl. 254-166

10 Claims



A winch system for pulling or towing work as might be used in construction, rigging, communications, power or any industry using a winch. As presented here the winch system is particularly adapted for towing cables being installed on an existing messenger strand. The system includes a motor vehicle having an enclosed compartment, a stationary track assembly mounted on a floor of the vehicle within the compartment, and a movable track assembly movable along the stationary track assembly between a stowed position within the compartment and an active position disposed outside the compartment. The movable track assembly carries an indexing frame on its outer end which rotatably mounts a winch base frame. Locking means are provided for locking the movable track assembly in either its stowed or active positions and for locking the winch base frame against rotation in any of several positions. The system also includes vertically adjustable stabilizing

3,829,062

DEFORMABLE SEALING RING ARRANGEMENT

Heinrich Fend, Buchs, Switzerland, assignor to VAT Aktien-gesellschaft für Vakuum-Apparate-Technik, Haag, Switzerland

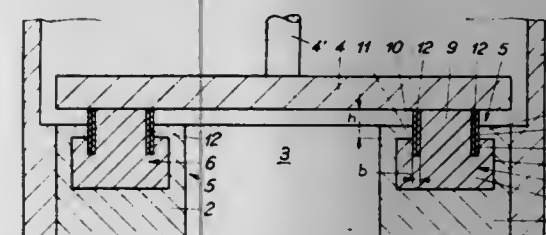
Filed Sept. 13, 1972, Ser. No. 288,825

Claims priority, application Switzerland, Oct. 10, 1971, 14730/71

Int. Cl. F16k 25/00

U.S. Cl. 251-332

6 Claims



An annular, undercut groove in the upper edge of a circular members carries a deformable sealing ring having a central rib projecting between opposite shoulders of the groove defined by the undercuts. Rigid enclosing rings surround the rib on both sides, bear against the shoulders, and fit into grooves in

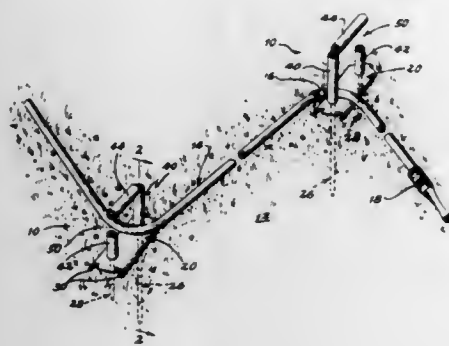
legs pivotally mounted on the outer end of the movable track assembly and stabilizing chains which are also attached to the outer end of the movable track assembly and to some portion of the vehicle, such as the bumper thereof.

3,829,065 GUIDE

Raymond L. Less, 478 Groundly St., North Tonawanda, N.Y. 14150

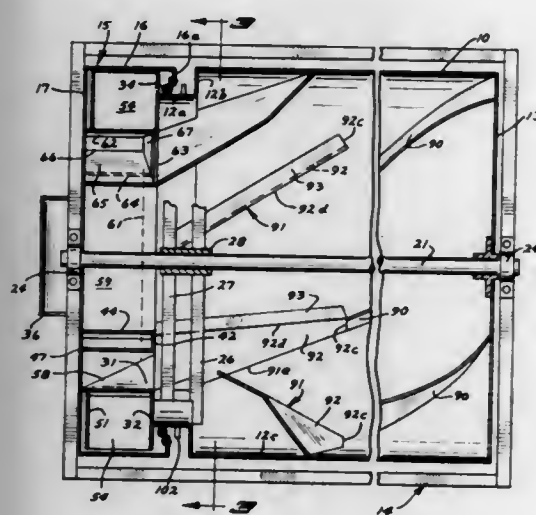
Filed Mar. 1, 1972, Ser. No. 230,850
Int. Cl. B66d 1/36

U.S. Cl. 254—190 C



A guide for controlling the direction of movement of a flexible member, such as a garden hose. The guide features a pair of vertically disposed rollers journaled on an anchor rod and a steady anchor rod above a downwardly curved base plate through which the anchor rods extend, and a third roller journaled on a "bend-over" upper end of the anchor rod such as to overlie a hose retaining space between the pair of vertically disposed rollers. The third roller cooperates with the roller journaled on the steady anchor rod to define a horizontally arranged access opening through which a hose may be removably threaded into the hose retaining space, and serves as a convenient hand grip for removably inserting the anchor rods into the ground.

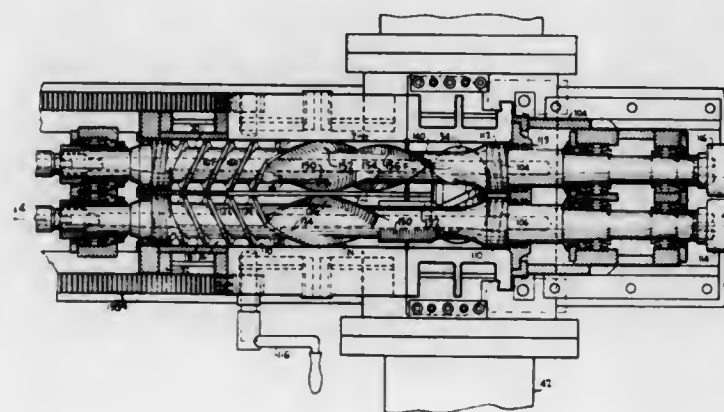
3,829,066
PARTICULATE MATERIAL MIXING MACHINE
Charles E. Phillips, Box No. 75, Downsville, Wis. 54735
Filed Apr. 4, 1973, Ser. No. 347,812
Int. Cl. B01f 9/06
U.S. Cl. 259—3



A particulate material mixing machine having a rotatable open ended drum with scoops attached thereto to elevate material within a stationary hood enclosing the drum open end and material received from a stationary hopper within the drum. Drum mechanism including troughs elevates material and directs it into the hopper, a baffle attached to the hood blocking any substantial flow of material from the drum to the scoops except that which passes through the hopper. A hood

discharge chute receives material elevated by the scoops provided the closure therefor is open, and if closed the material is moved thereover to the inlet chute of the auger assembly which flings the material rearwardly to descend into the drum substantially throughout the axial length thereof. In one embodiment the scoops are stationary while in the other embodiment some of the scoops are pivotable relative the drum.

3,829,067
APPARATUS FOR COMPOUNDING RUBBER, ELASTOMER, PLASTIC AND LIKE MIXES
James T. Matsuoka, Brecksville, Ohio, assignor to Intercole Automation, Inc., Cleveland, Ohio
Filed May 7, 1973, Ser. No. 358,015
Int. Cl. A21c 1/06; B29b 1/10
U.S. Cl. 259—192

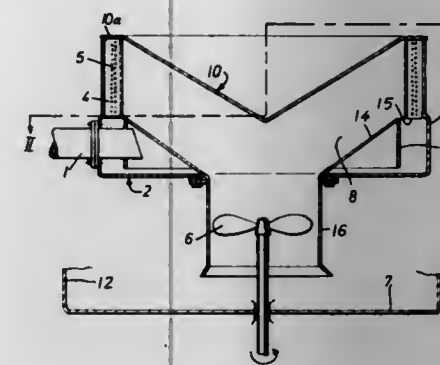


Internal or closed chamber high shear mixing apparatus for compounding materials including solid ingredients which become gelatinous at temperatures above ambient temperature, such as, rubber, elastomer, plastic, and like mixes, in a continuous manner having a pair of parallel material processing rotors in side-by-side communicating chambers closed except for a material feed opening adjacent one end and a material discharge opening adjacent the other end communicating with a screw controlled discharge conduit offset from and extending transversely of the axes of rotation of the rotors. Each rotor has a material conveying screw section adjacent the material feed opening followed by a material processing section comprising two pairs of discrete material processing blade portions offset axially with respect to one another. Both pairs of blade portions of one rotor are helically orientated more lengthwise of the axis of the rotor than circumferentially thereof and twist in opposite directions with the pair adjacent the discharge of the material processing chamber having a lower helix or lead angle than that of the other pair. The other rotor has one pair of helically orientated material processing blade portions extending more lengthwise of the axis of the rotor than circumferentially thereof and the other pair orientated lengthwise of the rotor axis.

3,829,068
DEVICE FOR THE DISTRIBUTION OF GAS IN A LIQUID
Rudolf Hohne, 18 Springvale Rd., Glen Waverly, Victoria, Australia
Filed Sept. 18, 1970, Ser. No. 73,530
Int. Cl. B01f 3/04
U.S. Cl. 261—36 R

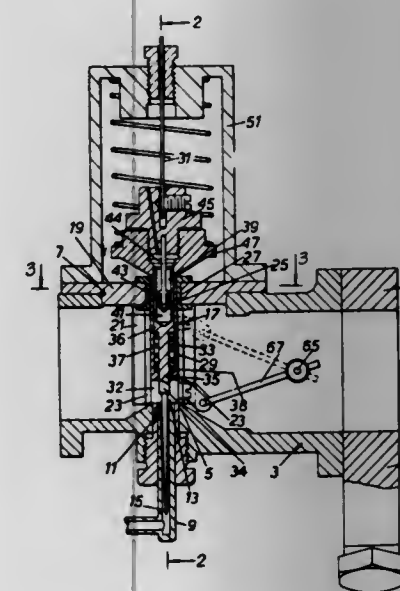
A specific embodiment of a device is disclosed for the distribution of gas in a liquid which is contained in a tank having a bottom and side wall. A gas flow chamber includes an annular, hollow body having an outer wall, an inner wall, a partition wall between said inner and outer walls and a top wall having a plurality of holes. A liquid flow chamber has liquid inlet means and liquid outlet means and is fixedly mounted with respect to the gas flow chamber. A pump is used for causing the liquid to flow out of the tank through the stationary flow chamber and

out of the liquid outlet means back into the tank. The gas outlet means includes a plurality of straight, vertically extending tubes closed at the top and registered at the bottom with the holes located in the top wall of the annular, hollow body. The vertically extending tubes are spaced with respect to each other around the top wall of the annular body so that there are gaps between adjacent tubes. The vertically extending tubes



include said plurality of gas openings which are arranged to face the gaps between the tubes. A substantially uniform flow of gas is directed through the openings and gas bubbles are removed directly at the gas openings by a flow of liquid which is passing out of the liquid outlet means. The gas bubbles are removed directly at the openings with a minimum amount of turbulence.

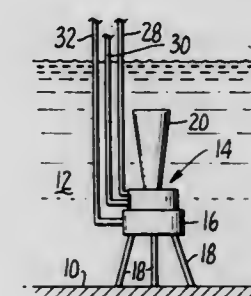
3,829,069
AIR VALVE CARBURETOR WITH ENGINE STARTING FUEL ENRICHMENT MEANS
Victor L. Hailstone, Chelmsford; Ronald N. Harper, Rayleigh, and Wilfred T. Oliver, Rugby, all of England, assignors to Ford Motor Company, Dearborn, Mich.
Filed June 5, 1972, Ser. No. 259,419
Claims priority, application England, June 10, 1971, 19867/71
Int. Cl. F02m 1/14
U.S. Cl. 261—44 R



An air valve carburetor has an engine starting fuel supply line with an outlet downstream of the throttle valve and an inlet controlled by a spring opened valve that is closed by engine running level vacuum, a second valve in the supply line between the first valve and the outlet being connected to the

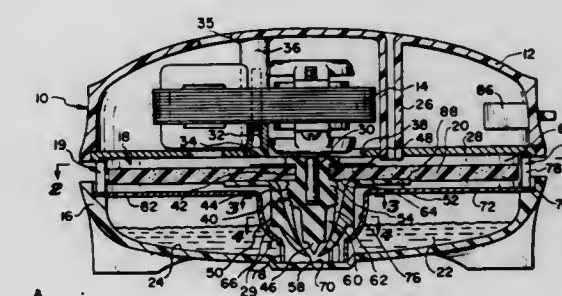
throttle valve so that opening the throttle valve a predetermined amount moves the second valve to close the fuel supply line irrespective of a low vacuum level at this time being insufficient to maintain the inlet control valve closed.

3,829,070
GASIFICATION SYSTEM
Imants Reba, and Edward C. Wolhausen, both of Vancouver, Wash., assignors to Crown Zellerbach Corporation, San Francisco, Calif.
Filed Oct. 13, 1972, Ser. No. 297,555
Int. Cl. B01f 3/04
U.S. Cl. 261—77



A system of gasifying a liquid utilizing the "Coanda effect." In the system a fluid is directed through a slit under pressure whereupon it attaches itself to a flow attachment surface and entrains the liquid to be gasified. A gas is admitted to the entrained liquid flow path with resultant high degree of turbulent mixing and high shear at the gas-liquid interface. This causes the formation of great numbers of small bubbles which are ejected along with the entrained liquid into the body of the liquid to be gasified.

3,829,071
ROOM ODOR CONTROL
Bruno M. Valbona, Avon, and Harry M. Voglesonger, River-ton, both of Conn., assignors to Dynamics Corporation, New York, N.Y.
Filed June 19, 1972, Ser. No. 264,135
Int. Cl. C10j 1/12
U.S. Cl. 261—89



A dispenser for liquids controlling room odors in which controlled amounts of liquid are dispersed in a washable disk of expanded plastic rotated in a confined compartment to induce a mild circulation of air therethrough whereby vapor from the liquid is imparted to the air and airborne particles of smoke are removed from the air.

3,829,072

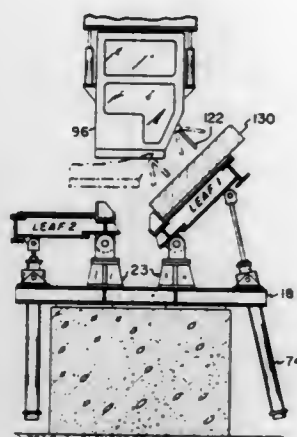
METAL SLAB CONDITIONING SYSTEM

Arthur H. Fieser, P.O. Box A, Allison Park, Pa. 15101, and
Loreley S. Mobley, 4420 Sebald Dr., Franklin, Ohio 45005
Filed Nov. 13, 1972, Ser. No. 305,794

Int. Cl. B23k 7/00, 7/06, 7/10

U.S. Cl. 266—23 H

5 Claims



A slab conditioning system including a pair of rotatable leaves for supporting metal slabs and a conditioning tool platform mounted above the leaves and adapted to traverse the slab during the conditioning process.

3,829,073

DEVICES BLOWING-IN OXYGEN THROUGH THE BOTTOMS OF METALLURGICAL CONVERTERS

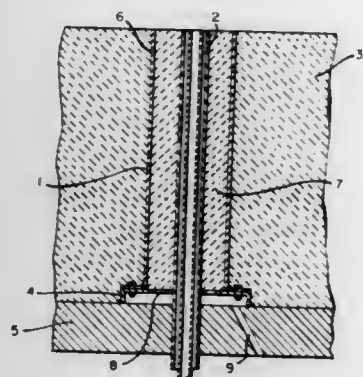
Camille Alphonse Courard, Angleur, Belgium, assignor to Centre de Recherches Metallurgiques, Brussels, Belgium
Filed Dec. 8, 1972, Ser. No. 313,382

Claims priority, application Belgium, Dec. 8, 1971, 776428

Int. Cl. C21c 5/48

U.S. Cl. 266—41

11 Claims



An arrangement for preventing hydrocarbon from forming an accumulation in the region adjacent to the outlet end of the dual tube tuyere utilized for blowing-in oxygen and a liquid hydrocarbon through the bottom of a metallurgical converter.

3,829,074

WORK-TABLE ON MACHINES FOR PROCESSING METAL

Eduard Hanni, Zofingen, and Walter Gygli, Niderpipp, both of Switzerland, assignors to Hammerle A.G. Maschinenfabrik, Zofingen, Switzerland

Filed Dec. 18, 1972, Ser. No. 316,016

Claims priority, application Switzerland, Dec. 22, 1971, 11026/71

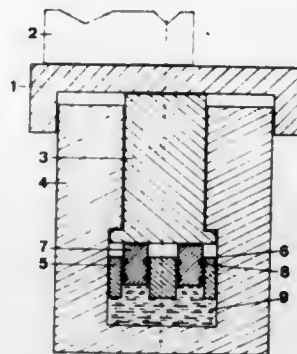
Int. Cl. F16f 7/00

U.S. Cl. 267—130

2 Claims

A work-table having a table panel, a support element which supports the table panel across a load bearing dimension of the panel, and itself defines over the same dimension with a bottom part an oil chamber the oil in which will support the

support element and panel, via an vertically displaceable separation member. This separation member is in the form of



a number of pistons, displaceably arranged in bores of a plate between support element and oil, or in the form of a diaphragm.

3,829,075

WISE

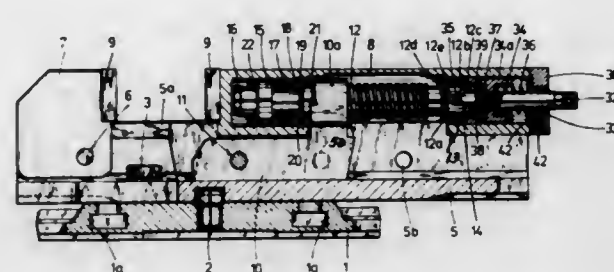
Gerhard Dziuballe, and Albrecht Weber, both of Hilchenbach, Germany, assignors to Maschinenfabrik Hilma Gesellschaft mit beschränkter Haftung, Hilchenbach, Germany

Filed Sept. 21, 1972, Ser. No. 290,865

Int. Cl. B25b 1/18

U.S. Cl. 269—28

3 Claims



A vise having a fixed clamping jaw and a clamping carriage mechanically movable relative to the clamping jaw by means of a threaded spindle. Such vise is equipped with a fluid pressure operable amplifier, the amplifying pressure of which is conveyed to a high pressure chamber provided in the clamping carriage. The supply of pressure medium is controlled by valve means. When the clamping carriage engages the work piece, the valve is opened by means of an axial relative motion of a coupling shaft which is connected with the spindle by means of a disengageable clutch. The coupling shaft is operated by a crank handle which, when the clutch is engaged, also effects the mechanical feeding movement of the clamping carriage by means of the spindle. The automatic disengagement of the coupling shaft from the spindle and the axial and control movement of the coupling shaft resulting therefrom may be blocked by pressing in the coupling shaft.

3,829,076

DIAL INDEX MACHINE

Hugh M. Sofy, 201 Warrington, Bloomfield Hills, Mich. 48013

Filed June 8, 1972, Ser. No. 261,065

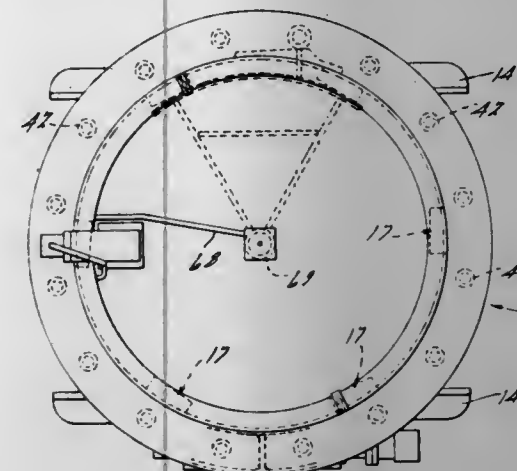
Int. Cl. B23q 1/00

U.S. Cl. 269—57

7 Claims

A machine for indexing workpieces to a succession of work stations. A base supports a lightweight fabricated indexable work holding ring which supports workpieces outwardly and

above the base. The work stations carried by the base are thus inside the ring, permitting easy accessibility to the ring. A cam



drive mechanism is mounted outwardly of the base and under the ring. Piping and wiring may extend radially from the base center.

3,829,077

ADJUSTABLE CLAMPING MEANS

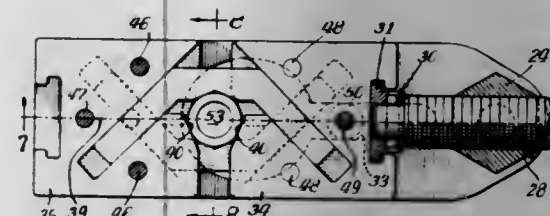
Richard V. Strybel, Elk Grove Village, Ill., assignor to Imperial-Eastman Corporation, Chicago, Ill.

Filed Mar. 27, 1972, Ser. No. 238,256

Int. Cl. B25b 1/02, 1/12, 1/24

U.S. Cl. 269—107

57 Claims



An adjustable clamping means for use in clamping any one of a plurality of objects having different cross-sectional sizes and/or shapes. The clamp may be used for holding a tube such as in a tube flaring tool. The clamping portions of the clamp provide a positive retention of the workpiece while yet effectively precluding deformation of the workpiece as by overstressing thereof in effectively holding the workpiece. The clamp includes interleaved, intersliding portions cooperatively defining an array of clamping surfaces adjustably spaced from the axis of an inner clamping space in which the workpiece is retained. Manual means are provided for adjusting the clamping surface array so that the tool may be used with different diameter cylindrical, polygonal, irregular, etc., workpieces. The clamp may include means for preventing overtorquing thereof illustratively in the form of a spring biased clutch. The manual operating means may alternatively be separable from the clamping elements or connected thereto as desired. In one form, the clamp comprises a chuck for use in holding a workpiece such as in a lathe or the like, in a centered relationship to an axis of the clamp.

3,829,078

MANUALLY OPERATED SPRING LOADED JACK LOCK ASSEMBLY

Dean A. Claycomb, 3921 W. Townhall Rd., Traverse City, Mich. 49684

Filed Aug. 10, 1973, Ser. No. 387,482

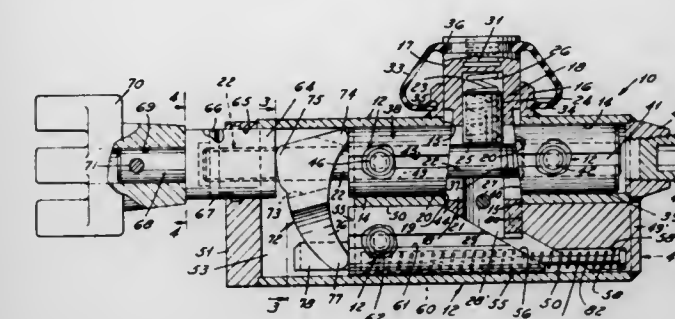
Int. Cl. B23q 3/10

U.S. Cl. 269—310

12 Claims

A spring-biased plunger, preferably if not always assisted by fixed jacks, supports a workpiece to be mechanically operated

on forcibly by a metalworking or like machine. The plunger is spring-urged upwardly, then supported in an upwardly adjusted position by clamping elements of a clamp device which are actuated toward one another in opposite horizontal



directions by manually operated screw means. As thus clamped in a positive preliminary way, a wedge device, as coordinately operated through a toggle type member in synchronism with the clamp device, comes into action beneath the plunger to rigidly sustain the same.

3,829,079

SPINAL POSITION PATIENT RESTRAINT

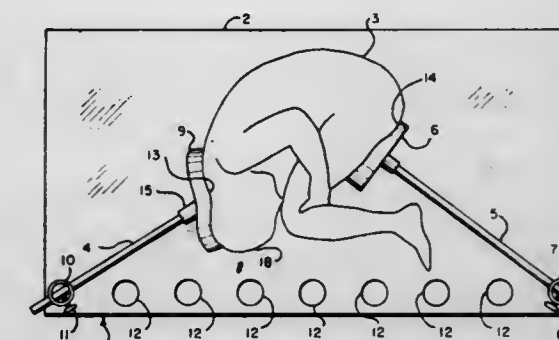
Donald H. Fox, 418 Woodhaven Pl., Philadelphia, Pa. 19116

Filed Jan. 26, 1973, Ser. No. 326,764

Int. Cl. A61g 13/00

U.S. Cl. 269—328

10 Claims



A medical restraint device whereby a patient lying on his side on a medical treatment table, in a curled position with bowed spine, is prevented from involuntarily or inadvertently kicking, straightening the spine, or otherwise making a movement potentially dangerous to the spine. A cervical-occipital pad and a posterior-thigh pad are provided to bear against these general anatomical portions of the patient. Each pad is individually mounted for vertical, horizontal, and pivotal adjustment so as to be capable of being brought to the correct position with respect to the patient. Selectively adjustable fixing or locking means are provided. Various mechanical expedients, including sliding, or telescoping, or threaded connections to carry out these functions are provided.

3,829,080

FAN-FOLDED PAPER STACKER FOR HIGH SPEED PRINTER

H. Peter Braen, Amherst, N.H., and Raymond A. Hafner, West Acton, Mass., assignors to Mohawk Data Sciences Corporation, Herkimer, N.Y.

Continuation of Ser. No. 158,195, June 30, 1971, abandoned.

This application Aug. 19, 1971, Ser. No. 173,213

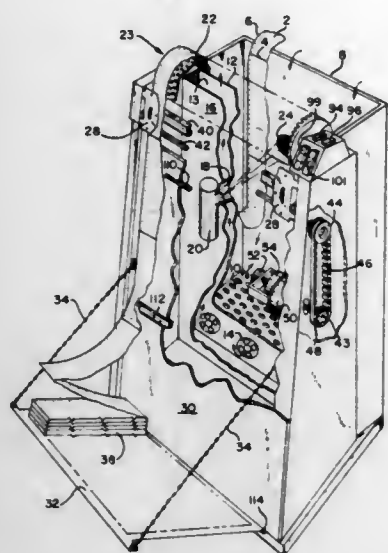
Int. Cl. B65h 45/04

U.S. Cl. 270—61 F

20 Claims

Fan-folded printout from a high speed printer is stacked by feeding the paper down a vertically inclined surface onto a platform located at an angle with the surface to cause the paper to stack. The paper is fed down the vertically inclined

surface by a pair of conventional paper feed tractors engaging edge perforations in the paper. A vacuum chamber buffer is provided between the printer and the inclined surface and when a minimum amount of web is photoelectrically sensed in the buffer, the stacker is conditioned to discontinue stacking when the first fold pointing away from the inclined surface



above the top of the stacked paper on the platform is one form length above the top of the stack. The precise time at which to discontinue stacking is determined by tracking the shaft driving the tractors with a counter. Since the top of the stack continually rises, another counter is provided to track the stack's top.

3,829,081

SMALL PIECE FOLDER

Roland W. Gerstenberger, Fort Lauderdale, and Charles P. Heater, Boca Raton, both of Fla., assignors to Jensen Machinery Inc., Fort Lauderdale, Fla.

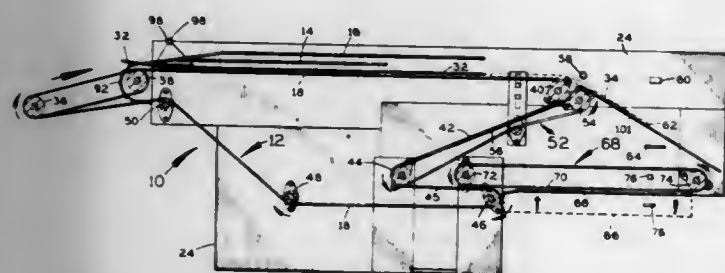
Continuation-in-part of Ser. No. 128,007, March 25, 1971.

This application Apr. 6, 1973, Ser. No. 348,620

Int. Cl. B65h 45/22

U.S. Cl. 270-66

9 Claims



A laundry folding apparatus having folding members which are laterally adjustable to accommodate different fold widths, as determined by guides over which the opposite side portions of a laundry piece are folded and which are themselves laterally adjustable by turning a single rod. After being longitudinally folded, each laundry piece is cross folded by being forced pneumatically between downwardly inclined, face-to-face portions of conveyors. Preferably, the fully folded pieces are carried by a return conveyor back to the entrance end of the apparatus.

3,829,082

AUTOMATIC DOCUMENT HANDLER

August Hoyer, 67 Pineview, Penfield, N.Y. 14526

Filed May 8, 1972, Ser. No. 251,492

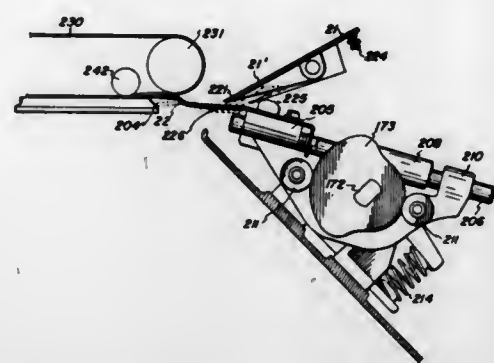
Int. Cl. B65h 5/02

U.S. Cl. 271-4

2 Claims

An automatic document handler for supplying documents singly to the platen of a processing apparatus such as a copy-

ing machine. Following copying, each document is returned to the document supply where the used documents are kept separated from documents awaiting copying by means of a resettable bail bar. To position the documents properly for copying, the document handler includes a register against which the document trailing edge is abutted through reversal of the platen transport belt. To allow the document to be removed and the platen cleared for the next document, means



are provided to remove the register and lower a document deflector into an intercept position, the deflector then serving to guide the document into a predetermined return path back to the document supply without interfering with movement of the next document forward. The platen transport comprises an endless belt conveyor supported for substantially single line contact with the platen surface at a point adjacent to and parallel with the register.

3,829,083

AUTOMATIC ORIGINAL FEED DEVICE FOR ELECTROPHOTOGRAPHIC DUPLICATING MACHINE

Toshio Shiina, No. 20-6, Nakamagome 3-chome, Ota-ku, Tokyo, and Akira Midorikawa, No. 3-27-201, Yokodai 2-chome, Isogo-ku, Yokohama, both of Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

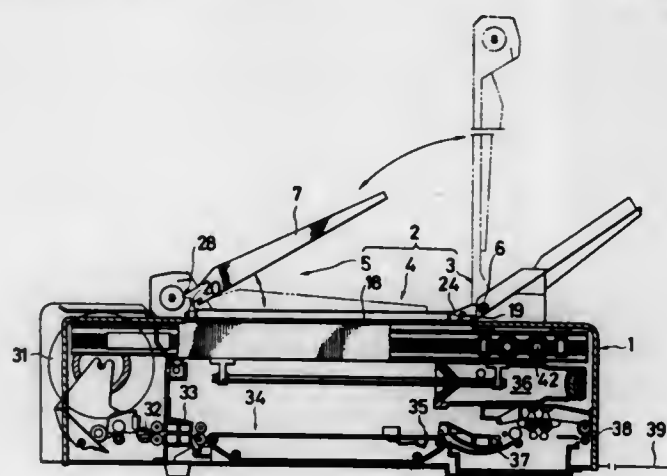
Filed Nov. 9, 1972, Ser. No. 304,979

Claims priority, application Japan, Nov. 13, 1971, 46-90301

Int. Cl. B65h 3/06, 5/02, 31/02

U.S. Cl. 271-4

6 Claims



An automatic original feed attachment for mounting on conventional electrophotographic duplicating machines comprising: a first section which is connected to the machine having a tray for holding a stack of originals to be duplicated and a feed system for removing the originals in sequence from the tray; a second section pivoted to the first section and having an endless belt which passes over the copying position of the machine and feeds originals from the first section to the copying position and holds them there during copying; and a third section connected to the second section and having an original receiving tray and a system for removing originals after copying and reversing their feed path before delivery to the receiving tray. The receiving tray mounting permits it to be dropped from its normally inclined position to rest on the second sec-

tion and the second section may be pivoted up from the copying position to permit free access to the original receiving glass plate for individual copying when the present attachment is not being used.

to a sheet through the suction openings and suction conduit to hold down the sheet on the feed table is varied in synchronism with the operation of the apparatus as the feed conduit means is raised and lowered.

3,829,084

ADJUSTABLE TRANSFER GRIPPER CYLINDER

Josef Jurny, Sebrance, Czechoslovakia, assignor to Adamovske Strojirny, narodni podnik, Adamov, Czechoslovakia

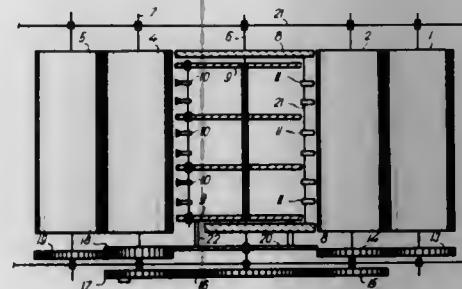
Filed July 10, 1972, Ser. No. 270,451

Claims priority, application Czechoslovakia, July 13, 1971, 5139-71

Int. Cl. B65h 5/12

U.S. Cl. 271-277

7 Claims



Adjustment mechanism for properly gripping paper sheets of different lengths to be transferred for multicolor printing including adjusting means for adjusting the circumferential spacing of cylinder gripping means, particularly on rotary printing machines. On one end of a shaft of a sheet transfer cylinder there is rotatably mounted a gear wheel and on one end of a shaft of a cylinder for turning papers sheets is a first drive gear and a second drive gear which is adjustable relative to the first drive gear. One drive gear of the turning cylinder is engageable with the drive gear of the sheet transfer cylinder, so that changing of the rotational orientation between the drive gears of the sheet turning cylinder effects a rotation of the gear wheel of the sheet transfer cylinder and a change in the circumferential spacing between the mechanical grippers and the suction gripping elements thereof.

3,829,085

SHEET FEEDING APPARATUS

Willi Jeschke, and Gerhard Pollich, both of Heidelberg, Germany, assignors to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

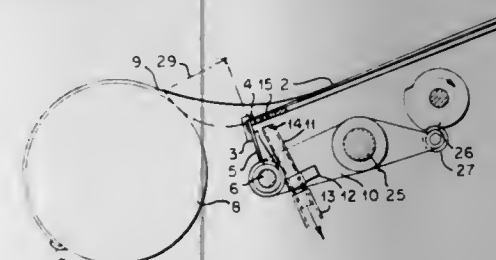
Filed July 12, 1972, Ser. No. 271,066

Claims priority, application Germany, July 13, 1971, 2134834

Int. Cl. B65h 9/04, 9/14

U.S. Cl. 271-231

7 Claims



Apparatus for feeding sheets includes a feed table onto which the sheets are supplied. The front edges of the sheet are engaged by stops, and suction openings in the feed table precede the stops. Suction conduit means which underlie the feed table in alignment with the suction openings are operable between raised and lowered positions in synchronism with the operation of the apparatus whereby the underpressure applied

3,829,086

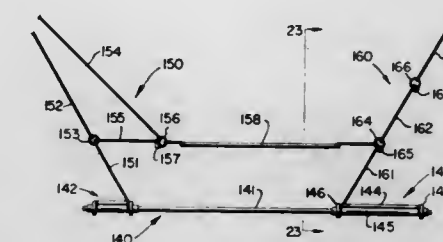
FIGURE-EIGHT SWING

Marion Pasteur Lelong, 1308 Seaton Ln., Falls Church, Va. 22046

Filed July 8, 1971, Ser. No. 160,727

Int. Cl. A63g 9/00

19 Claims



A swing for two persons seated or standing at opposing and spaced-apart spreader assemblies which are interconnected by a transversely disposed and rotatably attached spacer shaft means that may be monoshaft or multishaft. A pair of ropes diverge downwardly from an overhead pivot to spaced-apart attachment positions on either side of each spreader assembly. Relative to the spacer shaft means, the support lines may be inwardly inclined, upright, or outwardly inclined. The swing travels endwise and sidewise and is capable of describing an apparent figure-eight pattern when the spreader assemblies move transpositionally. Means are provided for users to initiate endwise and sidewise swinging and for group activity.

3,829,087

WHIRL-ABOUT TOY

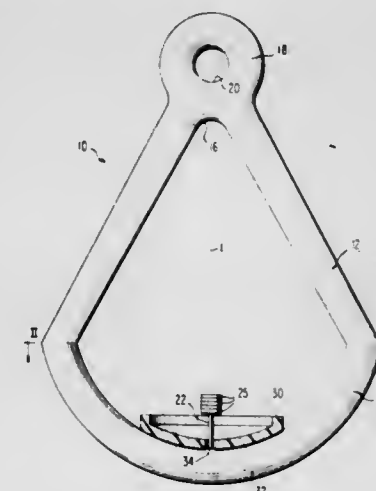
George Clark Kuney, 811 B Seventeenth St. N., St. Petersburg, Fla. 33704

Filed June 23, 1972, Ser. No. 265,510

Int. Cl. A63h 1/32

U.S. Cl. 273-1 R

9 Claims



A toy which includes a frame member having a suspension point at one end thereof and a balance point at the other end thereof facing said suspension point with the balance point, suspension point and center of gravity of the frame member falling on a common straight line so that objects can be balanced on the balance point and the frame member can be spun about the suspension point without upsetting the balanced condition of the objects. A rod of small diameter is supported on the frame member so as to extend the balance point along the common straight line toward the suspension point. The rod has its end face lying in a plane perpendicular to the common straight line and a cup-shape member is disposed on the frame member in surrounding relationship to the rod.

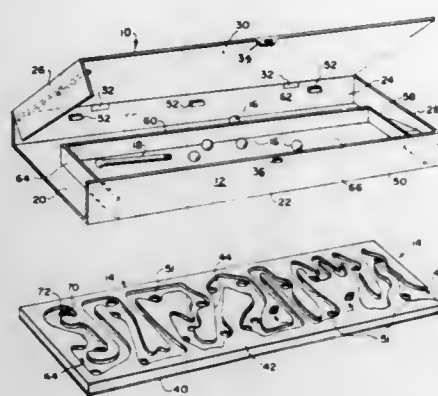
3,829,088

COMBINATION GAME AND EDUCATIONAL DEVICE
Clark J. Pahlas, Wheaton, Ill., assignor to The A. N. Palmer Company, Schaumburg, Ill.

Filed Aug. 31, 1972, Ser. No. 285,444
Int. Cl. A63f 7/06; G09b 11/04

U.S. Cl. 273-1 M

2 Claims



An educational magnetic game device wherein a steel or other magnetic ball is caused to traverse an undulatory channel-like track under the influence of a magnetized stylus. Appropriately positioned holes in the channel track bottom constitute obstacles to continuous movement of the ball along the track. The game device is embodied in a box having a non-magnetic transparent hinged lid through which the track may be viewed and the ball magnetically attracted while the interior of the box affords a storage space for a selection of different tracks. A guide channel within the box receives a ball which has successfully traversed the track and returns it to the player. Such balls as are entrapped by the obstacle holes are captured within the box. The various tracks define contours which may familiarize the player or players with specific shapes such, for example, as letter or numeral shapes, or merely with penmanship strokes which are used in executing such shapes.

3,829,089

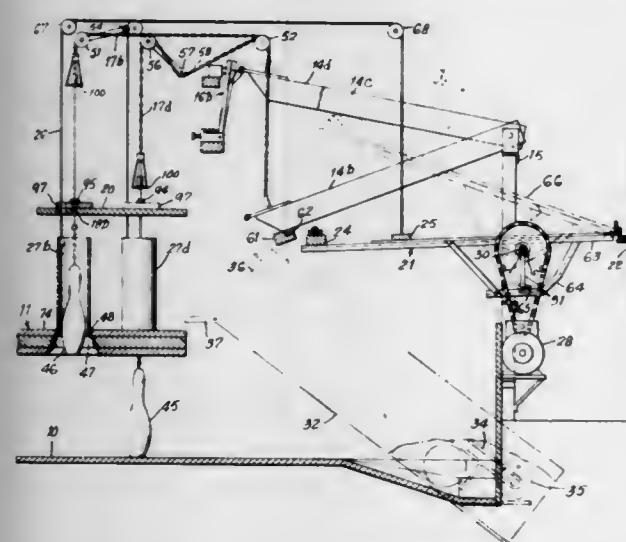
TETHERED PINS PINSETTER

Louis M. Butterfield, Portsmouth Ave., Stratham, N.H. 03885
Filed Nov. 9, 1973, Ser. No. 414,388

Int. Cl. A63d 3/00

U.S. Cl. 273-44

10 Claims



A Pinsetter for bowling alleys in which the pins are connected to the pinsetting mechanism by overhead lines, the lines having idle loops to permit the pins substantial range of movement upon being struck. A ball return mechanism coacts with the pinsetter to provide automatic actuation of the pinsetting mechanism under the correct predetermined conditions.

3,829,090

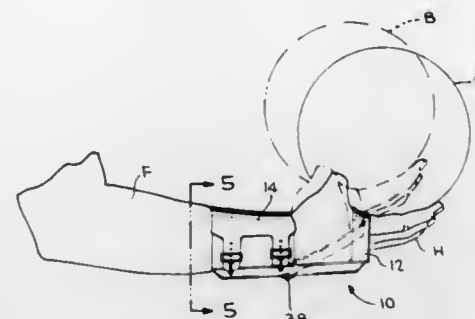
ADJUSTABLE WRIST SUPPORT FOR BOWLING

William H. Ensinger, Rt. 1, Bombay, N.Y. 12914
Filed Aug. 16, 1973, Ser. No. 388,778

Int. Cl. A63b 71/14

U.S. Cl. 273-54 B

4 Claims



A strap device for supporting the bowler's wrist in any desired angle to the back of his hand while bowling includes an elongated strip of flexible material strapped about both the bowler's hand and wrist on opposite sides of the wrist joint. A lever arrangement is provided for tightening the wrist strap in place. A resilient plate assembly is secured along the length of the strip for transversely bending the strap device at the wrist joint and over lapping ends of the plate are capable of being selectively clamped in place at any desired angle.

3,829,091

KICK PUTT DEVICE

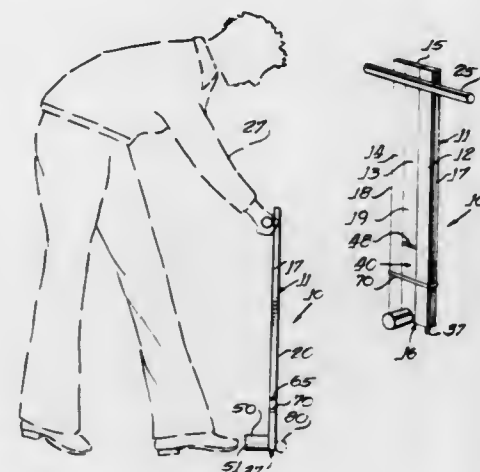
Frank Conrad, 11 F Birchwood Dr., Forestville, Conn. 06010

Filed June 18, 1973, Ser. No. 371,176

Int. Cl. A63b 59/00

U.S. Cl. 273-67 R

6 Claims



A kick putt playing device intended for utilization with a regular golf ball or the like for putting the ball along a playing surface by a kicking action of the player on the device which includes an elongated shaft member having a handle connected to the top portion thereof adapted for grasping in the hands of the player with the shaft having a ball striking member pivotally connected at the bottom end thereof in a manner for a player to position the bottom end of the shaft immediately behind the golf ball and aligned with the direction of desired travel for the golf ball such that by a kicking type motion of the back of the striking member it will pivot forwardly of the shaft in a manner to strike and propel the golf ball in the desired direction, after which a resilient rubber band connected between the shaft and the striking member returns the striking member to the initial position ready for further usage by the player.

3,829,092

SET OF GOLF CLUBS AND MEANS FOR CARRYING SAME

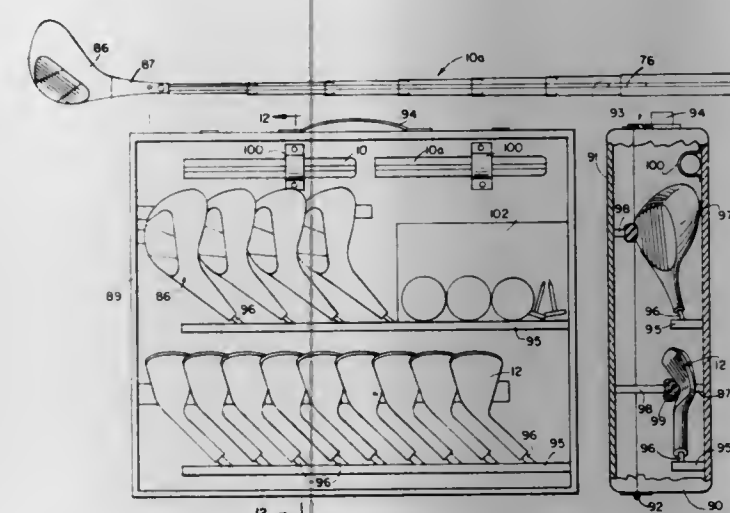
Theodore E. Arkin, 3200 N. Lake Shore Dr., Chicago, Ill. 62221

Filed July 5, 1972, Ser. No. 269,263

Int. Cl. A63b 55/00

U.S. Cl. 273-77 A

5 Claims



In combination, a portable container with a plurality of different golf club heads with each of the heads having a shank portion, said plurality of different golf club heads all removably supported in said portable container, means in the container such as pegs or the like for removably and spacedly supporting the heads whereby said heads are each independently removable from the container, and a shaft formed of a plurality of telescoping sections adapted when in extended position to form a shaft for each of the golf club heads, the shaft having an innermost section, an intermediate section and an outermost section, which outermost section forms the handle of said shaft, each of the shanks of the golf club heads having means which cooperate with the innermost section of the shaft for detachably locking said shaft to any one of said heads for using same as a conventional golf club, the said telescoping sections when detached from any of said heads to be telescoped so that all of the telescoped sections are collapsed to a relatively short length to be readily supported in the portable container, means in the container for retaining the telescoped sections in said container, said single shaft and plurality of different detachable heads forming the equivalent of a complete set of different golf clubs which are transportable in the relatively small container.

3,829,093

TETHERED BALL APPARATUS

Aubrey Leon Abrams, Johannesburg, South Africa, assignor to General Stationery Supplies (Proprietary) Limited, Johannesburg, South Africa

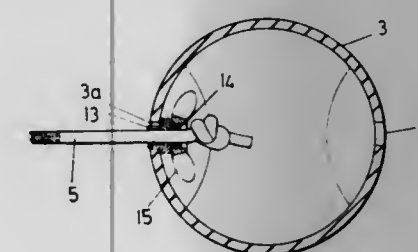
Filed Jan. 3, 1972, Ser. No. 214,876

Claims priority, application South Africa, Jan. 15, 1971, 71/0246

Int. Cl. A63b 71/02

U.S. Cl. 273-95 A

2 Claims



The apparatus of the invention comprises a tube which can be inserted into the ground and carries a co-axial bolt. A nut is

threaded on to the bolt. Attached to the nut is one end of a cord which is connected to a ball. The apparatus is used by striking the ball with a bat or the like until the nut has been rotated in one direction sufficiently for it to have travelled to one end of the bolt.

3,829,094

DART HAVING MULTIPLE DETACHABLE TIPS

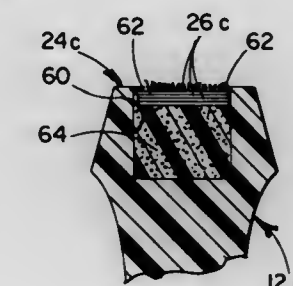
Adolph E. Goldfarb, 4614 Monarca Dr., Tarzana, Calif. 91356; Delmar K. Everitt, Woodland Hills, Calif., and Ronald F. Chesley, La Crescenta, Calif.

Filed Dec. 19, 1972, Ser. No. 316,496

Int. Cl. A63b 71/02

U.S. Cl. 273-95 R

11 Claims



A dart for use with a target to play a game. The darts have detachable tips in the form of markers which adhere to the target on impact; the dart then separates from the marker, leaving the marker secured to the target to precisely indicate where the dart had made its hit on the target. The marker may have a strong adhesive means such as "Velcro" hooks on its front surface which will adhere to the target surface when the dart strikes the target. The surface of the target could be particularly adapted to adhere to the marker. Individual darts could also be used as play devices which would attach their markers to various cloth or fabric surfaces against which the dart was thrown.

3,829,095

METHOD OF EMPLOYING A TELEVISION RECEIVER FOR ACTIVE PARTICIPATION

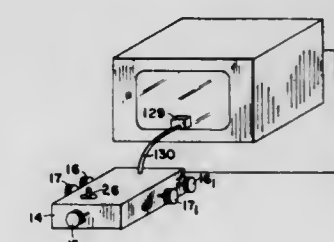
Ralph H. Baer, Manchester, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.

Division of Ser. No. 697,798, Jan. 15, 1968, abandoned. This application Aug. 10, 1970, Ser. No. 62,691

Int. Cl. F41j 16/08

U.S. Cl. 273-101.1

6 Claims



The present invention pertains to an apparatus and method, in conjunction with standard monochrome and color television receivers, for the generation, display, manipulation, and use of symbols or geometric figures upon the screen of the television receivers for the purpose of training simulation, for playing games, and for engaging in other activities by one or more participants. The invention comprises in one embodiment a control unit, connecting elements and in some applications a television screen overlay mask utilized in conjunction with a standard television receiver. The control 10 unit includes the control, switches and electronic circuitry for the generation, manipulation and control of video signals which

are to be displayed on the television screen. The connecting elements couple the video signals to the receiver antenna terminals thereby using existing electronic circuits within the receiver to process and display the signals. An overlay mask which may be removably attached to the television screen may determine the nature of the game to be played or the training simulated. Control units are provided for each of the participants. In the present invention dots are generated on a television screen and controls are provided to cause one dot to overlap the other. Alternatively, a photoelectric element senses light emitted by a displayed dot and denotes that the light has been sensed.

3,829,096

BALANCED MAZE GAME APPARATUS

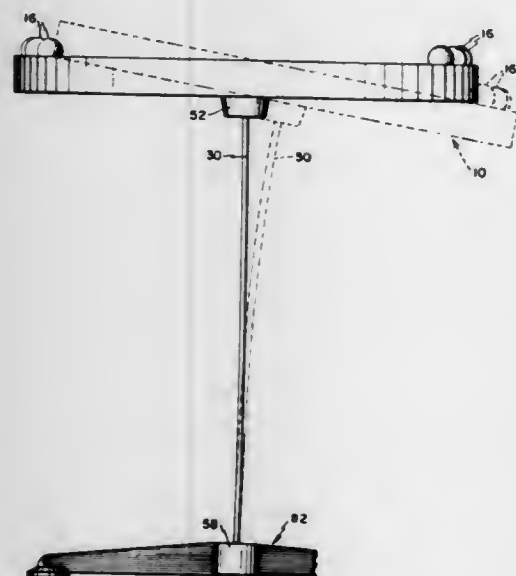
Louis M. Gioia, 14 Berkshire Dr., Danbury, Conn. 06810; Charles Ellsworth, P.O. Box 36, Brookfield Ctr., Conn., and James L. Webb, 3 Surrey Ln., New Milford, Conn. 06776

Filed Apr. 19, 1971, Ser. No. 134,970

Int. Cl. A63f 7/16

U.S. Cl. 273-110

8 Claims



A game board is supported on a flexible rod and associated base. Upstanding flanges define a maze path on the game board surface through which a ball may roll. A plurality of depressions are provided about the periphery of the game board, and weights removably positioned in these depressions adjustably tip the game board on its flexible rod support, causing the ball to roll through the maze path responsive to the selected position of the weights.

3,829,097

BALL TYPE GAME

August Rohrmuller, 198-40 32 Ave., Flushing, N.Y. 11358

Filed July 5, 1972, Ser. No. 269,033

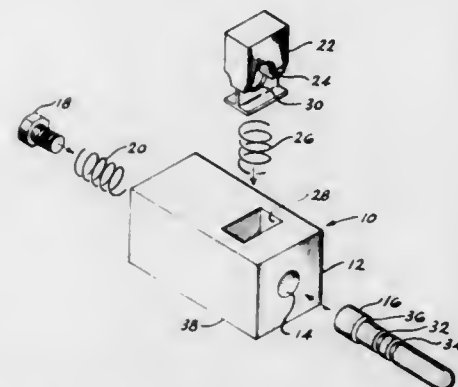
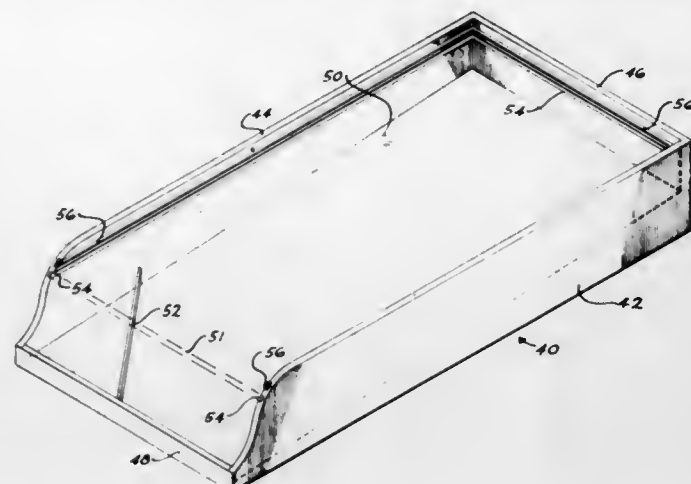
Int. Cl. A63b 3/02

U.S. Cl. 273-125 R

1 Claim

A portable game embodying a frame into which is slidably received one of a plurality of different game boards the upper surface of which forms the game area on which balls are projected to desired locations by means of a portable self-contained spring operated shooting device. The balls eventually fall from the game board onto an inclined return platform for return to a desired location. The shooting device includes a housing having a flat base, a plunger received in a bore provided in the housing and a spring positioned in the bore for urging the plunger forward in the bore. The shooting device is

also provided with a spring biased operating device positioned within a second bore in the housing, the second bore being



perpendicular to the first mentioned bore. The plunger is provided with a plurality of operating device receiving recesses for retaining the plunger in a plurality of cocked positions.

3,829,098

BOARD GAME APPARATUS

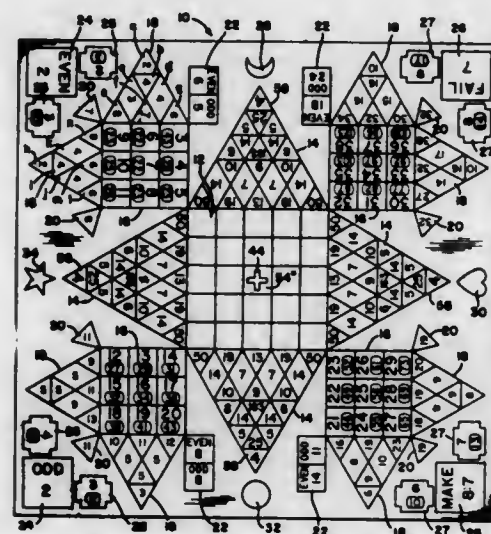
Frederick W. Umminger, Jr., 11109 Walnut Creek Dr., Parkville, Mo. 65102

Filed Feb. 5, 1973, Ser. No. 329,741

Int. Cl. A63f 3/00

U.S. Cl. 273-131 AB

32 Claims



A game and game accessories which include a game board having a playing field and various odds indicating sections, playing markers movable over the playing field in accordance with preselected playing rules, a die for controlling the direction of movement of the playing marker, a roll marker for keeping track of the number of rolls of the die, consecutively numbered tablets corresponding to the number of die rolls up to a preselected maximum and supplemental odds cards for indicating the approximate odds of playing markers exiting the playing field on different moves and at various positions or combinations of positions.

3,829,099

FOUR PLAYER CHESS GAME APPARATUS

Ronald Ray Lucero, 1307 Monterey Anaheim, Anaheim, Calif. 92801

Filed Feb. 8, 1973, Ser. No. 330,676

Int. Cl. A63f 3/02

U.S. Cl. 273-131 KC

3,829,101

PUZZLE ASSEMBLY WITH INTERSECTING PIECES

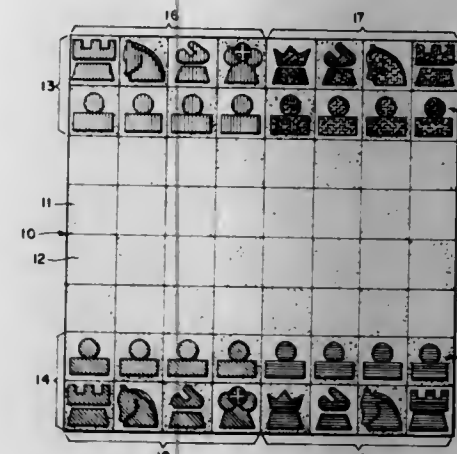
Louis F. Betzoldt, Taylor, Mich., assignor to Lance A. Neibauer, Wayne, Mich.

Filed June 20, 1973, Ser. No. 371,931

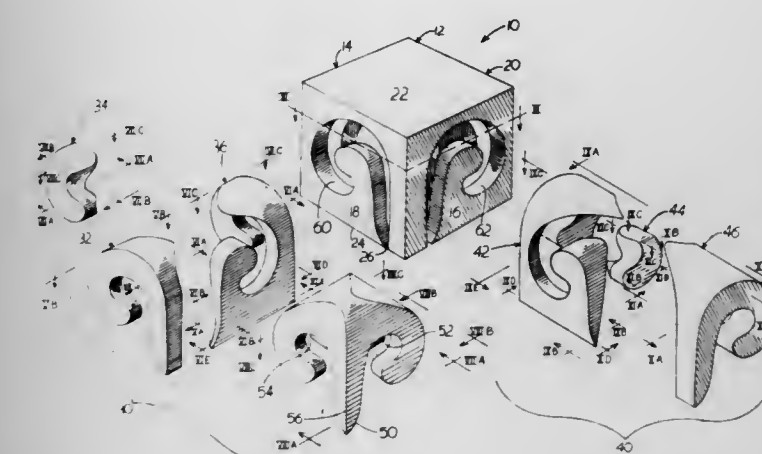
Int. Cl. A63f 9/12

3 Claims U.S. Cl. 273-160

8 Claims



A game of chess for four players has two sets of chessmen each of which is divided into two half-sets with the four half-sets having different colors thereon, one half-set consisting of a king, a bishop, a knight, a rook, and four pawns, and the other half-set consisting of a queen, a bishop, a knight, a rook, and four pawns. The game is played on a conventional chess-board and each player controls a half-set with the two players having the half-sets of one chess set forming a team. There is also disclosed a checker game consisting of a conventional checker board and four sets of checkers, the sets being of different colors and each consisting of six checkers.



A puzzle formed from a block including several variously configured, interlocking unitary pieces which are slideable into and out of the block for assembly and disassembly. The pieces assemble into two intersecting cylinders within the block including a central piece which forms a part of both cylinders. The preferred method of forming the puzzle comprises cutting the cylinders by causing the instrument used for cutting to enter and exit the block along a single line for each cylinder.

3,829,100

EDUCATION PUZZLE

Lloyd A. Nielsen, 4441 South Ave., West, Missoula, Mont. 59801

Filed Mar. 30, 1973, Ser. No. 346,565

Int. Cl. A63f 9/12

U.S. Cl. 273-157 R

3,829,102

GOLF SWING TRAINING DEVICE

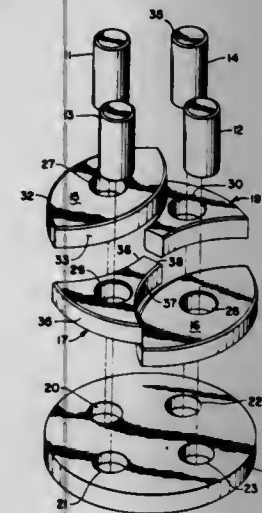
John G. Harrison, 770 W. K. St., Benicia, Calif. 94510

Filed Aug. 20, 1973, Ser. No. 389,953

Int. Cl. A63b 69/36

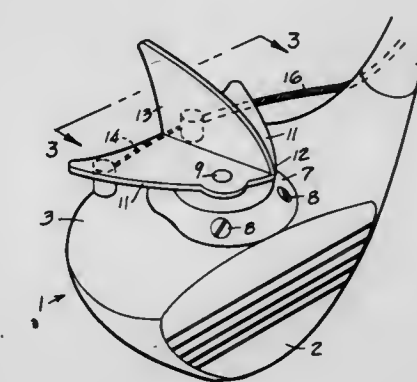
10 Claims U.S. Cl. 273-186 A

7 Claims



An educational puzzle in which there are a base member having a plurality of recesses therein, a corresponding number of pegs, each of a different color, and a corresponding number of blocks, each of the same color as one of said pegs. The blocks, when properly assembled, form a continuous layer of the same outline and size as the base member, so as to cover the base member. Preferably, the base member is circular and the pieces have largely arcuate edge walls. In assembly, the child places the pegs in the recesses in the base member and then places over each peg a block of the same color as the peg over which the block is placed, adjusting the angular position of the block until it fits snugly against the contiguous block or blocks.

This is an improvement on training attachments on the head of a golf club. The training attachment includes a directing member attachable to the top of the head of the golf club so that it can be turned and held in selected directions relatively to the face of the club; a remote control device is actuated from the grip portion of the shaft of the golf club; in one form the actuation is through a line extending along the shaft of the golf club to the directing member and a device near the grip whereby the line is manipulated for turning the directing member; in another form the directing member has an electrical device including electro-magnets for turning the same, which electrical device is actuated through a switch on or near the grip portion of the shaft of the golf club.



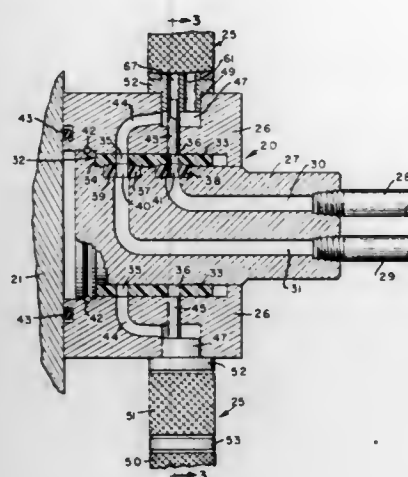
3,829,103

SEAL STRUCTURE

Ernst Sussman, 634 Stefk Blvd., Bethlehem, Pa. 18016
Division of Ser. No. 151,065, June 8, 1971, Pat. No. 3,726,363.
This application Sept. 22, 1972, Ser. No. 291,381
Int. Cl. F16k 11/02, 31/53

U.S. Cl. 277-74

1 Claim



A coolant spider assembly that serves to selectively feed coolant to the spindles of a turret type drilling machine, and wherein there is provided a valve means for controlling the flow of coolant, and wherein there is also provided a sealing arrangement for the spider assembly.

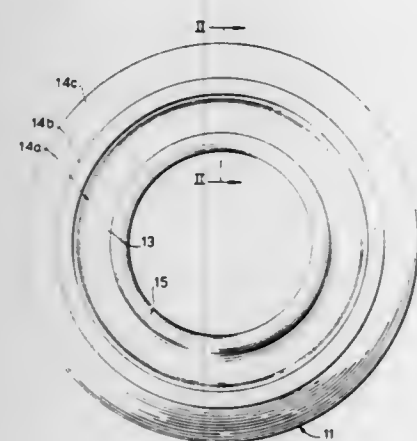
3,829,104

ANNULAR SEAL

Martin Green, 204 Marshall Lake Rd., Solihull, England
Filed Mar. 20, 1972, Ser. No. 236,314
Int. Cl. F16j 9/00, 15/00

U.S. Cl. 277-29

3 Claims



The present invention relates to a seal, for sealing an annular space between a fixed member and a movable member in the master cylinder assembly of a vehicle braking system, comprising an annular body of resilient material defining one substantially plane end face, two substantially axially extending surfaces intended to form sealing surfaces, and an annular wall protruding axially from the other end face, and beyond the two said surfaces.

3,829,105

DOUBLE CUP SEAL

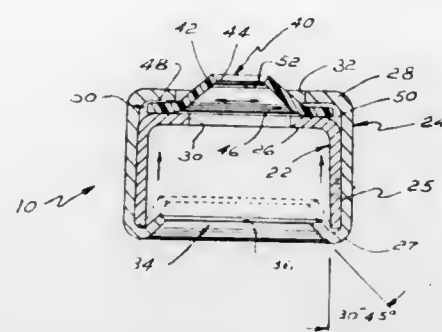
James A. Kammeraad, Holland, Mich., assignor to K-Line Industries, Inc., Holland, Mich.
Filed Oct. 25, 1972, Ser. No. 300,759
Int. Cl. F16j 15/32; F16k 41/00

U.S. Cl. 277-183

16 Claims

A valve seal assembly for sealing the valve stem of a valve reciprocally mounted in a valve guide of an internal combustion engine, the valve guide including an extending

shoulder portion. Upon installation, the seal assembly automatically accommodates any eccentricities due to the location of the valve stem in the shoulder portion. The assembly includes inner and outer cup members retaining a laterally movable, self-adjusting, frusto-conical Teflon sealing member



in sealing engagement with the valve stem. When the assembly is telescoped over the valve stem and extending shoulder portion of the valve guide, an intumed, annular flange on the outer cup is permanently deformed causing an axial shift of the inner cup which engages and locks the sealing member in its aligned position with the valve stem.

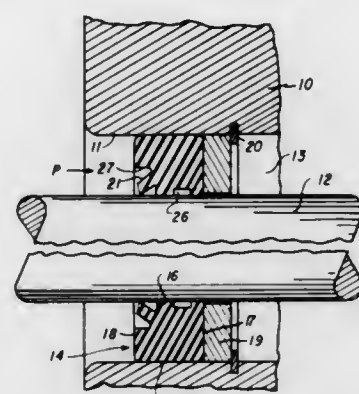
3,829,106

HIGH PRESSURE LIP SEAL

Edward A. Wheelock, Lake Zurich, Ill., assignor to Crane Packing Company, Morton Grove, Ill.
Filed Dec. 4, 1972, Ser. No. 311,853
Int. Cl. F16j 15/32

U.S. Cl. 277-205

6 Claims



The invention disclosed is a simple elastomeric ring used as a seal between a rotating shaft and a housing, said shaft and housing forming parts of a high pressure hydraulic system. The ring is shaped to have a flexible lip exposed to the fluid under pressure and held against the shaft by said fluid, and to form a groove adjacent the shaft, the groove being filled with a lubricant. Pressure to 2,500 p.s.i. can be taken by the ring so that the ring can in some instances replace high cost end face rotary mechanical seals normally used for such pressures.

3,829,107

PIPE JOINT

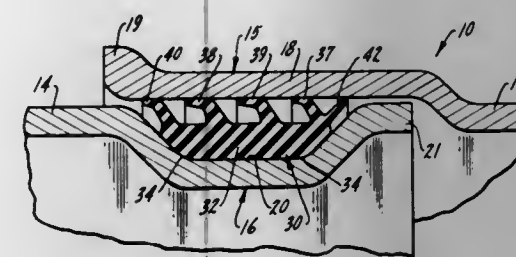
Mark A. Machado, Santa Rosa, and James F. Forchini, Healdsburg, both of Calif., assignors to Ecodyne Corporation, Chicago, Ill.
Filed Jan. 18, 1973, Ser. No. 315,044
Int. Cl. F16j 15/00; F16k 41/00

U.S. Cl. 277-207

3 Claims

A pipe joint including a first pipe having an enlarged hub portion and a second pipe having one of its ends telescopically received in the hub portion of the first pipe. A sealing gasket confined within a circumferential recess in the received end of the second pipe. The sealing gasket has a cross defining a plurality of radially extending labyrinth type fingers. A leading

finger means formed integral with one of the labyrinth fingers, extends substantially axially outward from the gasket. The labyrinth fingers have an internal diameter greater than the internal diameter of the hub portion of the first pipe such that a



the second pipe is received by the first pipe the labyrinth fingers are axially deformed causing a partial seal at each finger and rotation of the leading finger means towards a radial position so as to result in a double lip seal.

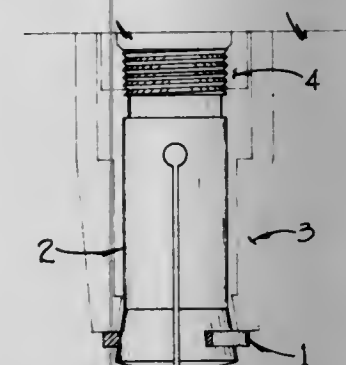
3,829,108

COLLET-TRUING DEVICE

Bruno J. Zapart, Rt. 2, Box 161, Doniphan, Mo. 63935
Filed June 29, 1972, Ser. No. 267,533
Int. Cl. B23b 31/20

U.S. Cl. 279-1 L

2 Claims



The invention relates to a ring which is interposed between a collet and a chuck housing to permit the alignment of the collet along the longitudinal axis of the chuck.

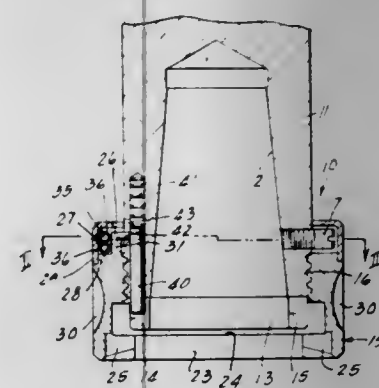
3,829,109

TOOL HOLDER WITH SPRING OPERATED NUT

Roland G. Koch, Frankenmuth, Mich., assignor to Houdaille Industries, Inc., Buffalo, N.Y.
Filed May 2, 1972, Ser. No. 249,722
Int. Cl. B23b 31/06

U.S. Cl. 279-91

19 Claims



A tool holder assembly includes a hollow supporting member on which there is threaded a locking ring which is urged to its locked position by a pair of parallel equal springs, there being a combined latch and release pin wherein the release pin is directly guided in the supporting member for

holding the locking ring in the unlocked position, and responsive to the reception of a tool to be automatically released for automatically tightening the locking ring. The locking springs are disposed in groove means defined by structure which is comovable with the locking ring, the groove being radially outwardly and axially substantially open, and closed by an annular cover of L-shaped cross section telescopically received on the locking ring. The locking ring has a cylindrical flange with a cutout portion defining angularly spaced abutments that engage a stop on the supporting member against which the parallel springs act.

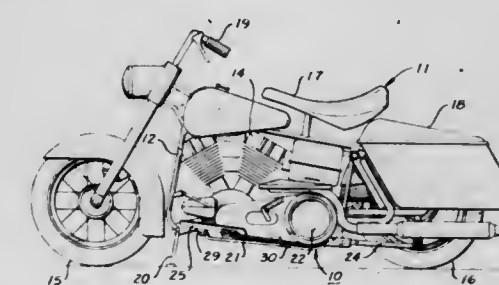
3,829,110

TURN-LEAN RESTRICTER FOR MOTORCYCLES

Louis Z. Ray, 1712 79th Ave., Oakland, Calif. 94621
Filed May 10, 1973, Ser. No. 359,106
Int. Cl. B62b 19/00

U.S. Cl. 280-8

10 Claims



A turn-lean restricter mounted upon a motorcycle having a frame and a chain casing defining an oil reservoir connected with the motorcycle engine and through which engine lubricant flows. The restricter has an elongated plate generally underlying the chain casing and particularly the outer lower corner portion thereof. Front and rear fastener structures secured to the plate respectively adjacent the front and rear end portions thereof are secured directly or indirectly to the frame and support the plate at an angular inclination in which it angles inwardly and downwardly. The rear fastener structure is fixedly secured to the frame, and the front fastener structure is pivotally related thereto, thereby enabling the plate to twist and deflect in generally vertical directions upon ground-engaging impact.

3,829,111

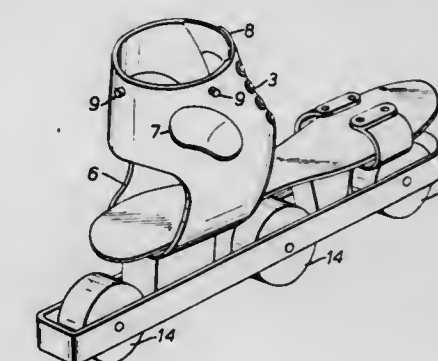
SKATES

Bryan Frederick Nicholls, Northampton, England, assignor to The Meltoy Company Limited, Northampton, England
Filed Nov. 20, 1972, Ser. No. 307,875
Claims priority, application Great Britain, Oct. 26, 1972, 49390/72

U.S. Cl. 280-11.3

Int. Cl. A63c 1/18

2 Claims



A skating boot has separate ankle and toe straps, each attached to a roller or blade carrying chassis, both straps being formed as one-piece mouldings of flexible synthetic resin material. The straps are locally reinforced by thickening of the

material at selected location, such as in the region of lace holes and attachment holes, and locally reduced in thickness where increased flexibility is desired such as at the edges of ankle cut-outs and tongues.

3,829,112

ANTIFRICTION DEVICE

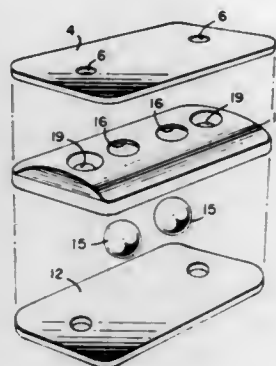
Richard G. Spademan, 933 Addison Ave., Palo Alto, Calif. 94301

Filed Feb. 17, 1972, Ser. No. 227,119

Int. Cl. A63c 9/08

U.S. Cl. 280-11.35 C

8 Claims



An antifriction device is provided for reducing friction forces which impede relative movement between a ski boot and a ski in all directions in a plane parallel with the toe portion of the ski boot under fall conditions. In its simplest form, the device comprises a plate on which is fixedly mounted and retained one or more arcuate members. A portion of the arcuate surface of the members is adapted to make contact with the toe portion of the ski boot or a plane rigid plate mounted to the toe portion of the ski boot. In a further embodiment of the device, a hollow housing is provided and adapted to retain a member having an arcuate surface such as a ball bearing which is free to rotate within the housing and which projects through an aperture in the housing to make contact with the toe of the ski boot or the plate. The housing is further provided with a cavity to receive lubricant for lubricating the retained member.

3,829,113

ADAPTER FOR CONVERTIBLE CAR SEAT AND STROLLER

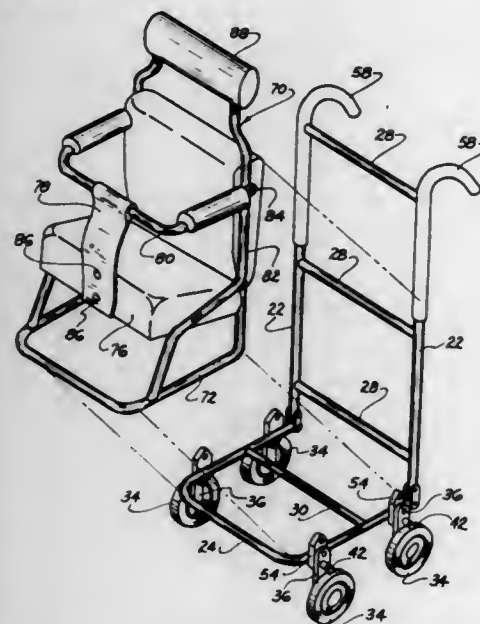
Quido C. Epelbaum, 5472 Walshire Dr., Columbus, Ohio 43227

Filed Oct. 27, 1972, Ser. No. 301,306

Int. Cl. B62b 1/04

U.S. Cl. 280-30

7 Claims



A convertible child car seat and stroller apparatus adapted to easily and simply convert most presently available types of child car seats into a stroller assembly and back to a car seat as described with a minimum of effort.

3,829,114

SHOPPING CART WITH ARTICLE STORAGE PREVENTING MEANS UNDER BASKET

Harold Cohen, Scotch Plains, and William L. Noto, Maplewood, both of N.J., assignors to Shop-Rite Supermarkets, Inc., Elizabeth, N.J.

Filed Mar. 2, 1973, Ser. No. 337,382

Int. Cl. B62b 11/00

U.S. Cl. 280-33.99 R

14 Claims



An improved nestable shopping cart is provided which includes a frame assembly upon which a basket is supported and includes means for obstructing the area under the basket so that it is substantially impossible to carry groceries, other articles, shopping bags and the like below the basket and out of view from the check-out cashier. The obstructing means for obstructing the area under the basket comprises a plurality of elongated members secured to the frame assembly below the basket in a manner such as to provide a barrier which blocks off and thus prevents storage of such articles in the area below the basket and also forms a plurality of planes skewed in such a manner so that none of such planes alone or in any combination is capable of supporting and retaining the usual supermarket merchandise or shopping bags thereon. Furthermore, the above described shopping cart is still capable of nesting with other similar type carts notwithstanding the presence of such obstructing means.

3,829,115

FRAME ASSEMBLY FOR MOBILE STRUCTURES

Scott Rayfield Rich, Rt. 1, Carmichaels, Pa. 15320

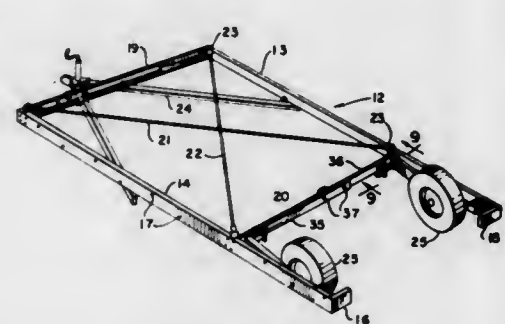
Continuation of Ser. No. 35,764, May 8, 1970, abandoned.

This application Aug. 24, 1972, Ser. No. 283,269

Int. Cl. B62d 21/14

U.S. Cl. 280-34 A

16 Claims



This invention relates to a frame assembly for mobile structures wherein the frame may be readily attached to the mobile structure for transporting the structure and may be readily removed therefrom when the structure has been transported to its destination. The frame assembly has a first, extended position for transporting the mobile structure and a second, collapsed position for transporting the frame assembly when it is removed from the mobile structure. The frame assembly includes a unique suspension assembly which may be pivoted into and out of operative position on a supporting surface on which the structure is being transported or may be removed from the frame assembly.

3,829,116

RETRACTABLE GUIDE MECHANISM

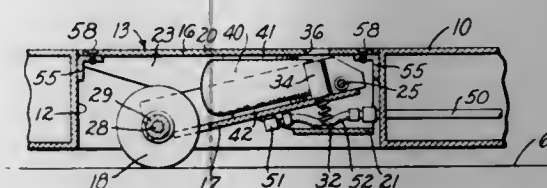
Robert E. Burdick, Santa Barbara, Calif., assignor to Rolair Systems, Inc., Santa Barbara, Calif.

Filed Oct. 24, 1972, Ser. No. 300,186

Int. Cl. B60v 1/00; B62d 61/12

U.S. Cl. 280-43.23

2 Claims



A retractable guide wheel mechanism for an air cushion transporter and suitable for mounting within or at the edge of the transporter platform. A housing with pivoted frame carrying the guide wheel, with a spring for urging the wheel upward and an air unit for urging the wheel downward into engagement with the ground surface.

3,829,117

ENGINE DRIVEN CART

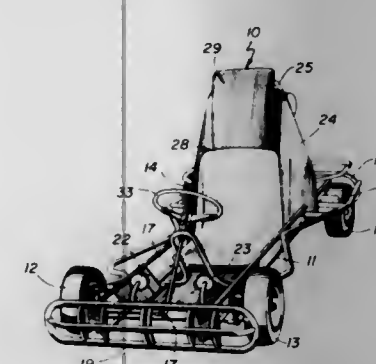
Alexander C. Park, Monument Beach, Mass., assignor to A & C Park Incorporated, Monument Beach, Mass.

Filed May 24, 1972, Ser. No. 256,369

Int. Cl. B60p

U.S. Cl. 280-96.1

4 Claims



A cart for amusement purposes having an elongated chassis at the ends of which are located pairs of wheel assemblies, there being an engine mounted on the chassis for driving one of the pair of wheel assemblies.

3,829,118

COMBINED VEHICLE CHASSIS AND AIR SUSPENSION SYSTEM

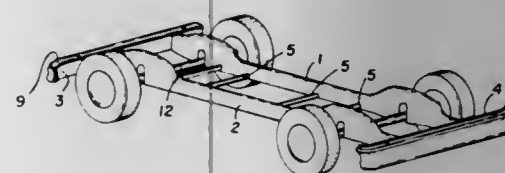
Rene Gouirand, New York, N.Y., assignor to Joseph Mercadante, Greenwich, Conn.

Division of Ser. No. 284,031, Aug. 28, 1972, which is a division of Ser. No. 110,703, Jan. 28, 1971, Pat. No. 3,689,054. This application June 25, 1973, Ser. No. 372,984

Int. Cl. B60g 15/08

U.S. Cl. 280-106.5 R

11 Claims



A combined vehicle chassis and air suspension wherein elongated air bags having a substantially circular cross-section are physically located within and supported by inverted, U-

shaped chassis members. Under no load conditions, the air bags contact the chassis members on only a portion of the circumference and as the load increases, the contact surface between the air bag and the chassis members increases, thereby increasing spring stiffness. The side portions of the inverted U-shaped chassis members are spaced from the sides of the air bags under no load conditions. Under heavy load and when the car turns around a curve, the side portions of the U-shaped members prevent side-sway of the vehicle. Air-bumpers are provided which are coupled to the air system of the suspension system. The air in the air-bumpers acts as an additional reservoir for the air bags of the suspension system to effectively soften the ride of the vehicle and additionally, absorb vehicle impacts.

3,829,119

APPARATUS FOR STATIC LEVEL REGULATION OF A VEHICLE

Peter Kirschner, and Heinz Gunter Rauer, both of Wolfsburg, Germany, assignors to Volkswagenwerk Aktiengesellschaft Wolfsburg, Germany

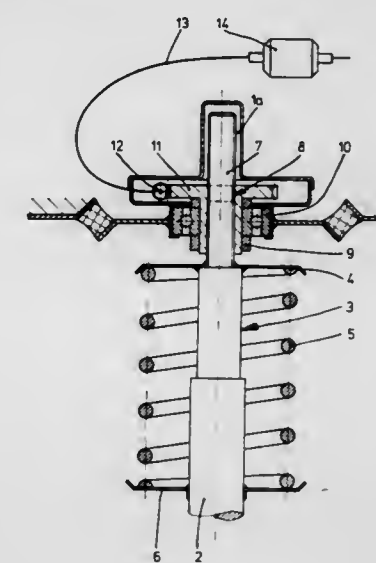
Filed Aug. 30, 1972, Ser. No. 285,082

Claims priority, application Germany, Sept. 18, 1971, 2146723

Int. Cl. B60g 17/00

U.S. Cl. 280-124 F

10 Claims



The static level of vehicles having a spring arrangement between the body and axle is regulated by controlling a threaded adjustment device in a manner that, despite variations in the compression of the spring arrangement due to static loading of the vehicle, the distance between the axle and the body of the vehicle remains constant. A threaded shaft mates with a threaded receiving part, one being rotatable and mounted on a part of the vehicle while the other is non-rotatable and mounted to contact an end of the spring arrangement. Rotating motion is imparted to the rotatable part in response to static load variations which causes a variation in the relative positions of the threaded receiving part and the threaded shaft in a self-locking manner thereby maintaining the distance between the axle and the body of the vehicle constant.

3,829,120

VEHICLE SUSPENSION SYSTEM

Harry L. Redding, Jr., Rochester, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 28, 1973, Ser. No. 374,467

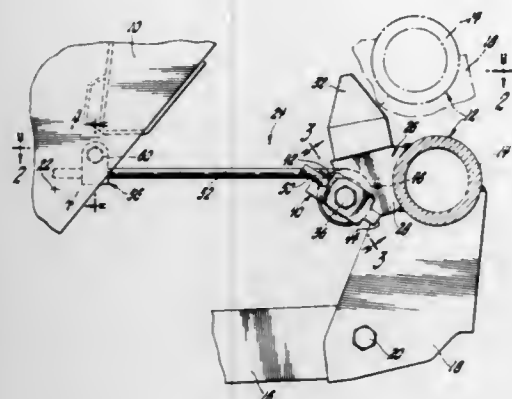
Int. Cl. B60g 11/20

U.S. Cl. 280-124 B

4 Claims

An auxiliary spring arrangement for a four-bar link type automobile suspension system wherein an axle carrier is connected to the vehicle sprung mass through a plurality of con-

tril arms which constrain jounce and rebound deflection of the axle carrier to an orbit about a transverse axis of the sprung mass, the auxiliary arrangement including a torsion spring supported on the axle carrier and having an integral lever arm engaging the sprung mass generally at the transverse axis. The torsion spring develops a turning moment on the



lever arm which, in turn, alters the curb height of the sprung mass under static conditions and the proximity of the lever arm to the transverse axis minimizes the tendency of the lever arm to further twist the torsion spring during jounce deflection so that the effect of the auxiliary spring on the ride rate experienced by the sprung mass is negligible.

3,829,121

PIVOTED OVERHEAD GUARD

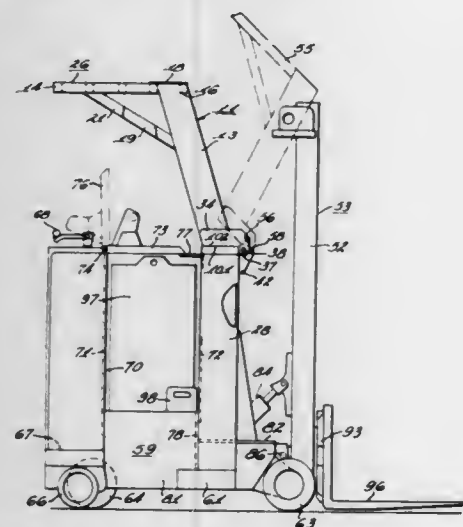
Donald A. Ahrendt, Chicago Heights, Ill., assignor to Allis-Chalmers Corporation, Milwaukee, Mich.

Filed Mar. 23, 1973, Ser. No. 344,332

Int. Cl. B62d 21/00

U.S. Cl. 280—150 C

3 Claims



An overhead guard for the operator of an electric, counter-balanced, narrow aisle, stand-up rider lift truck which includes a pair of support legs pivotally connected to a pair of upstanding hydraulic tanks integrally formed with the truck main frame between a battery compartment and a mast. The guard may be tilted forwardly about its transverse pivot axis to a position wherein the battery of the lift truck may be lifted from the battery compartment without interference with the guard. Cooperating abutments on the upstanding part of the frame and the guard legs determine the forwardmost tilted position of the guard, in which position the center of mass of the guard lies in a vertical line forward of the transverse pivot axis. Also in the forwardly tilted position of the guard, the top portions of the legs of the guard are in overlapping relation to the mast when the latter is in its vertical position. The pivot connection between the legs of the guard and the hydraulic tanks is adjacent the top front portion of the tanks and abutments on the legs rearward of the transverse axis cooperate with abutments at the top rear portion of the tanks to support the guard in its position of operator protection.

3,829,122

SAFETY APPARATUS FOR A VEHICLE

Paul Bastide, 108, rue de Rennes, 75, Paris 6^e, France

Continuation-in-part of Ser. No. 122,821, March 10, 1971,

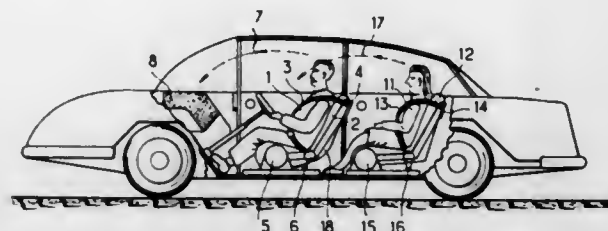
abandoned. This application May 25, 1973, Ser. No. 364,134

Claims priority, application France, Mar. 11, 1970, 70.8629; July 30, 1970, 70.28090

Int. Cl. B60r 21/10

U.S. Cl. 280—150 B

13 Claims



Safety apparatus for a vehicle for minimizing injury to occupants in the event of a front-end collision comprising a seat to which the occupant is secured by a lap belt, a shoulder belt, or a harness in the form of a protective jacket, the seat or a frame for the securing means being mounted for displacement in the event of a collision to allow the occupant to travel along an extended path. An energy absorbing mechanism such as a braking device is connected to the displaceable structure to absorb the kinetic energy of the moving occupant and limit deceleration forces on the occupant. The steering wheel, steering post, instrument panel and windshield are so supported and constructed to be movable out of the path of travel of the occupant when the vehicle is subjected to intense deceleration in a collision and a shock absorber is positioned in the path of the occupant to cushion impact at the end of travel.

3,829,123

SEAT BELT POSITIONER

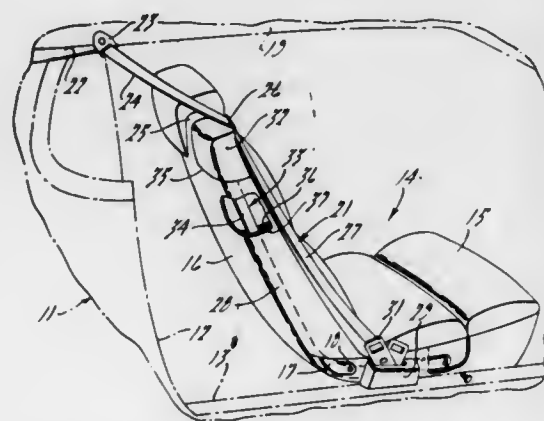
Thomas C. Holka, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed July 5, 1973, Ser. No. 376,764

Int. Cl. B60r 21/10

U.S. Cl. 280—150 SB

8 Claims



A shoulder harness coupled at its upper end to an anchor means located on a vehicle body roof side rail above and rearwardly of a vehicle seat assembly, the latter having a forwardly tiltable backrest structure. The shoulder harness in non-passenger restraining condition extends downwardly and forwardly from the anchor means across the space behind the backrest structure to an anchor means in juxtaposition to the outboard side of the seat cushion structure and interferes with access to the vehicle body space behind the seat assembly. A lift means carried on the backrest structure underlies the shoulder harness means. A drive means responsive to forward tilting movement of the backrest structure is operative to raise

the lift means and thereby the shoulder harness toward the roof side rail into an extended substantially parallel relationship to the latter out of interference with access to the vehicle body space behind the seat assembly.

3,829,124

BLEED CAP FOR A VEHICLE AIR CUSHION INFLATOR

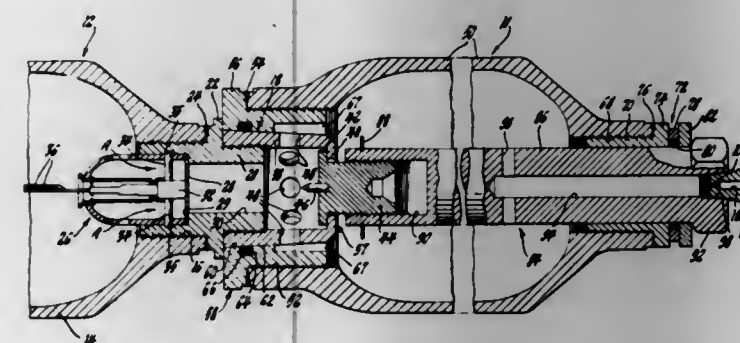
Norman Charns, Southfield, and Leo J. Matthews, Bloomfield Hills, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 16, 1973, Ser. No. 379,625

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

3 Claims



A bleed cap for a vehicle air cushion inflator includes an elongated receptacle whose ends define first and second aligned apertures that carry respective annular seal arrangements. The seal arrangement at the first end of the receptacle is adaptable to seal with the inflator and encompass the inflator outlet so that pressurized gas discharged from the inflator is received by the receptacle. A headed attachment bolt with an elongated shank is received within the receptacle extending between the seal arrangement at the second aperture and an externally threaded member at the inflator outlet. The unheaded end of the bolt includes a threaded counterbore that threads onto the externally threaded member so as to seal the headed end of the bolt against its adjacent seal arrangement and to secure the cap to the inflator. A passage in the bolt communicates the interior of the receptacle with the environment and includes an outer frustoconical end portion that is axially aligned with the shank of the bolt and threaded so as to receive an orificed frustoconical plug for bleeding the pressurized gas received within the receptacle to the environment.

3,829,125

BICYCLE TRAILER

Ronald N. Davis, Stamford, Conn., assignor to Cannondale Corporation, Stamford, Conn.

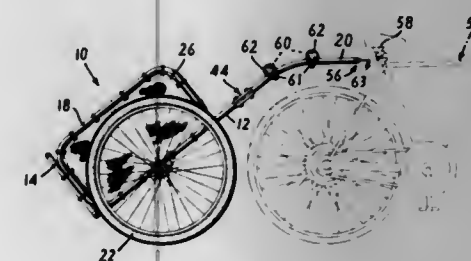
Continuation of Ser. No. 184,487, Sept. 28, 1971, abandoned.

This application June 20, 1973, Ser. No. 372,941

Int. Cl. B62k 7/04

U.S. Cl. 280—204

5 Claims



A small, light-weight two-wheel trailer for use with bicycles or for hand-towing comprises a tubular cargo body framework of unitary, generally rectangular members, a tongue composed of spaced tubular members and shaped to provide useful cargo space, and a hitch for connecting the trailer to a

3,829,126

CHILD'S VEHICLE SIMULATING JET AIRCRAFT

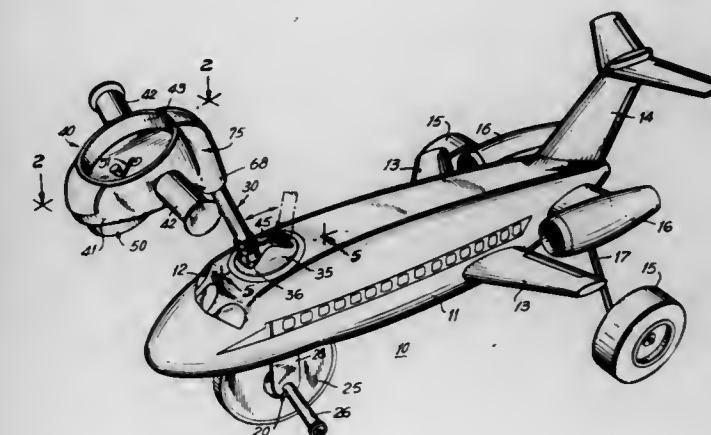
Raymond J. Lohr; Calvin S. Cook, and William K. Seiersen, all of Erie, Pa., assignors to Louis Marx & Co., Inc.

Filed Apr. 4, 1973, Ser. No. 347,734

Int. Cl. A63g 1/12; B62k 21/00

U.S. Cl. 280—240

10 Claims



The vehicle has a body shaped to simulate a jet aircraft including a pilot's compartment of flight deck adjacent the front end. The rear end of the body is supported by struts on a pair of wheels, and the front end of the body is supported on a dirigible wheel which may be driven by oscillation of a "joy stick" at the pilot's compartment, the joy stick also being turnable to steer the vehicle. The joy stick projects upwardly through a slot in a cover plate secured on the upper surface of the body and covering an opening in the body, the slot increasing in width from a narrow center portion to both ends and defining the limits of movement of the upper end of the joy stick. A shield plate underlies the cover plate and is secured for movement with the joy stick so as to completely close the slot in all positions of the joy stick. A control panel is secured on the upper end of the joy stick and has an easily accessible handle for a siren-type device of a novel nature which, when operated, provides a sound simulating the noise of a jet engine. The vehicle may be steered by the feet, engaging a pair of rods extending outwardly to both sides of the front wheel, or by hand by gripping a pair of handles extending from the control panel.

3,829,127

FOUR WHEELED FOOT PROPELLED CHILD'S TOY

VEHICLE STEERED BY BALANCE OF RIDER

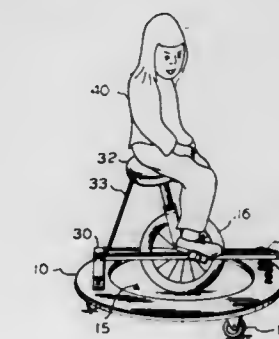
Reedy E. McLellan, Box 69, Durant, Miss. 39063

Filed Feb. 20, 1973, Ser. No. 333,520

Int. Cl. B62k 9/00

U.S. Cl. 280—259

3 Claims



A vehicle has a circular ring shaped platform frame supported by three swivelled castors. A paddle wheel-seat as-

sembly is spring mounted on the platform in a position for the paddle wheel to engage the floor surface in the center of the ring shaped platform. The mounting for the paddle wheel assembly restricts movement laterally but permits vertical movement so the wheel under weight of a rider overcomes the spring bias to engage the floor surface. A rider propels the vehicle by paddling the wheel, and steers it by balancing or leaning to one side.

3,829,128

QUICK HITCH ADAPTER

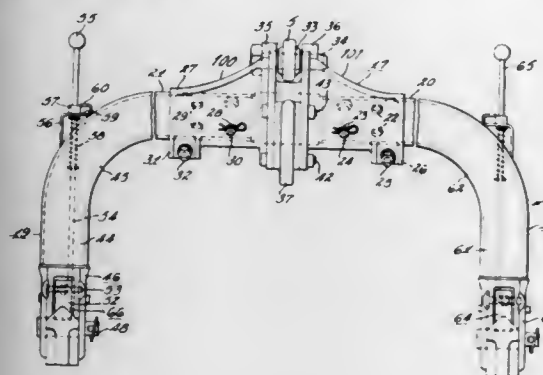
Max E. Sutton, Indianapolis, Ind., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Dec. 22, 1972, Ser. No. 317,645

Int. Cl. B60d 1/04, 1/04

U.S. Cl. 280—461 A

10 Claims



A quick hitch adapter for adjustably providing connection between a tractor and an implement for category 2 and category 3 hitches by selectively adjusting a base portion of the adapter.

3,829,129

TRAILER HITCH

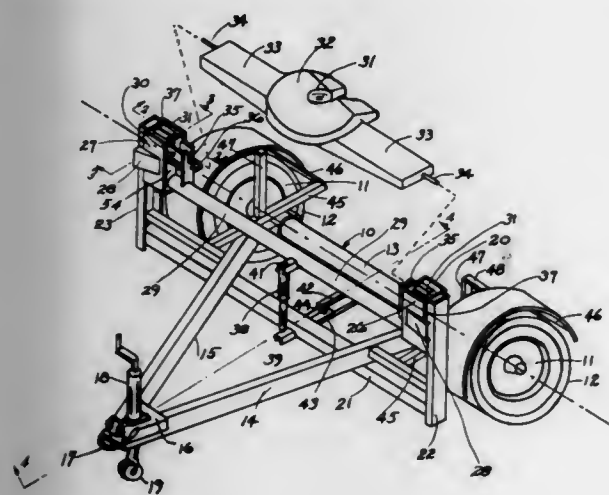
Keith E. Newcomer, La Grange, Ind., assignor to W. R. Grace & Co., New York, N.Y.

Filed Dec. 7, 1972, Ser. No. 313,086

Int. Cl. B60d 7/00

U.S. Cl. 280—476 R

3 Claims



This fifth wheel hitch adapter allows a fifth wheel type trailer to be hauled by an ordinary truck equipped with a ball-hitch or pintle. Two frame members are fastened to the axle adjacent its ends, and, considerably forwardly of the axle, converge to an apex on which the actual towing head is mounted. The fifth wheel is mounted on a plate suspended on springs held in position by a framework mounted in advance of the axle. Positioning of trailers or light hauling can be accomplished by the use of this adaptor, thus freeing the trailer tractor for more profitable operation.

3,829,130

TRAILER HITCH

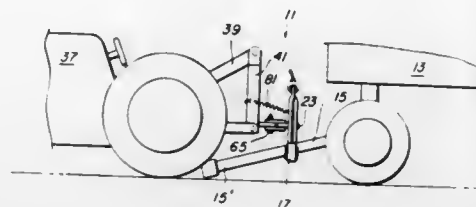
A. B. Cox, 101 Victoria, Cleveland, Miss. 38732

Filed May 7, 1973, Ser. No. 357,552

Int. Cl. B60 1/10

U.S. Cl. 280—479

10 Claims



A trailer hitch including a remotely actuated grapple which is intended to grippingly engage the tongue structure of a trailer conveniently along the length thereof. The grapple is pivotally attached to support structure by a vertical pivot pin to facilitate turning the trailer. A pair of springs are interposed between the grapple and the support structure to yieldably urge the grapple toward a centered position when not connected to a trailer. The grapple includes serrated jaws for biting into the tongue. Also, lug structure disposed subjacent the jaws is included to pick up the tongue and support it in a towing position prior to the jaws being caused to grip the tongue. The lugs engage the lower surface of the tongue and slide freely towards the free end thereof as the towing vehicle is caused to move in a direction away from the trailer.

3,829,131

AIRCRAFT TOW BAR

George E. Moore, Jr., San Angelo, Tex., assignor to Jewel B. Moore, San Angelo, Tex.

Filed Mar. 7, 1973, Ser. No. 338,825

Int. Cl. B60d 1/14

U.S. Cl. 280—493

7 Claims



An elongated tension bar including front and rear end portions pivotally joined together for relative oscillation about a transverse axis. The front end of the bar includes a ring for attachment to a towing vehicle and the rear end of the bar includes a bifurcated end portion whose furcations have generally semi-cylindrical downwardly opening notches formed therein for engagement over the axle ends of the nose wheel of an aircraft. Latch structure is provided for partially closing the lower portions of the axle end receiving notches and thereby locking the bifurcated end to the associated nose wheel axle. Also, the latch means includes a locking structure for locking the latch means of the tow bar in the operative position and also serving, when desired, to maintain the tow bar in a folded compact position for portability and compact storage on an associated aircraft.

3,829,132

COMPOSITE COVER-SUPPORT FOR CASSETTES AND BOOKS

Marcia B. Willieme, 22, Avenue Jonet, 1640 Rhode-St. Genese, Belgium

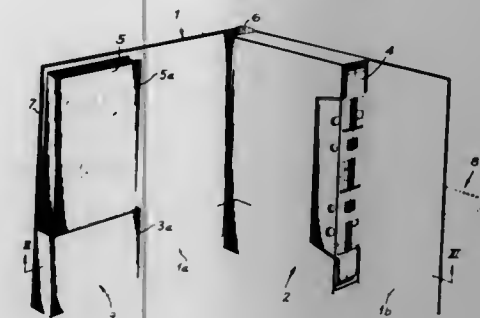
Filed Jan. 24, 1973, Ser. No. 326,410

Claims priority, application Belgium, Oct. 11, 1972, 789915

Int. Cl. B42d 3/18

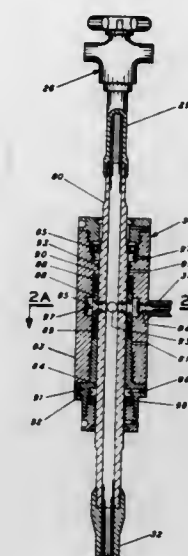
U.S. Cl. 281—31

12 Claims



A composite cover-support for tape cassettes and books, comprises a cover assembly, similar to the covers of a book, and, joined to this assembly, at least one receptacle for at least one tape cassette and at least one means of fixation for at least one book, these elements being arranged in such a manner that, when said cover assembly is folded up upon itself, the cassette and the book lie adjacent each other, occupy substantially the total space between the cover members and are coplanar, with the cassette being held in position within the cover assembly by an edge of the book or by an edge of the support means for the book within the cover assembly.

velocity in excess of 700 feet per second are jetted from jet orifices having a standoff distance between 5 and 10 diameters of the orifice from the openings to remove substantially all plugging material from the openings. Apparatus for circulating



ing foam is provided in combination with apparatus for delivering high pressure jets. New swivels and check valves permit rotation and reciprocation of the jet tool and tubing string while maintaining high pressure in the apparatus.

3,829,135

BELL FITTING FOR REINFORCED PLASTIC-MORTAR PIPE AND THE LIKE

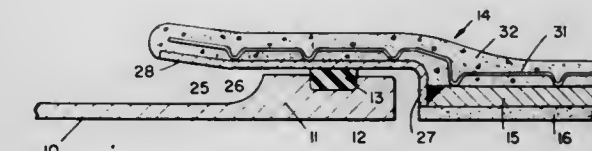
Jay S. Forni, 1101 Leema Dr., Danville, Calif. 94526

Filed July 3, 1973, Ser. No. 376,121

Int. Cl. F16l 9/08; B22d 21/14

U.S. Cl. 285—55

10 Claims



Bell-type fittings for reinforced plastic-mortar pipe are made utilizing cement-lined iron pipe sections, by welding to each end of each section a spin-formed bell with a flared outer end and an intumed portion welded to the iron pipe. The spin-forming provides the increased tensile strength needed to hold the main portion of the bell in round. After the bell is welded to the iron pipe section, it is exteriorly coated with reinforced cement. Then a standard end for reinforced plastic-mortar pipe—a spigot having an exterior annular groove with a gasket—can be inserted into the bell, thus completing a fluid-tight seal.

3,829,134

ROTARY TUBULAR COUPLING

Stanley O. Hutchison, Bakersfield, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 150,536, June 7, 1971, Pat. No. 3,720,264.

This application July 24, 1972, Ser. No. 274,787

Int. Cl. F16l 27/08, 55/00

U.S. Cl. 285—14

1 Claim

Method and apparatus for directionally applying high pressure jets to well liners to clean openings which are plugged with foreign matter. High velocity jets of liquid having a

3,829,136

SLIP-FIT ELECTRICAL COUPLING

Jonah Eidelberg, Huntington Station, N.Y., assignor to Electrical Fittings Corporation, East Farmingdale, N.Y.

Division of Ser. No. 66,408, Aug. 24, 1970, Pat. No. 3,703,303.

This application Oct. 6, 1972, Ser. No. 295,701

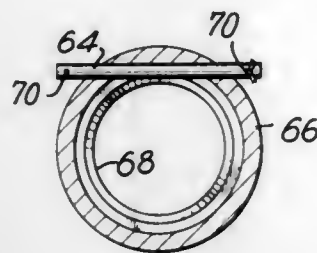
Int. Cl. F16l 21/06

U.S. Cl. 285—383

8 Claims

An electrical coupling for attachment to a pair of rigid conduits in a confined space includes a sleeve member which slidably receives the conduit, and further includes a stop

member centrally disposed on the sleeve for movement into and out of the bore of the sleeve for providing a stop when ex-



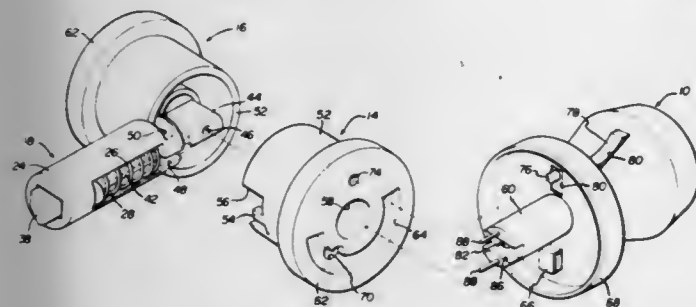
tending into the bore, and for allowing the sleeve to be slipped back onto either conduit when the screw is removed from the bore of the sleeve.

3,829,137 DOOR LATCH SET

Robert D. MacDonald, Metamora, Mich., assignor to Cardinal of Adrian, Inc., Adrian, Mich.
Filed Feb. 18, 1972, Ser. No. 227,407
Int. Cl. E05c 1/12

U.S. Cl. 292—171

17 Claims



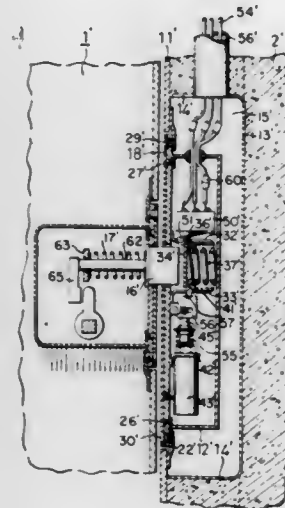
A molded plastic door latch set comprises two knobs, two sleeves, and a latch assembly, with the knob and sleeve pairs being substantially identical. Only three screws are required to assemble the set and secure it within a door. Rotation of the knobs actuates the latch by winding a flexible portion of the latch around the knob spindle.

3,829,138 REMOTELY CONTROLLED LATCH SYSTEM FOR FIRE DOORS AND THE LIKE

Yoshio Morita, 9-2, Hatchobori 3-chome, Chuo-ku, Tokyo, Japan
Continuation-in-part of Ser. No. 272,346, July 17, 1972, abandoned. This application Oct. 27, 1972, Ser. No. 301,663
Claims priority, application Japan, July 17, 1971, 46-63197
Int. Cl. E05c 1/16

U.S. Cl. 292—254

7 Claims



A remotely controlled latch system for releasably retaining a fire door or the like in a position in readiness for automatic

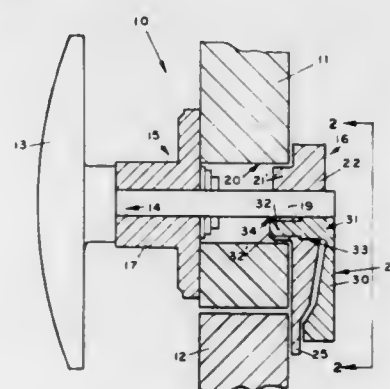
closing to close a passage or opening. The latch system comprises latch apparatus including a dead bolt which is operable to a retracted and a projected position in which it unlatches or unlocks the door and locks it respectively. A bolt-release mechanism, operated remotely, has a latched operator or actuator that is released from a retracted position to assume a projected position in which it engages the dead bolt and causes it to assume its retracted or unlatched position. The remote control signal is applied by a sensor that senses physical conditions indicative of the presence or existence of a fire. The position of the actuator is continuously sensed and when it assumes its projected position an electrical signal is generated by a sensing switch. This signal is employed for de-energizing a solenoid that controls the unlatching or release of the actuator and may be used to indicate the operative unlatched condition of the latch system and thereby indicate that the fire door associated with the system is closed.

3,829,139 LOCK HANDLE

Llewellyn O. Storlie, Decorah, Iowa, assignor to Deco Products Company, Decorah, Iowa
Filed Mar. 27, 1972, Ser. No. 238,204
Int. Cl. E05c 3/00

U.S. Cl. 292—349

4 Claims



A door lock provided with a member for releasing the lock from the inside in case of emergency, which member also serves to adjust the lock to doors of different thicknesses.

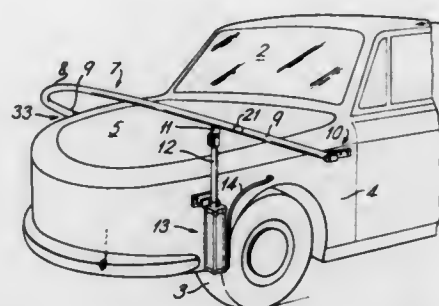
3,829,140 SAFETY DEVICE FOR VEHICLES

Victor James Jehu, Crowthorne, and Leonard Charles Pearson, Wokingham, both of England, assignors to National Research Development Corporation, London, England
Filed July 31, 1973, Ser. No. 384,300
Claims priority, application Great Britain, Aug. 11, 1972, 37612/72

U.S. Cl. 293—15

Int. Cl. B60r 19/00

5 Claims



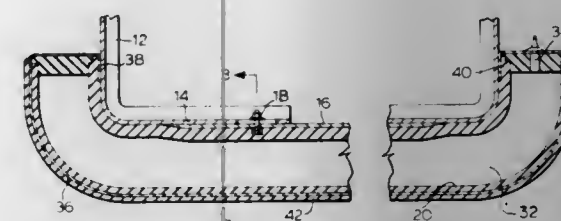
A safety device for vehicles comprises a movable member which normally lies stowed but which, upon collision of the vehicle with a pedestrian, is raised by a motor to form a barrier around an upward-facing surface upon which the pedestrian may land, thus restraining him from falling off again. This surface may be part of the vehicle, e.g. the bonnet. The barrier may contain fracture devices which break if the vehicle collides with a massive object, e.g. another vehicle.

3,829,141 MOTOR VEHICLE BUMPER

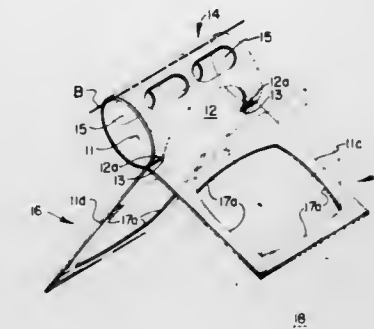
Godwill M. Igwe, 180 Queen Mary Rd. Apt. 708, Kingston, Ontario, Canada
Filed Nov. 28, 1972, Ser. No. 310,125
Int. Cl. B60r 19/10

U.S. Cl. 293—71 P

7 Claims



A motor vehicle bumper includes a tube containing gas under pressure mounted on a rigid support plate and a resilient elongated metal band extending in tension in contact with the outer surface of the tube.



permit ready finger insertion for easy carrying and larger openings in the end flaps allow the end flaps to be placed

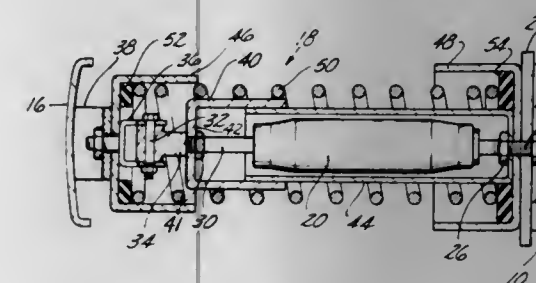
around an upstanding carton such that lifting on the handle will bend the carrier around the cartons whereby the cartons can be readily lifted.

3,829,142 SHOCK ABSORBING MOUNTING FOR MOTOR VEHICLE

Dominic M. Bommarito, 14977 Arcola, Livonia, Mich. 48154
Filed Jan. 22, 1973, Ser. No. 325,427
Int. Cl. B60r 19/04

U.S. Cl. 293—86

4 Claims



A vehicle having a bumper connected to the vehicle frame by a pair of telescopic tubes disposed in a cylindrical helical spring such that the vehicle can be raised by jacking up the bumper. A shock absorber is housed within the tubes to yieldingly oppose the motion of the bumper toward the vehicle frame. The helical spring biases the bumper away from the frame so that the bumper can receive an impact in a collision without damaging the vehicle body.

3,829,143 CARTON CARRIER

Stanford W. Bird, Salt Lake City, Utah, assignor to Plastronics Corporation, Salt Lake City, Utah
Filed Mar. 22, 1973, Ser. No. 343,831
Int. Cl. B65d 71/00

U.S. Cl. 294—31.2

4 Claims

This invention relates to a carton carrier formed from a flat sheet of flexible material in which holes and notches of various shapes are formed. The carrier is assembled by drawing one end of the sheet through an appropriate central hole therein until edges defining the hole slide into notches formed on each side of the flat sheet.

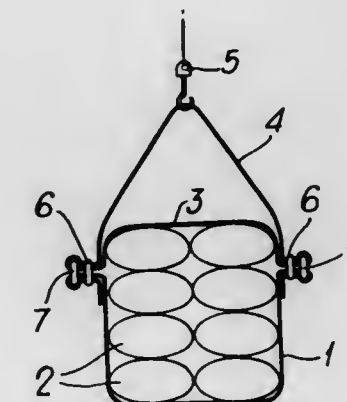
So assembled, a rolled carrying handle and angularly extending end flaps are formed. Aligned openings in the handle

3,829,144 CARGO SLING

Frank Nattrass, Fallows End, Brearton, Harrogate, England
Filed May 9, 1972, Ser. No. 251,685
Claims priority, application Great Britain, May 26, 1971, 17261/71; July 29, 1971, 35663/71; Jan. 21, 1972, 3013/72
Int. Cl. B66c 1/18

U.S. Cl. 294—74

9 Claims



A two part load encircling sling comprising a continuous loop secured to a second part of substantially unvarying length by means allowing movement of the loop in one direction but restricting or preventing it in the other; the sling in use tightening and remaining tightened about the load.

3,829,145 SPREADER BAR EXTENSION

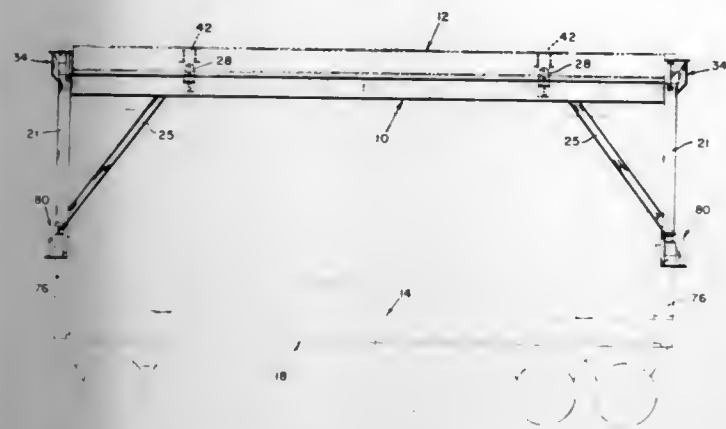
Carl R. Gottlieb, and Robert N. Campbell, Jr., both of Mobile, Ala., assignors to Sea-Land Service, Inc., Elizabeth, N.J.
Filed July 22, 1969, Ser. No. 843,557
Int. Cl. B66c 1/66

U.S. Cl. 294—81 SF

10 Claims

A spreader bar extension for increasing the effective length of a crane-carried lifting spreader bar used for transferring large, bulky, unitary loads mounted on supports such as flat-bed containers, the extension comprising a generally rectan-

gular framework having flared guides at the upper and lower ends thereof for aligning the framework with a spreader bar



central region of the ring is free to move radially toward the support surface. Such a ring can grip the outside of the shaft or the inside of a core for turning or lifting. Also, several improved actuators drive the movable flange as a function of the applied force.

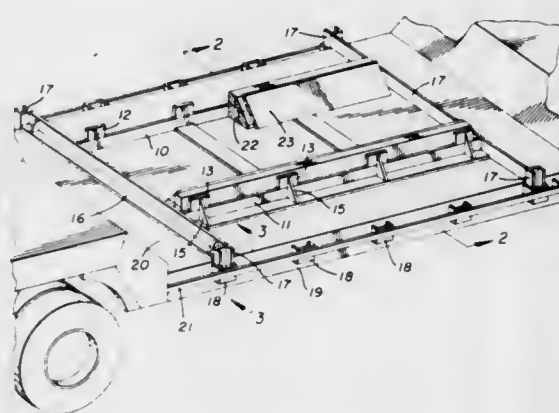
3,829,148 COIL RACK

Jerry L. Stoneburner, 5815 Market St., North Jackson, Ohio 44512

Continuation-in-part of Ser. No. 151,180, June 9, 1971, Pat. No. 3,724,675. This application Feb. 7, 1973, Ser. No. 330,277 Int. Cl. B60p 9/00

U.S. Cl. 296—3

8 Claims



A rack for heavy steel coils has a pair of spaced parallel reinforced frame members with a plurality of secondary frame members positioned therebetween and transversely positioned angle members having stake pocket engaging configurations on their outer ends positioned at each of the ends of the spaced parallel reinforced frame members and secured thereto. Built up wooden coil cushioning members are positioned in oppositely disposed relation on the inner sides of the spaced parallel reinforced frame members for directly receiving and holding heavy steel coils.

3,829,149 BEAM CONSTRUCTION

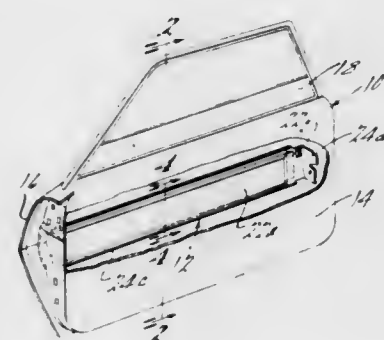
F. Bradley Stevens, Ann Arbor, Mich., assignor to L & L Products, Inc., Romeo, Mich.

Filed Feb. 9, 1973, Ser. No. 331,079

Int. Cl. B62d 27/04

U.S. Cl. 296—28 R

20 Claims



A novel structural beam having energy absorbing and load characteristics admirably suited for protecting the passenger compartment of a vehicle during collision, for example, as a side guard beam. The beam construction comprises a blade-supporting matrix of novel composition and structure contained within a hollow sheet metal box beam.

3,829,146 DELAYED PARACHUTE DISCONNECT

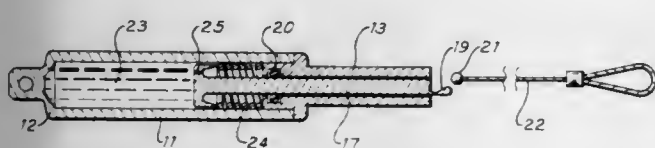
John E. Laswell, Bloomington, and John E. Wildridge, Washington, both of Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed July 30, 1973, Ser. No. 383,841

Int. Cl. B64d 17/38

U.S. Cl. 294—83 A

1 Claim



A delayed parachute disconnect having a piston slidably mounted in a cylinder having fluid therein. One end of the piston is releasably connected to a pulling element which automatically releases upon clearance from the cylinder. The piston is provided with an orifice and the speed of the piston is controlled by the fluid escaping through the orifice.

3,829,147

FORCE-RESPONSIVE ELASTOMERIC GRIPPER

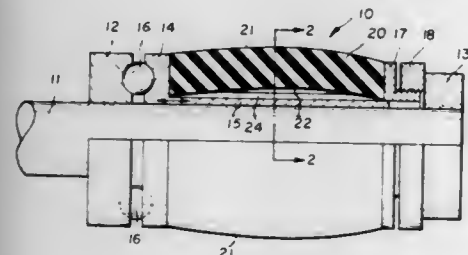
Edward L. Ryswick, Rochester, N.Y., assignor to Varispace Industries, Inc., Rochester, N.Y.

Filed Aug. 7, 1972, Ser. No. 278,419

Int. Cl. B25b 27/00

U.S. Cl. 294—93

15 Claims



A gripper with fixed and movable flanges squeezed together axially as a function of applied force to move an elastomeric ring radially for gripping uses an elastomeric ring that has a crowned gripping surface that is generally convex in axial cross section when the ring is unstressed. The opposite surface of the ring is generally concave in axial cross section, and the ring is supported on a cylindrical surface so that the axially

3,829,150

APPARATUS FOR REMOVABLE SECURING SOUND-PROOFING MATERIAL TO A CONSTRUCTION VEHICLE

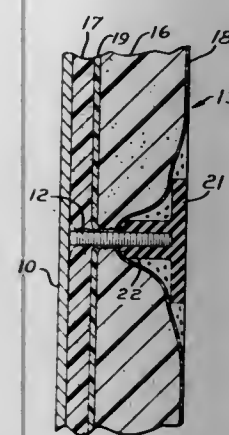
James C. Moore, Clackamas, Oreg., assignor to Portland Wire & Iron Works, Portland, Oreg.

Filed Nov. 13, 1972, Ser. No. 305,740

Int. Cl. E04b 1/74

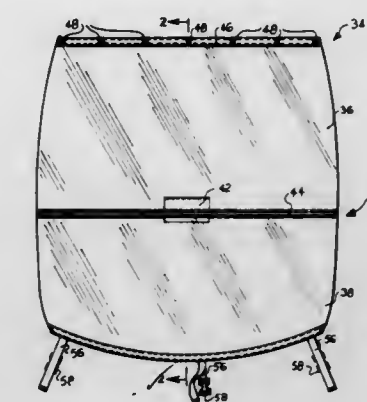
U.S. Cl. 296—39 A

1 Claim



Apparatus is disclosed for removably securing a covering of sound-proofing material to a construction vehicle. The apparatus includes a flexible button which has a smooth-walled sleeve which is force fitted over a threaded weld stud. The button is flexible enough so that it can be applied to, and removed from the weld stud without the need of a tool, yet it is hard enough so that the stud will not penetrate it when impacted.

secured together along an inner side of each by a transverse seam structure. A series of snap-on securing means are disposed along the upper edge of the upper windshield and are adapted to fasten to receiving means secured to the top of said vehicle. For securing the lower portion of the windshield as-



sembly, the present invention provides a series of laterally spaced straps threaded through the lower portion of the lower windshield and adapted to tie around a lower windshield attaching means projecting forwardly from the body of the vehicle.

3,829,153

BRACE AND METHOD OF BRACING A WINDSHIELD TO A DASHBOARD

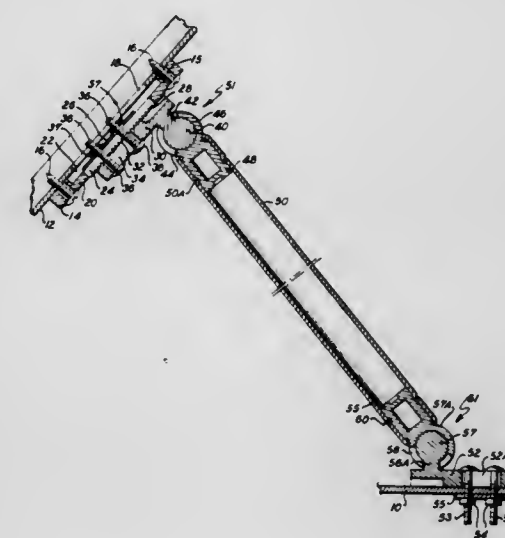
Edward B. Fussell, Jr., Altamonte Springs, Fla., and Don L. Redmon, Nashville, Tenn., assignors to Water Bonnet, Inc., Casselberry, Fla.

Filed Dec. 1, 1972, Ser. No. 311,378

Int. Cl. B60j 1/04

U.S. Cl. 296—90

9 Claims



3,829,151

TONNEAU COVER AND SEAT ASSEMBLY FOR PICKUP-TYPE VEHICLE BOXES

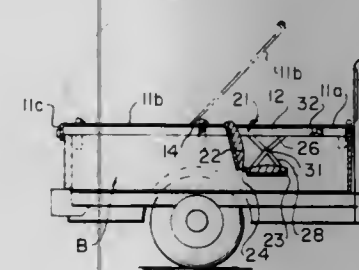
Ronald L. Fellenstein, 1410 W. Holly Dr., Broomfield, Colo. 80020

Filed Oct. 3, 1972, Ser. No. 294,603

Int. Cl. B60n 1/00; B60p 7/02

U.S. Cl. 296—64

11 Claims



A tonneau cover and rumble-type seat assembly for the box of a pickup-type vehicle wherein a tonneau cover is provided with an access opening and a convertible seat and closure are operatively associated with the tonneau cover. In one position the seat seats passengers in the box and the seat is movable to another position to close off the access opening.

3,829,152

VEHICLE WINDSHIELD ASSEMBLY

L. T. Hobbs, Raleigh, N.C., assignor to U.S. Supply Company, Raleigh, N.C.

Filed Mar. 8, 1973, Ser. No. 339,085

Int. Cl. B60j 1/02; B62j 17/00

U.S. Cl. 296—78

5 Claims

In abstract, a preferred embodiment of the present invention is a windshield assembly for a vehicle which extends generally between the vehicle top and the lower frame structure thereof in the front portion of such vehicle. The windshield assembly comprises an upper and lower windshield

A brace, extending between a windshield and a dashboard that includes a stem interposed between the windshield and the dashboard. A dashboard bracket, connected to one end of the stem by a universal joint, is rigidly secured to the dashboard. A windshield bracket is rigidly secured to the windshield. A foot, secured to the other end of the stem by a universal joint, is brought into engagement with the windshield bracket and is rigidly connected to the windshield bracket in the position of engagement of the foot with the windshield bracket. Means are provided on the windshield bracket and foot so that the angle of the stem may be varied and the brace can therefore be used with different styles of boats.

3,829,154

VEHICULAR RETRACTABLE COVER

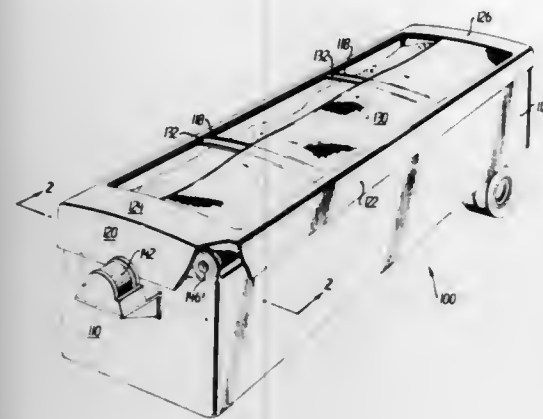
William R. Becknell, P.O. Box 64, Joiner, Ark. 72350

Filed June 25, 1973, Ser. No. 373,005

Int. Cl. B60j 7/06

U.S. Cl. 296—98

1 Claim



In a retractable vehicular cover of the tarpaulin type, a remotely controllable system for the opening and closing of the container or trailer. The invention is particularly adapted to tractor-trailers and trucks.

3,829,155

CONTROL DEVICE FOR POWER OPERATED AUTOMOBILE SLIDING ROOFS

Alfons Lutz, Krailling, Germany, assignor to Webasto-Werk W. Baier KG, Stockdorf/Munich, Germany

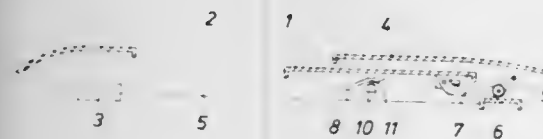
Filed June 22, 1973, Ser. No. 372,671

Claims priority, application Austria, July 4, 1972, 85733/72

Int. Cl. B60j 7/00

U.S. Cl. 296—137 F

3 Claims



A control device for power operated sliding roof panels of automobiles where the electric motor is controlled by a switch which is operated by the control lever of the sliding roof mechanism whenever the closed position is reached. The control lever includes a cam arm portion guided by a cam groove which operates the switch.

3,829,156

RECLINING SEAT

Teiji Iida, and Noboru Yoshimura, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan

Filed Sept. 28, 1972, Ser. No. 292,889

Claims priority, application Japan, Sept. 30, 1971, 46-76493

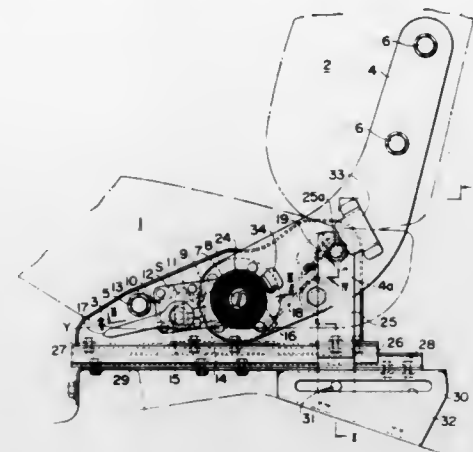
Int. Cl. B60r 21/10

U.S. Cl. 297—216

1 Claim

The present invention relates to a reclining device for a seat-back and to a reclining seat having an improved seat mounting to a vehicle. An elongated bore is formed in a seat-back frame, having a bore length corresponding to an amount of angle of inclination of the seat-back frame, and a pin is formed on a seat cushion frame, for mating with and disengaging from said elongated bore. Formed in a seat track bracket is an elongated bore having a length corresponding to an amount

of back and forth sliding movement of the seat, with which bore a pin mate which is fitted into a seat track holding plate fixed to an upper rail of the seat track.



The present reclining seat permits free adjustment of angle of inclination of the seat-back, affords simple construction and sufficient anti-collision strength bringing improved safety of the passenger.

3,829,157

SWIVEL ROCKING CHAIR

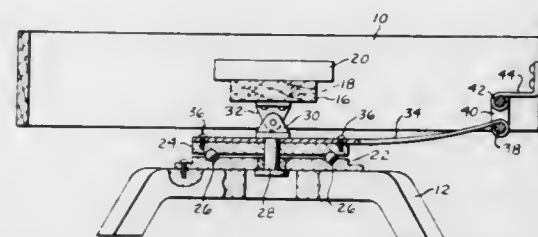
Clement Lange, Jr., R.R. No. 2, Huntingburg, Ind. 47532

Filed Mar. 2, 1973, Ser. No. 337,412

Int. Cl. A47c 3/02

U.S. Cl. 297—263

10 Claims



A swivel rocking chair in which the chair is resiliently controlled during rocking movement by a leaf spring arrangement connected between the swivel and the moveable part of the chair.

3,829,158

VEHICLE SEAT HARNESS

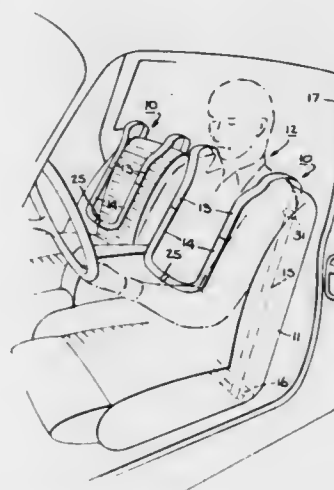
Robert O'Connor, 777 E. 48th St., Brooklyn, N.Y. 11225

Filed Aug. 31, 1972, Ser. No. 285,132

Int. Cl. A62b 35/60

U.S. Cl. 297—390

6 Claims



The seat harness is constructed to extend over the rear of a vehicle seat while rising slightly above the seat and shoulder of

the occupant and then downwardly to the waistline of the occupant. The harness includes a pair of hook-shaped members which are spaced from the occupant to restrain excessive forward motion of the occupant. The hook-shaped members are spring biased to bias the harness onto the vehicle seat when the occupant is not seated and thus insure that the harness is used when the seat is occupied.

3,829,159

TREATMENT CHAIR HAVING IMPROVED MOVABLE ARM SUPPORT DEVICES

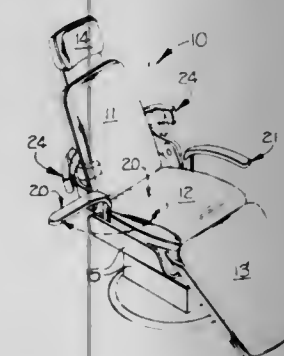
Dennis F. Leffler, Charlotte, N.C., assignor to Pelton & Crane Company, Charlotte, N.C.

Filed May 30, 1972, Ser. No. 257,752

Int. Cl. A47c 7/54

U.S. Cl. 297—417

4 Claims



In a treatment chair having a seat rest and a back rest for receiving a patient for treatment by an operator, the improvement of movable arm supports characterized by their ability to move for easy access to and from the side of the chair by the patient and easy access to the seated patient by the operator. These arm supports include a lower arm rest movable from a first position in which the arm rest is generally parallel with the side edge of the chair for supporting the lower arm of the seated patient to a second position in which the arm rest extends generally outwardly from the side edge of the chair for easy access to and from the chair from the side thereof by the patient. The movable arm supports further include upper arm rests mounted on the side edge of the back rest of the chair and extending forwardly of the chair in a generally arcuate position for supporting the upper arm of the patient from rearward and outward movement. The upper arm rests are constructed to move to other positions toward the seated patient only for allowing closer access to the seated patient by the operator.

3,829,160

HYDRAULIC DREDGING APPARATUS

Elie Condolios, Grenoble, France, assignor to Societe Generale de Constructions Electriques et Mecaniques (Alsthom), Paris, France

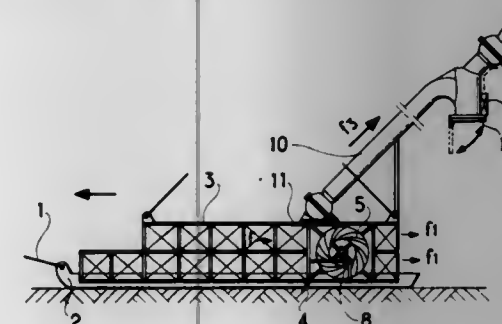
Filed June 20, 1973, Ser. No. 371,588

Claims priority, application France, June 20, 1972, 72.22119

Int. Cl. E02f 7/06

U.S. Cl. 299—8

8 Claims



Dredging bucket for hydraulic dredging of modules at a great depth, constituted by a main frame on skids, means for

bringing the scraped up material into a current of water by the advancing of the dredging bucket and means bringing the nodules cleared of clay towards the hydraulic tubes provided with pumping systems to bring them to the surface.

3,829,161

APPARATUS FOR MILLING ROAD SURFACES

Reinhard Wirtgen, 5461 Windhagen, Hohner Strasse, Germany

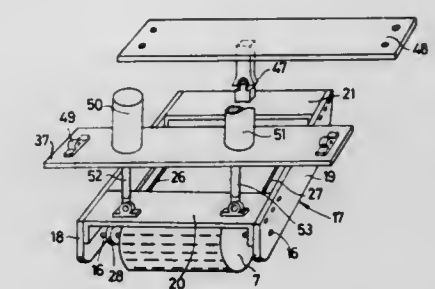
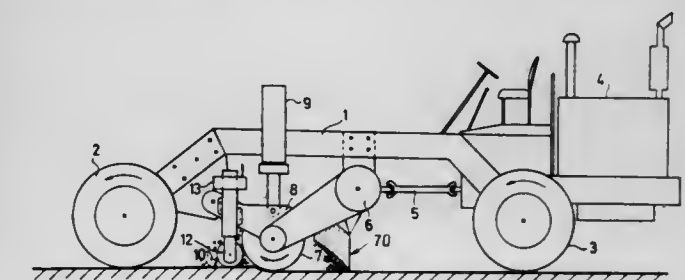
Filed Apr. 17, 1972, Ser. No. 244,775

Claims priority, application Germany, Apr. 16, 1971, 2118458; Sept. 11, 1971, 2145497; Jan. 26, 1972, 2203529; Jan. 26, 1972, 2203530

Int. Cl. E01c 23/09

U.S. Cl. 299—39

9 Claims



Apparatus and method for milling road surfaces wherein a motor driven rotatable roller, equipped with hard-metal cutters, is moved horizontally at a uniform level relative to the road surface, the level being such that the cutters engage the road surface during rotation of the roller. In accordance with the present invention, the roller is rotated in a direction opposite to the direction of forward movement of the axis of the roller relative to the road surface. That is, the cutters mill the road surface in a direction of forward movement of the axis of the roller. The apparatus of the invention further includes means for varying the level of the roller, and for varying the tilt of the roller relative to the road surface.

3,829,162

WHEEL ASSEMBLIES

Ian Leonard Stimson, Rugby; Frederick Sidney Dowell, and Benedict Pascal Healy, both of Coventry, all of England, assignors to Dunlop Limited, Erdington, Birmingham, England

Filed July 26, 1972, Ser. No. 275,246

Claims priority, application Great Britain, July 27, 1971, 35228/71

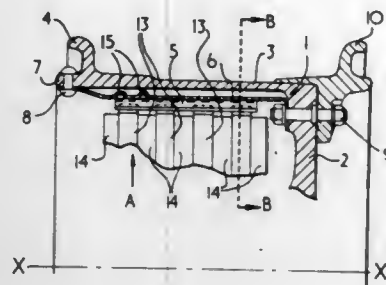
Int. Cl. B60b 19/00

U.S. Cl. 301—6 A

16 Claims

A wheel assembly comprising a wheel having disc and rim portions, a drive means in the form of a number of circum-

ferentially spaced drive dogs arranged to extend substantially parallel to the intended axis of rotation of the wheel assembly, driven by a two-speed motor. When only one system requires tobacco, the feeder is driven at low speed, whereas it will be



and an intermediate circumferentially extending heat isolating member arranged to extend between the drive dogs and the wheel, of which the following is a specification.

3,829,163

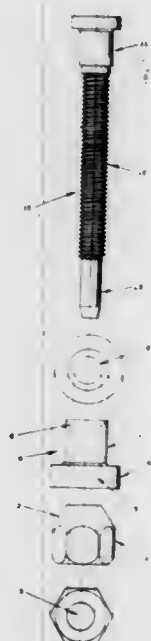
QUICK CHANGE WHEEL ASSEMBLY

Paul Hans, 706 Locust Ln., Louisville, Ky. 40213

Filed Apr. 4, 1973, Ser. No. 347,653

Int. Cl. B60b 3/14

U.S. Cl. 301—9 DN



A quick change wheel assembly is disclosed comprising in combination a wheel sleeve, a lug nut, and a bullet nosed stud. The bullet nosed stud is attached to the wheel hub and has a threaded shank portion having threads engageable with the lug nut and bullet nosed section of diameter smaller than the diameter of the lug nut threads. The wheel sleeve is inserted into the holes in the wheel disc, has a raised shoulder with a conical receiving section and has at the opposite end from said raised shoulder a second conical receiving section which is flared to hold the sleeve in place on the wheel disc. The threaded lug nut for receiving the stud has one end corresponding to the shape of the conical receiving end of the raised shoulder and said nut is attached to the sleeve at the conical receiving section by means of a weak glue.

3,829,164

PNEUMATIC FEEDER FOR PLURAL MAKER SYSTEMS

John Schoeb, Petersburg, Va., assignor to Brown & Williamson

Tobacco Corporation, Louisville, Ky.

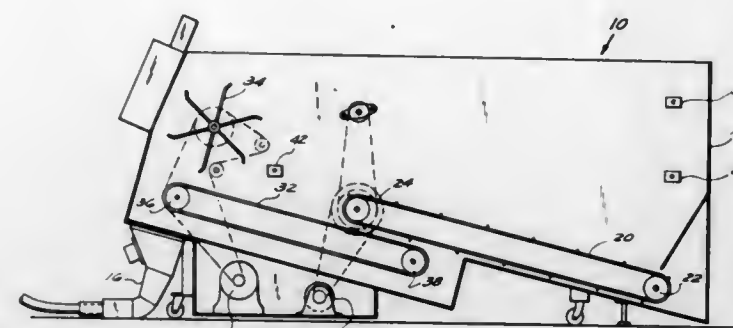
Filed Sept. 13, 1972, Ser. No. 288,497

Int. Cl. B65g 53/04

U.S. Cl. 302—28

6 Claims

A tobacco feeder is coupled to two multiple cigarette maker systems through two tubes, one for each system. The feeder is



switched to the higher speed when both systems require tobacco simultaneously.

3,829,165

ANTI-STOPPAGE APPARATUS AND METHOD FOR AIR CONVEYING SYSTEMS

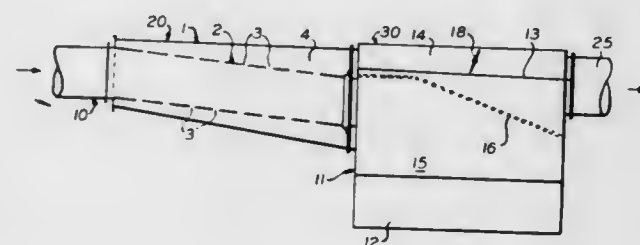
Bruce Theodore Edward Boon, Wayne, N.J., assignor to Eastern Cyclone Industries, Inc., Fairfield, N.J.

Filed Aug. 31, 1972, Ser. No. 289,368

Int. Cl. B65g 53/40

U.S. Cl. 302—59

5 Claims



Anti-stoppage or anti-clogging apparatus and method for pneumatic conveying system wherein the conveyed material is more efficiently and more rapidly separated from the conveying pneumatic stream. A specially designed bypass element or pre-air separation station is positioned upstream and adjacent the separation or collection station. This pre-air separation station functions to reduce the operating vacuum or pressure of the system by releasing or separating at least a portion of the conveying air stream from the material being conveyed prior to the material entering the separation or collection station. The released or separated portion of air by-passes the area of the separation station where the conveyed material is removed from the system.

3,829,166

BRAKE CONTROL APPARATUS FOR A MOTOR CAR

Alexander von Loewis of Menar, Mauren, and Klaus-Otto Riesenberger, Ludwigsburg-Ossweil, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Feb. 16, 1973, Ser. No. 333,293

Claims priority, application Germany, Feb. 22, 1972, 2208185

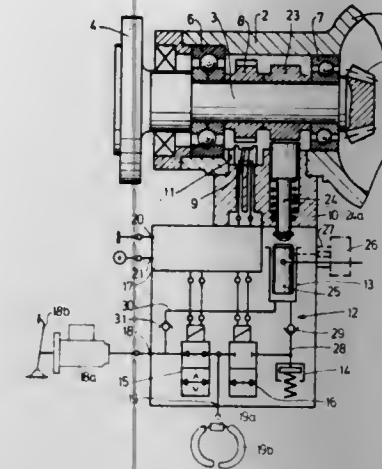
Int. Cl. B60t 8/10

U.S. Cl. 303—21 CG

12 Claims

The brake system of a motor car is controlled by a portion of the drive shaft of the car. The speed of the drive shaft is higher, but proportionate to the speed of the wheel shaft. A pulse generating sensor is operated by the drive shaft portion which is already provided in the motor car, to supply pulses at

a frequency which varies with the shaft speed, to an electronic control means which responds in dependence upon the pulses



to interrupt communication between the master cylinder and the wheel brake cylinder by operation of an electro-magnetic valve.

3,829,167

AUTOMATIC DECELERATION CONTROL SYSTEM

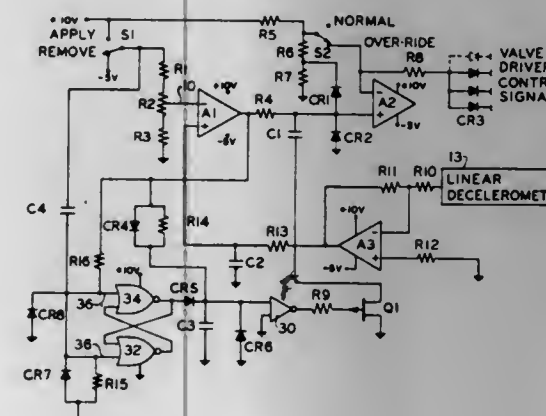
Edgar J. Rouf, Akron, and Harold R. Booher, Youngstown, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Nov. 21, 1972, Ser. No. 308,512

Int. Cl. B60t 8/12

U.S. Cl. 303—21 CG

17 Claims



Disclosed is a unique automatic deceleration control system of such a nature that it may be instantaneously interrupted by anti-skid control circuitry when adverse conditions exist and instantaneously restored to operation when such adverse conditions cease. A comparator circuit emits an output indicative of the comparison between the actual deceleration of the vehicle and a preselected desired rate of deceleration. An RC circuit receives the output of the comparator and forms ramp functions therefrom so as to achieve steady rates of application and release of brake pressure. Associated with the RC circuit is clock and initialization circuitry. The clock circuit inhibits the discharge of the capacitor of the RC circuit when adverse braking conditions exist and the initialization circuit inhibits the affect of the clock circuit when the brakes are initially placed under the control of the automatic deceleration control circuit. Also connected to the RC circuit is a current driving amplifier to provide the necessary power for controlling the brake valves of the vehicle in accordance with the output of the RC circuit.

3,829,168

VEHICLE WHEEL BRAKE ANTI-LOCK SYSTEM
Eberhard Schnabel, Hemmingen, and Werner Gotz, Friezheim, both of Germany, assignors to Robert Bosch GmbH, Gerlingen-Schillerhoke, Germany

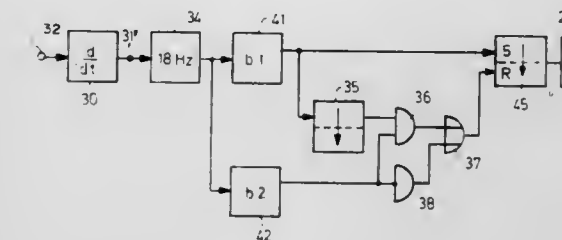
Filed Feb. 8, 1973, Ser. No. 330,674

Claims priority, application Germany, Feb. 12, 1972, 2206808

Int. Cl. B60t 8/12

U.S. Cl. 303—21 BE

17 Claims



Acceleration or deceleration of wheels are sensed and a valve which either connects the wheel brake cylinder to a source of pressure fluid or to a drain is controlled in accordance with sensed acceleration or deceleration. A first threshold switch is responsive to wheel deceleration, a second switch is responsive to acceleration, and controls draining of pressurized brake fluid from the wheel brake cylinder.

3,829,169

ANTI-SKID BRAKE CONTROL SYSTEM FOR VEHICLES
Masami Inada, Tokyo, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

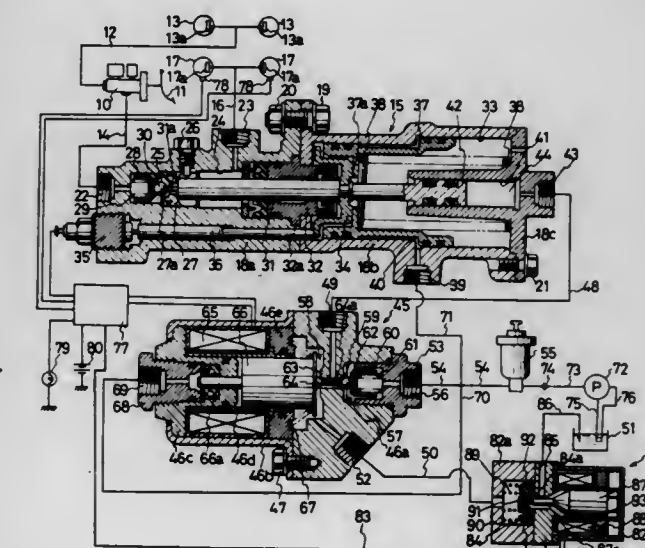
Filed May 4, 1973, Ser. No. 357,168

Claims priority, application Japan, May 5, 1972, 47-44425

Int. Cl. B60t 8/12

U.S. Cl. 303—21 F

3 Claims



Anti-skid brake control system for vehicles including a hydraulic braking circuit and anti-skid actuator driven by pump powered hydraulic pressure for controlling the braking pressure in response to an electric signal indicating a wheel rotational condition. The actuator includes a cut off valve for ON-OFF controlling of the braking circuit, a hydraulic pressure reducing piston operatively connected to the cut off valve for reducing the hydraulic brake pressure of the circuit, and an electro-magnetic valve which is actuated to change over the pump powered hydraulic pressure in response to the skid sensing signal whereby, the actuator includes a further electro-magnetic valve which is to be actuated as a safety valve in case the skid sensing signal is generated for an extended period of time such that the normal braking operation might be in danger of a no-braking condition.

3,829,170

ANTI-SKID BRAKE SYSTEM

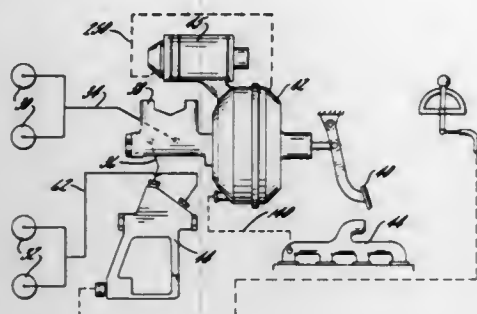
Edward A. Rockwell, 11773 Sunset Blvd., Los Angeles, Calif. 94601, and Harvison C. Holland, 230 22nd St., Santa Monica, Calif. 90806

Division of Ser. No. 83,732, Oct. 27, 1970, Pat. No. 3,738,711. This application June 11, 1973, Ser. No. 368,751

Int. Cl. B60t 8/14

U.S. Cl. 303—21 CG

15 Claims



A power braking system is disclosed for vehicles producing a maximum stopping force for any given road condition while preventing the vehicle from skidding. A pressure proportioning device varies the ratio of pressures between the front and rear brake lines of the vehicle as braking increases to achieve maximum stopping force for any given road condition at both the front and rear wheels. When increasing brake line pressure produces braking forces which exceed the maximum achievable stopping forces as determined by tire-road coefficient of friction, and the wheels start to lock-up, the resulting reduction in deceleration is detected by deceleration responsive control apparatus which operates the power booster of the power booster of the power brake system to momentarily reduce the brake line pressures both front and rear which allows the wheels of the vehicle to resume turning, and then reapplies the brake lines pressure, the cycle being repeated. The attendant result is the modulation of the braking force about the maximum for both front and rear wheels at the same time.

3,829,171

SKID CONTROL SYSTEM COMPONENTS

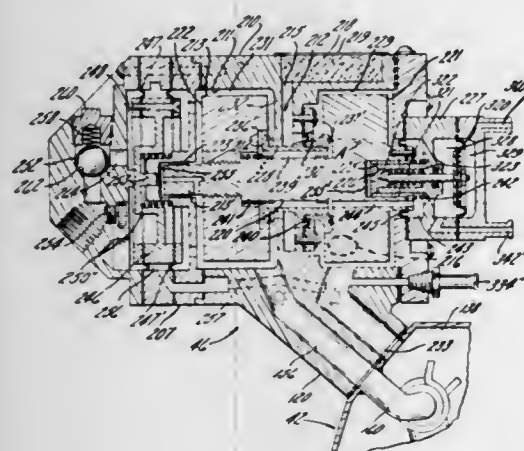
Edward A. Rockwell, 167 Ashdale Pl., Los Angeles, Calif. 90049

Filed Aug. 3, 1971, Ser. No. 168,683

Int. Cl. B60t 8/18

U.S. Cl. 303—24 C

11 Claims



Deceleration controlled skid control automotive braking system components including a controller, a power booster and a variable proportioning device are disclosed. The controller utilizes the force produced upon accelerating (or decelerating) a mass suspended in low friction bearings within a housing, to actuate a three-way valve having high and low supply pressures imposed across it. The three-way valve is

constructed to provide a control fluid pressure which varies as a function of vehicle deceleration, and is adapted to serve as the supply pressure for power actuated devices, such as the power booster and the variable proportioning device. The controller includes a device modifying the action of the three-way valve upon sudden reduction in vehicle deceleration, to change the control fluid pressure and modify the action of the power booster upon such sudden reduction in deceleration indicating impending wheel lock-up, for skid control. The power booster and variable proportioning device are constructed to utilize the varying control pressure produced by the deceleration actuated three-way valve as the air supply pressure.

3,829,172

RECOIL MECHANISM FOR TRACK-TYPE TRACTORS

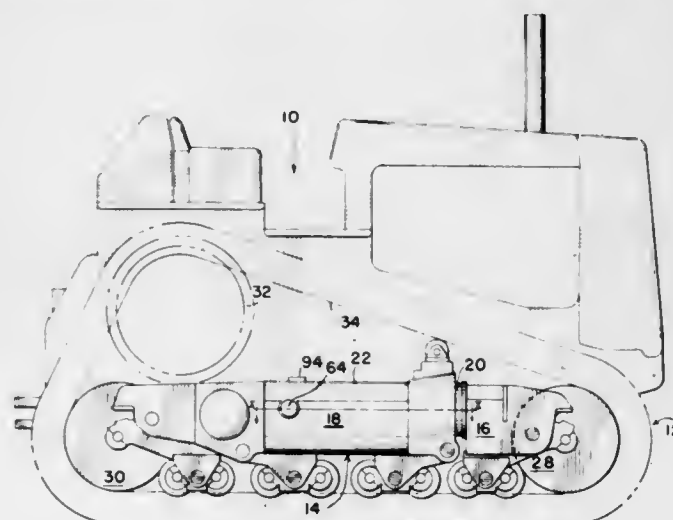
Eldon D. Oestmann, Washington, and George F. Alexander, Pekin, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 11, 1972, Ser. No. 313,969

Int. Cl. B62d 55/00

U.S. Cl. 305—10

16 Claims



A track-type tractor includes a track frame made up of front and rear portions having front and rear rotatable members associated therewith, and a track trained thereabout. Included are means for tensioning the track and allowing rotatable member recoil, such means including cylinder means fixed relative to the front portion of the track frame and having a first cylindrical portion and a second cylindrical portion of larger cross section than the first cylindrical portion. A first piston is disposed within the first, smaller cylindrical portion and helical spring means are associated with the first piston and a member fixed to the front portion of the track frame to urge them apart. A second piston is disposed within the second, larger cylindrical portion and is fixed relative to the rear portion of the track frame. The cylinder means and first and second pistons define a chamber which is filled with substantially incompressible fluid. Addition of fluid to this chamber moves the front and rear track frame portions relatively apart. The spring means allow recoil of the front track frame portion toward the rear track portion, and because of the incompressibility of the fluid and the different piston sizes, the compressive movement of the spring means is greater than the corresponding amount of recoil movement of the front track frame portion toward the rear track frame portion.

3,829,173

SEALED PIN JOINT FOR TRACK ASSEMBLIES

Robert N. Stedman, Chillicothe, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 27, 1973, Ser. No. 355,202

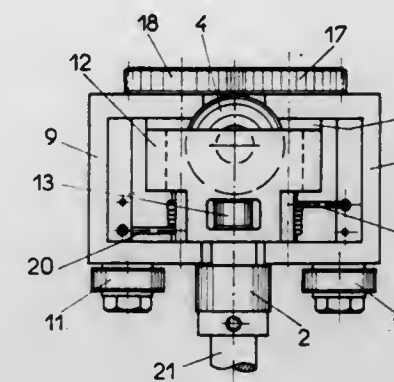
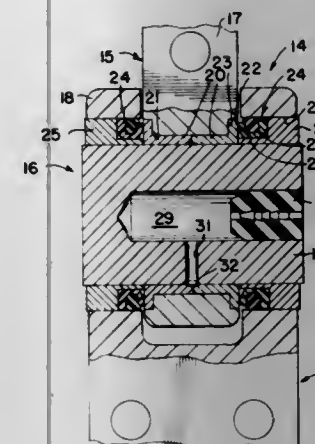
Int. Cl. B62d 55/20

U.S. Cl. 305—11

27 Claims

A track assembly comprises a plurality of shoes closely coupled together by a pair of articulated link assemblies. Each

link assembly comprises a plurality of fork and blade type axis, and a motion-transmitting arrangement is provided links pivotally mounted together by a tubular pin and a pair of which enforces pivotal movement of the first axis of one guide



annular bearings. An annular seal and retaining means therefor are disposed on an outboard side of each of the bearings.

roller about the second axis thereof in one direction, if the first axis of the other guide roller is pivoted about its second axis in an opposite direction, and vice versa.

3,829,174

GANG PLATE FASTENING ASSEMBLY AND ENDLESS TRACK FORMED THEREWITH

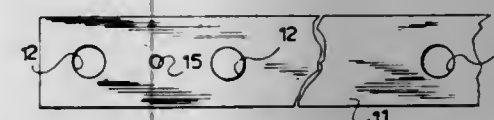
Ian A. Thomas, Calgary, Alberta, Canada, assignor to Flextac Nodwell Ltd., Calgary, Alberta, Canada

Filed Oct. 29, 1973, Ser. No. 410,421

Int. Cl. B62m 27/02

U.S. Cl. 305—35 EB

11 Claims



A gang plate fastening assembly particularly conceived to be used to inexpensively and readily secure grouser bars of aluminum extrusion to form endless tracks for tracked vehicles, but which may also be used to secure other members having an appropriate elongated passage therein. The grouser bar and gang plate fastening assembly includes a grouser bar having an elongated passage, a groove along the latter forming opposite faces adapted to non-rotatably restrain nuts in the groove, and a gang plate engaged into the elongated passage merely holding a shoulder portion of the nuts such that the latter are in predetermined spaced apart relationship and in registry with a row of bolt receiving bores along the grouser bar.

3,829,175

RAIL-SUSPENDED CARRIAGE

Ernat Vogeli, Zurich, Switzerland, assignor to Polio Establishment, Vaduz, Liechtenstein

Filed Feb. 22, 1973, Ser. No. 334,954

Claims priority, application Switzerland, Feb. 23, 1972, 2579/72

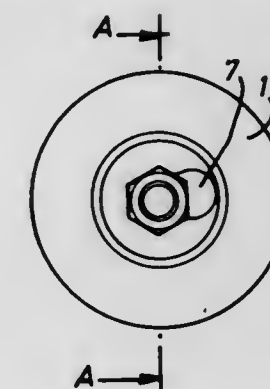
Int. Cl. F16c 21/00

U.S. Cl. 308—6 R

8 Claims

A rail-suspended carriage for movable partition walls has a carriage body provided with an axle on which a pair of wheels are mounted which can engage a rail along which the carriage is to travel. Turnable guide rollers are provided, each being adapted to roll along a rail in lateral engagement therewith and each being turnable about a first vertical axis and the latter in turn being pivotable about a second vertical axis paralleling it. A track roller is turnable about another vertical axis laterally offset from and paralleling the first and second

This stretcher-pulley associated with transmissions of internal combustion engines, comprises a roller mounted for loose rotation on a crankpin adjustable by pivoting about a fixed pin disposed eccentrically in relation to the crankpin axis under the control of resilient means constantly urging said roller against the belt to be stretched, characterised in that said crankpin is connected to the cylinder-block of the engine by means of a bearing base having substantially the same diameter as said roller and concentric thereto, said base having formed in its peripheral portion a hole in which the eccentric pivot pin rigid with the cylinder-block is fitted, a cavity being formed in said base for receiving said resilient means on the side of said base which engages said cylinder-block, an anchor stud extending through the axial portion of said crankpin, said cavity and an elongated orifice permitting the movements of said crankpin about its eccentric axis, said stud acting in actual service as a means for pressing the bearing surface of said crankpin base against said cylinder-block.



3,829,177

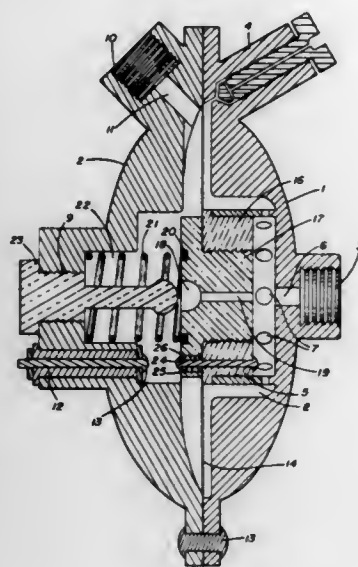
SECURITY DEVICE FOR BRAKING SYSTEMS

Jose D. Vergara, San Ismael No. 845 Jardine de la Preas; Adolfo Vergara, La Ryna No. 25 Col Chapalita, and Juan L. Zepeda, Marelos No. 1024 Guadalyana, all of Guadalajara, Mexico

Filed Dec. 12, 1972, Ser. No. 314,430

Int. Cl. B60t 15/46

U.S. Cl. 303—84 R



A security device for braking systems of the hydraulic type provides a signal to a driver indicating a presence of a small failure some place in the braking system and blocks a portion of the braking system where a major failure has occurred leaving the remaining portions of the system unchanged to permit safe driving of a vehicle without the complete failure of the braking system.

3,829,178

BEARING ARRANGEMENT

Hiroo Sakamoto, Tokyo, Japan, assignor to Akai Electric Company Limited, Tokyo, Japan

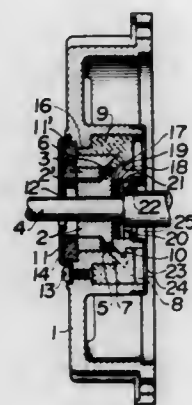
Filed Apr. 28, 1972, Ser. No. 248,405

Claims priority, application Japan, May 12, 1971, 46-31749

Int. Cl. F16c 1/24

U.S. Cl. 308—132

4 Claims



A bearing arrangement for continuously circulating lubricating oil to sleeve-type bearings of electric motors, in particular small horsepower electric motors, having a first oil-impregnated fibrous material member, which serves as a lubricant reservoir for the bearing, in contact with a part of the outer peripheral surface of the bearing, and a second absorbent fibrous material member arranged adjacent an end surface of the bearing so as to absorb lubricating oil escaping from the bearing journal. The first and second fibrous material members are connected directly with each other or through an additional absorbent fibrous material member in a circuitous

fashion. Thus, the lubricating oil circulates through the completed capillary return path and performs lubricating and cleaning actions for long periods of time throughout the life of the motor without replenishment.

3,829,179

BEARING DEVICE FOR VERTICAL-SHAFT ROTARY MACHINES

Seiichi Kurita, Takahagi; Makoto Kaneko, and Mituo Iikawa, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

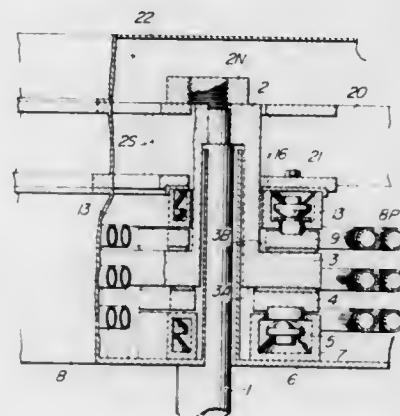
Filed Mar. 2, 1973, Ser. No. 337,367

Claims priority, application Japan, Mar. 3, 1972, 47-21517

Int. Cl. F16c 17/06

U.S. Cl. 308—160

17 Claims



A bearing device comprising a bearing that supports the overall weight of the rotating parts of a vertical-shaft rotary machine and another associated rotary machine or machines and also bears downward thrust during operation, a bearing that controls radial displacement of the rotating parts, and a bearing that bears up-thrust, or a thrust acting in the direction opposite to the direction for the first bearing. Of these bearings, those for controlling the radial displacement and for bearing the up-thrust are disposed close to each other to permit a reduction in the overall shaft length of the rotary machines and make the machines as a whole small in size and compact in construction.

3,829,180

PAD CONSTRUCTION FOR TILTING PAD THRUST BEARING

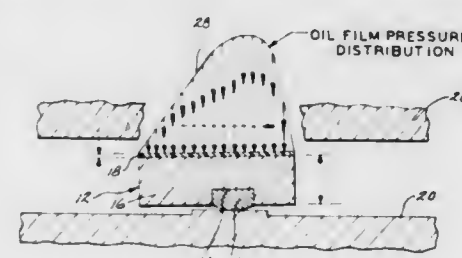
Willis W. Gardner, Waukesha, Wis., assignor to Waukesha Bearings Corporation, Waukesha, Wis.

Filed Apr. 16, 1973, Ser. No. 351,682

Int. Cl. F16c 17/06

U.S. Cl. 308—160

12 Claims



A tilting pad for a thrust bearing is formed of steel and faced with a layer of graphite-fiber composite material. This provides good bearing properties, a low coefficient of thermal expansion parallel to its surface, and a low coefficient of thermal conductivity transverse to its surface. The facing material insulates the bearing pad from oil-shear heat and thus increases the load capacity of the pad by reducing the tendency to bend which is customarily caused by a temperature differential

across a pad. The facing material is made of criss-crossed layers of graphite fibers embedded in a resin, the fibers being oriented in directions substantially parallel with the surface of the steel pad.

3,829,181

COMBINED AXIAL RADIAL BEARING

Fritz Gunther, Stuttgart-Rohr, and Hermann Fritz, Merkligen, both of Germany, assignors to SKF Industrial Trading and Development Company B.V., Overtoom, Amsterdam, Netherlands

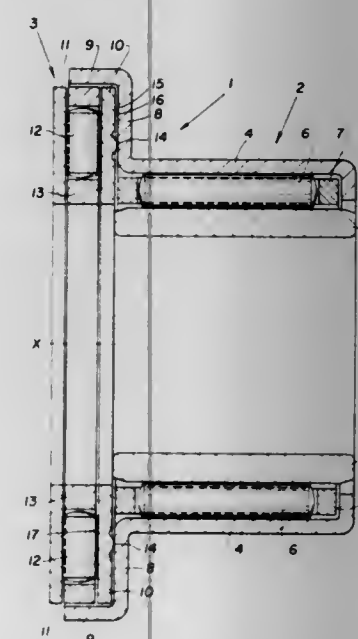
Filed Mar. 12, 1973, Ser. No. 340,590

Claims priority, application Germany, Mar. 14, 1972, 7209652

Int. Cl. F16c 19/14

U.S. Cl. 308—174

6 Claims



A combined axial-radial bearing comprising a housing having a cylindrical portion and a radially extending flange portion. An axial bearing is located in said flange portion, comprising an array of needle roller elements and a buffer disk interposed between the roller elements and the flange. The frontal face of the buffer disk lying in opposition to said flange is formed with camber means by which the disk is spaced from the flange and which permits angular movement therebetween.

3,829,182

BEARING CONSTRUCTION

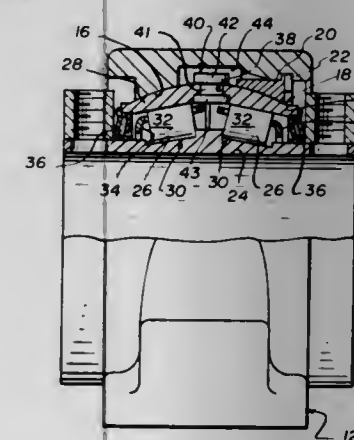
Hilarius S. Struttman, St. Charles, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed May 21, 1973, Ser. No. 362,572

Int. Cl. F16c 23/08

U.S. Cl. 308—194

3 Claims



A generally spool-shaped locking pin preferably constructed of a ductile metal in a two part outer race assembly for a self-aligning bearing assembly limits the relative rotation between race assembly and the housing receiving the same.

3,829,183

ULTRA HIGH SPEED ROLLING BEARING ASSEMBLY

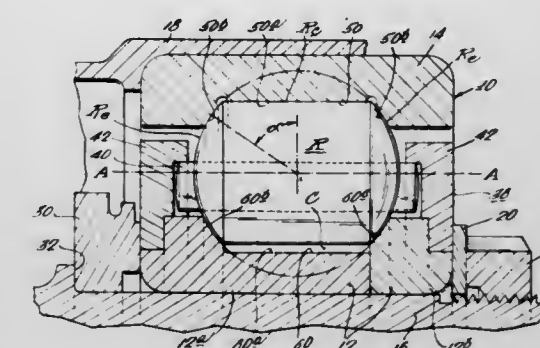
Colin G. Hingley, Strafford-Wayne, Pa., assignor to SKF Industries, Inc., King of Prussia, Pa.

Filed Jan. 17, 1973, Ser. No. 324,443

Int. Cl. F16c 33/00

U.S. Cl. 308—213

11 Claims



A roller bearing assembly comprising inner and outer rings having confronting spaced apart raceways defining an annular space, a plurality of rolling elements in the annular space between said rings, said rolling elements and raceways being of a predetermined configuration providing for rotation of each of the rolling elements about a fixed axis and having a substantially fixed contact angle, said rolling elements being in line contact with the outer raceway and engaging axially spaced sections of the inner raceway and spaced from the inner ring surface between the inner raceway sections.

3,829,184

AUTOMATIC PLAY TAKE-UP BEARING BUSHES

Remy Chevreton, Billancourt, France, assignor to Regie Nationale Des Usines Renault, Billancourt and Automobiles Peugeot, Paris, both of France

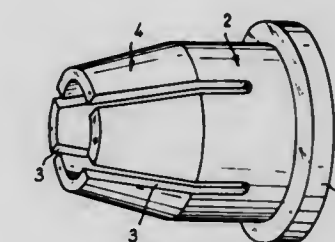
Filed Jan. 18, 1973, Ser. No. 324,595

Claims priority, application France, Jan. 26, 1972, 72.02583

Int. Cl. F16c 33/04

U.S. Cl. 308—237

6 Claims



This bush-ring adapted to receive a trunnion of a low-load mechanism comprises a resilient portion adapted to undergo a radial distortion as a consequence of the pressure exerted at its end by the trunnion and a distortion-free portion, said resilient portion having a frustoconical section with at least three longitudinal slits which is adapted to be distorted by said trunnion and thus constitute two frustoconical sections having opposite tapers, of which the slip elements having a common base diverge and engage the bearing or trunnion associated therewith, the sections remotest from said stop flange diverging while remaining in bearing contact with said trunnion or bearing.

3,829,185 HOUSING ASSEMBLY FOR ELECTROSTATIC PRINTING MACHINE

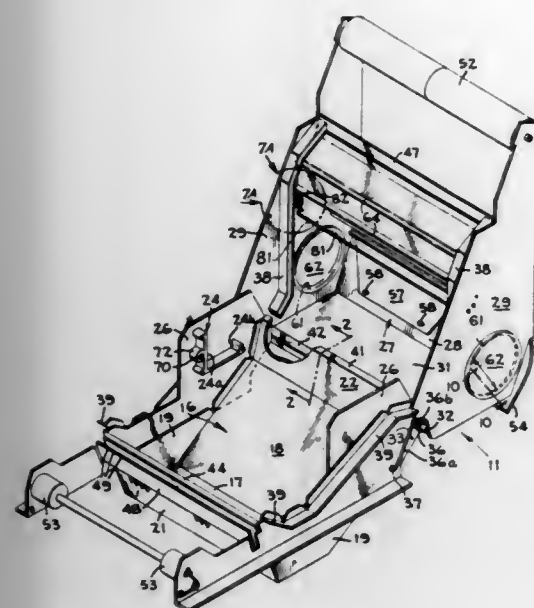
William A. Lloyd, San Jose, Calif., assignor to Versatec, Inc., Cupertino, Calif.

Filed May 11, 1972, Ser. No. 252,425

Int. Cl. B65h 19/00

U.S. Cl. 312-39

9 Claims



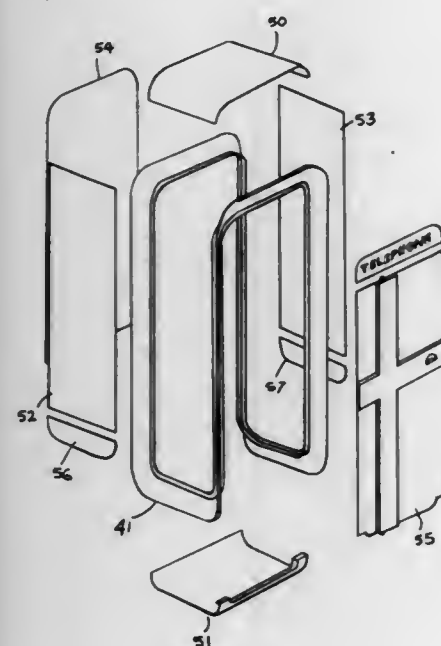
A housing assembly for an electrostatic printing machine features: a sealed chamber for storage of a supply of printing material in either fan-fold or roll form; means for tensioning a web of the material as it is fed to an electrostatic printing head; and a broad leaf member extending transversely of the bin assembly between a supply of fan-fold web material and the tensioned web itself as stretched out to the recording head so as to prevent rubbing contact therebetween.

3,829,186 DEMI-CUBIC STRUCTURES

Gerald L. Jonas, 306 W. 81 St., New York, N.Y. 10024
Filed June 25, 1973, Ser. No. 373,231
Int. Cl. A47b 43/00

U.S. Cl. 312-100

7 Claims



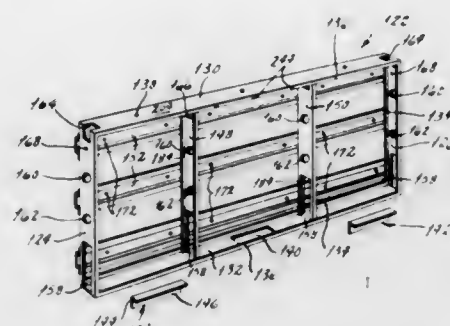
A method of constructing a container, having a demi-cubic frame and first and second panel sections adapted to cooperate with the frame, including flexing the demi-cubic frame in its basic directions of resilient flexure, assembling the first and second panel sections into cooperation with the frame and allowing the frame to return to its unflexed condition to retain the first and second panel sections in cooperation with the frame; and a container having a demi-cubic frame with two basic directions of resilient flexure; first and second panel sections retained in cooperation with the frame, the panel sections being retained in said cooperation only when the frame is in its unflexed condition.

tion to retain the first and second panel sections in cooperation with the frame; and a container having a demi-cubic frame with two basic directions of resilient flexure; first and second panel sections retained in cooperation with the frame, the panel sections being retained in said cooperation only when the frame is in its unflexed condition.

3,829,187 COUNTER FIXTURE

Harry M. Stewart, 1130 Hampton Ave., St. Louis, Mo. 63139
Filed Mar. 23, 1972, Ser. No. 237,437
Int. Cl. A47b 96/18, 43/00
U.S. Cl. 312-140.1

13 Claims

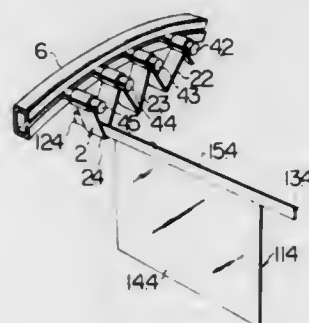


A counter fixture for financial transactions having a die, one or more cabinet members supported by a base member and a countertop with curbing supported by the die and cabinet members. The one or more cabinet members and base member are plumbed and leveled simultaneously prior to assembling the die and countertop thereto. The die when supported on the base is elevated from the floor surface and positioned adjacent the cabinets, thereby acquiring a plumbed and leveled condition from the previously plumbed and leveled base and cabinet members. The countertop being supported by aligned surfaces of the cabinets and the die is substantially plumbed and leveled upon assembly thereto.

3,829,188 CARD-STORING DEVICE

Takeshi Abe, Yokohama, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan
Filed Jan. 24, 1973, Ser. No. 326,492
Claims priority, application Japan, Jan. 25, 1972, 47-9237
Int. Cl. A47b 63/00; B42f 15/00; A47b 88/00
U.S. Cl. 312-184

5 Claims



A device comprising support means including a pair of members bent in zigzag fashion for supporting in a number of valleys formed in the support means a number of aperture cards, microfiches or other information cards each having projections on opposite sides thereof. The cards are held in position by the biasing force of resilient means urging the zigzag support means into a contracted position by its biasing force. When any card is to be retrieved from among the cards stored in the device, a retriever is inserted in the zigzag support means to bring it into an expanded position whereby the desired card can be slightly pushed out and retrieved.

3,829,189 MOTORIZED MOBILE SHELVING APPARATUS

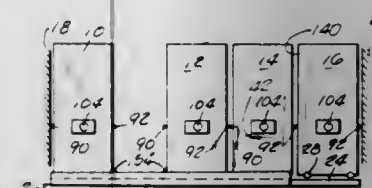
Marvin A. Staller, Fort Atkinson, Wis., assignor to Spacesaver Corp., Ft. Atkinson, Wis.

Filed Jan. 15, 1973, Ser. No. 323,681

Int. Cl. A47b 53/00, 77/00, 87/00

U.S. Cl. 312-198

6 Claims



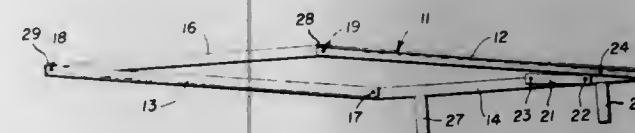
Mobile storage apparatus includes a plurality of mobile units guided for movement in a direction normal to the storage faces with each mobile unit having a separate motor. Switch actuator rods shiftable horizontally in each unit have a control arm projecting through the end panels of the units for manipulation. Manual movement of each actuator rod to the right or left causes actuation of right or left directional control switches to energize the motor for movement of the unit to the right or left. The actuator rods project beyond the side margins of each of the units to engage projecting parts of actuators on the adjacent units so that manual movement of the actuator rod in one unit causes movement of the actuator rods in adjacent units to energize the motors in all units for which the rod is shifted to open the selected aisle space.

3,829,190 CABINET PREFABRICATION SYSTEM

Alfred N. Jackson, 1005 20th St., Golden, Colo. 80401
Filed Oct. 19, 1972, Ser. No. 298,736
Int. Cl. A47b 43/00

U.S. Cl. 312-258

8 Claims



A cabinet system providing prefabricated support frame and cabinet liner components that are assembled at the point of manufacture with adjacent elements thereof being pivotally interconnected each to each whereby such components may be handled and shipped in a compact collapsed configuration. At points of use the frame and cabinet components which are hinged and folded in opposite directions are brought to an expanded erected condition for nesting engagement one within the other with the oppositely hinged orientation thereby providing a rigidly upright structure. Facing components are applied to complete an assemblage of cabinet units of various style and length.

3,829,191 MEANS FOR SEALING A COMPONENT SUPPORTING ASSEMBLY IN A WASHING APPLIANCE TUB

Thomas E. Jenkins, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Dec. 29, 1972, Ser. No. 319,516

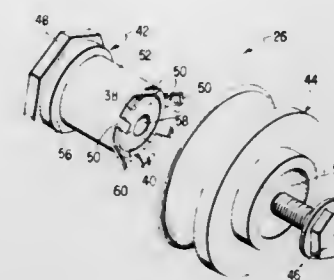
Int. Cl. A47b 88/00

U.S. Cl. 312-346

3 Claims

A roller assembly for front loading dishwashers employing a tub with a plastic interior surface includes a plastic roller mounting stud that seals tightly at its base with the tub surface. The roller mounting stud includes a means for sealing the stud to the tub wall including an integral, annular sealing ridge up-

standing from the tub wall engaging end of the stud in surrounding relation to a central mounting bore for deforming and/or abrading the softer tub wall into fluid tight sealing en-



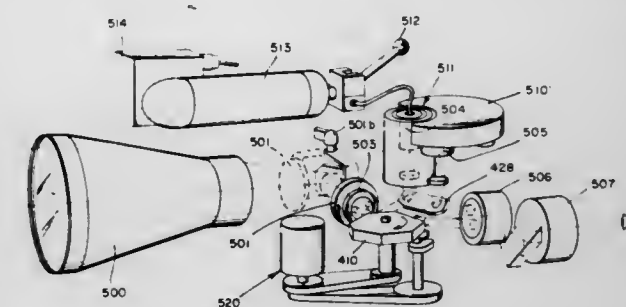
gement with the annular ridge. A plurality of the roller mounting assemblies are anchored in a common reinforcing channel member backing a metal collar adjacent the front open end of the dishwasher.

3,829,192 RECEIVE AND DISPLAY OPTICAL RASTER SCAN GENERATOR

Bryce A. Wheeler, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Continuation-in-part of Ser. No. 152,466, May 28, 1971, Pat. No. 3,764,192. This application May 21, 1973, Ser. No. 362,593
Int. Cl. G02b 17/00

U.S. Cl. 350-7

9 Claims



There is disclosed an optical scanning device optically free of both astigmatic distortion and image rotation which is thus suitable for use with an afocal magnifying system. The device detects infrared energy from a scene, converts the received signals into visible light output, and displays the scene to an observer through a unitary dual function scanning device, one of its functions being the conversion of infrared energy received in an azimuth-elevation scan pattern to electrical signals and the other function being the synchronous generation of a visible scene from said signals. The geometry of the device is such that both the elevation and azimuth scan in both modes appear to originate from a substantially fixed area thereby precluding astigmatic distortion when said scan is optically coupled to an afocal magnifying system.

3,829,193 IMPROVED RANDOM PHASE PLATE FOR FOURIER TRANSFORM HOLOGRAPHY

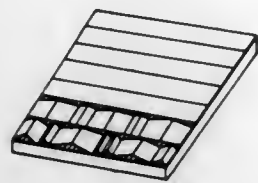
Yoshito Tsunoda, and Yoshitada Oshida, both of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Sept. 18, 1972, Ser. No. 289,644
Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

11 Claims

A phase plate disposed in the object light beam path of a Fourier transform holography apparatus, has a phase surface on which a plurality of different continuous function shapes

distributed at random are formed. In this manner phase of the object light passing through each portion of the phase plate is



shifted continuously and at random within a range of from 0 to 2π . Thus, spectral maldistribution on the plane of a hologram can be prevented.

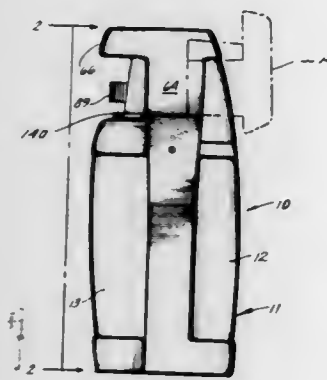
3,829,194 BINOCULAR

Gerrit A. Van Exel, Fullerton, and Alfred A. Akin, Jr., West Covina, both of Calif., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Jan. 15, 1973, Ser. No. 323,918
Int. Cl. G02b 7/12

U.S. Cl. 350—76

13 Claims



A binocular having a pair of monoculars with identical frames for supporting prisms, eyepieces, and objective lenses. The frames are coupled by a sliding connection to permit linear adjustment of eyepiece interpupillary spacing by a rotary knob and gear system. The mated monoculars are supported in an outer housing which eliminates need for a conventional storage case. A singed brow bar on the housing rests against the user's forehead to steady the binocular during viewing, and the brow bar covers the eyepieces when the binocular is not in use. Focussing is achieved by moving field lenses in the eyepiece optical systems to maintain a constant eyepoint compatible with use of the brow bar.

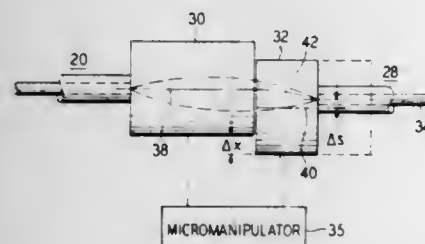
3,829,195 OPTICAL COUPLERS

Eric Gordon Rawson, Stirling, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 25, 1973, Ser. No. 373,272
Int. Cl. G02b 5/14

U.S. Cl. 350—96 R

7 Claims



An optical coupler comprises at least two movable graded index-of-refraction cylindrical segments. At least two of the segments have unequal lengths and are longitudinally butted

together to form a structure having flat input and output faces. The overall length of the segments approximates a half wavelength of the period of the sinusoidal path followed by a light beam in longitudinally propagating through the segments. A relatively large lateral movement of the segments, while maintaining the butting relationship, causes the image of a light spot directed at the input face of the coupler to move a relatively small distance over the output face thereof. The structure is suited, for example, to achieve a precise high-efficiency coupling between optical fiber ends to be spliced together. More generally, the coupling structure functions as a microdisplacement optical probe or optical beam redirector.

3,829,196

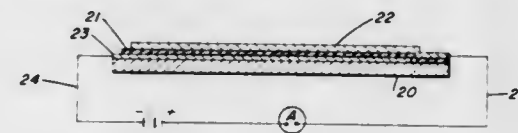
VARIABLE LIGHT TRANSMISSION DEVICE

Satyendra Kumar Deb, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Continuation of Ser. No. 110,068, Jan. 27, 1971, abandoned, which is a continuation-in-part of Ser. No. 616,791, Feb. 17, 1967, abandoned, which is a continuation-in-part of Ser. No. 530,086, Feb. 25, 1966, abandoned. This application Apr. 10, 1973, Ser. No. 349,878
Int. Cl. G02f 1/36

U.S. Cl. 350—160 R

11 Claims



Variable light transmission device typically comprising a transition metal oxide layer sandwiched between a pair of electrode layers such as stannic oxide-coated glass and gold film. When an electric field is applied across the electrodes the device exhibits persistent coloration at ambient temperature.

3,829,197

ANTIREFLECTIVE MULTILAYER COATING ON A HIGHLY REFRACTIVE SUBSTRATE

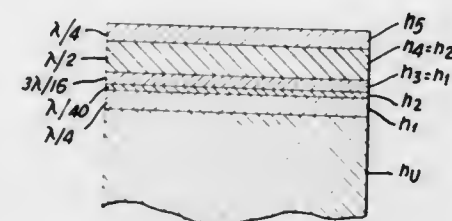
Alfred Thelen, Am Sannaberg 553, FL-9495 Triesen, Furstentum, Liechtenstein, assignor to Balzers Patent Und Beteiligungs-Aktiengesellschaft, Balzers, Furstentum, Liechtenstein

Filed Oct. 18, 1972, Ser. No. 298,548
Claims priority, application Switzerland, Oct. 20, 1971, 015454/71

Int. Cl. G02b 1/10

U.S. Cl. 350—164

2 Claims



An antireflective multilayer coating for highly refractive glass material comprises five partial layers adjusted to one another as for their reflective indices and their optical thicknesses so as to obtain a very favorable antireflection curve with a broad flat middle portion in the order of the desired, so-called reference wavelength. To this effect, the refraction index of the individual layers is provided, for the first and third layer, by 15 percent lower and, for the second and fourth layer, by 10 to 30 percent higher than the refractive index of the substrate and for the outer fifth layer lower than 1.5, and the optical thicknesses are provided, for the first and fifth layer one-fourth, for the second layer one-eighth

to one-sixteenth, for the third layer one-eighth to one-fifth, and for the fourth layer one-half of the reference wavelength. The value of the refractive index of the fifth layer preferably approaches to the square root of the refractive index of the substrate.

3,829,198

WIDE ANGLE LENS SYSTEM

Yasuo Takahashi, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

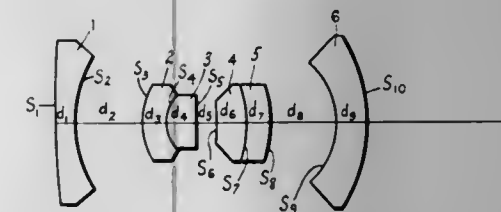
Filed Mar. 26, 1973, Ser. No. 345,147

Claims priority, application Japan, Mar. 27, 1972, 47-30456

Int. Cl. G02b 9/34

U.S. Cl. 350—220

1 Claim



A wide angle lens system includes six consecutively designated successive lenses, the first lens being a negative meniscus lens with a front convex face, the second and third lenses forming a positive cemented doublet and being a negative meniscus lens with a front convex face and a positive lens with a front face of greater curvature than the rear face, the fourth and fifth lenses forming a cemented positive doublet with the fifth lens having very low power, and a negative sixth lens with a rear convex face. The lens system satisfies the following requirements:

$$\begin{aligned} F/1.2 < F_1 < F/0.8, F_1 < 0 \\ 0.1 < n_2 - n_3 < 0.16, 0.1F < r_4 < 0.15F \\ 20 < v - 4v_5 < 24, 0.0005 < n_4 - n_5 < 0.02 \\ F/2.2 < F_{1,2,3,4,5} < F/1.6 \\ 0.2F < r_6 < 0.3F, r_6 < 0 \end{aligned}$$

wherein

F is the focal length of the lens system;
 n_i is the d -line refractive index of the i th lens;
 $F_{1,2,\dots,i}$ is the combined focal length of the subsystem comprising the first to the i th lens;
 v_i is the Abbe's number of the i th lens; and
 r_j is the radius of curvature of the j th surface, confronting cemented surfaces defining a single surface.

3,829,199

DISPOSABLE DENTAL MIRROR

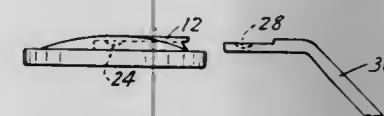
Frank E. Brown, Glendale, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 18, 1972, Ser. No. 218,722

Int. Cl. G02b 5/08; A61c 3/00, 19/00

U.S. Cl. 350—308

1 Claim



A disposable dental mirror comprises a plastic base adapted to hold a mirror thereon, the base having on its back side a receiving aperture to provide a removable frictional attachment between the base and a stem from a conventional dental mirror handle; and a mirror attached to the front surface of the base. The disposable mirror greatly minimizes cross-contamination between patients as it is inexpensive and may be conveniently discarded after use.

3,829,200

TEMPLE HINGE SPRING

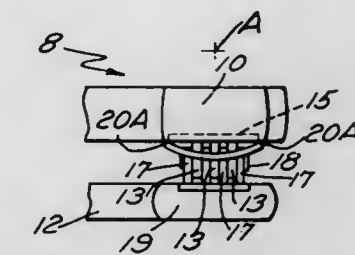
Frank W. Lindblom, Warwick, R.I., assignor to Textron Inc., Providence, R.I.

Continuation-in-part of Ser. No. 124,293, March 15, 1971, abandoned. This application June 27, 1973, Ser. No. 373,974

Int. Cl. G02c 5/16

U.S. Cl. 351—113

4 Claims



In a spectacle frame a leaf spring is incorporated in the vicinity of each hinge to engage the temples in such a way as to press the temples against the wearer and enable the spectacles to be worn more comfortably without slipping and to be more securely retained in position on the head of the wearer.

3,829,201

CUSHIONING MOUNT FOR A LENS IN THE RIM OF AN OPHTHALMIC MOUNTING

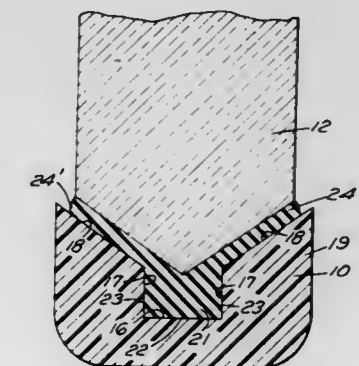
Harold F. Whiting, Attleboro, Mass., assignor to The Hilsinger Corporation, Plainville, Mass.

Filed June 28, 1973, Ser. No. 374,679

Int. Cl. G02c 5/00; G02b 7/02

U.S. Cl. 351—154

3 Claims



The rim of an ophthalmic mounting is lined with an elastomeric member which will resiliently mount the lens and will be maintained in a substantially hidden position, the mounting cooperating with the shaping of the lens rim so as to prevent the lens from being detached by pressure at an angle to the plane of the rim.

3,829,202

STEREOSCOPIC OPTICAL APPARATUS

William S. Liddell, P.O. Box 1533, Avalon, Calif. 90704

Continuation-in-part of Ser. No. 168,319, Aug. 2, 1971, abandoned. This application July 20, 1973, Ser. No. 381,173

Int. Cl. G03b 35/02

U.S. Cl. 352—62

22 Claims

Stereoscopic optical apparatus including a composite viewing screen composed of numerous individual optical cells, each of which has a front wall in the form of an image-receiving screen and a back wall in the form of a retina device that is normally opaque but is responsive to invisible index or biasing light to be rendered locally transparent. Disposed behind the image-receiving screen is a viewer lens which focuses light on the retina device. Disposed behind the retina device is a source of image-transmitting light. An index light source in the form of right and left eye biasing light is provided for al-

ternately irradiating the respective right and left sides of the faces of viewers and the retina device is locally responsive to the biasing light to become locally transparent to form pupil areas for passage of image-transmitting light which is then directed to the viewer lens to illuminate a display image appearing on the image-receiving screen and be directed at one or the other of the eyes of respective viewers. Consequently, the right and left eye biasing light may be energized alternately and respective right and left eye display images alternately projected onto the image screen in synchronism with energization of such right and left eye biasing light. Accordingly, when the right eye biasing light is reflected from the right eye of a viewer, it will be projected along a right eye optical path to be focused on a right eye pupil area in the retina to render such



pupil area transparent to image-transmitting light to permit passage therethrough of image-transmitting light which will be transmitted in the reverse direction along such optical path to be focused on the right eye of such viewer. Alternately, when the left eye biasing light is energized and the left eye display image is imposed on the cell screen, such left eye biasing light will be reflected from the left eye of the viewer and along a left eye optical path to pass through the viewer lens and be focused on a localized area in the retina device to render such localized area transparent to image-transmitting light to form a pupil area and such image-transmitting light will be projected through the pupil area and in the reverse direction along the left eye optical path to be focused on the left eye of the viewer.

3,829,203 FILM CASSETTE

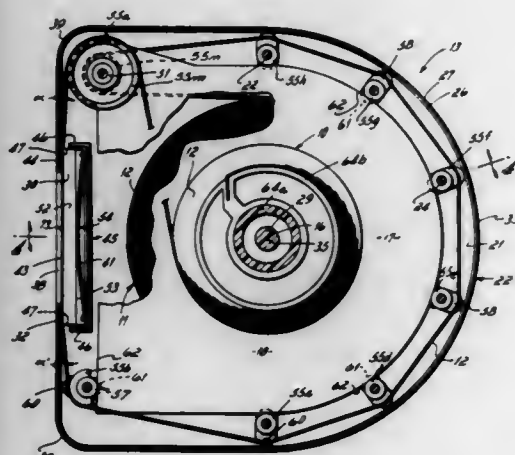
Warren D. Novak, Chappaqua, N.Y., assignor to The Mosler Safe Company, Hamilton, Ohio

Filed May 14, 1973, Ser. No. 360,360

Int. Cl. G03b 1/00

U.S. Cl. 352—78 R

9 Claims



A film cassette of the type where the supply reel and the take-up reel are disposed in coaxial relation. After take-off from the supply reel, the film is directed substantially 360° about the inner periphery of the housing during which it is canted from the supply reel's plane to the take-up reel's plane, the film being exposed while in the same plane as the supply reel. This provides a long, gentle film path with no sharp bends. The guide pins which so direct the film after exposure

are fixed, i.e., nonrotating, and are normal to the supply and take-up reels' planes. The majority of the guide pins each present a dish-shaped, inclined bearing surface over which the film passes, the bearing surface extending between the supply and take-up reels and progressing radially outward as it slopes from the supply reel's plane to the take-up reel's plane. This substantially eliminates contact of the film with the guide pins except on the extreme side edges and, in combination with the long, gentle film path, allows the film to seek its own path from the supply reel chamber to the take-up reel chamber. The cassette's cover wall is provided with a series of stub pins about its inner periphery adapted to be received in friction fit relation with axially struck cavities defined by the guide pins. This provides simple means to aid in establishing a light-tight housing.

3,829,204

SWITCH ACTUATING ARRANGEMENT FOR USE IN MOTION PICTURE PROJECTORS OR THE LIKE

Wolfgang Riedel, Winnenden, Germany, assignor to Robert Bosch Photokino GmbH, Stuttgart, Germany

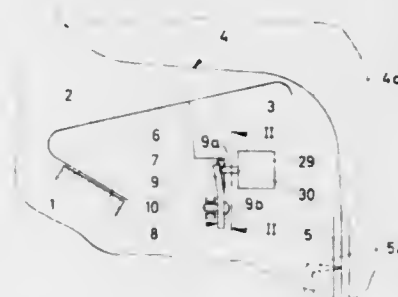
Filed July 11, 1973, Ser. No. 378,373

Claims priority, application Germany, July 14, 1972, 2234602

Int. Cl. G03b 1/04

U.S. Cl. 352—124

20 Claims



A motion picture projector wherein the film is transported from a supply reel to a takeup reel and forms a loop upstream of the gate. The concave side of the loop is adjacent to an elastic damping member which is displaced by the loop when the pull-down continues to advance the film toward the takeup reel after the supply of film on the supply reel is exhausted but the trailing end of the film remains attached to the core of the supply reel so that the tension of the film increases. The damping member then causes a trip to actuate a microswitch which arrests or reverses the motor for the pull-down. The trip actuates the microswitch when the tension of the film increases to a first value and thereupon maintains the microswitch in actuated condition as the tension of film increases, for example, due to inertia of moving parts of the film transporting mechanism. The resistance which the trip offers to movement with the damping member when the tension of film increases subsequent to actuation of the microswitch remains unchanged. The trip is reset to its starting position in automatic response to manipulation of a master switch which can reverse the motor for the pull-down.

3,829,205

SENSING DEVICE FOR CONTROLLING MOTION-PICTURE PROCESSING AND VIEWING

Rogers B. Downey, Lexington, and Paul W. Thomas, Duxbury, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 227,083, Feb. 17, 1972, which is a continuation-in-part of Ser. No. 888,604, Dec. 29, 1969, Pat. No. 3,643,579. This application Apr. 20, 1973, Ser. No. 353,009

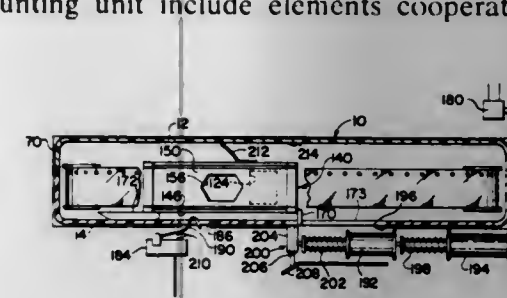
Int. Cl. G03c 11/00

U.S. Cl. 352—130

32 Claims

An "information" providing and "sensing" apparatus or system for incorporation with a motion-picture film contain-

ing cassette and with a unit adapted to mount and function with the cassette after its previous mounting in a camera wherein the film had been exposed. The apparatus enables processing and subsequent viewing, i.e., projection of the film through a plurality of automatically controlled operations. The cassette includes certain self-contained means for processing the film with extreme rapidity. Both the cassette and mounting unit include elements cooperating with one



another to perform essential functions such as "predetermination" by the mounting unit whether the film is in an unprocessed or processed state when the cassette is first mounted therein; accomplishment of film processing if unprocessed; preliminary determination of the film location within the cassette, that is, its position either on the supply reel or the takeup reel; and projection and rewinding of the film. All of the foregoing are accomplished automatically.

3,829,206

FILM PROJECTOR, ESPECIALLY FOR TEACHING MACHINES

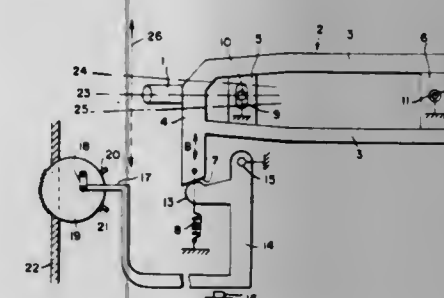
Gerhard Soehring, 26 Unterer Burggarten, 6901 Dossenheim; Manfred Moessner, 14 Hebelstrasse, 6901 Eppelheim; Gerhard Kreutze, 2 Beethovenstrasse, 6901 Bammental, and Guenther Obstfelder, 26 Im Enkler, 6906 Leimen, all of Germany

Filed Mar. 7, 1973, Ser. No. 338,950

Int. Cl. G03b 21/46

U.S. Cl. 352—160

4 Claims



A film projector, especially for teaching machines, which can be operated with a film provided with control marks. The control marks are associated with frames on the film and are preferably provided at the beginning of the film. When the film is running or a static image is being reproduced, vertical adjustment of the image can be effected reliably by hand or automatically by motor means to compensate for tolerances in the position of the perforations, and/or in the film transport. Film projectors of this type can be employed particularly advantageously in all cases where re-copied films are used and/or the film is transported by means of a claw.

3,829,207

SOUND RECORDING AND REPRODUCING DEVICE WITH VISUAL IMAGE MEANS

Gunars Licitis, Lombard, Ill., assignor to Marvin Glass & Associates

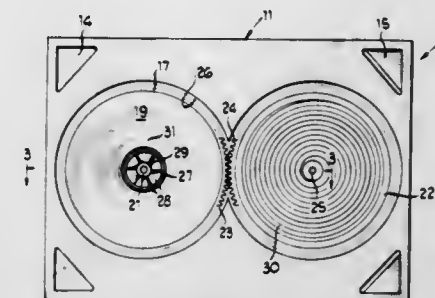
Filed Aug. 3, 1973, Ser. No. 385,281

Int. Cl. G03b 31/06

U.S. Cl. 353—120

4 Claims

A sound recording and reproducing device to be used alone or in conjunction with photographs or similar still visual



images. Both a sound recording or reproducing track and the still images are replaceable in order that a message or statement pertinent to the subject matter of a still image can be associated by the sound reproducing or recording track while at the same time permitting the device to be used with a plurality

of visual images and sound reproducing or recording tracks. The device comprises a frame for supporting the still images on one side thereof, a rotatable surface which supports the sound track, and a non-concentric rotatable spiral track to establish a locus for a recording or reproducing head.

3,829,208

COPYING APPARATUS

Henricus J. M. van Meijel, Venlo, and Martin L. van der Sterren, Horst, both of Netherlands, assignors to Océ-van der Grinten N.V., Venlo, Netherlands

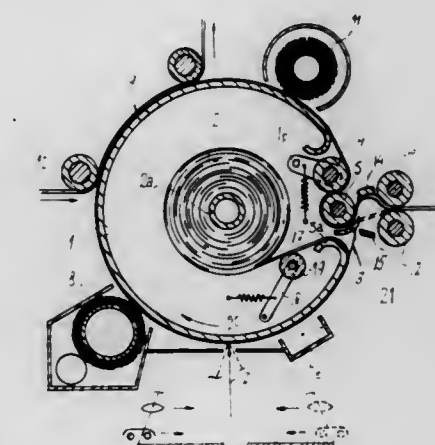
Filed Feb. 2, 1972, Ser. No. 222,916

Claims priority, application Netherlands, Feb. 11, 1971, 7101848

Int. Cl. G03g 15/00

U.S. Cl. 355—3

9 Claims



An apparatus for forming images on light-sensitive web material and transferring them to copying material comprises a rotatable slotted hollow drum having processing means disposed about its periphery and having the light-sensitive web material trained from a supply roll inside the drum over the outer surface of the drum to holding means in the slot of the drum, which means include means operable when the drum is in a rest position to displace the web material outwards and into engagement with fixed web propelling means so that, whenever desired, the drum may be stopped and a used length of the web material removed from its surface and replaced by a fresh length drawn from the supply roll. The material leading off the drum is severed by causing the propelling means or renewed drum rotation to tear it off, or by causing the same to draw it taut against a knife edge that cuts it off.

3,829,209

**IMAGE REGISTRATION IN A MULTIPLE
MAGNIFICATION PHOTOCOPYING SYSTEM**

Gerald A. Buddendeck, and Herman L. Cox, both of
Rochester, N.Y., assignors to Xerox Corporation, Stamford,
Conn.

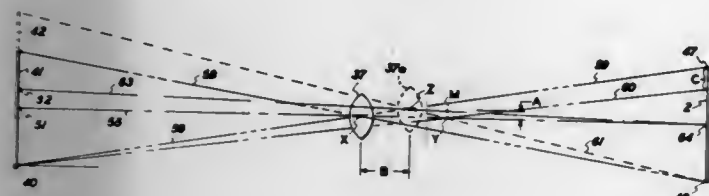
Continuation of Ser. No. 152,134, June 11, 1971, abandoned.

This application Jan. 8, 1973, Ser. No. 321,627

Int. Cl. G03g 15/00

U.S. Cl. 355—14

19 Claims



A xerographic machine with multiple magnification capabilities employs a multiple focus lens system designed to operate under fixed overall conjugate conditions. The lens system is supported for displacements along its optical axis to effect various magnifications and for displacements perpendicular to the optical axis to regulate the dimensions of the borders on the copies produced by the machine.

3,829,210

ILLUMINATING SYSTEM OF AN ENLARGER

Vojtech Langer, Prerov, and Emil Nesvadba, Rokytnice u
Prerova, both of Czechoslovakia, assignors to Meopta,
narodni podnik, Preov, Czechoslovakia

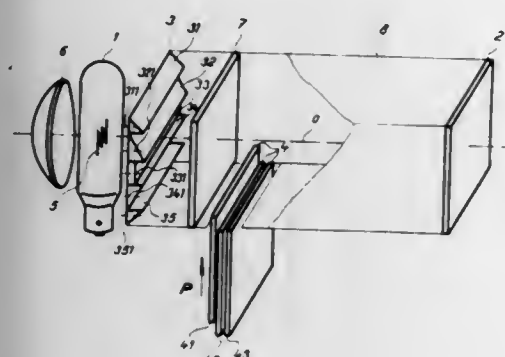
Filed Dec. 7, 1972, Ser. No. 314,000

Claims priority, application Czechoslovakia, Dec. 10, 1971,
8602-71

Int. Cl. G03b 27/76

U.S. Cl. 355—35

7 Claims



Illuminating system for a photographic enlarger for making color reproductions, consisting of a projection lamp with a spherical or an aspherical reflection mirror and of an enclosure for mixing colored light. The enclosure is provided with an input and an output ground glass window, between which a system of movable color correction filter is arranged. Between the projection lamp and the input window there is placed a dispersive optical assembly consisting of a system of optical prisms, whose optical axes are parallel with the axis of the illuminating system and perpendicular to the direction of movement of the color correction filters. The prisms are paired equidistant from the axis of the optical system, each pair having the same refractive power. A single prism is also provided, lying on the axis of the optical system, having a zero refractive power.

3,829,211

EASEL CONSTRUCTION

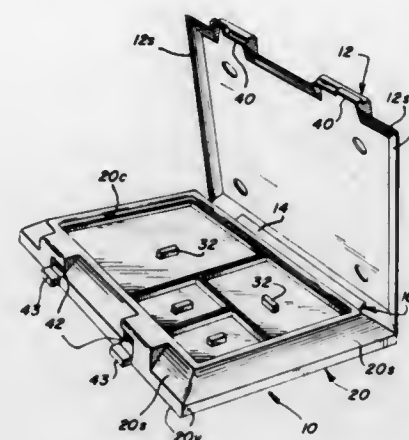
Robert W. Mitchell, 707 Myrtle Ave., St. Joseph, Mich. 49085

Filed Feb. 28, 1973, Ser. No. 336,884

Int. Cl. G03b 27/58

U.S. Cl. 355—74

17 Claims



An easel construction for use in a darkroom and a method of using it which enables multiple exposures to be made on a single sheet of photographic paper in a series of simplified steps, the easel construction comprising a base, a plurality of interchangeable covers adapted to overlie one surface of the base and a lid or similar securing means for maintaining the covers in place over the base. A focusing target surface having delineated surface areas corresponding to the areas of the covers is formed on a second outer surface of the base. Prior to exposing areas of the photographic paper, the image to be printed is properly focused on a target surface area and the lens aperture adjusted, the easel is inverted and one or more corresponding areas of photographic paper retained on the opposite side are exposed after removal of an appropriate cover. The covers are uniquely configured to avoid double exposures and facilitate the desired print sizes and after complete exposure the entire sheet of sensitive paper is removed, chemically processed, and if desired, cut to form a plurality of individual prints.

3,829,212

PHOTOGRAPHIC ENLARGEMENT INSTRUMENT

Sigeru Okayama, Tokyo, Japan, assignor to Kabushiki Kaisha
Medica, Tokyo, Japan, a part interest

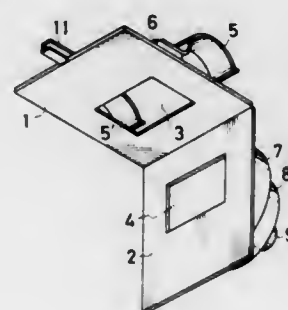
Filed July 11, 1973, Ser. No. 378,243

Claims priority, application Japan, Mar. 16, 1973, 48-32261

Int. Cl. G03b 27/62

U.S. Cl. 355—75

11 Claims



There is provided a photographic enlargement instrument comprising a plate-like negative film carrier having a rectangular aperture corresponding to a frame size of a negative film, means for hanging the negative film carrier from a fluorescent lamp in such a manner that the fluorescent lamp is closely adjacent to said rectangular aperture of the negative film carrier, a tubular member connected to the negative film carrier to enclose the rectangular aperture and having an enlarging lense at the other end thereof, and means for shading the fluorescent lamp except a position where the fluorescent lamp faces rectangular aperture of the negative film carrier.

3,829,213

ARTPROOF METHOD FOR SEMICONDUCTOR DEVICES

P. Donald Payne, Chalfont, Pa., assignor to Mos Technology,
Inc., Valley Forge, Pa.

Filed June 2, 1972, Ser. No. 259,016

Int. Cl. G03b 27/02

U.S. Cl. 355—79

15 Claims

A method of checking the adherence to design rules, circuit configuration requirements and registration in artwork patterns to be used as masks in the fabrication of semiconductor devices, by forming a composite multicolor display of the artwork, before the masks have been made, wherein each pattern except one or more is presented in a unique color and the remaining pattern is represented by the absence of a color. The method includes contact printing a succession of artwork sheets on a base sheet, in registry with each other, each such sheet being printed in a unique color. In order to represent a selected artwork sheet by the absence of a color, a negative film copy is made of that artwork sheet and the copy is registered with another artwork sheet. The combination of the negative film copy and artwork sheet is then printed onto the base sheet in a selected color to form a subtraction image, i.e., only those portions of the artwork sheet which do not coincide with opaque areas on the negative copy are printed on the base sheet. This method of representing an artwork pattern by a missing color is particularly useful where the pattern represented by the missing color occurs, usually or exclusively, within areas of the pattern on another artwork sheet, as for example, where the pattern represented by missing color corresponds to a mask for cutting contact holes in MOS (metal-oxide-silicon) devices.

3,829,214

PHOTOGRAPHIC FILM COPYING APPARATUS

Wolfgang Zahn; Volker Weinert, both of Muenchen; Hans
Thiene, Unterhaching, and Friedrich Hujer, Grunwald, all of
Germany, assignors to Agfa-Gevaert Aktiengesellschaft,
Leverkusen, Germany

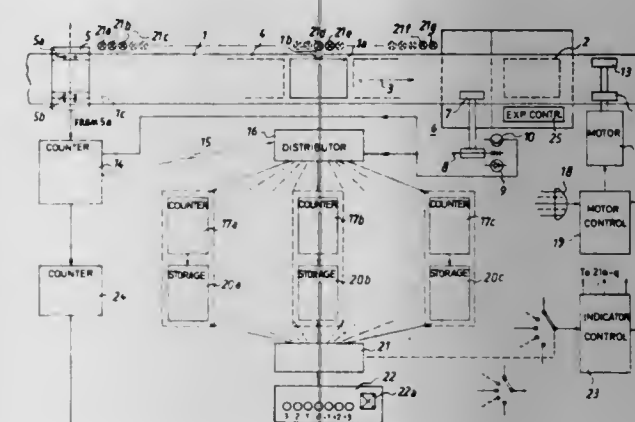
Filed July 13, 1973, Ser. No. 379,111

Claims priority, application Germany, July 15, 1972,
2234895

Int. Cl. G03b 27/78

U.S. Cl. 355—83

12 Claims



Film being transported along a predetermined path has marks indicating the position of each original. A plurality of originals is viewed in an inspection station positioned immediately prior to a reproducing station. A number of counters, at least equal in number to the number of originals in the inspection station, each furnishes a signal indicating the position of the corresponding original relative to the reproducing station. Associated with each counter is a storage for storing correction values for the original. The correction values are entered by the operator into the storage after viewing of the original in the inspection station. The original the corresponding storage means of which are connected to the input for receiving the correction signals is indicated by indicator lamps positioned along the path of the film within the inspection station.

925 O.G.—21

tion. When the associated counter furnishes a signal signifying that the original has arrived at the reproducing station, the value stored in the corresponding storage is transferred to the automatic exposure control, thereby controlling the exposure of the associated original.

3,829,215

FLASH COPIER

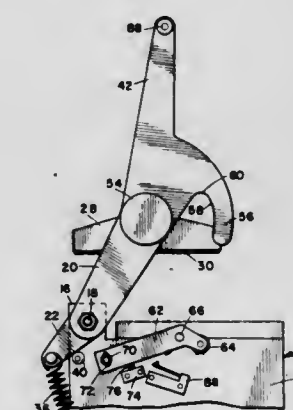
Louis A. Smitzer, San Diego, and Jurgen Amtmann, Del Mar,
both of Calif., assignors to Ovonic Image Systems, Inc., San
Diego, Calif.

Filed May 8, 1972, Ser. No. 251,022

Int. Cl. G03b 27/04

U.S. Cl. 355—113

1 Claim



A flash copier for making duplicate copies of microfiche cards or the like by a contact printing technique. The unit has a housing containing a high intensity flash lamp to illuminate a window on which the original transparency and a sensitized card or film are placed. A platen mounted on a double hinged arm assembly is lowered onto the window and clamped by cam action in a continuous motion. Clamping pressure is closely adjustable to ensure high definition of copy, and the flash lamp is controlled by a switch which is actuated only at the locked position of the clamping cam mechanism.

3,829,216

**OPTICAL SYSTEM AND METHOD FOR COUNTING
SPERM CELLS**

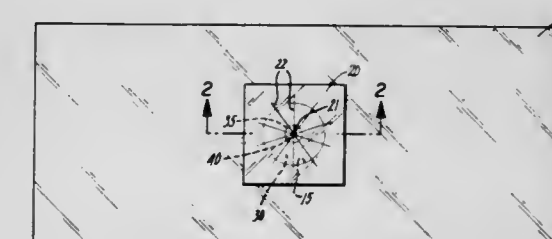
Maxim D. Persidsky, 35 Temiscal Ter., San Francisco, Calif.
94609

Continuation-in-part of Ser. No. 779,179, Nov. 26, 1968,
abandoned. This application Oct. 2, 1972, Ser. No. 293,992

Int. Cl. G01n 1/28; G02b 21/34

U.S. Cl. 356—36

11 Claims



Optical apparatus and method for counting sperm cells in a shallow chamber under a microscope. The chamber is formed in a microscope slide and covered by a cover slip provided with reference lines to facilitate counting of the cells.

3,829,217

OIL CONDITION INDICATOR

Charles A. Johnson, Box 179, Lemmon, S. Dak. 57638, and Albert L. Kimmel, Kansas City, Mo., assignors to said Johnson, by said Kimmel

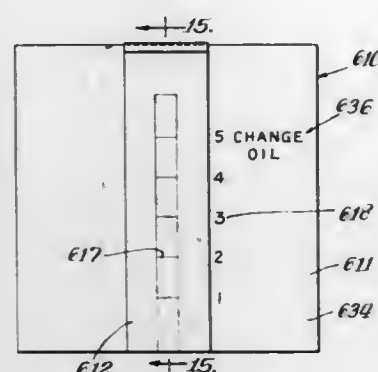
Continuation of Ser. No. 144,863, May 19, 1971, abandoned.

This application Apr. 9, 1973, Ser. No. 349,642

Int. Cl. G01n 33/28

U.S. Cl. 356—70

1 Claim



Means for indicating the condition of engine lubricating oil including a pair of relatively movable members defining therebetween a progressively increasing-in-thickness space for holding a sample of the oil. At least one of the members is made to be light-transmitting and indicium means are associated with the indicator for correlation with the progressively increasing opacity of the oil sample to provide an oil indicating condition to the user viewing the oil sample in the indicating means.

3,829,218

METHOD OF SPECTRAL ANALYSIS

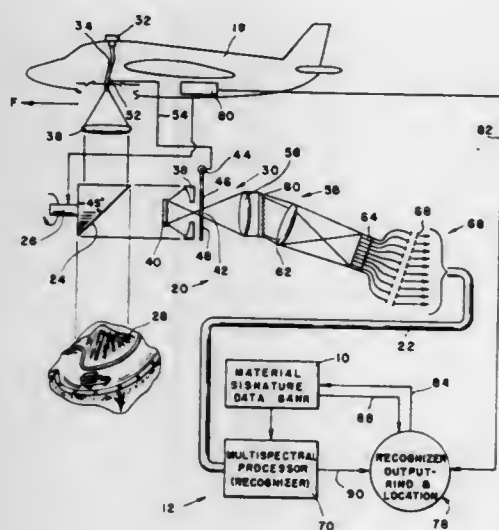
Edward J. Alyanak, Mishawaka, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed June 5, 1972, Ser. No. 259,636

Int. Cl. G01j 3/38

U.S. Cl. 356—74

8 Claims



A method of simultaneously locating and identifying a plurality of materials within a field of view by comparing the spectral characteristics obtained from systematically scanning the field of view with known spectral signatures of the same materials stored in a memory bank. The number of times a known material is identified as being in the field of view is recorded and referenced to a base. The spectral signatures in the memory bank are continually updated in response to spectral conditions obtained from scanning the field of view.

3,829,219

SHEARING INTERFEROMETER

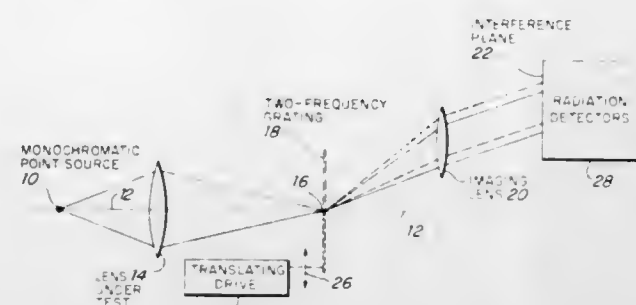
James C. Wyant, Carlisle, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Mar. 30, 1973, Ser. No. 346,365

Int. Cl. G011 9/02

U.S. Cl. 356—107

25 Claims



A shearing interferometer for producing a shearing interferogram of a wavefront being converged to a focal point. In a first embodiment in which the wavefront is comprised of monochromatic radiation, two diffraction gratings having slightly different line spacings are placed near the focal point of the wavefront. The diffraction gratings produce two first diffraction orders at two slightly different angles which result in a shearing interferogram in the region of overlap. The resulting shearing interferogram yields wavefront information in one direction. Complete wavefront information in two directions may be obtained by shearing the wavefront in two orthogonal directions. This is accomplished by placing two additional diffraction gratings having slightly different line spacings near the focal point of the wavefront and in an orthogonal direction relative to the first two diffraction gratings. In a second embodiment in which the wavefront is comprised of white light, a blazed diffraction grating is introduced into the interferogram. Both the monochromatic and white light interferometers may use heterodyning, real time phase detection. When heterodyning phase detection is used, the irradiance of the interferogram is modulated sinusoidally by translating sideways at least one of the diffraction gratings.

3,829,220

GAUGING DIMENSIONS

Geoffrey John Parkinson, Stapleford, England, assignor to T. I. (Group Services) Limited, Birmingham, England

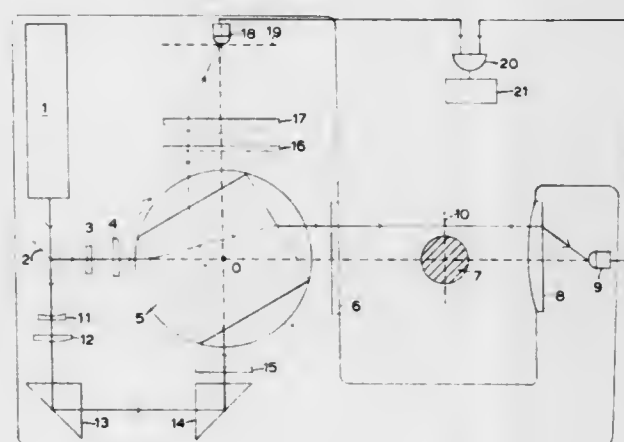
Filed Mar. 16, 1973, Ser. No. 342,277

Claims priority, application Great Britain, Mar. 17, 1972, 12494/72

Int. Cl. G01b 11/04

U.S. Cl. 356—160

15 Claims



A profile gauge in which two beams are scanned in unison, one of them being scanned in a parallel manner across an ob-

3,829,222

DEVICE TO INTRODUCE AN OPTIC MEASURING INDEX AT PHOTOELECTRIC DETECTION OF PHOTOGRAPHIC PLATES

Nils Robert Dahr Aslund, Johanneshov, Sweden, assignor to Saab-Scania Aktiebolag, Linköping, Sweden

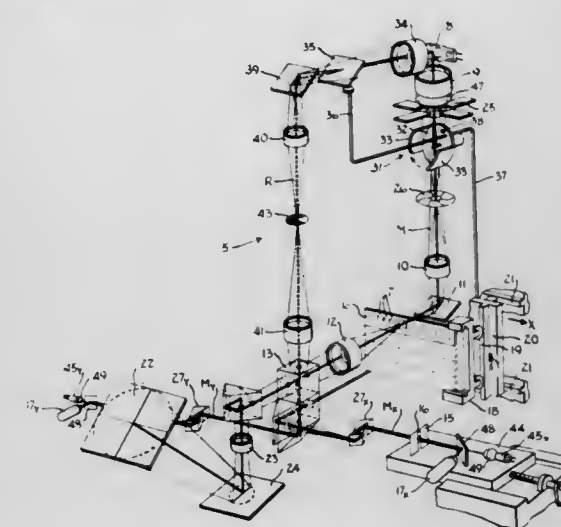
Filed Mar. 26, 1973, Ser. No. 344,644

Claims priority, application Switzerland, Mar. 27, 1972, 3917/72

Int. Cl. G01n 21/22

U.S. Cl. 356—203

9 Claims



Density variation across a localized area of a photographic plate is detected by directing a beam through said area and thence onto a photoelectric detector through a narrow slot at the imaging plane. Relative motion is effected between the beam and the slot, hence detector output varies with density across the scanned zone. A fiducial mark carrier is in a separate beam (preferably emanating from the same source) which follows a path in bypass relation to the plate but which is combined with the image carrying beam at the slot. Light filters in the respective beams enable separate electronic processing of image beam signals and fiducial mark beam signals.

3,829,221

APPARATUS FOR AUTOMATICALLY MEASURING THE LIGHT TRANSMISSION FACTOR OR LIQUID TEST SAMPLES

Michel Ossoona de Mendez, La Saulsaie, 91310 Montlhery; Michel Jean-Marie Dupuy, 11 Ave. Albert Thomas, 93190 Livry-Gargan; Roland Charreton, 90 Rue du Chemin Vert, 75011 Paris, and Albert Foucard, 40 Chemin de Meaux, 93220 Gagny, all of France

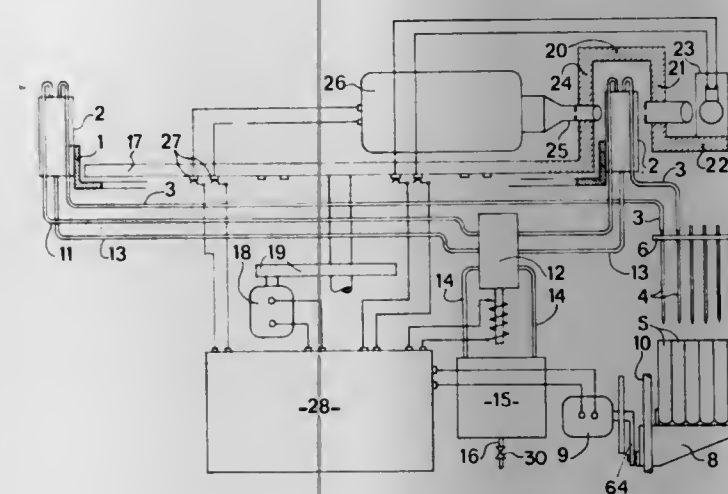
Filed Feb. 26, 1973, Ser. No. 335,890

Claims priority, application France, Feb. 29, 1972, 72.6802

Int. Cl. G01n 21/22; G01j 3/46

U.S. Cl. 356—201

31 Claims



An apparatus for automatically measuring the light transmission factor of liquid test samples in which a number of transparent vats is arranged around the circumference of a stationary table over which rotates a photoelectric measuring device which successively scans each vat to determine the light transmission factor of the samples. The various samples are automatically transferred by sucking them into the measuring vats from a bank of test tubes via a bank of probes with flexible hose connections to each vat; a central control valve drains the vats after testing. Electronic timing circuits provide the control commands for the operative sequences of the device, and logic circuitry, in combination with a data storage and retrieval system, provides comparative data between reference measurements and sample measurements for each vat.

3,829,223

MIXING ROTOR FOR FAST ANALYZER OF ROTARY CUVETTE TYPE WITH MEANS FOR ENHANCING THE MIXING OF SAMPLE AND REAGENT LIQUIDS

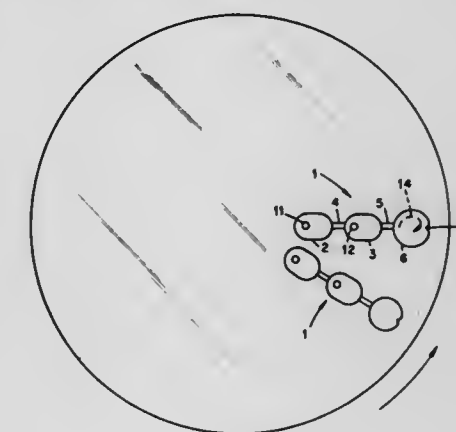
Stephen D. Hamel, Oak Ridge, Tenn., assignor to The United States of America as represented by the Secretary of the United States Atomic Energy Commission, Washington, D.C.

Filed July 20, 1973, Ser. No. 381,297

Int. Cl. G01n 11/10, 21/24

U.S. Cl. 356—246

2 Claims



A rotor design which provides improved mixing of sample and reagent liquids in a fast photometric analyzer of the rotary cuvette type is described. According to the preferred embodiment, one or more ramp-like projections are provided along the wall of each sample analysis cuvette to enhance mixing.

3,829,224

MASKING FLUID APPLICATOR

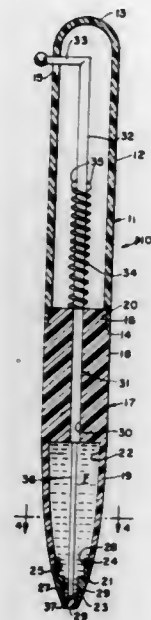
George Kloosterhouse, 804 Braeburn Dr., Tantallon, Md. 20022

Filed May 29, 1973, Ser. No. 364,292

Int. Cl. A45d 33/00

U.S. Cl. 401—130

8 Claims



A masking fluid applicator comprising, a hollow elongated barrel with masking fluid therein, an elongated applicator in the barrel with a free end portion, means on said free end portion to retain only an amount of masking fluid on the free end portion of the applicator sufficient to mask a character of type or print or the like, and means in the barrel so constructed and arranged as to limit application of said masking fluid only to the free end portion of said elongated applicator.

3,829,225

LOOSELEAF BINDER

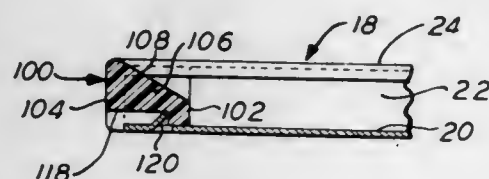
Billy J. Doolittle, Springfield, Mo., assignor to Litton Business Systems, Inc., Springfield, Mo.

Filed Feb. 28, 1972, Ser. No. 230,005

Int. Cl. B42f 13/00

U.S. Cl. 402—17

6 Claims



A flexible post looseleaf binder having compression slides slidable in a channel. The channel end stops for preventing the slides from being removed through the ends of the channel are provided by end caps each having a body portion which is pressed into the open end of the channel and which is substantially permanently latched in place. The end caps also shield the sharp ends of the channel to prevent injury to the user.

3,829,226

CONNECTOR ASSEMBLIES FOR HOLLOW MEMBERS

Ulrich Kreusel, 6551 Wolfsheim Kreuznacher Str. 16, Wolfsheim, Germany

Filed Apr. 13, 1972, Ser. No. 243,623

Claims priority, application Austria, Apr. 13, 1971, 3116/71

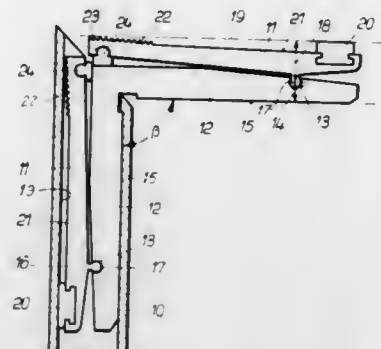
Int. Cl. F16b 7/00

U.S. Cl. 403—295

17 Claims

A connector assembly for fixed angular attachment of two hollow elements such as tubes or to another element such as a

frame comprises two pressure members pivotally connected intermediate their ends for relative movement about a transverse axis and adapted for axial introduction together into said hollow element, one of the members having a large area pressure surface for slidable and bearing engagement with one internal surface of the associated hollow element while the other member is adapted to engage an opposite internal surface of



the associated hollow member, the other of the members being so constructed and arranged as to be energized by lateral pressure during axial introduction in to the hollow element for providing means resiliently biasing said members into engagement under pressure with opposite internal surfaces of said hollow element. The energization may be effected by shaping the other member as a resilient beam, or by providing resilient bodies between the members.

3,829,227

LOCKING AND SEALING DEVICE

Karl Gustav Einar Derman, Partille, Sweden, assignor to Forsheda Ideutveckling AB, Varnamo, Sweden

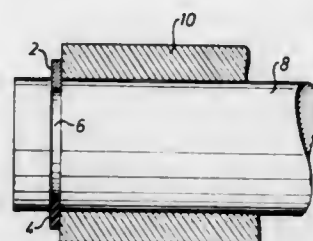
Filed Nov. 9, 1972, Ser. No. 305,107

Claims priority, application Sweden, Nov. 12, 1971, 14477/71

Int. Cl. F16b 21/18

U.S. Cl. 403—377

3 Claims



A locking ring having a number of arched metal segments and a number of arched rubber segments positioned between the metal segments. The rubber segments are fixedly connected with the metal segments by vulcanization. The locking ring when in mounted position is axially fixed in at least one direction to a surface and being resiliently expandable and/or compressible against the action of the rubber material.

3,829,228

PAVEMENT EXPANSION JOINT AND JOINT SEAL

Norihiko Miyazaki; Minoru Ishii, both of Tokyo; Hiroji Sakurai, Nishikasugai; Hisao Suzuki; Katsuyoshi Nagatsuma, both of Tokyo, and Hitoshi Furukawa, Hirakata City, all of Japan, assignors to Nihon Kogyo Co., Ltd., by said Miyazaki; Ishii Civil Engineers Consulting Inst. Ltd., both of Tokyo, by said Ishii; Asahi Kasei Kogyo K.K., Osaka, by said Sakurai; Nihon Polymer Co., Ltd., by said Suzuki; Hitachi Cable, Ltd., both of Tokyo, by said Nagatsuma and Ciba-Geigy (Japan) Ltd., Osaka, all of Japan, by said Furukawa

Filed Dec. 27, 1971, Ser. No. 212,548

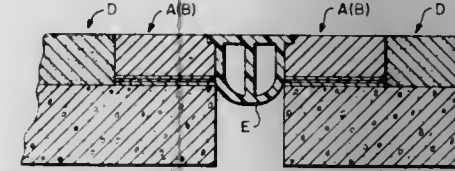
Int. Cl. E01c 11/12

U.S. Cl. 404—68

8 Claims

A new pavement expansion joint is provided by applying a mixture of epoxy mortar and an aggregate consisting essen-

tially of short glass fibers and silica sand to steel sheets bonded with an easily strippable adhesive capable of forming a bond of high tensile strength. The steel sheets are positioned at the bottom of a frame forming a pavement expansion joint corner. The epoxy mortar is allowed to cure in the joint corner forming an expansion joint of high impact strength. The readily strippable nature of the adhesive makes the joint corner easily replaceable. The removal of the joint can be facilitated by the



insertion of an adhesively attached rubber pad between the epoxy layer and a steel sheet or pair of sheets. This Expansion Joint is also easily repaired or reconstructed with a prefabricated expansion joint. Noise by a vehicle passing over the joint can be reduced by positioning a specially designed elastic joint seal between the expansion joints, the joint seal being characterized by spaced apart projections or protuberances extending above the exposed surfaces of the juxtapositioned expansion joints.

3,829,229

BENDABLE ELASTOMERIC EXPANSION JOINT

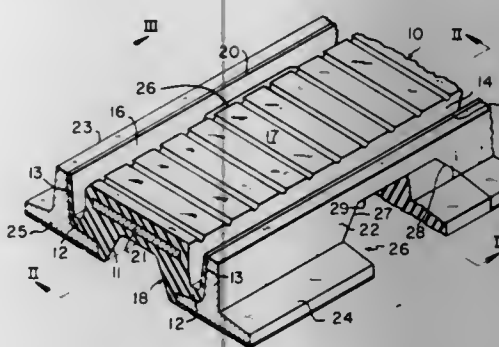
James E. Britton, Akron, and John A. Welch, Cuyahoga Falls, both of Ohio, assignors to The General Tire & Rubber Company, Akron, Ohio

Filed Mar. 16, 1973, Ser. No. 341,834

Int. Cl. E01c 11/02

U.S. Cl. 404—69

7 Claims



An elastomeric expansion joint is provided which can be bent around corners. An elastomeric body has a main body portion with bearing surface in which a central, preferably planar reinforcing member is at least partially embedded to resist vertical movement of the joint under load, and a pair of opposed longitudinal spacer portions along opposite sides of the main portion in which longitudinal reinforcing members are at least partially embedded. Said longitudinal members, which are preferably "T" or "L" shaped, have through base portions thereof at least one pair of oppositely positioned recesses for bending of the expansion joint.

3,829,230

TAPPING ATTACHMENT ADAPTED FOR NUMERICAL CONTROL

Allan S. Johnson, Newport Beach, Calif., assignor to Topmatic Corporation, Costa Mesa, Calif.

Continuation-in-part of Ser. No. 124,020, March 15, 1971, Pat. No. 3,791,756, and a continuation-in-part of Ser. No. 26,894, April 4, 1970, Pat. No. 3,717,892. This application

Dec. 1, 1972, Ser. No. 311,296

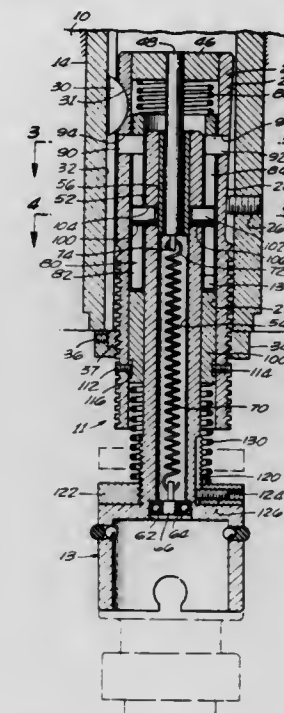
Int. Cl. B23g 3/00

U.S. Cl. 408—14

7 Claims

The invention is a tapping attachment of a type having free axial float and automatic depth control. The attachment em-

bodies precise adjustment means for precisely adjusting or controlling the point at which the depth control will release. The depth control includes releasable engagement members movable relatively axially to release. The control means comprises an adjustable limiting member which precisely controls or limits the amount of inward positioning of the driven part of



the engagable means relative to the driving part and thereby sets the amount of outward relative movement of the driven part which will cause release. The adjustable limiting means embodies a spring to insure against damage occurring to the attachment in the event the tapping element should encounter the absence of a hole to be tapped.

3,829,231

TOOL FOR GRIPPING AND PERFORMING WORK OPERATIONS ON BUILDING MATERIALS AND THE LIKE

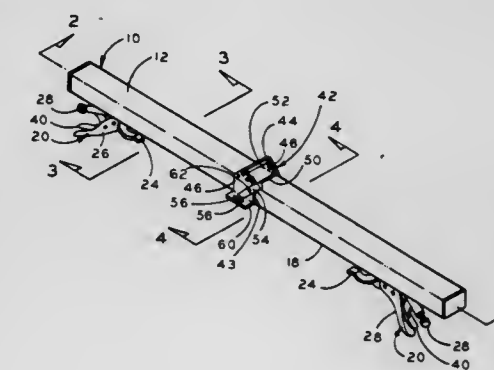
Thomas Hamilton, 4619 Northern Pk., Monroeville, Pa. 15146

Filed Aug. 4, 1972, Ser. No. 278,182

Int. Cl. B23b 47/28; B26d 1/10

U.S. Cl. 408—108

7 Claims



A tool consists of a mounting member having adjustable grips which attach to the construction material and a carriage having a working tool is then movable relatively to the clamped construction material to perform work operations at selected locations. The clamps are adjustable within a bar or channel and once adjusted to the correct position within the channel and further adjusted relatively to the size of the construction material, the clamps are fixed in place and the channel is held fast. The carriage having a tool such as a drill, cutting blade, rip saw, etc. mounted on the carriage is then caused to slide back and forth on the channel to make selected working operations at given locations and the construction material can be plywood, studs, sheet goods and the like.

3,829,232

SYSTEM AND METHOD FOR OPERATING A STEAM TURBINE WITH DUAL HYDRAULIC INDEPENDENT OVERSPEED PROTECTION ESPECIALLY ADAPTED FOR A NUCLEAR REACTOR POWERED STEAM TURBINE

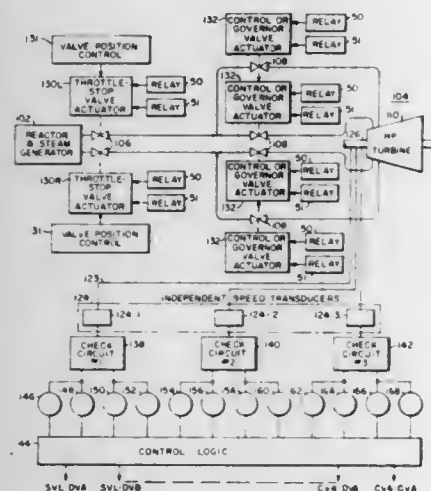
James M. Fieglein, Clifton Heights, and Michael Csanady, Jr., Ridley Park, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 14, 1971, Ser. No. 189,322

Int. Cl. F01k 7/16

U.S. Cl. 415-1

10 Claims



In a steam turbine an overspeed protection system and method is provided which operates completely independently of the conventional steam valve controller or governor. Existing hydraulically actuated valves such as stop valves, governor valves, intercept valves, etc., are deactivated by draining hydraulic control fluid from the aforementioned through the action of specially provided dump valves. A pair of dump valves is provided for each of the steam flow valves.

Three turbine speed sensing transducers operating independently provide signals which are translated through three corresponding check circuits into related overspeed check signals. The three resulting check signals relating to overspeed are translated through majority switching logic into two dump valve trip signals. Each set of such trip signals operates one of the pair of dump valves on each steam control valve. The dump valves and hydraulic oil tanks are carefully protected from damage and any malfunction.

3,829,233

TURBINE DIAPHRAGM SEAL STRUCTURE

Augustine J. Scalzo, Philadelphia, and Kent G. Hultgren, Secane, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 27, 1973, Ser. No. 373,849

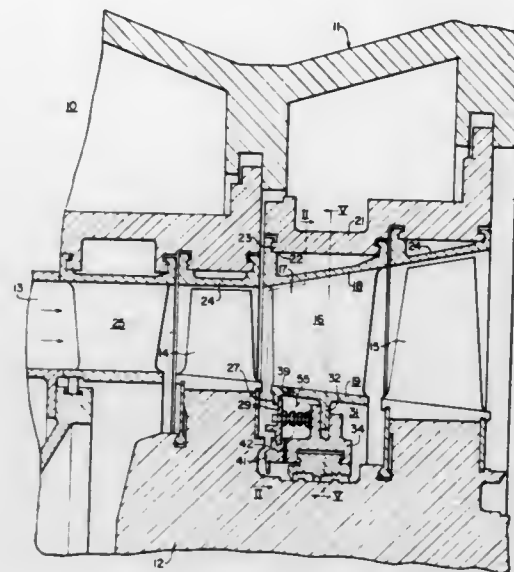
Int. Cl. F01d 11/00; F02 11/00

U.S. Cl. 415-110

5 Claims

A seal arrangement for a bladed diaphragm of an axial flow fluid machine, such as a gas turbine, that reduces leakage past the diaphragm blades. A seal housing ring is supported from diaphragm segments by radially movable keys, thus permitting relative motion between the diaphragm segments and the seal assembly. An upstream circumferentially disposed wall of the housing is held compressed in frictional contact with a radially inward flange of the diaphragm. The housing is supplied with a coolant fluid which is allowed to escape around the seals. The escaping coolant fluid prevents hot working fluid from enter-

ing this housing. The upstream wall of the housing is held in a compressed state by a spring. This spring permits relative slid-



ing movement between the diaphragm and the seal housing, while controlling leakage of the motive fluid into the cooling fluid.

3,829,234

MOUNTING FOR A STATOR BLADE ADJUSTING CYLINDER ON AN AXIAL COMPRESSOR

Hans Benz, Winterthur, Switzerland, assignor to Brown Boveri-Sulzer Turbomachinery, Ltd., Zurich, Switzerland

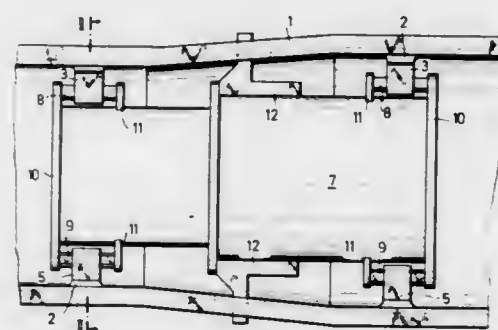
Filed July 3, 1973, Ser. No. 376,165

Claims priority, application Switzerland, July 13, 1972, 10516

Int. Cl. F04d 29/52; F16m 9/00

U.S. Cl. 415-138

5 Claims



The adjusting cylinder is mounted in the casing to move axially while radial movements are compensated for by allowing the cylinder to move radially relative to the casing in a controlled plane. The mounting includes a cylindrical guide rod in a bearing block on one side and a flat surfaced support bar in a support on the opposite side. The support bar is able to slide axially and radially of the casing within the support.

3,829,235

TURBOCHARGER COMPRESSOR WITH DUAL COLLECTOR CHAMBERS

William E. Woollenweber, Jr., Indianapolis, Ind., assignor to Wallace-Murray Corporation, New York, N.Y.

Filed Nov. 26, 1971, Ser. No. 202,136

Int. Cl. F04d 17/06, 29/42, 29/58

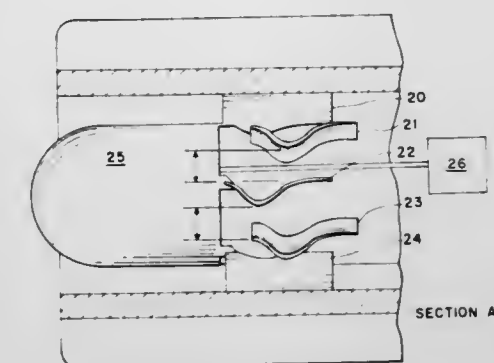
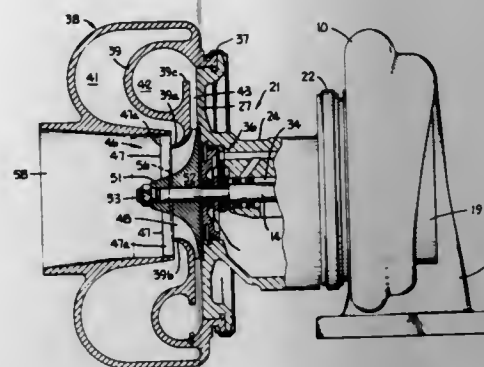
U.S. Cl. 415-143

1 Claim

Disclosed is a single stage, centrifugal compressor component of a turbocharger for an internal combustion engine in which the vanes of the compressor wheel are formed to provide frontal vane portions extending radially beyond the adjoining vane portions. An internal wall of the compressor

wheel cover forms two discrete chambers or passages, one accommodating air flow induced by the radially extending vane

plished by proper shaping and movement of inlet guide vanes, and an actuator is connected to selected guide vanes to effect



portions, the other accommodating flow induced by the adjoining vane portions. Heat exchange may occur across the wall between the two air flow paths.

movement thereof by programmed amounts as required to choke or partially choke within the design range of the axial-flow-air compressor.

3,829,236

VARIABLE PUMPING SYSTEM FOR A PROPELLER FAN

Alastair S. MacLennan, Farmington, Mich., assignor to Ford Motor Company, Dearborn, Mich.

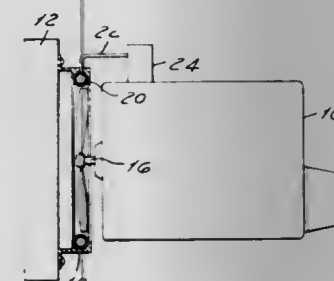
Division of Ser. No. 249,989, May 3, 1972, Pat. No. 3,760,779.

This application June 8, 1973, Ser. No. 368,391

Int. Cl. F04d 25/12, 27/00

U.S. Cl. 415-156

5 Claims



An inflatable rubber tube is attached to the interior of a fan shroud for the cooling fan of a reciprocating engine where the tube surrounds the rotation envelope of a fan. A temperature sensing mechanism deflates the tube to increase the clearance space of the fan and thereby decrease pumping efficiency when engine temperature is below its normal operating level. The temperature sensing mechanism inflates the tube to increase pumping efficiency if engine temperature rises above its normal operating level.

3,829,238

CENTRIFUGAL PUMPS COMPOSED PRIMARILY OF PLASTIC COMPONENTS

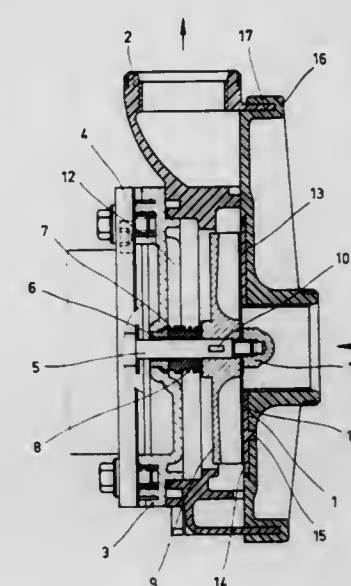
Walter Speck, D-8543, Heuberg 42, Germany

Filed Aug. 10, 1972, Ser. No. 279,375

Int. Cl. F04d 7/00, 7/02

U.S. Cl. 415-197

2 Claims



A centrifugal pump composed primarily of plastic components. The pump has a wall formed with an inlet through which liquid is sucked into the pump. A rotary impeller is coaxial with the inlet and located closely adjacent to the latter wall. This wall carries a wear-resistant disc which has an exposed surface directed toward and located closely adjacent to the impeller, defining a narrow gap therewith. Part of the wear-resistant disc is embedded in the housing wall, which is made of plastic, in such a way that part of the plastic material of the wall is situated between the embedded portion of the disc and a plane which contains the exposed surface of the disc.

3,829,237

VARIABLY POSITIONED GUIDE VANES FOR AERODYNAMIC CHOKING

David Chestnutt, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed June 27, 1972, Ser. No. 266,820

Int. Cl. F02k 11/00; F01d 1/02, 9/00

U.S. Cl. 415-181

7 Claims

A choking device to cause a sonic barrier to be formed which reduces the transmission of noise in a direction opposed to the direction of air flow in a compressor that may be part of an aircraft gas turbine engine. The noise reduction is accom-

3,829,239

MULTIPLE ELEMENT JOURNAL BEARING

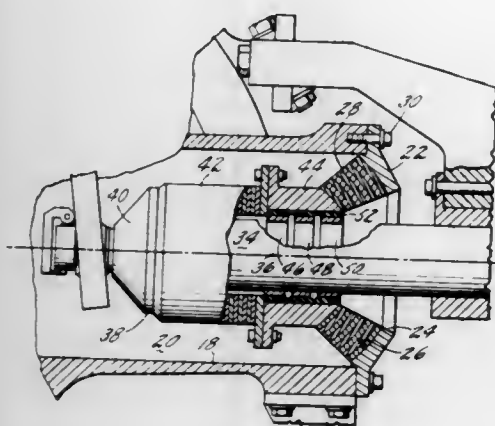
Robert C. Rybicki, Trumbull, and Carl H. Keller, Jr., Southport, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Feb. 21, 1973, Ser. No. 334,335

Int. Cl. B64c 27/38

U.S. Cl. 416-134

4 Claims



Journal bearing structure utilizing a plurality of cylindrical journal bearing elements supported by a resilient mounting within a housing, the bearing elements being spaced apart axially a finite amount.

3,829,240

ADVANCED GEOMETRY MAIN ROTOR BLADE

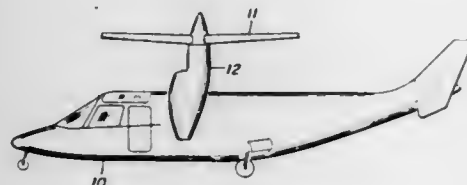
Harry K. Edenborough, Dallas; Kenneth G. Wernicke, Hurst, and George D. Carter, Fort Worth, all of Tex., assignors to Textron Inc., Providence, R.I.

Filed May 17, 1971, Ser. No. 143,850

Int. Cl. B64c 27/06

U.S. Cl. 416-223

7 Claims



A rotor blade for a convertiplane characterized by twist rate which is nonlinear but monotonic from blade root to blade tip and by camber nonlinear from blade root to provide a lift due to camber which decreases from blade root to an intermediate point along the length and increases from said intermediate point to blade tip.

3,829,241

LIQUID LEVEL CONTROL

George B. Emeny, 575 Highland Ave., Salem, Ohio 44460

Filed Aug. 25, 1972, Ser. No. 283,750

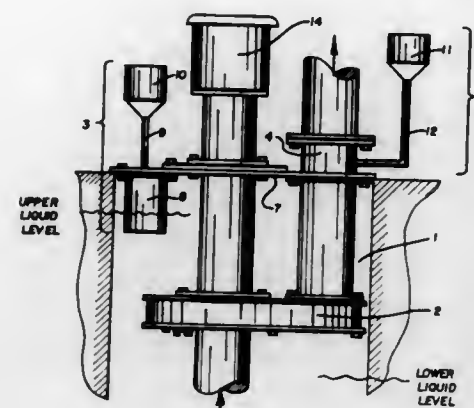
Int. Cl. F04b 49/00

U.S. Cl. 417-17

1 Claim

A liquid level control for the operation of a sump pump or the like intermittently removing liquid from a sump or pit. The control starts the pump when the liquid level reaches a preset high level which pumps until the liquid reaches a preset low level. The control comprises a first switch which closes in

response to the liquid crossing the preset upper level and a second switch preferably in parallel therewith which closes in



response to the liquid moving through the pump such that when the first switch starts the pump, the second switch maintains the pump in the on position.

3,829,242

PISTON PUMP FOR SOFT SERVE MACHINE

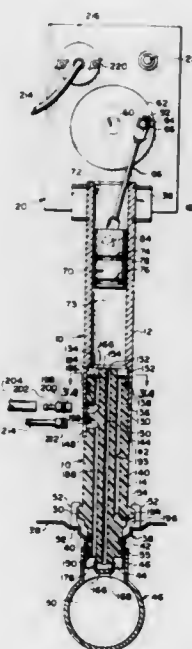
Gene S. Duke, East Moline, and Lawrence E. Heatherly, Green Rock, both of Ill., assignors to H. C. Duke & Son, Inc., East Moline, Ill.

Filed Dec. 4, 1972, Ser. No. 311,685

Int. Cl. F04b 49/00, 21/02, 39/10

U.S. Cl. 417-38

25 Claims



A single piston positive displacement pump for confectionery products is disclosed wherein the mix and air are drawn into a cylinder simultaneously through separate passages past one-way valve members and displaced directly or indirectly into the freezing chamber by the piston through a common conduit controlled by a sleeve type one-way check valve. The pump and valve action draws the mix and air into the cylinder on one side of the piston and discharges a uniformly aerated mixture with reduced air bubble size into the freezing chamber to produce a smoother, tastier product without the necessity of extensive mechanical blending in the freezer and with increased freezing efficiency.

3,829,243

POROUS CONDUCTIVE CERAMIC ELECTRODES FOR CORROSIVE LIQUID METAL CONDUCTION PUMP

Henri Carbonnel, Antony, and Robert Borie, Sceaux, both of France, assignors to Groupement Atomique Alsacienne Atlantique, Le Plessis-Robinson, France

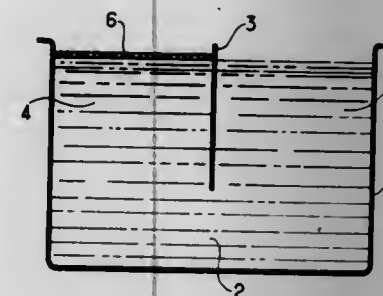
Filed Dec. 21, 1972, Ser. No. 317,495

Claims priority, application France, Dec. 22, 1971, 71.46210

Int. Cl. H02k 45/00; B23p 17/00

U.S. Cl. 417-50

9 Claims



Improvement to conduction pumps for corrosive liquid metals in which the conductive coil in its entirety or only the electrodes of that coil placed in contact with the corrosive liquid metal flux are constituted by a porous conductive ceramic substance impregnated after annealing of the said liquid metal. Impregnating is obtained by immersion in a hot bath of that liquid metal above which is arranged a metallo-alkaline fluoride bath.

pared with adjacent regions of the pipeline, the first localized wall portions having apertures therein directed into the interior of the pipeline toward the second localized wall portions in the pairs for natural gas supplied under pressure from a natural gas productive formation and entering the apertures to



produce jets impinging upon the second localized wall portion within the pipeline and have the gas delivered in the jets promote flow of water through the pipeline from the natural gas productive formation. Fittings for purge pipelines to be so characterized are also provided.

3,829,246

SYSTEM FOR RAISING AND USING WATER

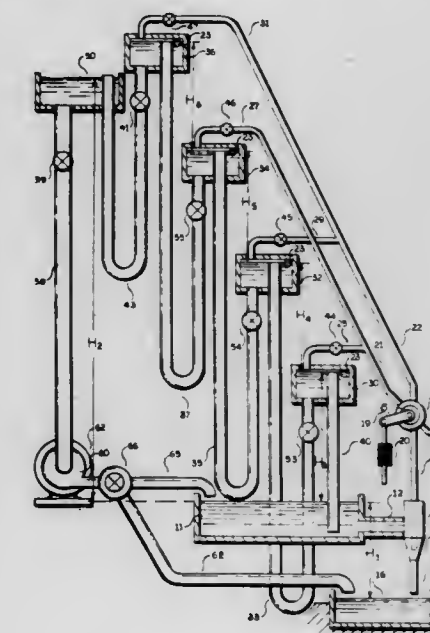
Bruce Jay Hancock, 1643 W. Sixth Ave., Mesa, Ariz. 85202

Filed Jan. 22, 1973, Ser. No. 325,900

Int. Cl. F04f 1/06, 3/00, 5/00

U.S. Cl. 417-121

9 Claims



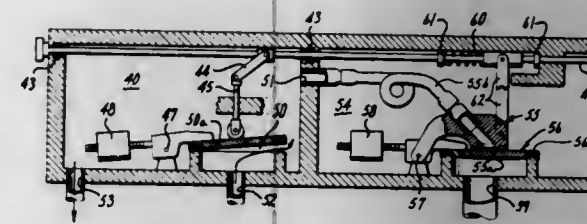
3,829,244
AUTOMATIC SEQUENCING HIGH VACUUM MECHANICAL VALVE SYSTEM AND APPARATUS
Allyn C. Miller, 1950 Barbara Dr., Palo Alto, Calif. 94303

Filed May 10, 1973, Ser. No. 359,207

Int. Cl. F04b 19/24; F04f 9/00

U.S. Cl. 417-53

10 Claims



A mechanical roughing vacuum pump and a high vacuum pump of the diffusion or similar type are interconnected to a high vacuum chamber and an intermediate isolation chamber. Valves are located within the chambers and are coupled with novel mechanical interlocks which provide for automatic operation of the valves by the pressure differential in the chambers and produce proper sequencing of the pumps to effect a high vacuum.

3,829,245

GAS WELL EQUIPMENT

O. T. Evans, P.O. Box 47, Beech Grove, Ky. 42322

Filed Aug. 22, 1973, Ser. No. 390,621

Int. Cl. F04f 1/18; E21b 21/00

U.S. Cl. 417-108

10 Claims

A purge pipeline for use in purging a natural gas productive formation of water is characterized, such as through including fittings, by having in the wall thereof at each of a plurality of locations spaced apart from one another longitudinally of the pipeline, a pair of first and second localized wall portions opposing one another across the interior of the pipeline, the localized wall portions being relatively erosion resistant as com-

Using a primary head of water, e.g., from natural source and flowing the water by gravity through an aspirator, a vacuum is produced which is utilized to lift a part of the water from the same source through multiple stages to any desired elevation. The stages may be operated in alternating sequence by selective connection to a common aspirator. Alternatively, by use of multiple aspirators two or more stages may be operated simultaneously for continuous flow. A series of reservoirs arranged with limited elevational differences are connected selectively to the suction line of a water-driven aspirator. The water may be stored temporarily in an elevated reservoir, from which it may be withdrawn to generate power and/or for other uses.

3,829,247

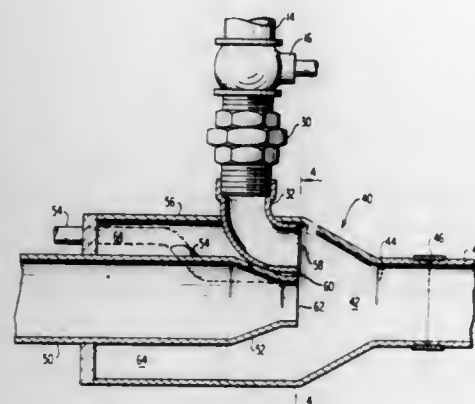
JET EJECTOR DEVICE

Russel B. Edmonson, 318 Central Ave., Houma, La. 70360
Continuation of Ser. No. 125,608, March 18, 1971,
abandoned. This application June 12, 1973, Ser. No. 369,158

Int. Cl. F04f 5/48, 5/44

U.S. Cl. 417-182

3 Claims



A device for removing oil field waste material from storage tanks is presented. The storage tanks are equipped with a gravity discharge drain, and may have internal sprayers to flush the waste material from the tank. The discharge drain is connected to a mixing chamber interior to a jet ejector pump. Water under high pressure enters the pump chamber through a converging nozzle, and exits the chamber through a conical constriction at the discharge port. The passage of the water through the chamber creates a partial vacuum therein which draws air through a vent and the waste materials from the tank, into the chamber, which materials are then entrained in the water stream. The waste materials carried by the water stream then jet from the chamber through a pipe connected to the discharge port to a disposal site.

3,829,248

UTILITY PUMP

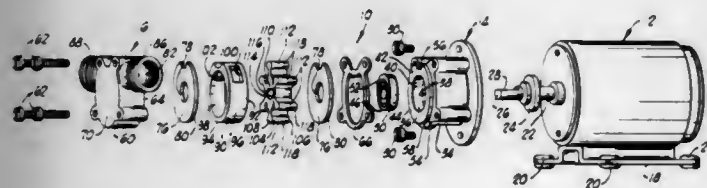
Hugh H. Bright, Oklahoma City; Lee W. Davis, Del City, and Frank J. Stanaszek, Bethany, all of Okla., assignors to Little Giant Corporation, Oklahoma City, Okla.

Filed Jan. 4, 1973, Ser. No. 320,985

Int. Cl. F04b 35/04

U.S. Cl. 417-410

8 Claims



A self-priming pump assembly including motor means with a rotatable drive shaft extending therefrom and pump mounting means secured to the motor means with the drive shaft extending therethrough. A pump unit is demountably secured to the pump mounting means and includes an interchangeable pump cam with a pair of identical interchangeable pump cam with a pair of identical interchangeable wear plates disposed at each end thereof within a pump housing. A flexible vane impeller is secured to the drive shaft within the pump cam and between the wear plates. The pump housing has inlet and outlet fittings integrally formed therewith. The pump assembly is conformed such that it may be completely disassembled while the pump housing is left in assembled relation with the inlet and outlet fittings thereof connected to external inlet and outlet conduits.

3,829,249

PORTABLE SYPHONIC PUMP

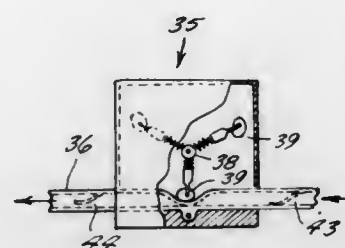
Reedy Thomas Pursley, 5512 Hardingway, Caledonia, Ohio 43314

Filed May 2, 1973, Ser. No. 356,624

Int. Cl. F04b 17/00

U.S. Cl. 417-411

4 Claims



A handy pump of portable type for use by a motorist to transfer gasoline from one automobile to another in case one vehicle has run out of gas on a highway; the device consisting of hoses inserted into each of the vehicle gas tanks, and the outer ends of the hoses being connected to a pump that can be either hand operated or motor-driven by electric power from the vehicle cigarette lighter.

3,829,250

BLOWER ASSEMBLY

Wilfred Joseph Samson, Jr., West Hartford, Conn., assignor to Torin Corporation, Torrington, Conn.

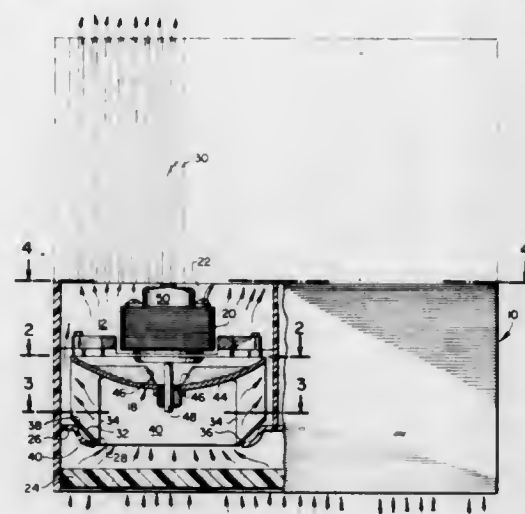
Continuation of Ser. No. 182,753, Sept. 22, 1971, abandoned.

This application Jan. 31, 1973, Ser. No. 328,376

Int. Cl. F04b 17/00

U.S. Cl. 417-424

10 Claims



A blower assembly comprising a housing with inlet and discharge openings in opposite sides. A backward curved blower wheel is mounted in the housing with a driving motor adjacent the circular inlet opening and provides a seal against reverse air flow with an annular ring on the wheel. The discharge opening is larger in area than the inlet and a resulting straight through flow occurs at a relatively low velocity and sound level but in an air stream of relatively broad cross section.

3,829,251

SQUEEZE PUMPS FOR DELIVERING CONCRETE

Friedrich Schwing, Rathausstrasse 126, 468 Wanne-Eickel, Germany

Filed Feb. 8, 1972, Ser. No. 224,425

Claims priority, application Germany, Feb. 11, 1971, 2106554; Feb. 11, 1971, 2106560

Int. Cl. F04b 43/08, 43/12, 45/06

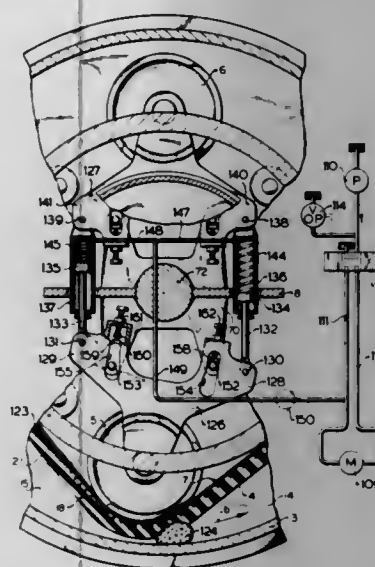
U.S. Cl. 417-477

7 Claims

A squeeze or peristaltic pump for delivering concrete in which the concrete is transported along a cylindrical segment

with an elastic squeeze member and squeeze rollers rolling thereon. The rollers are mounted on a rotor revolving in a housing, in which said squeeze member consists of a flat, rubber elastic belt defining a squeeze chamber, together with a rigid outer wall curved in accordance with the cylinder segment, and two parallel walls perpendicular to the outer wall.

base plate and a cover plate overlying and selectively closing flow passages through the base plate and cover plate in response to pressure differentials acting thereon. Spring members urge the valve plates to seating position until a predetermined pressure differential is attained. The spring members for each plate or mounting thereof have different charac-



The belt is constrained at its ends and held tight in all rolling phases without elastic over stretch and has a longitudinal reinforcement and a transverse reinforcement of mutually parallel cross bars. The elastic rubber material surrounds the reinforcements and is concentrated on the inside of the squeeze pin.

3,829,252

SEALING ARRANGEMENT FOR AN AIR COMPRESSOR

Masao Nakano, Akashi, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Ikuta-ku, Kobe-Shi, Hyogo, Japan

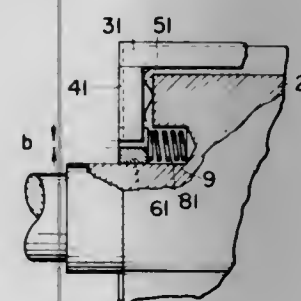
Filed Mar. 20, 1972, Ser. No. 235,999

Claims priority, application Japan, Mar. 20, 1971, 46-19171; Dec. 9, 1971, 46-115781

Int. Cl. F04c 21/00

U.S. Cl. 417-482

8 Claims



Vanes of an air compressor rotor are provided with end seals and an axially extending peripheral seal. A cylindrical sealing member is positioned at the radially innermost end of each end seal to engage therewith. The cylindrical sealing member and the end seals are urged outwardly by springs. The end seals extend radially outwardly to the outer periphery of the peripheral seal to seal the outer ends of the peripheral seal which normally has a tolerance to allow for thermal expansion.

3,829,253

PLATE VALVE STRUCTURE

Stuart E. Bunn, and Herbert B. Owsley, both of P.O. 388, Shawnee Mission, Kans. 66201

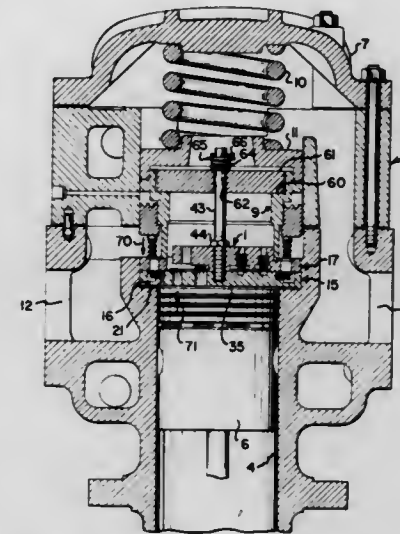
Filed Dec. 27, 1972, Ser. No. 318,893

Int. Cl. F04b 49/00

U.S. Cl. 417-504

8 Claims

A plate valve structure, for mounting in a compressor recess, in which thin discs or plates are positioned between a



3,829,254

PUMP FOR CONCRETE AND THE LIKE

Georg Stetter, Strigelstrasse 5, 894 Memmingen, and Eberhard Pieper, Zimmerplatzstrasse 19, 8941 Buxheim, both of Germany

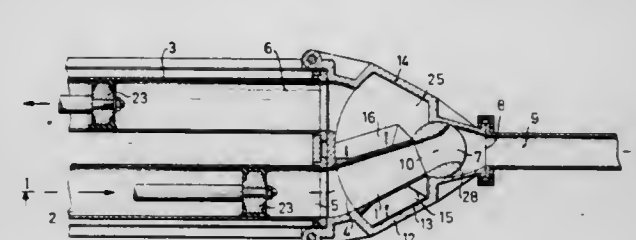
Filed Oct. 24, 1972, Ser. No. 300,360

Claims priority, application Germany, Oct. 26, 1971, 2153204

Int. Cl. F04b 7/00, 15/02

U.S. Cl. 417-517

6 Claims



A pump for concrete, cement, or like fluent medium having two oppositely-acting piston/cylinder units which alternately feed the fluent medium from a hopper to a delivery conduit. A pivotal tube is used to connect the discharge ends of the cylinders in turn to the delivery conduit.

3,829,255

DEVICE FOR CONTROLLING THE CAPACITY OF RECIPROCATING COMPRESSOR

Alexandr Vasilievich Bykov, ulitsa Dimitrova, 19, kv. 106; Vsevolod Sergeevich Scherbakov, Konkovo-Derevlevo, korpus 7v, kv. 120; Lev Alexandrovich Sudarkin, ulitsa Metalurgov, 7/18, kv. 56, all of Moscow, U.S.S.R., and Roman Vladimirovich Pavlov, deceased, late of Moscow, U.S.S.R. (Tatyana Viktorovna Gogolina, administrator)

Filed Dec. 29, 1972, Ser. No. 319,399

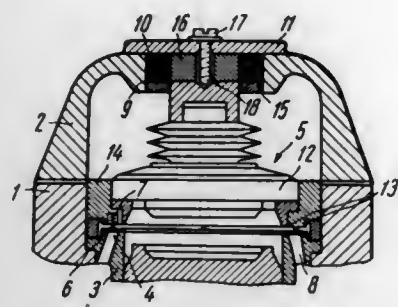
Int. Cl. F04b 39/08

U.S. Cl. 417-559

4 Claims

A device for controlling the capacity of reciprocating compressor contains a compressor casing with a cylinder head and

a cylinder disposed in said casing and provided with discharge and suction valves. The suction valve is controlled by an elec-



tromagnetic coil arranged on the exterior of the compressor casing with the electromagnetic coil being connected to the suction valve by a flux guide.

3,829,256

DISPLACEMENT MACHINE

Heinrich Guttinger, Wetztingen, Switzerland, assignor to Agin-for AG für industrielle Forschung

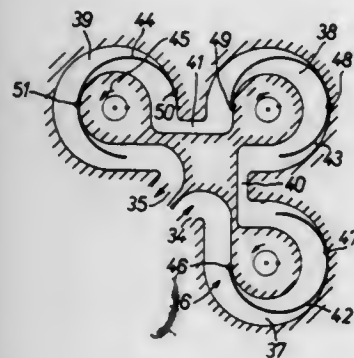
Filed Dec. 6, 1972, Ser. No. 312,479

Claims priority, application Switzerland, Dec. 10, 1971, 18082/71

Int. Cl. F04c 1/02

U.S. Cl. 418-5

8 Claims



A displacement machine comprising a displacement chamber subdivided into at least two series connected consecutively arranged chamber sections. Each of the chamber sections is bounded by an outer and an inner substantially cylindrical jacket sector and by two substantially planar closure surfaces. A displacement device is arranged to carry out a revolving movement and has a respective substantially cylindrical sector-shaped vane located in each of the chamber sections of the displacement chamber. Each of the vanes has longitudinal edges and curved surfaces, each of said vanes, independently of its momentary position and during the course of the revolving movement, contacting by means of said longitudinal edges the planar closure surfaces and at least with one of its curved surfaces the associated cylindrical jacket sector of the associated chamber section along a contact line. Each of the chamber sections of the displacement chamber and each of the vanes of the displacement device span an angle of at least 270°, and that a chamber section and the therein arranged vane is angularly shifted with respect to the next connected chamber section and its vane by the complement of said span angle for 360°.

3,829,257

ROTARY FLUID ENGINE

Dan H. Goering, Shawnee, Kans., assignor to Peterson Machine Tool, Inc., Merriam, Kans., a part interest

Continuation-in-part of Ser. No. 189,676, Oct. 15, 1971, abandoned. This application Dec. 22, 1972, Ser. No. 317,792

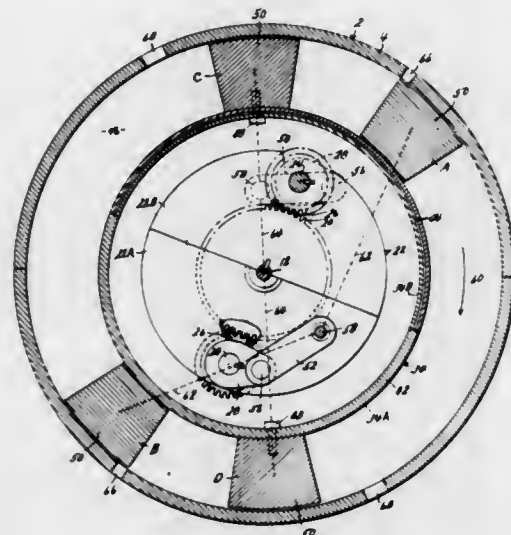
Int. Cl. F01c 1/00

U.S. Cl. 418-36

7 Claims

A rotary fluid engine consisting of a cylindrical housing having a normally fixed sun gear mounted axially therein, a hol-

low piston carrier mounted for axial rotation in the housing and divided intermediate its ends into two independently rotatable sections, and defining an annular chamber in conjunction with the housing, each section of the carrier fixedly supporting a pair of diametrically opposite pistons each filling the cross-sectional contour of the chamber, a flywheel disposed rotatably within the hollow carrier and directly connected to the power output shaft of the engine, the housing having inlet and exhaust ports for admitting fluid under pressure into the chamber between diametrically opposite pairs of



pistons to urge the associated pistons in relatively opposite directions, and exhaust ports for exhausting the fluid from the chamber after a pre-determined motion of the pistons, a pair of planetary gears meshed with the sun gear at diametrically opposite points and carried rotatively by the flywheel, and a crank and link arrangement connecting each planetary gear to one of the sections of the connecting each so arranged that fluid pressure in opposite directions on the pistons associated with either inlet port is operative to act through the planetary gears to turn said fly-wheel and power output shaft in a single direction.

3,829,258

HIGH PRESSURE GEROTOR TYPE HYDRAULIC MOTORS

Wayne B. Easton, 17591 Kilmer Ave., Eden Prairie, Minn. 55343

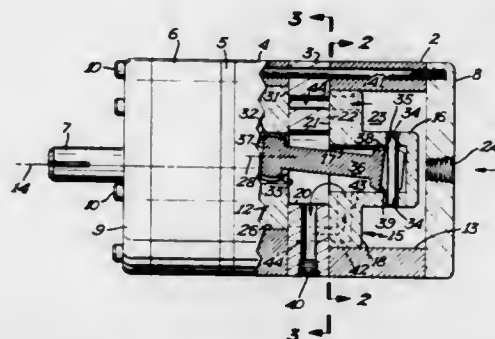
Continuation of Ser. No. 670,962, Sept. 27, 1967, abandoned.

This application May 14, 1971, Ser. No. 143,618

Int. Cl. F01c 1/02

U.S. Cl. 418-61 B

14 Claims



This invention relates to hydraulic motors of the type which utilizes a rotary piston gear set, known as a gerotor, for forming expansible and contractible chambers. The invention resides in a valving and fluid passage arrangement wherein a rotating or orbiting valve is disposed in a fluid inlet chamber to which pressurized fluid is admitted. The pressurized fluid in the chamber forces the valve into sealing engagement with a valve block which has passages through which pressurized

fluid is admitted to the expansible chambers. The fluid exhaust passages are arranged in the valve and valve block in a manner such that the engaging surfaces of the valve and valve block are the only relatively movable surfaces which separate the pressurized inlet fluid from the depressurized outlet fluid.

3,829,259

COMBINATION APEX AND CORNER SEAL SPRING FOR ROTARY ENGINE

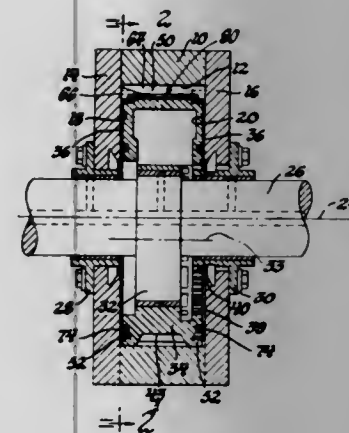
Gene P. Baynes, Kettering, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed June 21, 1973, Ser. No. 371,976

Int. Cl. F01c 19/04

U.S. Cl. 418-121

3 Claims



A single spring biases both a two-piece apex seal and two corner seals at each corner of a rotor in a rotary combustion engine so that the apex seal continuously engages the engine's inwardly facing peripheral wall and the corner seals continuously engage the engine's oppositely facing end walls.

3,829,260

WEAR-RESISTANT METAL OBJECT AND A METHOD FOR THE MANUFACTURE THEREOF

Yasunori Shimoda, Tachikawa, Japan, assignor to Nissan Motor Company Limited, Yokohama City, Japan

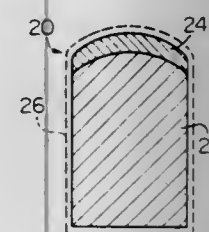
Filed June 30, 1972, Ser. No. 267,978

Claims priority, application Japan, Aug. 3, 1971, 46-58577

Int. Cl. C23c 9/14; F01c 21/00; F04c 29/00

U.S. Cl. 418-178

7 Claims



Herein disclosed is an improved wear-resistant metal object and a method for the manufacture thereof. The metal object is formed by spraying fine particles of a nickel-chrome based self-fluxing alloy onto a surface of a base metal for forming a coating of the alloy on at least a portion of the surface of the base metal. The coating is usually fused so as to have the particles of the self-fluxing alloy interlocked with each other and strongly bonded to the base metal. Where desired, the resultant object is subjected to a soft-nitriding process for forming a nitrided hardened layer on the resultant object. The metal object thus produced has an increased resistance to wear and abrasion and is adapted for use in operations in which sliding movements occur in severe conditions as in the case of an apex seal of a Wankel rotary engine.

3,829,261

APPARATUS FOR ISOSTATIC HOT PRESSING OF POWDER

Hans-Gunnar Larsson, and Carl Bergman, both of Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Division of Ser. No. 297,648, Oct. 16, 1972, Pat. No.

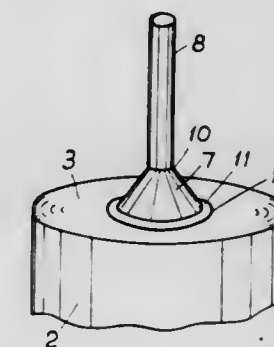
3,777,877. This application May 2, 1973, Ser. No. 356,486

Claims priority, application Sweden, Oct. 14, 1971, 13011/71

Int. Cl. B30b 5/02

U.S. Cl. 425-78

7 Claims



In isostatic hot pressing of powder in a collapsible container, the powder is enclosed in a container which is provided with one or more evacuation openings, and a conical support is held in position adjacent the evacuation openings. A funnel-shaped body of sheet metal is secured above the support and the evacuation openings by welding its edge to the wall of the container. The body is evacuated through a suction tube connected to the funnel and the tube is sealed. Thereafter the container is subjected to heat and pressure, and the funnel-shaped member collapses into engagement with the conical support.

3,829,262

APPARATUS FOR FORMING LOLLIPOPS

Conrardus Hubertus Aquarius, Kanaalstraat 13 Weert, Weert, Netherlands

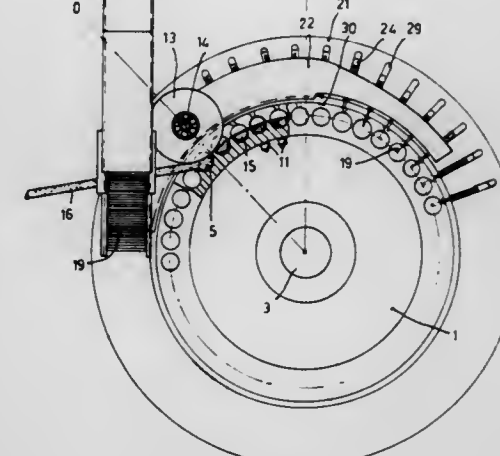
Filed Oct. 24, 1972, Ser. No. 299,699

Claims priority, application Netherlands, Oct. 27, 1971, 7114779

Int. Cl. A23g 7/00

U.S. Cl. 425-126 S

3 Claims



The invention disclosed is an apparatus for forming lollipops which apparatus is substantially characterized in that means which serve lumps from a sugar string consist of a pressure roller which is freely rotatable in the plane of cavities of the moulding drum and which is mounted on a shaft which is parallel with the axis of the moulding drum, and in that the flat periphery of the roller, in cooperation with opposite longitudinal edges of the cavities, severs lumps which are pushed into the cavities.

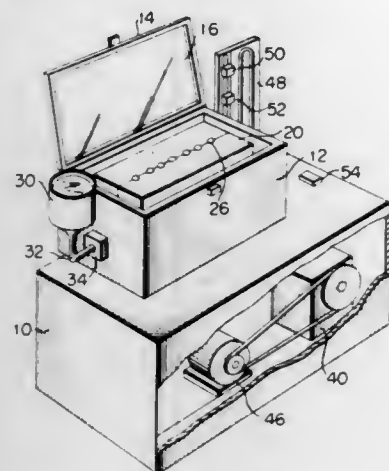
3,829,263

APPARATUS FOR REDUCED PRESSURE CASTING OF SYNTHETIC RESINS

Ching-Chun Yao, and Hitoshi Tsuchiya, both of Tokyo, Japan, assignors to Rion Kabushiki Kaisha, Tokyo, Japan
Filed July 10, 1972, Ser. No. 270,064
Int. Cl. B29c 6/00

U.S. Cl. 425—145

1 Claim



Workpieces to be encapsulated are put in place within cavities of a plastic mold one for each cavity. A container in which the mold is disposed is evacuated to a predetermined reduced pressure. At that time a liquid mixture of a synthetic resin and its hardener at room temperature begins to be sucked into the cavities to fill them. When the mixture escapes from the cavities through their escaping ports, the mixture supply is disconnected and the mold returns to the surrounding pressure. Then the resin solidifies into solids each encapsulating the individual workpiece.

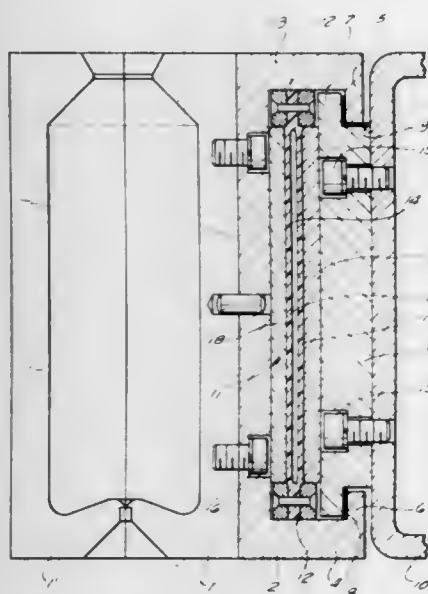
3,829,264

MOLDING APPARATUS

Reinhold Mnilk, Dortmund-Wickede; Manfred Kurreck, Bochum Weitmar, and Ulrich Geltenpoth, Dortmund-Wickede, all of Germany, assignors to Holstein & Kappert, Maschinenfabrik Phonix GmbH, Dortmund, Germany
Division of Ser. No. 176,403, Sept. 13, 1971, Pat. No. 3,782,879. This application Dec. 22, 1972, Ser. No. 317,650
Claims priority, application Germany, June 9, 1971, 2128561

Int. Cl. B29c 1/00
U.S. Cl. 425—149

9 Claims



A molding apparatus for thermoplastic material has a mold including two relatively movable mold sections. One or both of the mold sections are mounted on carriers for movement relative to the other, and adjusting means in form of springs or

in form of superimposed fluid-tightly connected plates defining with one another a compartment which is extensible by pressure fluid, is interposed between at least one of the mold sections and its associated carrier so that the mold sections can be adjusted relative to one another and aligned in parallelism. A control arrangement, controlling operation of the mold, is associated with the latter.

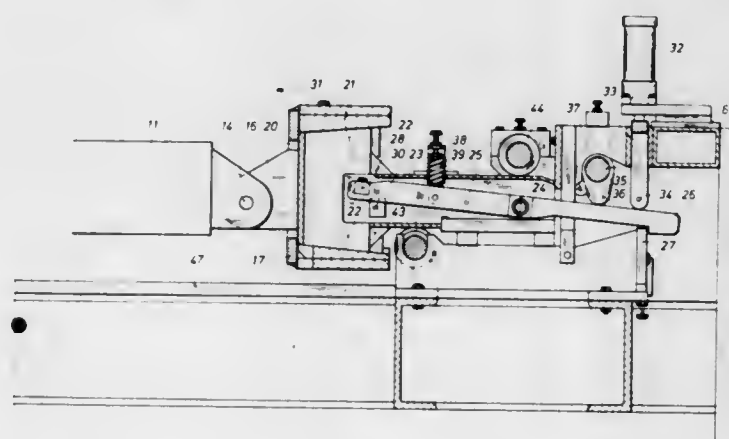
3,829,265

DEVICE FOR CONNECTING AND DISCONNECTING CORE TUBES TO A TROLLEY IN CONCRETE CASTING MACHINES

Jens Christian Holm, Hellerup, Denmark, assignor to A. Jespersen & Son International A/S, Copenhagen, Denmark
Filed Sept. 28, 1972, Ser. No. 293,197
Int. Cl. B28b 7/30

U.S. Cl. 425—161

21 Claims



From US Pat. No. 3,642,419 it is known to convey a concrete casting machine with more core tubes than necessary for a single mold. Therefore at each casting a number of core tubes are retained, while the other core tubes are moved on a trolley towards and into the empty mold.

Now the said core tubes are retained in their most retracted position by means of twin-arm levers, engaging either a fix hook in a link member connected to the core tube; this gives a reliable connecting and disconnecting possibility which is vastly automatically controlled.

3,829,266

INJECTION MOLDING MACHINE

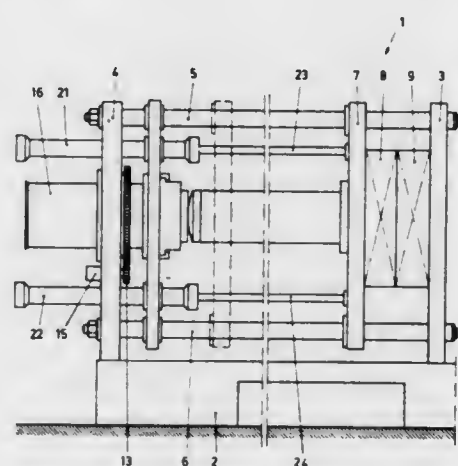
Robert Melcher, Gerlingen, Germany, assignor to Siemag Siegener Maschinenbau G.m.b.H., Hilchenback-Dahlbruch, Germany

Filed Jan. 31, 1973, Ser. No. 328,465
Claims priority, application Germany, Feb. 10, 1972, 2206305

Int. Cl. B29f 1/00

U.S. Cl. 425—192

4 Claims



An injection molding machine in which the mold halves are brought together by a first means and the clamping pressure is brought about by a second, separate means.

3,829,267

BRIQUETTING APPARATUS AND DIE MEMBER ARRANGEMENT THEREFOR

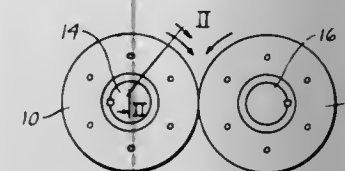
Bruce C. Woodward, Greensburg, Pa., assignor to Kennametal Inc., Latrobe, Pa.
Filed Oct. 31, 1972, Ser. No. 302,516
Int. Cl. B29c 3/02

U.S. Cl. 425—237

9 Claims

U.S. Cl. 425—308

4 Claims



A briquetting arrangement in which two wheels in opposed relation rotate in opposite directions and have die members mounted about the peripheries thereof with cavities formed in the die members in which material fed between the rotating wheels is compacted into briquettes. The die members are formed of a hard wear resistant material such as cemented tungsten carbide and are detachably mounted on supporting block members which are, in turn, fixed to the peripheries of the respective wheels.

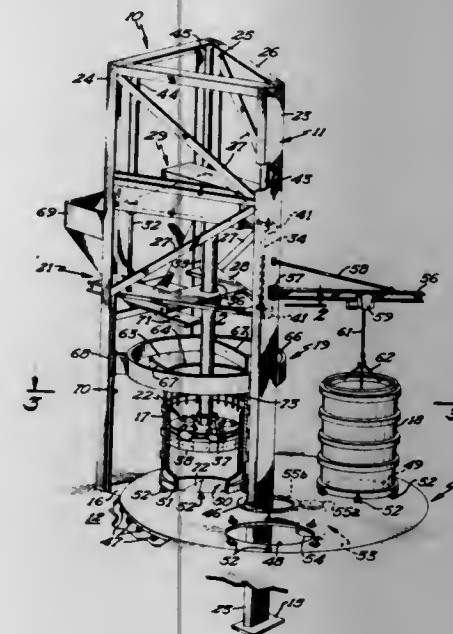
3,829,268

CONCRETE PIPE MACHINE WITH TRIANGULAR FRAME

John Patrick Gill, Nashua, Iowa, assignor to Hydrotile Machinery Company, Nashua, Iowa
Filed Mar. 15, 1973, Ser. No. 341,492
Int. Cl. B28b 3/12

U.S. Cl. 425—262

17 Claims



A packer head concrete pipe machine operable to make a cylindrical concrete pipe in an upright mold. The machine has a triangular frame assembly formed with three upright frame members fixed to each other with cross braces. A rotatable turntable has a center hole for accommodating one of the frame members. The turntable carries three molds and is sequentially rotated to move the molds in longitudinal alignment with the packer head and a cylindrical core having vibrating units. Three hydraulic cylinders function to move the packer head longitudinally of the mold during formation of the pipe. The core follows the packer head through the pipe.

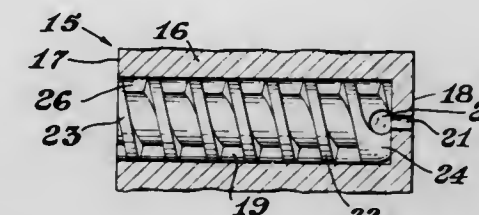
3,829,269

FOAM PLASTIC LOOSE FILL PACKING

Layle V. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Division of Ser. No. 831,572, June 9, 1969; abandoned. This application Sept. 20, 1971, Ser. No. 182,055
Int. Cl. B29c 17/14

U.S. Cl. 425—308

4 Claims



Loose fill foam plastic packing is prepared by extruding an expandable plastic composition to form an unfoamed or unexpanded strand which is subsequently cut into short lengths and foamed, the improvement which comprises extruding the strand through a generally helical passageway. The strand on foaming has a generally helical configuration.

3,829,270

HYDRODYNAMIC EXTRUSION DEVICE

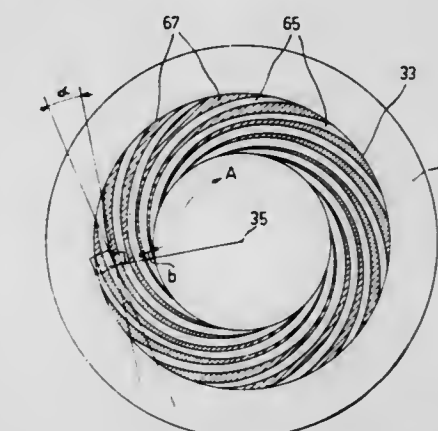
Petrus Cornelis Wilhelmus DeBonth, Boekel; Halbe Ozinga, Venlo; Cornelis Andries Verburg, Zaadam, and Everhardus Albertus Muijdrman, Emmasingel, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 30, 1973, Ser. No. 328,018

Claims priority, application Netherlands, Feb. 8, 1972, 7201605

Int. Cl. B29f 3/02

U.S. Cl. 425—381.2

5 Claims



A hydrodynamic extrusion device for processing viscous and elastoviscous materials, in particular thermoplastic synthetic materials, which device comprises two circular discs which are placed at a small axial distance and of which one forms part of a rotor and the other one forms part of a stator. A pattern of logarithmic spiral grooves is provided on one of the discs on the surface facing the other disc, which grooves, in cooperation with the smooth surface of the other disc and upon relative rotation of the two discs, produce both a hydrodynamic pressure build-up and a centripetal material transport.

3,829,271

APPARATUS FOR MOLDING STRIP MATERIAL

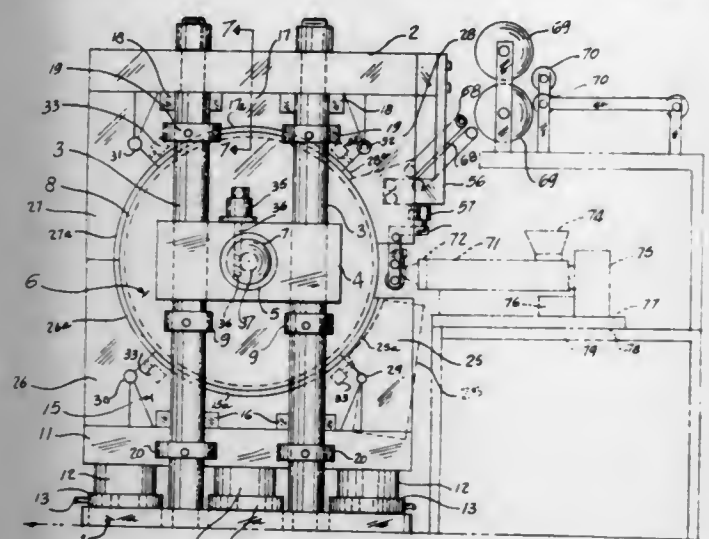
Don A. Taylor, Box Wadsworth, Wadsworth, Ohio 44287
Filed Nov. 2, 1972, Ser. No. 303,212
Int. Cl. B29c 3/04

U.S. Cl. 425—385

10 Claims

Uncured elastomeric material to be molded into a tire tread is fed progressively from a fixed feed station into a radially

outwardly open mold cavity extending partway about the periphery of a cylindrical mold member as the member is rotated about its axis. When charged, the rotation is stopped and one or more mold sections complementary to the member are moved to closed position relative to the cavity and applied under molding pressure. While so applied, the member and sections are heated to cure the molded charge. Upon completion of the curing operation, the mold is opened, the cylindrical mold member rotated, and the molded strip is stripped progressively endwise from the cavity at a fixed discharge sta-



tion. During stripping, a succeeding charge is fed progressively into the cavity, and, at the end of the stripping step, the operation is repeated. The material may be delivered to the cavity as a prepared strip of raw material at room temperature or extruded directly by an extruder into the cavity at elevated extruding temperature. A plurality of like molds may be arranged to be charged successively from a single extruder so that each mold can be stripped and charged while curing is being effected in the others, thus rendering the production of threads substantially continuous.

3,829,272

ROTATIONAL MOLDING MACHINE

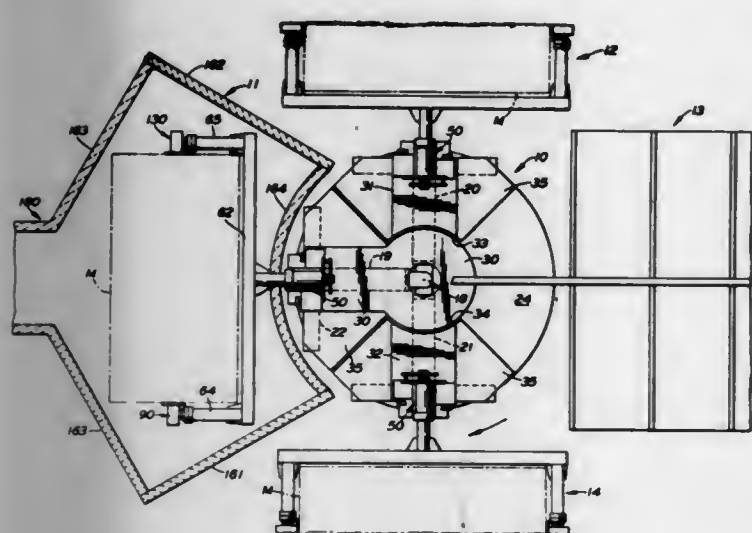
Frank R. Carillon; William E. Meyer, both of Akron, and Dario J. Ramazzotti, Tallmadge, all of Ohio, assignors to McNeil Corporation, Akron, Ohio

Filed May 21, 1973, Ser. No. 362,099

Int. Cl. B29c 5/04

U.S. Cl. 425-430

23 Claims



Disclosed is an apparatus for rotationally molding or casting an article at a plurality of work stations where operations such as loading, heating and cooling take place. A vertically extending support member carries a plurality of mold carrying arms which through independent drive mechanisms travel from station to station during the molding process. The molds can be rotated on at least one axis at any or all of the stations to uniformly distribute material therein.

3,829,273 DEVICE FOR SEPARATING CONCRETE POLE AND THE LIKE FROM MOLD FRAME

Senry Okada, Tokyo; Masaaki Hanawa, Kawasaki; Mitsuo Ohoka, Tokyo; Seishichiro Nagawa, Yokohama, and Toshio Nawa, Suzuka, all of Japan, assignors to Nippon Concrete Industries Co., Ltd., Tokyo, Japan

Filed June 30, 1972, Ser. No. 268,196

Int. Cl. B28b 21/90

U.S. Cl. 425-444

3 Claims



This invention relates to improvement on a device for separating a concrete pole and the like from a mold frame and respective parts of said device, which comprise providing an extruding device having an oil pressure jack at one end of the mold frame and a pulling-out device having a clamp trolley at the other end of said mold frame as a device for separating a concrete product such as a concrete pole or the like which has been subjected to centrifugal clamping and steam curing in the mold frame having a cut-into-two type circular section, after clamp bolts at one side of aforesaid mold frame have been released, extruding the content at a predetermined dimension by the aforesaid extruding device, and then clamping to pull out the content by said pulling-out device thereby to place the content on a roller.

3,829,274

INTERCHANGEABLE DIE LIPS FOR EXTRUSION DIE AND INDEPENDENTLY ADJUSTABLE DECKLES THEREFOR

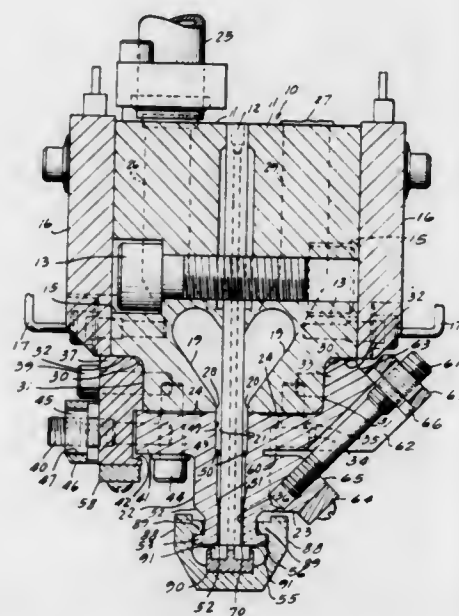
James J. Melead, Roscoe, Ill., assignor to Beloit Corporation, Beloit, Wis.

Filed Oct. 19, 1972, Ser. No. 299,044

Int. Cl. B29d 7/04

U.S. Cl. 425-466

19 Claims



Film extrusion die in the form of an elongated die body, which may be split and divided by a divider plate and have a pair of spaced extrusion orifices on opposite sides of the divider plate detachably secured to the die body. The divider plate may be removed to provide a single extrusion orifice die, if desired. An inlet for the hot thermoplastic material enters each die half. A manifold chamber in each die half communicates with an associated inlet and leads to a melt flow passageway leading along a wall of the divider. Adjustable die

lips define the orifices for the die, and have spaced lands for internal deckles, controlling the edge of the film. A deckle boat supported on the die lips carries spaced deckle seals having sealing engagement with the bottoms of the orifices. An adjustment means is provided for adjusting the external and internal deckles as a unit. The internal deckles may be adjustably moved relative to each other and relative to the external deckle to disrupt the edge of the molten plastic and minimize edge bead. The die lips may be in a package of different forms, best suited to the particular type of plastic being extruded and are all adjustable and interchangeable.

3,829,275

SMOKELESS GAS FLARE

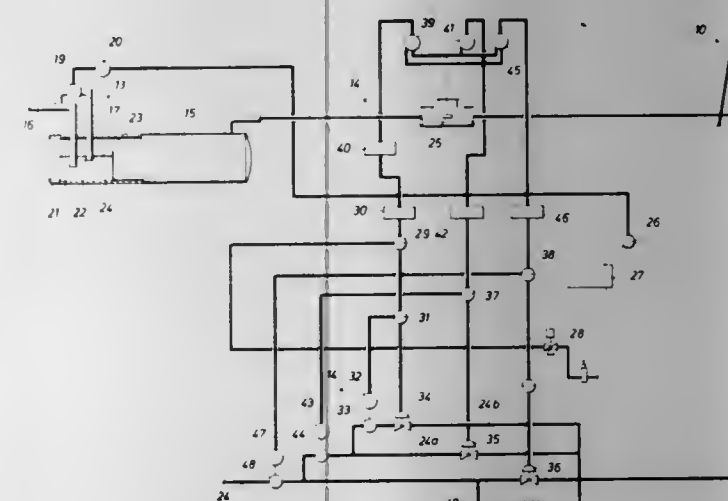
John J. Stranahan, Port Arthur; John C. L. Hollier, Nederland, and Huch C. Deloney, Houston, all of Tex., assignors to Texaco, Inc., New York, N.Y.

Filed Oct. 26, 1971, Ser. No. 192,453

Int. Cl. F23n 1/08

U.S. Cl. 431-4

3 Claims



A method and at least one steam aspirating gas flare for carrying out the method are disclosed for smokeless burning of undesired gas.

The flare includes a steam control valve responsive to a new very low gas flow detector utilizing a knockout drum water seal, a by-pass line with an orifice run, and a water level switch for supplying an empirically set fixed flow of steam to the flare for ensuring a smokeless flame prior to the gas flow rate reaching a measurable rate. A full range flare including all other gas flows includes also several steam flow valves, each valve being empirically set to provide the proper steam-to-gas ratios throughout its respective range responsive to several corresponding gas flow detectors for ensuring a smokeless flare as the flare gas flow varies from the immeasurable ranges through the measurable ranges of the detectors.

3,829,276

BURNER CONTROL

Robert J. Lenski, and James H. Meyer, both of Rockford, Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed May 21, 1973, Ser. No. 362,387

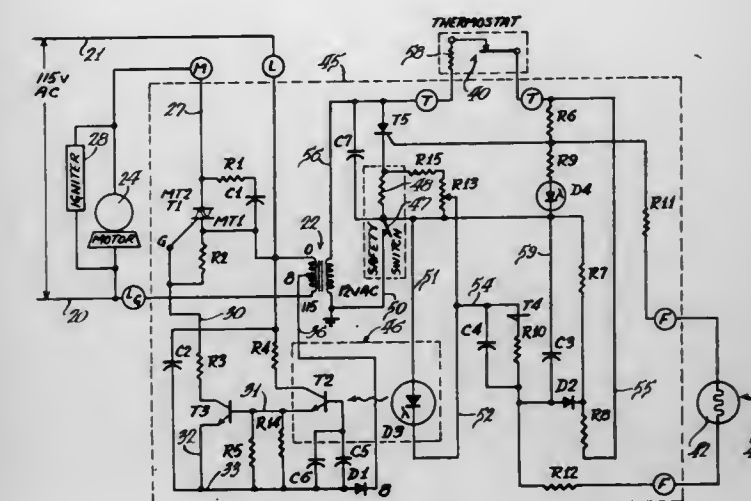
Int. Cl. F23n 5/08

U.S. Cl. 431-14

13 Claims

A control system for an oil burner including a motor for pumping fuel to the burner, an igniter for lighting the fuel, and an electronic switch for controlling energization of the motor and the igniter, all in a line voltage circuit, together with a low voltage circuit for controlling operation of the motor and igniter switch including a relay controlling the gate of the switch, a second electronic switch and a thermostat in circuit

with the relay for energizing the relay, a third electronic switch for triggering the second switch, a gate circuit for trig-



gering the third switch including a light-sensitive flame detector cell and a light for indicating operability of the flame detection circuitry.

3,829,277

MANTLE-RADIATION RECUPERATOR

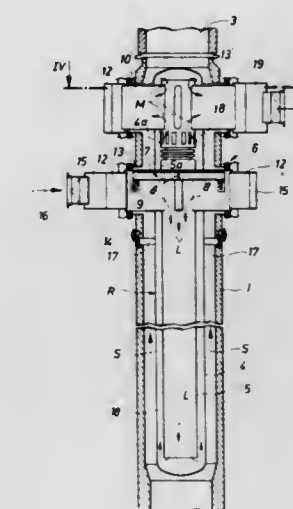
Hans-Rudiger Scheunemann, Tonisvorst, Germany, assignor to Kleinewefers Industrie-Compagnie GmbH, Krefeld, Germany

Filed Jan. 10, 1973, Ser. No. 322,415

Int. Cl. F21h 1/04

U.S. Cl. 431-109

9 Claims



A mantle-radiation recuperator with a cylindrical mantle and a distributing chamber, in which the cylindrical mantle conveys the fluid to be heated up and is passed around by flue gases, and in which a recuperator mantle is suspended in a chimney which mantle is connected to supports the outer ends of which are adapted to be rested on the masonry of the chimney or a part connected thereto.

3,829,278

GASOLINE STOVE

Harvey Larry Penberthy, 5624 S.W. Admiral Way, Seattle, Wash. 98116

Filed Apr. 20, 1973, Ser. No. 352,948

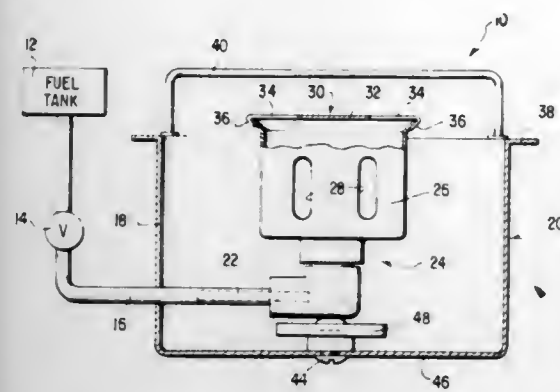
Int. Cl. F23d 11/44

U.S. Cl. 431-227

13 Claims

This invention relates to a stove for burning various hydrocarbon fuels such as gasoline, naphtha, kerosene and the

like and more particularly is directed to an improved burner construction for portable stoves of this type which may be



used by campers, back-packers, mountain climbers and others interested in the outdoors.

3,829,279

DUAL FUEL BURNER APPARATUS

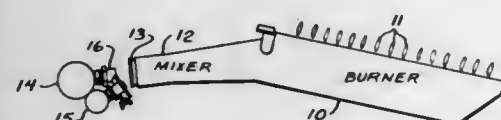
Ray W. Qualley, and Robert L. Thompson, both of Racine, Wis., assignors to Modine Manufacturing Company, Racine, Wis.

Filed Aug. 20, 1973, Ser. No. 389,888

Int. Cl. F23d 13/40

U.S. Cl. 431-354

5 Claims



A dual fuel burner apparatus for burning two or more different types of fuel some of which require greater amounts of primary air entrapped with the fuel than others and comprising a first nozzle for a first fuel having an orifice directed into and located adjacent to the entrance end of a mixer chamber of the customary type leading toward a customary burner, a second nozzle for a second fuel having an orifice also directed into and located adjacent to the entrance end and adjacent to the first nozzle with the first fuel requiring more primary air for proper burning than the second fuel, a shutter at the second nozzle orifice partially blocking primary air to the second fuel but having an open portion adjacent the first nozzle orifice providing relatively freer flow of primary air to the first fuel than to the second fuel.

3,829,280

APPARATUS FOR THE PRODUCTION OF POLYPHASE GYPSUM

Oswald Jenne; Josef Steinkuhl, both of Essen; Otto Wiechmann, Recklinghausen, and Gerhard Reimann, Mulheim, all of Germany, assignors to Rheinstahl AG, Essen, Germany

Filed Oct. 16, 1972, Ser. No. 298,009

Claims priority, application Germany, Jan. 7, 1972, 2200532

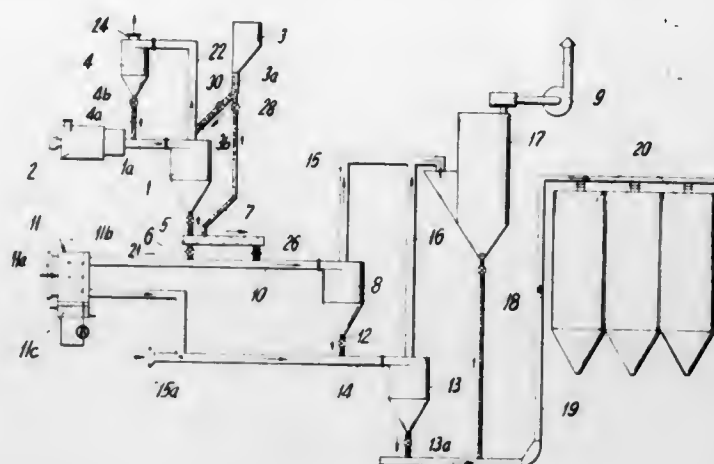
Int. Cl. F27b 15/00

U.S. Cl. 432-58

4 Claims

Gypsum is treated in a final burning cyclone which discharges into a conveyor which is arranged to feed to a discharge into a cooling line leading to a cooling cyclone. The cooling line is connected to a humidifier and may be operated with or without the humidifier. Material is also fed to the conveyor from a material bin located downstream of the final burning cyclone. A bypass is connected to the conveyor to feed directly from the discharge of the final burning cyclone into the cooling line. With the inventive method, polyphase

gypsum with an adjustable setting behavior is produced by first heating gypsum to form a phase mixture of dihydrate, hemihydrate and anhydrites. The heating is carried out in a carrier gas burning plant with a burning gas temperature which is only slightly above the exit temperature of the burnt



material and part of the anhydrite III, which is undesired in the end product, is then rehydrated to hemihydrate. The rehydration of anhydrite III is effected by introducing the phase mixture into a cooling air current having an absolute humidity which can be regulated to about 30 g/Nm³ depending on the portion of the anhydrite III.

3,829,281

BURNER MODULE FOR APPLICATION TO AN AIR INTAKE MANIFOLD OR OTHER GAS FLOW CONDUIT

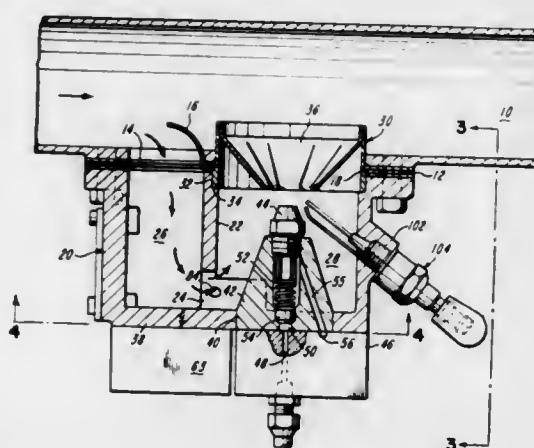
Eugene C. Briggs, and William C. Wellbaum, both of Dayton, Ohio, assignors to Koehring Corporation, Milwaukee, Wis.

Filed June 12, 1972, Ser. No. 262,011

Int. Cl. F23d 13/00

U.S. Cl. 432-63

20 Claims



A burner module having particular application to an engine intake manifold, applicable to any gas flow conduit for gas or air heating purposes, comprising a shell-like housing mounting means to intercept a portion of the air moving through the manifold or conduit and to channel said portion into and through a supplementary flow path defined in the housing. This flow path is arranged to exit to the manifold or conduit downstream of the intercepting means. This supplementary flow path is so formed as to swirl the intercepted air about a fuel nozzle. Atomized fuel which issues from the nozzle is externally ignited to produce a flame which is formed in a small tight configuration within a flame retention head defining the exit from said flow path. A portion of the air moving through the flow path is diverted to pass directly through the fuel nozzle to assist in aspirating and atomizing the fuel which is passed therethrough. The major portion of the intercepted air is directed about the flame in a supporting and a shielding relation thereto whereby to provide a gas envelope separating

the flame from the surrounding surface of the flame retention head. The latter together with the intercepting means functions to create a relatively non-turbulent environment for the flame which is quietly exposed so as to maintain a relatively uniform temperature of the supporting and shielding gas or air, which it heats in passage thereby in the course of its exit to the manifold or conduit. Further, the flame uniformly adds heat to the main stream of the gas flowing through the related manifold or conduit.

3,829,282

SATELLITE COOLER FOR A ROTARY KILN

Herbert Deussner, Bensberg-Refrath, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Köln, Germany

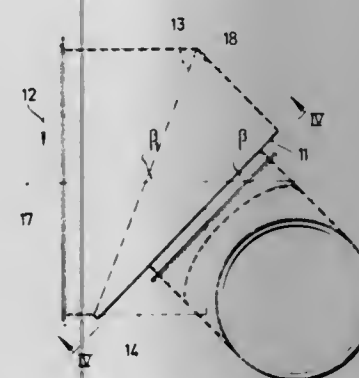
Filed Dec. 15, 1972, Ser. No. 315,557

Claims priority, application Germany, Dec. 15, 1971, 2162236

Int. Cl. F27b 7/00

U.S. Cl. 432-80

12 Claims



Satellite cooler which includes a plurality of cooling tubes distributable uniformly about the periphery of a rotary kiln at the material outlet end thereof, the cooling tubes being formed with respective material inlet openings connectible by respective tubular connecting chutes to respective material discharge openings formed in the casing of the rotary kiln, the material discharge openings being offset in rotary direction of the kiln relative to the respective material inlet openings of the cooling tubes, each of the cooling tubes having a respective inlet end severed obliquely to the axis of the respective cooling tube so that the severing plane extends substantially vertically when the respective material discharge opening in the rotary kiln casing has attained substantially its lowest position beneath the rotary kiln axis and an end plate disposed in the severing plane and closing the cooling tube, the material inlet opening being formed in the end plate.

3,829,283

ROTARY RETORT FURNACE

Karl A. Wulf, Rockford, Ill., assignor to Alco Standard Corporation, Valley Forge, Pa.

Filed Oct. 29, 1973, Ser. No. 410,823

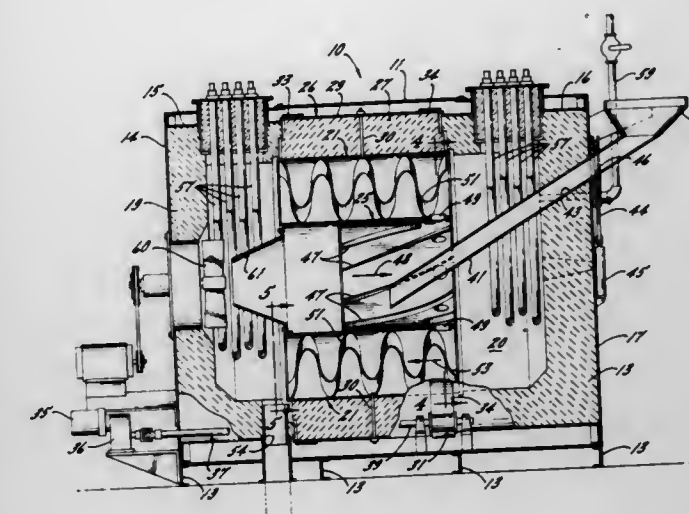
Int. Cl. F27b 7/04, 7/14

U.S. Cl. 432-103

14 Claims

A heat treating furnace in which several cylindrical retorts are clustered in a circle and are adapted to revolve in unison about a central axis in a heating chamber. Workpieces

delivered into the chamber are distributed into the retorts and are exposed to heated gas as the cluster is revolved to cause



3,829,284

HEAT TREATMENT APPARATUS

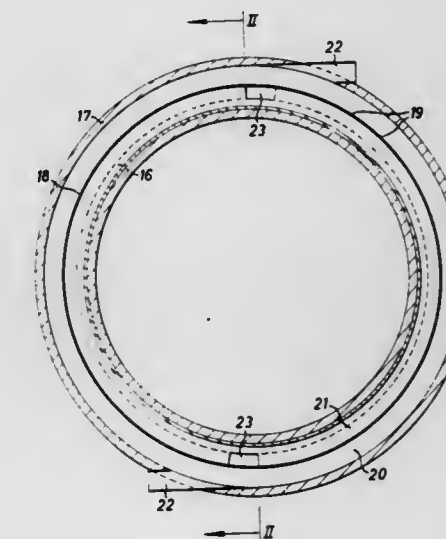
Maurice Hemingway, Mirfield, and Trevor Ward, Dewsbury, both of England, assignors to Hotwork Limited, Dewsbury, Yorkshire, England

Filed May 29, 1973, Ser. No. 364,282

Int. Cl. F27b 3/02, 17/00

U.S. Cl. 432-183

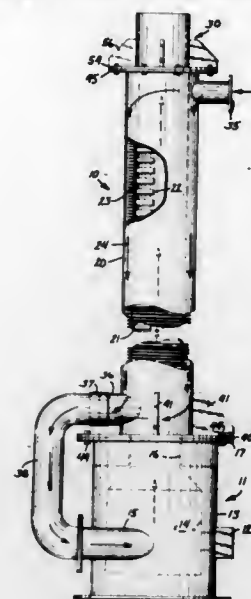
5 Claims



A welded joint between two pipes is stress relieved by injecting gaseous exhaust from two gas burners at high velocity into a ring through diametrically-opposed inlets. The ring has an inwardly opening annular mouth which surrounds the welded joint and is separated from the inlets by an apertured distribution ring which divides the interior of the ring into inner and outer annular enclosures. The gases are injected tangentially with respect to the ring so that they circulate around the outer enclosure and pass to the inner enclosure

through the apertures in the distribution ring. Thus the hot gases are distributed evenly around the inner enclosure to heat the welded joint for stress relieving. Outlet apertures are provided in the ring for the escape of waste gases from the inner enclosure.

heat exchange tubes and process air around the heat exchange tubes for preheating. Connecting means are disclosed for at-



3,829,285

RECUPERATORS FOR INCINERATORS

Joseph J. Beck, Berlin, Wis., assignor to McQuay-Perfex, Inc., Minneapolis, Minn.

Filed Feb. 28, 1973, Ser. No. 336,436

Int. Cl. F28f 1/10

U.S. Cl. 432-223

1 Claim

A compact, low cost heat recuperator for incinerators and the like having one or more heat exchange tubes with internal and external fins, positioned within an outer tubular shell. Means at one end of the shell hold the heat exchange tubes in fixed position, and an expansion seal is provided at the other. Means are provided for conducting exhaust gases through the

taching the recuperator assembly to an existing incinerator so that minimum modifications are required.

CHEMICAL

3,829,286

SUBLIMATION TRANSFER DYEING WITH 4,8-DI-HYDROXY-1-ARYLAMINO-ANTHRAQUINONES
Masao Anzai, Funabashi, and Masayuki Miyatake, Tokyo, Japan, assignors to Toppan Printing Co. Ltd., and Toyo Ink Manufacturing Co., Ltd., both of Tokyo, Japan

No Drawing. Filed Feb. 16, 1973, Ser. No. 333,033

Claims priority, application Japan, Feb. 23, 1972,

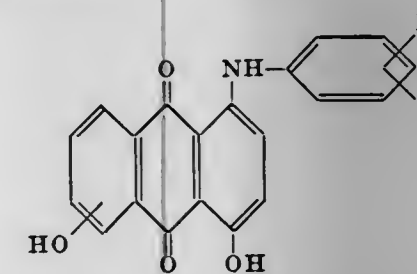
47/18,105

Int. Cl. D06p 1/20

U.S. Cl. 8-2.5

14 Claims

A sublimation transfer dyeing method which is characterized by the use of novel and improved compounds of the general formula:



in which X represents a methyl group or ethyl group at ortho or meta position with regard to the imino group, and Y represents a hydrogen atom, methyl group, methoxy group, fluorine atom or chlorine atom.

3,829,287

HIGH STRENGTH LIQUID METALLIZED AZO COLORANTS

Alvin Carl Litke, West Seneca, N.Y., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Feb. 22, 1972, Ser. No. 228,390

Int. Cl. D06p 1/10

U.S. Cl. 8-42 R

4 Claims

High strength liquid azo colorants, especially suitable for coloring paper, are prepared by metallizing certain azo dyestuffs in a solution of diethanol amine. The diethanol amine not only aids in the metallization of the azo dyestuffs but allows the metallized dyestuff to remain in solution. Liquids of diverse color strength can be produced by varying the amounts of dyestuff in the solution.

3,829,288

PROCESS FOR FINISHING CELLULOSE-CONTAINING TEXTILES

Hans Deiner, Neusass-Lohwald, Hans Hofstetter, Gersthofen, and Willy Bernheim, Diedorf, Germany, assignors to Chemische Fabrik Pforsee GmbH Augsburg, Augsburg, Germany

No Drawing. Filed June 1, 1972, Ser. No. 258,772

Claims priority, application Germany, June 4, 1971,

P 21 27 766.7

Int. Cl. D06m 13/14, 13/40, 15/66

U.S. Cl. 8-115.6

8 Claims

A process for finishing textiles at least partly containing cellulose with aminoplast-resins and organopolysiloxanes from organic solvents, is characterized in that conditionally moist textiles are impregnated with baths containing from 5 gr./l. to 60 gr./l. of an organically soluble artificial resin preferably etherified with lower monovalent alcohols, 5 gr./l. to 50 gr./l. of a hydrogen alkyl-polysiloxane, at least 25 ml./l. of a polar solvent and at least 1.5 gr./l. of a dialkyltinacrylate dissolved in a non-polar water-insoluble solvent. Thereupon the textiles are freed from the surplus bath, dried and condensed.

3,829,289

PROCESS FOR DECREASING THE FLAMMABILITY OF TEXTILES AND PRODUCT PRODUCED THEREBY

Giuliana C. Tesoro, Dobbs Ferry, N.Y., assignor to Burlington Industries, Inc., Greensboro, N.C.

No Drawing. Continuation-in-part of abandoned application Ser. No. 140,256, May 4, 1971. This application

Apr. 7, 1972, Ser. No. 242,237

Int. Cl. D06m 13/28, 13/44, 13/54

U.S. Cl. 8-115.7

12 Claims

A process for decreasing the flammability of textiles comprising a cellulosic fiber component and a nitrogen-free thermoplastic fiber component which comprises treating the cellulosic fiber component with an unsaturated compound (viz, N-methylol phosphono propionamide, N-methylol amide, N-methylol carbamate, or allyl halide) so as to introduce unsaturated groups into said cellulosic component and subsequently halogenating (preferably brominating) the unsaturated groups thus introduced into said cellulosic component. Where the unsaturated compound used does not contain phosphorus, organophosphorus reagents can be introduced in a separate step (before or after halogenation of the unsaturated groups).

3,829,290

REACTION OF SODIUM CELLULOSATE WITH MONO- AND DIFUNCTIONAL EPOXIDES IN NON-AQUEOUS MEDIA

Ralph J. Berni, Metairie, Ruth R. Benerito, New Orleans, and Donald M. Soignet, Metairie, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed June 29, 1972, Ser. No. 267,313

Int. Cl. D06m 13/10; C08b 11/08

U.S. Cl. 8-120

16 Claims

Fibrous cellulose ethers have been prepared by a non-aqueous process comprising preparing a sodium cellulose with suitable Cellulose I content in preparation for reaction with an epoxide to yield a derivative generally useful in the field of permanent press textiles.

3,829,291

PROCESS OF REMOVING POLYVINYL ALCOHOL SIZE FROM FABRICS WITH HYDROGEN PEROXIDE

Louis Kravetz, Houston, Tex., assignor to Shell Oil Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 141,406, May 7, 1971. This application

Jan. 5, 1973, Ser. No. 321,191

Int. Cl. D06l 1/06, 1/14

U.S. Cl. 8-138

5 Claims

A process for removing polyvinyl alcohol size from fabrics with hydrogen peroxide comprises contacting the fabric with an aqueous solution of dilute hydrogen peroxide in the presence of ions of certain transition metals.

3,829,292

APPARATUS FOR THE PRODUCTION OF 1,2-DIHYDROQUINOLINES

Hellodoro Monroy, Insurgentes Sur 591, 7° Piso, Mexico City 18, Mexico

Original application Apr. 26, 1971, Ser. No. 137,217, now abandoned. Divided and this application Feb. 9, 1973, Ser. No. 331,211

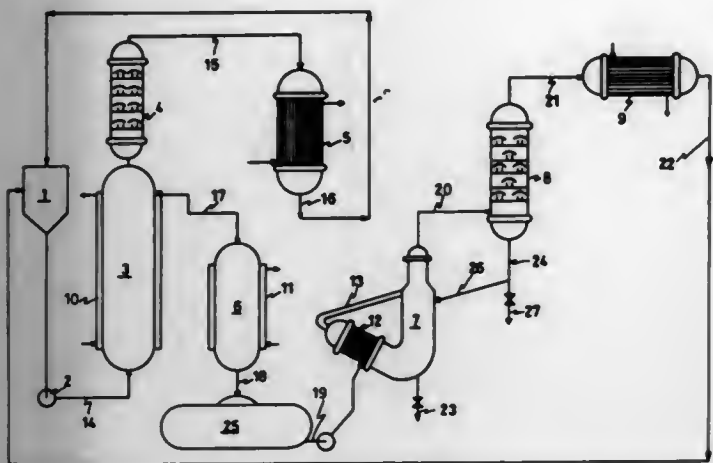
Int. Cl. B01j 9/02, 9/16

U.S. Cl. 23-263

1 Claim

Novel substituted 1,2-dihydroquinolines have anti-oxidant, bactericidal and fungicidal properties. Said 1,2-dihydroquinolines are prepared by condensing, in the presence of a catalyst, preferably iodine, a substituted aromatic amine with a carbonyl compound, at a temperature

of between 90 and 300° C., said catalyst being preferably present together with an activator selected from alkyl or alkaryl halides. Said process is preferably carried out in an apparatus essentially comprising a mixing and feeding device, a first reactor being a packed tower of a height sufficient to provide for the necessary residence time of the reaction mixture in continuous ascending flow there-



through, a second reactor being a packed tower of lesser height, through which the partially reacted mixture descends an evaporator to evaporate the unreacted aromatic amine from the substituted 1,2-dihydroquinoline obtained, and means for stripping the light fractions evolved in the first reactor and in the evaporator and reusing the same as starting materials.

3,829,293

CRYSTALLIZATION APPARATUS

Jean-Pierre Wauquier, Givors, France, and Herbert Friedrich Wiegandt, Ithaca, N.Y., assignors to Institut Francais du Pétrole, des Carburants et Lubrifiants, Rueil-Malmaison, France

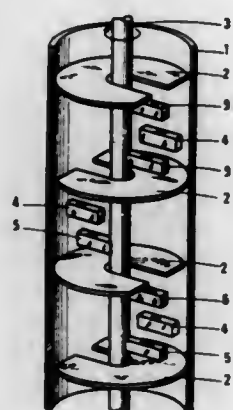
Filed Mar. 30, 1973, Ser. No. 346,455

Claims priority, application France, Apr. 31, 1972, 7211705

Int. Cl. B01d 9/02

U.S. Cl. 23—273 R

7 Claims



This apparatus comprises an elongated enclosure subdivided into compartments by rigidly arranged plates. The plates are designed in such manner as to leave passage to a vertical shaft provided with blades, when disassembling the apparatus.

3,829,294

BY-PASS VALVE CONTROL

George O. Smith, Ferndale, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 21, 1972, Ser. No. 282,433

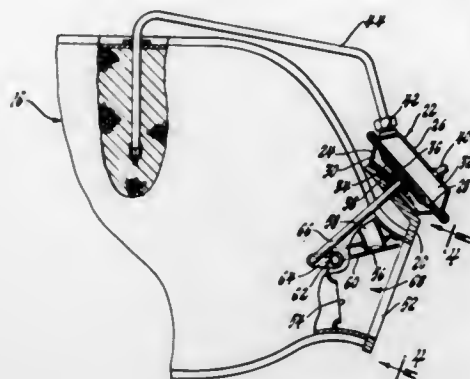
Int. Cl. F01n 3/14

U.S. Cl. 23—288 F

1 Claim

A device to protect a catalytic converter from overheating which includes a valve normally directing exhaust

gas flow into the catalytic converter, a chamber containing compressed fluid and having one wall comprising a flexible diaphragm linked to the valve and held against a compressed spring by the compressed fluid, a fluid conduction passage between the chamber and the interior of



the catalytic converter, and a fusible plug in the passage within the catalytic converter which melts at a predetermined temperature to allow the compressed fluid to escape and the spring to move the valve to direct the exhaust gases around the catalytic converter.

3,829,295

SINTERED IRON BASED ARTICLES INFILTRATED WITH COPPER BASED METALS

Edwin Bruce Farmer and Terence Michael Cadle, Coventry, England, assignors to Brico Engineering Limited, Coventry, England

No Drawing. Filed Oct. 13, 1972, Ser. No. 297,363

Claims priority, application Great Britain, Oct. 23, 1971, 49,345/71

Int. Cl. B22f 3/26

U.S. Cl. 29—182.1

6 Claims

A sintered metal article including a sintered skeleton having the composition 1.5–2.0% Nickel, 0.3–0.7% Molybdenum, 1–2% Copper, 0.1–0.3% Carbon, not more than 2% of Manganese, Silicon, Sulphur, and Phosphorus together (percentages being by weight), the remainder (apart from impurities and trace elements) being Iron, the sintered skeleton being infiltrated with Copper or Copper-based alloy, and the article being case-hardened.

3,829,296

THERMOSTAT METALS

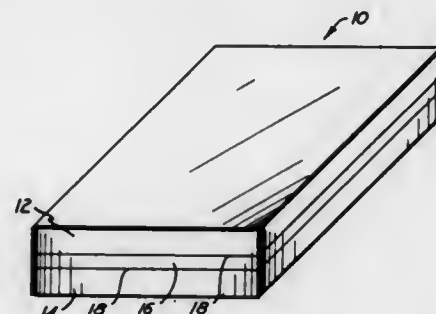
Kenneth Charest, Attleboro, Mass., Robert F. Hanley, Pawtucket, R.I., and Jacob L. Ornstein, Norton, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 26, 1972, Ser. No. 266,027

Int. Cl. B32b 15/00

U.S. Cl. 29—195.5

3 Claims



Thermostat metals which have high flexivities on the order of at least about 130×10^{-7} for displaying substantial flexing movement in response to temperature

variations within a selected range but which are adapted to be restrained against additional flexing movement while being subjected to much higher temperatures without tending to become permanently deformed are shown to comprise three layers of metal bonded together, two of these metal layers having relative thermal expansion properties, moduli of elasticity and thicknesses providing the thermostat metals with the desired high flexivities and the third layer, preferably of high strength steel disposed between the two other layers, having thermal expansion properties intermediate the thermal expansion properties of the two other layers, and having much greater strength than the materials of either of the two other layers.

Thermostat metals conventionally embody metal layers of selected alloys which have been especially developed to display very high and very low coefficients of thermal expansion. When these metal layers are bonded together in work-hardened condition, the resulting thermostat metals have high flexivities and display a substantial degree of flexing movement in response to temperature changes. While such conventional thermostat metals are widely useful, it is found that in some applications, where the thermostat metals are arranged to display substantial flexing movement in response to temperature variations within a selected temperature range but are restrained against additional flexing movement while being subjected to relatively higher temperatures, the thermostat metals tend to undergo a change in thermal response characteristics during use. That is, it is found that stresses developed in the thermostat metals when they are heated to high temperature while restrained against flexing movement tend to cause a degree of permanent deformation in the thermostat metals.

3,829,297

PULP BOUND COMPACTED FUELS

Chester C. Crawford, 13001 La Cresta Drive, Los Altos Hills, Calif. 94022

Continuation of application Ser. No. 870,313, Sept. 29, 1969, which is a continuation of application Ser. No. 626,739, Mar. 29, 1967, both now abandoned. This application Aug. 17, 1972, Ser. No. 281,374

Int. Cl. C10l 5/10, 5/40

U.S. Cl. 44—15 D

5 Claims

Compacted and bound solid particles, for example fuels such as barbecue briquettes and fireplace logs made from particulate combustible materials such as sawdust, wood flour, charcoal, and coke in which the binder for the combustible materials is cellulose fibers derived from paper pulp.

ERRATUM

For Class 48—214 see:
Patent No. 3,828,474

3,829,298

METHOD OF FORMING A SCREW SHAPED GEAR HONE

Masato Ainoura, Kitashigeyasu, Japan, assignor to Tsukihoshi Gomu Kabushiki Kaisha (The Moon-Star Rubber Ltd.), Kurume-shi, Fukuoka-ken, and Kabushiki Kaisha Kashifuji Tekkosho (Kashifuji Works, Ltd.), Kyoto-shi, Japan

Original application Sept. 24, 1970, Ser. No. 74,973, now Patent No. 3,708,925, dated Jan. 9, 1973. Divided and this application Oct. 28, 1971, Ser. No. 193,268

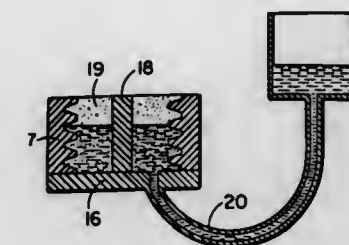
Int. Cl. C08g 51/12

U.S. Cl. 51—298

1 Claim

A worm-shape or screw-shape hone, for honing gear teeth, has the tooth profile of the basic rack at its normal

plane. The hone is formed by molding synthetic polymers in which there are dispersed abrasive particles, to provide a Shore hardness of 15°–75° and a Young's modulus $0.5-70 \times 10^3$ kg./cm.². The hone is engaged with the gear to be finished and is rotated by a motor with the hone driving the gear. During honing of the gear, the hone is fed parallel to the axis or tooth trace of the gear over the



whole face width of the gear. The polymer material may comprise a co-cured blend of polyurethane rubber and epoxy resin having a suitable flexibility, good resiliency and high abrasion resistance, and the abrasive particles may comprise Alundum or Carborundum, the abrasive particles being exposed at the working surface of the hone.

3,829,299

MOLDED ABRASIVE ARTICLE OF IRON-SILICON ALLOY, AND DIAMOND POWDER

Michael V. Metzger, Highland Park, and Reginald Pearce, Bloomington, Ill., assignors to Engis Corporation, Morton Grove, Ill.

No Drawing. Filed Apr. 10, 1972, Ser. No. 242,764

Int. Cl. B24d 3/06; C04b 31/16

U.S. Cl. 51—309

13 Claims

An abrasive article consisting of abrasive particles distributed in a metallic base material consisting of an alloy of iron and silicon. Also included in the invention is a novel method for producing the article of the invention in a molding process utilizing, in combination, controlled heat and pressure.

3,829,300

BUSHING UNIT INCLUDING CAST IRON BUSHING FRAME

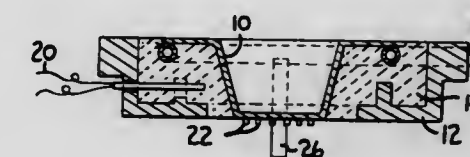
Robert G. Shealy, Shelby, N.C., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of application Ser. No. 216,473, Jan. 10, 1972, which is a continuation-in-part of application Ser. No. 106,928, Jan. 15, 1971, which in turn is a continuation of application Ser. No. 771,078, Oct. 28, 1968, all now abandoned. This application Sept. 14, 1973, Ser. No. 397,464

Int. Cl. C03b 37/02

U.S. Cl. 65—1

3 Claims



A casting unit for supporting a fiber glass forming bushing is constructed of cast iron. Cast iron of the white or gray type may be employed. Preferably ductile cast iron or ferritic nodular cast iron is employed.

3,829,301

METHOD FOR PREVENTING FLOODING OF GLASS FIBER BUSHINGS

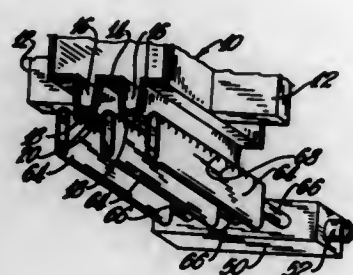
Robert G. Russell, Granville, Ohio, assignors to Owens-Corning Fiberglas Corporation

Continuation-in-part of application Ser. No. 123,637, Mar. 12, 1971, which is a continuation-in-part of application Ser. No. 14,726, Feb. 24, 1970, which in turn is a continuation of application Ser. No. 628,997, Apr. 6, 1967, all now abandoned. This application Mar. 21, 1973, Ser. No. 343,588

Int. Cl. C03b 37/02

U.S. Cl. 65—2

31 Claims



This invention relates to processing heat-softenable material, such as glass, involving treatment of a surface of a body or substrate at which the heat-softened material is present, such as the surface at the stream delivery region of a feeder, and pertains particularly to a method and arrangement establishing an environment at the surface of a character providing an interfacial condition promoting separation of the material from the surface thereby minimizing or eliminating the tendency for the material to flood at the surface by use of carbon or hydrogen in a protective inert atmosphere.

3,829,302

METHOD OF CHANGING SURFACE CHARACTERISTICS OF SIZED GLASS FIBERS AND FIBERS HAVING CHANGEABLE SURFACE CHARACTERISTICS

Harold L. Haynes, Granville, and Michael J. Harvey, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation

Filed Apr. 10, 1972, Ser. No. 242,628

Int. Cl. G03c 25/02

U.S. Cl. 65—3

10 Claims

Glass fibers having a coating thereon of a powdery type glass lubricant having emulsified particles of a thermoplastic resin adjacent the surface of the coating. The emulsified particles are separated by the powdery type lubricant to provide a surface adaptable for initial stages of fabrication, following which the coated fibers are heat treated to agglomerate the heat softenable particles and change the surface characteristics of the coated fibers for subsequent processing and/or use. In a preferred embodiment, the heat softenable particles are caused to congregate at the surface of the coating by reason of an anionic emulsifying agent. In the most preferred embodiment, the coating is primarily a starch coating with the emulsified particles of the heat softenable resin kept separated by the starch. After the twisting operation, the coated fibers are, thoroughly dried and heated above the softenable point of the resin to provide a controlled adhesion between the fibers.

3,829,303

DIELECTRIC PROPERTIES OF INORGANIC OXIDE GLASS-CERAMIC MATERIALS

Robert J. Zeto, Lincroft, Charles D. Bosco, Bricktown and Eugene Hryckowian, Oceanport, N.J., assignors to The United States of America, as represented by the Secretary of the Army.

No Drawing. Filed Oct. 25, 1973, Ser. No. 409,498

Int. Cl. C03b, 35/00, 3/00

U.S. Cl. 65—32

6 Claims

The dielectric properties, particularly the dielectric constant and dielectric strength, of inorganic oxide glass-ceramic materials is improved by subjecting the materials to hot, isostatic nitrogen gas or oxygen gas pressures during crystallization.

3,829,304

GLASS DRAWING CONDITIONING MEANS

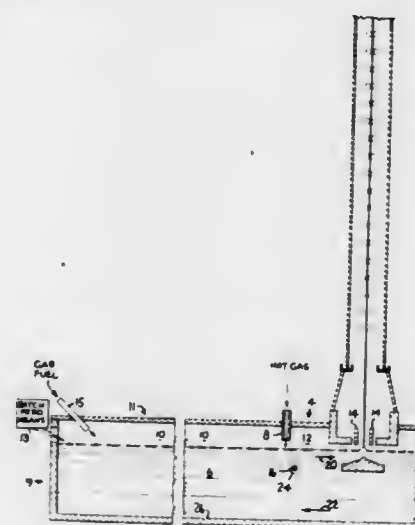
Gerald E. Kunkle, New Kensington, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of application Ser. No. 111,907, Feb. 2, 1971, now U.S. Pat. No. 3,761,236, Sept. 25, 1973, and which is a continuation-in-part of application Ser. No. 826,860, May 22, 1969, now abandoned. Divided and this application May 16, 1973, Ser. No. 360,886

Int. Cl. C03b 5/22, 15/02

U.S. Cl. 65—193

1 Claim



Sheet glass of commercial quality is made by a Pittsburgh Process without using a shutoff. Instead, means are used to seal the kiln from the tank, and a water-cooled pipe is submerged in the glass and lowers suitably the flow; throughout ratio. The submerged pipe has a diameter of 1.2 to 5 inches and it is located so that it obstructs the return flow, being positioned so that its top is not above the midpoint of the depth of the glass, and so that its bottom is at least one-fifth of the depth of the glass above the bottom. In this way the benefits of having no shutoff are obtained; lower costs, and an avoidance of defects in the products caused by shutoff.

3,829,305

SLIME CONTROL COMPOSITIONS CONTAINING PHENOLIC COMPOUNDS AND THEIR USE

Robert H. Brink, Jr., Doylestown, Bernard F. Shema, Glenside, Roger L. Justice, Cornwells Heights and Paul Swered, Philadelphia, Pa., assignors to Betz Laboratories, Inc., Trevose, Pa.

No Drawing. Filed July 6, 1971, Ser. No. 160,191

Int. Cl.: A01n 9/02

U.S. Cl. 71—67

9 Claims

The present invention relates to certain processes and compositions useful for inhibiting and/or controlling the

3,829,309

PROCESS FOR SMELTING ILMENITE TO PRODUCE PIG IRON AND TITANIA-CONTAINING SLAG

John M. Gomes, Reno, Nev. and Kenji Uchida, Tokyo, Japan, assignors to The United States of America as represented by the Secretary of the Interior

Filed June 6, 1972, Ser. No. 260,262

Int. Cl. C01g 23/04

U.S. Cl. 75—1

15 Claims

The smelting of an ilmenite concentrate (61 weight percent TiO_2 and 37 weight percent FeO) with a sodium borate flux and a carbonaceous material, such as coal, as the reducing agent, is performed in a furnace at 1150°C . to 1200°C . to yield molten pig iron in marketable condition (95 to 97 weight percent iron) and slag containing 25 weight percent titania (TiO_2) and less than 1 weight percent FeO , with the slag containing 95 to 99 percent of the titanium. Two alternative procedures are thereafter followed, one a quenching-leaching and the other a leaching-calcination process, to yield a sodium titanate product containing 70 to 80 weight percent TiO_2 , a product which can readily be beneficiated to pigment grade TiO_2 by suitable treatment, such as by the well known "sulfate process."

3,829,310

HIGH SURFACE AREA VALVE METAL POWDER

Tyler X. Mahy, Cambridge, Mass., assignor to Norton Company, Newton, Mass.

Filed Apr. 30, 1973, Ser. No. 355,430

Int. Cl. B22f 5/00; C22b 51/00

U.S. Cl. 75—0.5 BB

19 Claims

Solid particles of potassium fluotantalate are thoroughly dried and then coated with molten form sodium reducing agent, the coating being accomplished under temperature conditions controlled to remain below a temperature which will initiate the exothermic reduction reaction between these materials. After completion of the coating, the charge of premixed double salt and reducing agent is then heated through the temperature at which the exothermic reduction reaction is initiated. The initiation of the exothermic reaction causes a rapid temperature rise. Over 90% of the tantalum values of the salt charge are formed as elemental tantalum in particle form in the course of the exothermically driven temperature rise. The charge temperature is then stabilized in the range of 700°C . to 1100°C ., held for a time at this elevated temperature and then slowly cooled. During the temperature rise, tantalum metal particles nucleate throughout the mass of the premixed charge to form a coherent skeletal structure. This skeleton resists settling as the temperature is raised above the melting temperature of the salt mass, and a substantially homogeneous distribution of tantalum values throughout the reduction charge is formed and maintained. Tantalum metal particles, so formed are highly structured and can be separated as a high yield of high surface area-high capacitance tantalum powder.

3,829,306

PLANT REGULATION WITH 2-HALO-2',6'-DISUBSTITUTED-N-AMIDOMETHYL-ACETANILIDES

Kenneth Wayne Ratts, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 21, 1972, Ser. No. 265,094

Int. Cl. A01n 5/00

U.S. Cl. 71—76

14 Claims

The natural growth or development of plants is regulated by an application of a 2-halo-2',6'-disubstituted-N-amidomethyl-acetanilide to said plants.

3,829,307

1-PICOLYL-3-PHENYL UREAS AND THEIR UTILITY AS HERBICIDES

Alexander Mihailovski, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

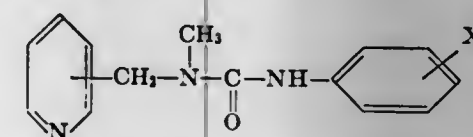
No Drawing. Original application Apr. 30, 1971, Ser. No. 139,221, now Pat. No. 3,700,678. Divided and this application July 31, 1972, Ser. No. 276,862

Int. Cl. A01n 9/22

U.S. Cl. 71—94

10 Claims

The utility as post and pre-emergence herbicides of the compounds of the formula



in which X is hydrogen, halogen, nitro, methyl, and trifluoromethyl, and n is an integer 1 or 2.

3,829,308

ALKOXY TRIFLUOROMETHYLANILINE COMPOUNDS AND USE AS AN HERBICIDE

Philip L. Strong and Don L. Hunter, Anaheim, Calif. and Cecil W. LeFevre, Franklin, Idaho, assignors to United States Borax & Chemical Corporation, Los Angeles, Calif.

No Drawing. Original application Aug. 5, 1970, Ser. No. 61,449, now Patent No. 3,716,585. Divided and this application May 10, 1972, Ser. No. 252,076

Int. Cl. A01n 9/20

U.S. Cl. 71—121

10 Claims

N-alkyl substituted 5-alkoxy-2-nitro-4-trifluoromethyl-anilines and their thio analogues. The compounds are useful as herbicides and can be formulated with conventional herbicide carriers.

3,829,311

ADDITION ALLOYS

John William Grant, Radlett and Gordon John Cox, Sutton Coldfield, England, assignors to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed Sept. 11, 1972, Ser. No. 287,880

Claims priority, application Great Britain, Sept. 9, 1971, 42153/71

Int. Cl. C22c 29/00

U.S. Cl. 75—122

6 Claims

Directed to alloys which are particularly suitable for the introduction of magnesium into molten iron and which contain in weight percent about 5% to 15% nickel, about 5% to 14% magnesium, about 34% to 60% silicon, about 0.5% to about 3% of a rare earth metal, up to about 4%

calcium, up to about 2% carbon, up to about 10% manganese, up to about 10% copper, the balance being essentially iron, in an amount less than about 50%.

3,829,312

PROCESS FOR THE MANUFACTURE OF STEEL OF GOOD MACHINABILITY

Toru Araki, Tokyo, and Shigeo Yamamoto, Oi-machi, Japan, assignors to National Research Institute for Metals, Tokyo, Japan

Filed Jan. 4, 1972, Ser. No. 215,291

Int. Cl. C21c 7/08; C22c 39/00

U.S. Cl. 75—129

9 Claims

A process for the manufacture of steel capable of being machined at machining speeds ranging from 60 to 300 meters per minute, which comprises deoxidizing a melt of structural killed steel containing 0.1–0.6% of carbon, not more than 1.5% of manganese, not more than 0.5% of silicon, 0.004–0.1% of oxygen, and not more than 0.015% of nitrogen, with a titanium-containing oxygen combining agent, the quantity and composition of the titanium-containing combining agent being so selected that the ingot after the deoxidation contains 0.005–0.8% of titanium, 0.3–1.5% of manganese, 0.005–0.025% of total oxygen, and not more than 0.5% of silicon, and does not contain more than each 0.010% of soluble aluminum and nitrogen, the balance being iron and impurities; and at least a part of the titanium is present in the ingot as titanium-containing oxide type inclusions.

3,829,313

BRAZING ALLOY

Eugene H. Bradburn, Concord, and James T. Tidwell, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Mar. 7, 1973, Ser. No. 338,810

Int. Cl. C22c 21/02

U.S. Cl. 75—146

3 Claims

An aluminum base brazing alloy for aluminum which is resistant to a fluorine and fluoride atmosphere containing silicon and zinc, and wherein the silicon is present as a discontinuous phase.

3,829,314

PHOTOELECTROSTATIC DEVELOPING MATERIALS

Loren E. Shelfo, Palatine, Ill., assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Continuation-in-part of application Ser. No. 57,013, June 9, 1970, which is a division of application Ser. No. 596,476, Nov. 23, 1966, both now abandoned. This application Aug. 22, 1972, Ser. No. 282,804

Int. Cl. G03g 13/16

U.S. Cl. 96—1.4

14 Claims

The developing materials of this invention are used with electrostatic developing processes and the images are fixed by passing the copy sheet through a pair of steel rollers under pressure. The developing materials are composed of aliphatic components having from 6 to 25 carbon atoms. The aliphatic components may also be combined with thermoplastic synthetic resins to control the pressure response level. The pressure response, that is,

the fixability of the image onto the copy by pressure, of these materials is correlated to the heat of fusion of the composition as measured by differential thermal analysis.

3,829,315

METHODS FOR MAKING HALF-TONE PRINTS

Gunther Schadlich, Wiesbaden-Biebrich, Renate Haenisch, Wiesbaden, and Roland Moraw, Wiesbaden-Biebrich, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

No Drawing. Application Sept. 8, 1971, Ser. No. 178,828, which is a continuation of application Ser. No. 732,024, May 27, 1968, now abandoned. Divided and this application Oct. 20, 1972, Ser. No. 299,185

Int. Cl. G03f 7/02, 7/24, 5/00

U.S. Cl. 96—33

4 Claims

This invention relates to a method for the production of a printing plate capable of reproducing continuous tones, wherein a light-sensitive material suitable for the production of a printing plate is exposed under a continuous tone original, exposure light being caused to traverse a layer which presents sufficiently uniformly distributed areas of 0.05 to 10 microns in diameter, the light-transmission capacity of which areas contrasts with that of their immediate environment, this contrast layer being of the nature of a so-called shadow pattern, and the exposed material is developed and, if desired, etched.

3,829,316

METHOD FOR THE PREPARATION OF METALLIC LAYERS ON A SUBSTRATE

Walther Huber, Altenkunstadt, Heinz Hagen, Neubiberg, and Peter Guglhör, Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Erlangen, and Berlin, Germany

Filed Dec. 29, 1971, Ser. No. 213,427

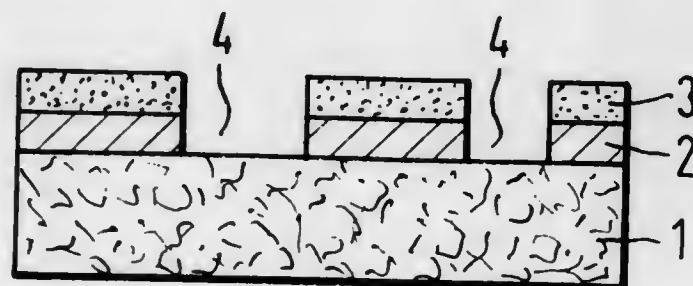
Claims priority, application Germany, Jan. 19, 1971,

P 21 02 421.5

U.S. Cl. 96—36.2

Int. Cl. C23c 3/00

6 Claims



A process for the production of metallic layers on a substrate. Parts of the masking layer and the not needed metallic layer are simultaneously removed. The process is particularly suitable for preparing electrical circuits on ceramic substrates.

3,829,317

PHYSICAL DEVELOPMENT PROCESS UTILIZING VISCOUS SENSITIZING METAL SOLUTION

Laura K. Case, Winchester, Mass., assignor to Itek Corporation, Lexington, Mass.

No Drawing. Continuation of abandoned application Ser. No. 812,378, Apr. 1, 1969. This application Aug. 3, 1972, Ser. No. 277,703

Int. Cl. G03c 5/24, 5/32

U.S. Cl. 96—48 PD

19 Claims

A new process is described for producing improved metal images in photo-exposed media comprising a photoconductor as the photosensitive component including the step of contacting the medium with a viscous reagent comprising a sensitizing metal ion, e.g. silver ion.

3,829,318

PHOTOPROCESSING STABILIZER SOLUTIONS

Irving J. Magin, Henrietta, N.Y., assignor to Itek Corporation, Lexington, Mass.

No Drawing. Filed Sept. 25, 1972, Ser. No. 291,873

Int. Cl. G03c 1/06, 5/38

U.S. Cl. 96—61 R

11 Claims

An improved stabilizer composition for use in the rapid processing of a light sensitive silver halide emulsion is disclosed. A typical composition comprises 150–350 grams ammonium thiocyanate, 0.1–1.0 grams 1-phenyl-4,2-tetrazoline-5-thione, and 25–150 grams monobasic potassium phosphate and water to one liter of solution. These compositions are particularly useful for the rapid processing of photographic elements wherein the silver halide emulsion layer contains developing agents therein or contiguous thereto as a separate layer. Prints processed with these compositions have been found to be highly resistant to discoloration, fading and staining on both the emulsion and base sides of the print.

3,829,319

WETTING LIQUID COMPOSITION FOR OFFSET MASTER PLATE

Shigeyoshi Suzuki and Norio Kobayashi, Kyoto, and Kazuo Shimizu, Tokyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

No Drawing. Filed Oct. 6, 1972, Ser. No. 295,698

Claims priority, application Japan, Oct. 8, 1971,

46/79,236

Int. Cl. C09d 5/20; C09k 3/00, 3/18

U.S. Cl. 106—2

4 Claims

The printability of an offset master plate can be markedly improved by using a wetting liquid composition comprising (A) at least one of transparent and water insoluble fine particles having a particle size of not more than 0.1μ such as colloidal silica and alumina, (B) at least one of alkali metal salts such as sulfates, halides and nitrates of K and Na, (C) at least one of low molecular polyhydric alcohols and polyalkylene oxides having a molecular weight of not more than 1000 such as polyethylene glycol, propylene glycol, diethylene glycol and hexylene glycol and (D) at least one of weak organic acids such as citric acid, succinic acid, tartaric acid, adipic acid, ascorbic acid and propionic acid. Said composition preferably has a pH value of about 4.0–5.6.

3,829,320

HARDENING OF REFRACTORY/SODIUM SILICATE MIXTURES

Roger Philip Stanbridge, Cleveland, Ohio, assignor to Fosco International Limited, Birmingham, England

No Drawing. Filed July 7, 1972, Ser. No. 269,863

Claims priority, application Great Britain, July 9, 1971,

32,392/71

Int. Cl. C04b 35/16

U.S. Cl. 106—84

8 Claims

Sand/sodium silicate and analogous mixtures are hardened by a mixture of ethylene glycol monoacetate (EGMA) and ethylene glycol diacetate (EGDA) in which the weight ratio of EGMA to EGDA is 1:1 to 1:9.

3,829,321

STABLE ASPHALT-POLYOLEFIN EMULSIONS

Gene N. Woodruff, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Apr. 3, 1972, Ser. No. 240,793

Int. Cl. C08h 13/08; C08k 1/62

U.S. Cl. 106—277

2 Claims

Stable oil-in-water emulsions containing asphalt and a polyolefin are prepared using acidified kaolin clays, which emulsions after curing result in flexible products useful as roofing cement, pond liners, sealants, and the like. If desired, the emulsions can also comprise N,N-dimethyl-sulfonyl dithiocarbamates which are effective as rodent repellents.

3,829,322

PRESSURE-SENSITIVE PHTHALIDE COMPOUND COPYING SHEET

Minoru Ozutsumi, Yoshihide Miyazawa, and Katsulchi Motohashi, Tokyo, and Masataka Kiritani, Shizuoka, Japan, assignors to Hodogaya Chemical Co., Ltd., Tokyo, and Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Dec. 23, 1971, Ser. No. 211,757

Claims priority, application Japan, Dec. 28, 1970,

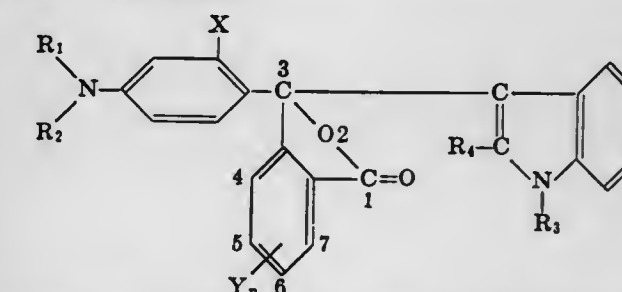
46/119,950

Int. Cl. B41m 5/22

U.S. Cl. 117—36.8

5 Claims

A pressure-sensitive copying sheet comprising an adsorbent solid acid and a microencapsulated color former capable of forming a distinct color when reacted with said adsorbent solid acid coated on the same or different surface of support or supports, said microcapsules containing an organic solvent having dissolved therein as a color former at least one phthalide compound represented by the following formula:



wherein R₁, R₂, R₃, R₄, X, Y and n are described hereinafter, is disclosed.

3,829,323

NOVEL PRINTING AND COATING SYSTEM

John N. Kirch, Cincinnati, Ohio, assignor to

Borden, Inc., Columbus, Ohio

No Drawing. Filed Dec. 23, 1971, Ser. No. 211,638

Int. Cl. B44d 1/14

U.S. Cl. 117—45

11 Claims

A process for producing decorative coatings. A convertible lacquer based on castor oil is applied over an ethyl cellulose ink or lacquer coating on a suitable substrate to produce a textured or "orange peel" effect. Both the convertible castor oil based lacquer and the ethyl cellulose ink or lacquer coating may be either clear or colored, depending on the desired effect.

3,829,324

BONDING CONDENSATION POLYMERS TO POLYMERIC BASE MATERIALS

Pierre J. J. Blais, David J. Carlsson, and David M. Wiles, Ottawa, Ontario, Canada, assignors to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

No Drawing. Continuation of abandoned application Ser. No. 24,383, Mar. 31, 1970. This application Mar. 8,

1972, Ser. No. 232,921

Int. Cl. B44d 1/092; C23c 11/00

U.S. Cl. 117—47 A

12 Claims

Polymeric substrates are provided with coatings of condensation polymers which provide a wide variety of im-

proved physical, chemical and mechanical properties by first exposing the substrate to an electrical discharge and subsequently applying to the treated substrate the monomeric precursor or precursors of a condensation polymer. Polymerization of the precursors takes place rapidly to produce a strongly adherent coating of the condensation polymer. Polymeric substrates which are particularly useful are polyolefins, polyesters, polyvinyl or polyvinylidene compounds and cellulose and its derivatives and these can usefully be coated with condensation polymers, even those with which they are normally incompatible.

3,829,325

CAST COATING WITH IMPROVED SPEED AND QUALITY

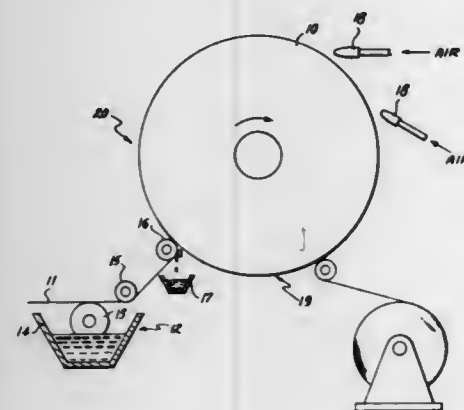
Paul O. Hain, Hamilton, Ohio, assignor to Champlon International Corporation

Filed Feb. 23, 1972, Ser. No. 228,588

Int. Cl. B44d 1/44; D21h 1/22

U.S. Cl. 117—64 C

13 Claims



Cast coating is carried out upon a paper substrate having a surface of improved levelness and uniformity and preferably surfaced with a water insoluble coating which is desirably finished to maximize flatness and gloss, in order to substantially increase cast coating speed, decrease cast coating consumption and, in many circumstances, improve cast coat quality.

3,829,326

GLASSLINED PRODUCT AND A PROCESS FOR GLASSLINING

Shigeo Soejima and Akira Ohmura, Nagoya, and Kolchiro Watanabe, Tokorozawa, Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

No Drawing. Filed Oct. 13, 1972, Ser. No. 297,348

Claims priority, application Japan, Jan. 27, 1972, 47/9,429

Int. Cl. C23d 5/02

U.S. Cl. 117—70 B

6 Claims

A corrosion-resisting and thermal-shock-resisting article having an iron substrate with a multi-layered glass-lining, which includes a ground coat formed on the substrate and a cover coat formed on the ground coat, the cover coat having alternately disposed first enamel coat with a porosity of 5% to 13% and second enamel coat with a porosity of not greater than 4.5%. The first enamel coat contains 0.5% to 10% by weight of refractory ingredients having a particle size of not greater than 150 micron and consisting of silica, alumina, zirconia, titania, and/or mullite. The article is made by applying the ground coat by firing, overlaying one layer of cover enamel slip

and one layer of cover coat frit on the ground coat, firing the layers at a temperature of 800° C. to 850° C., and repeating the overlaying and the firing of the layers of the cover enamel slip and the cover coat frit.

3,829,327

CARBON PAPER

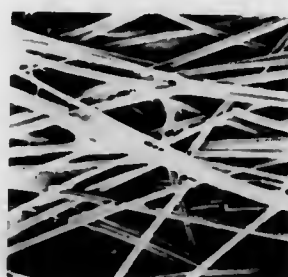
Thomas T. Omori, Glendale, and Hiroshi Imaoka, Gardena, Calif., assignors to Kreh Corporation of America, Gardena, Calif.

Filed July 3, 1972, Ser. No. 268,600

Int. Cl. C01b 31/04; H01m 13/02

U.S. Cl. 117—226

12 Claims



An electrically conductive, chemically inert, porous, structurally coherent web of carbon fibres which has a carbon coating thereon. The carbon coatings on the respective carbon fibres are intergrown with one another at those locations where the coated fibres contact one another. At least about fifty percent of the volume in the web is void of coated fibres.

3,829,328

METHOD FOR CLEANING RESILIENT WEBS

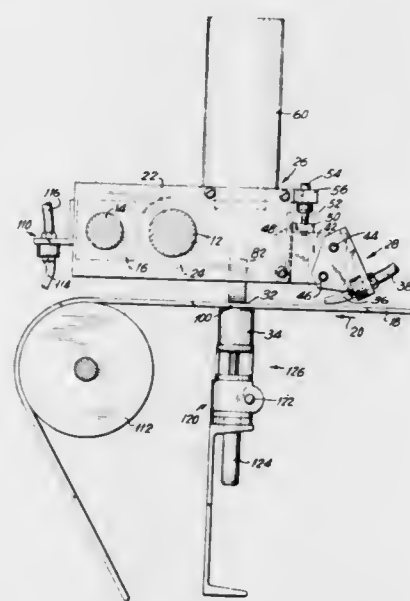
Stanley Blustain, Brooklyn, N.Y., assignor to Stam Instruments Corp., Brooklyn, N.Y.

Original application July 13, 1970, Ser. No. 54,172, now Patent No. 3,688,527, dated Aug. 29, 1972. Divided and this application June 13, 1972, Ser. No. 262,408

Int. Cl. B08b 7/00; D21f 1/32

U.S. Cl. 134—1

10 Claims



A method and apparatus for cleaning mechanically bonded contaminants from a resilient web in a fluid me-

dium wherein longitudinal vibrations of large displacement amplitude are radiated from the output radiator of a generator means to produce periodic perturbations of large displacement amplitude in the fluid medium. Said output radiator is positioned adjacent said web and reflecting means is disposable in facing relation with said output radiator, with said web therebetween, for reflecting said vibrations back into said fluid medium, said reflecting means and output radiator being spaced a distance apart such that the reflected vibrations are substantially in phase with the vibrations radiated into said fluid medium by said generating means output radiator.

3,829,329

METHOD OF CLEANING A SOFT HYDROPHILIC CONTACT LENS

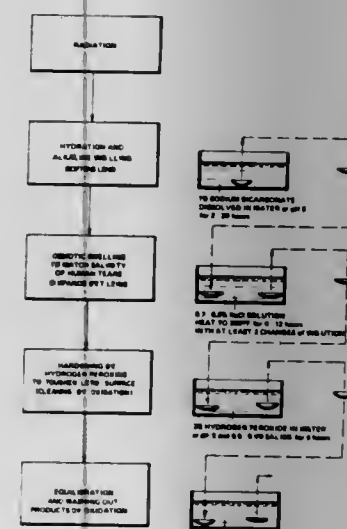
Kenneth F. O'Driscoll, Williamsville, and Allan A. Isen, Buffalo, N.Y., assignors to Warner-Lambert Company, Morris Plains, N.J.

Original application Nov. 30, 1969, Ser. No. 880,828, now Patent No. 3,700,761. Divided and this application Aug. 25, 1972, Ser. No. 283,777

Int. Cl. G02c 13/00

U.S. Cl. 134—26

7 Claims



Graft or block copolymers of hydroxy alkyl methacrylate esters and polyvinyl pyrrolidone are (1) cast in a shaping mold as a monomer-polymer dispersion, polymerized to a solid at 40–60° C. in the presence of low and medium temperature free radical initiators, (2) the solid taken out of the mold and heated to 90–120° C., and then post-polymerized by (3) radiation while dry and by (4) hydrogen peroxide treatment to form hygroscopic, solid, shaped masses which may be cut in the dry state, after step (2), into contact lenses. The lenses may be equilibrated in the wet state by hydrating with normal saline solution. The lenses may be cleaned by treatment with hydrogen peroxide. Steps (3) and (4) toughen the lens, increase its elasticity and its elastic recovery and improve its dimensional stability. From 20–45% by weight of polyvinyl pyrrolidone imparts hygroscopic and unusual water-swelling characteristics. The water-swollen lens contains from 40–80% water, preferably from 50–55%, and in isotonic saline, the water content changes to about 52–58%. As a result of the polyvinyl pyrrolidone incorporation, the lens is readily cleaned after use in the eye with dilute hydrogen peroxide to rid it of imbibed muco-protein, catalase and the like.

3,829,330 HIGH RATE Li/MoO₃ ORGANIC ELECTROLYTE CELL

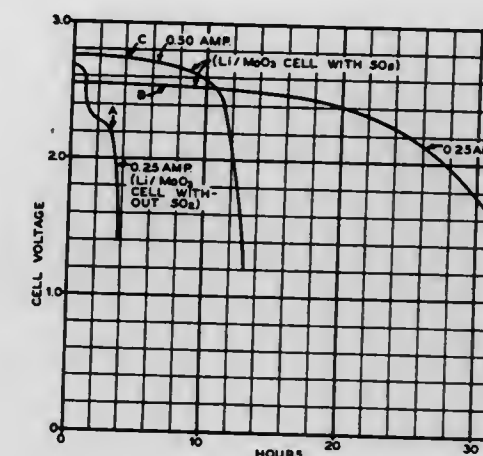
Arabinda Narayan Dey, Needham, Mass., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Continuation of application Ser. No. 853,312, Aug. 27, 1969, now Patent No. 3,808,052. This application Aug. 11, 1971, Ser. No. 170,710

Int. Cl. H01m 35/02

U.S. Cl. 136—6 LN

9 Claims



A further improvement in the performance of Li/MoO₃ in terms of the rate capability and the energy density, by the addition of SO₂ in the electrolyte.

3,829,331

SODIUM BORATE GLASS COMPOSITIONS AND BATTERIES CONTAINING SAME

Floris Y. Tsang, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Dec. 30, 1971, Ser. No. 214,453

Int. Cl. H01m 3/00; C03c 3/00, 13/00

U.S. Cl. 136—146

5 Claims

An amorphous glass system based on sodium borate, which may also contain additives to modify viscosity, expansion coefficient, and the like, has found particular utility as the membrane material in alkali metal-sulfur batteries due to its inertness towards sodium, sulfur and sodium sulfide, as well as its excellent ability to conduct sodium ions.

3,829,332

WATERPROOF BATTERY CASE

Toru Iizuka and Katsuo Tonooka, Ashikaga, Torahiko Saitoh, Tokyo, and Isao Yasuda, Ashikaga, Japan, assignors to Kohkoku Chemical Industry Co., Ltd., Tokyo, Japan

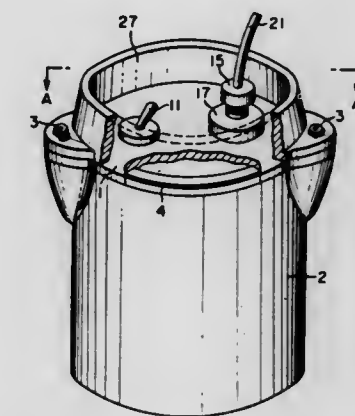
Filed June 20, 1972, Ser. No. 264,437

Claims priority, application Japan, July 6, 1971, 46/58,868

Int. Cl. H01m 1/06

U.S. Cl. 136—173

4 Claims



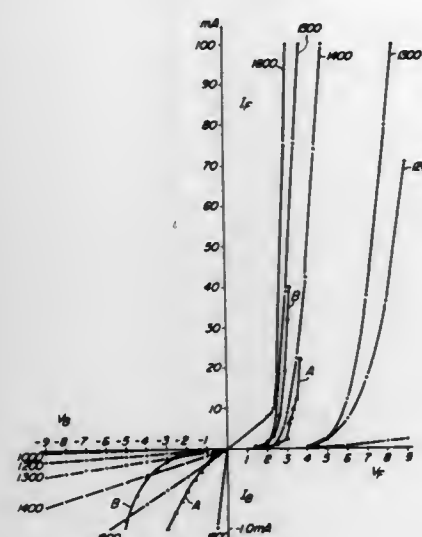
A waterproof battery case, comprising a waterproof switch part and a waterproof cord connector part.

3,829,333 METHOD FOR DIFFUSING AN IMPURITY SUBSTANCE INTO SILICON CARBIDE

Atsutomo Tohi, Hirakata, Kunio Sakai, Kadoma, Masakazu Fukai, Osaka, and Yoshinobu Tsujimoto, Kashiwara, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan
Original application Sept. 6, 1968, Ser. No. 758,058, now Patent No. 3,629,011. Divided and this application July 19, 1971, Ser. No. 164,128
Claims priority, application Japan, Sept. 11, 1967, 42/58,877, 42/58,905
Int. Cl. H011 7/54

U.S. Cl. 148—1.5

2 Claims



Impurity ions are accelerated under an irradiation condition of ordinary temperature or relatively low temperature and injected into silicon carbide from its surface.

The injected silicon carbide is annealed in a temperature range from 1600° to 1200° C. to obtain a P-N-junction and a luminescent diode based on the p-n-junction is thereby prepared.

3,829,334 METHOD OF MANUFACTURE OF A SUPER- CONDUCTING MATERIAL

Nikolai Alexandrovich Vitovsky, ulitsa Babushkina 53, kv. 67; Georgy Alexandrovich Vikhly, ulitsa Yakovskaya 8; Tatyana Vadimovna Mashovets, prospekt Morisa Toresa 9; and Solomon Meerovich Ryvkin, Olginszaya ulitsa 9, kv. 9, all of Leningrad, U.S.S.R. No Drawing. Filed July 24, 1972, Ser. No. 274,294
Claims priority, application U.S.S.R., July 23, 1971, 1679307
Int. Cl. C22f 1/00

U.S. Cl. 148—125

3 Claims

A method of manufacturing a superconducting material from a semiconducting material, such as InSb consisting in that the semiconducting material is first cooled to a temperature which is not higher than 200° K., then microscopic spots on the surface of the semiconducting material are subjected to pressures which are higher than the critical pressure for the semiconductor-metal structural phase transition; these pressures are then relieved.

3,829,335 METHOD FOR PROCESSING SEMICONDUCTOR WAFERS

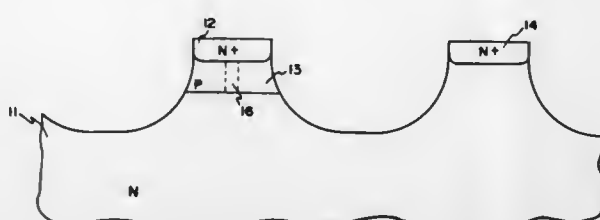
David F. Allison, Los Altos, and John E. Schweizer, Jr., San Jose, Calif., assignors to Scientific Micro Systems, Inc., Sunnyvale, Calif.
Filed Oct. 20, 1972, Ser. No. 299,606
Int. Cl. H011 7/44

U.S. Cl. 148—189

7 Claims

A method for processing semiconductor wafers in which emitter-collector shorts are avoided in transistors formed

in the semiconductor wafer. Investigation of emitter-collector shorts in semiconductor wafers has demonstrated by use of special etch techniques that emitter collector shorts are caused by dislocations in the crystal lattice of the semiconductor wafer. The dislocations are introduced into the semiconductor wafer during the various processing steps requiring the semiconductor wafer to be maintained at an elevated temperature. The dislocations and hence emitter-collector shorts are avoided by a method in which a semi-



conductor wafer is placed into a furnace at a temperature which is less than that which causes dislocations and then the furnace and hence the semiconductor wafer is heated up with the temperature rising at a rate below that which would introduce thermal stress and cause dislocations. After a desired operating temperature is reached a desired operation is performed on the semiconductor wafer and then the entire semiconductor wafer is cooled at a rate similar to that by which the temperature was previously raised.

3,829,336
PROPELLANTS PLASTICIZED WITH HIGH
ENERGY COMPOUNDS AND HAVING
HIGH ENERGY POLYMERS AS BINDER
Raymond M. Price, Applegate, Calif., assignor to the
United States of America as represented by the Secretary of the Army
No Drawing. Filed Oct. 23, 1969, Ser. No. 869,454
Int. Cl. C06d 5/06

U.S. Cl. 149—19.3

4 Claims

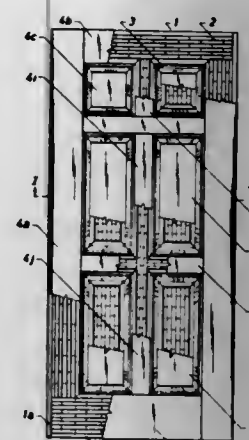
High energy copolymers or terpolymers that have high NF₂ content. The polymers are used in solid propellant compositions and are made by incorporation of small quantities of non-energetic monomer molecules with basic side chain ester groups into energetic difluoromino polymers by copolymerization techniques which increase the affinity of the polymers for acidic difluoromino plasticizers [e.g., TVOPA, 1,2,3-tris(1,2-bis-(difluoromino)ethoxy) propane or OPE, 1,2-bis(2,2,3-tris(difluoromino)propoxy)-1,2-bis(difluoroamino)ethane]. Higher plasticizer to polymer ratios result in a higher difluoromino content in the binder system and a correspondent higher energy propellant wherein used. Representative of the non-energetic monomer molecules (also referred to as inert nonfunctional material), are methyl acrylate and methyl methacrylate which are paired in a reaction with a selected energetic difluoromino material such as 2,3-bis(difluoromino)propyl acrylate (NFPA), 2,3-bis(difluoromino)propyl methacrylate (NFPMA), or the like to yield a copolymer. A ternary copolymer is produced when a functional monomer selected from hydroxyethyl acrylate, hydroxyethyl methacrylate, hydroxypropyl methacrylate, or hydroxypropyl acrylate, is employed along with the paired reactants of the reaction. The resulting ternary copolymer is a prepolymer capable of being cured to form polyurethane polymers. Further, a ternary copolymer having different functionality results when a functional monomer selected from glycidyl methacrylate, glycidyl acrylate, acrylic acid, or methacrylic acid is employed in a reaction with the paired reactants specified above. This type ternary copolymer is capable of being cured to epoxy polymers.

3,829,337 JOINTLESS CONSTRUCTION METHOD OF THE WOODEN PRODUCTS

Paul P. L. Cheng, Taipei, Taiwan, assignor to Fu Shing Mfg. & Lumber Co., Ltd., Taipei, Taiwan
Filed Nov. 12, 1971, Ser. No. 198,172
Int. Cl. B32b 31/04

U.S. Cl. 156—63

7 Claims

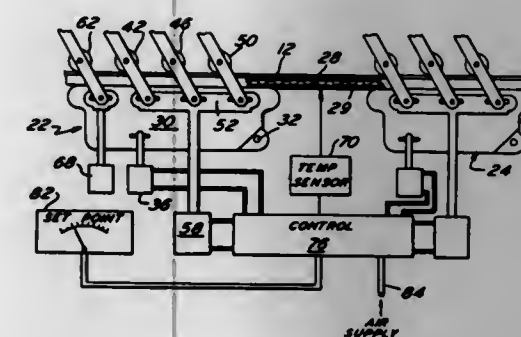


A jointless construction method for fabricating wood products, such as doors, windows and panels, in which exposed portions are made by gluing together a number of pre-sized plywood pieces or thin boards in combination with wood mouldings, strips and/or carvings so as to obtain panels in a large variety of patterns and also capable of inserting glass, louver blinds, or other attachments, and the inner hidden empty spaces being either densely filled (solid core) or sparsely filled (hollow core) with low grade lumber, plywoods, chipboards, etc., which are glued mutually to the exposed members and overlapped at their connections to secure rigidity and durability and to form a compact unit.

3,829,338
DOUBLE FACER MACHINE HEAT CONTROL
Nisiki Hayasi, Cherry Hill, and Walter C. Morrison, Vincentown, N.J., assignors to Harris-Intertype Corporation, Cleveland, Ohio
Filed June 14, 1972, Ser. No. 262,858
Int. Cl. B32b 31/26; B31f 31/26

U.S. Cl. 156—64

7 Claims



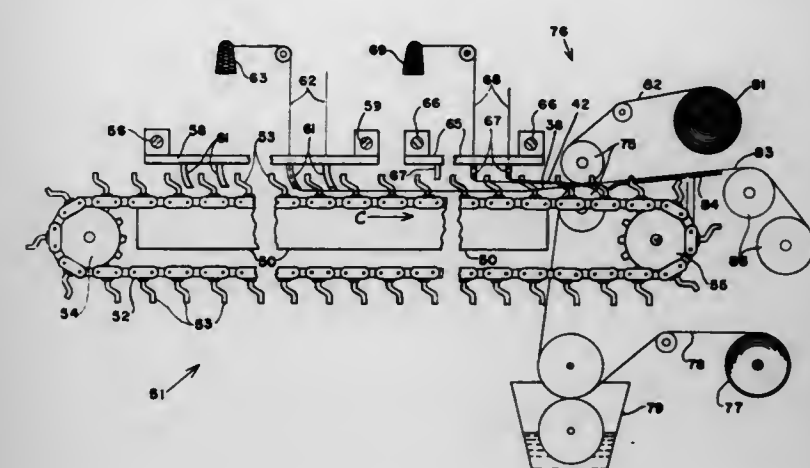
The temperature of the liner on double-face paperboard is measured after said paperboard has been heated in the double facer machine, without physically touching the liner with a calibrated sensor. The temperature signal is converted to a signal which is fed to a comparator to effect a variation of heat transfer from the heat source at the double facer machine when the measured temperature deviates from a selected normal range.

3,829,339 METHOD AND APPARATUS FOR FORMING FINE MESH NONWOVEN WEB

Laurier A. Pinette, Brunswick, Maine, assignor of a fractional part interest to Herbert Ismann, Wiscasset, Maine
Filed Oct. 5, 1972, Ser. No. 295,122
Int. Cl. B32b 5/00, 29/02

U.S. Cl. 156—179

22 Claims

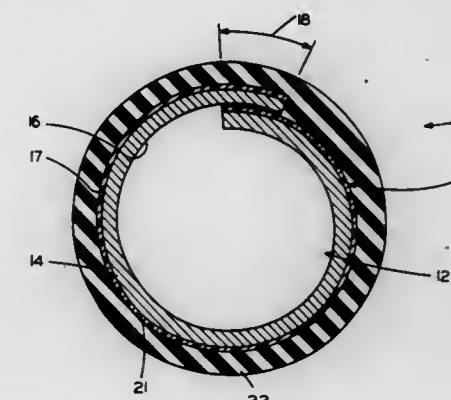


Disclosed is a method and apparatus for producing a nonwoven web comprising two parallel conveyors each of which supports a set of mounting pins wherein each pin is bent to form vertically and horizontally displaced upper and lower yarn retaining portions. A first reciprocating yarn applicator shuttle with a plurality of nozzles loops individual yarn strands around the lower yarn retaining portions to form a web. A second shuttle likewise forms a vertically and horizontally displaced web around the upper yarn retaining portions. The nozzles on the first shuttle are bent to facilitate passage thereof between the upstanding pins and the two webs are laminated to form a single web of a finer mesh.

3,829,340
METHODS OF MAKING A TUBULAR MEMBER
HAVING A SEALED LONGITUDINAL SEAM
Matthew R. Dembiak, Clifton, N.J., and George H. Webster, Timonium, Md.; said Dembiak assignor to Western Electric Company, Incorporated, New York, N.Y., and said Webster assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Application Mar. 17, 1971, Ser. No. 125,362, now Patent No. 3,703,605, which is a continuation of abandoned application Ser. No. 809,589, Mar. 24, 1969. Divided and this application Aug. 2, 1972, Ser. No. 277,188
Int. Cl. B29d 23/10

U.S. Cl. 156—201

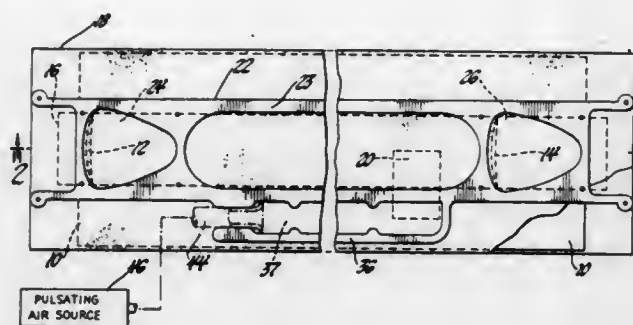
10 Claims



Successive portions of an aluminum tape having one major surface thereof coated with an adhesive copolymer across the entire transverse width thereof and the other

major surface precoated with a stripe of adhesive material along an edge portion are folded longitudinally as the successive sections of the tape are being advanced along a predetermined path to form an overlapped seam so that the adhesive copolymer on an edge portion of the one major surface of the tape overlaps the stripe. Subsequently, the adhesive materials on the major surfaces along the overlapped seam develop an adhesive bond by the application of heat and pressure prior to or during the extrusion of a plastic jacket over the tape. The adhesive material on the other, now inwardly facing, major surface is substantially restricted in location and is adhesively bonded to the portion of the inwardly facing major surface of the tape which forms the overlapped seam with a portion of the one, now outwardly facing, major surface. The remaining portion of the inwardly facing major surface of the aluminum tape is bare and the resulting tubular member may be used in a variety of ways.

ber, inlet and outlet passages and check valve flaps in the passages. The valve flaps are formed from the flexible sheets by slitting in appropriate places or are provided



by separate flexible sheets. The several sheets are laminated by applying heat and pressure in a predetermined pattern to provide the essential pump elements. The pumping air chamber may be omitted.

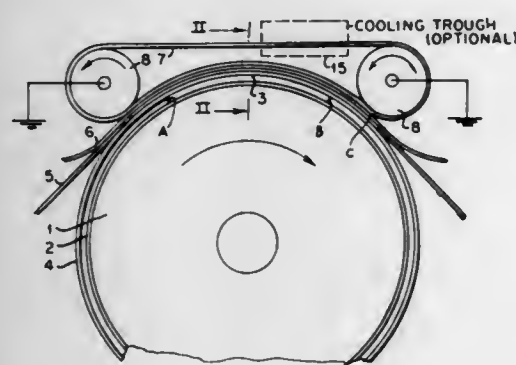
3,829,341 DIELECTRIC SEALING APPARATUS

Milton Rothstein, East Williston, Martin Kaplan, Ocean-side, and Lloyd Barton, Hauppauge, N.Y., assignors to Solidyne, Inc., Brooklyn, N.Y.

Filed Oct. 13, 1972, Ser. No. 297,305
Int. Cl. B29c 19/02

U.S. Cl. 156—380

40 Claims



A dielectric heat sealing apparatus includes a rotatable drum and a drum buffer spaced from, and at least partially axially overlaying the circumference of said drum, the buffer being attached to the drum to rotate therewith. The buffer and drum surface are preferably made of slippery, insulating materials, such as polytetrafluoroethylene-impregnated fibreglass. A metallic electrode is interposed in the space between the drum buffer and the drum surface, and a movable metallic belt is pressed against the drum buffer over a predetermined portion thereof to press a workpiece which is to be sealed between the metallic belt and the drum buffer. Upon application of radio frequency voltage between the belt and metallic electrode, the workpieces are dielectrically heated to seal same.

3,829,342 LAMINATED LIQUID PUMP AND METHOD OF MAKING SAME

Bert C. Prisk, Grosse Pointe Woods, Mich., assignor to General Motors Corporation, Detroit, Mich.
Original application May 18, 1970, Ser. No. 38,353, now Patent No. 3,689,204. Divided and this application
Feb. 14, 1972, Ser. No. 226,142
Int. Cl. B32b 31/00

U.S. Cl. 156—257

4 Claims

A liquid pump is formed by superposing several sheets of thin flexible material which may be fused together, for example, polyvinyl chloride. The flexible sheets form a displacement chamber, an air pressure operated pump cham-

ber, inlet and outlet passages and check valve flaps in the passages. The valve flaps are formed from the flexible sheets by slitting in appropriate places or are provided by separate flexible sheets. The several sheets are laminated by applying heat and pressure in a predetermined pattern to provide the essential pump elements. The pumping air chamber may be omitted.

3,829,343 PROCESS FOR LAMINATING A FOAM PLASTICS MATERIAL WITH A SHEET-LIKE MATERIAL

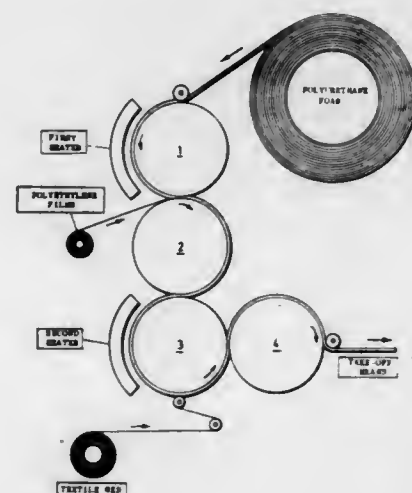
Hans-Jürgen Remmert, Wiesbaden, Germany, assignor to Koepp Aktiengesellschaft, Ostrich, Rheingau, Germany
Filed Feb. 17, 1972, Ser. No. 227,110

Claims priority, application Austria, Feb. 19, 1971, A 1,444/71

Int. Cl. C09j 5/00

U.S. Cl. 156—322

11 Claims

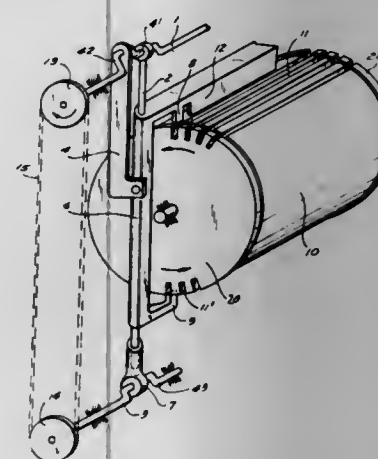


3,829,344 MACHINE FOR PRODUCING NONWOVEN FLOOR COVERINGS

Stoyan Iliev Julev, Mihail Yordanov Milkov, Lyubomir Petrov Dachev, Rosen Petrov Vasilev, Vasil Alexandrov Kostov, and Jacky Sivcho Aroyo, Sofia, Bulgaria, assignors to DSO "Textil," Sofia, Bulgaria
Filed Mar. 2, 1973, Ser. No. 337,694
Int. Cl. D04h 11/08; B31f 1/20

U.S. Cl. 156—435

19 Claims



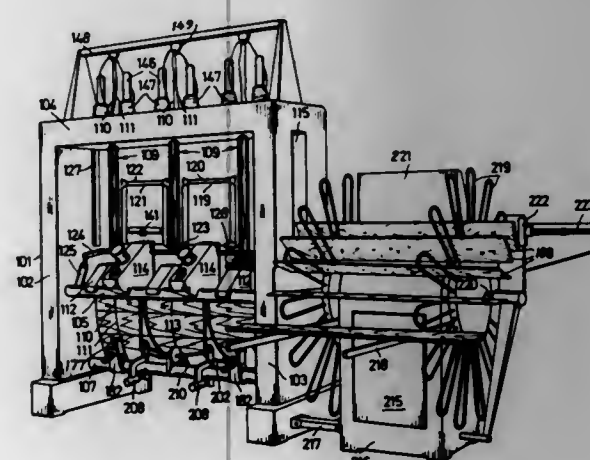
A machine for making nonwoven floor coverings. A felt layer is rammed into grooves, formed in a drum, by a "flying" ramming tool moving to follow each groove, the ramming tool being driven by crank mechanism, the guide of this mechanism being a connecting rod hinged parallelogram. The drum is continuously turned over by two opposite cogs rigidly connected with the ramming tool by a frame which moves therewith. The felt with the folds on the drum is adhered by a binding substance, which is cured or dried on the drum surface.

3,829,345 PROCESS AND APPARATUS FOR POSITIONING SHEETS

Gerhard Ortel, Rietberg, Westfalen, Germany, assignor to Heinrich Kuper, Rietberg, Westfalen, Germany
Continuation-in-part of application Ser. No. 800,757, Feb. 18, 1969, now Patent No. 3,686,057. This application
May 3, 1972, Ser. No. 249,893
Claims priority, application Germany, Feb. 21, 1968, P 16 28 989.7; Austria, Aug. 20, 1968, A 8,104/68
Int. Cl. B32b 5/12

U.S. Cl. 156—393

17 Claims



Apparatus for constructing an extended sheet from strips of material, comprising a supply of the strips, a rotating spider extracting strips one by one from the supply, a ram inserting the strips sequentially and endwise into a part of the apparatus which locates them edge-wise together, and a supply of threads one of a pair of

which engages alternate (front and back) sides of successive strips under control of a reversing (weaving) mechanism, the threads carrying thermoplastic adhesive, and heaters which press the threads on to the strips and cause them to be adhered in place.

3,829,346 TAPE APPLICATOR

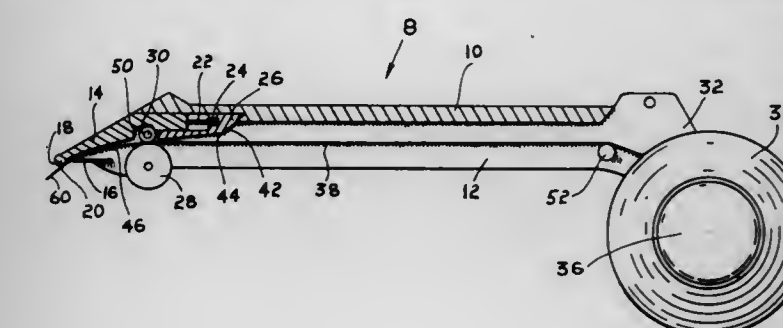
Donald E. Sullivan, 1493 Fahlander Drive S., Columbus, Ohio 43229

Filed Dec. 12, 1972, Ser. No. 314,425

Int. Cl. B65c 11/00

U.S. Cl. 156—527

9 Claims



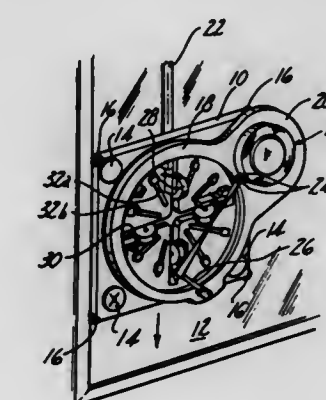
A tape dispensing, applying and cutting device formed with a U-shaped channel body, a tape supply roll at its rearward end for supplying tape longitudinally through the channel and a reciprocatingly mounted forward tip member with a burnishing surface which is movable against a cutting blade mounted rearwardly of the burnishing surface and extending forwardly for severing interposed tape. A manually drivable, knurled, advancing roller and a radially adjacent resilient idle roll permit precise, manual, tape advance. The tape is easily cut at the burnishing surface by tilting the device to a substantially vertical orientation and depressing it downwardly against the graphic workpiece thereby sliding the burnishing surface against the cutter blade and severing the interposed tape.

3,829,347 INSTRUMENT FOR APPLYING TAPE TO A PLANAR SURFACE

Richard P. Honea, Flint, Mich.
(4416 Wheatland Drive, Swartz Creek, Mich. 48473)
Filed Feb. 14, 1973, Ser. No. 332,358
Int. Cl. B44c 7/00; E04d 15/00

U.S. Cl. 156—577

12 Claims



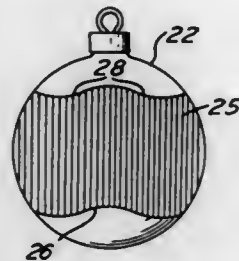
A plate is movable in registration with a guide edge and carries a tape roll. The tape is applied to a planar surface through a slotted portion of the plate in a uniformly spaced pattern relative to the guide edges. Included is a device for making right-angle turns, such as in the case of window frames, in which the tape is of the electrically conductive type and forms a part of an electrical alarm system actuable responsive to breaking of the

window and the tape. The device for making the right-angle turns includes a pair of slidable knife-edge members, each movable into a successive engagement with the tape to make a pair of bends, thus providing a composite 90° turn.

3,829,348

DECORATIVE THREE-DIMENSIONAL OBJECTS
Jacob Spiegel, Philadelphia, Pa., and Albert R. Miller, Somerdale, N.J.; said Miller assignor to Gilbreth Company, Philadelphia, Pa.

Filed Apr. 7, 1972, Ser. No. 242,050
Int. Cl. A47g 33/08, 33/16; B29c 27/00
U.S. Cl. 161—16 5 Claims



A method of decorating objects rapidly is provided. A band of heat-shrinkable plastic is provided with a decorative pattern and is placed on the object. Heat is applied to the band causing it to shrink and conform to the shape of the object being decorated.

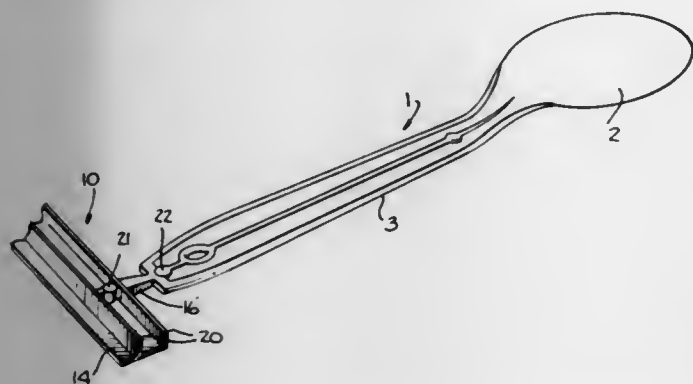
3,829,349

COLLAPSIBLE ARTIFICIAL TREE
Terry Hermanson, New York, N.Y., assignor to Mr. Christmas, Incorporated, New York, N.Y.
Filed July 17, 1973, Ser. No. 379,969
Int. Cl. A47g 33/06

U.S. Cl. 161—24 8 Claims
A collapsible artificial tree arrangement particularly adapted for Christmas decoration in which simulated branches are freely foldable substantially parallel to the trunk thereof in one direction for storage and freely pivotable to an erected condition for display. The arrangement including an elongated trunk core and a plurality of sectional trunk portions disposed therearound with some of said trunk portions having branch holding sockets and other of said trunk portions serving as spacing members.

3,829,350

ASSEMBLY BLANK FOR PLASTIC UTENSILS
Samuel R. Davis, Jr., and Harry A. Watson, Federalsburg, Md., assignors to Ipc Hospital Supply Corporation, Valhalla, N.Y.
Filed Aug. 11, 1972, Ser. No. 280,045
Int. Cl. B35b 1/04; B65d 79/00, 83/00
U.S. Cl. 161—41 6 Claims

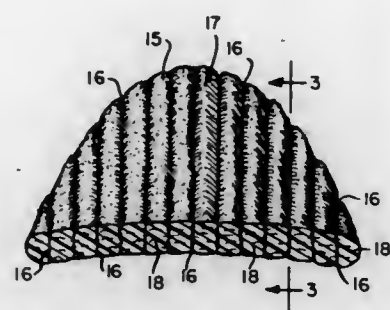


The present invention is directed to an assembly blank for plastic articles such as spoons, forks, etc., in which a plurality of utensils are molded on a frame with the

handles in opposite relation to each other and wherein the frame has reinforcing means to permit the utensils to be easily severed therefrom.

3,829,351

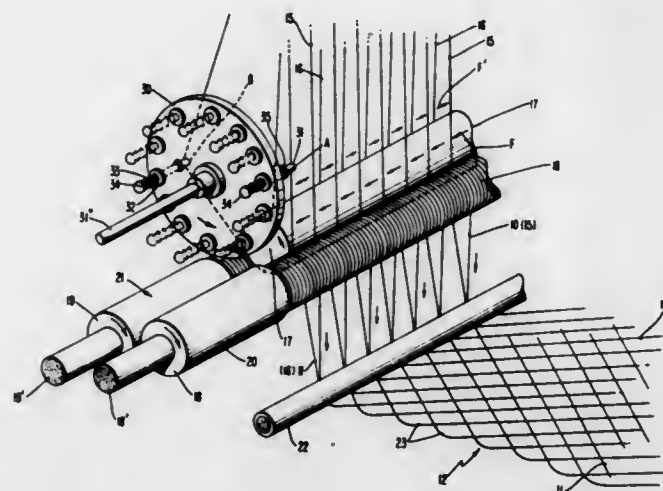
STIFFENING MATERIAL FOR SHOE PARTS
Addison W. Closson, Cambridge, and Harry L. Beckwith, Dedham, Mass., assignors to Beckwith Corporation, Wakefield, Mass.
Filed Sept. 28, 1972, Ser. No. 293,078
Int. Cl. A43c 13/14; D/04h 5/02
U.S. Cl. 161—50 12 Claims



This invention provides a stiffening material for shoe parts comprising a non-woven fabric impregnated with a resin. The fabric comprising a self-sustaining batt of non-woven fibers extending generally in the widthwise direction of the fabric and a plurality of rows of yarn stitches extending generally in the lengthwise direction of the fabric. The rows are spaced apart a distance less than the average length of said fibers.

3,829,352

ARMORED FLAT GLASS AND METHOD OF MAKING IT
Jakob Hermanns, Stolberg, Germany, assignor to Saint-Gobain Industries, Neuilly-sur-Seine, France
Filed Aug. 2, 1971, Ser. No. 168,016
Claims priority, application France, Aug. 4, 1970, 7028666
Int. Cl. B32b 5/12
U.S. Cl. 161—57 14 Claims



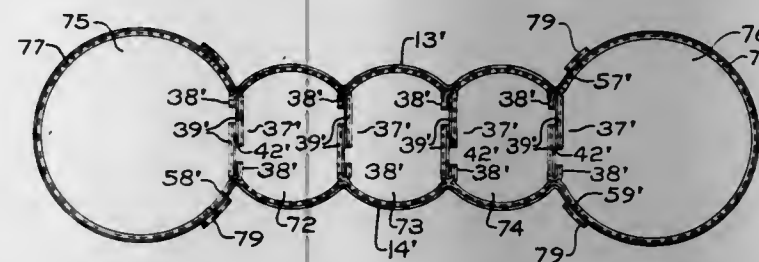
Armored flat glass is made by simultaneously forming a continuous ribbon of glass and weaving the armor into it.

3,829,353

METHOD OF MAKING INFLATABLE ASSEMBLY WITH BULKHEADS AND RESULTING ARTICLE
John M. Fisher, 622 Sackett Ave., Cuyahoga Falls, Ohio 44221
Filed Mar. 21, 1973, Ser. No. 343,442
Int. Cl. A62b 1/20; A47c 27/08; D03d 11/02
U.S. Cl. 161—92 9 Claims

An inflatable assembly made from structural members of two-ply woven fabric coated on the outside with seal-

ing material and having spaced apart interwoven connections. One ply is cut close to the interwoven connections to provide narrow flaps and at a distance from the interwoven connections to provide wide flaps. The narrow flaps are adhered to the wide flaps to prevent pulling out of



the cut portions of the plies at the interwoven connections. Two or more structural members are assembled into an inflatable assembly by adhering together the ends of the wide flaps of overlapping structural members to form bulkheads in the assembly.

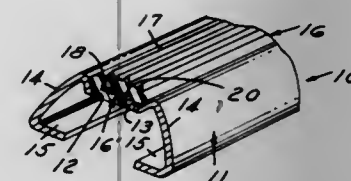
3,829,354

HYDROGEN SULFIDE-MODIFIED EPOXY RESINS AND FLEXIBLE LAMINATES THEREFROM
James L. Bertram, Lake Jackson, Ross C. Whiteside, Jr., Angleton, and Preston H. Franke, Jr., Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of abandoned application Ser. No. 185,893, Oct. 1, 1971. This application Feb. 23, 1973, Ser. No. 335,379
Int. Cl. C08g 45/06; B32b 27/38; B32b 27/04
U.S. Cl. 161—88 6 Claims

Mixtures of the diglycidyl ethers of a bisphenol such as bisphenol A and a diglycidyl ether of an aliphatic polyhydroxyl containing compound such as the diglycidyl ether of neopentyl glycol are modified with hydrogen sulfide to produce epoxy resins which when cured with an aminated polyglycol are useful in the preparation of flexible laminates.

3,829,355

MECHANICAL ATTACHMENT FOR THERMOPLASTIC MATERIAL TO A BASE SHEET
Ramon J. Ascencio, Dearborn, Mich., assignor to Douglas & Lomason Company, Detroit, Mich.
Filed Mar. 8, 1972, Ser. No. 232,855
Int. Cl. B32b 3/10
U.S. Cl. 161—114 20 Claims

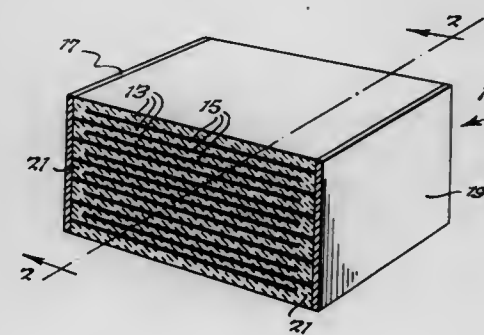


An interlocked composite finish product includes relatively rigid, apertured metallic base member, a finish strip or sheet of an appropriate thermoplastic composition juxtaposed in relation to the base, and one or more heat-conductive interlocking clips or grommet-like inserts of relatively thin gauge stamped sheet metal each of substantially less area than the base and the strip. In preferred forms the interlock or clip element has an indented, depressed or cupped portion received in an aperture of the base member, with a tab or flange formation of the element overlying a margin of the base aperture, thus engaging a side of that member opposite the surface or side engaged by the thermoplastic finish member. The

finish member initially presents a substantially uninterrupted surface engaging flush with the last-named base member side, with the interlock clip or insert element engaging the thermoplastic through the base member's aperture. When said element is heated above the melting point of the thermoplastic material, the latter softens under mild pressure and conducted heat, and extrudes about and/or through said element into a mechanical interlock, when the material has cooled and set, with the base member, in certain instances through the agency of the clip or insert element alone. However, in some contemplated embodiments the element may be removed after thermal displacement and setting of the plastic composition finish material, having served as a form confining the zone of the latter's extrusion.

3,829,356

SINTERED CERAMIC BODIES WITH POROUS PORTIONS
Truman C. Rutt, Niagara Falls, N.Y., assignor to NL Industries, Inc., New York, N.Y.
Original application Apr. 16, 1971, Ser. No. 134,689, now Patent No. 3,679,950. Divided and this application Jan. 24, 1972, Ser. No. 220,536
Int. Cl. B32b 5/18
U.S. Cl. 161—161 9 Claims



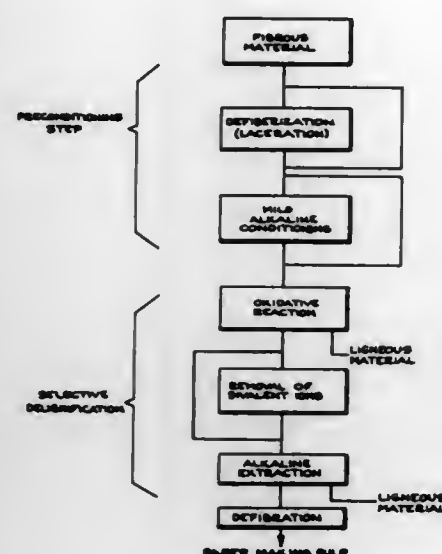
A sintered ceramic article which comprises internal electrodes and/or conductors is formed by producing a sintered ceramic body that has areas of ceramic with interconnected pores extending to an outer face thereof and providing a conductor in said porous areas. The ceramic body may be formed by depositing, as by screen printing, on sheets of a powdered dielectric or insulating ceramic material bonded with a temporary bond, an area of a temporarily bonded powdered ceramic material which on firing becomes porous, consolidating a plurality of such sheets, and sintering them. Subsequently a conductive material may be provided in the porous areas by impregnating said areas with a conductive material or with a material which is reacted or decomposed to form a conductive material in said areas.

3,829,357

OXIDATIVE MANUFACTURE OF PULP WITH CHLORINE DIOXIDE
Norman S. Thompson, Gordon A. Nicholls, and Shu-Tang Han, Appleton, Wis., assignors to The Institute of Paper Chemistry, Appleton, Wis.
Continuation of abandoned application Ser. No. 777,241, Nov. 20, 1968. This application Feb. 26, 1971, Ser. No. 119,383
Int. Cl. D21c 1/02, 3/18
U.S. Cl. 162—23 7 Claims

A process for producing papermaking pulp by first preconditioning the initial wood materials by lacerating the materials at a temperature above the thermal softening point of the lignin therein into fiber bundles, and second delignifying the lacerated material. The delignification includes digesting the materials with an oxidative chemical

such as chlorine dioxide, peracids, ozone, or noble gas oxides, extraction of some of the lignin by alkaline treatment, and optional further defibration via mechanical or chemical treatment. The preferred oxidative chemical is



chlorine dioxide, and the oxidative treatment is terminated when the residual lignin content of the wood material, measured as Klason lignin, is above 50% of the original Klason lignin content.

3,829,358

GROUNDWOOD PULP BLEACHING WITH SODIUM HYDROSULFITE CONTAINING DIGLYCOLATES
Leonard C. Ellis, Chesapeake, and Mearl A. Kise, Portsmouth, Va., assignors to Virginia Chemicals Inc., Portsmouth, Va.

No Drawing. Filed July 11, 1972, Ser. No. 270,690
Int. Cl. D21c 9/10

U.S. Cl. 162—71

4 Claims

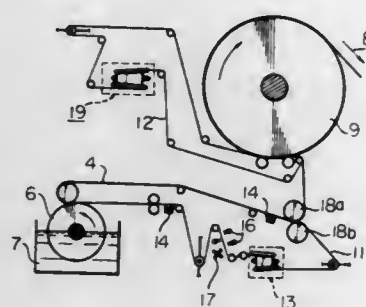
A groundwood pulp slurry is bleached with an aqueous solution of sodium hydrosulfite and a salt of diglycolic acid while maintaining the pH of the slurry between 4.1 and 6.3.

3,829,359

PAPER MAKING MACHINE HAVING ONCE-TWISTED ENDLESS FELTS
Koichi Tsujibayashi, Tokyo, Japan, assignor to Nippon Felt Co., Ltd., Tokyo, Japan
Filed June 28, 1971, Ser. No. 157,199
Claims priority, application Japan, Aug. 31, 1970, 45/75,586, 45/75,587
Int. Cl. D21f 1/32

U.S. Cl. 162—274

2 Claims



A paper making machine having mechanisms for once-twisting endless felts by about 180 degrees using two or more felt twist rolls within a region where the felts are free from contact with a processing paper sheet for an effective mitigation of accumulation of contaminative materials.

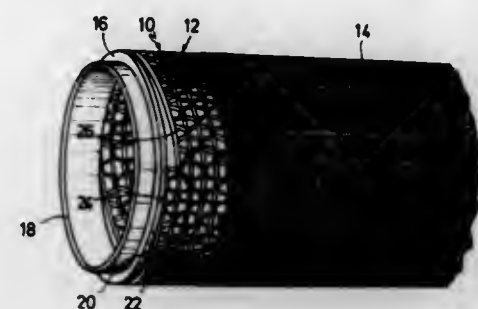
3,829,360
ROLLER HAVING A CYLINDRICAL SURFACE OF FLAT BELTS AND CORRUGATED BELTS

Emil Holz, Eningen, Germany, assignor to Herman Finckh Metalltuch- und Maschinenfabrik, Reutlingen, Württemberg, Germany

Filed Sept. 26, 1972, Ser. No. 292,349
Claims priority, application Germany, Sept. 28, 1971, P 21 48 361.4
Int. Cl. D21f 1/60

U.S. Cl. 162—357

6 Claims



A roller, particularly for use in paper making machines, and providing flow-through openings between the body of the roller and a woven cover enclosing the body. The body is of cylindrical configuration and has peripherally disposed flat belts which are connected together by belts that are corrugated in the peripheral direction. The flow-through openings are provided at the connecting points between the flat and corrugated belts.

3,829,361

METHOD FOR ATTENUATION OF MUMPS VIRUS

Masao Hoshino, Suita, Osaka, and Yuushi Oka, Takarazuka, Hyogo, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Apr. 27, 1972, Ser. No. 248,193
Claims priority, application Japan, Apr. 30, 1971, 46/29,116

U.S. Cl. 195—1.3

8 Claims

Novel and effective attenuated live mumps virus vaccines are produced by subjecting mumps virus to passages in a tissue culture containing primary bovine kidney cells until sufficient attenuation is attained.

3,829,362

PROCESS FOR ENZYMATICALLY ISOMERIZING GLUCOSE TO FRUCTOSE

Robert Otto Horwath, Westport, and Gary William Cole, Southport, Conn., assignors to Standard Brands Incorporated, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 187,506, Oct. 7, 1971. This application July 27, 1973, Ser. No. 383,209

Int. Cl. C12b 1/00

U.S. Cl. 195—31 F

9 Claims

Glucose in a glucose-containing solution is enzymatically isomerized to fructose by the use of glucose isomerase derived from microorganisms of the genera *Nocardia*, *Micromonospora*, *Microbispora* and *Microellabospora*.

3,829,363

PROCESS FOR THE PRODUCTION OF HIGH QUALITY FUNGAL PROTEIN FROM STARCH AND STARCHY PROCESSING WASTES

Charles J. Rogers and W. Emile Coleman, Cincinnati, Ohio, assignors to the United States of America as represented by the Administrator of the Environmental Protection Agency

No Drawing. Filed June 29, 1972, Ser. No. 267,414

Int. Cl. C12b 1/00

U.S. Cl. 195—32

8 Claims

Fungal protein suitable as an additive for animal feeds, and as a human food supplement, is produced from

starchy substrate materials, particularly potatoes and potato wastes, by homogenizing the starchy material and then subjecting it in a suitable mineral salt containing culture medium to the action of a strain of *Aspergillus niger*, and recovering the protein from the mold mycelia.

3,829,364

CONTINUOUS ANODIC OXIDATION METHOD FOR ALUMINUM AND ALLOYS THEREOF

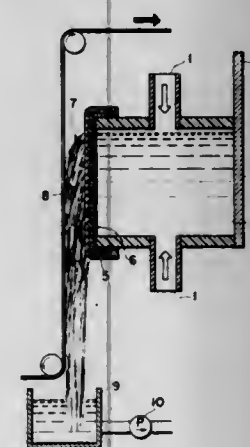
Takeshi Hamabe and Takashi Suzuki, Toyonaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation-in-part of application Ser. No. 72,022, Sept. 14, 1970, now Patent No. 3,682,640. This application Aug. 30, 1972, Ser. No. 284,730

The portion of the term of the patent subsequent to Sept. 19, 1989, has been disclaimed
Int. Cl. B01k 3/00; C23b 9/02

U.S. Cl. 204—28

5 Claims



A method of continuously forming an oxide film on aluminum and alloys thereof by anodic oxidation without resorting to a conventional process of conducting the anodic oxidation within a cell containing an electrolyte.

On the other hand, according to the method of this invention, the electrolyte contained in a container of a cathode device is discharged from a discharge port and through a liquid-permeable material covering the discharge port and flows down along the surface of aluminum article being advanced in front of the liquid permeable material with a small gap or in contact with the same.

A voltage is impressed between the cathode device and the aluminum article through the down flowing electrolyte, therefore, no substantial temperature rise of the electrolyte is encountered which brings about anodizing defects such as yellowing of the oxide film.

3,829,365

METHOD OF OPERATING A CELL FOR THE RECOVERY OF ALUMINUM BY ELECTROLYSIS OF ALUMINUM OXIDE IN A FLUORIDE MELT
Kiranendu Chaudhuri, Gampel, and Peter Bachofner, Liebefeld, Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Filed July 10, 1973, Ser. No. 378,033

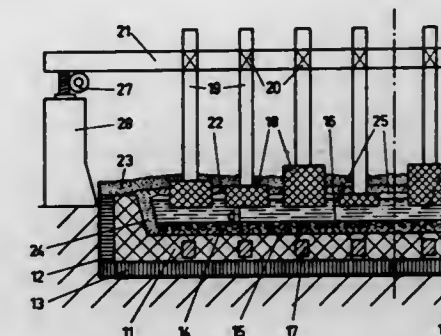
Claims priority, application Switzerland, July 18, 1972, 10,751/72

Int. Cl. B01k 3/00; C22d 3/12

U.S. Cl. 204—67

3 Claims

Method of operation of a cell for recovery of aluminum by electrolysis of aluminum oxide in a fluoride melt. In the melt the values of instantaneous resistance of the cell are calculated from instantaneous values of cell current intensity and cell voltage which are sampled by a computer



of the cell is added to a cumulative total; a disturbance is indicated when the cumulative total exceeds a predetermined value, whereupon the resistance of the cell is raised until the cause of the disturbance is eliminated.

3,829,366

TREATMENT OF TITANIUM CATHODE SURFACES

Andrew George Ives, Kidderminster, and John Philip Atkinson, Wortley, Birmingham, England, assignors to Imperial Metal Industries (Kynoch) Limited, Birmingham, Warwickshire, England

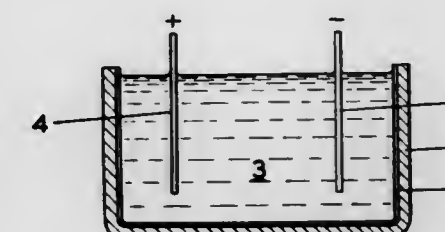
Filed Oct. 27, 1972, Ser. No. 301,339

Claims priority, application Great Britain, Nov. 5, 1971, 51,489/71, 51,490/71

Int. Cl. C22d 1/00; C23b 7/04, 11/02

U.S. Cl. 204—105 R

18 Claims



A method of extracting metal from an electrolyte is described using a particular cathode which has been treated by immersion and/or anodisation in a substantially fluoride free alkaline aqueous solution of an organic complexing agent for titanium. The cathode itself is also described.

3,829,367

ELECTROLYTIC POLISHING OF METALS

Samuel Raviv, 8 Deborah St., Beer-Sheba, Israel

No Drawing. Continuation-in-part of abandoned application Ser. No. 101,437, Dec. 24, 1970. This application July 14, 1972, Ser. No. 271,933

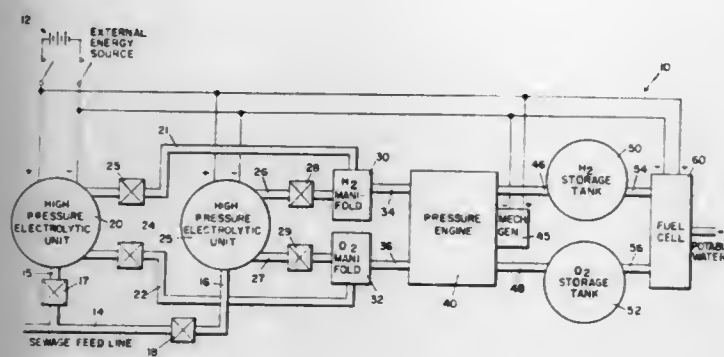
Int. Cl. C23b 3/06

U.S. Cl. 204—129.95

10 Claims

Electrolytic polishing of a metal body. In a first stage intergranular corrosion of the body is induced by electrolytic cathodic treatment in an acidic electrolyte containing a copper salt. In a second stage the polarity is reversed and the body is subjected to electrolytic anodic treatment. The electrolyte in the second stage may be the same as in the first stage or different.

3,829,368
OXYGEN-HYDROGEN GENERATION AND SEWAGE TREATMENT METHOD AND SYSTEM
 Robert B. Wesley, 6834 Old Channel Trail,
 Montague, Mich. 49437
 Filed Mar. 2, 1972, Ser. No. 231,284
 Int. Cl. C02b 1/82; C02c 5/12
 U.S. Cl. 204—149 37 Claims



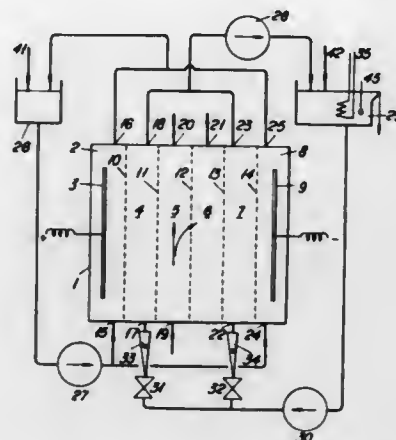
An apparatus and method comprising a regenerative sewage treatment system for decomposing sewage into its constituent elements, including primarily oxygen and hydrogen gases, under greater than ambient pressures, and, subsequently, utilizing the pressurized elemental gases and the recombination of those element gases to generate sufficient energy to nearly completely sustain the operation of the system and to produce potable water. The system, in the preferred embodiment, includes a high-pressure electrolytic unit for producing pressurized gases of decomposition, a pressure engine and mechanical electrical generator for converting the potential energy of the pressurized gases to kinetic and electrical energy, an oxygen-hydrogen fuel cell for producing potable water and additional amounts of electrical energy, and an external energy source for supplying initial start-up energy and any supplemental energy required.

3,829,369
4-METHOXY BENZENE DIAZONIUM HEXAFLUOROPHOSPHATE CATALYST FOR PHOTOPOLYMERISERS IN EPOXY SYSTEMS
 Jacob Howard Feinberg, Hightstown, N.J., assignor to American Can Company, Greenwich, Conn.
 No Drawing. Filed Oct. 19, 1972, Ser. No. 298,847
 Int. Cl. B01j 1/10; C08d 1/00
 U.S. Cl. 204—159.11 20 Claims
 A process for polymerization of epoxide monomers and prepolymers employing 4-methoxybenzene diazonium hexafluorophosphate as a latent radiation-sensitive initiator comprising subjecting admixtures of the catalyst and epoxide to the application of energy.

3,829,370
METHOD FOR FORCED FLOW ELECTROPHORESIS
 Guy Bourat, Bourg-La-Reine, France, assignor to Rhone-Poulenc S.A., Paris, France
 Filed Mar. 28, 1972, Ser. No. 238,764
 Claims priority, application France, Mar. 30, 1971, 7111180
 Int. Cl. B01d 13/02 8 Claims

A continuous forced flow electrophoresis cell and a method of operation for the fractionation of an aqueous liquid, such as blood, containing at least two compounds, the relative mobilities of which in an electric field vary as a function of the pH, in order to obtain one fraction enriched and one depleted in one of the compounds, the cell

having six compartments divided by ion permeable membranes, the end cell containing an anode and cathode respectively, the central cells being separated by a microporous membrane. The liquid is fed to one of the central



cells the filtered fraction being removed, after passage through the microporous membrane, from the other. A main electrolyte is fed to and from the end cells and an auxiliary electrolyte to the intermediate cells such that the pH in one intermediate cell differs from that of the other.

3,829,371
METHOD FOR COATING THE SURFACE OF A METALLIC MATERIAL
 Shinsuke Miki, Neyagawa, and Takao Nishida, Suita, Japan, assignors to Amchem Products, Inc., Ambler, Pa.
 No Drawing. Filed Mar. 5, 1971, Ser. No. 121,527
 Claims priority, application Japan, Mar. 6, 1970, 45/19,102
 Int. Cl. B01k 5/02; B32b 15/08; C23b 13/00
 U.S. Cl. 204—181 14 Claims

A method for coating the surface of a metallic material which comprises immersing the metallic surface in an aqueous composition comprising a film-forming polymer, an acid and an oxidizing agent, passing a direct electric current between the metallic surface, as a primary electrode, and a secondary electrode and withdrawing the metallic surface from the aqueous composition, followed by baking the coated surface.

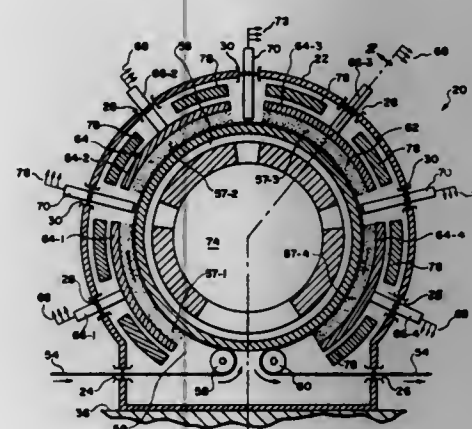
3,829,372
MULTILAYER MAGNETIC STRUCTURE AND METHODS OF MAKING SAME
 Johannes Heller, Eschenbrunnlestr., Germany, assignor to International Business Machines Corporation, Armonk, N.Y.
 No Drawing. Filed May 25, 1972, Ser. No. 257,041
 Int. Cl. C23c 15/00; H01f 10/02
 U.S. Cl. 204—192 5 Claims

A multilayer magnetic structure comprising at least four alternating layers of a magnetic material and its oxide, upon a substrate, whereby a desired combination of magnetic properties and wear resistance is achieved. A method of making is also disclosed. Uses include magnetic disk storage applications.

3,829,373
THIN FILM DEPOSITION APPARATUS USING SEGMENTED TARGET MEANS
 Manfred R. Kuehnle, Lexington, Mass., assignor to Coulter Information Systems, Inc., Bedford, Mass.
 Filed Jan. 12, 1973, Ser. No. 322,968
 Int. Cl. C23c 15/00 20 Claims

Apparatus for coating a thin film upon substrate means in a pressure vessel using the plasma vapor deposition

technique known as sputtering. The substrate means are arranged on the exterior of a cylindrical drum for rotation and have the convex surface thereof exposed to the plasma vapor during rotation. An assembly of a plurality of circumferentially spaced arcuate target segments forming generally a cylinder is arranged coaxially and telescopically with respect to the drum whereby to form an annular belt of plasma vapor cloud segments occupying the gap exterior of the drum between the target means and the drum. The target means comprise the cathode of the high voltage electrical circuit and the drum comprises the anode.



The projecting unit target area is larger than the unit exposed substrate area enabling radially converging plasma vapor and hence high rates of uniform coating. The drum may rotate the substrate means in the belt repeatedly or serve as transport means to bring the substrate means through the belt on one pass. The cylindrical belt is not closed but has a discontinuance which is somewhat greater than the distance between target segments. The substrate means are led onto the drum from the exterior of the assembly of target segments and likewise led off the drum and conveyed to the exterior of the assembly of target segments by way of such discontinuance.

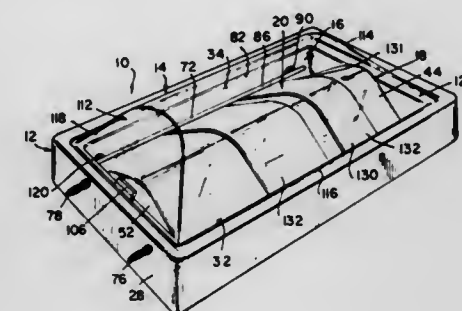
3,829,374
ELECTRODE WITH PROTECTIVE COATING
 Tibor Kugler, Thayngen, and Hans Wolfhart Rieger, Beringen, Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland
 Filed Nov. 15, 1972, Ser. No. 306,633
 Claims priority, application Switzerland, Nov. 16, 1971, 16,683/71
 Int. Cl. B01k 3/04; 3/08; C22d 3/12 9 Claims

An electrode, especially an anode for electrolytic production of aluminium, is protected against oxidation in service by means of a coating consisting of a material which has been applied as particles at least partly molten at high temperature, and has solidified in situ, so that in the coating the said particles are bonded together over at least a part of their exterior. The coating material includes aluminium oxide and facultatively aluminium, both then being applied simultaneously as a cermet or as successive layers in sandwich structure. The coating has preferably a thickness of 0.1 to 1.0 mm. and has suitably been applied by means of a plasma burner.

3,829,375
ELECTROLYTIC CELL MEANS
 Leo P. Cawley, Box 8152, Wichita, Kans. 67208
 Continuation-in-part of application Ser. No. 297,638, Oct. 16, 1972, now Patent No. 3,798,152. This application Nov. 2, 1973, Ser. No. 412,631
 Int. Cl. B01k 5/00 7 Claims

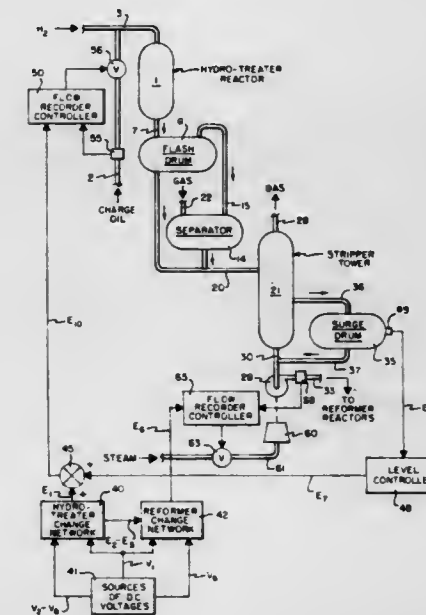
An electrolytic cell means for immunodiffusion comprising a tray with a bottom, a first side having a first annulus therein, a second side including a second annulus

therein, and a pair of ends. An enclosed heat transfer fluid reservoir is integrally bound to the sides and has an inlet and an outlet for circulating a heat transfer fluid there-through. The enclosed reservoir additionally has an essentially parabolic shaped roof connected to the sides, and a pair of ends attached to the bottom, sides, and to the roof. The annuli are in communication with the roof and



the inlet and the outlet. The parabolic shaped roof has a first sloping portion and a second sloping portion. The first side and the first sloping portion define a trough which has an electrode secured therein, and the second side and the second sloping portion define another trough which has another electrode secured therein which is oppositely charged from the other electrode. An electrical source is connected to the two electrodes.

3,829,376
APPARATUS AND METHOD FOR CONTROLLING THE LEVEL OF OIL IN A SURGE DRUM
 Walker L. Hopkins, Houston, Leland A. Chvatal, Port Arthur, and William D. White, Nederland, Tex., assignors to Texaco Inc., New York, N.Y.
 Filed Dec. 30, 1971, Ser. No. 214,322
 Int. Cl. C10g 23/00 9 Claims



some portion of the change ΔF_R to be made in the second processing unit liquid flow rate depending on the magnitude of the change signal. The change ΔF_R differs in different proportions depending on the magnitude of the change ΔF_R . The network includes an absolute value circuit which provides a signal corresponding to the magnitude of the change signal. The change in the second processing unit charge liquid flow rate is delayed for a predetermined time interval and then implemented. The duration of the time interval is also determined as a function of the magnitude of the change ΔF_R .

3,829,377

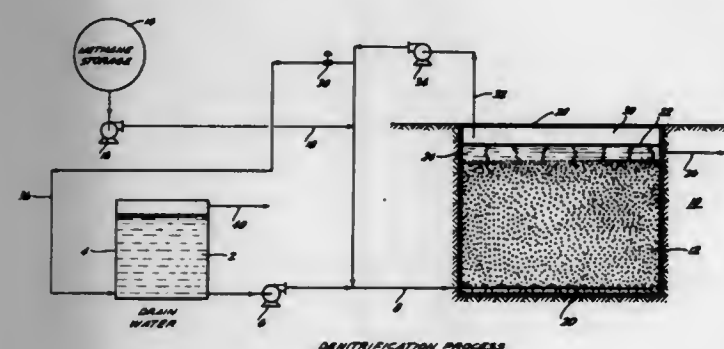
REDUCTION OF WATER POLLUTION BY BIOLOGICAL DENITRIFICATION

Saburo Hashimoto, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif. Continuation-in-part of abandoned application Ser. No. 89,976, Nov. 16, 1970. This application Feb. 7, 1973, Ser. No. 330,300

Int. Cl. C02c 1/14

U.S. Cl. 210—11

10 Claims



A process for the biological denitrification of water that contains soluble nitrates is disclosed. In the process, the water is contacted with anaerobic bacteria and a normally gaseous C_1 to C_3 hydrocarbon for a time sufficient to degrade the nitrate ions, biologically, to innocuous nitrogen.

3,829,378

PURIFICATION OF WASTE WATER FROM STYRENE BEAD POLYMER PRODUCTION

Hans-Georg Keppler, Weinheim, Ludwig Zuern, Bad Duerkheim, and Erhard Stahnecker, Ziegelhausen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany. No Drawing. Filed Oct. 2, 1972, Ser. No. 294,461. Claims priority, application Germany, Oct. 7, 1971, P 21 50 056.1

Int. Cl. B01d 21/01

U.S. Cl. 210—42

1 Claim

Process for purifying waste water obtained in the production of styrene bead polymers in the presence of vinyl pyrrolidone polymers or vinyl alcohol polymers used as suspension stabilizers, which process comprises treating said waste water at 70–180° C. with 0.02 to 5% by weight of the persulfate of sodium, potassium or ammonium in order to flocculate the suspended matter.

3,829,379

PROCESS FOR TREATING ALDEHYDES

Shinichi Ishida, Tokyo, Noboru Oshima, Yokohama, Kunio Kurita, Kawasaki, Isamu Suzuki, Yokohama, and Hidetoshi Ohno, Kamakura, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha. Filed Feb. 25, 1972, Ser. No. 229,326

Claims priority, application Japan, Feb. 27, 1971, 46/9,794, 46/9,795; May 18, 1971, 46/32,928

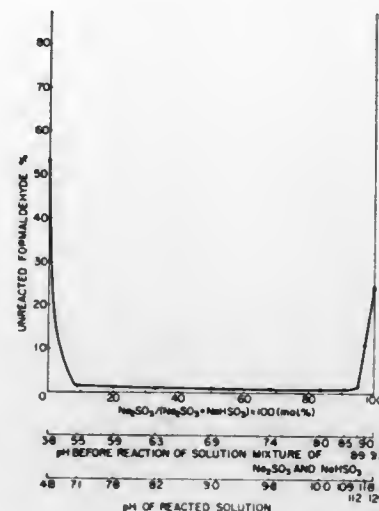
Int. Cl. C02c 1/40

U.S. Cl. 210—18

4 Claims

A gas or solution containing aldehydes such as formaldehyde, is contacted with a sulfite of alkali metals or ammonium or a mixture of 100 to 5% by weight of the sul-

fite and 0 to 95% by weight of bisulfite of alkali metals or ammonium, while keeping pH of a treating system at 6–



11, and/or the resulting solution can be subjected to activated sludge treatment.

3,829,380

METHOD AND APPARATUS FOR CLEANING WASTE LIQUID CONTAINING DILUTED DYE

Saburo Oohara, Kyoto, Japan, assignor to Kanebo Ltd., Tokyo, Japan

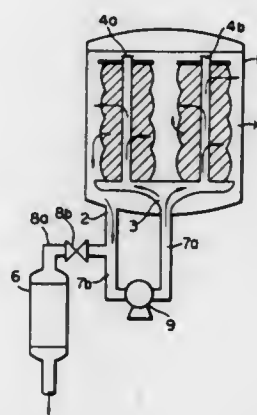
Filed May 19, 1972, Ser. No. 254,868

Claims priority, application Japan, May 24, 1971, 46/35,350; Oct. 25, 1971, 46/84,569

Int. Cl. C02c 5/02

U.S. Cl. 210—30

14 Claims



A liquid containing diluted anionic dyes or disperse dyes is cleaned by specific polyamide fibers having a high diluted dye absorption coefficient for the dye of at least 0.5 and at least 150 meq./kg. of amino group, which are contained in an absorption column through which the liquid is circulated, and the cleaned liquid is returned into the dyeing system for the next process.

3,829,381

BORON- AND CALCIUM-CONTAINING COMPOSITIONS AND PROCESS

William Monroe Le Suer, Cleveland, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Filed Feb. 2, 1970, Ser. No. 8,005

Int. Cl. C10m 1/40

U.S. Cl. 252—33.4

1 Claim

Boron- and calcium-containing compositions useful as lubricant and fuel additives are prepared by reacting boric acid with certain carbonated, calcium overbased petrosulfonates.

3,829,382

DOPING CONTROL FOR SEMICONDUCTOR MATERIALS

William F. Tucker, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of abandoned application Ser. No. 68,827, Sept. 2, 1970. This application May 15, 1972, Ser. No. 253,399

Int. Cl. H01l 7/42, 7/44

U.S. Cl. 252—62.3 R

4 Claims

The impurity concentration of a semiconductor material being processed, such as by zone refining, is precision controlled by flowing a dopant gas to a time-controlled proportioning device which feeds a preselected fraction of the dopant to the semiconductor material. The dopant gas flows at a constant flow rate and constant pressure to the proportioning device thereby eliminating memory or storage effects in the doping system and improving the doping control of the processed material.

3,829,383

DETERGENT BUILDER AND SEQUESTERING AGENT

Gene C. Robinson, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

No Drawing. Continuation-in-part of application Ser. No. 262,547, June 14, 1972, which is a continuation-in-part of application Ser. No. 232,638, Mar. 7, 1972, both now abandoned. This application Dec. 11, 1972, Ser. No. 313,863

Int. Cl. C11d 3/20

U.S. Cl. 252—89

17 Claims

To obviate eutrophication of lakes, streams, etc., non-phosphorus highly biodegradable builders and sequestrants are provided for household and industrial use. These builders and sequestrants are either (1) a *cis*-2,5-disubstituted tetrahydrofuran in which the substituents are carboxy or carboxymethyl groups, (2) water soluble salts of such tetrahydrofurans, or (3) mixtures of (1) and (2). Conventional detergent actives may also be utilized in combination with the builders or sequestrants of this invention.

3,829,384

DETERGENT FORMULATIONS

Marvin M. Crutchfield, Creve Coeur, and Russel D. Harken, Maryland Heights, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 11, 1972, Ser. No. 313,732

Int. Cl. C11d 1/04

U.S. Cl. 252—89

3 Claims

Detergent formulations comprising tetra alkali metal ethane tetracarboxylate as a detergency builder in combination with conventional surfactants provide effective cleaning action and are readily biodegradable.

3,829,385

DETERGENT COMPOSITIONS CONTAINING N-CHLORO-IMIDES

Charles Theodor Abbott, Jr., and George Cunningham Smith, Jr., Montgomery, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Aug. 17, 1972, Ser. No. 281,614

Int. Cl. C11d 7/54

U.S. Cl. 252—95

13 Claims

Detergent compositions containing a water-soluble organic detergent; an N-halo-imide; and an amount effective to stabilize said N-halo-imide of anhydrous sodium acetate. The detergent compositions exhibit desirable cleaning, oxidizing and bleaching properties and are stabilized against loss of available halogen.

3,829,386

SURFACTANT-FOAM DEPRESSANT EMULSION COMPOSITIONS

Walter F. Wegst, Grosse Ile, and Otto T. Aepli, Southgate, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Continuation of abandoned application Ser. No. 866,715, Oct. 15, 1969. This application Oct. 16, 1972, Ser. No. 297,803

Int. Cl. C11d 3/06, 3/16

U.S. Cl. 252—135

4 Claims

Emulsions of silicone-based foam depressants dispersed in low cloud point liquid nonionic surfactants are incorporated into alkaline detergent compositions to provide improved detergent compositions which obviate the need for the addition of supplemental foam depressants during continuous wash operations. The emulsions of the present invention generally comprise from about 10 to 50 percent by weight of depressant and from about 50 to 90 percent by weight of surfactant. They are stable over a wide temperature and concentration range and can easily be incorporated into solid alkaline dishwashing and detergent compositions in effective concentration, of from 1 to 5 percent by weight of the total compositions. The compositions employing the emulsion are useful in both industrial and domestic wash operations.

3,829,387

CAUSTIC CLEANER COMPOSITION

Louis M. Wise, Berkeley Heights, and Edmund J. Bozek, Jr., Plainfield, N.J., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed June 22, 1972, Ser. No. 265,404

Int. Cl. C11d 7/06, 7/12

U.S. Cl. 252—156

11 Claims

A caustic containing cleaner composition is described which comprises an alkali, a non-ionic surfactant, water and from about 3 to about 20% by weight of a solvent comprising a mixture of two different phenyl glycol ethers of ethylene glycol, diethylene glycol or triethylene glycol. The composition, which may optionally include a secondary or tertiary aliphatic amine and one or more other organic solvents, is useful for removing grease and other deposits from soiled surfaces such as oven walls.

3,829,388

BENEFICIATION OF LIGNIN SOLUTIONS AND PULP MILL WASTES

K. Robert Lange, Huntingdon Valley, Arthur M. Stern, Morrisville, and Lawrence L. Gasner and Yuan Tsun Hsu, Cornwells Heights, Pa., assignors to Betz Laboratories, Inc., Trevose, Pa.

No Drawing. Filed Aug. 1, 1972, Ser. No. 277,006

Int. Cl. C02b 1/20, 5/06

U.S. Cl. 252—180

6 Claims

The present disclosure is directed primarily to a method of producing valuable products from aqueous solutions of lignin and lignin derivatives. Aqueous solutions of the lignin and derivatives thereof are available as commercial solutions, can be made from solids or semi-solid mixtures thereof or are available as waste effluents from pulp producing mills.

With respect to the latter source, the inventive method not only permits the obtention of valuable products therefrom, but also reduces the amount of nonbiodegradable and toxic materials normally contained therein to be eliminated prior to discharge. In addition, the method reduces the color of the final discharge. Basically, the method entails the addition to the lignin or lignin derivative solution of a polyvalent metal salt, the cation of which will react with a portion of the lignin solution to produce

a water-insoluble precipitate, acidification of the precipitate and final treatment with a basic solution. The final products possess utilities as scale and precipitate agents for aqueous systems, namely steam producing and cooling water systems.

3,829,389

PROCESS FOR PREPARING CALCIUM NITRATE AND PHOSPHORIC ACID SOLUTIONS FREE FROM SOLID PARTICLES IN SUSPENSION

Glacinto Veronica and Antonio Fidani, Novara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy
No Drawing. Filed July 12, 1972, Ser. No. 271,132
Claims priority, application Italy, Mar. 6, 1972, 21,460/72

Int. Cl. C01b 25/16; C01f 1/00

U.S. Cl. 252—182

12 Claims

A process is disclosed for preparing solutions consisting mainly of calcium nitrate and phosphoric acid substantially free from solid particles in suspension. The process involves attacking phosphate rock with nitric acid to obtain a slurry which contains mainly calcium nitrate and phosphoric acid and in which the silica derived from the dissolution of silicates is present in a quantity of 12 to 27 grams per kg. of attacked phosphate rock; treating the slurry with a flocculating agent of a known type in a quantity of 10–150 mg. per kg. of phosphate rock, thus forming an upper layer consisting essentially of the thickened solids and a lower layer consisting essentially of the solution substantially free from solid particles in suspension; and then separating the clarified solution from the thickened solids.

3,829,390

ALUMINUM HYDRIDE PRODUCT

Eugene C. Ashby, William D. Taylor, and Donald A. Winkler, Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

No Drawing. Filed Mar. 29, 1963, Ser. No. 269,851

Int. Cl. C01b 6/00; C06d 5/00

U.S. Cl. 252—188

5 Claims

1. A stable, essentially chloride and lithium free solution of aluminum hydride in a molar concentration of 0.1 to 0.8 in a lower alkyl dialkyl ether, said solution being precipitate free after a period of at least 24 hours at a temperature of about 20° C.

3,829,391

SUBMERGED ARC CRYSTAL GROWTH PROCESS FOR GROWING TRANSPARENT ALKALINE EARTH OXIDE SINGLE CRYSTALS

Yok Chen and Marvin M. Abraham, Oak Ridge, Tenn., assignors to the United States Atomic Energy Commission
No Drawing. Filed Sept. 19, 1972, Ser. No. 290,296

Int. Cl. C01f 11/06

U.S. Cl. 252—301.4 R

10 Claims

An improved method for growing transparent single crystals of alkaline earth oxides by the submerged arc method wherein after fusion of a charge the power supplied to the arc is reduced to 20 to 40 percent of the original value and maintained at the reduced value for the duration of the run.

3,829,392

HETEROGENEOUS CATALYSTS FOR OLEFIN EPOXIDATION

Harald P. Wulff, Alameda, Calif., assignor to Shell Oil Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 77,385, Oct. 1, 1970. This application Mar. 13, 1972, Ser. No. 234,301

Int. Cl. B01j 11/06

U.S. Cl. 252—430

24 Claims

Solid chemical combinations of certain metal oxides or hydroxides with oxygen compounds of silicon give im-

proved performance as catalysts for the epoxidation of olefinically unsaturated compounds with organic hydroperoxides when the catalysts are first treated with an organic silylating agent at elevated temperature.

3,829,393

COBALT OXIDE CATALYST

Derek James Sutherland Burleigh and Brian Desmond Hawkins, Stockton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Mar. 5, 1973, Ser. No. 337,848

Claims priority, application Great Britain, Mar. 23, 1972, 13,603/72

Int. Cl. B01j 11/22

U.S. Cl. 252—459

3 Claims

The sintering of cobalt oxide catalysts is facilitated by the use as sintering aid of from 1 to 10% by weight of a carboxylic acid selected from fumaric acid and compounds of the formula $R\cdot CO_2H$ where R is phenyl, p-methoxyphenyl, p-tolyl, o-hydroxyphenyl or diphenylmethyl, sintering being effected at a temperature above 500° C.

3,829,394

FLAME RETARDANT COMPOSITION

Maria Feiner, Henin Lietard, Michel Gubler, Paris, and Joseph Guillon, Meurcin, France, assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Sept. 10, 1970, Ser. No. 71,238, now Patent No. 3,677,942. Divided and this application Mar. 1, 1972, Ser. No. 231,039

Claims priority, application France, Sept. 12, 1969, 6931182

Int. Cl. C09k 3/28

U.S. Cl. 260—4 AR

10 Claims

Self-extinguishing plastic materials are prepared by incorporating in the plastic a composition of an organic bromine compound, an organic phosphate and a lead salt.

3,829,395

CORROSION RESISTANT PRIMER COMPOSITION CONTAINING ZINC BORATE PIGMENT

Gerald W. Goodell, Flint, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 28, 1972, Ser. No. 267,074

Int. Cl. C09d 3/48, 5/08, 5/12

U.S. Cl. 260—22 A

7 Claims

The corrosion resistant primer composition is a non-polluting primer that utilizes zinc borate as a corrosion inhibitive pigment and as a film-forming binder an alkyd resin, an epoxy resin, an epoxy ester resin, an acrylic resin, a polyurethane, an oleoresinous product or a phenolic product is utilized; the primer is particularly useful for automobiles, trucks and appliances which require a high degree of corrosion protection.

3,829,396

VINYL CHLORIDE RESINS STABILIZED WITH METAL COMPOUND-EPOXY COMPOUND-PHOSPHITE COMBINATIONS

Vincent Oakes, St. Helens, and David F. W. Cross, Liverpool, England, assignors to Interstab Limited, Liverpool, Lancashire, England

No Drawing. Original application Sept. 6, 1967, Ser. No. 665,725, now Patent No. 3,697,463. Divided and this application June 20, 1972, Ser. No. 264,481

Claims priority, application Great Britain, Sept. 8, 1966, 40,114/66, 40,115/66, 40,116/66

Int. Cl. C08f 45/58, 45/60, 45/62

U.S. Cl. 260—23 XA

2 Claims

Halogen containing resins, e.g., vinyl chloride resins, and diolefin polymers, e.g., butadiene-styrene rubber and acrylonitrile-butadiene-styrene terpolymer are stabilized, e.g., against heat by mixed phosphites having one aryl group having an ortho or para directing ring activating substituent and two alkyl or alicyclic groups. The pre-

ferred alkyl or alicyclic group is cyclohexyl. Some of the compounds, particularly those having cyclohexyl groups, are novel per se as are compounds in which the aryl group has an amino, amido, acetyl or acyloxy substituent.

3,829,397

ACRYLIC COATING COMPOSITION FOR REFINISHING FLEXIBLE SUBSTRATES

Ronald J. Sheppard, Flushing, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Aug. 30, 1972, Ser. No. 285,094

Int. Cl. C08f 15/18, 37/06, 45/40

U.S. Cl. 260—31.8 M

3 Claims

The coating composition is useful for repairing the finish of flexible automobile and truck bumpers and comprises a blend of the following polymers:

- (1) a copolymer of methyl methacrylate and an alkyl acrylate or an alkyl methacrylate having 2–12 carbon atoms in the alkyl groups;
- (2) a copolymer of methyl methacrylate and an adhesion of promoting monomer such as the 3-2-methacryloxyethyl (-2,2 spiro cyclohexyl oxazolidine);
- (3) a plasticizer which is either a phthalate ester such as butyl benzyl phthalate or butyl cyclohexyl phthalate or an alkyd resin;

the novel composition can be blended with other pigmented acrylic polymer coating compositions to form a high quality refinish composition for flexible bumpers.

3,829,398

PLASTICIZED VINYL CHLORIDE POLYMER COMPOSITION FOR TRANSPARENT PACKING FILM

Yoshikatsu Ogawa, Keiji Katada, Mitsuhiro Nakano, and Kozi Yasumatsu, Osaka, Japan, assignors to Marubishi Yuka Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Continuation of abandoned application Ser. No. 157,603, June 28, 1971. This application June 6, 1973, Ser. No. 367,570

Claims priority, application Japan, Oct. 12, 1970, 45/88,775

Int. Cl. C08f 45/40

U.S. Cl. 260—31.8 R

4 Claims

Transparent plasticized vinyl chloride polymer film for packing perishable foodstuffs is improved in its resistance against clouding that is, frosting which occurs due to the condensation of moisture evaporated from perishable foodstuffs packed with the film, by incorporating therein a small amount of a mixture of ethylene oxide-added sorbitan higher fatty acid ester and ethylene oxide-added glycerin higher fatty acid ester.

3,829,399

NOVEL POLYAMIDEIMIDE PRECURSORS AND HARDENABLE COMPOSITIONS CONTAINING THE SAME

Shigeyoshi Hara, Takeyoshi Yamada, and Tsunemasa Yoshida, Tokyo, Japan, assignors to Teijin Limited, Osaka, Japan

No Drawing. Filed Aug. 8, 1972, Ser. No. 278,803

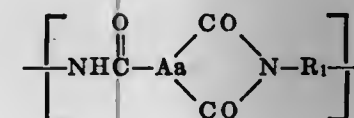
Claims priority, application Japan, Aug. 12, 1971, 46/61,288; Sept. 20, 1971, 46/73,205, 46/73,206; Sept. 28, 1971, 46/75,604; Sept. 29, 1971, 46/76,191; Jan. 28, 1972, 47/10,311

Int. Cl. C08g 51/28, 51/34

U.S. Cl. 260—32.6 NT

21 Claims

An organic solvent-soluble polyamideimide precursor in which at least 50 mole percent of the total structural units are structural units having as the main chain an aromatic amideimide group expressed by the following formula (1)



(1)

wherein Ar stands for an aromatic group, and R_1 is an organic radical having a valency of at least two,

and at least 30 mole percent of the total terminal groups are carboxylic acid aryl ester groups. This precursor can give a hardened high polymer excellent in heat resistance when it is heated alone or together with a polyfunctional compound containing at least two reactive groups selected from hydroxyl (—OH) groups and primary and secondary amino group.

3,829,400

FLAME RETARDANT POLYAMIDE FIBER COMPOSITION USING OXY-TIN COMPOUNDS AND PROCESS FOR THE PREPARATION THEREOF

Tetsuya Kato, Nagoya, and Tutomu Ohira, Ogaki, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

No Drawing. Filed May 26, 1972, Ser. No. 257,425

Claims priority, application Japan, May 28, 1971, 46/36,303; July 16, 1971, 46/52,447

Int. Cl. C08g 51/04, 51/56

U.S. Cl. 260—37 N

16 Claims

The present invention describes a flame retardant polyamide fiber and a process for production thereof which includes the concurrent use of an oxy-tin compound and a halogen as flame retardant agents. The halogen may be a halogen contained in either a divalent metal halide or an organic halogen compound.

Furthermore, when a zinc compound, for example, zinc oxide or zinc hydroxide is added to the polyamide in addition to the oxy-tin compound and halogen, the flame retardant effect increases substantially.

3,829,401

HEAT SENSITIVE RECORDING PAPER

Kiyoshi Futaki, Kozo Haino, and Isao Kohmura, Kyoto, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

No Drawing. Filed Oct. 25, 1972, Ser. No. 300,873

Claims priority, application Japan, Oct. 30, 1971, 46/86,341

Int. Cl. B41n 5/22

U.S. Cl. 260—38

8 Claims

In the heat sensitive recording system comprising combination of a color forming compound and a phenol compound, the fading of the heat recording composition in the dark can be prevented by allowing a phenol resin to be present in the heat sensitive layer or in contact with the layer. Said phenol resin is the one obtained by condensation of at least one of lower aliphatic aldehydes, lower aliphatic aldehyde producing agent and lower alkylvinyl ethers and a phenol compound having 3 or more ortho-and/or para-positions (to phenolic hydroxyl group) having no substituents.

3,829,402

PROCESS FOR THE PREPARATION OF COMPOSITIONS COMPRISING POLYVINYL ALCOHOL AND A FINELY DISPERSED SOLID

Johann Wolfgang Zimmermann, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 5, 1973, Ser. No. 321,216

Claims priority, application Germany, Jan. 5, 1972, P 22 00 321.0

Int. Cl. C08f 45/04

U.S. Cl. 260—42.13

4 Claims

A process for the preparation of compositions of polyvinyl alcohol and finely dispersed solids is provided by subjecting a polyvinyl ester to hydrolysis or alcoholysis in the presence of a finely dispersed solid and an acid or alkaline catalyst, removing the solvents and drying the resulting composition.

3,829,403 LIGHTWEIGHT CERAMIC LENS FOR MICROWAVE ANTENNA

William E. Lent, Los Angeles, and José A. Flores, Venice, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 2, 1970, Ser. No. 51,875
Int. Cl. C04b 21/06, 35/64

U.S. Cl. 264-44

1 Claim

A process for making a lens, generally in the shape of a sphere, composed of a dielectric material having a dielectric constant which may have a value anywhere between 2 and 20, for the specific gravity range of 0.70 to 2.50, suitable for use at a temperature of up to 1200° C., with certain compositions and at frequencies up to microwave frequencies of 100 GHz, comprising the steps of:

- (1) preparing a porous, lightweight, ceramic grain;
- (2) blending the grain with a mixture of organic and ceramic binders;
- (3) forming the material into a desired shape, followed by burning out the organic binders. The forming may take one of two forms:
 - (a) hydrostatic pressing in a rubber mold; or
 - (b) sintering in a refractory mold, also designated kiln bonding;
- (4) dry machining the lens to precise spherical dimensions; and
- (5) coating the machined lens with a ceramic or ceramic-plastic sealing system.

3,829,404 STABILIZATION OF SYNTHETIC POLYMERS WITH CERTAIN PIPERIDINO-THIAZOLINE COMPOUNDS

Keisuke Murayama, Syoji Morimura, Hideo Horiuchi, Katsuaki Matsui, Tomoyuki Kurumada, and Noriyuki Ohta, Tokyo, Japan, assignors to Sankyo Company Limited

No Drawing. Filed Oct. 20, 1972, Ser. No. 299,340
Claims priority, application Japan, Oct. 29, 1971, 46/86,071

Int. Cl. C08f 45/60; C08g 51/60

U.S. Cl. 260-45.8 SN

8 Claims

Synthetic polymer compositions, particularly polyurethane compositions, stabilized against their deteriorations which contain at least one of 6-substituted or unsubstituted-5,5,7,7-tetramethylpiperidino-[5,4-c]-Δ³-thiazoline-2-spiro-4'-(1'-substituted or unsubstituted-2',2',6',6'-tetramethylpiperidine) compounds. Such piperidino-thiazoline compounds are prepared by reacting the corresponding 2,2,6,6-tetramethyl-piperidine-4-one with elementary sulfur under the stream of gaseous NH₃ or by reacting 5,5,7,7-tetramethylpiperidino-[5,4-c]-Δ³-thiazoline-2-spiro-4'-(2',2',6',6'-tetramethylpiperidine) with the corresponding halide.

3,829,405 PHOSPHORUS-CONTAINING POLYESTERS

Stuart Lyle Cohen, Charlotte, N.C., and Robert William Stackman, Morristown, N.J.; said Cohen assignor to Fiber Industries, Inc., and said Stackman assignor to Celanese Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 51,019, June 29, 1970. This application June 22, 1971, Ser. No. 155,608

The portion of the term of the patent subsequent to Aug. 20, 1991, has been disclaimed

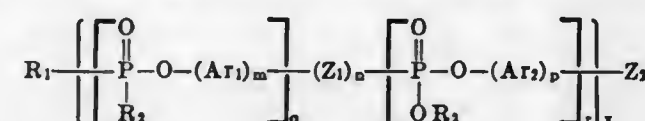
Int. Cl. C09k 3/28; D04h 11/00

U.S. Cl. 260-45.95 D

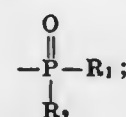
7 Claims

Phosphorus-containing polyester compositions and shaped articles made therefrom having improved flame retardant properties wherein said polyester compositions comprise melt blends of a synthetic linear polyester with up to about 25 percent, based on the weight of polyester,

of a polymer which is a poly(phosphonate-phosphate) copolymer having the following average general formula:



wherein R₁ is a monovalent radical having up to about 20 carbon atoms selected from the group consisting of alkoxy, aryloxy, hydroxy, haloalkoxy, haloaryloxy, hydroxyalkoxy, and hydroxy-aryloxy; R₂ is a monovalent radical having up to 20 carbon atoms selected from the group consisting of hydrogen, alkyl, aryl, haloalkyl, and haloaryl; R₂ is a monovalent radical having up to 20 carbon atoms selected from the group consisting of alkyl, aryl, haloalkyl and haloaryl; Ar₁ and Ar₂ are divalent radicals each having up to about 20 carbon atoms independently selected from the group consisting of arylene and haloarylene; Z₁ is a divalent radical selected from the group consisting of alkylene, arylene, haloalkylene, haloarylene, oxy, thio, and sulfonyl; Z₂ is either hydrogen or



m, n, and p are integers which independently are either 0 or 1 and at least one of m and p is 1; q and r are integers of at least 1; x is greater than 1. The most preferred polymer is the copolymer poly[(m-phenylene phenylphosphonate)_n(m-phenylene phenylphosphate)_r] where q/r is greater than 3.

3,829,406 FABRICABLE INFUSIBLE PARA-OXYBENZOYL POLYESTER PRODUCTION

Steve G. Cottis, Amherst, James Economy, Eggertsville, and Bernard E. Nowak, Lancaster, N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed Oct. 1, 1971, Ser. No. 185,623

Int. Cl. C08g 17/02

U.S. Cl. 260-47 C

10 Claims

Polyesters are produced which consist essentially of recurring p-oxybenzoyl structural units and which are infusible and very thermally stable, but which are fabricable by virtue of a reversible crystalline transition which occurs in the temperature range from about 330° C. to about 360° C. Such polyesters are produced by heating p-acetoxibenzoic acid in an inert, high boiling liquid heat transfer medium to a temperature above 300° C. but below about 425° C., and maintaining the temperature in the specified range until sufficient condensation has occurred to produce the desired polyester. In addition to being infusible, thermally stable and fabricable, the polyesters are characterized by excellent chemical, mechanical, electrical and thermal properties.

3,829,407 POLY-N, N-ETHYLENE UREAS AND THERMOSET RESINOUS COMPOSITIONS DERIVED THERE- FROM

William J. McMillip and Billy M. Culbertson, Worthington, Ohio, assignors to Ashland Oil Inc., Ashland, Ky.

No Drawing. Continuation-in-part of abandoned application Ser. No. 865,493, Oct. 10, 1969. This application Feb. 22, 1973, Ser. No. 334,634

Int. Cl. C08g 22/06

U.S. Cl. 260-77.5 R

5 Claims

Linear addition polymers having pendant N,N-ethylene ureido functionality and the thermoset products derived therefrom by reaction with a crosslinking agent containing a plurality of reactive hydrogen atoms or through condensation of the N,N-ethylene ureido groups in the presence of a Lewis acid catalyst: such products having general

utility in surface coating, molding and adhesive applications.

3,829,408 THERMOPLASTIC POLYMERIC SHEET CONTAIN- ING ANTISTAT COMPOUND

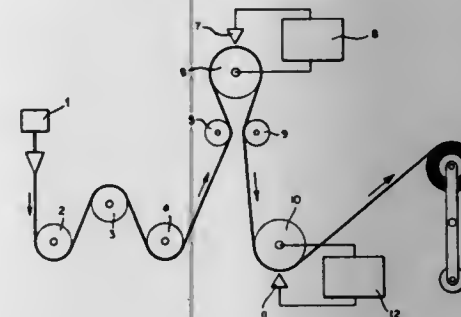
Richard I. Wolkowicz, Clarksboro, N.J., assignor to Scott Paper Company, Delaware County, Pa.

Original application Mar. 23, 1970, Ser. No. 21,954, now Patent No. 3,703,569. Divided and this application Sept. 21, 1972, Ser. No. 290,966

Int. Cl. C08f 29/04, 37/00, 45/00

U.S. Cl. 260-88.25

1 Claim



Thermoplastic polymeric sheet material which has been subjected to corona treatment and which contains an anti-static agent, the amount of antistat being at least the amount which gives an adequate static decay rate to the sheet after being modified by corona treatment but less than the amount sufficient to produce a measurable increase in the static decay rate of the sheet in the absence of corona treatment.

3,829,409 BLOCK HOMOPOLYMERS OF 1,3-BUTADIENE AND PROCESS FOR PREPARING THEM

Neidhart Sommer and Karl-Heinz Nordsiek, Marl, Germany, assignors to Chemische Werke Huls, A.G., Marl, Germany

No Drawing. Filed Nov. 27, 1972, Ser. No. 309,817
Claims priority, application Germany, Nov. 26, 1972, P 21 58 575.1

Int. Cl. C08d 1/20, 3/06

U.S. Cl. 260-94.2 M

12 Claims

Block homopolymers of 1,3-butadiene having a first block with nonuniform vinyl group distribution and a further block having a uniform vinyl group distribution in a mole ratio of 20:80 to 95:5 respectively and an average vinyl group content of 15-75%, preferably 20-50%, are prepared by adiabatic solvent polymerization at an ascending temperature in the presence of a catalyst system comprising an organolithium compound and a Lewis base. The polymers have improved processing properties.

3,829,410 5-(CYANOVINYLENE)-2-THIAZOLYL-AZO- ANILINE COMPOUNDS

John G. Fisher, Max A. Weaver, and Clarence A. Coates, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 21,179, Mar. 19, 1970. This application Sept. 11, 1970, Ser. No. 71,365

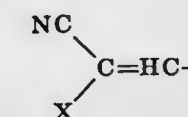
Int. Cl. C09b 29/08; D06p 3/26, 3/54

U.S. Cl. 260-158

10 Claims

Azo compounds useful as dyes for polyester textile materials have an aniline or a 1,2,3,4-tetrahydroquinoline coupling component and a 2-thiazolyl diazo component

which, at the 5-position is substituted with a group having the formula



in which X is a substituent such as cyano, alkoxycarbonyl, alkylsulfonyl, or carbamoyl. The azo compounds produce blue shades on polyester fibers and exhibit improved fastness to light and sublimation.

3,829,411 THIADIAZOLYL-AZO-INDOLE COMPOUNDS

Clarence A. Coates, Jr., and Max A. Weaver, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

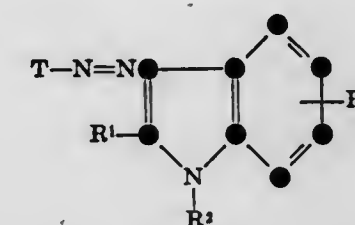
No Drawing. Filed Mar. 29, 1972, Ser. No. 239,338

Int. Cl. C09b 29/36; D06p 3/24, 3/52

U.S. Cl. 260-158

10 Claims

Azo compounds having the general formula



in which T is a disperse dye 1,3,4-thiadiazol-2-yl or 1,3,5-thiadiazol-2-yl diazo component; R¹ is aryl; R² is hydrogen, alkyl, cyanoalkyl, unsubstituted or substituted carbamoylalkyl or acylamidoalkyl; and R³ is hydrogen, alkyl, alkoxy or halogen. The compounds are useful for dyeing cellulose acetate, polyester and, especially, polyamide fibers on which the compounds produce yellow to orange shades and exhibit good dyeability and fastness to light and washing.

3,829,412 CHEMICALLY MODIFIED POLYSACCHARIDES AND PROCESS OF PREPARING SAME

Frederick L. G. Kunz, Manitowoc, Wis., assignor to Frederick Lunz and Company, Limited, Manitowoc, Wis.

No Drawing. Filed May 15, 1970, Ser. No. 37,919
Claims priority, application Germany, May 16, 1969, P 19 24 900.4

Int. Cl. C07c 47/18; C07g 3/00

U.S. Cl. 260-209 R

11 Claims

Polysaccharides chemically reacted in solution with a bifunctional etherifying compounds, such as epichlorohydrin and glycerol dihalohydrin, to effect cross-linking and providing a modified polysaccharide which forms aqueous solutions having a predetermined increased viscosity comparable to solutions of commercially available gums, and said modified polysaccharides preferably being stabilized against further cross-linking by reacting with a hydroxy compound having a primary hydroxyl group, such as pentaerythritol, ethylene glycol and sorbitol; and the process of preparing and stabilizing modified polysaccharides in an aqueous solution.

3,829,413 OZONOLYSIS OF ACETALS

Pierre Deslongchamps, Sherbrooke, Quebec, Canada, assignor to Université de Sherbrooke, Sherbrooke, Quebec, Canada

No Drawing. Filed July 2, 1971, Ser. No. 159,475

Int. Cl. C07c 47/18, 69/32

U.S. Cl. 260-210 R

13 Claims

There is provided a process for converting cyclic and acyclic acetals to esters by ozonolysis.

3,829,414

2-(2-INDOLYL)INDOLINES

Yao Hua Wu and Arthur Jacob Mueller, Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

No Drawing. Application Jan. 19, 1970, Ser. No. 4,108, now Patent No. 3,697,553, dated Oct. 10, 1972, which is a continuation-in-part of abandoned application Ser. No. 709,941, Mar. 4, 1968. Divided and this application May 8, 1972, Ser. No. 251,059

Int. Cl. C07d 27/38

U.S. Cl. 260—239 B

14 Claims

2-(2- or 3-Indolyl)indolines, unsubstituted and carbon substituted, condense with N-mono substituted carboxamides or with lactams under the influence of phosphorus oxychlorides to produce 1-(N-substituted iminoalkyl)-2-(2- or 3-indolyl)indolines. The 2-(3-indolyl)-1-[2-(1-pyrrolinyl)]indolines rearrange to produce benzodiazepine derivatives. These products have diuretic activity on oral administration.

3,829,415

PREPARATION OF SUBSTITUTED HYDROXY PROPIONATES

Priscilla D. Byrd, Tarrytown, and Henry E. Fritz, Ossining, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Apr. 11, 1973, Ser. No. 350,161

Int. Cl. C07c 59/00; C08b 11/00

U.S. Cl. 260—231 A

10 Claims

Substituted beta-hydroxy propionates have been prepared by the interaction of alkali metal acrylates and hydrocarbons containing at least one primary alcohol group.

3,829,416

CORROSION PREVENTIVE METAL BOND/WELDBOND ADHESIVE

Dallas Fields, Smyrna and Maxwell L. Shatzen, Jr., Atlanta, Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

No Drawing. Filed Feb. 9, 1973, Ser. No. 331,014

Int. Cl. C08g 51/04

U.S. Cl. 260—37 EP

2 Claims

Environmental corrosion-resistance properties of conventional thermal curing paste adhesives for metallic structures are substantially increased by admixture of adhesive with magnesium chromate ($MgCrO_4$) and barium chromate ($BaCrO_4$).

3,829,417

IMIDAZOLE SUBSTITUTED RIFAMYCINS

Nicola Maggi, Milan, and Renato Cricchio, Varese, Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

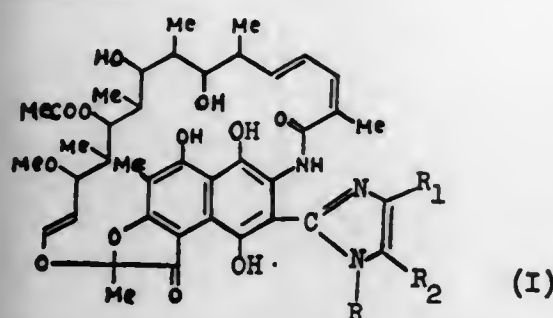
No Drawing. Filed Dec. 29, 1972, Ser. No. 319,657

Int. Cl. C07d 99/02, 99/04

U.S. Cl. 260—239.3 P

13 Claims

Disclosed are 3-substituted rifamycins of Formula I and their 25-desacetyl and 16,17; 18,19; and 28,29 hexahydro derivatives



(I)

wherein R represents hydrogen, lower alkyl, phenyl and phenyl-lower alkyl, R₁ and R₂ together represent a carbocyclic chain forming with the double bond of the adjacent imidazole moiety a benzene ring, a mono or poly-substituted benzene ring wherein the substituents are independently selected from lower alkyl, lower alkoxy, halo, carboxy, carbalkoxy, sulfo, sulfamoyl, nitro, trifluoromethyl, carbamyl, mono and di-lower alkyl-carbamyl and

methylenedioxy, or a substituted or unsubstituted fused polynuclear aromatic group including 2-3 condensed rings each of 5-6 carbon atoms.

The compounds of the invention are useful as antibacterial agents.

3,829,418

BASIC BENZIMIDAZOLINE ARYLHYDRAZONE DYESTUFFS

Roderich Raue, Leverkusen, and Hans-Lothar Dorsch, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 16, 1971, Ser. No. 124,975

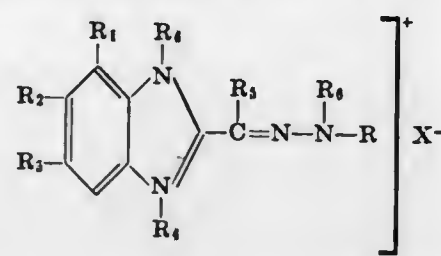
Claims priority, application Germany, Mar. 23, 1970, P 20 13 791.1

Int. Cl. C09b 23/16; D06p 3/34, 3/70

U.S. Cl. 260—240 G

12 Claims

Basic hydrazone dyestuffs of the formula



wherein R is an aromatic-carbocyclic radical, R₁ is hydrogen or alkyl, R₂ is hydrogen, alkyl, alkoxy, or an amino which may be substituted by alkyl, sulphonyl, or carbamoyl, R₃ is hydrogen, alkyl, or alkoxy, R₄ is alkyl, R₅ is nitrile, or carbonamido, R₆ is hydrogen, alkyl, aralkyl, or cycloalkyl, X⁻ is an anion, and wherein the aliphatic, cycloaliphatic, or aromatic radicals R₁, R₂, R₃, R₄, R₅, or R₆ may be further substituted by non-ionic substituents having a Hammett constant σ para less than 0.7. These dyestuffs are useful in dyeing or printing leather, cotton, cellulose acetate, and lignin-containing fibers.

3,829,419

TETRAHYDRO-4H-1,3,5-OXADIAZIN-4-ONE

William David Weir, Levittown, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Mar. 26, 1973, Ser. No. 344,802

Int. Cl. C07d 87/52

U.S. Cl. 260—244

1 Claim

The novel compound tetrahydro-3-(4-nitrophenyl)-5-(3-pyridylmethyl)-4H-1,3,5-oxadiazin-4-one. It is useful as a rodenticide.

3,829,420

3,4-DIHYDRO-2(1H)-QUINAZOLINONES AND PREPARATION THEREOF

Shigeho Inaba, Takarazuka, Michihiro Yamamoto, Toyonaka, Kikuo Ishizumi, Ikeda, Kazuo Mori, Kobe, Masao Koshiba, Takarazuka, and Hisao Yamamoto, Nishinomiya, Japan, assignors to Sumitomo Chemical Company Limited, Osaka, Japan

No Drawing. Filed July 8, 1971, Ser. No. 160,947

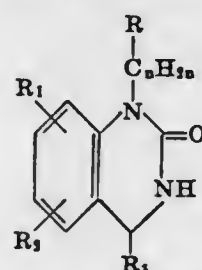
Claims priority, application Japan, July 13, 1970, 45/61,618; Nov. 5, 1970, 45/98,107; Dec. 23, 1970, 45/118,332

Int. Cl. C07d 51/48

U.S. Cl. 260—251 QB

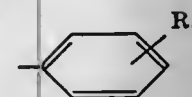
7 Claims

Quinazoline derivatives represented by the formula,

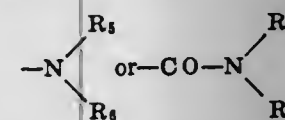


wherein R₁ and R₂ are individually a hydrogen, a lower alkyl, a lower alkoxy, a nitro, a trifluoromethyl, a lower

alkylthio, a lower alkylsulfonyl or a halogen; R₃ is a group of the formula



(wherein R₄ is a hydrogen, a lower alkyl, a lower alkoxy, a trifluoromethyl or a halogen), a naphthyl, a lower cycloalkyl, a lower cycloalkenyl, a pyridyl, a pyrrolyl, a thienyl or a furyl; R is a lower cycloalkyl, a trihalomethyl, a lower alkoxy, a lower alkylthio, a lower alkanoyloxy or a group of the formula



(wherein R₅ and R₆ are individually a lower alkyl provided that R₅ and R₆ may form together with the adjacent nitrogen an unsubstituted or optionally substituted 5- or 6-membered heterocyclic ring, which may further contain a nitrogen, an oxygen or a sulfur); and n is an integer of 1 to 3. These quinazoline derivatives have excellent pharmacological properties particularly anti-inflammatory and analgesic effects with low toxicity.

3,829,421

3-ARYL-BENZAZINES

Klaus Irmscher, Josef Kramer, Gerhard Cimblek, Dieter Orth, Herbert Nowak, and Karl-Otto Freisberg, Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, West Germany

No Drawing. Original application Nov. 13, 1969, Ser. No. 876,611, now Patent No. 3,711,478. Divided and this application Oct. 19, 1972, Ser. No. 298,875

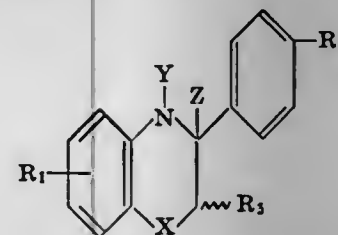
Claims priority, application Germany, Nov. 18, 1968, P 18 09 454.7; Nov. 23, 1968, P 18, 10 561.8

Int. Cl. C07d 87/48

U.S. Cl. 260—244 R

9 Claims

3-Aryl-Benzazines having serum cholesterol lowering activity of the formula



3,829,426

(5-NITRO-2-FURYL)-PYRIDINES

Ludwig Schroder, Ingelheim am Rhine, Klaus Thomas, Gau-Algesheim, and Hanns Goeth, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhine, Germany

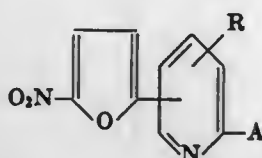
No Drawing. Filed Sept. 19, 1972, Ser. No. 290,334
Claims priority, application Germany, Sept. 22, 1971,
P 21 47 288.8

Int. Cl. C07d 31/30

U.S. Cl. 260—297 Z

6 Claims

Compounds of the formula



wherein A is hydroxyl, chlorine, alkoxy of 1 to 10 carbon atoms, dimethylamino-ethoxy or diethylamino-ethoxy, and

R is hydrogen, alkyl of 1 to 4 carbon atoms, pyridyl, phenyl or chloro-, hydroxy- and/or nitro-substituted phenyl;

the compounds are useful as antimicrobial agents, especially against gramnegative microorganisms, for the treatment of infections of the intestinal and urogenital tract.

3,829,427

8-ARYL-3-AZABICYCLO-[3,3,1]-NONANES

Adrian Charles Ward Curran, Reading, England, assignor to John Wyeth & Brother Limited, Berkshire, England

No Drawing. Filed Aug. 30, 1972, Ser. No. 284,819
Claims priority, application Great Britain, Sept. 10, 1971,
42,269/71

Int. Cl. C07d 39/00

U.S. Cl. 260—293.54

9 Claims

The invention provides novel 8-aryl-3-azabicyclo-[3,3,1]-nonanes.

The novel compounds possess one or more of the following pharmacological activities; anti-ulcer activity, inhibition of blood platelet adhesion or aggregation or CNS depressant activity, or are intermediates for pharmacologically valuable compounds.

3,829,428

PROCESS FOR THE CATALYTIC VAPOR-PHASE SYNTHESIS OF ALKYL PYRIDINES

Charles W. Hargis, Johnson City, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Sept. 1, 1972, Ser. No. 285,789

Int. Cl. C07d 31/08

U.S. Cl. 260—290 P

3 Claims

Process for the vapor-phase production of 2- and 4-picoline which comprises contacting a mixture of ammonia and acetaldehyde in the vapor-phase at an elevated temperature in the presence of a catalyst of silica-alumina and a co-catalyst selected from lithium phosphate, niobium pentoxide, tantalum pentoxide, bismuth trioxide, antimony (IV) oxide, or a mixture of antimony (IV) oxide and potassium oxide.

3,829,429

CATALYTIC SYNTHESIS OF SUBSTITUTED PYRIDINES FROM ACETYLENES AND NITRILES

Robert A. Clement, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 1,324, Jan. 7, 1970. This application
Nov. 22, 1972, Ser. No. 308,838

Int. Cl. C07d 31/04

U.S. Cl. 260—290 P

4 Claims

Novel process for the preparation of substituted pyridines comprising contacting an alkyl, alkylene or aryl substituted nitrile with at least one acetylenic compound of the formula $R^1-C\equiv C-R^2$, wherein R^1 and R^2 may be H, alkyl, alkoxy, alkenyl or aralkyl at about 150° C.-600° C. in the presence of a cobalt catalyst.

3,829,430

METHOD FOR THE PREPARATION OF TETRAHALO-4-(ALKYLSULFONYL)PYRIDINES

Demetrios Kyriacou, Clayton, Calif., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Jan. 11, 1973, Ser. No. 322,882

Int. Cl. C07d 31/48

U.S. Cl. 260—294.8 F

2 Claims

Tetrahalo-4-(alkylsulfonyl)pyridines are prepared by a method which comprises dissolving an appropriate tetrahalo-4-(alkylthio)pyridine or tetrahalo-4-(alkylsulfinyl)pyridine in concentrated sulfuric acid followed by the addition thereto of aqueous hydrogen peroxide and reacting the mixture at a temperature between 20° and 110° C. The products of this invention are useful as pesticides for the control of various bacteria and fungal pests.

3,829,431

PROCESS FOR THE PREPARATION OF CERTAIN INDOLOBENZAZEPINE DERIVATIVES

Joel G. Berger, Freeport, and Sonia R. Teller, New York, N.Y., assignors to Endo Laboratories, Inc., Garden City, N.Y.

No Drawing. Filed Apr. 19, 1972, Ser. No. 245,301

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 A

10 Claims

A two-step process for the preparation of 1,2,3,4,8,9-hexahydro-(3-substituted)pyrido[4',3':2,3]indolo[1,7-ab][1]benzazepines, useful as tranquilizers and/or analgesics in warm-blooded animals, or as intermediates in the preparation of these, involves reaction of N-nitrosoimino-dibenzyl with 4-piperidone or an N-substituted derivative of 4-piperidone in the presence of zinc and acetic acid, and cyclization of the resulting hydrazone with strong acid.

3,829,432

PROCESS FOR THE OXIDATION OF QUINOLINE

Jacques D. V. Hanotier and Monique G. S. Hanotier-Bridoux, Brussels, Belgium, assignors to Labofina S.A., Brussels, Belgium

No Drawing. Filed Apr. 2, 1973, Ser. No. 347,052

Int. Cl. C07d 31/36

U.S. Cl. 260—295.5 R

9 Claims

A process for the oxidation of quinoline into quinolinic acid which comprises reacting quinoline with a cobalt salt in a molar ratio of quinoline to cobalt salt lower than 2,

3,829,435

2,5-DICHLOROTHIAZOLO [5,4-d] THIAZOLE AND PROCESS FOR PREPARING SAME

Gunther Beck and Hans Holtschmidt, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 7, 1973, Ser. No. 338,708
Claims priority, application Germany, Mar. 25, 1972,
P 22 14 610.7

Int. Cl. C07d 91/42

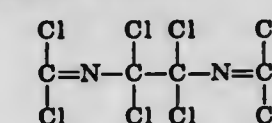
U.S. Cl. 260—306.8 F

3 Claims

2,5-dichlorothiazolo[5,4-d] thiazole having insecticidal properties of the formula:



is prepared by reacting tetrachloroethylene-bis-(isocyanide dichloride) having the formula:



with at least the stoichiometrically necessary quantity of sulphur at a temperature in the range of from 150° to 350° C.

3,829,436

3-[(AMINO)-PHENYL]INDOLINE COMPOUNDS AND PROCESS FOR MANUFACTURING THE SAME

James J. Krutak, Sr., Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed June 20, 1972, Ser. No. 264,688

Int. Cl. C07d 27/38

U.S. Cl. 260—326.11

8 Claims

Novel 3-[(amino)-phenyl]indoline compounds are prepared by reacting certain aromatic amines with α -haloaldehydes or derivatives thereof. These compounds are useful as intermediates for the preparation of Fischer's bases, cyanine dyes, azo dyes and active color photographic developers.

3,829,437

SUBSTITUTED-PHENYL-N-ALKYL-N-TRIHALO-METHYLTHIO-CARBAMATES

Gerhard Zumach, Cologne, Engelbert Kühle, Bergisch Gladbach, and Wolfgang Behrenz and Ingeborg Hamann, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 14, 1972, Ser. No. 234,663

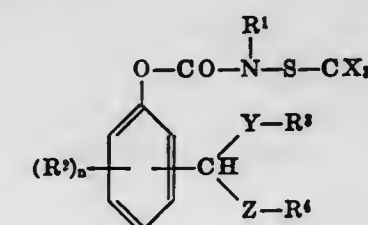
Claims priority, application Germany, Mar. 19, 1971,
P 21 13 454.3

Int. Cl. C07d 13/04, 71/00

U.S. Cl. 260—327 M

8 Claims

Substituted - phenyl-N-alkyl-N-trihalomethylthio-carbamates of the general formula



in which

X is chlorine, fluorine or bromine,
n is 0, 1 or 2,
R¹ is lower alkyl,

while maintaining a concentration of cobaltic ions such that $2x-A$ is between 0.1 and 1.5, x and A being respectively the molarity of said cobaltic ions and said cobalt salt in the reaction mixture, such reaction being carried out at a temperature between 40 and 150° C. in the presence of an aliphatic carboxylic acid having from 2 to 4 carbon atoms and in the presence of molecular oxygen at a partial pressure of from 0.2 to 20 atmospheres.

3,829,433

SUBSTITUTED PIPERIDINOALKANONE OXIME DERIVATIVES

Albert A. Carr, Cincinnati, C. Richard Kinsolving, Terrace Park, and Donald R. Meyer, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

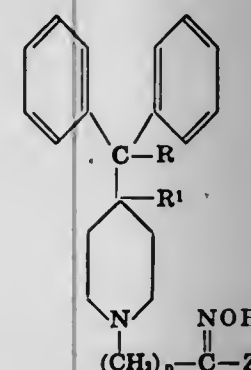
No Drawing. Filed Jan. 28, 1972, Ser. No. 221,822

Int. Cl. C07d 29/28

U.S. Cl. 260—293.79

12 Claims

Novel compounds useful as antihistamine agents, anti-allergy agents, and bronchodilators are represented by the following formula



wherein R represents hydrogen or hydroxy; R¹ represents hydrogen; or R and R¹ taken together form a second bond between the carbon atoms bearing R and R¹; n is a positive whole integer of from 1 to 3; Z represents thienyl, phenyl, or substituted phenyl wherein the substituents on the substituted phenyl may be attached at the ortho, meta, or para positions of the phenyl ring and are selected from halogen, a straight or branched lower alkyl chain of from 1 to 4 carbon atoms, a lower alkoxy group of from 1 to 4 carbon atoms, a di(lower)alkylamino group, or a saturated monocyclic heterocyclic group such as pyrrolidino, piperidino, morpholino, or N-(lower)alkyl-piperazino. Pharmaceutically acceptable acid addition salts and individual geometric isomers of compounds of the above formula are also included as a part of this invention.

3,829,434

PIPERIDINESULFONYLUREA DERIVATIVES

George R. Evanega, Ledyard, Donald E. Kuhla, Gales Ferry, and Reinhard Sarges, Mystic, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Filed Nov. 10, 1972, Ser. No. 305,594

Int. Cl. C07d 31/50

U.S. Cl. 260—293.56

10 Claims

A series of novel 1-piperidinesulfonylurea compounds derived from a nitrogen-containing monocarboxylic acid have been prepared by reacting an appropriate sulfamide with an organic isocyanate or a trisubstituted urea equivalent thereof. The sulfamylureas so obtained are useful in therapy as oral hypoglycemic agents. Typical members include those compounds derived from 2-methoxynicotinic acid, of which 1-(bicyclo[2.2.1]hept-5-en-2-yl-endo-methyl) - 3 - {4-[2-(2-methoxynicotinamido)ethyl]-1-piperidinesulfonyl}-urea is a most preferred embodiment.

R² is lower alkyl or alkoxy, halogen or nitro, Y and Z each independently is oxygen or sulfur, and R³ and R⁴ each independently is lower alkyl, alkenyl or alkynyl, or together are an alkylene radical completing a 5- to 7-membered saturated heterocyclic ring optionally substituted by at least one of lower alkyl or alkoxy radicals, halogen and nitro,

which possess insecticidal, acaricidal and fungicidal properties.

3,829,438

PROCESS FOR STABILIZING PROPANESULTONE

Akiji Ikegami and Hideo Morita, Arai, Japan, assignors to Daicel Ltd., Osaka, Japan

No Drawing. Filed Mar. 22, 1972, Ser. No. 236,994

Claims priority, application Japan, Mar. 24, 1971, 46/17,005

Int. Cl. C07d 89/06

U.S. Cl. 260—327 S

2 Claims

Propanesultone is stabilized by adding at least one compound selected from the group consisting of aliphatic amines, alicyclic amines, aralkylamines, non-aromatic cyclic amines, N-alkyl-substituted aromatic amines, aminoalcohols, amine character nitrogen containing carboxylic acids having 2 to 10 carbon atoms and their esters, amides, pyridines, quinolines, and reaction products of these compounds with propanesultone.

3,829,439

PROCESS FOR PREPARING COMPOUNDS OF THE BENZOTHIAXANTHENE SERIES

Ernst Spietschka, Oberauroff, Taunus, and Josef Landler, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 10, 1972, Ser. No. 270,257

Claims priority, application Germany, July 10, 1971, P 21 34 518.6

Int. Cl. C07d 65/16

U.S. Cl. 260—328

9 Claims

Process for preparing compounds of the benzothioxanthene series, wherein compounds of the 1-(2'-amino-phenylmercapto)naphthalene series or of the 1-phenylmercapto-8-amino-naphthalene series are reacted in a N,N-dialkylated acid amide with compounds that yield nitrosyl groups and the diazonium compounds so obtained are heated in the presence of copper or copper salts. This process is suited for all compounds which contain the benzothioxanthene ring, independently of their substituents. The products obtained by this process have a markedly higher purity and are obtained in a higher yield as compared to other processes.

3,829,440

XANTHENE DERIVATIVES

Albert A. Carr, Cincinnati, and Joyce F. Grunwell, Hamilton, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed Dec. 21, 1972, Ser. No. 317,147

Int. Cl. C07d 7/42, 65/16

U.S. Cl. 260—335

7 Claims

Novel 3,6-bis basic ethers and thioethers of 9-(substituted)benzylidenexanthene, their preparation and use for

the prevention and inhibition of viral infections are disclosed.

3,829,441

GUANIDINOALKYLBENZODIOXAN DERIVATIVES

John Nicholson Gardner, Wayne, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 251,471, Jan. 15, 1963, now Patent No. 3,360,529, dated Dec. 26, 1967. This application Nov. 1, 1967, Ser. No. 679,670

Claims priority, application Great Britain, Jan. 29, 1962, 3,340/62

The portion of the term of the patent subsequent to Dec. 26, 1984, has been disclaimed

Int. Cl. C07d 15/18

U.S. Cl. 260—340.3

1 Claim

The preparation of a group of new compounds having antihypertensive activity and characterized by being guanidinoalkyl-1,4-benzodioxans. The compounds are most easily prepared by reacting a 2-aminoalkyl-1,4-benzodioxane with cyanamide.

3,829,442

INSECTICIDAL 1,3-BENZODIOXOL DERIVATIVES

Hans-Peter Schelling, Oberwil, and Fritz Schaub, Basel, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Dec. 13, 1971, Ser. No. 207,633

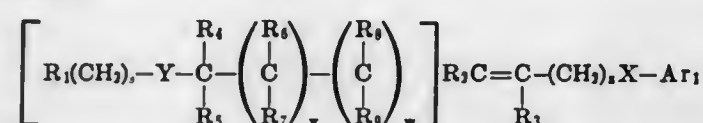
Claims priority, application Switzerland, Dec. 14, 1970, 18,472/70; Sept. 17, 1971, 13,599/71; Oct. 6, 1971, 14,521/71; Nov. 11, 1971, 16,357/71

Int. Cl. C07d 13/10

U.S. Cl. 260—340.5

24 Claims

The present invention concerns novel compounds of the formula:



wherein R₁ to R₁₁ have various significances including e.g. alkyl, X and Y include O and S and s, v and w are whole numbers and Ar₁ is phenyl or substituted phenyl. The compounds possess insecticidal properties.

3,829,443

SYNTHESIS OF 3-(3'-CARBOXY-4'-HYDROXY-1'-NAPHTHYL)-3-(3''-CARBOXY-4''-HYDROXY-1''-NAPHTHYL)NAPHTHALIDE

Henry Bader, Newton Center, and Susan C. January, Wellesley Hills, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed Feb. 28, 1973, Ser. No. 336,619

Int. Cl. C07d 5/06

U.S. Cl. 260—343.2 R

13 Claims

Carboxy-substituted 1-naphthol naphthalide indicator dyes are prepared by reacting a 2-carboxy-1-naphthol and a 3-acyloxy-3-(3'-lower carboalkoxy-4'-hydroxy-1'-naphthyl)naphthalide in the presence of a catalyst having a high dipole moment to form the corresponding dye precursor which is then hydrolyzed to yield the corresponding indicator dye product.

3,829,444

4-AZIDOCARBONYLPHTHALIC ANHYDRIDE, 4-ISOCYANATOPHTHALIC ANHYDRIDE, AND 4-LOWER ALKOXYCARBONAMIDO PHTHALIC ANHYDRIDE

Reinhard H. Richter, Hamden, and Henri Ulrich, North Branford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 22, 1972, Ser. No. 228,376

Int. Cl. C07c 63/14

U.S. Cl. 260—346.3

4 Claims

The compounds 4-azidocarbonylphthalic anhydride, 4-isocyanatophthalic anhydride, and the lower-alkyl carbamates obtained by reacting the latter isocyanate with a lower-aliphatic alcohol, are described. A process for the preparation of a polyimide by heating these compounds alone or in admixture with other polyisocyanates is also described. The 4-azidocarbonylphthalic anhydride is an intermediate for the 4-isocyanatophthalic anhydride.

3,829,445

3-(3'-LOWER CARBOALKOXY-4'-HYDROXY-1'-NAPHTHYL)-3-(3''-CARBOXY-4''-HYDROXY-1''-NAPHTHYL)NAPHTHALIDE

Michael H. Feingold, Pinehurst, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

No Drawing. Filed Dec. 11, 1972, Ser. No. 314,094

Int. Cl. C07d 7/06

U.S. Cl. 260—343.2 R

8 Claims

This invention relates to the synthesis of naphthol naphthalide indicator dyes and dye precursors by reacting a 3-(3'-lower carboalkoxy-4'-oxo-1'-naphthylidene)naphthalide, an organic carboxylic acid and a 2-carboxy-1-naphthol in the presence of base to yield the corresponding 3-(3'-lower carboalkoxy-4'-hydroxy-1'-naphthyl)-3-(3''-carboxy-4''-hydroxy-1''-naphthyl)naphthalide dye precursor and hydrolyzing the dye precursor to yield the corresponding indicator dye product.

3,829,446

OXOBENZOFURAN INTERMEDIATES

Saul B. Kadin, New London, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Original application Oct. 15, 1970, Ser. No. 81,162, now Patent No. 3,676,463. Divided and this application Apr. 21, 1972, Ser. No. 246,491

Int. Cl. C07d 5/34

U.S. Cl. 260—343.3

3 Claims

A series of novel 2-oxo-2,3-dihydrobenzofuran-3-carboxamides have been prepared, including their pharmaceutically acceptable salts. These compounds are useful in therapy as non-steroidal anti-inflammatory agents. Alternate methods of preparation are provided and the principal synthetic route is described in detail.

3,829,447

(—)-9-OXO-5(S)-HYDROXY DECAHOIC ACID LACTONE

Julius Berger, Passaic, and Michael Rosenberger, Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Application Jan. 12, 1972, Ser. No. 217,294, now Patent No. 3,732,268, which is a division of application Ser. No. 57,371, July 22, 1970, now Patent No. 3,657,070. Divided and this application Jan. 31, 1973, Ser. No. 328,222

The portion of the term of the patent subsequent to Dec. 1, 1987 has been disclaimed

Int. Cl. C07d 7/06

U.S. Cl. 260—343.5

1 Claim

Optically active 9-oxo-5(S)-hydroxy-decanoic acid is prepared by selective microbiological reduction of 5,9-dioxo-decanoic acid. The product acid is converted to levorotatory 9-oxo-5(S)-hydroxy-decanoic acid lactone by treatment of the reaction medium with a strong mineral acid. The aforesaid lactone is useful as an intermediate in the total synthesis of medicinally valuable, optically active steroids.

3,829,448

PROCESS FOR PRODUCING γ-LACTONES AND CYCLIC ETHERS

Junichi Kanetaka, Takashi Shimodaira, and Shoichiro Mori, Ami, Japan, assignors to Mitsubishi Petrochemical Company Limited, Tokyo-to, Japan

No Drawing. Filed June 11, 1971, Ser. No. 152,455
Claims priority, application Japan, June 18, 1970, 45/52,394; July 17, 1970, 45/62,680

Int. Cl. C07d 5/06

U.S. Cl. 260—343.6

4 Claims

A nickel-base hydrogenation catalyst comprises nickel and an additive metal in a state of intimately close combination, the additive metal being germanium or a metal of Group I-A or II-A of the Periodic Table. This catalyst is effective when used in the catalytic hydrogenation of a dicarboxylic anhydride or a partially hydrogenated product thereof thereby to produce a corresponding cyclic lactone or cyclic ether.

3,829,449

ORGANICALLY SUBSTITUTED SODIUM ALUMINUM HYDRIDES AND METHOD OF MAKING AND USING THE SAME

Jaroslav Vit, Bohuslav Casensky, and Milan Mamula, Prague, and Jiri Machacek, Rez, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Original application Nov. 10, 1966, Ser. No. 594,971, now Patent No. 3,652,622. Divided and this application June 24, 1971, Ser. No. 136,594

Claims priority, application Czechoslovakia, Nov. 13, 1965, 6,771/65; Mar. 26, 1966, 2,009/66, 2,010/66

Int. Cl. C07d 5/16, 7/14

U.S. Cl. 260—345.9

5 Claims

The present invention relates to sodium aluminum hydrides substituted by organic groups.

3,829,450

POLYHALOSUBSTITUTED POLYHYDROPOLYCYCLICDICARBOXYLIC ACID AND ANHYDRIDE

Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Nov. 1, 1972, Ser. No. 302,988

Int. Cl. C07c 63/18, 63/38

U.S. Cl. 260—346.3

6 Claims

Novel compounds comprising polyhalo-substituted polyhydropolycyclicdicarboxylic acids or anhydrides thereof as exemplified by 5,6,7,8,9,9-hexachloro-6,7-dibromomethylene-1,2,3,4,4a,5,8,8a-octahydro-5,8-methano-2,3-naphthalenedicarboxylic anhydride possessing certain physical properties such as being flameproof or fire resistant.

3,829,451

PROCESS FOR PRODUCING TRIMELLITIC ANHYDRIDE

Jean Berthouex, Decines, and Claude Gerbelot-Barrillon, Lyon, France, assignors to Progil, Paris, France

No Drawing. Continuation of abandoned application Ser. No. 781,267, Dec. 4, 1968. This application Dec. 23, 1971, Ser. No. 211,676

Claims priority, application France, Dec. 29, 1967, 134,511

Int. Cl. C07c 63/32

U.S. Cl. 260—346.4

8 Claims

A method for producing pure trimellitic anhydride from the reaction mixture obtained by liquid-phase oxidation of pseudo-cumene by air or oxygen in the presence of a catalyst, an aliphatic carboxylic acid solvent and, if desired, a dehydration agent such as benzene by subjecting the reaction mixture to a distillation under an absolute pressure of 200–800 mm. Hg and then rectifying the non-distilled portion under vacuum to yield pure trimellitic anhydride.

3,829,452

ANTHRAQUINONE DYESTUFFS

Klaus Wunderlich, Leverkusen, and Hans-Samuel Bien, Burscheid, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Feb. 20, 1969, Ser. No. 801,147
Claims priority, application Germany, Feb. 29, 1968, P 16 44 626.7

Int. Cl. C09b 1/30, 1/34

U.S. Cl. 260—372

12 Claims

5-sulfo-1-isopropylamino, 4-substituted-amino anthraquinone dyestuffs are provided having very good fastness properties when applied to synthetic and natural polyamide fiber materials.

3,829,453

OCTAHYDROANTHRACENE - 2 - AMINOACETIC ACIDS AND ESTERS AND MIXED ANHYDRIDES THEREOF

Lloyd H. Conover, Barham, near Canterbury, England, and Robert B. Woodward, Belmont, Mass., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Application Oct. 31, 1969, Ser. No. 873,077, now Patent No. 3,697,552, which is a division of application Ser. No. 569,052, Aug. 1, 1966, now Patent No. 3,509,184, which is a continuation-in-part of application Ser. No. 209,269, July 11, 1962, which in turn is a continuation-in-part of application Ser. No. 132,304, Aug. 18, 1961, both now abandoned. Divided and this application Mar. 8, 1972, Ser. No. 232,972

Int. Cl. C07c 49/76

U.S. Cl. 260—351

6 Claims

The total synthesis of tetracycline-type antibiotics by a multi-step process beginning with 3,4,10-trioxo-1,2,3,4,4a,9,9a,10-octahydroanthracenes comprising: (1) an aldol condensation with a glyoxalic acid ester to give a 2-carboxymethylidene-3,4,10-trioxo-1,2,3,4,4a,9,9a,10-octahydroanthracene ester; (2) Michael reaction of said ester with an amine to produce a 3,4,10-trioxo-1,2,3,4,4a,9,9a,10-octahydroanthracene-2-(α -amino)acetic acid ester; (3) conversion of the triketone to the corresponding 4,10-diketone by (a) selective reduction of the Michael reaction product to the corresponding 3-hydroxy compound, followed by conversion of the 3-hydroxy compound to the corresponding 3-formyloxy compound and removal of the 3-formyloxy group by treatment with zinc dust to give a 4,10-dioxo-1,2,3,4,4a,9,9a,10-octahydroanthracene-2-(α -amino)acetic acid ester; or (b) conversion of the hydrochloride salt of the Michael reaction product to a lactone by reaction with p-toluene-sulfonic acid and treatment of the lactone with zinc dust formic acid; (4) conversion of the 4,10-diketone-1,2,3,4,4a,9,9a,10-octahydroanthracene-2-(α -amino)acetic acid to a mixed anhydride; (5) followed by acylation of a malonic acid ester with the mixed anhydride; (6) cyclization of the acyl malonate derivative to a 12a-deoxytetracycline which is then hydroxylated to a tetracycline. The preparation of the 3,4,10-trioxo-1,2,3,4,4a,9,9a,10-octahydroanthracenes from benzoyl halides by (a) Friedel-Crafts reaction of a benzoyl halide with a pyrocatechol ether, e.g., a di-(lower)alkyl ether, to produce a 3,4-di-(lower)alkoxybenzophenone; (b) conversion of the benzophenone by partial or complete reduction of the carbonyl group by chemical or catalytic methods to a 3,4-di-(lower)alkoxy diphenyl methanol or 3,4-di-(lower)alkoxy diphenyl methane; or to a 3,4-di-(lower)alkoxy diphenyl alkane via a Grignard reaction and reduction of the thus-produced alcohol; (c) oxidation of the 3,4-di-(lower)alkoxy diphenyl alkane, or the corresponding dihydroxy compound, to a dienedioic acid ester or dienedioic acid; (d) hydrogenation of the dienedioic acid compound to a benzyl adipic acid derivative; (e) cyclization of said compound to a 2-(2-carbalkoxyethyl)-4-tetralone by means of dehydrating or dehydrohalogenating agents; (f) cyclization of the 4-tetralone derivatives by condensation with a dialkyl oxalate to give a 2-carbalkoxy 3,4,10-trioxo-octahydroanthracene; and (g) removal of the 2-substituent

by decarboxylation. The intermediates and final products are useful as bactericides and/or chelating agents.

3,829,454

PROCESS FOR PREPARING N-MONO-(β -CYANOETHYL)-ARYLAMINES

Hans Jakob Schladetsch, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Dec. 14, 1970, Ser. No. 98,126

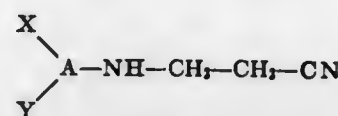
Claims priority, application Germany, Dec. 16, 1969, P 19 63 010.5; Nov. 16, 1970, P 20 56 215.6, P 20 56 216.7

Int. Cl. C07c 121/02

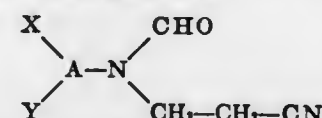
U.S. Cl. 260—465 E

6 Claims

Process for preparing N-(β -cyanoethyl)-arylamines of the formula



wherein A represents phenyl, naphthyl, anthracenyl or anthraquinonyl, X stands for hydrogen, fluorine, chlorine or bromine atoms, alkyl of C₁ to C₅, alkoxy of C₁ to C₄, trifluoromethyl, phenyl, phenoxy, benzoyl-alkylsulfonyl of C₁ to C₆, N,N-dialkyl-amidosulfone of C₂ to C₈ and phenylazo, Y represents hydrogen, fluorine or chlorine atoms, a nitro group, alkoxy of C₁ to C₄ and alkyl-fluoroalkyl-alkoxy of C₁ to C₄, by reacting a N-(β -cyanoethyl)-aryl-formamide of the formula



wherein A, X and Y are defined as above, with diluted aqueous mineral acids, in the presence of a solubilizer and at an elevated temperature.

3,829,455

ARYL KETONE CONTAINING ORGANOSILICON MATERIALS

Edward V. Wilkus, 50 Autumn Drive, Monroe, Conn. 06468, and Abe Berger, 1504 Barclay Place, Schenectady, N.Y. 12309

No Drawing. Application Mar. 17, 1972, Ser. No. 235,811, which is a continuation-in-part of application Ser. No. 724,300, Feb. 2, 1968, now Patent No. 3,544,595, which in turn is a division of application Ser. No. 591,118, Nov. 1, 1966, now Patent No. 3,391,109. Divided and this application Mar. 14, 1973, Ser. No. 341,161

Int. Cl. C07f 7/08, 7/10

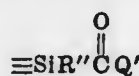
U.S. Cl. 260—448.2 B

4 Claims

One class of organosilicon materials are provided having chemically combined



units, where R' is a divalent hydrocarbon radical and Q is a radical selected from aryloxyaryl, arylthioaryl, arylsulfonylaryl, and certain heteroaromatic radicals. In addition, organosilicon polymers and copolymers are provided having chemically combined



units, where Q' is a radical selected from Q radicals, nonvalent aromatic hydrocarbon radicals and halogenated monovalent aromatic hydrocarbon radicals. The monomers and polymers can be employed as perfume oil bases, in cosmetics and as fluids in the manufacture of elastomers and resins.

3,829,456

METHOD FOR MAKING t-BUTYL 2,4,5-TRICHLORO PHENYL CARBONATE

Harold Berman, Norwich, N.Y., assignor to Morton-Norwich Products, Inc.

No Drawing. Filed Apr. 28, 1972, Ser. No. 248,626

Int. Cl. C07c 69/00

U.S. Cl. 260—463

1 Claim

A process for preparing t-butyl 2,4,5-trichlorophenyl carbonate, useful in the synthesis of peptides.

3,829,457

PROCESS FOR THE PRODUCTION OF ALKYL-SULFURIC ACIDS AND CORRESPONDING SALTS

Emilio Berrotti, Via Kennedy 2, San Donato Milanese, Italy, and Paolo Koch, Via Cavour 5, San Giuliano Milanese, Italy

No Drawing. Filed July 31, 1972, Ser. No. 276,466

Claims priority, application Italy, July 31, 1971, 27,013/71

Int. Cl. C07c 141/04

U.S. Cl. 260—459

9 Claims

The present invention refers to a process for the preparation of alkyl-sulfuric acids and corresponding salts starting from alcohols by a new sulfatation reaction with O₂ and SO₂ in the presence of transition metal compounds as catalyst. Many sulfuric derivatives of primary alcohols are known which have the OSO₃H group directly bound to the hydrophobic radical.

They form one of the more important classes of synthetic surfactants owing to their great use in many different fields. They can be used as detergents, foaming agents, imbibition agents, dispersing agents and emulsifying agents.

3,829,458

PROCEDURE FOR THE CONTINUOUS MANUFACTURE OF ORGANIC ISOCYANATES

Peter Horn, Ingelfingen, and Ludwig Schuster, Ludwigs-hafen, Germany, assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Dec. 1, 1972, Ser. No. 311,217

Int. Cl. C07c 119/04

U.S. Cl. 260—453 PH

4 Claims

A procedure for the manufacture of organic isocyanates from primary organic amines and phosgene in an inert organic solvent, characterized by carrying the reaction out continuously in packed reaction vessels, preferably by recycling the reaction mixture by means of the so-called transition flow.

3,829,459

HYDROXAMIC ACID ESTERS OF PENTANE-CARBOXYLIC ACIDS

Harvey E. Alburn, West Chester, Donald E. Clark, Norristown, Norman H. Grant, Wynnewood, and Milton Lapidus, Rosemont, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Original application Nov. 5, 1969, Ser. No. 874,381, now Patent No. 3,703,543. Divided and this application May 22, 1972, Ser. No. 255,748

Int. Cl. C07c 119/00

U.S. Cl. 260—453 R

6 Claims

The compounds are hydroxamic acids of alicyclic amino acids, and esters of said compounds, all of which

have valuable pharmacodynamic properties in that they suppress the immune response in warm-blooded animals.

3,829,460

PREPARATION OF TRIFLUOROMETHYL AROMATIC ISOCYANATES

Gerhard Buttner, Cologne, and Erich Klauke, Odenthal-Hahnenberg, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 21, 1972, Ser. No. 265,021

Claims priority, application Germany, July 6, 1971, P 21 33 467.8

Int. Cl. C07c 119/04

U.S. Cl. 260—453 P

4 Claims

Side-chain-fluorinated aromatic isocyanates are obtained in high yield by heating the corresponding trichloromethyl phenyl isocyanates with antimony trifluoride in the absence of solvents. Compounds made by this process include 3,3' - bis-(trifluoromethyl)-4,4'-diisocyanato-diphenyl difluoromethane, 2,4 - bis-(trifluoromethyl)-phenyl isocyanate, 2,5-bis-(trifluoromethyl)-phenyl isocyanate, and 2,4-bis-(trifluoromethyl)-phenyl-1,5-diisocyanate.

3,829,461

DYESTUFFS AND PROCESS FOR THEIR PRODUCTION

Roderich Raue, Winfried Kruckenberg, and Ernst-Heinrich Rohe, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 4, 1965, Ser. No. 423,361

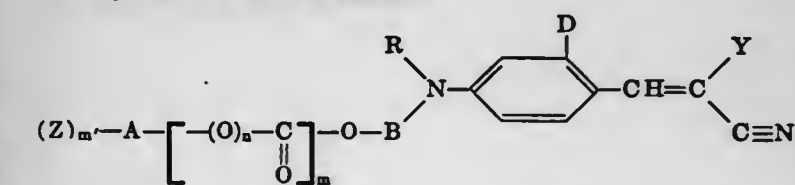
Claims priority, application Germany, Jan. 17, 1964, F 41,769

Int. Cl. C07c 121/60, 121/70

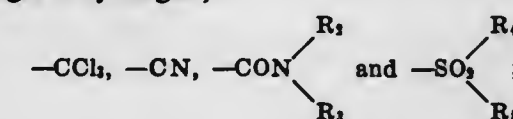
U.S. Cl. 260—465 D

9 Claims

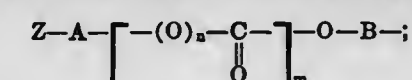
A dyestuff of the formula:



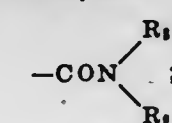
wherein Z stands for a member selected from the class consisting of hydrogen,



m and m' stand for an integer ranging from 0 to 1; n stands for an integer ranging from 0 to 1; A stands for an arylene radical selected from the class consisting of a radical of the benzene and naphthalene series, B stands for an alkylene radical having 2 to 4 carbon atoms, R stands for a member selected from the class consisting of lower alkyl, lower alkyl aryl, cycloalkyl and



D stands for a member selected from the class consisting of hydrogen, lower alkyl, lower alkoxy and halogen; Y stands for a member selected from the class consisting of —CN, —SO₂R₆, —COOR₇ and



the radicals R₂, R₃, R₄, R₅, R₆ and R₇ stand for members selected from the class consisting of hydrogen, lower al-

kyl, lower alkyl aryl, cycloalkyl and aryl; the radicals R_1 , R_6 and R_7 stand for members selected from the class consisting of lower alkyl, lower alkyl aryl, cycloalkyl and aryl; the dyestuff being free of sulfonic acid and carboxylic acid groups.

The dyestuffs of this invention are particularly suitable for the dyeing and printing of aromatic polyesters, polycarbonates, polyamides, and cellulose esters.

3,829,462

ANTHRANILIC ACID ESTERS NUCLEARLY SUBSTITUTED WITH OPTIONALLY SUBSTITUTED PHENYL-ALKYL

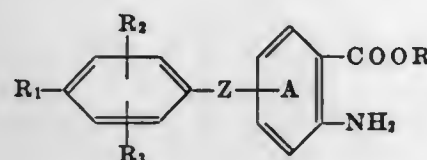
Heinrich Krimm and Dieter Freitag, Krefeld-Bockum, and Immo Bole, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 28, 1971, Ser. No. 110,776
Claims priority, application Germany, Jan. 28, 1970, P 20 03 707.4; Dec. 29, 1970, P 20 64 305.4

Int. Cl. C07c 101/54

U.S. Cl. 260—471 R 9 Claims

The invention relates to anthranilic acid esters which are alkylated in the nucleus represented by the general formula



and to a process for their preparation. R , R_1 , R_2 , R_3 and Z have the meaning as indicated in the specification.

The anthranilic acid esters according to this invention are suitable for the stabilisation of viscosity in the production of polyamides and they are also suitable for the production of azo dyes and indazolones which can be used as color forming couplers.

Such anthranilic acid esters which have groups able for condensation or additional reactions are suitable for the production of high molecular weight compounds.

3,829,463

OXIME SUBSTITUTED CARBANILATES

Gabriel Kornis and Eldon G. Nidy, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application May 19, 1971, Ser. No. 145,016, now abandoned. Divided and this application May 29, 1973, Ser. No. 364,823

Int. Cl. C07c 125/06

U.S. Cl. 260—471 C 2 Claims

A number of new *m*-aminobenzaldoxime derivatives have been found to possess herbicidal and plant growth regulator activity. The amine grouping has been converted into an urea, thiourea, carbamate or thiocarbamate function, and the oxime group has been converted by the formation of O-ethers.

3,829,464

BENZALDOXIME-META-CARBAMATES

Gabriel Kornis and Eldon G. Nidy, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application May 19, 1971, Ser. No. 145,016, now abandoned. Divided and this application May 29, 1973, Ser. No. 364,822

Int. Cl. C07b 125/06

U.S. Cl. 260—471 C 2 Claims

A number of new *m*-aminobenzaldoxime derivatives have been found to possess herbicidal and plant growth

regulator activity. The amine grouping has been converted into an urea, thiourea, carbamate or thiocarbamate function, and the oxime group has been converted by the formation of O-ethers.

3,829,465

4-(OXOALKOXY)BENZOIC ACIDS AND ESTER THEREOF

John B. Siddall and Clive A. Henrick, Palo Alto, Calif., assignors to Zeecon Corporation, Palo Alto, Calif.

No Drawing. Original application Nov. 12, 1970, Ser. No. 89,022, now Patent No. 3,723,467. Divided and this application Oct. 31, 1972, Ser. No. 302,470

Int. Cl. C07c 69/78

U.S. Cl. 260—473 R 7 Claims

Ethers of benzoic acid and benzoic acid esters having an oxo-substituted side chain which are useful for insect control.

3,829,466

PERFLUOROALKANESULPHONAMIDES

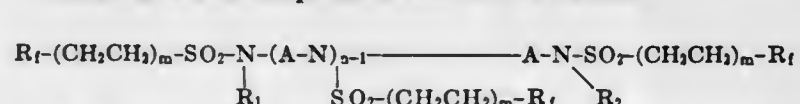
Adolf Staffe, Opladen, and Klaus Gerlach, Cologne, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 26, 1972, Ser. No. 300,892
Claims priority, application Germany, Oct. 26, 1971, P 21 53 270.7

Int. Cl. C07c 143/74

U.S. Cl. 260—481 R 21 Claims

Perfluoroalkanesulphonamides of the formula



in which

R_1 , A , R_2 , n and m have the meaning given in the disclosure below, a process for their manufacture and their use as oleophobic agents.

3,829,467

TETRAHYDRONAPHTHYLALKANOIC ACIDS AND THEIR DERIVATIVES

Julius Diamond, Lafayette Hill, and George Henry Douglas, Paoli, Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

No Drawing. Filed July 3, 1972, Ser. No. 268,745

Int. Cl. C07c 63/50

U.S. Cl. 260—501.16 2 Claims

Novel tetrahydronaphthylalkanoic acids and their derivatives such as alpha, 4-dichloro-5,6,7,8-tetrahydro-2-naphthylacetic acid and its diethylammonium salt, useful for the treatment of inflammation and associated pain and fever, are described.

3,829,468

PROCESS FOR THE PRODUCTION OF PEROXYACETIC ACID

George A. Serad, Charlotte, N.C., and Alexander F. MacLean, Durham, N.H., assignors to Celanese Corporation, New York, N.Y.

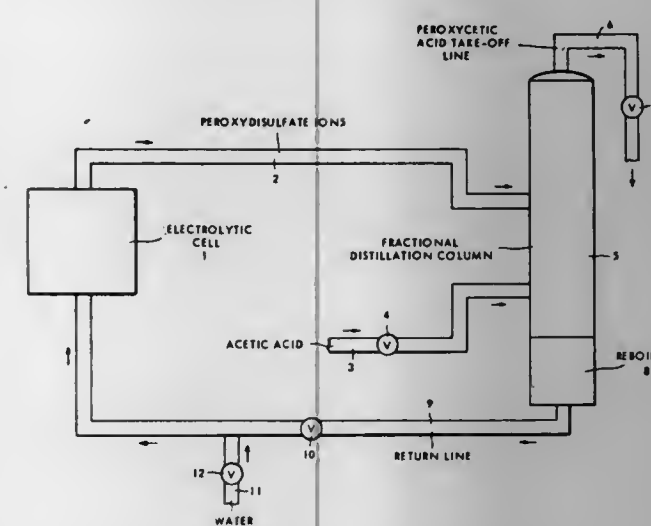
Continuation-in-part of abandoned application Ser. No. 48,962, June 23, 1970. This application June 21, 1972, Ser. No. 265,032

Int. Cl. C07b 3/00; C07c 73/10

U.S. Cl. 260—502 R 8 Claims

Peroxyacetic acid is produced by a process wherein aqueous peroxydisulfate ions are generated in an elec-

trolytic cell and reacted with acetic acid to form an aqueous solution of peroxyacetic acid and a peroxydisulfate reduction product. The peroxyacetic acid is sepa-



rated from the peroxydisulfate reduction product and the latter can be recycled to the electrolytic cell for use in generating new peroxydisulfate ions.

3,829,469

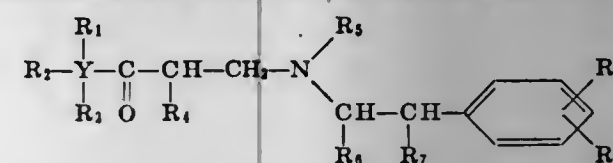
N-HYDROXYARYLALIPHATIC-AMINO-PROPIOPHENONES AND THE SALTS THEREOF

Kurt Thiele, Frankfurt am Main, and Klaus Posselt, Bergen-Enkheim, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

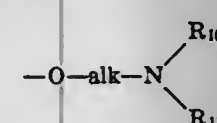
No Drawing. Filed May 5, 1969, Ser. No. 821,952
Int. Cl. C07c 93/06

U.S. Cl. 260—570.5 C 8 Claims

Compounds are prepared having the general formula



where R_2 and R_3 are hydrogen, methoxy or nitro, Y is a phenyl or a condensed multi-ring aromatic group one or more rings of which can be partially or completely saturated, R_4 is hydrogen, methyl or ethyl, R_5 and R_6 are hydrogen or methyl, R_7 is hydrogen or hydroxy, R_1 is —O—alk—OH or



wherein alk is a straight or branch chain alkylene chain of 1 to 6 carbon atoms which can be hydroxy substituted, R_{10} and R_{11} are hydrogen, lower alkyl or lower alkenyl or are joined together with each other or alk to form a 5, 6 or 7 membered closed ring which can contain a further hetero atom such as oxygen, sulfur or nitrogen, R_{12} is hydroxyl or a straight or branched chain lower alkyl group of at least two carbon atoms, R_{13} is hydrogen, hydroxy or a straight or branched chain lower alkyl group with the proviso that if R_{12} is hydroxy R_{13} can be methyl. The compounds have pharmaceutical properties and are suited for the treatment of heart and circulatory conditions.

3,829,470

ALKYLPHENOL DISULFONATION PROCESS

Eric D. Hannah, Mill Valley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Jan. 13, 1972, Ser. No. 217,630

Int. Cl. C07c 143/42

U.S. Cl. 260—512 R 4 Claims

Two-step process for production of alkylphenol polysulfonic acids in which the alkylphenol is reacted with

oleum in an initial sulfonation step at a temperature of 50 to 80° C. and digested at a lower temperature in the range of 0 to 50° C. to complete the incorporation of 1.5 to 2.0 sulfonic acid groups.

3,829,471

REACTIONS OF ALKYL SULTONES WITH HALIDE SALTS IN AQUEOUS SYSTEMS

Paul Kobetz and Kenneth L. Lindsay, Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

No Drawing. Filed Dec. 7, 1972, Ser. No. 312,949

Int. Cl. C07c 143/02

U.S. Cl. 260—513 R 10 Claims

It is disclosed that sultones and sulfonic acids and acid-mix obtained by sulfonating olefin or olefin mixtures with SO_3 are converted into salts of sulfonic acids by a reaction in an aqueous system with a salt of a volatile acid.

3,829,472

METHOD FOR THE SEPARATION OF METHALLYL SULFONATE

Heinz Rassaerts, Marl, Germany, assignor to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed Apr. 9, 1973, Ser. No. 349,429
Claims priority, application Germany, May 4, 1972, P 22 21 736.3

Int. Cl. C07c 143/16

U.S. Cl. 260—513 B 3 Claims

A method for separating sodium methallyl sulfonate from sodium chloride water solution by partial evaporation of the brine to a weight ratio of about 1.3–1.5:1 of sodium methallyl sulfonate and sodium chloride salts to water, to precipitate the sodium chloride followed by cooling to separate the methallyl sulfonate.

3,829,473

γ,γ -DIARYL- α,β -DIHALOCROTONIC ACIDS

Vaclav Jelinek, deceased, late of Prague, Czechoslovakia, by Vera Jelinekova and Vaclav Jelinek, heirs, Prague, Miroslav Semonsky, Prague, Jiri Hartl, Bratislava, and Alois Borovansky, Brno, Czechoslovakia, assignors to SPOFA, United Pharmaceutical Works, Prague, Czechoslovakia

No Drawing. Filed Nov. 18, 1970, Ser. No. 90,881
Claims priority, application Czechoslovakia, Nov. 18, 1969, 7,603/69

Int. Cl. C07c 63/60

U.S. Cl. 260—515 A 11 Claims

Novel therapeutic compounds of the γ,γ -diaryl- α,β -dihalocrotonic acid type specifically the dichloro and dibromo compounds and processes for the production thereof.

3,829,474

5,5-DIPHENYLPENT-4-ENOIC ACIDS AND RELATED COMPOUNDS

Eric Harold Billett, Harlowe, and David Miller, Sevenoaks, England, assignors to Beecham Group Limited, Brentford, Middlesex, England

No Drawing. Original application Aug. 3, 1970, Ser. No. 60,729, now Patent No. 3,736,347. Divided and this application Aug. 31, 1972, Ser. No. 285,366

Int. Cl. C07c 63/46, 63/48, 63/76

U.S. Cl. 260—515 R 7 Claims

Substituted alkenoic acids having two phenyl or lower alkoxyphenyl groups and certain derivatives have been found to have estrogenic, e.g., anti-fertility properties for treating menopausal disorders or for estrogenic replacement. Typical compounds are 2-carboxy-5,5-diphenyl-4-methylpent-4-enoic acids, 2-methyl-4-ethyl-5,5-diphenyl-2-carboxypent-4-enoic acid and 2,4-dimethyl-5-phenyl-5-(4-methoxy-phenyl)pent-4-enoic acid. The new compounds are formulated as tablets and capsules for oral use and as injectables with sterile water.

3,829,475

2-(CARBOXYPHENYL)ETHYL AND 2-(CARBOXY-PHENYL)VINYL CYCLOPROPYL CARBINOLS
Joseph C. Collins, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed June 22, 1972, Ser. No. 265,333
Int. Cl. C07c 65/02

U.S. Cl. 260—520

3 Claims

Aryl substituted diketones and keto-esters, useful as antiviral agents and insecticides, are prepared by reacting an arylalkyl or arylalkenyl iodide with a metal salt of the appropriate diketone or keto-ester.

3,829,476

PROCESS FOR OXIDATION OF PROPYLENE
Kantaro Yamada and Hiromichi Ishii, Ohtake, Japan, assignors to Mitsubishi Rayon Company, Ltd., Tokyo, Japan

Filed Feb. 13, 1973, Ser. No. 332,127
Claims priority, application Japan, Feb. 15, 1972, 47/15,894

Int. Cl. C07c 47/22, 51/32, 57/04

U.S. Cl. 260—533 N

11 Claims

A process for producing acrolein and acrylic acid by bringing a mixed gas containing propylene and oxygen into contact at an elevated temperature in a vapor phase with a catalyst which is highly active and entails very little degrading effect of aging on its catalytic activity. According to this process, the total selectivity of acrolein and acrylic acid exceed 96% where the conversion of propylene is not less than 96%. The said catalyst contains phosphorus, tungsten, molybdenum, tellurium and oxygen, one combination selected from among (a) two-member combination of nickel and cobalt, (b) two-member combination of nickel and iron, (c) three-member combination of nickel, cobalt and bismuth and (d) three-member combination of nickel, iron and bismuth, and at least one member selected from the group consisting of tin, potassium and rubidium.

3,829,477

PROCESS FOR THE PREPARATION OF ACID CHLORIDES AND THEIR ACIDS
Jean-Claude Strini, Saint Auban, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,281
Claims priority, application France, Dec. 4, 1969, 6941890

Int. Cl. C07c 51/58

U.S. Cl. 260—539 R

16 Claims

A process for the preparation of acid chlorides and their corresponding acids by reaction of an aliphatic hydrocarbon having the formula $\text{CCl}_2=\text{CX}_2$ and an organic acid having the formula $\text{CHWZ}-\text{COOH}$ at a temperature within the range of 100° to 250°C ., in the presence of ferric chloride and under hydrochloric acid pressure in which W, X, Y and Z are hydrogen, chlorine, a C_1 to C_2 alkyl group, or a chlorinated C_1 to C_2 alkyl group other than trichloromethyl.

3,829,478

PROCESS FOR PREPARING MONO-CHLORO ACETIC ACID

Alexander Ohorodnik, Liblar, Kurt Sennwald, Hurth-Hermulheim, Joachim Hundek, Hurth-Knapsack, and Paul Stutzke, Walberberg, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

Filed Oct. 27, 1971, Ser. No. 192,871
Claims priority, application Germany, Oct. 29, 1970, P 20 53 115.1

Int. Cl. C07c 53/16

U.S. Cl. 260—539 A

3 Claims

Heterogeneous catalytic reactions are carried out continuously in liquid phase. A substantially uniform sus-

pension of liquid starting material and fine particulate catalyst together with resulting reaction product is continuously conveyed upwardly in a reaction zone by the introduction, in accordance with the principles of an air-lift pump, of a gas or vaporous material near the bottom of the reaction zone, and recycled downwardly through a reflux line to the bottom of the reaction zone. The path of liquid material through the reflux line is interrupted by an injector system situated in a closed catalyst-separating zone containing reaction product. Following establishment of the reaction equilibrium, starting material is continuously supplied near the bottom of the reaction zone and crude but catalyst-free reaction product continuously removed near the head of the catalyst-separating zone. Reaction product which is to be removed is caused to travel through the catalyst-separating zone with the injector system therein towards the reaction product outlet at a velocity smaller than the sedimentation velocity of the catalyst under the prevailing operational conditions.

3,829,479

PREPARATION OF ALKYLDICHLORO-PHOSPHINES

Alan Kent, Greetby Hill, Ormskirk, and Bryan Topley, Compton, Kinver, near Stourbridge, England, assignors to Minister of Supply, in Her Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

No Drawing. Filed Mar. 22, 1955, Ser. No. 496,074
Int. Cl. C07f 9/28

U.S. Cl. 260—543 P

4 Claims

1. Process for the manufacture of a lower alkyl dichlorophosphine by decomplexing a complex compound of aluminium trichloride and the lower alkyl dichlorophosphine with an alkali chloride, wherein the decomplexing reaction is effected by heating the said complex compound with very finely divided alkali chloride substantially all of which will pass a screen of 100 mesh B.S.S.

3,829,480

METHOD OF OXIDATION OF ALKYLDIHALOGEN-PHOSPHINES TO THEIR OXIDES

Edward B. Trescott, 627 Forge Road, Whitmarsh, Md. 21162, and James C. Richards, 160 Alpine Trail, Sparta, N.J. 07871

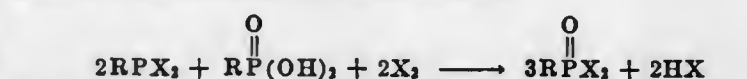
No Drawing. Original application Feb. 4, 1970, Ser. No. 8,693, now abandoned. Divided and this application Apr. 27, 1972, Ser. No. 248,144

Int. Cl. C07f 9/38, 9/42

U.S. Cl. 260—543 P

4 Claims

A recycle method for oxidizing alkyldihalo-gen-phosphines to their oxides by the reaction,



wherein the oxygen donor is prepared by the reaction,



wherein R is any alkyl group and X is any halide.

3,829,481

PROCESS FOR PREPARING A THIODIACYL HALIDE

Joel M. Kauffman, Sharon, Mass., assignor to I.C.I. America, Inc., Stamford, Conn.

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,729
Int. Cl. C07c 51/58

U.S. Cl. 260—544 Y

4 Claims

A process for preparing a thiodiacyl halide in a readily recoverable form by reacting together phosphorus trihalide and a thiodicarboxylic acid. The process can be used to prepare thiodipropionyl chloride from thiodipropionic acid.

3,829,482

PRODUCTION OF N-(1-ALKEN-1-YL)-CARBAMYL CHLORIDES

Albrecht Mueller, Frankenthal, Bernd Zeeb, Ludwigshafen, and Hans Kiefer, Wachenheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Nov. 5, 1971, Ser. No. 196,181
Int. Cl. C07c 103/30

U.S. Cl. 260—544 C

1 Claim

Production of N-(1-alken-1-yl)-carbamyl chlorides by reaction of imidoacid esters with phosgene and the new N-(1-alken-1-yl)-carbamyl chlorides themselves. The products are starting materials for the production of plant protection agents, coating intermediates and plastics.

3,829,483

PROCESS FOR THE PREPARATION OF TRIFLUOROACETYL CHLORIDE

Peter-Paul Rammelt and Gunter Siegemund, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Jan. 22, 1973, Ser. No. 325,754
Claims priority, application Germany, Jan. 25, 1972, P 22 03 326.7

Int. Cl. C07c 51/58, 53/20

U.S. Cl. 260—544 Y

6 Claims

The invention relates to a process for the preparation of trifluoroacetyl chloride by reacting trifluoroacetyl fluoride and chlorinated hydrocarbon, capable of being fluorinated, in the presence of hydrogen chloride and optionally of hydrogen fluoride by passing a gaseous mixture of said compounds over a chromium oxide catalyst and isolating the wanted trifluoroacetyl chloride.

3,829,484

PRODUCTION OF SULPHONATED MATERIAL
Austen Edgar Sowerby and Brian John Akred, Cumberland, England, assignors to Albright & Wilson Limited, Oldbury, near Birmingham, Warwickshire, England
No Drawing. Filed May 14, 1971, Ser. No. 143,606
Claims priority, application Great Britain, May 15, 1970, 23,719/70

Int. Cl. C07c 143/84

U.S. Cl. 260—545 R

21 Claims

Sulphonic anhydrides, useful as sulphonating agents in reactions where a stronger agent than sulphonyl chloride is required are prepared by the reaction of from 1.4 to 1.9 moles of SO_3 per mole of aromatic compound. In order to improve the yield compounds forming complexes with SO_3 are added to the reaction mixture. These compounds are normally those known as sulphone inhibitors or those claimed for such a purpose in U.S. Application Numbers 28,494 and 28,500.

3,829,485

THIOUREA COMPOUNDS AND BIOCIDAL PREPARATIONS CONTAINING THEM

Henry Martin and Dieter Duerr, Basel, Hans Rudolf Hitz, Muttentz, and Marcus von Orelli, Muenchenstein, Switzerland, assignors to Ciba Limited, Basel, Switzerland

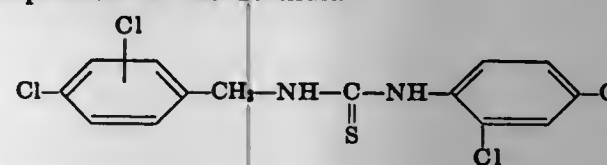
No Drawing. Continuation of application Ser. No. 84,466, Oct. 27, 1970, which is a continuation of application Ser. No. 698,080, Oct. 25, 1967, both now abandoned, which in turn is a division of application Ser. No. 536,266, Mar. 22, 1966, now Patent No. 3,483,291. This application Aug. 23, 1972, Ser. No. 282,993
Claims priority, application Switzerland, Mar. 25, 1965, 4,205/65

Int. Cl. C07c 157/00

U.S. Cl. 260—552 R

3 Claims

Compounds of the formula



These compounds have biocidal applications.

3,829,486

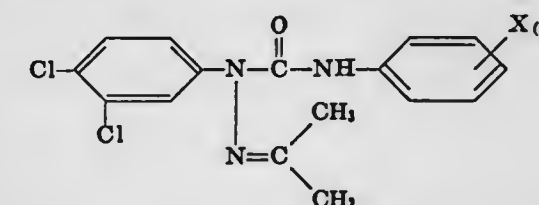
BIOCIDAL ACTIVE CARBAMYL HYDRAZONES
Don R. Baker, Orinda, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

No Drawing. Filed Mar. 9, 1973, Ser. No. 339,691
Int. Cl. C07c 133/04

U.S. Cl. 260—554

3 Claims

New compounds corresponding to the generic formula:



wherein X is chloro and n is 1 or 2. The compounds are useful as biocides.

3,829,487

N-SUBSTITUTED-3,5-(TRIFLUOROMETHYL OR BROMO) BENZENESULFONAMIDES

Helmut H. Mrozik, Matawan, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation of abandoned application Ser. No. 135,474, Apr. 19, 1971. This application Feb. 8, 1973, Ser. No. 330,533

Int. Cl. C07c 143/78, 143/80

U.S. Cl. 260—556 AR

7 Claims

Novel substituted benzenesulfonamides are useful as agents for the treatment of both mature and immature liver fluke infections. The benzenesulfonamide is substituted on the sulfonamide nitrogen with loweralkoxy, substituted loweralkyl and heterocyclic in which the sulfonamide nitrogen is included in the heterocyclic ring. The benzene ring is variously substituted at the 3- and 5-positions and unsubstituted or substituted with an amino group at the 4-position. Compositions containing these compounds for the treatment of mature and immature liver fluke infestation are also disclosed.

3,829,488

BIS(o - N-SUBSTITUTED-CARBAMYLPHENYL) DISULFIDE AND MERCAPTO REDUCTION PRODUCT

Milton Wolf, West Chester, John H. Sellstedt, King of Prussia, and Richard L. Fenichel, Wyncote, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Mar. 6, 1972, Ser. No. 232,285
Int. Cl. C07c 103/22

U.S. Cl. 260—558 S

1 Claim

Bis(o - N - substituted-carbamylphenyl)disulfides, the mercapto reduction product and pharmaceutically acceptable salts thereof exhibit hypoglycemic activity in warm-blooded animals. The compounds may be prepared by the reaction of a primary or secondary amine with a (o-chlorocarbonylphenyl)disulfide followed by reduction of the disulfide linkage.

3,829,489

SUBSTITUTED PHENOXY- AND PHENYLTHIO-ACETATES AND DERIVATIVES THEREOF

Fred Y. Edamura, Concord, Calif., and Lennon H. McKendry and Eric R. Larsen, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 111,688, Feb. 1, 1971, now Patent No. 3,709,926. This application Oct. 20, 1972, Ser. No. 299,287

Int. Cl. C07c 103/22

U.S. Cl. 260—559 B

5 Claims

Disclosed herein are substituted phenoxy- and phenylthio-acetate compounds and derivatives thereof having utility as pesticides.

3,829,490

CYCLOALKANEBIS(METHYLAMINE) ISOMERIZATION

Werner H. Mueller, Gulf Breeze, and Charles R. Campbell, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Aug. 16, 1971, Ser. No. 172,246

Int. Cl. C07c 87/38

U.S. Cl. 260—563 D

8 Claims

The isomer ratio in a non-equilibrated mixture of the cis and trans isomers of a C₆-C₁₄ cycloalkanebis(methylamine) such as 1,4-cyclohexanebis(methylamine) can be conveniently altered by contacting the mixture at 175°-290° C. with hydrogen in the presence of a hydrogenation catalyst and ammonia. A high yield of one of such isomers can be obtained by similarly contacting a mixture of such isomers wherein the ratio of said one isomer to the other of said isomers is lower than the corresponding equilibrium ratio of such isomers, selectively separating said one isomer from the contacted mixture and recycling the residual mixture for more of such contacting.

3,829,491

ORGANIC THERMOTROPIC NEMATIC COMPOUNDS

Elwood L. Strebel, % Vari-Light Corporation, 9770 Conklin Road, Cincinnati, Ohio 45242

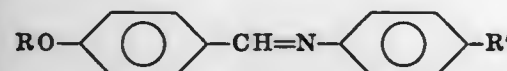
No Drawing. Continuation-in-part of abandoned application Ser. No. 817,143, Apr. 17, 1969. This application May 24, 1973, Ser. No. 363,429

Int. Cl. C07c 119/00

U.S. Cl. 260—566 F

4 Claims

A new family of organic thermotropic nematic compounds comprising N-(para-substituted alkoxy-benzylidene)-anilines having also a para-n-butyl substituent on the aniline ring. These compounds have the following structural formula:



wherein R is a straight chain alkyl group containing 1 to 4 carbon atoms and R' is n-butyl. Synthesis involves combining the desired p-substituted benzaldehyde and p-n-butyl aniline in equimolar proportions in anhydrous ethyl alcohol with glacial acetic acid as catalyst. The resulting homologous series of compounds are useful as materials which undergo a change in optical properties under the influence of externally applied energy, preferred members of which, either individually or in binary mixtures, have melting points near room temperature, a broad nematic mesomorphic temperature range within an overall range of about 0° to about 70° C., low viscosity in the nematic phase, good stability, and substantially no color.

3,829,492

FUNGICIDAL SALICYLALDEHYDE HYDRAZONES AND AZINES

George A. Miller, Glenside, and Stanley A. Greenfield, Ambler, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Feb. 4, 1972, Ser. No. 223,707

Int. Cl. C07c 109/16

U.S. Cl. 260—566 B

2 Claims

Fungicidal compositions containing as the active ingredient salicylaldehyde hydrazones and novel azines derivable from them by reaction with an aldehyde or ketone.

They are particularly effective in controlling cercospora blights.

3,829,493

PROCESS FOR PREPARING d-N,N' - BIS-(1-HYDROXYMETHYLPROPYL)-ETHYLENE DIAMINE

Ivan Butula and Gordana Karlović, Zagreb, Yugoslavia, assignors to PLIVA Pharmaceutical and Chemical Works

No Drawing. Filed Feb. 8, 1973, Ser. No. 330,505

Claims priority, application Yugoslavia, June 9, 1972, 1,545/72

Int. Cl. C07c 91/12

U.S. Cl. 260—584 R

3 Claims

The invention disclosed relates to a process for preparing d-N,N' - bis - (1-hydroxymethylpropyl)-ethylene diamine and the acid salts thereof by reducing d-4,4'-diethyl-2,2'-bisoxazolidine using either lithium aluminum hydride or sodium boron hydride.

3,829,494

STABILIZED 2-(2-AMINO ETHER) ETHANOL AND METHANE

Ernest Leon Yeakey and Philip Hotchkiss Moss, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed Apr. 11, 1973, Ser. No. 350,003

Int. Cl. C07c 89/04

U.S. Cl. 260—584 C

10 Claims

An improved 2-(2-aminoethoxy) ethanol composition for purifying gases containing acid gas impurities, such as natural gas, and a method for preparing same is disclosed. The improved 2-(2-aminoethoxy) ethanol compound, useful for removing impurities such as acid gases from natural gas has improved resistance against decomposition and/or degradation in the presence of said acid gases by incorporating into 2-(2-aminoethoxy) ethanol a stabilizing amount of a water soluble trialkanolamine.

3,829,495

METHOD OF PRODUCING DIMERIZED SATURATED KETONES

Yukio Mizutani, Tokuyama, Yusuke Izumi, Yamaguchi-ken, and Yoshiaki Watanabe, Hikari-shi, Japan, assignors to Tokuyama Soda Kabushiki Kaisha, Yamaguchi-ken, Japan

No Drawing. Continuation-in-part of application Ser. No. 824,673, May 14, 1969, which is a continuation-in-part of application Ser. No. 780,622, Dec. 3, 1968, both now abandoned. This application Jan. 30, 1970, Ser. No. 7,240

Int. Cl. C07c 45/00

U.S. Cl. 260—586 R

10 Claims

This invention relates to a method of producing dimerized saturated ketones comprising the steps of heating ketones to be subsequently defined at a temperature of from 60-400° C., together with hydrogen in the presence of a catalyst comprising metallic palladium and a phosphate of at least one metal selected from the group consisting of zirconium, titanium, hafnium, and tin, the said ketones being selected from the group consisting of:

- at least one ketone having at least one or both of the two carbon atoms that are attached to the carbonyl group; and
- a ketone having at least two hydrogen atoms attached to either one or both of the two carbon atoms that are attached to the carbonyl group, and a ketone having no hydrogen atom whatsoever attached to said carbon atoms.

3,829,496

PROCESS FOR THE PRODUCTION OF 4,4'-DIBROMOBENZIL

Alexander Sieber, Muttentz, and Hermann Kny, Fullinsdorf, Switzerland, and Ward H. Oliver, Mobile, Ala., assignors to Ciba-Geigy AB, Basel, Switzerland, and Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 53,303, July 8, 1970. This application July 2, 1971, Ser. No. 159,565

Int. Cl. C07c 49/80

U.S. Cl. 260—590

4 Claims

A new process is provided for producing 4,4'-dibromobenzil in high purity and in high yields by reacting benzoin and urea in the presence of an inert, water-insoluble organic solvent, brominating the intermediate 4,5-diphenylimidazol-2-one and oxidizing the obtained 4,5-bis-(4'-bromophenyl)-imidazol-2-one to 4,4'-dibromobenzil.

3,829,497

PREPARATION OF 1,4-BIS (PHENYLGLYOXYLOYL) BENZENE

Stanley E. Wentworth, Bedford, Mass., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Sept. 5, 1972, Ser. No. 286,398

Int. Cl. C07c 49/76

U.S. Cl. 260—590

3 Claims

A method for the preparation of 1,4-bis (phenylglyoxaloyl) benzene comprising the steps of (a) reaction of cuprous phenylacetylde and p-diiodobenzene in the presence of hexamethylphosphoramide to produce p-bis (phenylethynyl) benzene, and (b) the oxidation of p-bis (phenylethynyl) benzene with N-bromosuccinimide in the presence of dimethylsulfoxide to produce 1,4-bis (phenylglyoxaloyl) benzene.

3,829,498

PROCESS FOR PREPARING 5-HYDROXY-1-TETRALONE

Jerome D. Genzer, Livingston, and George A. Conrad, Irvington, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 146,852, May 25, 1971. This application Apr. 16, 1973, Ser. No. 351,227

Int. Cl. C07c 49/82

U.S. Cl. 260—590

5 Claims

An improved process for preparing 5-hydroxy-1-tetralone involving relatively mild reaction conditions uses 1,5-dihydroxynaphthalene as the starting material. An aqueous alcoholic solution of 1,5-dihydroxynaphthalene is allowed to react with one molar equivalent of gaseous hydrogen in the presence of a palladium reducing catalyst and an equimolar quantity of an alkali metal hydroxide. High yields of pure product are obtained.

3,829,499

PRODUCTION OF DIETHYL KETONE

Kenzie Nozaki, El Cerrito, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Dec. 17, 1969, Ser. No. 885,997

Int. Cl. C07c 45/02

U.S. Cl. 260—597 A

12 Claims

Production of diethyl ketone at high selectivity and rate by the reaction of ethylene, carbon monoxide and hydrogen under mild conditions of temperature and pressure

in the presence of a temperature-stable cobalt carbonyl-nitrile catalyst system, optionally containing ammonia or a primary or tertiary amine as catalyst promoter.

3,829,500

OXYBIS(BENZENESULFONYLPOLYALKOXYALKANOLS) AND THEIR USE AS SURFACTANTS

Richard P. Crowley, Wellesley, Mass. (125 High St., Boston, Mass. 02110)

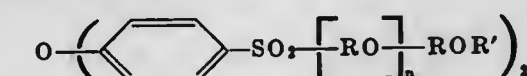
No Drawing. Filed May 24, 1972, Ser. No. 256,280

Int. Cl. C07c 147/06, 147/10

U.S. Cl. 260—607 A

5 Claims

An oxybis(benzenesulfonyl polyether) compound represented by the formula:



wherein R is a C₂-C₁₆ alkylidene radical, R' is a halide radical or hydrogen, and n is 2 to 100.

3,829,501

POLYETHERPOLYTHIOLS, METHOD OF PREPARATION AND MIXTURES OF POLYTHIOETHER-POLYTHIOLS WITH EPOXIDE RESINS

Richard A. Hickner, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation of abandoned application Ser. No. 771,648, Oct. 29, 1968. This application Aug. 12, 1971, Ser. No. 171,333

Int. Cl. C07c 149/00

U.S. Cl. 260—609 D

36 Claims

Polythioetherpolythiols with a thiol functionality greater than 2 are made by reacting a polythiol with a triene, a tetraene or mixtures thereof or mixtures of the polyenes with a diene, in the presence of a free radical generating catalysts. The polythioetherpolythiols can be reacted with epoxide resins to effect cures of the latter.

3,829,502

PROCESS FOR THE PREPARATION OF HYDROXY-HYDROPEROXIDES FROM OLEFINS

Anna Maria Mattucci, Turin, and Emilio Perrotti, San Donato Milanese, Italy, assignors to Snam Progetti, S.p.A., San Donato Milanese, Italy

No Drawing. Filed Sept. 5, 1969, Ser. No. 855,738

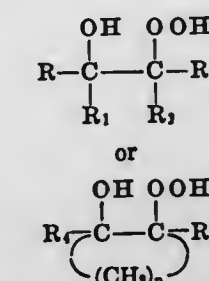
Claims priority, application Italy, Sept. 5, 1968, 20,873/68, Patent 843,594

Int. Cl. C07c 73/06

U.S. Cl. 260—610 R

6 Claims

A β-hydroxy-hydroperoxide represented by the formula:



wherein: R, R₁, R₂ and R₃ are respectively members of the group consisting of H and alkyl containing from 1 to 18 carbon atoms, provided their total number of carbon atoms does not exceed 18, R₄ and R₅ are respectively members of the group consisting of H and alkyl containing from 1 to 17 carbon atoms, provided their total number of carbon atoms does not exceed 17, and n is an integer from 1 to 18, and a process for preparing that compound, are disclosed.

3,829,503

PROCESS FOR PRODUCING ORGANIC PEROXIDES

Mitsukuni Kato, Yokohama, and Takeshi Komai and Kazuyoshi Aoshima, Taketoyo-machi, Japan, assignors to Nippon Oils and Fats Company Limited, Tokyo, Japan

No Drawing. Filed July 20, 1970, Ser. No. 56,711

Claims priority, application Japan, July 19, 1969, 44/56,755

Int. Cl. C07c 73/00

U.S. Cl. 260—610 R

6 Claims

An aromatic group-containing tertiary peroxide can be produced by reacting an aromatic group-containing tertiary hydrocarbon halide with a tertiary hydroperoxide under a reduced pressure or in the presence of a tertiary alkanol or an alkene olefin. Said tertiary peroxide is useful as a radical initiator for vinyl monomers and a cross-linking agent for pololefins.

3,829,504

NOVEL DI-LOWER ALKYL AND LOWER ALKYLENE ACETALS OF 2- AND 3-PHENYL-PENTENALS

John B. Hall, Rumson, and Manfred Vock, West Orange, N.J., assignors to International Flavors & Fragrances, Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 43,555, June 4, 1970, now Patent No. 3,694,232. This application Aug. 1, 1972, Ser. No. 276,923

Int. Cl. C07c 41/10, 43/30

U.S. Cl. 260—611

4 Claims

Novel di-lower alkyl or lower alkylene acetals of 2- and 3-phenyl-pentenals useful in altering the aroma and/or organoleptic characteristics of foodstuff, foodstuff flavor and aroma, tobacco, tobacco flavor and aroma, perfume and perfumed compositions, and methods for preparing said acetals.

3,829,505

POLYETHERS AND METHOD FOR MAKING THE SAME

Robert Johnston Herold, Akron, Ohio, assignor to The General Tire & Rubber Company

No Drawing. Continuation of application Ser. No. 13,773, Feb. 24, 1970, which is a continuation-in-part of application Ser. No. 479,333, Aug. 12, 1965, both now abandoned. This application July 7, 1972, Ser. No. 269,631

Int. Cl. C07c 41/00

U.S. Cl. 260—611 B

6 Claims

Hydroxy terminated polyethers are obtained by reacting (1) epoxide and oxetane monomers with (2) a telogen at least partially soluble with the monomers, reactive with said monomers and being selected from the group consisting of organic hydroxy containing compounds, sulfhydryl containing compounds, aldehydes and ketones, such as methanol, hexanedione-2,5, acetone, ethylene glycol, trimethylol propane, etc., using (3) in admixture therewith as catalysts certain double metal cyanide complexes which preferably had been treated with organic materials like alcohols, ethers, esters and so forth. A feature of the process of the present invention is the preparation of high molecular weight diols, triols, etc. without appreciable end group unsaturation, and the use of certain solvents with particular monomers and catalysts to also achieve these results.

The products of the present process are useful as non-ionic surface active agents, as lubricants and coolants, as textile sizes, as films for packaging and in the preparation of solid or flexible polyurethanes by reaction with polyisocyanates.

3,829,506

BIODEGRADABLE SURFACE ACTIVE AGENTS HAVING GOOD FOAM PROPERTIES AND FOAM STABILIZING CHARACTERISTICS

Irving R. Schmolka, Grosse Ile, and Reinhold K. Selzinger, Trenton, Mich., assignors to BASF Wyandotte, Wyandotte, Mich.

No Drawing. Continuation-in-part of application Ser. No. 148,976, June 1, 1971, which is a continuation-in-part of application Ser. No. 845,516, July 28, 1969, both now abandoned. This application Nov. 7, 1972, Ser. No. 304,526

Int. Cl. C07c 43/04

U.S. Cl. 260—615 B

6 Claims

Heteric polyether polyols are prepared by the copolymerization of low molecular weight alkylene oxides and α -olefin oxides containing from ten to twenty carbon atoms with low molecular weight active hydrogen-containing compounds.

3,829,507

DI-TRIMETHYLOLPROPANE

Edward Gustave Zey, Corpus Christi, Tex., assignor to Celanese Corporation, New York, N.Y.

Filed Mar. 16, 1971, Ser. No. 124,688

Int. Cl. C07c 43/00, 41/12

U.S. Cl. 260—615 R

3 Claims

Production of di-trimethylolpropane and recovery thereof in significant quantities; further, in the production of trimethylolpropane the improvement comprising recovering from the reaction mixture di-trimethylolpropane in crystalline form.

3,829,508

HALOGENOALKYL-POLYGLYCOL ETHERS AND PROCESS FOR PREPARING THEM

Helmut Diery, Kelkheim, Taunus, and Lorenz Heiss, Hofheim, Taunus, Germany (both % Farbwerke Hoechst AG, Frankfurt am Main, Germany)

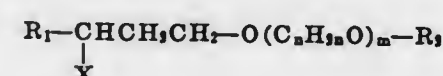
No Drawing. Continuation of abandoned application Ser. No. 841,620, July 14, 1969. This application Mar. 30, 1972, Ser. No. 239,822

Int. Cl. C07c 43/00, 43/12

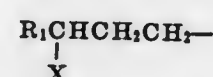
U.S. Cl. 260—615 B

3 Claims

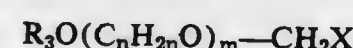
Compounds of the general formula



wherein R_1 stands for alkyl containing 4 to 20 carbon atoms, X stands for chlorine or bromine, R_2 stands for alkyl containing 1 to 20 carbon atoms, a radical of an alkane-carboxylic acid containing 1 to 18 carbon atoms, the phenyl radical, the naphthyl radical or an alkyl-phenyl radical containing 1 to 12 aliphatic carbon atoms, the benzoyl or benzyl radical or the radical



n stands for an integer from 2 to 4 and m stands for an integer from 2 to 200, which are useful as tensides and emulsifiers, and a process for preparing them by reacting a halogeno-methyl ether of the formula



in which X, n and m have the meanings given above, and R_3 stands for the radical $-CH_2Cl$ or $-CH_2Br$ or has the same meaning as R_2 , in the presence of a Friedel-Crafts catalyst, at 10 to 100° C., with an α -olefin containing 8 to 20 carbon atoms.

3,829,509

PROCESS FOR THE TREATMENT OF AQUEOUS SOLUTIONS OF PHENOL AND HYDROGEN CHLORIDE

Ernest Charles, Paris, Jean-Claude Lerol, Villeurbanne, and Michel Pech, Pont-de-Claix, France, assignors to Progil, Paris, France

Filed Nov. 24, 1969, Ser. No. 879,363

Claims priority, application France, Nov. 27, 1968, 50,684

Int. Cl. C07c 37/38

U.S. Cl. 260—621 A

3 Claims

A single stage separation of phenol and hydrogen chloride from a conjoint solution in water by distilling in the presence of calcium chloride or magnesium chloride so as to remove the hydrogen chloride and the phenol from the solution and cooling the resulting vapors to separate the hydrogen chloride in the gaseous state and the phenol in the liquid state.

3,829,510

ISOBUTANE OXIDATION TO PRODUCE ALCOHOL USEFUL IN MOTOR FUEL

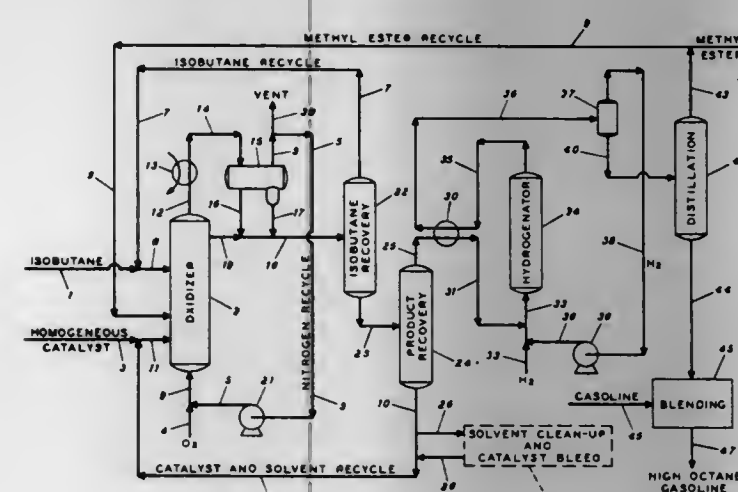
Robert T. Adams, Lafayette, William A. Heath, Sausalito, and Richard A. Wuopio, San Rafael, Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed June 25, 1971, Ser. No. 163,515

Int. Cl. C07c 27/12, 31/02

U.S. Cl. 260—632 C

7 Claims



A process for producing high-octane lead-free or low-lead content gasoline which comprises:

- oxidizing isobutane in an oxidation zone by contacting the isobutane in liquid phase with gaseous oxygen, and recycled methyl ester, and an added homogeneous catalyst in an organic acid solvent, to obtain a product comprising a mixture of t-butyl alcohol, acetone, methanol, and methyl ester;
- passing at least a portion of the mixture to a hydrogenation zone and hydrogenating the acetone to obtain a mixture comprising t-butyl alcohol, isopropyl alcohol, methanol, and methyl ester;

- separating at least methyl ester from the t-butyl alcohol, isopropyl alcohol, and methanol;
- recycling the methyl ester to the oxidation zone.

3,829,511

PROCESS FOR SEPARATING PERFLUORO-ALKYLIODIDE TELOMERS

Werner Rudolph, Anderten, Hannover, and Joachim Massonne, Hannover, Germany, assignors to Kali-Chemie Aktiengesellschaft, Hannover, Germany

No Drawing. Filed Nov. 4, 1971, Ser. No. 195,838

Claims priority, application Germany, Nov. 7, 1970, P 20 54 922.8

Int. Cl. C07c 19/08

U.S. Cl. 260—653.1 T

4 Claims

Perfluoroalkyliodide telomers of a chain length of up to 14 carbon atoms are separated and recovered from a mixture of such telomers of a chain length of about 4 to above 20 carbon atoms by adding to the said mixture at a temperature between -10 and +40° C. a solvent selected from the group consisting of aliphatic and cycloaliphatic perhalogeno hydrocarbons of 1-4 carbon atoms and of a boiling point between -10 and 55° C. so as to bring the perfluoroalkyliodide telomers of a chain length up to 14 carbon atoms into solution, then separating the thus-obtained solution from the solid perfluoroalkyliodide telomers of more than 14 carbon atoms and recovering the desired perfluoroalkyliodide telomers by distilling off the solvent.

3,829,512

PROCESS FOR THE PREPARATION OF PENTAFLUORETHYL IODIDE AND HEPTAFLUOROISOPROPYL IODIDE

Hans Millauer, Niederhochstadt, Taunus, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt, Germany

No Drawing. Filed Aug. 8, 1972, Ser. No. 278,878

Claims priority, application Germany, Aug. 10, 1971, P 21 39 964.4

Int. Cl. C07c 17/08, 19/08

U.S. Cl. 260—653.6

4 Claims

A process for the preparation of pentafluorethyl iodide and heptafluoroisopropyl iodide by reacting perfluorinated olefins of the formula $R_F-CF=CF_2$, wherein R_F is fluorine or CF_3 , with iodine and gaseous HF in the presence of antimony halides and sulfuric chloride and/or chlorine.

The compounds are used as telogens for the telomerization of tetrafluoroethylene to long-chain perfluoroalkyl iodides.

3,829,513

CONVERSION OF GEM-DIFLUORO COMPOUNDS TO FLUOROALKENES AND FLUOROALKAPOLYENES

Lloyd E. Gardner, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

No Drawing. Application Dec. 30, 1968, Ser. No. 788,000, now Patent No. 3,624,167, which is a division of application Ser. No. 439,475, Mar. 12, 1965, now Patent No. 3,432,441. Divided and this application Oct. 4, 1971, Ser. No. 186,454

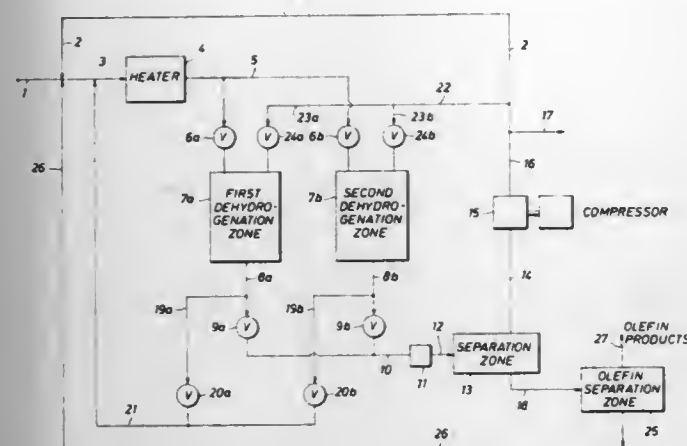
Int. Cl. C07c 17/34, 19/08, 21/18

U.S. Cl. 260—653.5

5 Claims

Gem difluoro compounds are converted to fluoroalkenes, fluoroalkadienes, or fluoroalkatrienes by contacting said gem-difluoro compounds with a catalyst formed by treating a finely divided alumina with a liquid solution of am-

0.5:1 to about 40:1, at a temperature of from about 750° F. to about 1000° F., and a pressure of from about



atmospheric to about 50 p.s.i.g. for a period of from about 12 to about 24 hours.

3,829,525

CATALYST COMPOSITION AND ISOPARAFFINIC-OLEFIN ALKYLATION UTILIZING STRONG ACID WITH A SULFONAMIDE

Edward L. Cole, Fishkill, and Frederic C. McCoy, Beacon, N.Y., assignors to Texaco Inc., New York, N.Y.

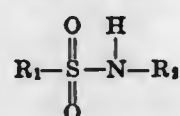
No Drawing. Filed May 14, 1973, Ser. No. 359,941

Int. Cl. C07c 3/54

U.S. Cl. 260—683.63

16 Claims

An alkylation aid of the formula



wherein R₁ is selected from the group alkyl, aryl and alkyl aromatic; and wherein R₂ is alkyl having from about 9 to 20 carbon atoms, for use in strong acid catalyzed reactions wherein alkylatable hydrocarbons are alkylated with alkylating agents. Also, alkylation processes employing such alkylation aids.

3,829,526

HYDROGENATED POLYPHENOLS AS SULFUR SOLUBILIZERS IN POLYTHIOL SEALANTS

Richard C. Doss and Moses L. Thomas, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Apr. 20, 1973, Ser. No. 346,830

Int. Cl. C08g 17/04, 51/28

U.S. Cl. 260—75 S

11 Claims

Sealant and coating formulations are prepared by curing a mixture comprising (a) a polymercaptan terminated polymer such as a poly(oxyalkylene)-polyester-poly(monosulfide)-polythiol having an average of more than two mercapto groups per molecule, (b) a hydrogenated polyphenyl containing dissolved sulfur, and (c) a curing agent.

3,829,527

ROOM TEMPERATURE CURABLE ORGANOPOLYSILOXANES

Guenther Fritz Lengnick, Adrian, Mich., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 270,354, July 10, 1972. This application June 8, 1973, Ser. No. 368,410

Int. Cl. C08f 35/02

U.S. Cl. 260—827

11 Claims

The invention relates to novel cross-linking agents and to curable one-component organopolysiloxanes which are

obtained from the reaction of hydroxyl-terminated organopolysiloxanes and the novel disilane cross-linking agents having functional groups which are hydrolyzable at ambient moisture.

3,829,528

METHOD OF PRODUCING RESORCINOL RESINS BY REACTING WITH N-METHYLOL CAPROLACTAM

Agu Yanovich Aarna, Karl Ritsovich Kilsler, Peep Gerhardovich Kristyanson, and Juri Albert-Mikhaelovich Tanner, Tallin, U.S.S.R., assignors to Tallinsky Politehnicheskoy Institut, Tallin, U.S.S.R.

No Drawing. Continuation of abandoned application Ser. No. 131,790, Apr. 6, 1971. This application Apr. 30, 1973, Ser. No. 355,966

Int. Cl. C08g 5/10

U.S. Cl. 260—841

8 Claims

A method of producing resorcinol resins, comprising polycondensation of resorcinol, alkylresorcinol compounds or of a mixture thereof, with N-methylolcaprolactam or with a mixture of N-methylolcaprolactam with N,N-dimethylcarbamide. The molar ratio of N-methylolcaprolactam with said phenolic compounds is equal to 0.3–1:1, respectively, while that of N-methylolcaprolactam with N,N-dimethylcarbamide and with phenolic compounds is equal to 0.1–0.4:0.1–0.4:1, respectively. The polycondensation process occurs either in a solution or in a melt at a temperature of 30–100° C.

The herein-disclosed method is instrumental in producing practically anhydrous resorcinol resin featuring more homogeneous chemical structure thereof.

3,829,529

ROOM-TEMPERATURE CURING ORGANO-POLYSILOXANES

Guenther Fritz Lengnick, Manitou Beach, Mich., assignor to Stauffer Chemical Company, Westport, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 214,430, Dec. 30, 1971. This application May 29, 1973, Ser. No. 364,457

Int. Cl. C08f 35/02

U.S. Cl. 260—827

9 Claims

The invention relates to silane cross-linking agents having different hydrolyzable groups on the silane molecule and to curable one-component modified organopolysiloxane compositions obtained from the reaction of these cross-linking agents with hydroxyl-terminated organopolysiloxanes.

3,829,530

OILLESS ALKYDS

Thomas Michael Powanda, Middlesex, N.J., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 56,232, July 15, 1970. This application Apr. 14, 1972, Ser. No. 244,308

Int. Cl. C08g 37/34, 17/04

U.S. Cl. 260—850

4 Claims

An oilless alkyd capable of providing superior coatings containing an interpolymers of a polyol having 3 to 4 hydroxyl functional groups, an aliphatic diol having 5 to 7 carbon atoms and a phthalic anhydride component.

3,829,531

ADDITIVE FOR IMPACT MODIFIED THERMOPLASTICS

Robert Martin Graff, Cornwells Heights, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Jan. 8, 1973, Ser. No. 321,600

Int. Cl. C08g 41/04

U.S. Cl. 260—859

12 Claims

Thermoplastic articles having greatly reduced susceptibility to hazing are prepared from a solution of a polyurethane impact modifier in an α,β -unsaturated monomer comprising methyl methacrylate, and a haze modifier copolymer.

3,829,532

FLAME-RESISTANT POLYESTER COMPOSITION

Gilbert K. Meloy, Chagrin Falls, and Diane G. Farrington, Euclid, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

No Drawing. Continuation-in-part of application Ser. No. 172,892, Aug. 18, 1971, which is a continuation-in-part of application Ser. No. 822,023, May 5, 1969, both now abandoned. This application Apr. 20, 1973, Ser. No. 352,910

Int. Cl. C08g 17/10, 17/12

U.S. Cl. 260—864

7 Claims

Thermosetting compositions and cured articles therefrom having markedly enhanced flame resistance are composed of a halogen-containing polyester-monomer mixture in which are included certain amino triazines, amides or amidines.

3,829,533

POLYURETHANE ADHESIVES BASED ON ω,ω' -DIISOCYANATE DIMETHYLCYCLOHEXANE

Yutaka Matsui, Ashiya, Seiji Kazama, Kawanishi, and Masamitsu Nakabayashi, Ibaraki, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Mar. 31, 1972, Ser. No. 240,288

Claims priority, application Japan, Apr. 3, 1971, 46/20,571; Apr. 14, 1971, 46/23,689

Int. Cl. C08g 41/00, 22/24

U.S. Cl. 260—858

17 Claims

This invention relates to an adhesive composition which is especially suitable for bonding polyesters or polyolefines to each other or to other substrates, which composition comprises (A) a linear high molecular polyurethane prepared by reacting a diol having a molecular weight of from about 500 to about 3,000 with ω,ω' -diisocyanato dimethylcyclohexane in amounts such as to provide a ratio of NCO/OH of around 1, and (B) about 1–10 parts by weight of ω,ω' -diisocyanato dimethylcyclohexane or its NCO-terminated prepolymer prepared by reacting a low molecular diol or polyol having a molecular weight of not higher than about 400 and having at least 2 hydroxyl groups per molecule with an excess amount of ω,ω' -diisocyanato dimethylcyclohexane. Another variation of the present invention is the use of an adhesive composition made up of (C) a hydroxyl-terminated polyurethane prepolymer prepared by reacting a diol having a molecular weight of from about 500 to about 3,000 with ω,ω' -diisocyanato dimethylcyclohexane in amounts such that the ratio of NCO/OH is slightly higher than 1, to give an NCO-terminated prepolymer, and then reacting the resultant NCO-terminated prepolymer with a low molecular polyol having at least 3-hydroxyl groups per molecule in such an amount that the ratio of NCO/OH is about 3 to about 10, and (D) an NCO-terminated prepolymer prepared by reacting a low molecular diol or polyol having a molecular weight of not higher than about 400 and having at least 2 hy-

droxyl groups per molecule with an excess amount of ω,ω' -diisocyanato dimethylcyclohexane.

3,829,534

PROCESS FOR PREPARING KETO-CONTAINING PHOSPHONATES

Joseph John Dickert, Jr., Lower Makefield Township, Pa., and Albert Lloyd Williams, Hopewell Township, N.J., assignors to Mobil Oil Corporation

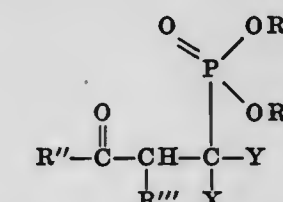
No Drawing. Filed July 3, 1972, Ser. No. 268,391

Int. Cl. C07f 9/38; C10m 1/46

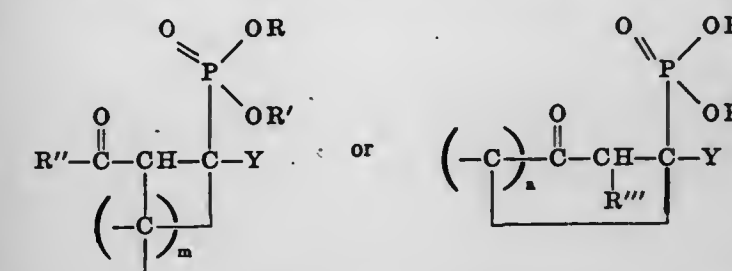
U.S. Cl. 260—970

6 Claims

Novel compounds having utility as anti-wear agents for industrial compositions have the structure:



wherein R and R' may be hydrocarbyl, substituted hydrocarbyl, heterocyclic or members of the same cyclic hydrocarbyl group; R'', R''' and X may each be hydrocarbyl or substituted hydrocarbyl, and R''' and X may be hydrogen as well, and either R'' or R''' may be linked to X through one or more carbon atoms as follows:



integers m and n being at least 2 and 1, respectively, the dangling valences being attached to hydrogen or hydrocarbyl groups; and Y may be hydrogen or alkyl of from 1 to about 16 carbon atoms. These compounds may be prepared by novel reaction between a 2-olefin-1-one and an organo hydrogen phosphite.

3,829,535

PREPARATION OF S-2-HYDROCARBYLTHIO-ALKYL ESTERS OF THIOPHOSPHORUS ACIDS

Wolfgang H. Mueller, Elizabeth, Warren A. Thaler, Matawan, and Alexis A. Oswald, Mountaintop, N.J., assignors to Esso Research and Engineering Company

No Drawing. Original application Mar. 4, 1969, Ser. No. 805,115, now Patent No. 3,660,543. Divided and this application Feb. 10, 1972, Ser. No. 225,335

Int. Cl. A01n 9/36; C07f 9/16

U.S. Cl. 260—979

7 Claims

Neutral S-2-hydrocarbylthioalkyl esters of thiophosphorus acids are prepared through the displacement reaction of a 2-hydrocarbyl-2-hydrocarbylthioethyl halide alone or in admixture with the corresponding isomeric secondary halide compound with a diorgano thiophosphate, thiophosphonate or thiophosphinate salt. The displacement reactions are conducted at moderate temperatures and pressures, preferably in the presence of a polar diluent. The preferred thiophosphorus acid salt reactants are salts of dialkyl dithiophosphoric acids and dialkyl monothiophosphoric acids. The preferred halide reactants are 2-alkyl-2-alkylthioethyl chlorides alone or in combination with 1-alkyl-2-alkylthioethyl chlorides. The compounds derived from the displacement reactions possess particularly good pesticidal activity.

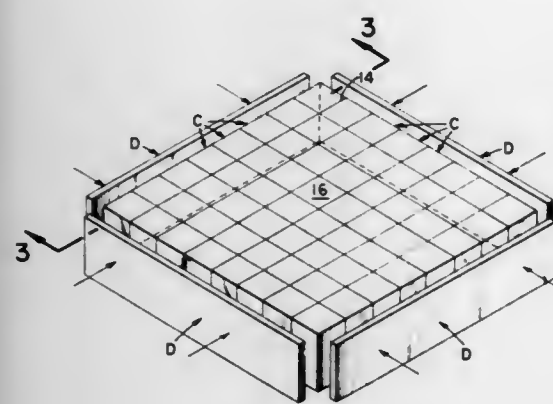
3,829,536

METHOD OF FORMING AN OPTICAL ELEMENT OF REDUCED THICKNESS

Luis W. Alvarez, Berkeley, Calif., assignor to Humphrey Research Associates, Oakland, Calif.
Division of Ser. No. 131,156, April 5, 1971, Pat. No. 3,739,455. This application Apr. 30, 1973, Ser. No. 355,624
Int. Cl. B23p 17/00

U.S. Cl. 264-1

5 Claims



An optical element of reduced thickness is formed by a mosaic of discrete lens faces, the lens faces together deflecting light in a manner equivalent to a conventional optical element of much greater thickness. Process and apparatus for the production of the lens element is included.

3,829,537

METHOD OF MAKING SPONGE PROPELLANT

Henry Rosenthal, 132 Carpenter Ave., Crestwood, Tuckahoe, N.Y.
Division of Ser. No. 352,311, April 30, 1953, which is a continuation-in-part of Ser. No. 57,284, Oct. 29, 1948, abandoned. This application Aug. 27, 1954, Ser. No. 452,743
Int. Cl. C06b 21/02

U.S. Cl. 264-3 R

3 Claims

1. A method of forming a shaped, propellant charge having a sponge-like cellular structure which comprises incorporating in a colloided nitrocellulose composition a solvent for an inert gas, placing the said composition in a suitable mold, subjecting said composition to an atmosphere of inert gas at elevated pressures and to heat not exceeding 60°C, and then releasing the gaseous pressure whereby the explosive composition is expanded to form a unitary, spongy structure substantially in the form of the mold.

3,829,538

CONTROL METHOD AND APPARATUS FOR THE PRODUCTION OF POWDER METAL

Fatih N. Darmara, and I. Dwight Clark, both of New Hartford, N.Y., assignors to Special Metals Corporation, New Hartford, N.Y.

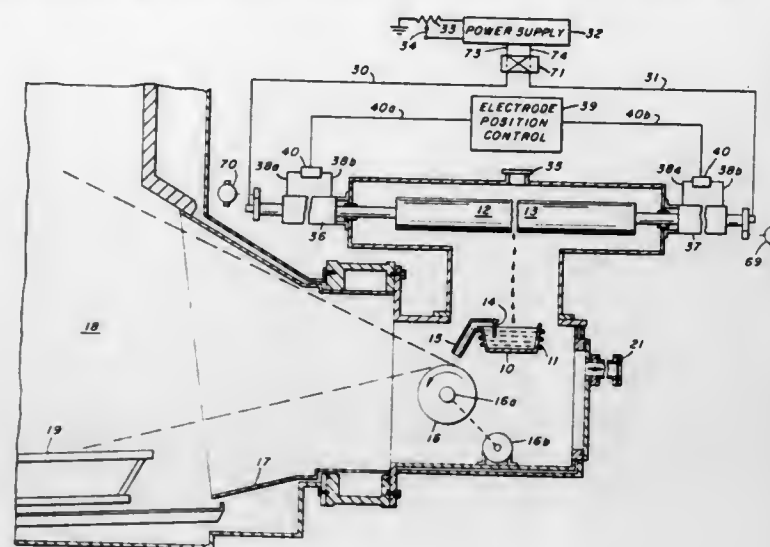
Filed Oct. 3, 1972, Ser. No. 294,747
Int. Cl. B22d 23/08

U.S. Cl. 264-8

11 Claims

Control of the process for producing pre-alloyed metallic powder by controlling the melting rate of at least one consumable electrode formed from an ingot of the metal to be ultimately atomized, to produce a controllable continuous flow of metal for atomization into powder. After striking an arc for melting the electrode which is located in a chamber containing a protective atmosphere, the power input to the electrode is selectively adjusted during continual melting to control the melting rate to equal the optimum rate of atomization. The

liquid metal droplets from the electrode are collected in a pre-heated holding reservoir to provide a homogeneous stream of



metal which is delivered to a disintegrator. This produces an atomized liquid metal which solidifies into a powdered form and is collected.

3,829,539

NOVEL PROCESS FOR PREPARATION OF SILVER CHLORIDE POWDER

Ivan C. Blake, Westerly, R.I., and Ronald Cercone, Pawcatuck, Conn., assignors to Yardney International Corp., Pawcatuck, Conn.

Filed Dec. 7, 1972, Ser. No. 312,958
Int. Cl. B22d 23/08

U.S. Cl. 264-13

5 Claims

Improvements are provided in a process for preparing silver chloride which process includes heating metallic silver to above the melting point of silver chloride but below the melting point of silver and introducing chlorine gas above the heated solid silver while withdrawing molten silver chloride from contact with the heated silver. The improvements comprise heating the withdrawn silver chloride to at least about 1100°F but below the decomposition point thereof and when passing the heated liquid silver chloride into water, recovering the resulting brittle silver chloride flakes and disintegrating the flakes to granular form.

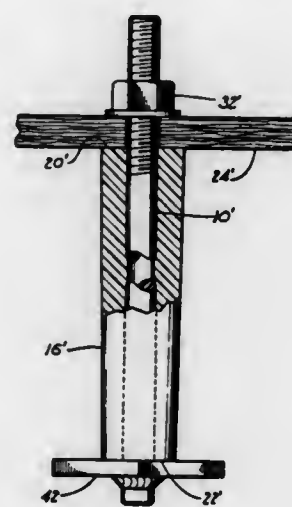
3,829,540

TECHNIQUE FOR ALIGNING ANCHOR BOLTS

Joseph F. Cox, 73 Everett St., Arlington, Mass.
Filed Dec. 7, 1970, Ser. No. 95,489
Int. Cl. E04b 1/38; E02d 27/32

U.S. Cl. 264-34

10 Claims



An improved anchor bolt shield is used to provide a yieldable, deformable annular sleeve about the upper portion of an

3,829,543

MELT SPINNING OF POLYMERS

William Neil Robertson, Harrogate, England, assignor to Imperial Chemical Industries Limited, Millbank, London, Great Britain

Filed July 14, 1972, Ser. No. 271,949
Int. Cl. D01f 1/04

U.S. Cl. 264-78

4 Claims

Manufacture of at least two filaments or groups of filaments by melt-spinning thermoplastic polymer with incorporation of different colouring material wherein molecular weight is adjusted additively to reduction caused by colouring material to give same molecular weight of polymer in filaments.

3,829,544

METHOD OF MAKING A UNITARY POLYCRYSTALLINE DIAMOND COMPOSITE AND DIAMOND COMPOSITE PRODUCED THEREBY

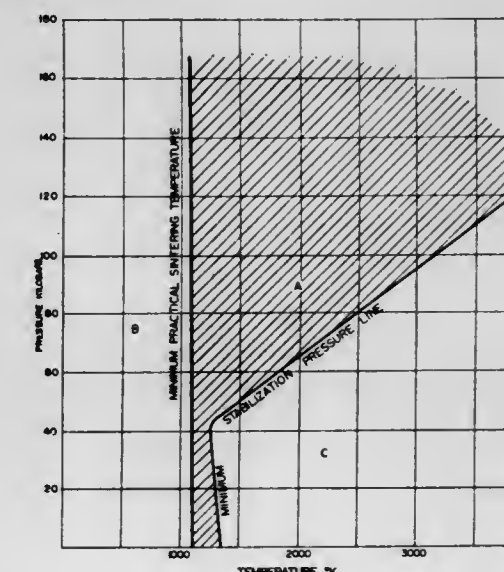
Howard T. Hall, Provo, Utah, assignor to Megadiamond Corporation, Provo, Utah

Continuation of Ser. No. 96,312, Dec. 9, 1970, abandoned, which is a continuation-in-part of Ser. No. 784,788, Dec. 19, 1968, abandoned. This application Apr. 2, 1973, Ser. No. 346,781

Int. Cl. B29f 5/00

U.S. Cl. 264-125

2 Claims



A method of making unitary polycrystalline diamond composite by sintering a body of diamond particles at a temperature between about 100°-3900 °K and at a pressure ranging up to about 170 kilobars depending on the temperature.

3,829,545

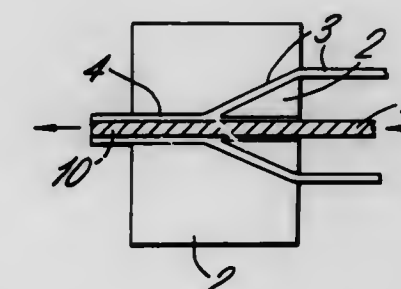
PROCESS FOR MANUFACTURING POLYETHYLENE TEREPHTHALATE PLASTIC COATED WIRE

Roger Van Vlaenderen, Zvevegem, Belgium, assignor to N. V. Bekaert S.A., Zvevegem, Belgium

Division of Ser. No. 108,355, Jan. 21, 1971, abandoned. This application Feb. 28, 1973, Ser. No. 336,799
Int. Cl. B29f 3/10

U.S. Cl. 264-174

3 Claims



An improved process for manufacturing plastic coated wire is taught which comprises heating the wire to be coated to an

anchor bolt when the lower end of the bolt is embedded in a concrete foundation. The relatively deformable characteristics of the sleeve permit the upper, threaded end of the bolt to be adjusted laterally to facilitate alignment of the upper end of the bolt with a receptive hole in a member intended to be secured to the foundation. In one aspect of the invention the sleeve remains in place while in another aspect of the invention the sleeve may be removed and the annular void about the anchor bolt may be filled with an appropriate material.

3,829,541

DIRECT BONDED REFRACTORY BRICKS

Grant M. Farrington, Jr., Marlton, N.J., and Walter S. Treffner, Linthicum Heights, Md., assignors to General Refractories Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 825,046, May 15, 1969, abandoned. This application Apr. 19, 1972, Ser. No. 245,637
Int. Cl. F27b 9/10

U.S. Cl. 264-65

11 Claims

Disclosed herein is a process for the preparation of direct bonded refractory bricks. This process comprises firing a pressed refractory composition of magnesite and chrome ore while maintaining the iron oxides ordinarily present in the chrome ore in their divalent state during the heating stage.

3,829,542

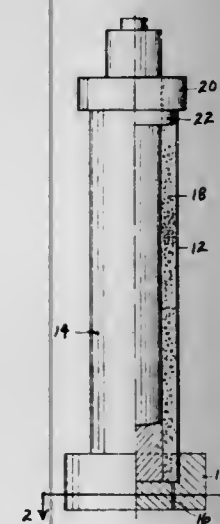
METHOD OF MANUFACTURING A POROUS ARTICLE

Oscar Chilesotti De Romano, Le Roqueville, 20 Bd. Princesse Charlotte, Monte-Carlo, Monaco

Filed July 27, 1972, Ser. No. 275,865
Int. Cl. B29b 1/00, 3/04

U.S. Cl. 264-71

11 Claims



A method of manufacturing a porous article and an article produced thereby in which a plurality of polymeric particles are coated with a plasticizer placed in a mold to which is added an amount of an organic solvent sufficient to dissolve a surface portion of each of the particles so that the abutting particles stick together. The solvent and plasticizer may then be completely vaporized so that the substantially dissolved surface portions will once again assume a solid state and form a porous unitary structure corresponding to the shape of the mold. According to a preferred embodiment, the particles are preferably dried before they are subjected to the solvent and plasticizer treatment. Any residual amount of plasticizer remaining in the molded product will impart its stated effect to the molded article but its main function to delay the action of the solvent on the particles in the upper portion of the mold until the solvent has contacted the particles in the lower portion of the mold.

elevated temperature, passing the heated wire through an extrusion zone maintained at an elevated temperature and pressure in which a polyester plastic in molten condition is coated on the heated wire, and cooling the plastic coated wire at a rate sufficient to maintain the plastic primarily in the amorphous state. In a preferred embodiment, a steel wire is coated with polyethylene terephthalate in which the coating is at least 80 percent amorphous and 0.1 to 0.3 mm in thickness. An improved wire product is produced which may be advantageously utilized for the manufacture of barbed wire, wire mesh, wire netting, wire fences and the like.

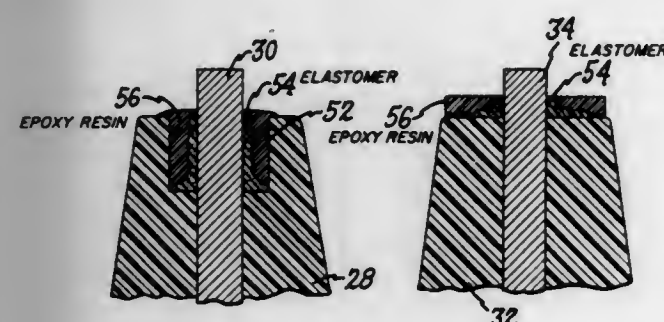
3,829,546

SEALING OF MOLDED BUSHINGS

Richard F. Hunter, and Gerhard O. Mietz, both of Hickory, N.C., assignors to General Electric Company
Filed Nov. 22, 1972, Ser. No. 308,735
Int. Cl. H01b 17/30

U.S. Cl. 264-262

3 Claims



A method of sealing a molded bushing to prevent leaking. The metal conductor area just beyond the edge of the bushing is coated with an elastomeric material. The coated area is then covered with a resinous material such as a thermosetting epoxy resin, which adheres to the bushing, the conductor, and the elastomeric material. Both the thermosetting material and the elastomeric material are then cured to provide a watertight seal between the end of the bushing and the electrical conductor.

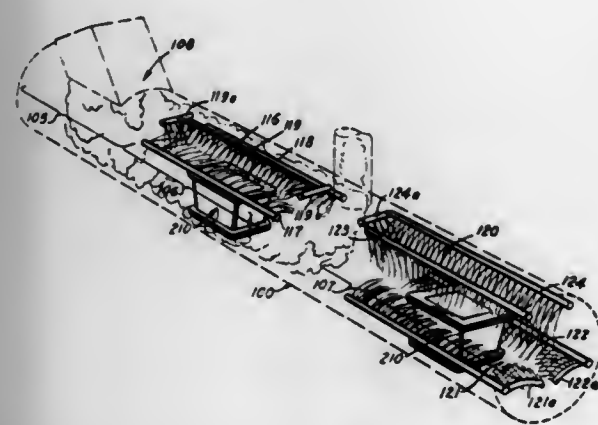
3,829,547

METHOD FOR POLYMERIZING PLASTIC

Sanford N. Milner, Riverview, Ala., assignor to Milner Corporation, Opelika, Ala.
Continuation of Ser. No. 825,740, May 19, 1969, abandoned.
This application Oct. 12, 1972, Ser. No. 296,885
Int. Cl. B29c 11/00

U.S. Cl. 264-297

11 Claims



A method for the polymerization of plastic including conveying means, heating means, cooling means, and control means for controlling the conveying, heating and cooling means. The control means causes the conveying means to move the raw unpolymerized plastic in a mold into the heating means, hold the plastic and mold in the heating means for a

predetermined period of time to heat the plastic to polymerization temperature, to transfer the heated plastic and mold to the cooling means, and hold the heated plastic and mold in the cooling means for a predetermined time to cool the plastic and mold. The cooling means creates a fog spray cooling mist therein as well as a direct spray to cool the plastic and mold.

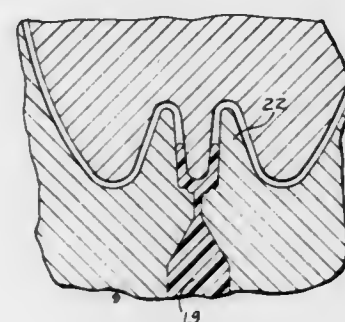
3,829,548

INJECTION MOLDING PROCESS

Bryant Edwards, Clarendon Hills, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Continuation of Ser. No. 214,166, Dec. 30, 1971, abandoned.
This application June 20, 1973, Ser. No. 371,652
Int. Cl. B29f 1/06

U.S. Cl. 264-328

1 Claim



The process for injection molding relatively thin walled and relatively deep hollow plastic articles with accurately controlled wall thicknesses.

3,829,549

PROCESS FOR TREATING WASTE PHOTOGRAPHIC PROCESSING SOLUTION AND RECOVERING RESIDUAL SILVER THEREFROM AS A SILVER HALIDE

Ralph Anderson, Saratoga, and Rodney B. Beyer, both of Sunnyvale, Calif., assignors to Future Systems, Inc., Los Gatos, Calif.

Filed Oct. 30, 1972, Ser. No. 302,008

Int. Cl. C01g 5/00

U.S. Cl. 423-43

9 Claims

A formulation and method for treating waste photographic processing solutions to destroy the pollutant nature of the solution and recover residual silver from the solution. Waste photographic processing solutions containing silver thiosulfate complexes and/or sulfite, such as exhausted fixing solutions, are treated with a chemical formulation including an oxidant of sodium chlorate in the presence of an acidic buffering agent. The formulation oxidizes the thiosulfate and/or sulfite ions of the solution to the sulfate state and precipitates the silver ion as an insoluble halide.

3,829,550

PROCESS FOR MAKING HIGH PURITY MOLYBDENUM OXIDE AND AMMONIUM MOLYBDATE

Richard A. Ronzio, Golden; John W. Lane, Lakewood, and John D. Vincent, Golden, all of Colo., assignors to American Metal Climax, Inc., New York, N.Y.

Filed Sept. 25, 1972, Ser. No. 291,922

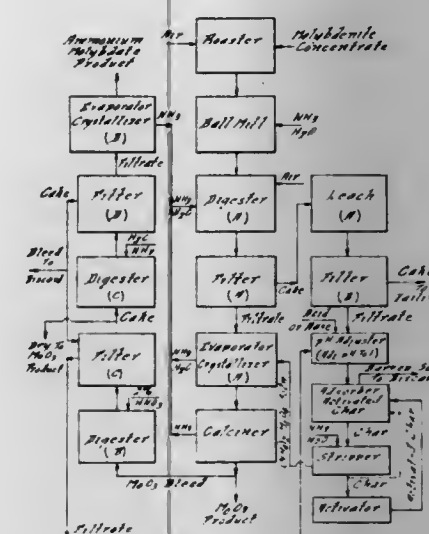
Int. Cl. C01g 41/00

U.S. Cl. 423-54

7 Claims

A process for producing a high grade molybdenum trioxide and/or ammonium molybdate product whereby an oxidized molybdenite concentrate is subjected to an ammonium hydroxide leaching step including a digestion phase in which an oxidation of some of the impurities therein, particularly iron, is effected, resulting in a coprecipitation of iron and aluminum hydroxide, together with other impurities including lead, bismuth, tin, arsenic, phosphorous, soluble silica, and the

like. The resultant aqueous solution containing ammonium molybdate is filtered and thereafter crystallized, followed by calcining to produce a high purity molybdenum trioxide product. It is also contemplated that all or a portion of the molybdenum trioxide product derived from the calciner can be subjected to a second phase purification operation in which



the molybdenum trioxide is digested with a dilute nitric acid solution to effect a further leaching or residual contaminating constituents, whereafter the molybdenum oxide value is redissolved in an aqueous ammonium hydroxide solution which is filtered and subsequently crystallized to produce a high purity ammonium molybdate product.

3,829,551

ATMOSPHERE PURIFICATION OF XENON, RADON & RADON DAUGHTER ELEMENTS

Lawrence Stein, Downers Grove, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Mar. 27, 1973, Ser. No. 345,419

Int. Cl. B01d 53/34

U.S. Cl. 423-210

9 Claims

A method of purifying an atmosphere of xenon, radon and radon daughter elements by passing the atmosphere containing these elements through a reaction bed of dioxygenyl hexafluoroantimonate, which oxidizes the xenon, radon and radon daughter elements to their respective fluorides which remain in the reaction bed and are thus removed from the atmosphere, and recirculating the purified atmosphere. The method is also useful for separating the before-named elements from krypton.

3,829,552

METHOD OF MASSIVELY HYDRIDING ZIRCONIUM-URANIUM ALLOY

Edward L. Reed, Woodland Hills, Calif., assignor to North American Rockwell Corporation

Filed Oct. 12, 1962, Ser. No. 230,803

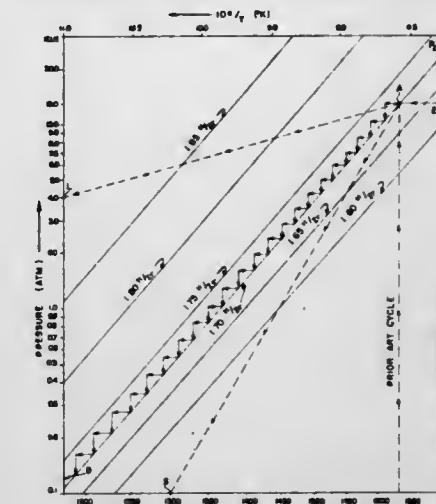
Int. Cl. C01g 25/00, 43/00

U.S. Cl. 423-255

9 Claims

1. A process of massively hydriding a zirconium-uranium alloy fuel element, which comprises slowly heating the alloy in a vacuum to a temperature of about 1,500°-1,850°F., contact-

ing said alloy with hydrogen until a preselected H/Zr ratio is obtained at a pressure substantially greater than atmospheric,



isochorically cooling the resulting composition to at least a temperature no higher than approximately 1,390°F., and then cooling said composition to ambient conditions.

3,829,553

PROCESS FOR TREATING BOROCALCIC ORES

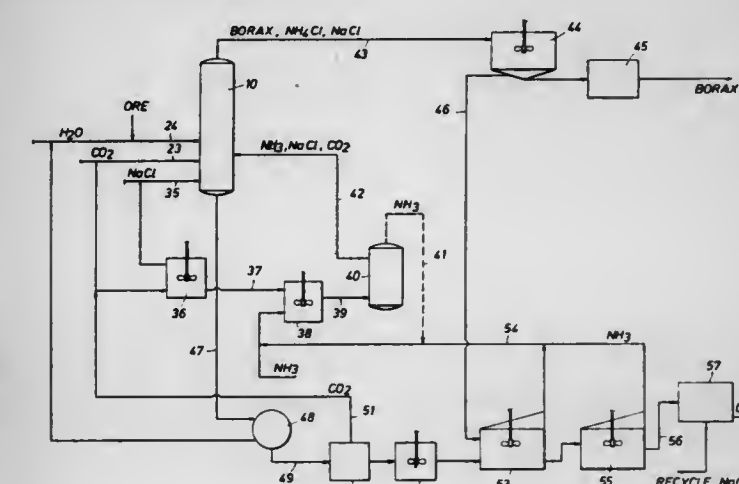
Lawrence Lynn, Houston, Tex., assignor to General Crude Oil & Minerals Company, S.A., Houston, Tex.

Filed Aug. 2, 1972, Ser. No. 277,347

Int. Cl. C01b 35/00; C01c 11/16; C01f 11/02

U.S. Cl. 423-279

6 Claims



3,829,555

METHOD OF MANUFACTURING SILANES

Hisashi Muraoka, Yokohama; Masafumi Asano, Kawasaki; Taizo Ohashi, Kanagawa-ken, and Yuzo Shimazaki, Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Saiwai-ku, Kawasaki-shi, Japan

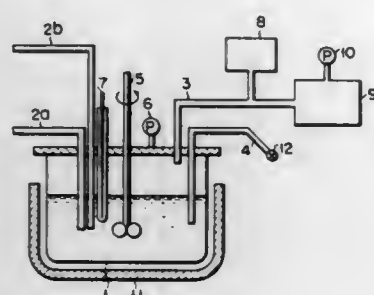
Filed Sept. 26, 1972, Ser. No. 292,394

Claims priority, application Japan, Oct. 1, 1971, 46-76281

Int. Cl. G01b 33/04

U.S. Cl. 423—347

7 Claims



A method of manufacturing silanes expressed by a general formula:



(where n is an integer of 1 to 3) by disproportionating alkoxy-silanes expressed by a general formula:



(where R is an alkyl group having less than four carbon atoms and n is an integer of 1 to 3) in the presence of alcoholate expressed by a general formula:



(where R is an alkyl group having less than four carbon atoms and M is one selected from the group consisting of alkali metals, alkaline earth metals and aluminum).

3,829,556

GROWTH OF GALLIUM NITRIDE CRYSTALS

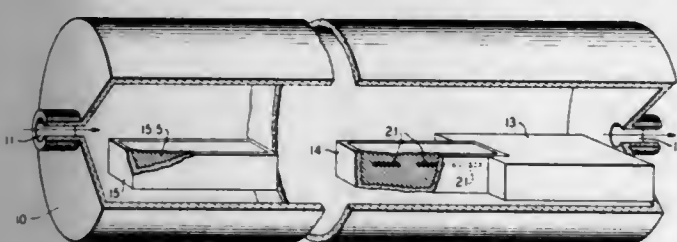
Ralph Andre Logan, and Carl Dryer Thurmond, both of Morristown, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 24, 1972, Ser. No. 237,896

Int. Cl. C01h 21/06

U.S. Cl. 423—409

10 Claims



The size and photoluminescent efficiency of crystals of gallium nitride, grown in a solution of molten gallium and bismuth, are improved by maintaining the partial pressure of ammonia vapor in a hydrogen gas atmosphere flowing above the solution at a value which is, at most, about an order of magnitude greater than the "equilibrium pressure" of formation vs. decomposition of gallium nitride. The photoluminescent efficiency of a blue band, whose energy is centered

around 4,350 angstroms, emitted by such gallium nitride crystals is also improved by introducing zinc vapor into the carrier gas.

3,829,557

PRODUCTION OF CHLORINE DIOXIDE

John D. Winfield, Etobicoke, Ontario, Canada, assignor to ERCO Industries Limited, Islington, Ontario, Canada

Division of Ser. No. 45,850, June 12, 1970, abandoned. This

application July 28, 1971, Ser. No. 166,773

Int. Cl. C01b 7/04, 11/02

U.S. Cl. 423—478

7 Claims

Chlorine dioxide is produced in a two-stage operation. In the first stage sodium chlorate and hydrochloric acid are reacted in aqueous solution at elevated temperature to form a gaseous mixture of chlorine dioxide, chlorine and evaporated water vapor and to form sodium chloride in the reaction zone of the first stage. In the second stage, a second reaction solution is formed containing sodium chlorate, sodium chloride and sulphuric acid, the sodium chloride being constituted at least in part by the sodium chloride formed in the first stage. Sodium sulphate and a gaseous mixture of chlorine dioxide, chlorine and water vapor are formed upon heating the second reaction solution. Chlorine dioxide is recovered from the gaseous mixtures formed in the two stages.

3,829,558

DISPOSAL OF WASTE PLASTIC AND RECOVERY OF VALUABLE PRODUCTS THEREFROM

Michael E. Banks, Torrance; Walter D. Lusk, and Robert S. Ottinger, both of Hawthorne, all of Calif., assignors to The United States of America as represented by the Secretary of the Department of Health, Education and Welfare, Washington, D.C.

Filed June 21, 1971, Ser. No. 154,861

Int. Cl. C01b 7/08; C07c 15/10

U.S. Cl. 423—481

5 Claims

A method of disposing of waste plastic without polluting the environment by passing the plastic to a reactor, heating the plastic in the presence of a gas to at least the decomposition temperature of the plastic, and recovering decomposition products therefrom. The preferred embodiment utilizes a heated inert carrier gas as the source of heat.

3,829,559

SOLUTION MINING PROCESS

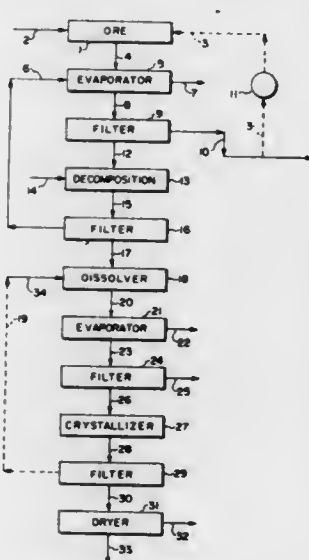
William B. Dancy, Lakeland, Fla., assignor to International Minerals & Chemical Corporation, Libertyville, Ill.

Filed Feb. 18, 1971, Ser. No. 116,569

Int. Cl. C01d 3/04; C01f 5/30

U.S. Cl. 423—497

10 Claims



An improved process for the recovery of ore values from carnallite by solution mining techniques is disclosed. The car-

nallite-containing ore deposit is contacted with an aqueous stream, which may be merely water or an aqueous solution of magnesium chloride, to impregnate the same with magnesium-containing ore values. These dissolved ore values are primarily carnallite when the aqueous stream contains at least about 25 percent magnesium chloride and magnesium chloride when the aqueous stream initially contains a smaller quantity of magnesium chloride. The impregnated stream is removed from the ore deposit and sufficient water is removed to precipitate substantially all the potassium-containing ore values dissolved from the formation. The precipitated potassium-containing ore values are in the form of carnallite. The resulting slurry is filtered and the magnesium chloride-containing filtrate is removed, at least part of which provides magnesium chloride product. The filter cake is slurried with sufficient water to decompose the carnallite to soluble magnesium chloride and insoluble potassium chloride. The magnesium chloride solution is removed and advantageously recycled to the earlier water removal step in the process. The insolubles may be treated to provide potassium chloride products.

3,829,560

RECOVERY OF SULFUR DIOXIDE FROM GAS STREAMS

Louis L. Fornoff, Cedar Grove, N.J.; John J. Collins, Katonah, N.Y., and Rolla D. Taylor, North Ridgeville, Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Filed June 14, 1972, Ser. No. 262,561

Int. Cl. C01b 17/72

U.S. Cl. 423—522

4 Claims

Sulfur dioxide in the effluent from the acid absorber of a contact process sulfuric acid plant is adsorbed in a fixed bed of molecular sieve adsorbent, purged from the adsorption bed with hot dry oxygen-containing gas and recycled to a catalytic converter in admixture with the oxygen-containing purge gas for conversion to sulfur trioxide and consequent reaction with water to form sulfuric acid.

3,829,561

IRON PREPARATION AND PROCESS FOR ITS MANUFACTURE

Hellmuth Carl Heinrich, c/o Farbwerke Hoechst AG., Frankfurt/Main, Germany

Filed Mar. 19, 1969, Ser. No. 808,676

Claims priority, application Germany, Mar. 21, 1968, 1767017

Int. Cl. A61k 9/00, 9/04, 27/00

U.S. Cl. 424—44

7 Claims

Iron preparation for oral application containing ferro-ions in the form of an iron-II-salt, a physiologically tolerable solid acid and a compound yielding carbon dioxide.

3,829,562

DICALCIUM PHOSPHATE AND ITS METHOD OF PREPARATION

Keun Young Kim, and Kenneth J. Shaver, both of St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

This application June 7, 1971, Ser. No. 150,717

Int. Cl. A61k 7/16

U.S. Cl. 424—57

3 Claims

Anhydrous dicalcium phosphate having an assay of at least 90 percent by weight and composed of particles, a major proportion of which have a particle size of from about 0.1 to 1.0 microns and a specific surface area of at least 10 square meters per gram is prepared by adding well dispersed, substantially dry calcium oxide or calcium hydroxide to phosphoric acid having a concentration of from about 40% to 80% H_3PO_4 by weight and maintaining the temperature of the reaction medium sufficiently high to provide dicalcium phosphate substantially free from water of crystallization. Dentifrice compositions containing this product provide effective polishing

action without undue abrasion. Such compositions are prepared by direct blending of conventional dentifrice ingredients with an aqueous paste containing 45 percent to 65 percent by weight anhydrous dicalcium phosphate.

3,829,563

EMOLLIENT CLEANSING COMPOSITIONS

Richard H. Barry, Bloomfield, N.J.; Meyer Matluck, Flushing, and Philip Orshitzer, Staten Island, both of N.Y., assignors to Hoffman-La Roche Inc., Nutley, N.J.

Filed Nov. 30, 1972, Ser. No. 311,035

Int. Cl. A61k 7/06, 27/00

U.S. Cl. 424—70

9 Claims

Cleansing compositions for the hair and skin which deposit an emollient, conditioning film thereon during washing are disclosed. The compositions, which may be in a liquid or semi-solid form, are oil-in-water emulsions characterized by a particular particle size distribution of the oil phase and are comprised of from about 10 to about 70 percent by weight petrolatum, from about 5 to about 30 percent by weight of one or more organic foaming detergents, from about 1 to about 10 percent by weight of an emulsifier, from about 0.5 to about 5 percent weight of an organic foam stabilizer, from about 0 to about 20 percent by weight of one or more emollient substances other than petrolatum, and water.

3,829,564

COATED PRODUCTS FOR VETERINARY USE

Lorraine Anne Merry, and David Henry Solomon, both of Victoria, Australia, assignors to Commonwealth Scientific and Industrial Research Organization, East Melbourne, Victoria, Australia

Division of Ser. No. 55,968, July 17, 1970, abandoned. This application Feb. 14, 1973, Ser. No. 332,518

Int. Cl. A23k 1/00, 3/00; A61k 27/00

U.S. Cl. 424—78

8 Claims

Copolymers and terpolymers consisting essentially of (a) a basic substituted acrylate or methacrylate; and (b) at least one ethylenically unsaturated compound selected from vinyl aromatic hydrocarbons, vinyl esters, normal and branched chain alkyl esters of acrylic and methacrylic acids, and acrylonitrile.

The polymers which are substantially insoluble in aqueous media at pH 6 or more but soluble at pH 3 or less are used as coatings for nutrient or therapeutic substances for administration to ruminants. The substances thus are rendered resistant to attack and breakdown in the rumen.

3,829,565

COMBATING INSECTS, ACARIDS AND NEMATODES USING S,S-DI(2-ALKOXY-ETHYL)PHOSPHORO-OR PHOSPHONOTHIONOTHIOLATES

Shigeo Kishino; Akio Kudamatsu, and Kozo Shiokawa, all of Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 178,488, Sept. 7, 1971, Pat. No. 3,755,508.

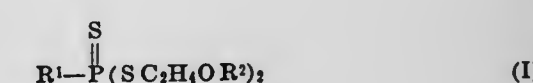
This application Jan. 26, 1973, Ser. No. 326,620

Int. Cl. A01n 9/36

U.S. Cl. 424—217

10 Claims

S,S-di (2-alkoxy-ethyl) phosphoro- or phosphonothionodithiolates of the general formula



wherein

R^1 is a lower alkyl or lower alkoxy radical, and

R^2 is a lower alkyl radical,

which possess insecticidal, acaricidal and nematocidal properties.

3,829,566

METHOD FOR CONTROL OF WHITE MUSCLE DISEASE
Henry C. Burns, and George C. McConnell, both of Piedmont, Calif., assignors to Chromalloy Pharmaceutical, Inc., Wilmington, Del.

Continuation-in-part of Ser. No. 352,681, March 17, 1964, abandoned. This application Apr. 28, 1967, Ser. No. 639,923
Int. Cl. A61k 15/10

U.S. Cl. 424—131

7 Claims

White muscle disease is controlled by administering the combination of a selenium compound and vitamin E, by parenteral injection to any mammal or by oral ingestion in mammals other than herbivores.

3,829,567

ALKALI METAL SALTS OF NUCLEOTIDES USEFUL AS MEDICINES FOR THE FIBRONILITIC SYSTEM

Adriano Butti, Como; Giuseppe Prino, Milano, and Marisa Mantovani, Villa Guardia, all of Italy, assignors to Crinos Industria Farmacobiologica S.p.A., Villa Guardia, Italy

Filed Nov. 2, 1971, Ser. No. 194,920

Claims priority, application Italy, Nov. 3, 1970, 31309/70

Int. Cl. A61k 27/00; C07d 51/50

U.S. Cl. 424—180

6 Claims

Compositions of matter useful as medicines active on the fibrinolytic system consisting of alkali metal salts of nucleic acids extracted from animal or vegetable tissues and having a phosphorous content from 7.8 to 9.7 percent, a nitrogen content from 13.8 to 17.6 percent and a viscosity not lower than 1.05 centipoises.

3,829,568

INSECTICIDE COMPOSITION DERIVED FROM PHOSPHORIC ESTERS CONTAINING ONE UNSATURATED ALIPHATIC CHAIN

Daniel Demozay, Villeurbanne, France, assignor to PEPRO, Societe pour le Developpement et la Vente de Specialites Chimiques, Lyon, France

Filed Mar. 19, 1970, Ser. No. 21,200

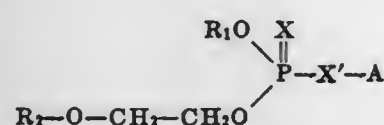
Claims priority, application France, Mar. 21, 1969, 69.7608; Feb. 27, 1970, 70.2061

Int. Cl. A01n 9/36

U.S. Cl. 424—203

10 Claims

Insecticide compositions wherein the active materials are phosphorus derivatives of the general formula



wherein R₁ and R₂ are lower alkyl radicals preferably of 1-3 carbon atoms, X and X' are sulfur or oxygen, R₂OCH₂- may also be a tetrahydrofurfuryl cycle, A is an alkenyl or alkynyl radical containing from two to five carbon atoms, which may be substituted by one or more identical or different halogen atoms.

3,829,569

THERAPEUTIC COMPOSITION AND METHOD FOR ITS USE

Leonard M. Rice, Baltimore, Md., assignor to Tri-Kem Corporation, Washington, D.C.

Filed Oct. 27, 1967, Ser. No. 678,502

Int. Cl. A61k 27/00

U.S. Cl. 424—232

4 Claims

A therapeutic composition for combatting all of the major symptoms resulting from the overindulgence of alcoholic beverages comprising a two-part formulation one part of which contains aspirin and aluminum hydroxide and the other

part of which contains magnesium carbonate, magnesium trisilicate, nicotinamide, thiamine hydrochloride and peppermint oil and either or both of which contain caffeine. A method for using said composition.

3,829,570

THERAPEUTIC COMPOSITIONS AND METHOD

Joachim Heider, Warthausen-Oberhofen; Wolfgang Eberlein, and Gunter Engelhardt, both of Biberach/Riss, all of Germany, assignors to C. H. Boehringer Sohn, Ingelheim/Rhein, Germany

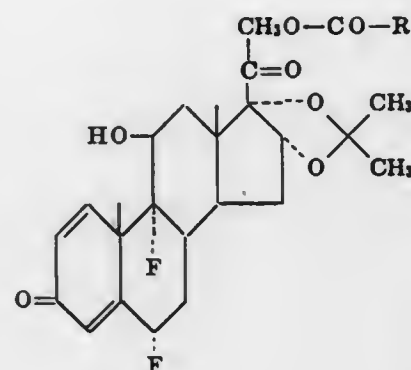
Continuation-in-part of Ser. No. 109,975, Jan. 26, 1971, Pat. No. 3,740,392. This application Jan. 22, 1973, Ser. No. 325,558

Int. Cl. A61k 17/00

U.S. Cl. 424—241

10 Claims

Novel anti-inflammatory compositions comprised of an effective amount of an ester of fluocinolone-acetonide or 6 α ,9 α -difluoro-16 α ,17 α -isopropylidenedioxy- $\Delta^{1,4}$ -pregnadiene-11 β ,21-diol-c,20-dione 21-diol-3,20-dione of the formula



wherein R is selected from the group consisting of pyridine-3, pyridine-4, benzofuran-2 or l-menthoxyethyl and a method of treating inflammation in warm-blooded animals.

3,829,571

ANALGESIC COMPOSITION

Wilhelm Bartmann, Neuenhain/Taunus, and Hans-Georg Alpermann, Kelkheim/Taunus, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Division of Ser. No. 210,614, Dec. 21, 1971, Pat. No. 3,772,298. This application June 11, 1973, Ser. No. 368,471

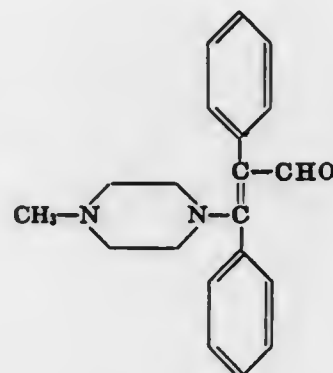
Claims priority, application Germany, Dec. 23, 1970, 2063384

Int. Cl. A61k 27/00

U.S. Cl. 424—250

3 Claims

Analgesic compositions containing, as an essential active ingredient, 1-(1,2-diphenyl-2-formylvinyl)-4-methylpiperazine or an acid addition salt thereof with a physiologically tolerated acid. The active compound has the formula



3,829,572

ANALGESIC COMPOSITION

Wilhelm Bartmann, Neuenhain/Taunus; Hans-Georg Alpermann, Kelkheim/Taunus, and Christian Jochum, Offenbach/Main, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Division of Ser. No. 210,621, Dec. 21, 1971, Pat. No. 3,772,297. This application June 11, 1973, Ser. No. 368,591

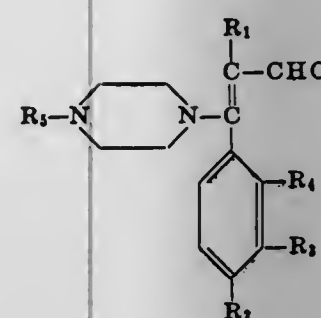
Claims priority, application Germany, Dec. 4, 1971, 2160235

Int. Cl. A61k 27/00

U.S. Cl. 424—250

8 Claims

Analgesic composition containing, as an essential active ingredient, a 1-vinylcarbonyl-piperazine compound of the formula



or a salt thereof with physiologically tolerable acid, wherein R₁ is hydrogen, alkyl, phenyl, or halo-, alkyl-, or alkoxy-substituted phenyl; R₂, R₃, and R₄ may be the same or different and are hydrogen, alkyl, alkoxy, or halogen; and R₅ is alkyl or phenyl.

3,829,573

HEXAHYDRO PYRAZINOQUINOLINES AS ANTI-SCHISTOSOMAL AGENTS

Hugh C. Richards, Canterbury, England, assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 789,610, Jan. 7, 1969, abandoned. This application July 13, 1973, Ser. No. 379,009

Int. Cl. A61k 27/00

U.S. Cl. 424—250

11 Claims

Various 8-methyl and 8-hydroxymethyl-2,3,4,4a,5,6-hexahydro-1H-pyrazino-[1,2-a]-quinolines having either nitro, cyano or halogen substituted at the 7- or 9-position of the molecule and the 3-allyl, 3-alkyl having one to five carbon atoms, 3-hydroxyalkyl having two to six carbon atoms, 3-cyanoalkyl having up to six carbon atoms in the alkyl moiety, 3-alkanoyloxyalkyl having from two to six carbon atoms in the oxyalkyl moiety and up to six carbon atoms in the alkanoyl moiety, 3-cycloalkyl having up to six carbon atoms, 3-phenylalkyl having up to three carbon atoms in the alkyl moiety, 3-carboxyalkyl having up to six carbon atoms in the alkyl moiety, 3-alkanoyl having up to six carbon atoms, 3-carboxyalkenyl having up to six carbon atoms, 3-carboxyalkenyl, 3-benzoyl, 3-furoyl, 3-thenoyl, 3-phthaloyl, 3-picolinoyl, 3-phenylacetyl, 3-carboxy, 3-carbamoyl, 3-thiocarbamoyl and the 3-carbalkoxy having from one to 12 carbon atoms in the alkyl moiety derivatives thereof, their preparation and their utility as anti-schistosomal agents. Typical members include 7-chloro-8-methyl-2,3,4,4a,5,6-hexahydro-1H-pyrazino-[1,2-a]-quinoline and 8-hydroxymethyl-9-chloro-2,3,4,4a,5,6-hexahydro-1H-pyrazino-[1,2-a]-quinoline.

3,829,574

HYPOLYCEMIC PHARMACEUTICAL COMPOSITIONS AND METHODS OF USE

Eberhard Kutter; Gerhart Griss; Wolfgang Grell, and Manfred Kleemann, all of Biberach/Riss, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim/Rhein, Germany

Division of Ser. No. 26,072, April 6, 1970, Pat. No. 3,708,486.

This application Oct. 6, 1972, Ser. No. 298,801

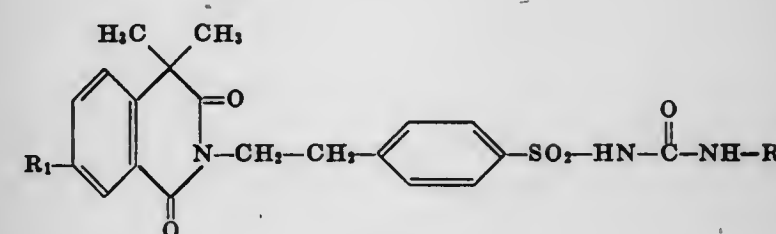
Claims priority, application Germany, Apr. 17, 1969, 1919570; Jan. 5, 1970, 2000339

Int. Cl. A61k 27/00

U.S. Cl. 424—258

2 Claims

Hypoglycemic pharmaceutical compositions containing a 2-[p-(N'-cycloalkyl-carbamido-N-sulfonyl)-phenethyl]-1,2,3,4-tetrahydro-1,3-dioxo-4,4-dimethyl-isoquinoline of the formula



wherein

R₁ is hydrogen, chlorine, bromine or alkoxy of one to four carbon atoms, and

R₂ is cyclohexyl or adamantyl-(1), or an alkali metal salt thereof; and a method of lowering the blood sugar level therewith.

ERRATUM

For Class 424—263 see:
Patent No. 3,829,424

3,829,575

SLIME CONTROL COMPOSITIONS AND THEIR USE

Bernard F. Shema, Glenside; Robert H. Brink, Jr., Doylestown, and Paul Swered, Philadelphia, all of Pa., assignors to Betz Laboratories, Inc., Trevese, Pa.

Continuation-in-part of Ser. No. 271,459, July 13, 1972, which is a continuation-in-part of Ser. No. 00,464, Jan. 2, 1970, abandoned. This application May 17, 1973, Ser. No. 361,356

Int. Cl. A01n 9/02, 9/22, 9/20

U.S. Cl. 424—263

8 Claims

The present invention relates to certain processes and compositions useful for inhibiting the growth of slime in water and, in particular, water used for industrial purposes; for example, in the manufacture of pulp paper, in the manufacture of paper, in cooling water systems and in effluent water treatment. The novel processes and compositions of the present invention are processes or mixtures which show unexpected synergistic activity against microorganisms, including bacteria, fungi and algae, which produce slime in aqueous systems or bodies which are objectionable from either an operational or aesthetic point of view. Specifically, the invention is directed to the use of compositions comprising a combination of a bromonitrostyrene and cetyl pyridinium chloride.

3,829,576

METHOD OF TREATING NEISSERIA GONORRHOEAE WITH DIHYDROAMPICILLIN

Harvey E. Alburn, West Chester, Pa., assignor to American Home Products Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 171,367, Aug. 12, 1971. This application Aug. 26, 1971, Ser. No. 175,337
Int. Cl. A61k 21/00

U.S. Cl. 424—271

1 Claim

A method for treating Neisseria infections is described using an effective amount of 6-[2-amino-2-(1,4-cyclohexadien-1-yl)acetamido]pencillanic acid.

3,829,577

METHYLENEDIOXY-PHENOXY DERIVATIVES AS AGENTS FOR UPSETTING HORMONE BALANCE IN INSECTS

Madhukar Subraya Chodnekhar, Basel; Albert Pfiffner, Pfaffhausen; Norbert Rigassi, Arlesheim; Ulrich Schwieter, Reinach, and Milos Suchy, Basel, all of Switzerland, assignors to Hoffman-La Roche Inc., Nutley, N.J.

Division of Ser. No. 123,105, March 10, 1971, Pat. No. 3,686,222. This application Apr. 24, 1972, Ser. No. 247,083
Claims priority, application Switzerland, Mar. 25, 1970, 4620/70

Int. Cl. A01n 9/28

U.S. Cl. 424—278

4 Claims

Methylenedioxy substituted benzyloxy or phenoxy ethers of aliphatic hydrocarbons, wherein the aliphatic group contains between 6 and 11 carbon atoms. These ethers are useful in killing and preventing the proliferation of insects by upsetting their hormonal balance.

3,829,578

ANTIVIRAL COMPOSITIONS CONTAINING BIS-BASIC ETHERS AND THIOETHERS OF XANTHENE AND XANTHEN-9-ONES AND METHODS OF TREATING VIRUSES THEREWITH

Robert W. Fleming, Ann Arbor, Mich., and Albert A. Carr, Cincinnati, Ohio, assignors to Richardson-Merrell Inc., New York, N.Y.

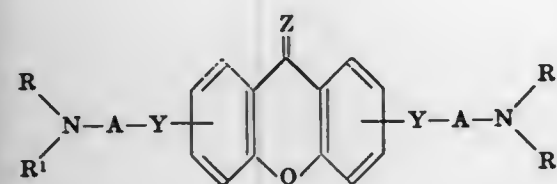
Continuation of Ser. No. 96,976, Dec. 10, 1970, abandoned. This application Nov. 2, 1972, Ser. No. 303,255

Int. Cl. A61k 27/00

U.S. Cl. 424—283

7 Claims

Antiviral compositions and methods of inhibiting or inactivating viruses by administering to hosts an antivirally effective quantity of an active ingredient are disclosed herein. The active ingredients are those compounds having the formula



wherein Z is oxygen or H₂; each Y is oxygen or divalent sulfur; each A is a straight or branched alkylene chain of from two to four carbon atoms and which separates the amino nitrogen and Y by at least two carbon atoms; each R and R¹ are individually selected from hydrogen, lower alkyl of from 1 to 4 carbon atoms, alkenyl of from three to six carbon atoms and having the vinyl unsaturation in other than the 1-position of the alkenyl group; or each set of R and R¹ taken together with the nitrogen atom to which they are attached is a saturated monocyclic heterocyclic group such as pyrrolidino, piperidino, morpholino or N-(lower)-alkylpiperazino; or pharmaceutically acceptable acid addition salts of said compounds.

3,829,579

STABLE SOLUTIONS OF PGE-TYPE COMPOUNDS

Randall G. Stehle, and Thomas O. Oesterling, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 194,686, Nov. 1, 1971, abandoned. This application May 11, 1973, Ser. No. 359,486
Int. Cl. A61k 27/00

U.S. Cl. 424—312

16 Claims

Stable solutions of PGE-type compounds are obtained by dissolving the compounds in an anhydrous, water-miscible, pharmacologically acceptable, dipolar aprotic solvent.

3,829,580

FUNGICIDAL DITHIOMALONAMIDES AND THEIR CONGENERS

Horst O. Bayer, Levittown, and Ernest D. Weiler, Washington, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Apr. 24, 1972, Ser. No. 247,070

Int. Cl. A01n 9/20

U.S. Cl. 424—320

3 Claims

This invention relates to novel compositions of matter which are selected metal salts, quaternary ammonium metal chelates, and polychelates of dithiomalonamide, its N-alkyl and N-Aryl derivatives, its phenylhydrazono derivatives, and its higher alkylene homologs. These permit significant control of fungal infections of the Genus Botrytis and against grape downy mildew.

3,829,581

ALIPHATIC POLYCYCLIC AMIDOXIMES AS INFLUENZA ANTIVIRAL AGENTS

Richard L. Ellis, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 57,805, July 23, 1970, abandoned. This application Oct. 19, 1972, Ser. No. 298,835
Int. Cl. A61k 27/00

U.S. Cl. 424—327

8 Claims

Aliphatic polycyclic amidoximes exhibit influenza antiviral activity in warm-blooded animals. A typical compound is 1-adamantanecarboxamidoxime.

3,829,582

METHOD OF IMPARTING FATTY-FRIED FLAVOR TO FOODS AND COMPOSITION

Dante G. Guadagni, Moraga, and Ron G. Buttery, Richmond, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Sept. 21, 1972, Ser. No. 290,932

Int. Cl. A231 1/26

U.S. Cl. 426—65

4 Claims

A mixture containing methional, 2-acetylthiazoline, decal, 2,4-dienal, 2-octenal, 2-acetyl-1,4,5,6-tetrahydropyridine, 2-ethyl-3,6-dimethylpyrazine, 2,6-diethylpyrazine, and 2-phenylacetaldehyde is used to impart a fatty-fried flavor to potato and other food products.

3,829,583

MIXTURE OF MALTOBIONIC ACID AND MONOSODIUM GLUTAMATE AS A FOOD SEASONING

Shokichi Yuen, Okayama, Japan, assignor to Ken Hayashibara, Okayama-ken, Japan

Filed Feb. 14, 1972, Ser. No. 226,331

Claims priority, application Japan, Feb. 20, 1971, 46-7714
Int. Cl. A231 1/26

U.S. Cl. 426—175

6 Claims

Maltobionic acid (4-glucosyl-gluconic acid) improves the taste of liquid and solid food, particularly when employed

jointly with maltose and/or monosodium glutamate or the known combinations of monosodium glutamate with sodium 5'-inosinate and sodium 5'-guanylate. To be fully effective, the maltobionic acid should amount to more than one third of the combined weight of the monosodium glutamate, sodium 5'-inosinate and sodium 5'-guanylate, and the maltose, if present, should amount to more than five times the last-mentioned combined weight.

3,829,584

CONTINUOUS SEPARATING AND STANDARDIZING OF MILK

Dale A. Seiberling, Roscoe, Ill., assignor to Economics Laboratory, Inc., St. Paul, Minn.

Filed Aug. 21, 1972, Ser. No. 282,497

Int. Cl. A23c 7/00, 13/02

U.S. Cl. 426—231

11 Claims

A continuous on-stream milk standardizing and blending system. Whole milk having a known fat content is introduced into a centrifugal separator for separating the milk into its skim and cream components; the milk entering the separator through a conduit having a flow meter positioned therein for providing a digital output signal corresponding to the flow rate therethrough. A digital control unit compares the input signal from the milk flow meter with an input signal received from a similar flow meter positioned in the cream conduit downstream from an air-operated throttling valve; the control unit providing a control signal which regulates the setting of the throttling valve. This setting controls the flow rate of cream through the cream conduit and, thus, establishes the fat test of the cream based on the known fat test of the whole milk. A portion of the cream is then recombined with the skim component in an amount controlled by the digital control unit so as to provide a standardized milk product of the desired fat content (e.g. 3.5% milk). Various additional additives (e.g. condensed skim milk) can also be blended with the standardized milk product.

3,829,585

NOVEL BENZOYLPHENYLACETIC ACID ESTERS IN THE TREATMENT OF PAIN AND INFLAMMATION

Andre Allais, Les Lilas; Jean Meier, Coeuilly-Champigny, and Jacques Dube, Eaubonne, all of France

Division of Ser. No. 133,429, April 12, 1971, Pat. No.

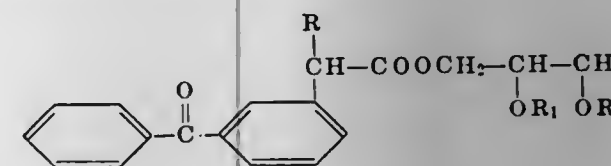
3,741,988. This application Apr. 2, 1973, Ser. No. 346,770
Claims priority, application France, Apr. 15, 1970, 70.13579; Sept. 24, 1970, 70.34591

Int. Cl. A61k 27/00

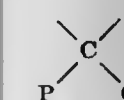
U.S. Cl. 424—278

5 Claims

Racemates and optically active isomers of benzoylphenylacetic acid esters of the formula



wherein R is selected from the group consisting of hydrogen and alkyl of 1 to 7 carbon atoms, R₁ and R₂ are hydrogen or taken together are



P and Q being alkyl of 1 to 5 carbon atoms and the two benzene rings may be optionally substituted with at least one member of the group consisting of chlorine, fluorine, bromine,

trifluoromethyl and alkyl and alkoxy and alkylthio of 1 to 7 carbon atoms, intermediates and process for their preparation and their use as analgesics and antiinflammatory agents.

3,829,586

SLIME CONTROL COMPOSITIONS AND THEIR USE

Bernard F. Shema, Glenside; Robert H. Brink, Jr., Doylestown, and Paul Swered, Philadelphia, all of Pa., assignors to Betz Laboratories, Inc., Trevose, Pa.

Continuation-in-part of Ser. No. 271,459, July 13, 1972, which is a continuation-in-part of Ser. No. 000,464, Jan. 2, 1970, abandoned. This application May 17, 1973, Ser. No. 361,104
Int. Cl. A01n 9/02, 9/20

U.S. Cl. 424—329

8 Claims

The present invention relates to certain processes and compositions useful for inhibiting the growth of slime in water and, in particular, water used for industrial purposes; for example, in the manufacture of pulp paper, in the manufacture of paper, in cooling water systems and in effluent water treatment. The novel processes and compositions of the present invention are processes or mixtures which show unexpected synergistic activity against microorganisms, including bacteria, fungi and algae, which produce slime in aqueous systems or bodies which are objectionable from either an operational or aesthetic point of view. Specifically, the invention is directed to the use of compositions comprising a combination of a bromonitrostyrene and cetyl trimethyl ammonium bromide.

3,829,587

METHOD OF MAKING PROTEIN-CONTAINING FOODSTUFFS RESEMBLING MINCED-MEAT

Vladimir Borisovich Tolstoguzov, Prospekt Vernadskogo, 24, Kv. 95; Dmitry Borisovich Izjumov, Volokolamskoe shosse, 13, Kv. 56; Valery Yakovlevich Grinberg, Leninsky Prospekt, 94a, Kv. 174; Alla Nikolaevna Marusova, Ulista Lobachevskogo, 78, Kv. 154, and Violetta Teofilovna Chekhovskaya, Ulista Bolshaya Ordynka, 17, Kv. 10, all of Moscow, U.S.S.R.

Filed Apr. 21, 1971, Ser. No. 136,245

Claims priority, application U.S.S.R., Apr. 24, 1970 1427319

Int. Cl. A23j 3/00; A231 1/34

U.S. Cl. 426—350

5 Claims

Protein containing foodstuffs resembling minced meat are produced by preparing of a mixture containing protein-containing raw food substances, flavouring aromatizing and dyeing agents, spices, salts, water and edible acids taken in amounts that ensure the value of pH of said mixture to be below the isoelectric point of the protein-containing food raw stock being introduced, and charged polysaccharides, followed by stirring the resulting mixture to form a protein-polysaccharide complex and introducing into said mixture while stirring, compounds of metals having a valence of at least two and substances that cause the value of pH of the mixture to exceed the isoelectric point of the protein-containing food raw stock, with subsequent heating of the mixture to destroy said protein-polysaccharide complex.

3,829,588

DIPEPTIDE LOW-GRADE COFFEES

Thomas P. Finucane, Hartsdale, and Joseph J. Halik, Ossining, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Oct. 19, 1972, Ser. No. 298,963

Int. Cl. A231 1/04

U.S. Cl. 426—354

11 Claims

The bitterness of low-grade coffee products is repressed by the addition of a dipeptide sweetener at the appropriate level.

Int. Cl. A21d 6/00

In one example, 1 kilogram of peanuts are parched at 80°C. for 4 minutes, soaked in 2 liters of saturated saline solution at 120°C. for 1 minute, heat treated in 1.5 liters of water at 100°C. for 20 minutes, washed, heat treated in 2 liters of water at 90°C. for 30 minutes, and then compressed, micronized, and the flour obtained spray dried to obtain a free-flowing, off-white peanut flour.

Int. Cl. A23I 1/10

A method for upgrading random wheat lots which comprises classifying wheat kernels in the lot according to kernel size so as to segregate kernels of relatively large size from kernels of relatively smaller size whereby certain high protein fractions may be derived from the lot and the total value of the lot upgraded.

Int. Cl. A23n 3/08

A mechanism or knife assembly for de-coring fruit including at least one slicing blade and an elongate semi-circular coring blade which is mounted adjacent a cutting edge of the slicing blade and is rotatable relative to the slicing blade between inoperative and operative positions. The rotational axis of the coring blade lies generally within a plane containing the cutting edge of the slicing blade, and in the inoperative position the longitudinal axis of the coring blade also lies substantially within that plane, whereas in the operative position the

Int. Cl. A23c 9/00

The invention relates to a method of preparing membrane substance concentrates which are especially useful as additives to milk products. One convenient procedure involves emulsifying a product of milk containing membrane substances with fat, separating the emulsion into aqueous serum and fat rich fractions, separating the fat rich fraction obtained into further aqueous serum and fat rich fractions and combining the aqueous serum fractions. If a more concentrated membrane substance concentrate is required, the resulting serum fractions can be emulsified with fat and the whole procedure repeated.

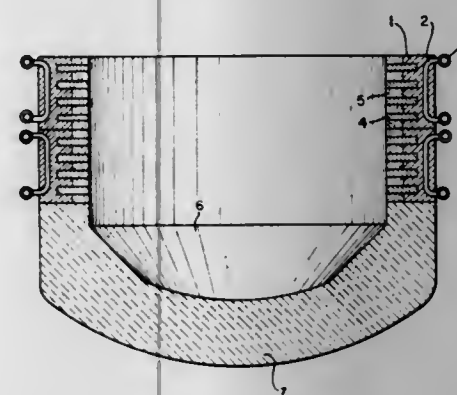
Int. Cl. A21d 13/08

A film of farinaceous paste is applied to an endless travelling conveyor surface. The film of paste is heated to cook the paste at least partially to pastry. The cooked film is then removed from the conveyor surface.

Int. Cl. A23c 19/00

Non-sticky ribbons of cheese for use in making processed cheese products are prepared by a process involving supplying 40 to 500 pound cheese blocks to conversion equipment wherein the blocks are divided into pieces by rotating knives followed by compressing the pieces with an auger and forcing the cheese through a screen with openings of about 0.015 to 0.375 inches in diameter using the minimum pressure required to force the cheese through the screen whereby the rise in the temperature of the cheese due to the compression thereof is no more than substantially 10°F.

5 Claims



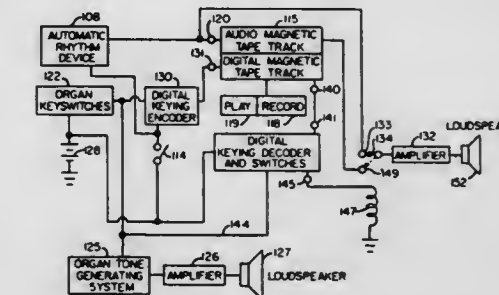
A furnace proper of an electric direct-arc furnace characterized in that the furnace wall is constructed in a required form with a plurality of cooling blocks each of which comprises a cooling block proper made of a special metal the inner surface of which is lined with a refractory material and a cooling water tube embedded therein, so as to increase the life of the furnace wall.

Int. Cl. G09b 9/00

An electrical system for simulating sonar reverberation wherein an original sonar signal is transferred to digital form and stored in a memory means, each signal sample at a different address, and logic and gating means are provided to effect individual replica readouts beginning at times corresponding to the arrival of energy at a receiver from scatterers at differing distances. Reference amplitude signal

Int. Cl. G10h 1/00

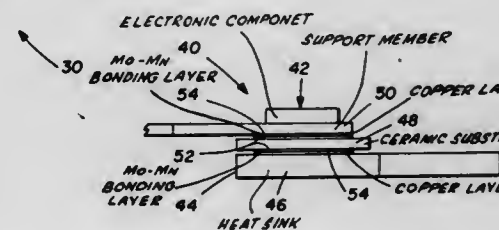
11 Claims



A player type electrically operated musical instrument includes a rhythm device for producing timed repetitive rhythm patterns of unpitched or semi-pitched percussive sounds. Information as to the playing of the keys of the instrument is encoded in digital form on one track of a magnetic tape using time division multiplexing techniques. The sounds produced by the rhythm device are simultaneously recorded on a second "audio" channel on the same magnetic tape. On "playback", the digital channel is decoded and used to "play" the same or a similar musical instrument, and the audio channel is reproduced to provide a rhythm accompaniment synchronized to the performance of the instrument. Information encoded on the digital track automatically disconnects the rhythm instrument during playback and connects the audio channel of the tape player to the reproducing system.

Int. Cl. H01b 7/34

1 Claim



A copper layer is fabricated according to a method including the initial step of forming a molybdenum-manganese bonding layer. Thereafter a layer containing copper oxide or copper is formed on the bonding layer. If copper oxide is utilized, the substrate is then air dried and heated in a reducing at-

mosphere to transform the copper oxide layer into elemental copper. The elemental copper layer, whether formed by the reduction of copper oxide or direct application of particulate copper, is then sintered or fused to form a dense coherent structure. In one embodiment of the invention, the copper layer is utilized to bond a metal heat sink member to an electronic component mounting member. In another embodiment of the invention, the copper layer is utilized as a high conductivity lead in an electronic device.

3,829,599

DEVICE FOR INSTALLING A HOUSING OR CASE

Katsuichi Fujioka, Tokyo, Japan, assignor to Koyo Electronics Industry Co., Ltd., Tokyo, Japan

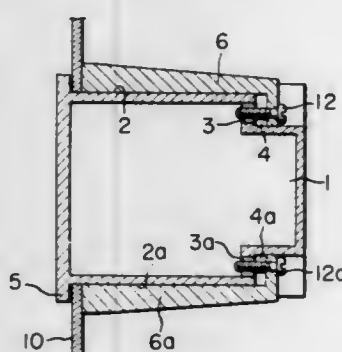
Filed Mar. 5, 1973, Ser. No. 338,387

Claims priority, application Japan, Mar. 18, 1972, 47-32962

Int. Cl. H05k 5/02

U.S. Cl. 174-48

1 Claim



The present invention relates to a device for readily and securely installing, on an automatic control board, a panel or the like a case or housing herein termed a "housingcase" enclosing electronic instrument parts such as a timer, non-contact relay, counter and so on.

3,829,600

JOINT FOR ELECTRIC CABLES HAVING CONDUCTOR INSULATED WITH AN EXTRUDED DIELECTRIC

Giovanni Portinari, Sesto San Giovanni, and Adriano Zagarella, Milan, both of Italy, assignors to Industrie Pirelli Societa per Azioni, Milan, Italy

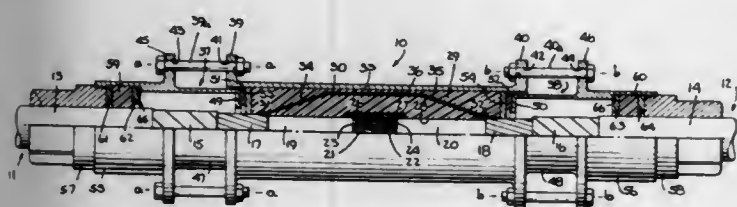
Filed Oct. 25, 1973, Ser. No. 409,763

Claims priority, application Italy, Nov. 16, 1972, 31714/72

Int. Cl. H02g 15/08

U.S. Cl. 174-73 R

12 Claims



A joint for joining the ends of electric cables having insulation extruded over the conductor thereof and a screening layer around the insulation in which an elastomeric sleeve with a stress screen therein surrounds and engages the insulation and the screening layer at the opposite sides of the bared and connected conductor ends and such ends and is compressed axially to cause it to expand radially and press against the insulation thereby expelling air from between the sleeve and the insulation. At least the end portions of the stress screen are conductively connected to the screening layer. The sleeve includes a further stress screen on the internal wall thereof which surrounds the connected conductor ends and preferably is supported by a rigid contact element intermediate, and conductively interconnecting, said further

screen and the conductor ends. Threaded rings and resilient ring seals seal the joint housing to the cable sheaths to prevent moisture from entering the joint.

3,829,601

INTERLAYER INTERCONNECTION TECHNIQUE

Dexter A. Jeannotte, Clinton Corners, and Alfred H. Johnson, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

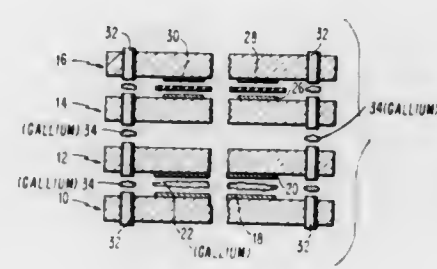
Continuation of Ser. No. 189,416, Oct. 14, 1971, abandoned.

This application Mar. 12, 1973, Ser. No. 340,483

Int. Cl. H05k 3/36

U.S. Cl. 174-68.5

11 Claims



An interconnection substrate for electrical circuits comprising a plurality of planar conductive metallized patterns disposed between alternating layers of a dielectric medium, and substantially normal thereto electrically conductive paths extending between at least some of said conductive metallized patterns. Diffused metallurgical bond interfaces provide mechanical and electrical connection between the conductive metallized patterns and paths.

3,829,602

LAMINATED SHIELD TAPE FOR CABLE AND LAMINATE SHEATHED CABLE FORMED BY USING THE LAMINATED SHIELD TAPE

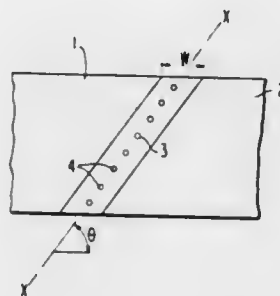
Hisao Ishikawa, and Terutsugu Kawabata, all of Tokyo, Japan, assignors to Fujikura Cable Works Ltd., Tokyo, Japan

Filed Jan. 4, 1973, Ser. No. 321,096

Int. Cl. H01b 7/18

U.S. Cl. 174-102 R

16 Claims



A laminated tape for shielding cable composed of at least two metallic strips which have been connected to each other by welding at the end portions in the longitudinal direction and a plastic film coated on at least one surface of the metallic strip, the width of the overlapped or abutting weld portion of the ends of the metallic strips being less than about 10mm., the interval of the weld points formed in the overlapped or abutting portion by welding being less than about 5 mm., and the angle of the weld line to the longitudinal direction of the metallic strip being in a range of about 30° to about 80°. A laminate sheathed cable formed using the laminate shield tape.

3,829,603

POWER CABLE WITH GROUNDING CONDUCTORS

Theodore E. Hansen, and Thomas M. Moran, both of Marion, Ind., assignors to The Anaconda Company, New York, N.Y.

Filed Apr. 26, 1973, Ser. No. 354,813

Int. Cl. H01b 7/18, 9/02

U.S. Cl. 174-115

6 Claims



A power cable with uninsulated grounding conductors in the interstices between the insulated conductors has a helical winding of grounding wires. The grounding conductors are urged into contact with the helical wires by beddings of resilient filler material.

3,829,604

ENCASED MICRO-CIRCUIT AND THE PROCESS FOR MANUFACTURING THE SAME

Kunihiro Tanaka, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan

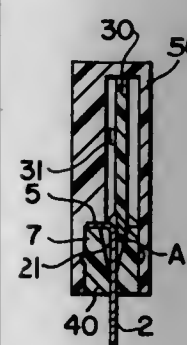
Filed Apr. 10, 1973, Ser. No. 349,859

Claims priority, application Japan, Apr. 13, 1972, 47-44231

Int. Cl. H05k 5/00

U.S. Cl. 174-52 S

3 Claims



One or more leads are bonded to electrodes on a circuit board. Each lead has a first upstanding portion that extends away from a principal surface of the board and a second portion that extends parallel to that principal surface. The second portions are inserted through apertures in a block which is then inserted in an open ended case having a stair formed in its interior with the first portion of each lead clamped between the stair and a surface of the block.

3,829,605

CARRIER AND METHOD FOR RECORDING A SIGNAL THEREON

Gerhard Dickopp, Berlin, Germany, assignor to Ted Bildplatten Aktiengesellschaft, Zug, Switzerland

Filed July 20, 1972, Ser. No. 273,645

Claims priority, application Germany, July 20, 1971, 2136897; July 20, 1971, 7128351

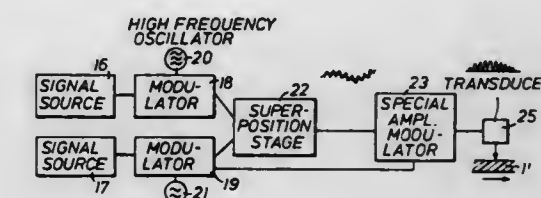
Int. Cl. H04n 9/02

U.S. Cl. 178-5.4 CD

11 Claims

An improved recording carrier of the type wherein the signals are recorded in the form of depressable raised portions of the surface thereof which are played back by means of pres-

sure scanning and which has a signal recorded thereon which results in variable heights for the raised portions along the scanning path corresponding to an envelope function of the recorded signal. The raised portions are such that the distances of the base planes thereof from a reference plane disposed perpendicular to the extent of the heights of the



raised portions along the scanning path vary according to one of the envelope functions of the recorded signal while the peaks of the raised portions lie substantially in a single peak plane which is parallel to the reference plane. A number of alternative methods for modifying the signal to be recorded so as to produce the desired record are also disclosed.

3,829,606

STABILIZING DEVICE FOR THE SYNCHRONOUS DETECTOR OF AN AGC VIDEO FEEDBACK LOOP

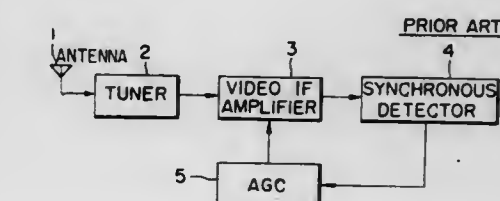
Yukio Kawamata; Keisuke Yamamoto, both of Ibaragi, and Namio Yamaguchi, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka-fu, Japan

Filed Jan. 11, 1973, Ser. No. 322,769

Int. Cl. H04m 5/60

U.S. Cl. 178-5.8 R

4 Claims



A clipping circuit is interconnected between the output terminal of a video IF amplifier and the input terminal of a synchronous detector so that when the IF signal output exceeds a predetermined permissible input voltage to be applied to the synchronous detector, the IF signal output is clipped in amplitude so as not to exceed the permissible input voltage.

3,829,607

SINGLE TUBE COLOR CAMERA SYSTEM AND METHOD

Renville H. McMann, New Canaan, Conn., assignor to Columbia Broadcasting System, Inc., New York, N.Y.

Filed May 24, 1973, Ser. No. 363,533

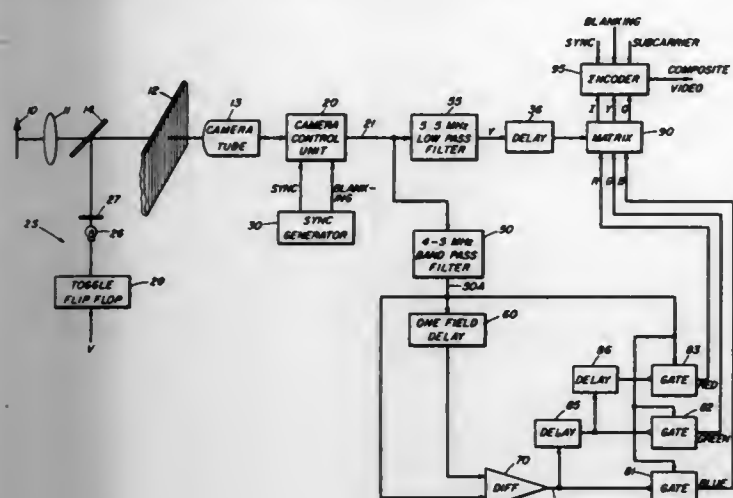
Int. Cl. H04n 9/06

U.S. Cl. 178-5.4 ST

18 Claims

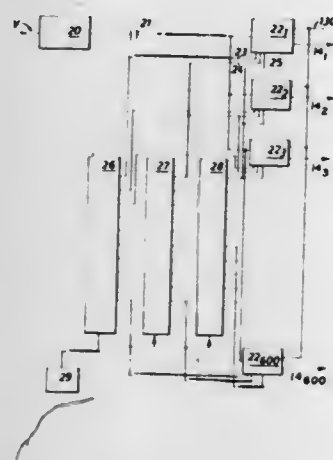
A single tube color television camera system for producing coherent color video signals representative of the color content of a scene. A filter is disposed in the optical path of the scene, the filter having an array of colored areas thereon. Means are provided for electronically raster scanning the image projected through the filter and for generating color signals representative of the filtered image. Means are also provided for periodically projecting a uniformly colored field on the filter in conjunction with the scene. Further means, including a delay, are provided for receiving the generated color signal and developing a difference signal as between color signals generated during successive periods when the uniformly colored field is present and absent. Finally, means are provided for demodulating the generated color signal with

object to be sized, formed by means of a microscope objective, and producing from that image a video signal representative thereof. Electrical circuitry is connected to receive the video signal and to produce therefrom, on a television display



unit, a pair of images which are each representative of the optical image and are not of mutually reversed contrast. The pair of images are displaced in relation to one another across the image surface of the television display unit by a distance which can be varied selectively for sizing purposes.

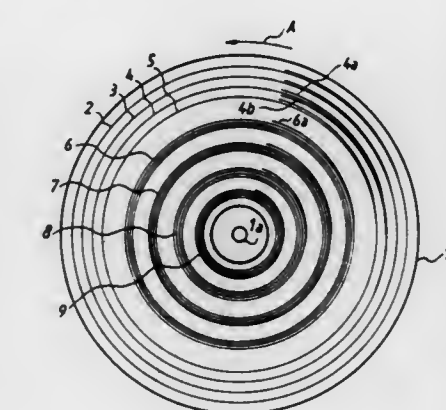
7 Claims



Apparatus for simultaneous reproduction of audible and visible information employs a rotary disk having several concentric tracks of recorded visible information and several concentric helical sound grooves or a single helical sound groove with several sound sequences super-imposed upon each other in accordance with the carrier frequency method. The sound reproducing system has one or more sound heads which are movable axially and radially of the disk into register with the outer ends of selected sound grooves or into register with the outer end of the single sound groove. The image reproducing system has one or more heads movable axially and radially of the disk into register with selected tracks. Each such track may consist of a helical groove which can be scanned to reproduce a series of images or an endless groove which can be scanned to reproduce a still image. The endless groove may comprise portions of different optical density, and each head of the image reproducing system then employs a light source which can be trained upon a selected endless groove to emit a light beam which is modified by portions of the scanned endless groove prior to impinging on a photoelectric transducer.

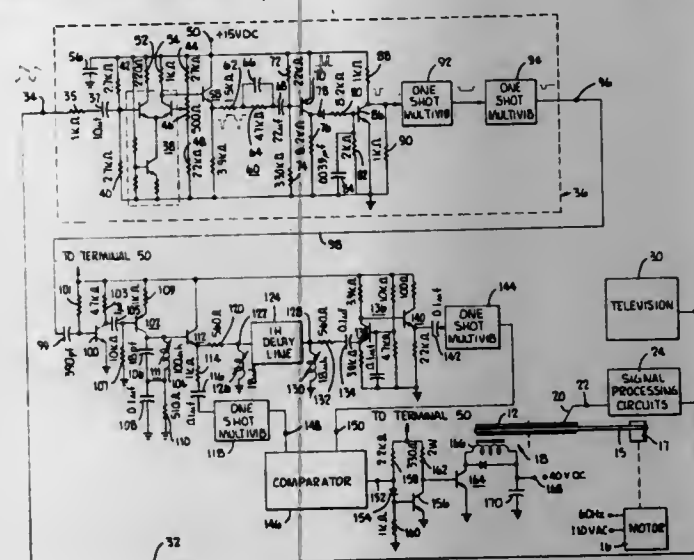
13 Claims

20 Claims



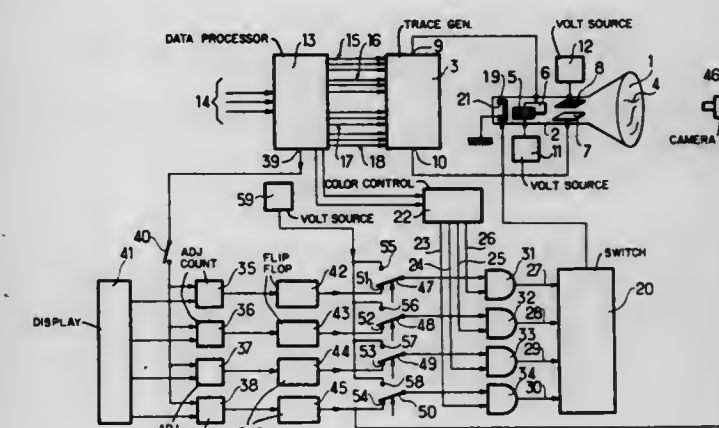
645

8 Claims



speed required for proper operation of the playback system. An error signal representative of the speed of the relative motion between the disc record and the pickup device is applied to a magnetic field generating structure. The resulting magnetic field establishes eddy currents in the conductive turntable which creates a braking force which tends to oppose the rotation of the turntable.

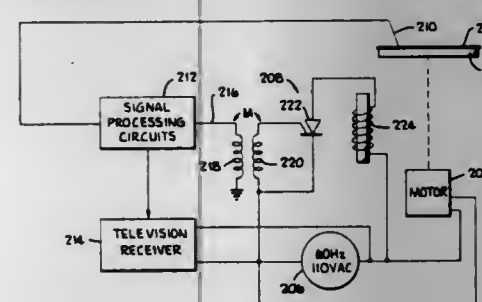
6 Claims



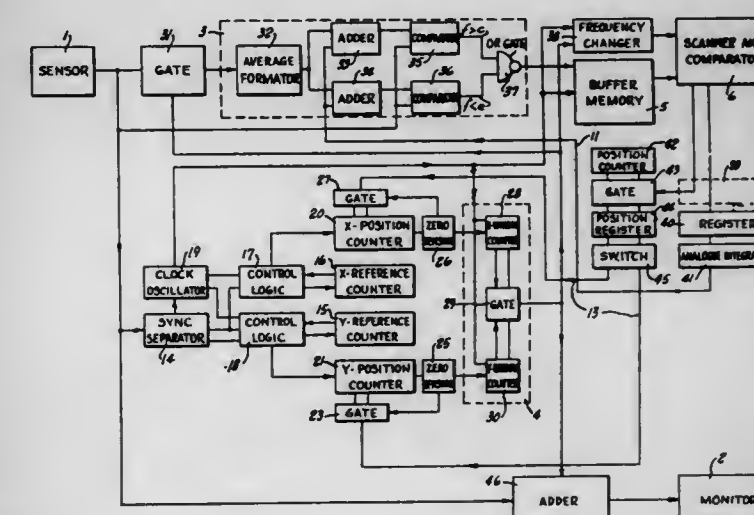
Device for effecting polychromatic traces of light, more particularly on the screen of a polychromatic cathode tube, comprising means for regulating the number of repeats of a same trace as a function of its color, in order to regulate the light flux produced by a trace according to its color.

4 Claims

5 Claims



A speed control system is provided for a video disc playback system. A motor is mechanically coupled to a conductive turntable and drives the turntable to rotate and thereby establish a relative motion between a video disc record mounted on the turntable and a pickup device. The free running speed of the turntable is above the normal operating



In a video tracker, each scan line is broken into a predetermined number of uniform short segments. An electronic tracking window thus comprises a matrix of data points, each

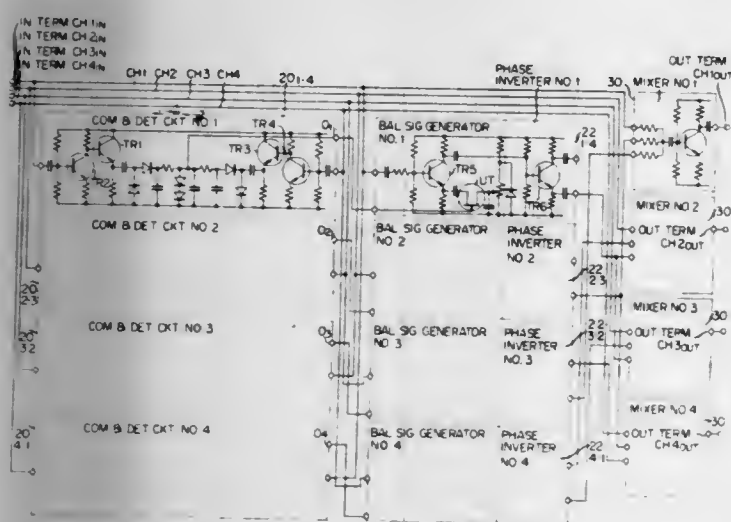
a line segment, and its edges are on coordinates defined by data points. Video signal content of each line segment in the window area is digitized by comparison to automatically adjustable reference level signals and generation of either a "one" or a "zero" bit, depending upon relationship of video signal content to reference levels. For each frame scanned, data points in the window are compared, set by set, with a bit pattern preselected for best correspondence to target configuration, comparisons being made sequentially across and down the window. A correlation number is obtained for each comparison. Location and value of the highest correlation number for each scan is stored and used for tracking.

3,829,615 QUATERNARY STEREOPHONIC SOUND REPRODUCTION APPARATUS

Katsuzo Hiramatsu, Koriyama, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 4, 1972, Ser. No. 297,031
Int. Cl. H04n 5/00

U.S. Cl. 179-1 GQ

6 Claims



A quadraphonic sound reproduction has a apparatus decoder for restoring encoded signals to four signals in four audio channels, and a circuit for comparing the component of the signal in each channel with a leakage component in that channel into which the signal leaks the least to produce a balancing signal according to the ratio of the amplitudes of the two components. A circuit is provided for applying the balancing signal to the remaining two channels to balance out cross-talk components of the signal developed in these two channels.

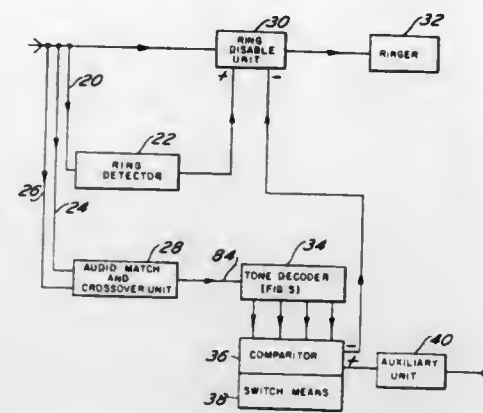
3,829,616
RINGER BLOCKING ATTACHMENT FOR TELEPHONES
Roger D. Blouch, Willow Grove, Pa., assignor to International Mobile Machines Corporation, Philadelphia, Pa.
Filed May 14, 1973, Ser. No. 359,966
Int. Cl. H04m 3/42

U.S. Cl. 179-2 A

5 Claims

A system for selectively ringing or actuating a telephone bell or any other desirable signal, or for alternatively actuating any functional device such as an alarm system, a timer, a radio, a coffee pot, etc., whereby when a telephone number is called, an auxiliary system automatically cuts-in to prevent

ringing or other actuation of the telephone bell or other signal device until a predetermined additional number or series of



numbers are dialed or touch-toned at which time the telephone bell or other signal device is actuated or, alternatively, the functional device is actuated.

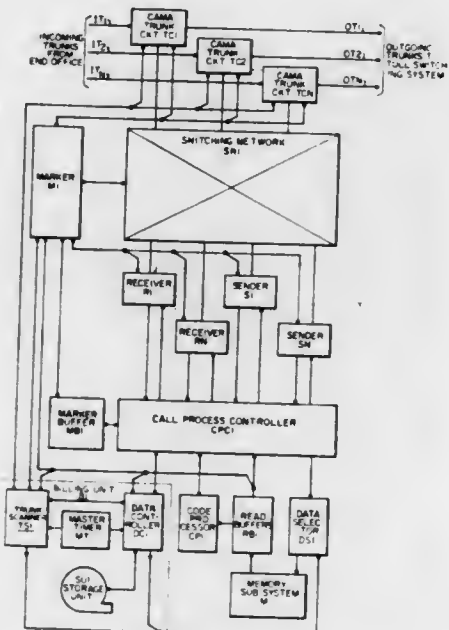
3,829,617 CENTRAL AUTOMATIC MESSAGE ACCOUNTING SYSTEM

George J. Caithamer, Brookfield; Ivan V. Coleman, Naperville, and David K. K. Lee, Chicago, all of Ill., assignors to GTE Automatic Electric Laboratories, Incorporated, Northlake, Ill.

Filed Sept. 1, 1972, Ser. No. 285,777
Int. Cl. H04m 15/10

U.S. Cl. 179-7.1 R

1 Claim

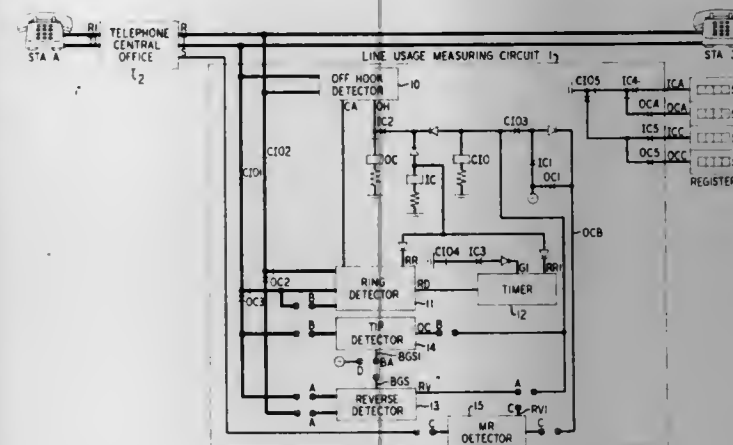


Data on telephonic toll communications are recorded in an automatic toll recording office by means of computers and magnetic tape machines instead of by ticketing in the several originating exchanges. Service junctors are inserted into the path from the originating exchange to the toll switching exchange. These service junctors are monitored for calls, and upon the initiation of a call are connected to a data receiver. A memory area is allotted to the receiver and the initial data on an originating call is placed therein. A processor screens the data, controls the re-sending of the digits to the toll office and stores the information in a billing unit buffer memory. The service junctor is scanned for the duration of the call via a separate path and upon termination of the call another entry is made in the buffer memory. As the buffer memory reaches a predetermined amount of data it is periodically dumped onto the tape.

3,829,618
LINE USAGE MEASURING CIRCUIT
Arthur Cecil Brandon, Denver, Colo., assignor to American Telephone and Telegraph Company, New York, N.Y.
Filed Apr. 5, 1973, Ser. No. 348,200
Int. Cl. H04m 15/38

U.S. Cl. 179-8 A

14 Claims U.S. Cl. 179-18 ET

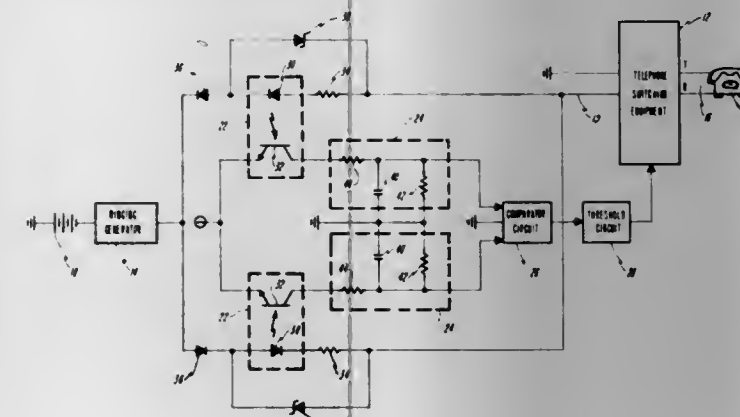


A line usage measuring circuit for determining station usage of a telephone line by recording station incoming and outgoing call attempts and call completions routed through a telephone central office. High impedance off-hook and ring detectors are normally bridged across the telephone line. On station generated calls the off-hook detector registers an outgoing call attempt and functions to enable outgoing call completion apparatus. Reversal of the telephone line and answer signals appearing on a sleeve conductor enables the outgoing call completion apparatus to record completions of outgoing calls. The ring detector records telephone central office ringing signals as incoming call attempts and enables the off-hook detector to subsequently record station off-hook signals occurring within a predetermined time interval after ringing signals as incoming call completions.

3,829,619
TELEPHONE RING TRIP CIRCUIT
Stanley Wayne Close, Penfield; John J. Cordovani, and William E. Shaffer, both of Rochester, all of N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.
Filed Dec. 29, 1972, Ser. No. 319,242
Int. Cl. H04m 3/04

U.S. Cl. 179-18 HB

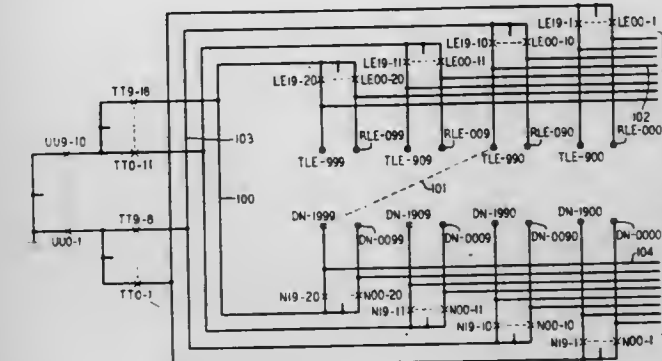
6 Claims



A telephone ring trip circuit utilizes a pair of unidirectional current detectors poled opposite one another in a parallel arrangement which is in series with a ringing path for providing signals proportional to the currents therethrough and a pair of integrating circuits in combination with other circuitry responsive to the signals for generating a ring trip control signal when DC current flows through the path upon answering of the call.

3,829,620
BI-DIRECTIONAL TRANSLATOR
Arthur John Ehlschlager, Columbus, Ohio, assignor to Western Electric Company, Incorporated, New York, N.Y.
Filed July 13, 1973, Ser. No. 379,060
Int. Cl. H04q 3/47

15 Claims



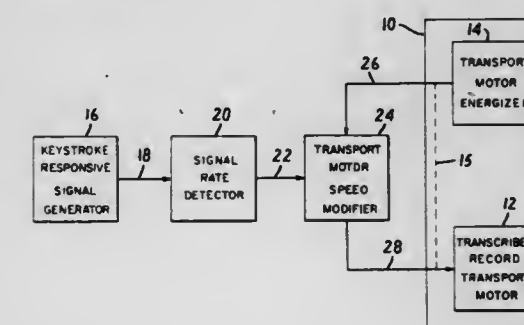
A bi-directional translator is disclosed for translating directory numbers to equipment numbers and vice versa. A single relay tree has a directory number input and an equipment number input. Separate output circuits for the translated equipment number and the translated directory number are connected by a single cross connection to associate the equipment number with the directory number of a line. The output circuits are selectively connected to the tree depending on which input circuit is used.

3,829,621
RECORD TRANSCRIBER ADAPTIVELY RESPONSIVE TO TYPING ACTIVITY
David A. Goldman, Croton Heights Rd., Box 69, RFD 1, Yorktown Heights, N.Y.

Filed May 3, 1972, Ser. No. 249,902
Int. Cl. G11b 15/18

U.S. Cl. 179-100.1 R

18 Claims



A record transcriber which relieves a typist of the need to stop and restart record transport includes a control system for modifying record drive speed in response to typing rate.

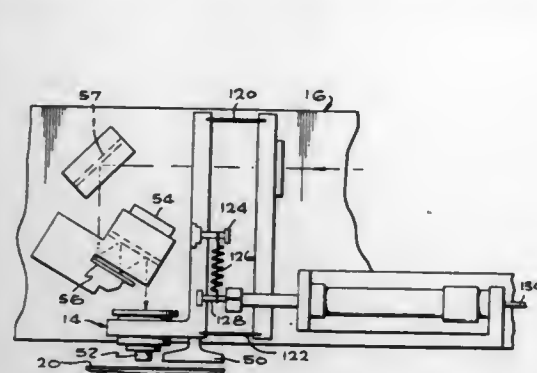
3,829,622
VIDEO DISC PLAYER WITH VARIABLY BIASED PNEUMATIC HEAD
James E. Elliot, Los Angeles, Calif., assignor to MCA Disco-Vision, Inc., Universal City, Calif.
Filed Oct. 24, 1972, Ser. No. 299,893
Int. Cl. G11b 5/60, 7/08

U.S. Cl. 179-100.3 V

4 Claims

A video signal playback device derives video signals from a track on a video disc using a light source and an optical path to a lens system which is supported by an air bearing at a predetermined spacing from the surface of the disc. The optical path includes a mirror which is articulated for rotational motion about an axis which shifts the point of impingement of the transmitted light beam upon the disc in the radial

direction. The returned beam is directed to a single photosensitive pick-up which, provides input signals to a circuit which generates a "fine" servo control signal to drive the articulated



3,829,623

PLANAR VOICE COIL LOUDSPEAKER

John Robert Willis, Shipley, and David Ian Urquhart-Pullen, Keighley, both of England, assignors to The Rank Organisation, Limited, London, England

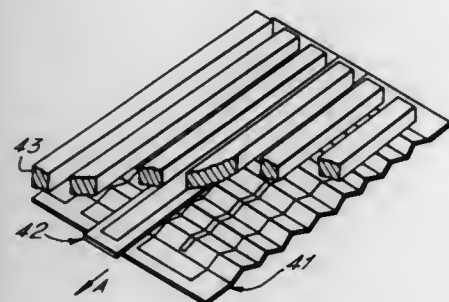
Filed May 8, 1972, Ser. No. 251,388

Claims priority, application Great Britain, May 7, 1971, 13746/71; July 30, 1971, 36060/71

Int. Cl. H04r 9/00

U.S. Cl. 179-115.5 PV

10 Claims



An audio-transducer incorporates a diaphragm carrying a current conductor and a plurality of permanent magnets constituting a magnet unit disposed in spaced relationship to the conductor. The magnets are formed of a material consisting of magnetizable particles embedded in a matrix of non-magnetic material. The diaphragm may be curved and/or corrugated.

3,829,624

HEADSET AND METHOD OF MAKING IT

James J. Goodin, and Matthew M. Dowling, both of Oklahoma City, Okla., assignors to Educational Electronics, Inc., Oklahoma City, Okla.

Filed Apr. 2, 1973, Ser. No. 346,953

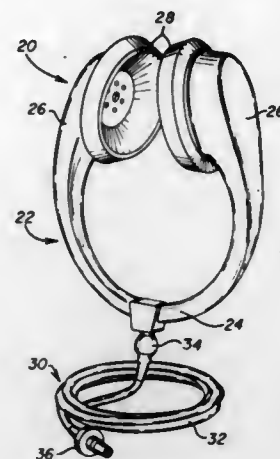
Int. Cl. H04m 1/05

U.S. Cl. 179-156 R

15 Claims

A headset includes a body comprising a chin portion extending to enlarged ear portions. Each ear portion includes an earpad receiving opening defined by an annular rim. An earpad is mounted in each earpad receiving opening of the headset body and comprises an ear engaging layer extending to a cylindrical ear surrounding portion which encloses an annular cushioning member. Each earpad further comprises a retaining portion which encloses an annular retaining member

formed from a relatively rigid material. The ear surrounding and retaining portions of each earpad are separated by a



groove which receives the annular rim of one of the earpad receiving openings of the headset body, whereby the earpads are detachably secured to the headset body.

3,829,625

SHUNT NEGATIVE IMPEDANCE AMPLIFIER

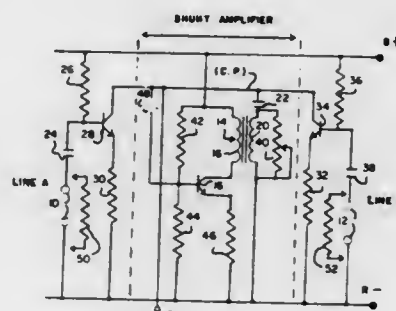
Stephen J. Martin, 1777 S. W. 17th, Miami, Fla. 33145

Filed May 15, 1972, Ser. No. 253,458

Int. Cl. H04b 3/36, 3/16

U.S. Cl. 179-170 G

9 Claims



A transmission line isolation and amplifier circuit is disclosed having a negative impedance line isolator and an amplifier with a common input/output port therebetween. First and second resistive networks are connected for biasing a transistor amplifier to provide a current gain which is converted by a transformer to a voltage gain and delivered to the common port. First and second capacitor means provide low impedance coupling between the common port and the transformer and transistor amplifier, respectively.

3,829,626

TELEPHONE LINE EQUALIZER

Robert P. Irwin, Huntington, and Alexander Kwartioff, Sea Cliff, both of N.Y., assignors to Datadyne Corp., Huntington, N.Y.

Filed Aug. 14, 1972, Ser. No. 280,738

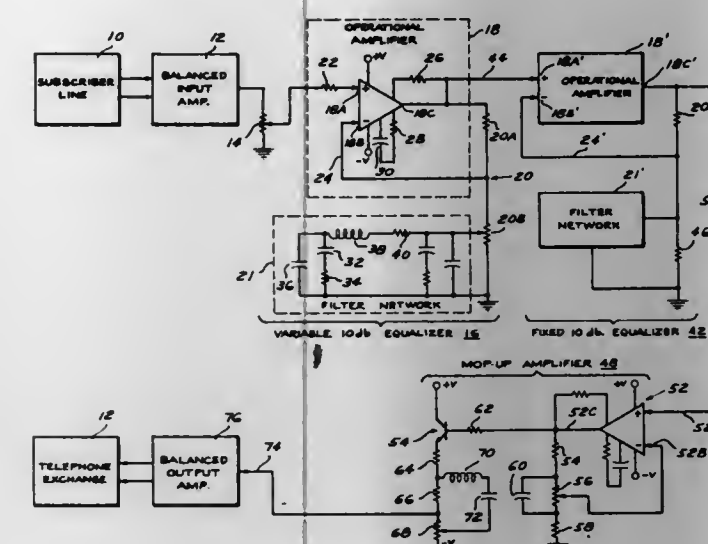
Int. Cl. H04b 3/36

U.S. Cl. 179-170 R

9 Claims

A telephone line equalizer for compensating for the attenuation characteristics of telephone lines of varying attenua-

tions includes an operational amplifier connected in series with a telephone line. Controlling the voltage feedback path of



the amplifier is a filter network having an electrical frequency characteristic substantially the same as the telephone line.

3,829,627

AUTOMATIC LINE INSULATION ROUTINER

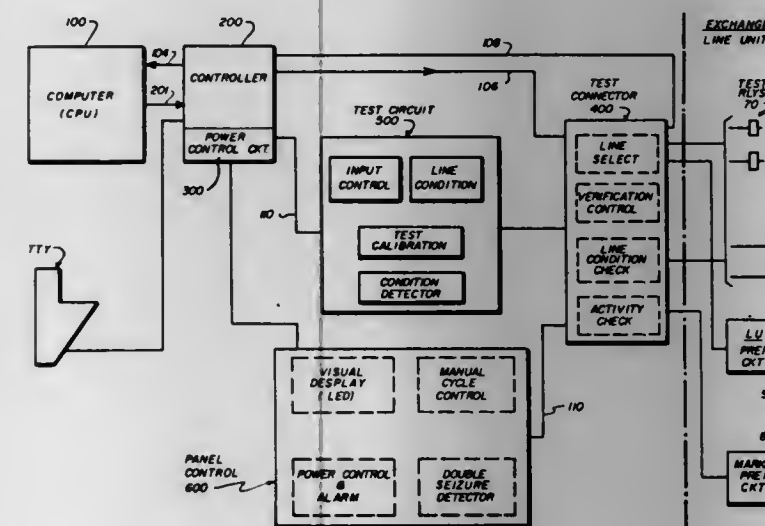
Thomas D. Short, and Donald R. Marcum, both of Jackson, Tenn., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 18, 1972, Ser. No. 316,134

Int. Cl. H04m 3/30

U.S. Cl. 179-175.2 R

9 Claims



Disclosed is a testing apparatus for automatically routing or testing the lines in a conventional telephone exchange under the control of a small or medium size computer. Lines are tested consecutively by equipment locations with four lines being selected for test at one time. The address of the lines to be tested is sent to a test connector which seizes a test relay associated with the lines to be tested to initiate testing. A series of error checks and verification checks are incorporated into the test procedures to discontinue testing on the sensing of conditions of a serious nature while providing an out put or alarm signal. On sensing conditions of lesser significance, testing is continued with a notation being made of the number of gross errors of the less serious condition. The apparatus, as disclosed, could readily be used for traffic testing of the exchange lines.

3,829,628

TRUNK CIRCUIT NUMBER PARITY CHECKING

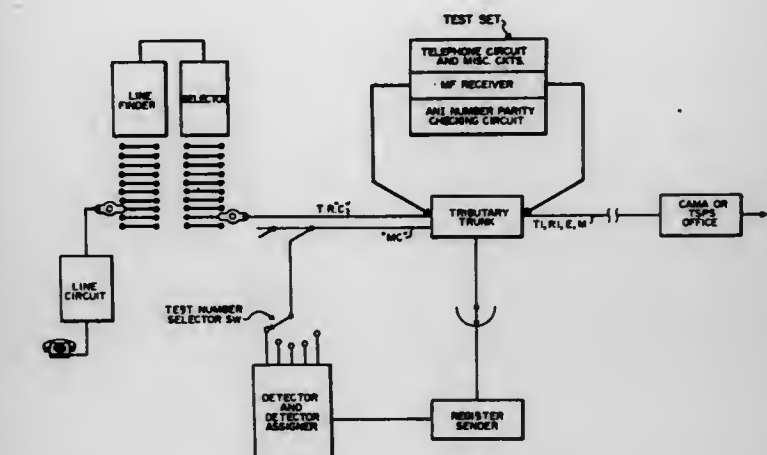
Trifon P. Tripsas, Elmhurst, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 26, 1972, Ser. No. 318,318

Int. Cl. H04m 3/22

U.S. Cl. 179-175.2 R

5 Claims



A test set circuit is disclosed that is arranged to be connected across a trunk circuit of a tributary office for checking the sending of the calling party identity digits and comparing their value with those programmed in the test set. The digit value is displayed while it is being sent and also its sequential position.

3,829,629

ELECTRICAL INSULATOR HAVING A SPECIAL EXTERNAL SURFACE CONFIGURATION FOR IMPROVED PERFORMANCE IN CONTAMINATED ATMOSPHERES

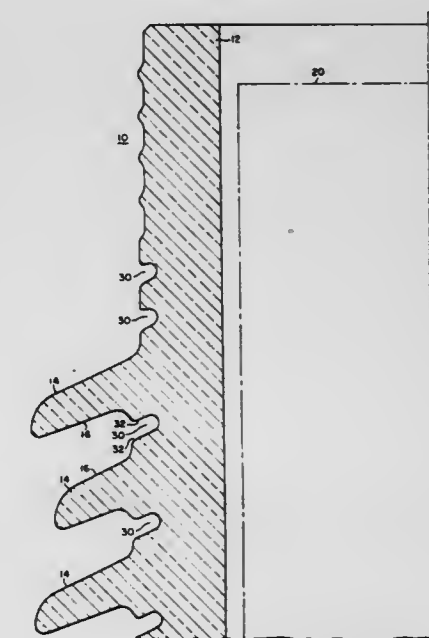
Tohei Nitta, Hyogo, Japan, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 30, 1973, Ser. No. 383,626

Int. Cl. H01b 17/00, 17/56

U.S. Cl. 174-212

4 Claims



An insulator for electrical equipment of the type having a plurality of sheds extending from a central member is provided with a projecting element, or a groove, located between adjacent sheds for defining points between which occurs a controlled uniform discharge whose inception voltage is low as compared with the inception voltage of the discharge otherwise occurring between opposing shed surfaces or between a shed and the central member.

3,829,630

TROLLEY WIRE SUSPENSION FOR USE IN OVERHEAD CONTACT WIRE SYSTEM OF ELECTRIC TRANSPORT
Igor Alexandrovich Belyaev, 10K, 10, korpus 9, kv. 64
Moscow, U.S.S.R.

Filed Jan. 15, 1973, Ser. No. 323,403

Int. Cl. B60m 1/22

U.S. Cl. 191-41

20 Claims



The present invention relates to the art of electric transport with power supply from stationary power sources, and particularly to a trolley wire suspension for use in an overhead contact wire system of this particular type of electric transport.

The essence of the invention resides in that rigidly secured to the messenger wire of a trolley wire suspension are links made, in one of the embodiments, in the form of rigid rods, are spaced apart along the length of the messenger wire, the adjacent links in a span being arranged on either side of the vertical plane passing through the messenger wire. Connected to the free end of each link are hangers wherefrom the contact element, consisting of one or more trolley wires, is suspended directly, through a supplementary L-shaped link, or a supplementary wire.

As a result, the messenger wire is twisted, under the weight of the contact element, along its full length between each pair of adjacent links. Therewith, use is made of the elastic properties of the messenger wire, regarded here as a stretched string, as well as of its torsion. Besides, use is also made of its internal friction forces.

The resulting trolley wire suspension features equal elasticity at any point in a span, which is essential for use in modern electric transport characterized by high speeds and power of the electric vehicles. Proper use made of the internal friction forces of the messenger wire contributes to mitigating self-induced vibrations, vibrations.

3,829,631

ELECTRIC RAILROAD SYSTEM WITH ELEVATED CONDUCTOR ALONGSIDE THE TRACK

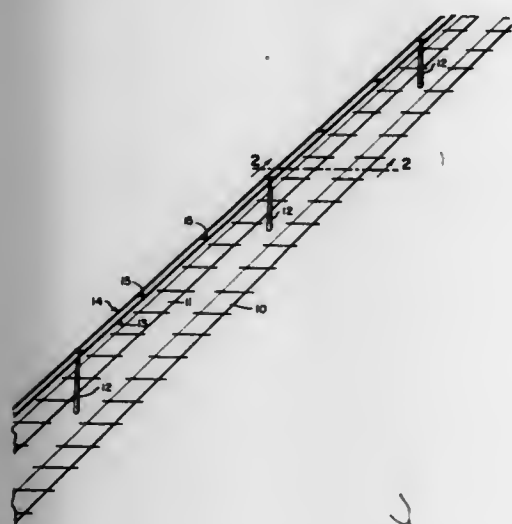
Robert L. Retallack, 510 Fairfield Ave., Ridgewood, N.J. 07450

Filed May 18, 1972, Ser. No. 254,616

Int. Cl. B60l 5/12

U.S. Cl. 191-66

12 Claims



In this electric railroad system, the elevated contact conductor is mounted primarily alongside the track, with sections

extending over the track and then back alongside the track at grade crossings, railroad crossings, switch locations, transition locations where the conductor is transferred to the opposite side of the track, etc. The electrically-powered vehicle has an overhead traveler mounted on an extensible arm for obtaining power from the contact conductor. The arm is pivotally mounted on top of the vehicle for movement about an axis of rotation extending longitudinally of the vehicle, and also allows the traveler to move toward and away from the axis of rotation so that the traveler can follow changes in position of the contact conductor while remaining in engagement therewith. In the specific embodiments, the traveler has pairs of grooved wheels engaging opposite sides of the conductor and the arm is articulated to maintain substantially the same orientation of the traveler with respect to a radius to the axis of rotation of the arm as the traveler follows changes in position of the contact conductor. Sections of the conductor over the track may rise to a higher level than alongside sections. At a switching location a fixed conductor frog mounted beyond the track switching point and having angled guide channels for the traveler may be employed.

3,829,632

PROTECTIVE ENVIRONMENT FOR KEYBOARD ACTUATABLE SWITCHES

William G. Klehm, Jr., Farmington, Mich., assignor to Burroughs Corporation, Detroit, Mich.

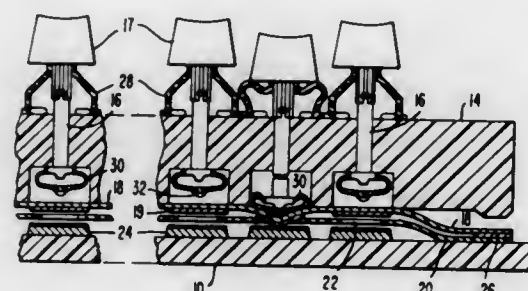
Division of Ser. No. 119,490, March 1, 1971, Pat. No.

3,745,536. This application Mar. 2, 1973, Ser. No. 337,374

Int. Cl. H01h 13/70, 9/04

U.S. Cl. 200-5 A

3 Claims



Relates generally to the production of electrical signals from a keyboard, each key of which is individually operatively associated with a switching device whose activation to electrical conductive condition is controlled by the displacement of the key. These switches are hermetically sealed from the atmosphere and are electrically scanned in succession at relatively high speeds and at a repetitious rate such that several scanning cycles occur during the normal activation of a selected key. The keyboard mechanism also includes a shift register having one more bit position than the number of switch devices and into which a bit is introduced into the "one" position at the instant the scan encounters a closed switch of the keyboard. This bit is then shifted through the register in timed relation to the scan of the remaining key switches and unloaded into the last bit position of the register. A detector senses the presence of a bit in both the "one" position and the last position of the shift register and upon detection of a bit solely in the one position it delivers a signal indicative of the character represented by the actuated key and upon detecting bits in the two extreme positions of the shift register it nullifies the delivery of such a signal.

3,829,633

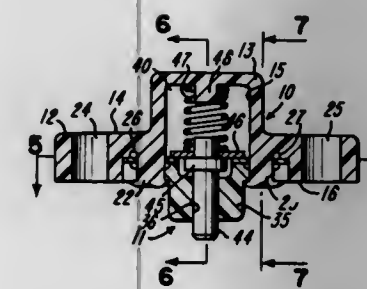
BRIDGING PUSH-BUTTON SWITCH WITH PLASTIC MATING HOUSING PORTIONS

Jerry L. Smith, Springfield, and Frank F. Powling, Bellefontaine, both of Ohio, assignors to Carlisle Corporation, Cincinnati, Ohio

Filed May 2, 1973, Ser. No. 356,584

Int. Cl. H01h 13/04

U.S. Cl. 200-16 A



An interlock type switch in which mating housing portions define a closed interior chamber and clamp projecting terminals. A contact member within the chamber is adapted to bridge the terminals which perform dually as terminals and contacts. An actuator has a sliding mount in one of the housing portions and is externally accessible to raise and lower the contact member. Integrated stud means hold the housing portions in an assembled relation and fix the terminals therein.

3,829,634

SLIDE SWITCH ASSEMBLY HAVING PIGGYBACK MULTIPLE ACTUATORS EXTENDING THROUGH COMMON COVER APERTURE

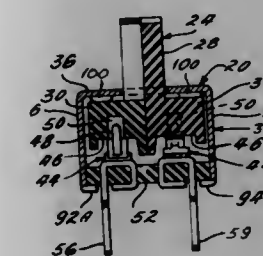
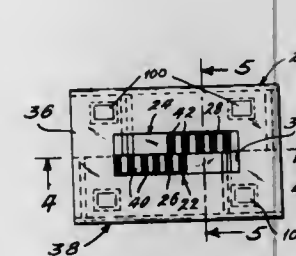
Joseph L. Levasseur, St. Louis, Mo., assignor to H. R. Electronics Company, High Ridge, Mo.

Filed June 25, 1973, Ser. No. 373,413

Int. Cl. H01h 15/00

U.S. Cl. 200-16 R

11 Claims



This invention relates to a novel multiple throw switch mechanism including in its preferred form a single switch unit having a combination of several individually movable sliding switch members positioned in side-by-side relationship. More particularly each sliding switch member has one or more contacts mounted thereon for movement relative to one or more fixed contacts located on a non-movable portion of the switch unit. The fixed contacts are positioned to be selectively contacted by the associated movable contacts to establish different combinations of switch conditions in the same switch mechanism.

3,829,635

ELECTRICAL INSULATING ELEMENT SUCH AS A DISTRIBUTOR CAP

Dietmar Elwert, Esslingen, and Gotz Gaege, Neustadt, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

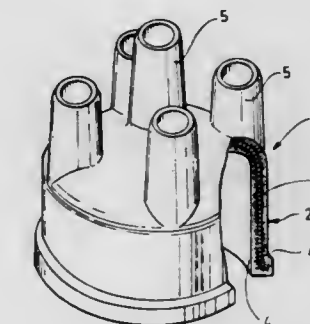
Filed Sept. 12, 1973, Ser. No. 396,516

Claims priority, application Germany, Sept. 12, 1972, 2244597

Int. Cl. H01r 39/60; H01h 19/06; H01b 3/30

U.S. Cl. 200-19 WG

10 Claims



An insulating element, particularly one which is suitable to accommodate a high-voltage component of a combustion engine ignition system, has a peripheral wall which is composed of closed-cell rigid synthetic plastic foam material to the extent of at least 50 percent its weight. Combustion suppressing and/or reinforcing filler substances may be added to the foam material.

3,829,636

OVERFLOW CONTROL DASHPOT-TYPE FLOAT FOR A DISHWASHER SWITCH ASSEMBLY

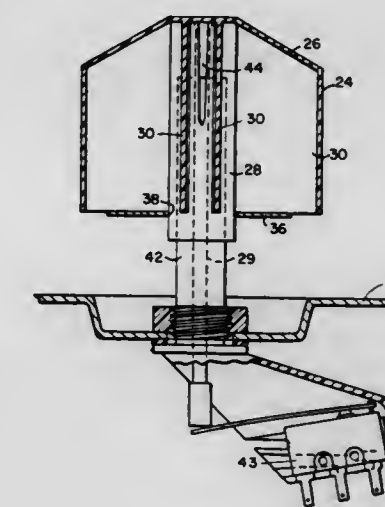
Eugene W. Scott, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 27, 1973, Ser. No. 336,397

Int. Cl. H01k 7/03

U.S. Cl. 200-34

9 Claims



A float for use in a dishwasher to control an externally mounted overflow switch in response to a potential overflow condition existing within the dishwasher tub. The float is loosely mounted on a vertical guidetube on the bottom of the tub and comprises an inverted cup-shaped member having internal partitions to define a plurality of separate chambers, a post-portion telescopically received over the guide-tube, and a rod extending through the guide-tube to abut the switch. Certain of the chambers provide buoyancy to the float while others act in the manner of a dash-pot to stabilize the vertical fluctuations of the float. The post-portion also defines an opening through the wall thereof to prevent a flow path from being maintained in the space between the guide-tube and the post-portion by a syphon effect.

3,829,637

LIMIT SWITCH HAVING MECHANISM TO ELIMINATE UNWANTED REACTIVATION THEREOF

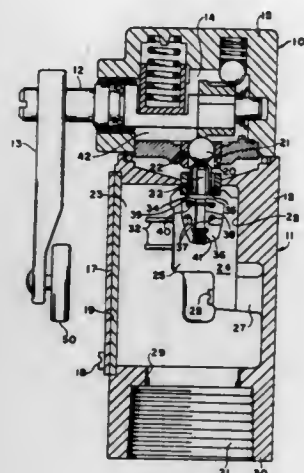
John Augustine Kilcoin, Normal, Ill., assignor to General Electric Company, New York, N.Y.

Filed Jan. 2, 1973, Ser. No. 320,326

Int. Cl. H01h 3/16

U.S. Cl. 200—47

15 Claims



A lever operated rotary limit switch for indicating when a device reaches a limiting position. The switch includes a housing having first and second portions. A motion converter is at least partially enclosed within the first portion of the housing. The converter includes a lever having one end adapted to engage the device which will move the lever, and a shaft assembly which has one portion thereof attached to the other end of the lever and another portion thereof for providing a standard switch motion in a first and a second direction upon a respective activation and deactivation movement of the lever by the device. A switch assembly is enclosed within the interior of the second portion of the housing. The switch assembly has cooperating contacts and means for opening and closing them. Activating means are provided for coupling the standard switch motion of the motion converter to the operating means of the switch assembly. Detent means in the form of a spring loaded ball or similarly shaped member is used to engage a groove in the other portion of the motion converter during deactivation movement in the second direction of the lever so as to prevent the lever from overshooting its zero or neutral position and from gaining sufficient potential energy to swing back in the activated direction thereby causing an unwanted reactivation of the limit switch.

3,829,638

DIRECTION INDICATOR AUTOMATIC RETURN DEVICE FOR TURN INDICATOR SWITCHES

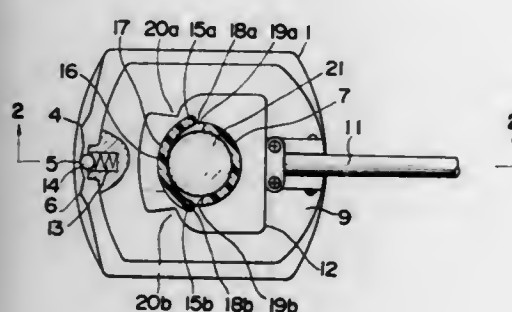
Masaru Suzuki, Chiryu, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishikasugai-gun, Aichi-ken, Japan

Filed Dec. 20, 1972, Ser. No. 316,820

Int. Cl. H01h 3/16

U.S. Cl. 200—61.27

3 Claims



A direction indicator automatic return device in a motor-vehicle direction indicator, wherein a rotary bracket, or ele-

ment, turns with a steering column is made of synthetic resin, forms a curved portion which passes round the steering column, and has a pair of flexible arms, each of which is supported at one end, and separated by a gap from the curved portion, and each extension arm may be brought into a position where it can be engaged by a restoring cam or rigid engagement projections upon left or right turn indication operation.

3,829,639

LIQUID CONTACT INERTIA SWITCH WITH RESET PLUNGER AND ELECTROLYTE

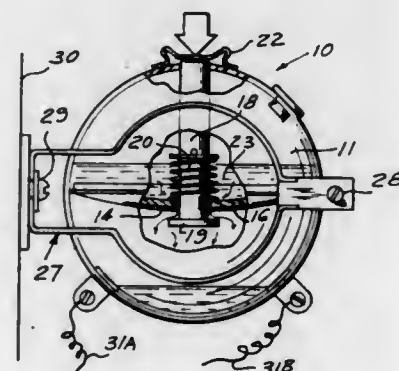
Richard A. Yauchler, Rt. No. 4 Box 93, Harpersfield, N.Y. 53948

Filed May 23, 1973, Ser. No. 363,183

Int. Cl. H01h 35/02

U.S. Cl. 200—61.47

1 Claim



A vessel containing a circuit-closing electrolyte is adjustably attached to a vehicle. Should the vehicle roll over, the electrolyte passes through a diaphragm valve, thereby breaking the circuit from the battery. A plunger valve is provided for returning the electrolyte to the electrode compartment after the vehicle is righted.

3,829,640

DIFFERENTIAL BAROSWITCH

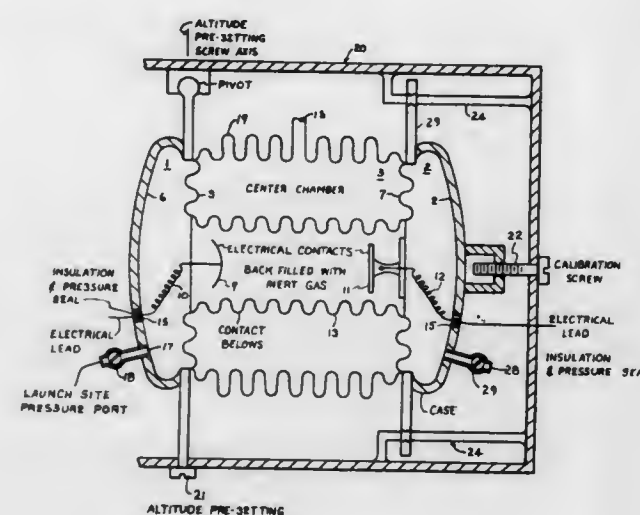
George R. Taylor, Rockaway, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 3, 1964, Ser. No. 372,427

Int. Cl. H01h 35/34

U.S. Cl. 200—83 N

7 Claims



1. A differential baroswitch comprising: a first chamber, a second chamber, and a third chamber between the first and second chambers;

a pressure responsive movable element between the first and second chambers;
a pressure responsive movable element between the second and third chambers;
vent and valve means for opening the first chamber to ambient atmospheric conditions or closing such chamber as desired;
means for sealing the second chamber;
means for venting the third chamber to ambient atmospheric conditions at all times;
sensing means connected to the pressure responsive movable elements to indicate a position of the elements.

trostatic shield, and the tee enclosure is filled with a gas (for example, SF₆) under pressure.

3,829,643

Patent Not Issued For This Number

3,829,644

DUAL ACTION MICROSWITCH ACTUATOR

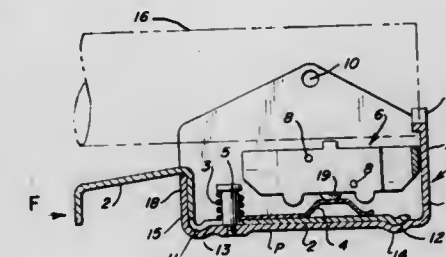
Ezio Annettoni, Lecco, Italy, assignor to Chemetron Corporation, Chicago, Ill.

Filed Feb. 15, 1973, Ser. No. 332,846

Int. Cl. H01h 25/00

U.S. Cl. 200—153 T

2 Claims



An electrical control device generally comprises a body, a micro-switch lodged in the body and attached to the body, and a manually operable control element. The control element can be displaced between first and second displaced positions and is adapted to actuate the micro-switch when displaced to the second displaced position. When displaced to the first displaced position, the control element also can be rotated between first and second rotated positions. The control element is adapted to actuate the micro-switch when rotated to the second rotated position and is biased to said first rotated position.

3,829,645

OFF-LOCKING OVERHANGING TRIGGER SWITCH

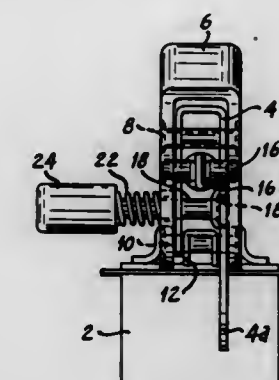
Earl T. Piber, Oconomowoc, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Dec. 18, 1972, Ser. No. 316,343

Int. Cl. H01h 3/20

U.S. Cl. 200—157

2 Claims



A trigger switch for portable tools such as circular saws, chain saws, and the like having a return-spring biased trigger that is actuated by the forefinger of the user to turn the tool on and upon release returns to and locks in off position under spring action. The trigger switch which may be of the inline or pivoted (overhanging) type is provided with a built-in spring biased lock that automatically locks the trigger whenever the trigger returns to its off position. A manual release button is arranged to be depressed by the thumb of the user to release the lock and allow reactivation of the trigger. The lock-off feature is characterized by a strong lock to prevent forcing and

3,829,641

PUFFER-TYPE ELECTRIC SWITCH

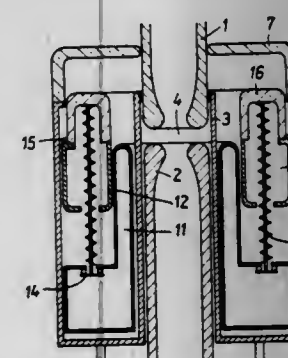
Karl Zuckler, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munchen, Germany

Filed Jan. 19, 1972, Ser. No. 219,023

Int. Cl. H01h 33/70

U.S. Cl. 200—148 A

4 Claims



An electric switch comprises a movable contact and a blast cylinder connected therewith and coacting with a relatively stationary blast piston. The blast piston is supported by a spring and is movable against the action of the spring into a final disconnect position.

3,829,642

TEE CONNECTION FOR HIGH VOLTAGE, HIGH PRESSURE OIL, PIPE TYPE CABLES

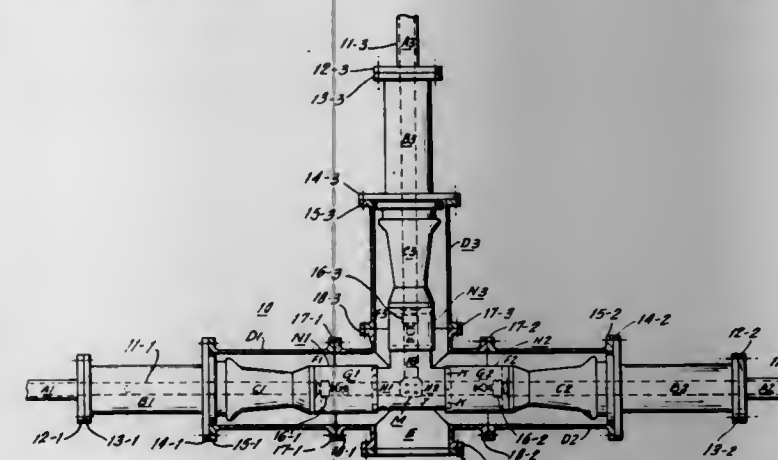
Howard W. Graybill, Greensburg, Pa., assignor to I-T-E Imperial Corporation, Spring House, Pa.

Filed Feb. 8, 1973, Ser. No. 330,582

Int. Cl. H01h 33/60

U.S. Cl. 200—148 R

4 Claims



A tee connection for pipe type cables immersed in oil under pressure. The cable terminations are capped with insulation cones which also serve as the oil seal at the termination. The insulating cones are electrically coupled by bus bars arranged in a tee connection. The tee connection is surrounded by an elec-

requiring only minimum modification of the conventional trigger switches.

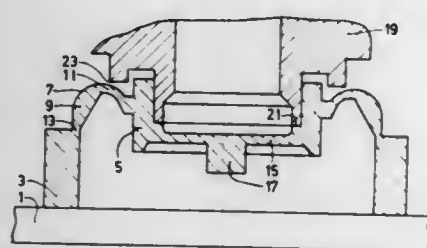
3,829,646
PUSH-BUTTON CONTROL MEMBER WITH PUSH-THROUGH COUPLING

Jean Hubertus Josef Lortelje; Ernst Machiel Schmidt, and Henricus Cornelis Adrianus Van Der Put, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 27, 1973, Ser. No. 336,170
Claims priority, application Netherlands, Mar. 4, 1972, 7202909

Int. Cl. H01h 3/12
U.S. Cl. 200—159 B

6 Claims



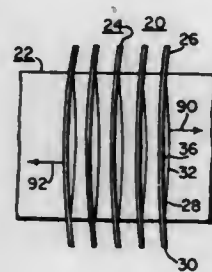
A control member for a contact device, comprising a first stationary cylinder of elastically compressible material, in which a second cylinder of the same material is coaxially arranged for movement with respect to this first cylinder by means of an elastically compressible annular coupling. The two cylinders and the coupling are constructed to form one integral unit. The coupling comprises a comparatively rigid centre portion which is connected by comparatively flexible portions to the cylinder, and cooperates with a pressure edge provided on the inner cylinder.

3,829,647
HEAT CONDUCTING FINS FOR BUS BARS AND OTHER ELECTRICAL CONDUCTORS

Charles M. Cleaveland, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Continuation of Ser. No. 150,004, June 4, 1971, abandoned, which is a division of Ser. No. 4,493, Jan. 21, 1970. This application Sept. 29, 1972, Ser. No. 294,729

Int. Cl. H01h 1/62, 9/52
U.S. Cl. 200—289

7 Claims

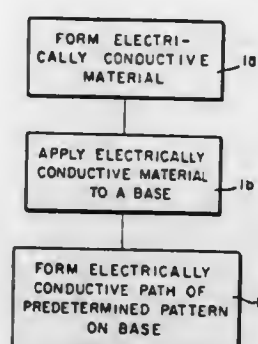


A plurality of heat conducting fins disposed on various types of electrical conductors both insulated and uninsulated, and for both high and low voltage applications such as in bus bars, disconnect and knife switches, and circuit breakers. Each of said fins includes a central opening which is slightly smaller in one dimension than the conductor on which the fins are assembled and therefore must be distorted somewhat during assembly on the conductor. The distortion in each fin develops a torsional stress in the fin which causes it to tightly grasp the conductor. In certain high voltage applications, the fin may be insulated or bent over to reduce the effective radial size of the fins in the overall conductor assembly without reducing its surface area and ability to convect heat.

3,829,648
MAKE AND BREAK ELECTRICAL CONTACT
Robert F. Huddleston, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Continuation of Ser. No. 92,490, Nov. 24, 1970, abandoned.
This application Aug. 21, 1972, Ser. No. 282,558

U.S. Cl. 200—264

4 Claims

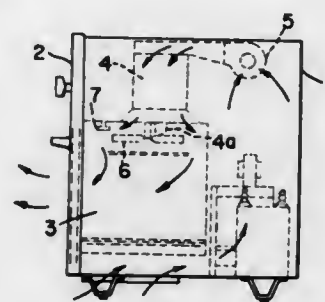


Electrical conducting paths of a metallic composite, which includes an electrically conductive material and a refractory metal, are formed on an insulative base in a predetermined pattern.

3,829,649
MICROWAVE OVEN
Ryuji Igarashi, Fuji, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki-shi, Japan
Continuation-in-part of Ser. No. 163,764, July 19, 1971, abandoned. This application Feb. 9, 1973, Ser. No. 331,251
Claims priority, application Japan, July 20, 1970, 45-71747

U.S. Cl. 219—10.55

1 Claim



A microwave oven has a cabinet whose interior is divided by a baffle plate into an upper chamber and a cooking chamber. The baffle plate is composed of a dielectric material, such as polypropylene, capable of transmitting therethrough microwave energy and a microwave oscillator is mounted in the upper chamber and radiates microwave energy through the baffle plate into the cooking chamber to effect cooking of foodstuff placed in the cooking chamber. A thermal switch is mounted on the outer surface of a side wall of the cooking chamber and deenergizes the microwave oscillator when the side wall reaches a predetermined temperature.

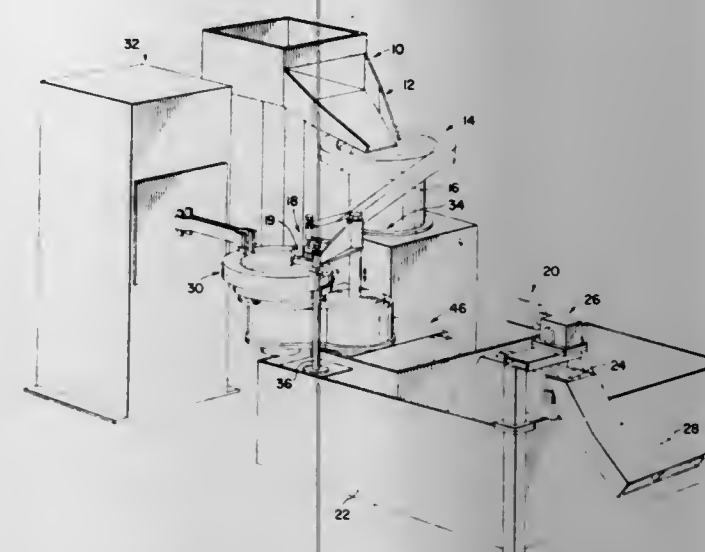
3,829,650
APPARATUS FOR INDUCTIVELY HEATING TUBULAR METAL WORKPIECES
Robert G. Armstrong, c/o Park-Ohio Industries Inc., 3800 Harvard Ave., Chardon, Ohio 44105
Filed Dec. 12, 1973, Ser. No. 423,978

U.S. Cl. 219—10.69

16 Claims

Apparatus is provided for inductively heating and hardening cartridge casings including a conveyor rotatable step-by-step past a casing input station, through an induction heating tunnel and to an output station from which the casings are discharged into a quenching bath. The conveyor is provided

with a plurality of cartridge casing receiving openings, and the casings extend through the openings for the lower ends thereof to engage a support surface and slide therealong during movement of the conveyor from the input station through the heating tunnel. The supporting surface terminates prior to the output station. Reciprocating plungers having a common

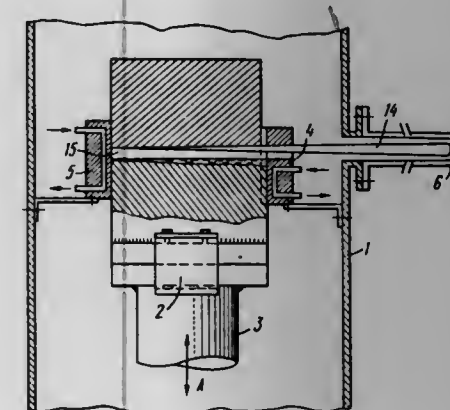


operator are axially aligned with corresponding openings at the input and output stations and are actuated during each dwell of the conveyor to positively displace a casing into a conveyor opening at the input station and to assist the displacement of a heated casing from the conveyor at the output station.

3,829,651
METHOD OF ELECTRON-BEAM WELDING OF THICK PARTS BY VERTICAL AND GIRTH SEAMS
Nikolai Alexandrovich Olshansky, ulitsa Malomoskorskaya 5, k.v. 76; Matvei Yakovlevich Smelyansky, ulitsa Uralskaya, 6, korpus 5 k.v. 107, both of Moscow; Anatoly Petrovich Lopatko, Moskovskoi oblasti, ulitsa Malakhovka Moskovskoi oblasti; Leonid Grigorievich Tkachev, ulitsa Krasny Kazanets, 19 korpus 1, Moscow; Arkady Filippovich Kozhaev, ulitsa Mikhailova, 23, k.v. 3, Moscow; Alexandr Ivanovich Sapozhnikov, ulitsa Mosfilmovskaya, 17/25, Moscow, and Gennady Anatolievich Chernakov, Poselok Seylatino Moskovskoi oblasti, Dom 18, k.v. 30, Moskovskoi oblasti, all of U.S.S.R.
Filed Jan. 13, 1972, Ser. No. 217,590

Int. Cl. B23k 15/00
U.S. Cl. 219—121 EM

4 Claims



Parts to be welded are interconnected rigidly by a vertical butt joint. An electron beam is directed horizontally and the parts and the electron beam are moved relative to each other. The distance between the surface of the molten metal and the axis of the electron beam, maintained in the course of the welding is from approximately 2 to 2.5 diameters of the electron beam. Welding proceeds at a low accelerating voltage and special seam formers keep liquid metal from flowing out.

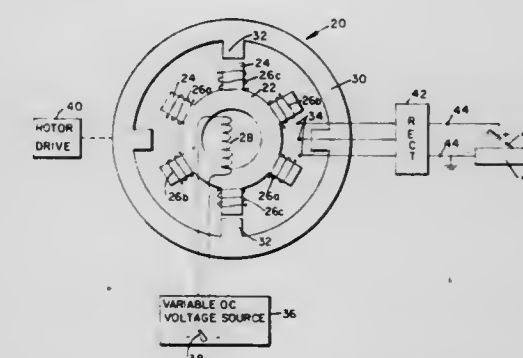
The seam formers of the device are made as cooled plates with grooves. They are placed at opposite sides of the parts, with the grooves directed along the seam. One of the seam formers has a hole for the passage of the electron beam.

3,829,652
ARC WELDER AND COMBINED AUXILIARY POWER UNIT AND METHOD OF ARC WELDING
Stanley M. Terry, Dayton, Maine assignor to Maremont Corporation, Chicago, Ill.

Filed Jan. 26, 1973, Ser. No. 327,207
Int. Cl. H02k 17/42

U.S. Cl. 219—133

17 Claims



An arc welder is comprised of an inductor alternator, a variable voltage source for energizing the field of the alternator, a rectifier for rectifying the alternator output, and an internal combustion engine or electric motor of suitable horsepower for driving the alternator. The welding current of the welder is controlled solely by varying the field excitation, and for various levels of field excitation the open circuit voltage remains substantially constant, the output voltage versus current characteristic is inherently such that within the range of welding voltages the current is substantially constant, and the voltage recovery time from short circuit is extremely rapid, thereby eliminating the need for auxiliary devices such as voltage and current regulators, series reactors and/or load control resistors. A switch means for selectively connecting the generating windings to the rectifier in either a delta or wye configuration and a voltage regulator may be used to adapt the alternator for use as a 110-120 volt auxiliary power unit. When used for welding, the alternator field is varied over a range of excitation values including values producing overexcitation of the field as compared to ordinary alternator usage. This produces an open circuit output voltage substantially constant and substantially equal to the maximum or peak value of open circuit voltage for which the alternator is designed at a given speed.

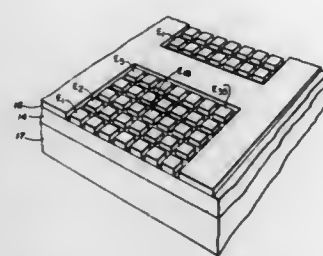
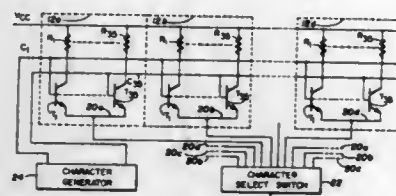
3,829,653
MULTI-CHARACTER ELECTRONIC DISPLAY
Clifford H. Ensminger, and Edward M. Ruggiero, both of Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Division of Ser. No. 788,261, Dec. 31, 1968, Pat. No. 3,698,012. This application Jan. 19, 1971, Ser. No. 107,831

U.S. Cl. 219—216

6 Claims

Disclosed are multiple character electronic display devices utilizing plurality of character matrices, each of which includes plurality of thermally isolated semiconductor mesas which are heated by current passed through a resistance. The current in each mesa is controlled by a transistor formed therein, and such transistors may have a common collector voltage and a common emitter voltage supply lead which may be individually closed by a switch to enable a desired character. The bases of the transistors of corresponding mesas in all of the character matrices may be connected to common control lines to that all character matrices may be controlled by the same character generator.

A particular diffusion pattern for the individual elements of the matrices is also disclosed which utilizes an extended collector transistor having a longitudinally extending, double diffused tunnel to provide cross connections from the control lines to the base contacts of the elements of an array.



lector transistor having a longitudinally extending, double diffused tunnel to provide cross connections from the control lines to the base contacts of the elements of an array.

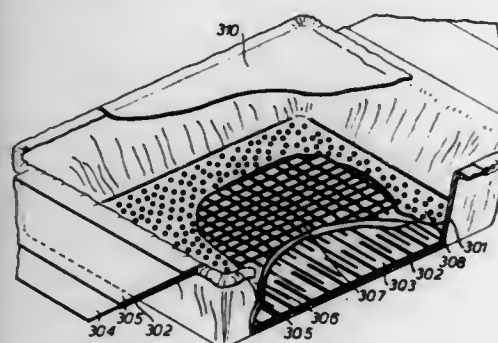
3,829,654

ELECTRICALLY HEATED PACKAGE

Paul Eisler, 57 Exeter Rd., London N.W. 2 1YB, England
Division of Ser. No. 122,495, March 9, 1971, which is a continuation of Ser. No. 607,601, Dec. 30, 1966, Pat. No. 3,751,629, which is a continuation-in-part of Ser. No. 301,488, Aug. 12, 1963, Pat. No. 3,296,415, which is a continuation-in-part of Ser. No. 749,554, July 18, 1958, Pat. No. 3,100,711.
This application May 23, 1973, Ser. No. 363,263
Int. Cl. F27d 11/02; H05b 3/34

U.S. Cl. 219—386

9 Claims



A dispensable container constructed for a single use incorporates a thin low voltage heating film with terminals accessible from outside and opening means permitting access to its contents is used as a package for a substance adapted to be heated and plastic in the sense of being sufficiently mobile to be removed from the container as soon as it has been sufficiently heated. The outer portion of the package may comprise means for directing most of the heat inside the package to heat the substance and its side walls may be stiffened by a stiff frame of light weight material of the stressed skin type.

3,829,655

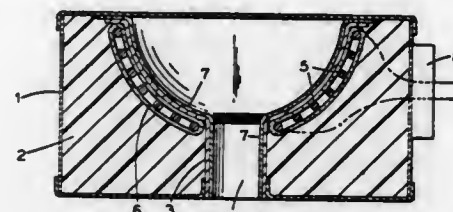
ELECTRICAL HEATING ENVELOPES

Jacques P. Thibault, 24, av. Theophile Gautier, 75 Paris 16 eme, France
Division of Ser. No. 157,551, June 28, 1971, Pat. No. 3,772,500. This application Oct. 4, 1973, Ser. No. 403,433
Int. Cl. H05b 3/58

U.S. Cl. 219—535

5 Claims

An electrical heating envelope which includes a metallic layer interposed between a vessel, the contents of which are to



magnetic material and a layer of resilient insulating material may be positioned between the plate and vessel.

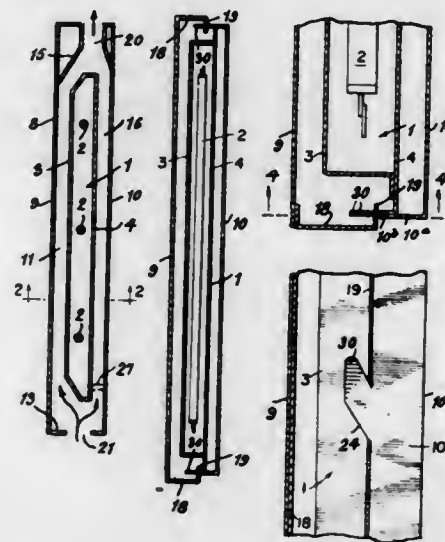
3,829,656

ELECTRIC HEATING UNIT

Ingemar Temrin, Ladersattravagen 23, 175 70, Jarfalla 2, Sweden
Continuation-in-part of Ser. No. 36,963, May 13, 1970, abandoned. This application Apr. 17, 1972, Ser. No. 244,506
Int. Cl. H05b 1/00; F24d 13/00

U.S. Cl. 219—367

3 Claims



An electric heating unit includes an inner casing containing a plurality of heating rods. An outer casing comprising interlocked front and back panels surrounds the inner casing in spaced relation thereto to define front and rear air channels between the panels and the casing the panels are so shaped as to cause the air channels to merge at the top and bottom of the unit and communicate with an upper air outlet opening and a lower air inlet opening. At least one of the openings is of approximately the width of one of the air channels. Mechanical interlocking means at the ends of the panels hold them in the required spaced disposition relative to the inner casing. The heating rods are entirely enclosed within the inner casing whereby dust or other particles cannot come in contact therewith.

3,829,657

ELECTRIC BAND HEATERS

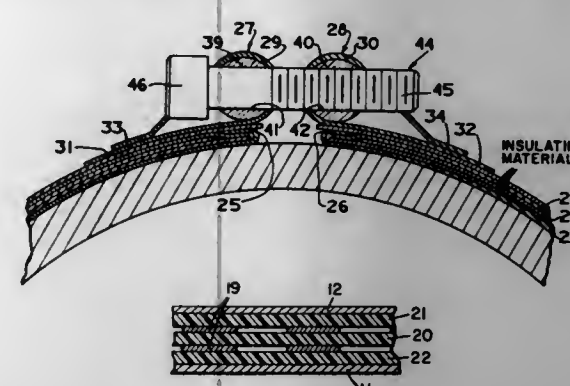
Edward W. Hinz, Hoffman Estates, Ill., assignor to Tempco Industrial Heater Corporation, Franklin Park, Ill.
Filed Apr. 19, 1973, Ser. No. 352,577
Int. Cl. H05b 3/58

U.S. Cl. 219—535

6 Claims

Electric band heaters wherein a heater includes resistance wire wound on an insulating strip sandwiched between two other insulating strips, the heater being sandwiched between an open strap and an open band which is engageable with a peripheral surface to be heated. Sheet metal loop brackets are spot-welded to the opposite ends of the strap and a headed screw extends through a rod in one bracket and is threaded into a rod in the other bracket for tensioning the strap. Folded

over side and end portions of the band engage outer and inner surface portions of the strap to connect the strap and the band for installation together and to provide a sealed connection



while allowing free tensioning movement of the strap independently of the band, to tightly press the strap against the heater and the heater against the band and the band against the surface to be heated.

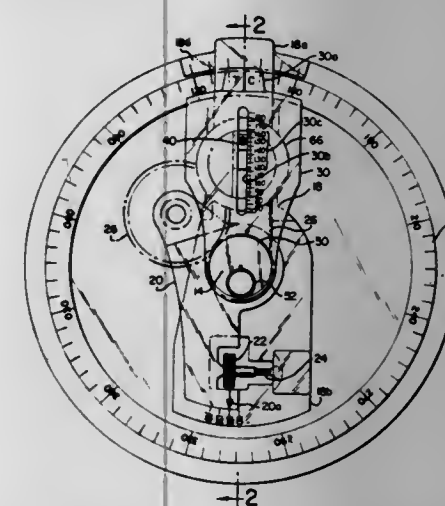
3,829,658

NAVIGATIONAL COMPUTER

Stanley Newman, 65 Noble Ave., Milford, Conn. 06460
Filed Aug. 24, 1973, Ser. No. 391,132
Int. Cl. G06c 27/00; G06g 1/08

U.S. Cl. 235—61 NV

10 Claims



An outer annular reference scale defines 360° of angular orientation, and two cursors are rotatably mounted coaxially in centered relationship with respect to the annular scale, each cursor including an index which can be aligned with any particular angle of orientation. An eccentric wind vector device is slidably and rotatably mounted on one of the cursors and a projecting pin which is slidably received in a slot in the other of said cursors. Gear means is provided on the annular scale and on the wind vector eccentric device to rotate these members in such a way that a vector triangle defined thereby changes its configuration continuously and automatically.

3,829,659

SYSTEM FOR COMPENSATING LINE-OF-SIGHT FROM STABILIZED PLATFORM AGAINST MISDIRECTION CAUSED BY LATERAL LINEAR ACCELERATIONS

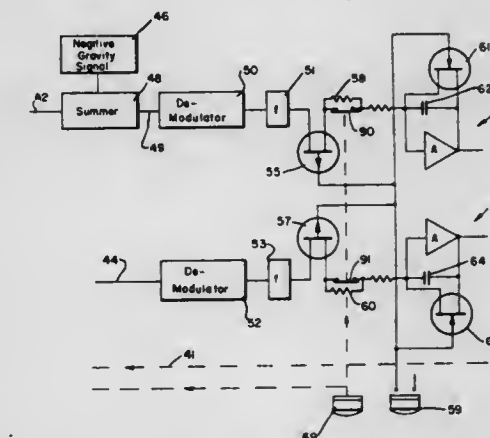
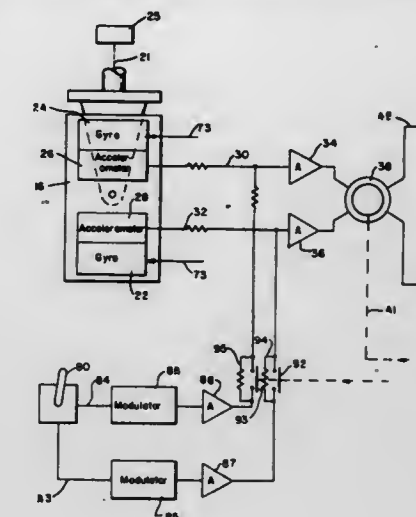
Maier Margolis, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Continuation-in-part of Ser. No. 119,641, March 1, 1971, abandoned. This application Nov. 24, 1972, Ser. No. 309,019
Int. Cl. G06g 7/80; B64c 17/06

U.S. Cl. 235—61.5 S

3 Claims

Linear acceleration is detected on a stabilized platform in the platform coordinates by means of accelerometers mounted on the platform. A directable device such as a sight is also mounted on the platform. The sight is directable so that its line-of-sight tracks a target. The acceleration signals are

resolved into horizontal and vertical components. Approximate gravity is subtracted from the resolved vertical component so that the resolved signals represent approximately vertical and true horizontal components of linear acceleration in rectangular space. After scaling with respect to the distance



to target, an integrator time integrates these signals to produce angular velocity signals. This information is stored in space coordinates. The stored signals are resolved into the coordinate system of the stabilized platform and are used to drive the stabilized platform. The platform drive is the final integration so the correction angle is produced.

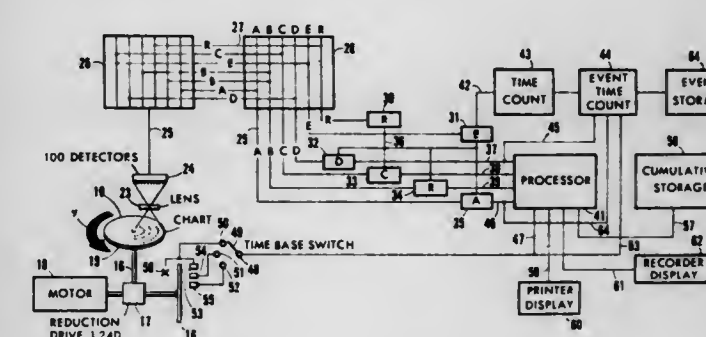
3,829,660

PEN CHART ANALYSER

Hermann Ruhl, 40 Advance Rd., Toronto 18, Ontario, Canada
Filed Nov. 16, 1972, Ser. No. 307,138
Claims priority, application Canada, Nov. 19, 1971, 128,143
Int. Cl. G06k 7/14, 15/20, 9/06

U.S. Cl. 235—61.6 A

12 Claims



The specification sets forth an analyser for retrieving event time information from a multi-channel graphical record sheet, comprising drive means for conveying the sheet past a linear detector device comprising a series of light sensitive elements which generate signal currents proportional to light from the chart. The drive means further includes a pulse generator for

producing time base pulses in proportion to the movement of the chart and representing a predetermined time increment unit. A processor receives signals from the light sensitive devices, correlates these to each other and with the time base pulses transmits these to an output device in accordance with the desired analysis information.

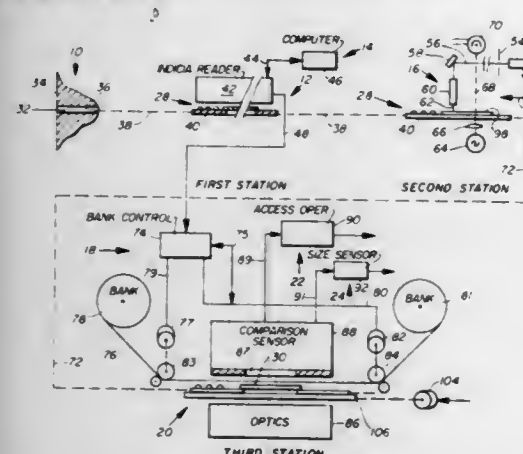
3,829,661

ACCESS CONTROL SYSTEM

Daniel Silverman, 5969 S. Birmingham Ave., Tulsa, Okla. 74105, and Everett A. Johnson, 15 S. Prospect Ave., Park Ridge, Ill. 60068

Continuation-in-part of Ser. No. 74,066, Sept. 21, 1970, Pat. No. 3,677,465. This application July 18, 1972, Ser. No. 272,739

Int. Cl. G06k 1/16, 19/02; G06b 7/10; G06k 7/10; G09f 3/02
U.S. Cl. 235—61.7 B 13 Claims



This invention describes a system for access control wherein a control card is presented to a control means. If the control card is authenticated, then access is gained. If it is not authenticated, access is not gained, the control card is retained, and an alarm may be sounded.

The control card contains at least two means; (1) machine readable indicia identifying the card, and (2) a random pattern of micro spots, which pattern is derived (by direct copying — such as by focussed laser beam) from one of a plurality of different patterns, retained in a bank of such micro patterns, each such micro pattern identified by, and selectable in accordance with, different unique indicia, identical with the machine readable indicia on said cards.

In use the control card is introduced into the control means and the indicia are read. Master micro pattern corresponding to the indicia is selected from the bank. The card micro pattern and master micro pattern are compared. If the comparison okay, the card is authenticated.

3,829,662

RECORDING MEDIUM HAVING CONCEALED INFORMATION AS INPUT FOR ELECTRONIC COMPUTER

Akira Furahashi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 27,353, April 10, 1970, abandoned. Claims priority, application Japan, Apr. 17, 1969, 44-29807; 44-29808; 44-29809; 45-35223

This application Oct. 12, 1972, Ser. No. 296,965

Int. Cl. G06k 7/12, 19/06; G01n 21/30; H04q 3/72
U.S. Cl. 235—61.12 R 9 Claims



Recording medium uses a base on which a signal or data is recorded. On the base a coating is applied, which is of a

material not transmitting the visible rays. For rendering the data marked or punched unintelligible to the human eyes, applying over the punched or marked data a substance which cannot transmit therethrough the visible rays.

3,829,663

SLIDE RULE WITH DECIMAL POINT LOCATION MEANS

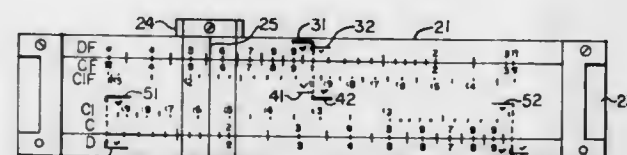
Wendell Y. Huo, 6112 N. Damea Ave., Chicago, Ill. 60645

Filed Mar. 23, 1973, Ser. No. 344,119

Int. Cl. G06c 19/02

U.S. Cl. 235—64.3

3 Claims



A logarithmic scale slide rule having means for readily determining decimal location comprising a system of oppositely-facing base-color and contrast-color brackets enclosing each 1 to 9.9999 scale range, and accompanying base-color and contrast-color check marks to indicate the value of "positive one" for multipliers, or "negative one" for dividers, the base-color and contrast-color check marks being for base-color and contrast-color slider scale numbers, respectively, i.e., conventional black and red scales, said check marks being associated with brackets of the same color, and the sum of the plus and minus values of the check marks encountered in the solution of a given problem together with the sum of the plus and minus decimals of the problem numbers will represent the power of ten for the problem.

3,829,664

NUMERICAL VALUE-RANKING APPARATUS

Toshio Kashio, Tokyo, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

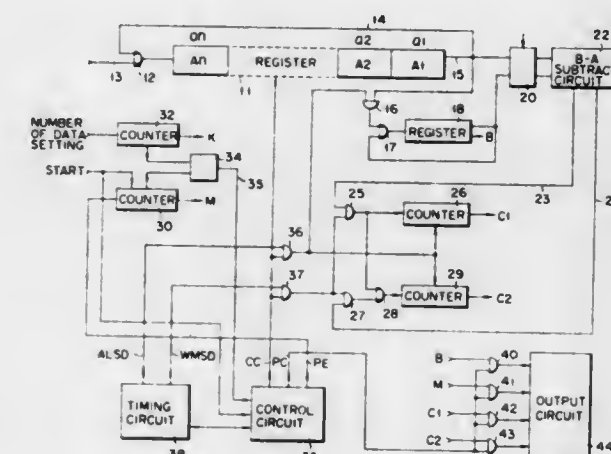
Filed Dec. 26, 1972, Ser. No. 318,684

Claims priority, application Japan, Dec. 29, 1971, 46-1452; Mar. 3, 1972, 47-22087

Int. Cl. G06f 7/02

U.S. Cl. 235—92 SH

5 Claims



A numerical value-ranking apparatus comprising a first shift register for linearly storing a plurality of input numerical data items whose ranks are to be determined and for circulatingly shifting the data items; and a second shift register for reading out one item of the data stored in the first register and circulatingly shifting said item in synchronization with shifting in the first shift register, wherein the items which are stored in the first shift register and which are not read out to the second register are compared in succession with said one item as a reference by a comparator. The comparator generates an output signal each time there is detected any of the items which has a specific numerical relationship with said reference item;

the number of times said output signal is generated is counted by a counting means; and the count thus obtained is indicated or recorded for the ranking of said reference item.

3,829,665

BINARY RATE MULTIPLIER

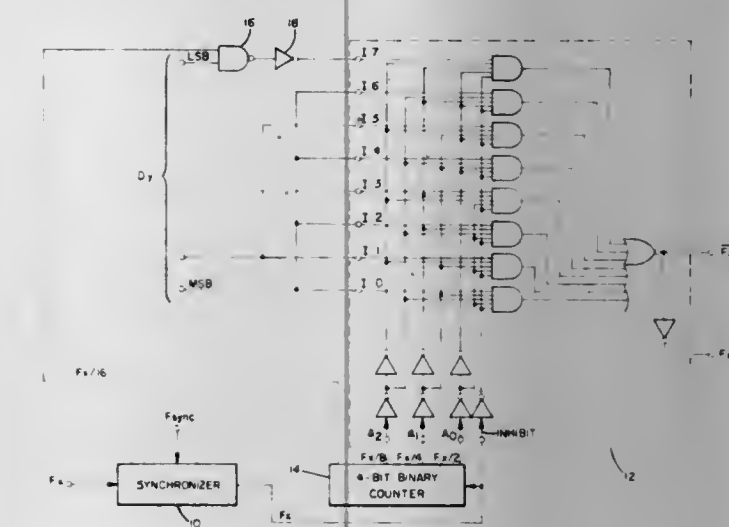
Adrian R. A. Pocock, Warren, Mich., and Michael A. Cole, Hartford, Conn., assignors to Chandler Evans, Inc., West Hartford, Conn.

Filed Feb. 23, 1973, Ser. No. 334,979

Int. Cl. G06f 15/20, 7/38

U.S. Cl. 235—150.3

1 Claim



Continuous and direct multiplication of a frequency and a binary number is achieved through the use of a frequency divider and a digital multiplexer. The frequency divider provides a plurality of different frequency signals proportional to a frequency modulated input signal, the different frequency signals being applied as the address inputs to the multiplexer, and the binary number is delivered as the data input to the multiplexer which functions as a data selector to synthesize an output signal having a frequency which corresponds to the frequency of one or more of the signals provided by the frequency divider.

3,829,666

CIRCUIT FOR AUTOMATIC REFERRING OF GAS TURBINE PERFORMANCE PARAMETERS

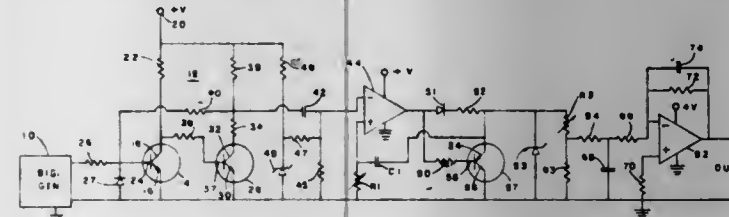
Rudolph Hohenberg, Trumbull, and Alan R. Duly, Huntington, both of Conn., assignors to Avco Corporation, Stratford, Conn.

Filed June 26, 1973, Ser. No. 373,699

Int. Cl. G06g 7/70; G011 5/13

U.S. Cl. 235—151.3

13 Claims



A signal having a frequency proportional to a parameter (power, speed or fuel flow) of a gas turbine engine is "referred" by first developing a square wave of uniform height and width independent of signal magnitude, but having a pulse repetition rate equal to the signal frequency. The area of the square wave is then varied as a function of pressure and temperature to obtain the "referred" parameter in accordance with the transfer function $1/\lambda \sqrt{\theta}$, where:

$$\lambda = P/29.92 \text{ in. Hg.};$$

$$\theta = 460 + T_A/518.4$$

P = ambient pressure; and
T_A = ambient temperature

3,829,667

HYBRID COMPUTER SYSTEM FOR RAPID GENERATION OF ELECTRIC POWER SYSTEM LOAD-FLOW SOLUTIONS AND TRANSIENT STABILITY ANALYSIS

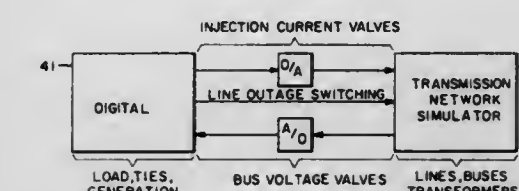
Norman R. Carlson, Export, and William E. Zitelli, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 19, 1972, Ser. No. 255,110

Int. Cl. G06j 1/00; G06f 15/06, 15/56

U.S. Cl. 235—151.21

9 Claims



A hybrid loadflow computer arrangement with transient stability analysis capability includes a modularized analog network simulator and a digital computer which acquires and processes on-line data and operator data related to a power system for which loadflow and transient stability problems are being solved. The analog simulator includes modular circuits representative of power systems buses, generators, loads, lines and tie lines interconnected to represent the power system and the interface between the digital computer and the analog network simulator is provided by analog-to-digital and digital-to-analog converters. The hybrid arrangement operates iteratively during the loadflow solution with the analog network simulator providing a bus voltage solution for a set of network simultaneous equations, as well as generator swing angle values for transient stability analysis, and the digital computer providing generator power and voltage magnitude constraints, load admittance values and power constraints, and tie bus voltage and power constraints.

3,829,668

DOUBLE UNIT CONTROL DEVICE

Makoto Noumi, and Susumu Seki, both of Kokubunji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

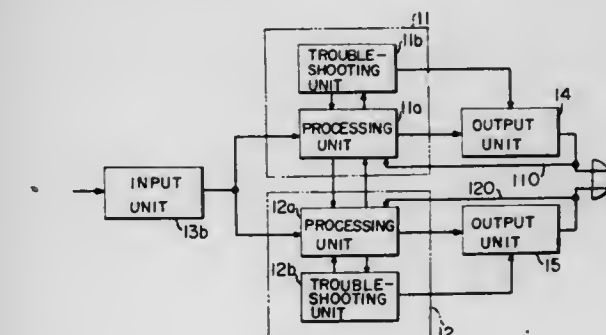
Filed Dec. 1, 1972, Ser. No. 311,143

Claims priority, application Japan, Dec. 2, 1971, 46-97333; Dec. 2, 1971, 46-97334; Dec. 2, 1971, 46-97336

Int. Cl. G06f 11/00, 15/16

U.S. Cl. 235—153 AE

3 Claims



In a double unit control device comprising a pair of information input units, a pair of arithmetical processing units and a pair of output units, each of the arithmetical processing units processes the input information from the corresponding input unit in accordance with a predetermined algorithm, exchanges during the process the intermediate processed result in the processing unit for that of the other processing unit so as to

collate them with each other, has a self-diagnosing function diagnosing the fault in the corresponding output unit by obtaining the feedback signal from the output unit, and produces a signal for indicating a fault when the fault is detected.

3,829,669

D.C. ANALOG CALCULATOR FOR RAPIDLY GENERATING ELECTRIC POWER SYSTEM LOADFLOW SOLUTIONS

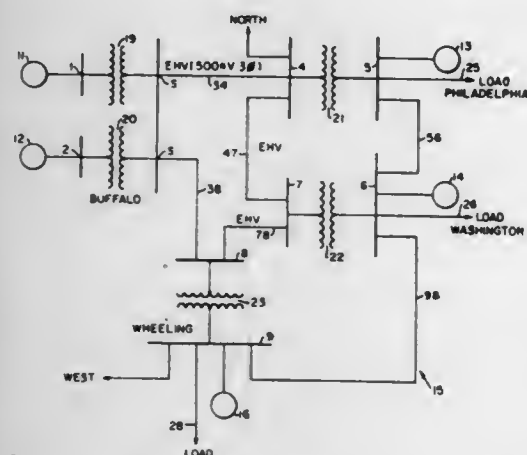
Paul H. Haley, Pittsburgh, Pa., and Mark K. Enns, Ann Arbor, Mich., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 19, 1972, Ser. No. 255,111

Int. Cl. G06g 7/62

U.S. Cl. 235-151.21

6 Claims



An analog loadflow calculator includes a modularized analog network simulator which includes modular circuits representative of power system buses, lines, generators and loads and interconnected to simulate the power system. The modular generator circuits, load circuits and line circuits provide currents to be summed at appropriate bus circuits. The simulator operates to force observance of current and voltage laws and to provide the bus voltage solution.

3,829,670

DIGITAL FILTER TO REALIZE EFFICIENTLY THE FILTERING REQUIRED WHEN MULTIPLYING OR DIVIDING THE SAMPLING RATE OF A DIGITAL SIGNAL BY A COMPOSITE INTEGER

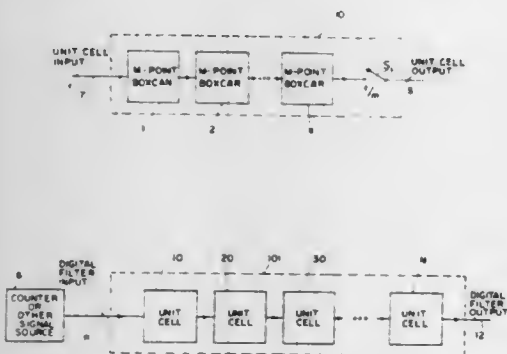
Paul L. Kebabian, Cambridge, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Apr. 10, 1972, Ser. No. 242,807

Int. Cl. G06f 7/38, 15/34

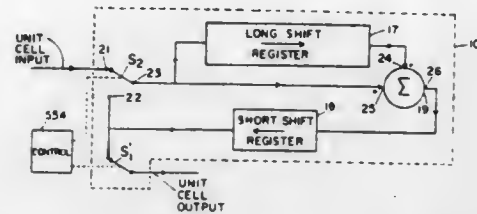
U.S. Cl. 235-152

5 Claims



A digital filter employing a plurality of unit cells connected in cascade. Each unit cell includes a duplicating filter (typically a plurality of boxcar integrators connected in cascade). A switch is connected between the output of each duplicating filter and the output of the unit cell of which it is a part. The switch is operable to reduce the data rate to a sub-multiple of the input data rate to the associated duplicating filter, the sub-multiple being equal to the parameter R of the duplicating

filter, where R is the number of points in the boxcar integrator impulse response when the duplicating filter is composed of boxcar integrators. In another form the switch is placed between the input to the unit cell and the input to the duplicat-



ing filter to increase the data rate and R in this latter situation is the multiple by which the data rate is increased. Two or more digital filters wherein the rate is reduced may be combined to form a band-pass filter or a bank of band-pass filters.

3,829,671

METHOD AND CIRCUIT FOR CALCULATING THE SQUARE ROOT OF THE SUM OF TWO SQUARES

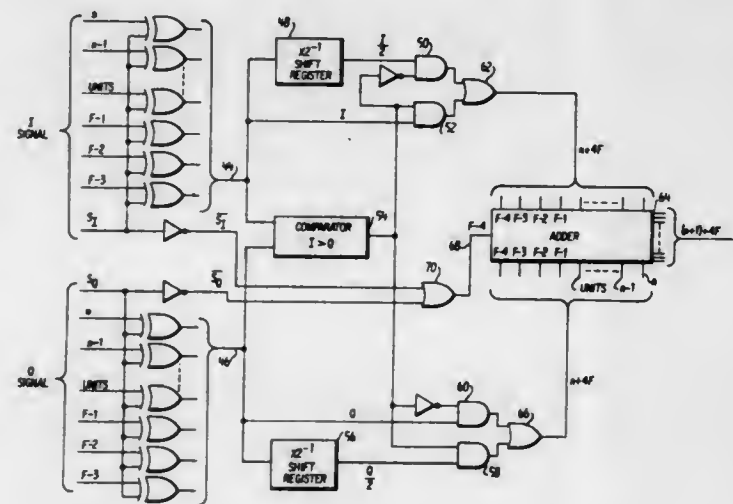
Jack G. Gathright, Glen Burnie, and Richard E. Park, Laurel, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 25, 1973, Ser. No. 354,621

Int. Cl. G06f 7/38

U.S. Cl. 235-158

11 Claims



An arithmetic logic circuit for performing an algorithm which approximates the square root of the sum of two squares. A novel hardware arrangement and method are disclosed which employ EXCLUSIVE OR circuits instead of a conventional 2's complement arrangement provided by conventional adder-subtractor circuits. The values to be squared are converted to positive value digital signals, compared, and the control signal from a comparison circuit used to command the full value of the larger digital signal and half the value of the smaller digital signal into an adder circuit which receives a correction signal in the event either of the input digital values is negative. The correction signal may be added to the least significant order of the adder output signal or to the next to least significant order depending upon whether the larger or smaller of the digital signals is negative.

3,829,672

SERIAL BINARY SQUARE ROOT APPARATUS

Delaime C. Sather, Cedar Rapids, Iowa, assignor to Collins Radio Company, Dallas, Tex.

Filed June 6, 1973, Ser. No. 367,615

Int. Cl. G06f 7/38

U.S. Cl. 235-158

6 Claims

Circuitry for examining the individual bits of a radicand of which the square root is to be determined and the resulting remainder produced during the square rooting process. The circuit stores the bits obtained during each step of the opera-

tion and uses the stored information in succeeding steps until a number of steps have occurred equal to the number of bits in

3,829,674

SLOW MODULATION DISTANCE MEASURING APPARATUS

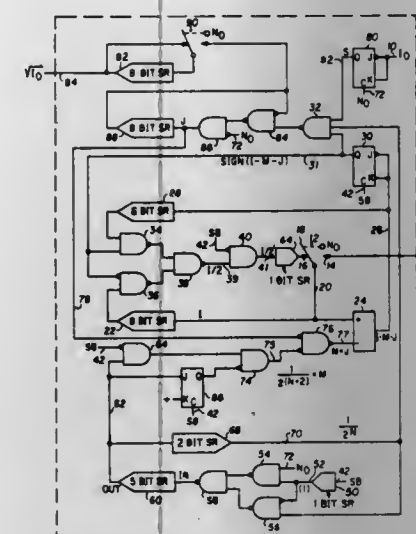
Horace M. Joseph, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 26, 1973, Ser. No. 326,922

Int. Cl. G06g 7/19; G01s 9/24

U.S. Cl. 235-181

3 Claims



the original radicand at which time the square rooting process is completed. The circuit is operational only for positive radicand.

3,829,673

FLOATING POINT ARITHMETIC UNIT ADAPTED FOR CONVERTING A COMPUTER TO FLOATING POINT ARITHMETIC

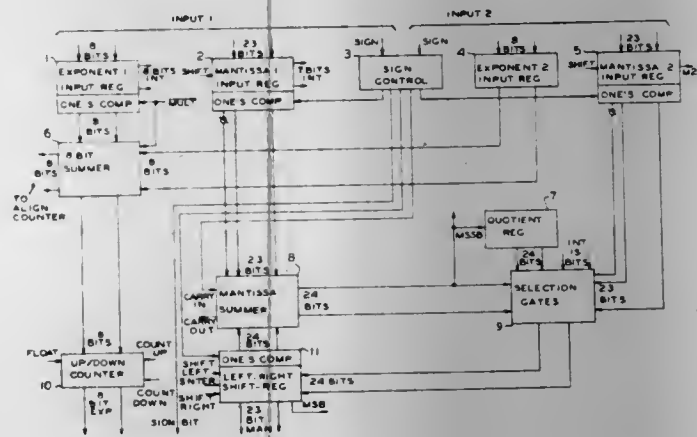
Frank M. Bouton, Jr., Maitland, Fla., and Thomas R. Prints, Portland, Oreg., assignors to Floating Point Systems, Inc., Portland, Oreg.

Filed June 20, 1972, Ser. No. 264,518

Int. Cl. G06f 7/50, 7/54

U.S. Cl. 235-164

15 Claims



A floating point converter for adapting a conventional computer to floating point arithmetic includes an exponent circuit for receiving the respective floating point exponents and selectively providing the sum, the difference, or the larger of the two. The converter further includes a mantissa circuit for receiving the respective mantissa inputs and applying the same to a computational loop. This loop includes an output shift register, an adder for algebraically adding the contents of the shift register to one of the input mantissas, and gating circuitry for selectively entering the results of addition to said register or alternatively entering the second mantissa input into said register. A quotient register further receives successive most significant bits of successive subtractions occurring during division and subsequently provides a quotient output to said shift register via said gating circuitry.

925 O.G.-24

3,829,675

LIGHTING MEANS FOR UNDERWATER ILLUMINATION

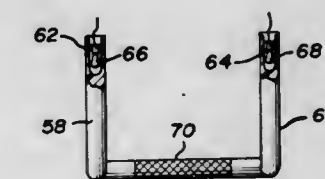
Remo Mariani, 966 Quartz Dr., Toms River, N.J. 08753

Filed Apr. 30, 1973, Ser. No. 355,817

Int. Cl. F21

U.S. Cl. 240-1 LP

4 Claims



Light rays emanating from a light source within a recess in one end of a solid transparent elongate member are concentrated within and longitudinally conducted along a first portion thereof having a smooth, preferably polished outer surface, and then radiated from the roughened outer surface of a second portion extending longitudinally from the first portion,

to provide directionally controlled selective illumination remote from the light source. Clamp means may be provided to attach the elongate member to the side of a liquid containing vessel such as a swimming pool or aquarium to selectively position the second portion of the elongate member beneath the surface of the liquid to safely illuminate the surrounding area.

3,829,676

RECHARGEABLE FLASHLIGHT

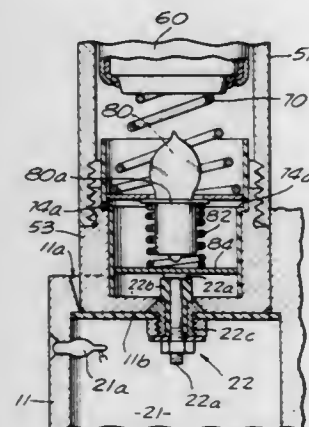
Norman C. Nelson, Newberry Springs, and Daniel C. Harley, Apple Valley, both of Calif., assignors to Kel-Lite Industries, Inc., Barstow, Calif.

Filed Aug. 7, 1973, Ser. No. 386,366

Int. Cl. F21l 1/00; H02j 7/00

U.S. Cl. 240—10.6 CH

6 Claims



A flashlight is provided with batteries that are capable of being recharged, and the flashlight is constructed in such a way that the recharging of the batteries may be accomplished without removing them.

Bulb and reflector means are provided at one end of the battery train, and a normally compressed spring engages the other end of the battery train in order to support the batteries and also carry discharge current flowing from the batteries into the bulb.

Means are also provided for further compressing the spring so as to open up the discharge circuit, providing a pair of inputs for charging the batteries. The mechanism for further compressing the spring, and for connecting the charging circuit to the pair of inputs thus created, is contained within the rearward portion of the flashlight housing.

3,829,677

REFLECTIVE MEANS USED IN CONNECTION WITH FLUORESCENT TUBES OR LAMPS

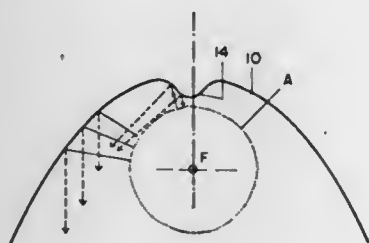
Mary Duarte DeLlano, Apartado Aereo, Medellin, Colombia (52032)

Filed Nov. 7, 1972, Ser. No. 304,455

Int. Cl. H05b 33/02

U.S. Cl. 240—51.11 R

3 Claims



A reflector for a fluorescent tubular light. The reflector is formed by an elongated shell of parabolic cross section. A smaller but also parabolic rib extends lengthwise along the apex of the shell parabola.

3,829,678

APPARATUS FOR ACTIVATING A CHEMILUMINESCENT WAND

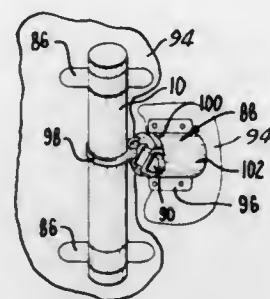
Gordon B. Holcombe, 603 Santa Barbara, Millbrae, Calif. 94030

Filed Apr. 13, 1973, Ser. No. 350,946

Int. Cl. F21v 21/00

U.S. Cl. 240—52 R

9 Claims



Apparatus for activating a chemiluminescent wand having a first chemical fluid in a flexible tube and a second chemical fluid in a frangible tube within the flexible tube, the apparatus has a first structure formed to retain each end of the wand and a second structure which cooperates with the first structure to displace the center of the wand with reference to the retained ends thereby fracturing the frangible tube in the wand causing the first chemical fluid to mix with the second chemical fluid and generate a chemiluminescence.

3,829,679

LAMP HEAD ASSEMBLY

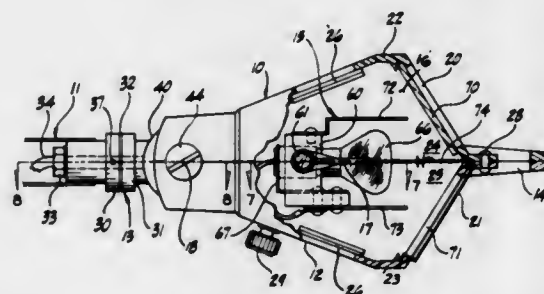
Gerald L. Rogers, St. Louis, Mo., assignor to Chemetron Corporation, Chicago, Ill.

Filed Aug. 6, 1973, Ser. No. 386,010

Int. Cl. F21v 21/00

U.S. Cl. 240—52 R

12 Claims



This assembly includes a lamp housing mounted to a support at one end and having a pair of apertures at the other end providing reading and examination lights. A lamp base is journal mounted within the housing to the housing sidewalls by pivot elements which are fixed to the lamp base and extend outwardly of the sidewalls. Actuating levers are attached to each end of the pivot elements for manual rotation of the lamp base to direct the lamp beam through one or the other of the apertures. The housing is attached to the support by an elbow joint, which permits the angle of elevation of the housing to be adjusted and the support includes a swivel joint which permits the housing to be rotated about its own longitudinal axis.

3,829,680

LIGHTING PANEL

Bill F. Jones, Los Angeles, Calif., assignor to J.W. Carroll & Sons, a Division of U.S. Industries Inc., New York, N.Y.

Filed Nov. 24, 1972, Ser. No. 309,098

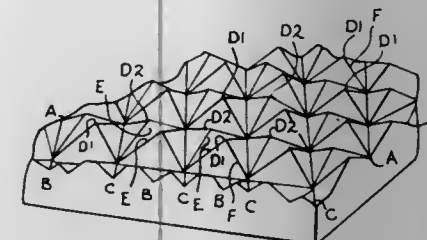
Int. Cl. F21v 5/02

U.S. Cl. 240—106

13 Claims

A lighting panel for use in overhead lighting fixtures and the like which may readily be fabricated in plastic sheet by extrusion-embossing techniques and which minimizes veiling reflections. The panel contains a continuous pattern of trian-

gular projections, each having three mutually substantially perpendicular surfaces projecting upward for disposition toward the light source. The base lines of the mutually perpendicular surfaces are co-planar and the pattern of projections is such that the base lines of all projections on a panel form continuous straight lines directed in three specific directions. This



allows the fabrication of a relatively inexpensive engraved roller for embossing the pattern on a plastic sheet and results in a light panel which minimizes veiling reflections from the illuminated matter. The panel in accordance with the present invention provides a radial distribution of light with high lighting efficiency and with the maximum light in the area which is 30° to 60° from the vertical.

3,829,681

LANTERN SHIELDS

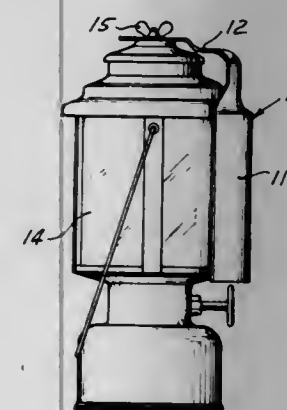
Gary Fuss, 535 Grove St., Mayville, Wis. 53050

Filed May 24, 1973, Ser. No. 363,624

Int. Cl. F21v 1/08

U.S. Cl. 240—110

1 Claim



Two or more shields, rotatably supported at the top of a lantern, is designed for control of the light beam width.

3,829,682

PULSE CODED RAILWAY SIGNAL SYSTEM

Willard L. Geiger, Chagrin Falls, Ohio, assignor to Erico Products, Inc., Solon, Ohio

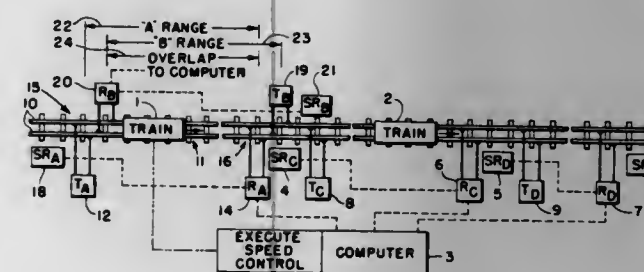
Continuation-in-part of Ser. No. 105,509, Jan. 11, 1971, Pat. No. 3,740,550. This application Feb. 20, 1973, Ser. No. 333,671

The portion of the term of this patent subsequent to June 19, 1990, has been disclaimed.

Int. Cl. B61I 29/32

U.S. Cl. 246—125

12 Claims



A railway signalling system using coded digital signals impressed on the tracks for direct or computer directed block

signal control, the presence of a train on a track section causing shunting of the signals and an indication from a receiver which operates in a fail-safe configuration. In each signal circuit first and second tone oscillators provide carrier signals which are modulated in a specific digital pattern and applied to the tracks. A tone sensitive receiver separately detects the carrier signals and provides pulse train outputs which are decoded in a binary counter and coincidence gate circuit for ascertainment that the correct digital code pattern has been received. Signals are developed for energization of an oscillator, the output of the latter being amplified for direct or computer directed block signal control. More than one signal circuit can be employed on common tracks for separate or overlapping signal control by the selection of different pairs of operating frequencies, readily accommodated by plug-in filter substitution.

3,829,683

LIGHT CONTROLLABLE ELECTRICAL SWITCH

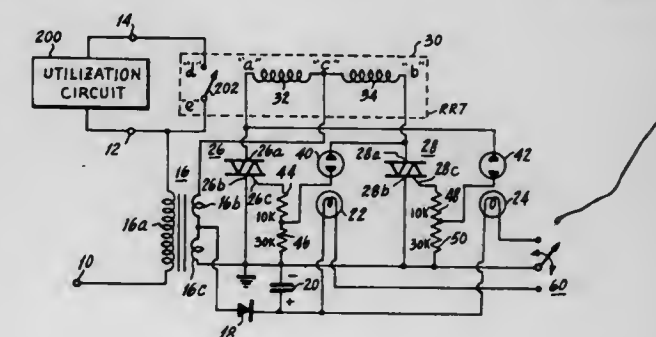
Donald Charles Long, Yardley, Pa.; Albert Charles Hartsough, Willingboro, and Robert Fincher Sanford, Titusville, both of N.J., assignors to Princeton Electro Dynamics, Inc., Princeton Junction, N.J.

Filed Aug. 22, 1973, Ser. No. 390,532

Int. Cl. H01h 47/24

U.S. Cl. 250—209

6 Claims



An electrical switch which can be remotely controlled to an "ON" or "OFF" state by the use of light energy radiations, but which can also be controlled at the switch location, if desired. The conditioning of the switch is controlled by means of a bistable electromechanical relay and by a pair of silicon controlled rectifiers.

3,829,684

LIQUID CRYSTAL IMAGE CONVERTER SYSTEM RESPONSIVE TO IONIZING RADIATION

Georges Assouline; Michel Hareng, and Eugene Leiba, all of Paris, France, assignors to Thomson - CSF, Paris, France

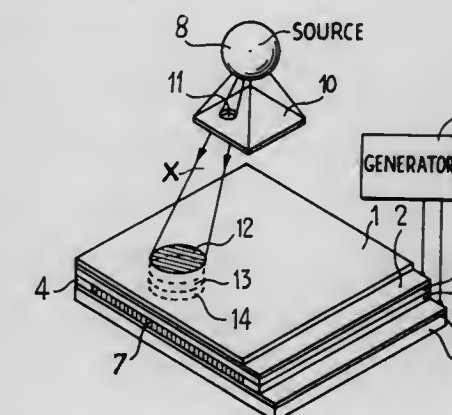
Filed Apr. 19, 1973, Ser. No. 352,706

Claims priority, application France, Apr. 25, 1972, 72.14641

Int. Cl. H01j 31/50

U.S. Cl. 250—213 R

11 Claims



The invention relates to the display of visible images corresponding to patterns projected by means of ionizing agents

such as X-rays, γ -rays or particle beams. The image converter in accordance with the invention comprises: a fluorescent screen optically coupled to a photoconductive film, the latter being electrically coupled to a liquid crystal film whose dynamic scattering properties are utilized to render visible the patterns projected onto the fluorescent screen by means of the ionizing radiation.

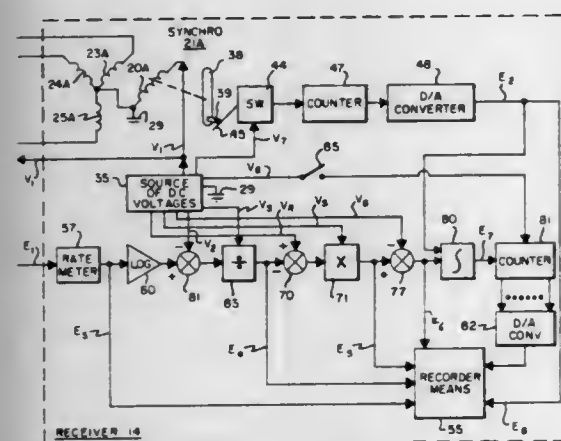
3,829,685

MEANS AND METHOD FOR PROVIDING AN OUTPUT CORRESPONDING TO THE EXPECTED SUBSIDENCE OF A FROZEN EARTH FORMATION

Alexander S. McKay, Calgary, Alberta, Canada, assignor to Texaco Exploration Canada Ltd., Calgary, Alberta, Canada
Filed Oct. 10, 1972, Ser. No. 296,422
Int. Cl. G21k 1/00

U.S. Cl. 250-256

8 Claims



Apparatus including a well logging tool and surface equipment provides an output substantially corresponding to the expected subsidence of a frozen earth formation upon thawing.

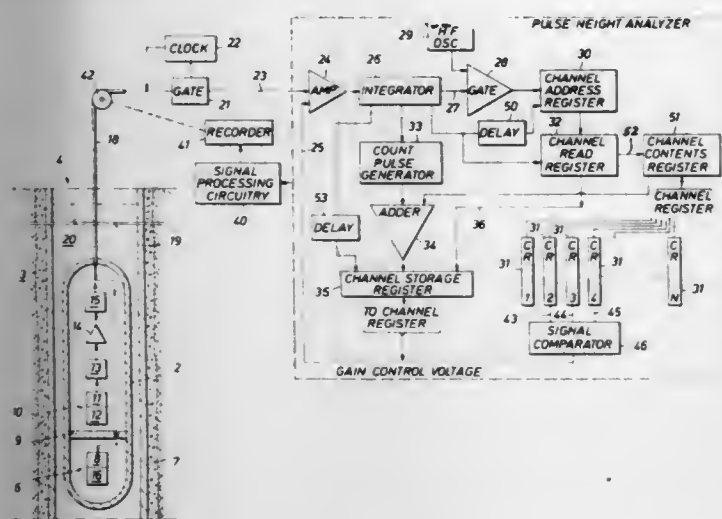
3,829,686

PULSED NEUTRON LOGGING SYSTEM WITH GAIN COMPENSATION

Ward E. Schultz; Harry D. Smith, Jr., and Dan M. Arnold, all of Houston, Tex., assignors to Texaco Inc., New York, N.Y.
Continuation-in-part of Ser. No. 181,910, Sept. 20, 1971, abandoned. This application June 28, 1973, Ser. No. 374,449
Int. Cl. G01t 1/18

U.S. Cl. 250-261

1 Claim



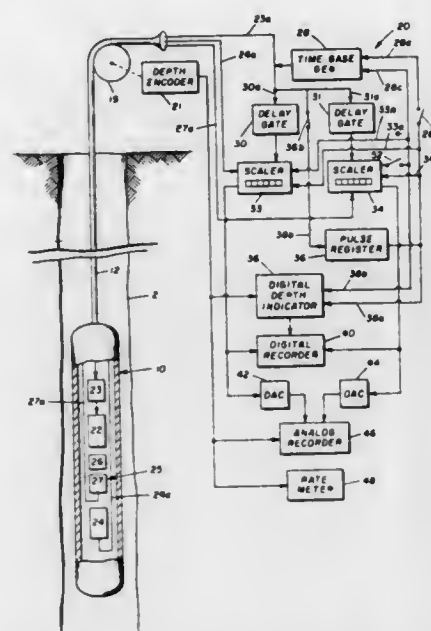
An illustrative embodiment of the invention includes method and apparatus for linearizing the gain of borehole gamma ray energy measurement apparatus. A known energy peak (or peaks) which is prominent in the gamma ray energy spectra of borehole measurements is monitored and any drift in its apparent location in the energy spectrum is used to generate an error voltage. The error voltage is applied in an inverse feedback manner to control the gain of system amplifiers to cancel the drift.

3,829,687 RADIOACTIVE WELL LOGGING TO DISTINGUISH WATER AND HYDROCARBON SATURATION BY DELAYED NEUTRONS FROM OXYGEN

Richard L. Caldwell, Dallas, Tex., assignor to Mobil Oil Corporation, New York City, N.Y.
Filed Apr. 25, 1973, Ser. No. 354,278
Int. Cl. G01v 5/00

U.S. Cl. 250-269

8 Claims



A well logging process for exploring for petroleum hydrocarbons in which subterranean formations are characterized with regard to their hydrocarbon or water saturation on the basis of their oxygen content. The well under investigation is subjected to a porosity logging procedure such as neutron logging, self potential logging, gamma ray scattering density logging, or acoustic velocity logging in order that one or more formations of relatively high porosity may be identified. Such formations are subjected to a delayed neutron logging procedure in which a formation is irradiated with repetitive bursts of fast neutrons spaced by time intervals greater than the time required for dissipation of neutrons originating in the bursts. Between the bursts and after dissipation of the original source neutrons, a detector is operated in order to detect delayed neutrons resulting from the neutron irradiation of oxygen-17. The radiation count thus obtained provides an indication of the oxygen content of the formation.

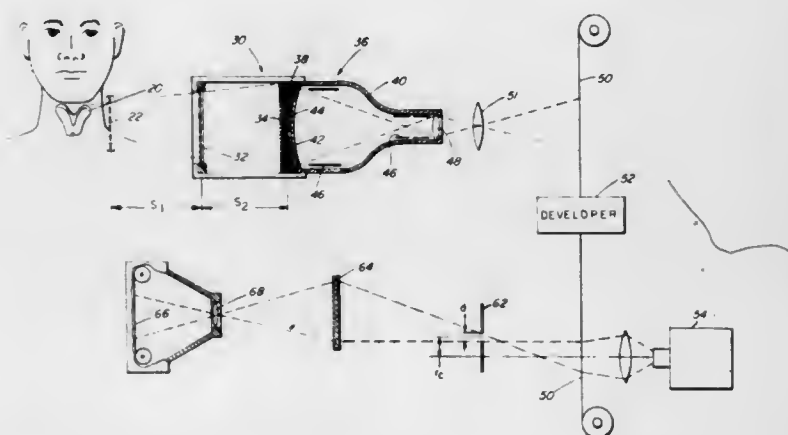
3,829,688

HIGH INTENSITY RADIATION IMAGING SYSTEM

Harrison H. Barrett, Lexington, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed May 4, 1972, Ser. No. 250,224
Int. Cl. G01t 1/00

U.S. Cl. 250-272

22 Claims



A nuclear imaging system for mapping a spatially distributed source of high energy nuclear particles from a living

organ which has selectively absorbed a radioactive compound in which the nuclear energy is spatially coded by a zone plate positioned between the source and a spatial detector, and a half tone screen is positioned between the source and the zone plate to increase the definition of the image.

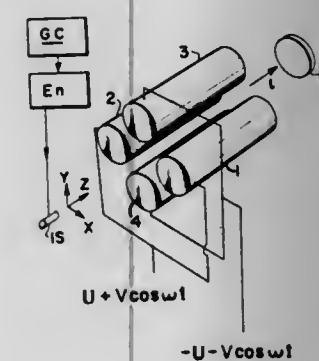
3,829,689

SYSTEM FOR MEASURING AND RECORDING GAS CHROMATOGRAMS AND MASS SPECTRA BY A DIRECT COMBINATION OF A GAS CHROMATOGRAPH AND A QUADRUPOLE MASS SPECTROMETER

Osamu Tsukakoshi, Tokyo, and Masashi Kiriya, Yokohama, both of Japan, assignors to Ulvac Corporation, Chigasaki-shi, Kanagawa-ken, Japan
Filed May 4, 1972, Ser. No. 250,372
Claims priority, application Japan, June 21, 1971, 46-43975
Int. Cl. H01j 39/34

U.S. Cl. 250-290

10 Claims



A system for measuring and recording a gas chromatogram and a mass spectrum by a direct combination of a gas chromatograph and a quadrupole mass spectrometer in which the quadrupole mass spectrometer is used as the detector for the gas chromatograph. The two pairs of poles of the quadrupole mass spectrometer are supplied with predetermined radio-frequency voltages of suitable value and appropriate D.C. voltages for improved chromatograms and mass spectra.

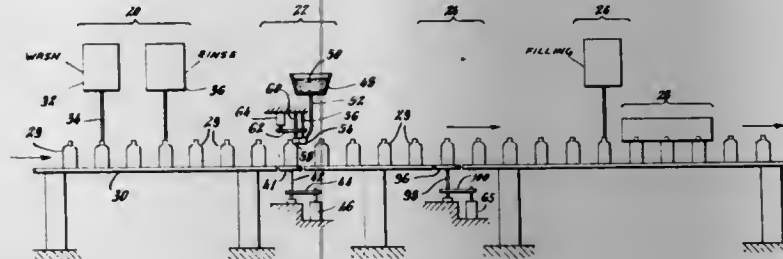
3,829,690

METHOD AND APPARATUS FOR THE EXAMINATION OF ARTICLES FOR DEFECTS

Ellery P. Snyder, Green Hill Rd., Norwalk, Conn. 06855
Filed Aug. 29, 1973, Ser. No. 392,724
Int. Cl. G01n 21/16

U.S. Cl. 250-302

23 Claims



A method for examining the upper part of a glass vessel for defects comprises the steps of applying a fluorescent material to selected surfaces of the upper part of the vessel while inhibiting the introduction of the fluorescent material into voids or defects existing in coated surfaces, irradiating the coated surface with light having a frequency for exciting the fluorescent material, scanning the surface for discontinuities occurring in fluorescent radiation which corresponds to defects in the vessel, and providing an indication of the existence of such a discontinuity. The selected surfaces, in particular, comprise helically formed threads and the top surfaces of screw top beverage bottle. An apparatus in accordance with the invention is provided for effecting the examination of a glass vessel.

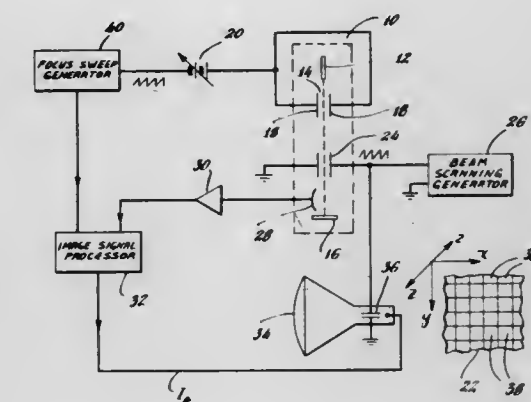
3,829,691

IMAGE SIGNAL ENHANCEMENT SYSTEM FOR A SCANNING ELECTRON MICROSCOPE

Robert E. Hufnagel, Ridgefield, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed Sept. 22, 1969, Ser. No. 859,867
Int. Cl. H01j 37/26; G01n 23/00

U.S. Cl. 250-311

1 Claim



The invention pertains to a method and apparatus for reducing the effect of aberrations in an optical or electron-optical system. This is done by varying the focal point over a range and altering the reproduced images to produce a composite image substantially free of the said aberrations.

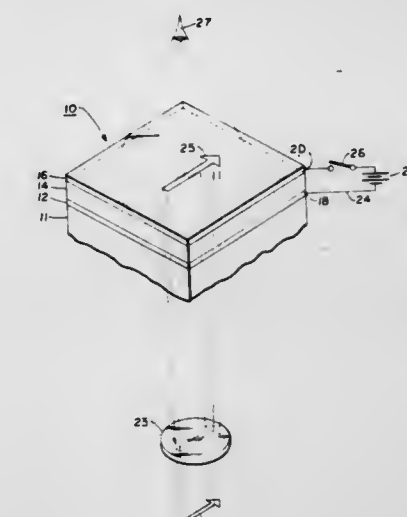
3,829,692

IMAGE CONVERSION AND AMPLIFYING DEVICE

Dmetro Andrychuk, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 631,513, April 17, 1967, abandoned.
This application Apr. 13, 1970, Ser. No. 18,225
Int. Cl. G01j 3/02

U.S. Cl. 250-330

8 Claims



An image forming device comprising a layer of thermochromic material disposed between two electrically conductive layers, one of which is transparent, with a voltage source connected across the two conductive layers. The potential of the voltage source is selected so that when an image carried by a heat producing energy is focused onto the thermochromic material, the excess heat thresholds the thermochromic material to change its color, and the negative resistance of the thermochromic material results in a current flow which tends to amplify and hold the image by increasing and maintaining the temperature above the critical temperature.

3,829,693

DUAL FIELD OF VIEW INTRUSION DETECTOR

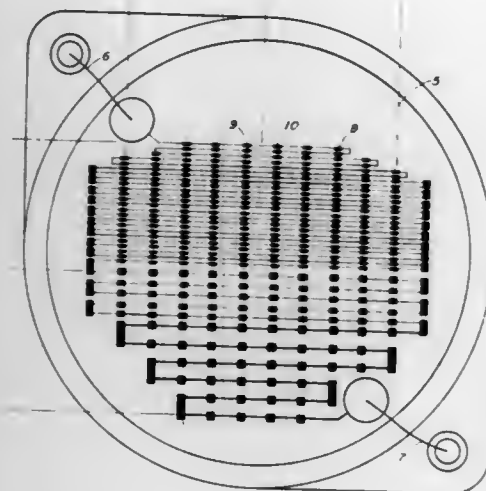
Frank Schwarz, Stamford, Conn., assignor to Barnes Engineering Company, Stamford, Conn.

Filed Oct. 3, 1973, Ser. No. 403,228

Int. Cl. G01j 5/12

U.S. Cl. 250-338

10 Claims



An intrusion detector for detecting movement of bodies radiating in the infrared in a space to be monitored is a combination of an infrared detector such as a thermopile, thermistor, or pyroelectric detector in which a series of all-active thermocouple junctions or pyroelectric detectors connected in opposition is arranged in alignment so that columns of junctions are of alternating polarity, so that an object moving in the space and radiating in the infrared, the image of which moves across the columns, will produce an AC signal which is then amplified and processed electronically to produce an alarm. The electronic circuits, including logic, are well known, and their particular design forms no part of the present invention. Instead of having a single optical system, such as, for example, a germanium lens, imaging the body on the plane of the detector, there are two optical systems, preferably on different focal lengths, one of which images on the front of the detector and the other on the back. The imaging on the back may be reflective, so that intensified images are produced, or it may employ a refracting element for imaging on the back of the detector. In the former case, sensitivity is greatly increased, for example, doubled, and in the second case, which can be used for a detector in long, narrow spaces such as corridors, the sensor can be placed in the middle and will respond to moving bodies on either side of the detector. If it is desired to have a denser coverage of image so that to some extent the spaces between the columns are filled in, in this case the optics is adjusted so that a slightly different field of view is imaged on the back of the detector. This means that a moving object would have to be much smaller or move a lesser distance in order not to strike columns. The sensitivity of course is not increased in such a case.

3,829,694

AN APPARATUS FOR DETECTING GASES OR CORPUSCLES BY LIGHT ABSORPTION AND SCATTERING

Kenya Goto, Yokohama, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Mar. 30, 1973, Ser. No. 346,451

Claims priority, application Japan, Mar. 31, 1972, 47-32189

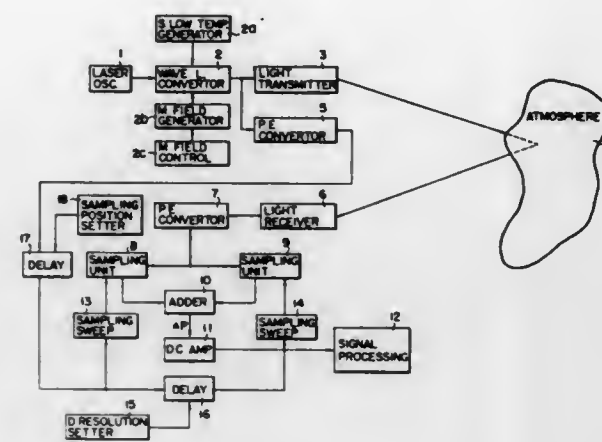
Int. Cl. G03b 27/62; G01t 1/00

U.S. Cl. 250-339

1 Claim

Apparatus for detecting gases or corpuscles is provided with means for transmitting pulse light which is to be absorbed

resonantly by gases or corpuscles; means for obtaining an output signal according to the amount of Mie scattering beams of said transmitting pulse light from said gases or corpuscles; and



means for detecting from said output signal the amount of resonance absorption involved during a predetermined time period after the transmission of said pulse light.

3,829,695

ROD GUIDE ASSEMBLY FOR CONTINUOUS ROD MAKING MACHINES

Gordon Francis Wellington Powell, London, England, assignor to Molins Limited, London, England

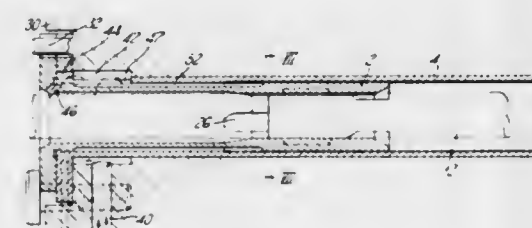
Filed Aug. 24, 1972, Ser. No. 283,297

Claims priority, application Great Britain, Aug. 26, 1971, 40166/71; Aug. 26, 1971, 04167/71; Aug. 26, 1971, 40168/71

Int. Cl. G01t 1/16

U.S. Cl. 250-358

12 Claims



A cigarette making machine has a scanning system for monitoring the weight of the cigarette rod, which is guided in the scanning region by means of a rod guide member formed with windows through which passes the radiation beam used for scanning. Air is blown inwards through the windows to blow out tobacco or other particles which may be caught between the rod and the rod guide member. The rod guide member is removable so that different guide members can be used on cigarettes of various diameters.

3,829,696

ATMOSPHERIC NO MONITOR

Milton Birnbaum, Palos Verdes Peninsula, Calif., assignor to The Aerospace Corporation, Los Angeles, Calif.

Filed Apr. 26, 1973, Ser. No. 354,471

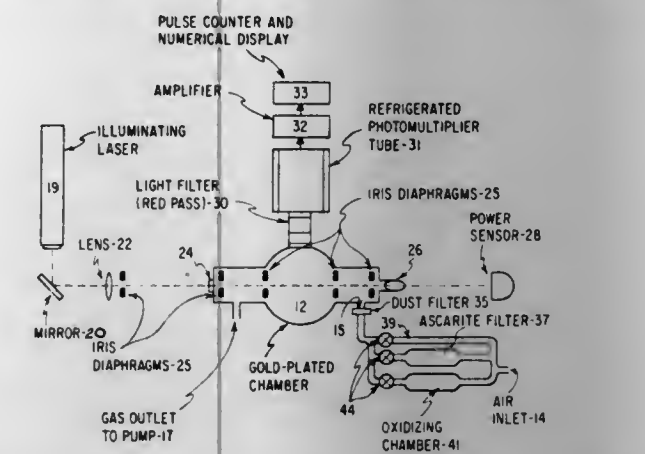
Int. Cl. G01t 1/20

U.S. Cl. 250-365

2 Claims

Method and apparatus for the continuous, real-time measurement of the nitrogen dioxide (NO_2) content of a gaseous atmosphere. A flowing or non-confined atmospheric sample is subjected to energizing radiation in the broad NO_2 absorption spectrum, preferably between about 400 and 600 nm., with sufficient energy to excite the NO_2 to its fluorescent state. A detector measures the fluorescence in the red band (about 620 nm. to 800 nm.) with lower wavelength radiation, includ-

ing the exciting radiation, being filtered from the detector. The detector output count provides a direct indication of the



NO_2 constituent with an accuracy of 1 part per hundred million or better.

3,829,697

INCREMENTALLY-ADJUSTABLE REGULATOR FOR NUCLEAR PULSE GENERATOR

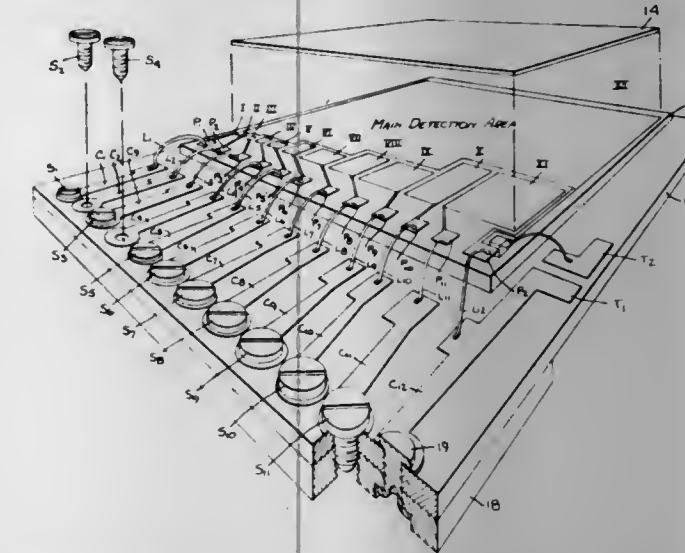
Dale R. Koehler, Westwood, N.J., assignor to Bulova Watch Company, Inc., New York, N.Y.

Filed May 18, 1972, Ser. No. 254,476

Int. Cl. G01t 1/15

U.S. Cl. 250-370

10 Claims



A nuclear pulse generator constituted by a source of radioactive material and a solid-state detector for sensing particles emitted by the source to produce corresponding output pulses. In order to regulate the count rate of pulses yielded by the generator, a section of the active detector surface is divided into a series of physically and electrically separated segments, each of which is connected to a common output terminal through a respective switch. By selective electrical connection of the detection segments, one can dictate whether or not the segments are counting. The ratio of the segment areas to each other is a binary number. The area of the smallest segment in the binary series to the total detection area is the desired resolution of the system, whereas the ratio of the sum of the segment areas to the total detection area corresponds to the range of regulation.

3,829,698

X-RAY APPARATUS WITH IMPROVED FILM CASSETTE CLAMPING AND SIZE SENSING MEANS

Jerry E. Goetz, Shaker Heights, Ohio, assignor to Picker Corporation, Cleveland, Ohio

Filed Dec. 26, 1972, Ser. No. 318,414

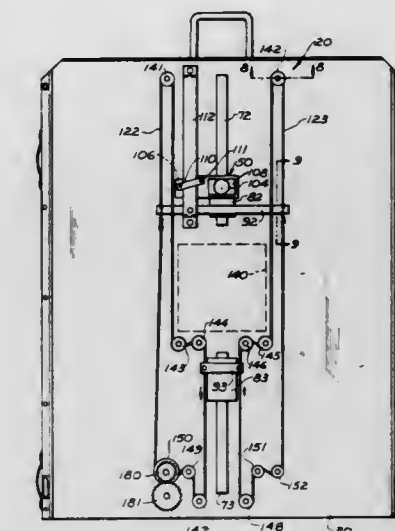
Int. Cl. G03b 41/16

U.S. Cl. 250-468

21 Claims

A pair of clamps interconnected by a pulley and cable system including substantially inextensible cables clamp op-

posite side regions of an X-ray film cassette. A locking mechanism serves to prevent retractive movement of the clamps and to urge them firmly into engagement with the film cassette to hold it in alignment with an X-ray beam axis. The cables have spaced parallel reaches defining an unobstructed



3,829,699

HOLDER FOR X-RAY CASSETTES

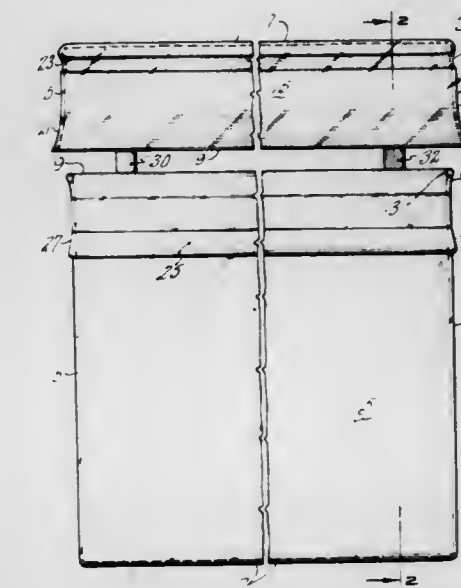
William E. Anspach, Jr., 3896 Burns Rd., North Palm Beach, Fla. 33403

Filed Nov. 15, 1972, Ser. No. 306,562

Int. Cl. H05g 1/00

U.S. Cl. 250-475

9 Claims



A holder, capable of being sterilized, for X-ray cassettes comprises a container having an open flared top. A cap for said container has an open bottom with an outwardly extending flare to facilitate entry of the flare on said container. Said cap has an indentation located therearound near its top so it can be snapped over the flared open end of said container. A seal member is located around said container to mate with the inner side of the flared portion of said cap. The cap is attached to the container by hinge straps. Said container and cap material is semi-rigid (non-collapsible) and also transparent and capable of permitting the passage of X-rays.

3,829,700

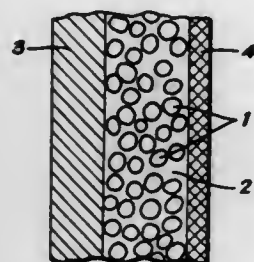
RARE EARTH PHOSPHORS FOR X-RAY CONVERSION SCREENS

Robert A. Buchanan, 4022 Ben Lomond, Palo Alto, Calif. 94306; Melvin Tecotzky, 27 N. Linden Ln., Mendham, N.J. 07945, and Kenneth A. Wickersheim, 3893 Middlefield Rd., Palo Alto, Calif. 94303

Continuation of Ser. No. 110,442, Jan. 28, 1971, Pat. No. 3,725,704. This application Nov. 24, 1972, Ser. No. 309,496
Int. Cl. H01j 1/62

U.S. Cl. 250—483

9 Claims



This invention relates to phosphor screens for converting x-rays to visible or near visible radiation and phosphor materials used in such screens. More particularly, the x-ray conversion screens are of the type used, for example, in fluoroscopy, film intensifiers and x-ray image intensifier tubes and the phosphor materials are oxysulfides of lanthanum, gadolinium or lutetium activated with trivalent terbium.

3,829,701

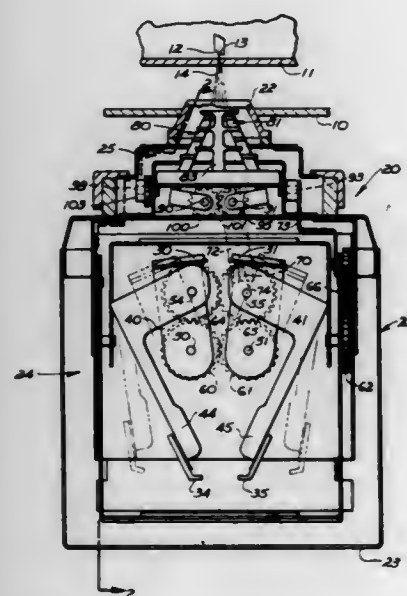
RADIATION COLLIMATOR

Michael Hura, Wickliffe, Ohio, assignor to Picker Corporation, Cleveland, Ohio

Filed Jan. 29, 1973, Ser. No. 327,644
Int. Cl. G03b 41/16

U.S. Cl. 250—511

25 Claims



A radiation collimator including opposed pairs of movable off-focus radiation diaphragms comprising interleaved arrays of plates supported centrally on stems. The stems of each opposed pair of diaphragms are pivotally supported and coupled together for concurrent movement toward and away from each other. Each opposed pair of off-focus diaphragms is interconnected to corresponding on focus diaphragms movably mounted for rectangularly delineating the perimeter of the primary beam. The off-focus diaphragms extend to within very close proximity of the radiation source to block off-focus radiation.

3,829,702

METHOD AND ARRANGEMENT FOR CHECKING THE ALIGNMENT OF A PAPER SHEET IN PAPER SHEET FEED APPARATUS

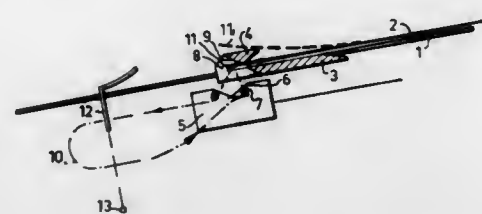
Algot Ingemar Eriksson, Solna, Sweden, assignor to AB Printing Equipment, Sollentuna, Sweden

Filed Sept. 27, 1972, Ser. No. 292,720

Claims priority, application Sweden, Oct. 5, 1971, 12595/71
Int. Cl. H01j 5/16

U.S. Cl. 250—571

6 Claims



A method and an arrangement for controlling the alignment of paper sheets in a feed apparatus for printing presses or the like with a photocell arranged on the underside of a sheet retarding hook with a hole therethrough whereby the signal from the photocell is produced when the paper sheet occupies its correct position in the sheet retarding hook.

3,829,703

POWER SENSING AND SHUT-OFF APPARATUS

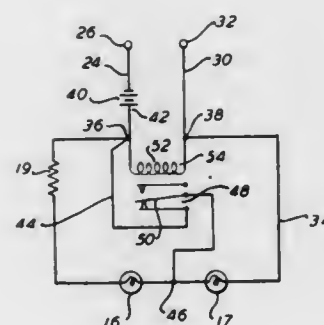
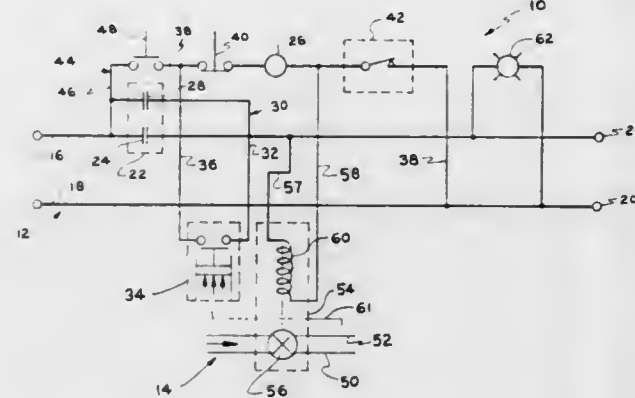
Wallace J. Wilkie, Ann Arbor, Mich., assignor to Sensorlok Corporation, Ann Arbor, Mich.

Filed Feb. 13, 1973, Ser. No. 332,074

Int. Cl. H02j 1/10

U.S. Cl. 307—18

10 Claims



Apparatus in a combination system utilizing electric and fluid power systems for driving equipment or machinery wherein all power systems are interrupted upon the failure or loss of any one power source. The apparatus will prevent the automatic re-activation of the driven equipment upon the reestablishment of power following a failure or loss of power. Shut-off of the multiple power systems can also be accomplished through a single switch either manually or automatically.

3,829,704

ELECTRIC-HYDRAULIC GOVERNOR FOR A HYDRAULIC TURBINE

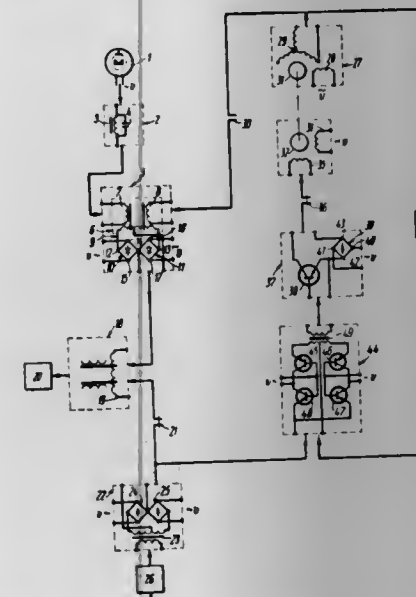
Veniamin Anatolievich Marbuh, ulitsa Tukhachevskogo 7, kv. 163; Veniamin Samuilovich Lychak, prospekt Metallistov 82, kv. 350, and Evgeny Andreevich Goncharov, Zanevsky prospekt 15, kv. 33, all of Leningrad, U.S.S.R.

Filed June 21, 1973, Ser. No. 372,418

Int. Cl. H02j 3/42

U.S. Cl. 307—87

1 Claim



In an electric-hydraulic governor for a hydraulic turbine there are electrically connected to the input of an amplifier an element for measuring the angular speed of the turbine-generator unit, a mechanism for varying the output frequency of the generator and an element for measuring the frequency in the associated mains. The said mechanism, with the turbine-generator unit idling, continuously follows up the deviation of the output frequency of the generator from the frequency of the mains and in every moment of time produces a signal representative of this deviation. The mechanism is controlled by an electric motor including a control winding connected to another amplifier. The input of this other amplifier is electrically connected with the output of the element for measuring the mains frequency and with the output of the said mechanism for varying the frequency of the output current of the generator. Following synchronization, upon connection of the turbine-generator unit to the mains, the element for measuring the mains frequency is disconnected from said second amplifier and the mechanism for varying the frequency of the output current of the generator is connected thereto.

3,829,705

CIRCUIT ARRANGEMENT FOR ESTABLISHING A CONSTANT POTENTIAL OF THE CHASSIS OF AN ELECTRICAL DEVICE WITH RELATION TO GROUND

Heinz Richter, Kronach, Germany, assignor to Loewe Opta GmbH, Kronach, Germany

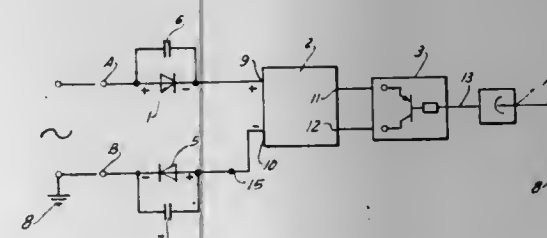
Filed May 24, 1973, Ser. No. 363,493

Claims priority, application Germany, May 25, 1972, 2225379

Int. Cl. H01h 35/00

U.S. Cl. 307—94

2 Claims



Circuit arrangement for establishing a reference potential of a chassis of an electrical device such as a radio and/or TV

receiver, such device being provided with at least one contactless touching switch operating under the AC voltage principle. The device is switched by touching a unipole touching field in a contactless manner so as to establish connection to a grounded network pole. The circuit arrangement includes in combination an electronic blocking switch and a unidirectional rectifier which separates such switch from the network during the blocking phase.

3,829,706

SWITCHING ARRANGEMENT FOR REMOTE CONTROLLED ELECTRICAL LOADS

Gunter Seip, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munchen, Germany

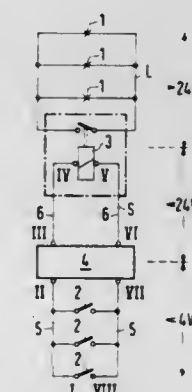
Filed Feb. 1, 1973, Ser. No. 328,673

Claims priority, application Germany, Feb. 5, 1972, 2205414; June 30, 1972, 2232170

Int. Cl. H01h 47/22

U.S. Cl. 307—147

19 Claims



An improved load control system for lighting fixtures and the like which allows the wires leading to the control switch, or command transmitter, and the transmitter itself to be extremely thin and thus to be cemented to the outside of a wall avoiding time consuming and costly behind the wall installation. The command transmitter operates at a voltage of less than four volts which is coupled over strip lines to a converter module which increases the voltage to in the order of 24 volts to operate line voltage switching apparatus. The converter and switching apparatus are built into a single unit which may be installed directly in a distribution box.

3,829,707

GAS INSULATED HIGH VOLTAGE ELECTRICAL TRANSMISSION LINE WITH MEANS FOR DAMPING TRANSIENTS

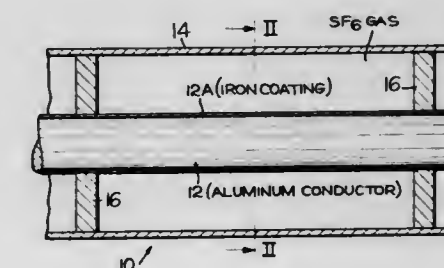
Herbert M. Pflanz, Westwood, Mass., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Feb. 9, 1973, Ser. No. 331,215

Int. Cl. H01b 7/30

U.S. Cl. 307—147

16 Claims



A gas insulated electrical transmission line, such as a high voltage transmission line insulated by SF₆ (sulphur hexafluoride) gas, in which the conductor member is enclosed in a grounded metal sheath filled with an insulating gas, and in which the transmission line conductor member is coated for at least part of its length with a thin coating or skin of a material,

such as iron, which has a low skin depth in the frequency range of the undesirable electrical transients which it is desired to damp or attenuate. For example, the skin of iron may typically have a radial thickness of 0.01 mm. The inner conductor member to which the coating is applied should be of a material such as aluminum or copper which is a good electrical conductor and which has a large skin depth at the normal power frequency far below the frequency range of the electrical transients which the outer skin is to damp or attenuate.

3,829,708

TRANSISTOR SWITCHING CIRCUIT ARRANGEMENT FOR AN INDUCTIVE D-C CIRCUIT

Hans Grunleitner, Nurnberg; Hans Kuhnlein, Grossgrundlach, and Manfred Liska, Nurnberg, all of Germany, assignors to Siemens Aktiengesellschaft, Munchen, Germany

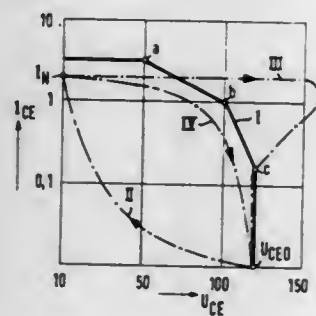
Filed July 12, 1972, Ser. No. 270,924

Claims priority, application Germany, July 17, 1971, 2135858

Int. Cl. H03k 17/00

U.S. Cl. 307-202

4 Claims



A transistor circuit arrangement for switching an inductive d-c circuit on and off is disclosed in which "secondary" breakdown of the transistor switch is prevented. The breakdown is caused by excess voltage at the transistor during the disconnecting of the inductive circuit. To prevent this, an integrating element, whose charging and discharging circuits are decoupled, is arranged between the collector and the base of a transistor. This permits the controlled charging of the integrator when the inductor is disconnected and an approximately constant voltage rise at the collector-emitter of the transistor.

3,829,709

SUPPLY REVERSAL PROTECTION CIRCUIT

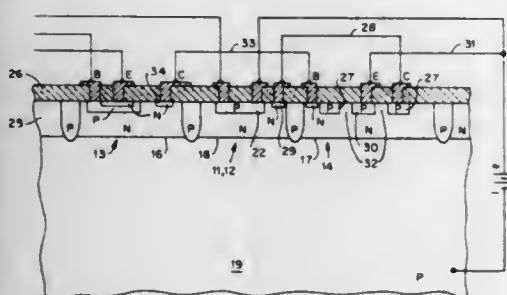
Robert Maigret, Warwick, and Geoffrey King, Coventry, R.I., assignors to Micro Components Corporation, Cranston, R.I.

Filed Aug. 31, 1973, Ser. No. 393,472

Int. Cl. H011 19/00

U.S. Cl. 307-202

5 Claims



A battery powered monolithic integrated circuit is described protected against accidental reversal of the battery in its holder. The protection is obtained by including a PNP lateral transistor in the circuit, connecting the emitter-base of the protection transistor in series with the collector of an NPN transistor, and connecting the protection transistor collector to the N pocket of a resistor included in the circuit.

3,829,710

LOGIC CIRCUIT ARRANGEMENT USING INSULATED GATE FIELD EFFECT TRANSISTORS

Masataka Hirasawa, and Kenji Kawagai, both of Yokohama, Japan, assignors to Tokyo Shibaura Electric Co. Ltd., Kawasaki-shi, Japan

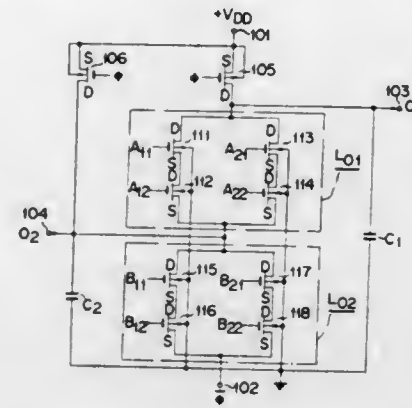
Filed Aug. 20, 1973, Ser. No. 389,535

Claims priority, application Japan, Aug. 30, 1972, 47-86892; Aug. 30, 1972, 47-86893; Aug. 30, 1972, 47-86894

Int. Cl. H03k 19/08, 19/36

U.S. Cl. 307-205

14 Claims



A logic circuit arrangement includes a first transistor having the source-drain conduction path connected between a first power source terminal and an output point and rendered conductive in response to a clock pulse applied to the gate electrode, and a plurality of second transistors, constituting at least one logic gate, each having the source-drain conduction path connected between the output point and a second power source terminal and the gate electrode supplied with a logic input. The arrangement is such that current is not concurrently flowed between the first power source terminal and the output point and between the output point and the second power source terminal. The source-drain conduction path of a third transistor is further connected between the first power source terminal and a junction of the adjacent two transistors in the logic gate and rendered conductive, during the conduction of the first transistor, in response to a clock signal applied to the gate electrode, so that a voltage of the output point indicates a predetermined level corresponding to a logic "1" or "0" irrespective of the difference of operation mode of each transistor.

3,829,711

SHIFT REGISTERS

Brian Crowle, Dorchester, Dorset, England, assignor to Integrated Photomatrix Limited, Dorchester, Dorset, England

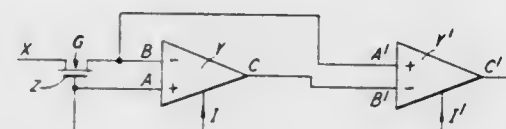
Filed Oct. 2, 1972, Ser. No. 294,182

Claims priority, application Great Britain, June 10, 1971, 46455/71

Int. Cl. G11c 11/40

U.S. Cl. 307-221 c

8 Claims



A shift register stage comprises first and second amplifying elements each constituted by first and second metal-oxide-semiconductor (MOS) transistors connected in series. In each amplifying element, the gate of the first transistor constitutes an inverting signal input, the gate of the second transistor constitutes a non-inverting signal input, a current carrying electrode of the second transistor constitutes a current input and the junction between the transistors constitutes an output. The inverting signal input of the first element serves as a data input and is connected to a gate means in the form of a further MOS transistor for controlling the application of a data signal to

said inverting signal input. The inverting signal input of the first element is connected to the non-inverting signal input of the second element and the output of the first element is connected to the inverting signal input of the second element whose output constitutes the output of the stage. In a shift register using a plurality of such stages, the output of each stage is connected to the gate means of the succeeding stage.

3,829,712

FREQUENCY DIVIDER CIRCUIT INCORPORATING PRESETTING MEANS

Tetsuro Hama, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

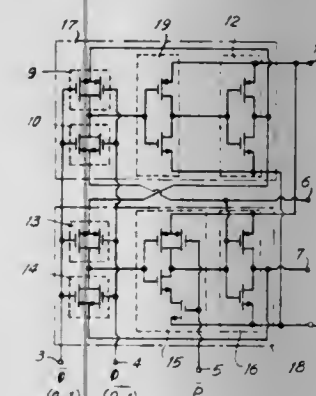
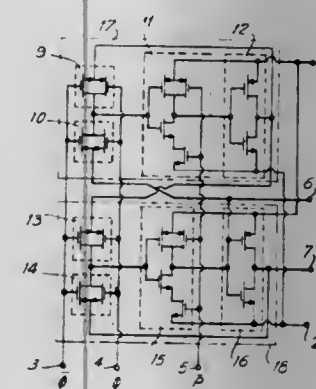
Filed Dec. 29, 1971, Ser. No. 215,959

Claims priority, application Japan, Dec. 30, 1970, 45-127219

Int. Cl. H03k 23/08

U.S. Cl. 307-225 C

8 Claims



A frequency divider circuit having master-slave type flip-flop binary circuits formed from complementary insulated gate field effect transistors. Presetting means incorporated in one of the master or slave flip-flop circuits, the clock signal for the flip-flop circuit not having said presetting means is adapted so that said flip-flop circuit is subordinate to the flip-flop circuit incorporating the presetting means during the presetting operation.

3,829,713

CMOS DIGITAL DIVISION NETWORK

Michael L. Canning, Saratoga, Calif., assignor to Intersil Incorporated, Cupertino, Calif.

Filed Feb. 12, 1973, Ser. No. 331,586

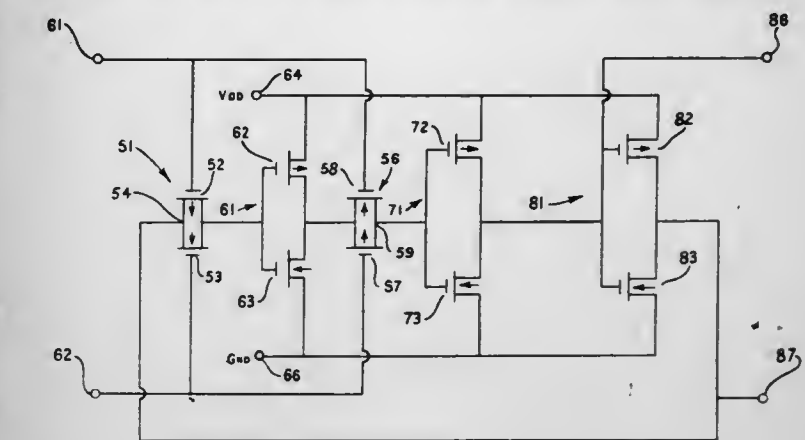
Int. Cl. H03k 23/22

U.S. Cl. 307-225 C

7 Claims

A CMOS dynamic division circuit employing only transmis-

sion gates and inverters minimizes the number of units required for any particular division, which then minimizes



nodal capacitance for limiting power consumption. The circuit is particularly adapted for electronic watch circuits.

3,829,714

FREQUENCY DIVIDING LOGIC STRUCTURE

Eric Andre Vittoz, Cernier, Switzerland, assignor to Centre Electronique Horloger S.A.

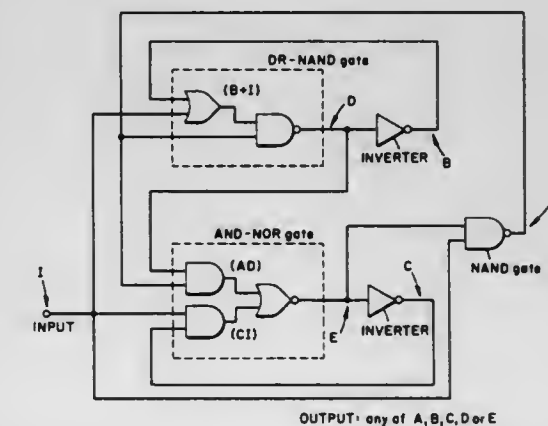
Filed June 6, 1972, Ser. No. 260,179

Claims priority, application Switzerland, June 7, 1971, 8248/71

Int. Cl. H03k 21/06

U.S. Cl. 307-225 C

3 Claims



A frequency dividing logic structure comprises five logic operators, provided by AND-NOR elements formed by nineteen complementary MOST, connecting an input variable I to five output variables A, B, C, D and E in accordance with the following logical equations:

$$\begin{aligned} A &= EI \\ B &= D \\ C &= E \\ D &= A(B+I) \\ E &= AD+CI, \end{aligned}$$

or with the corresponding dual equations.

3,829,715

NOISE REDUCTION SYSTEM

Robert Nestor Joseph Van Sluys, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed July 5, 1973, Ser. No. 376,362

Claims priority, application Netherlands, Feb. 8, 1973, 7301752

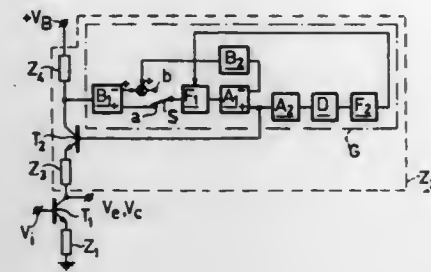
Int. Cl. H03k 1/14

U.S. Cl. 307-264

4 Claims

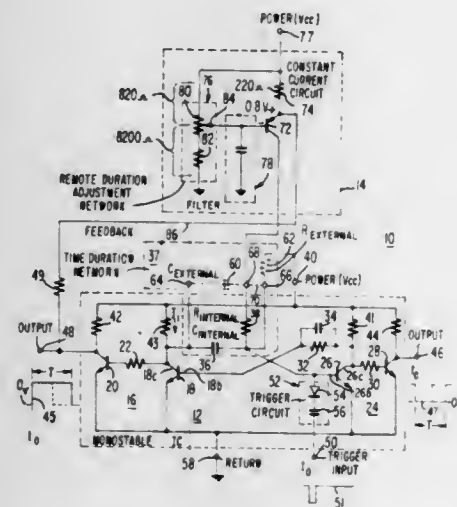
Signal transmission device for use in a noise reduction system. The device includes a circuit which comprises elements which are traversed by the same signal current, inter alia a first impedance, the main current path of a first transistor and a second impedance. The input signal is applied to the base, and the output signal is derived from the collector,

of this transistor. The second impedance is frequency-dependent and amplitude-dependent and comprises a transistor the main current path of which is traversed by the signal current and to the base of which a control signal derived from the signal current is applied via a network having a transfer function which is frequency-dependent and amplitude-dependent. A switching element is provided which in a first position en-



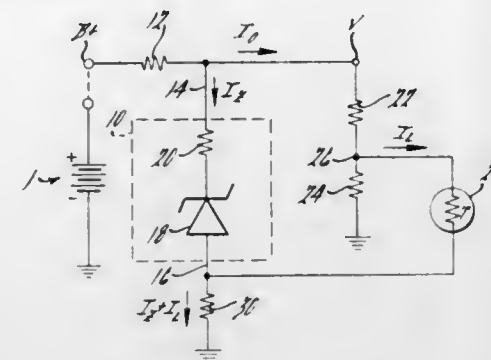
bles a control signal derived from the signal current to be directly supplied to the second transistor via the network, whilst in a second position negative feedback of the network is brought about via a negative-feedback element and additional inversion of the control signal. By means of the switching element two complementary transfer functions can be accomplished by this device.

3,829,716
WIDE RANGE MONOSTABLE MULTIVIBRATOR CIRCUIT HAVING A CONSTANT CURRENT SOURCE
Ronald Bruce Goyer, North Hollywood, Calif., assignor to RCA Corporation, New York, N.Y.
Filed Apr. 30, 1973, Ser. No. 355,445
Claims priority, application Great Britain, June 27, 1972, 30037/72
Int. Cl. H03k 3/26
U.S. Cl. 307—273



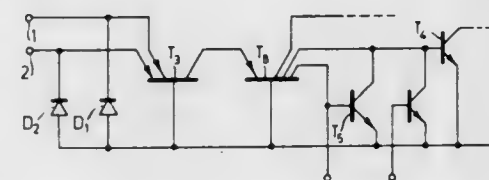
A monostable multivibrator integrated circuit producing an output pulses, whose time duration is normally determined by the combination of a timing resistor and a timing capacitor, is coupled to a constant current circuit which supplies constant current to the timing capacitor thereby considerably expanding the range of output time durations over that normally available. Additionally, the circuit provides for a remotely located time duration adjustment circuit which avoids the problems created by noise pick up on the line connecting the adjustment circuit to the monostable multivibrator circuit.

3,829,717
REFERENCE VOLTAGE COMPENSATION FOR ZENER DIODE REGULATION CIRCUIT
Clarence E. Harrison, Madison Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Jan. 29, 1973, Ser. No. 327,279
Int. Cl. H03k 1/14
U.S. Cl. 307—297
8 Claims



A circuit is disclosed for providing a constant regulated voltage to a load in conjunction with a first stage zener diode regulation circuit. The circuit compensates for regulated voltage variations incident to zener diode internal resistance by applying the zener diode regulation voltage to a voltage divider which goes to ground and using the voltage differential between the intermediate junction of the voltage divider resistances and the anode of the zener diode and by further communicating the anode of the zener diode to ground through an additional, compensating, resistance. The value of this resistance may be determined by multiplying the internal resistance of the zener diode by the ratio of the resistance of the voltage divider from the intermediate junction to ground divided by the resistance from the intermediate junction to the cathode of the zener diode.

3,829,718
INTEGRATED CIRCUIT COMPRISING SUPPLY POLARITY INDEPENDENT CURRENT INJECTOR
Cornelis Maria Hart, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 4, 1973, Ser. No. 320,964
Claims priority, application Netherlands, Jan. 8, 1972, 7200294
Int. Cl. H03k 3/26, 19/08
U.S. Cl. 307—304
10 Claims



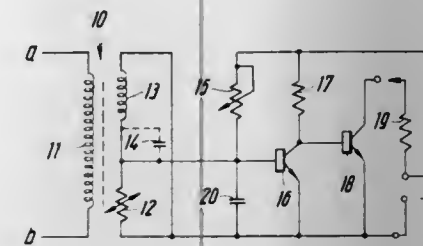
Integrated circuit suitable for any desired supply polarity by means of a rectifier bridge two rectifiers of which are designed as current injectors.

3,829,719
CONTACTLESS RELAY WITH A FIELD PLATE LOCATED IN THE MAGNETIC FIELD OF A CONTROL COIL
Horst Schweikart, Offenburg, Germany, assignor to GEHAP Gesellschaft für Handel und Patentverwertung mbH & Co. KG, Sasbachwalden über Achern, Germany
Filed July 24, 1972, Ser. No. 274,717
Claims priority, application Germany, July 23, 1971, 2136941; Mar. 25, 1972, 2214694
Int. Cl. H03k 17/00
U.S. Cl. 307—309
7 Claims

A contactless relay having a least one magnetic field dependent resistor or field plate located in the range of the magnetic

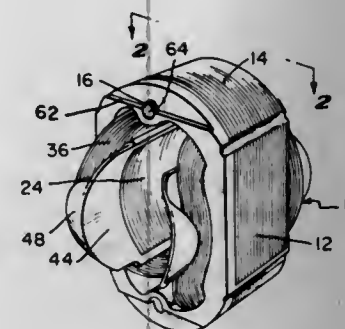
field of a control coil, and a control and stabilization winding disposed on the control coil and coupled to the magnetic re-

ing, wherein the baffle includes intentional flashing about its periphery forming an improved air seal with the housing insur-



sistor so that the contactless relay will operate reliably and repeatedly over a wide temperature and frequency range.

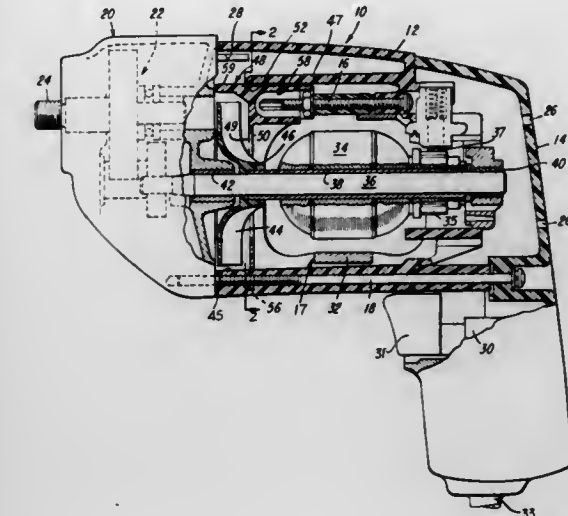
3,829,720
MOTOR STATOR
Roy L. Swanke, Newington, and Robert M. Leonard, West Simsbury, both of Conn., assignors to Dynamics Corporation of America, New York, N.Y.
Continuation of Ser. No. 52,827, July 7, 1970, abandoned, which is a continuation-in-part of Ser. No. 858,906, Aug. 14, 1969. This application Jan. 26, 1973, Ser. No. 326,578
Int. Cl. H02k 1/04
U.S. Cl. 310—43
8 Claims



A laminated motor stator for an electric motor is provided with plastic molded-in-place end shrouds and selected electrically insulated surfaces along with interconnecting structural elements holding the laminations of the stator together as a unit and providing selected electrically insulated surfaces and a smooth rounded support for the field coil windings with a calculated yield to reduce tension on the inner winding turns by the outer winding turns. A method of forming the unified and insulated stator is also disclosed in which winding tension on the field turns is reduced and the coils are supported and held firmly in place.

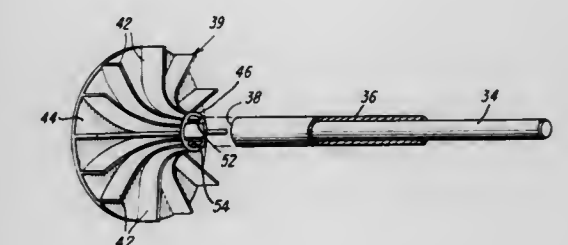
3,829,721
AIR FLOW BAFFLE CONSTRUCTION FOR ELECTRIC MOTOR DEVICES
Francis Joseph Rosenthal, Jr., Fork, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md.
Filed July 30, 1973, Ser. No. 383,704
Int. Cl. H02k 9/06
U.S. Cl. 310—47
4 Claims

A fan baffle in the housing of electrically-operated devices, such as power tools, for directing cooling air through the hous-



ing against the build-up of a conductive path from the field coil of the motor by ambient graphite carried in the cooling air.

3,829,722
FAN MOUNTING ASSEMBLY
Francis Joseph Rosenthal, Jr., Fork, and Dale Christian Grieb, Baltimore, both of Md., assignors to Black and Decker Manufacturing Company, Towson, Md.
Filed Aug. 9, 1973, Ser. No. 387,134
Int. Cl. H02k 9/06
U.S. Cl. 310—50
6 Claims

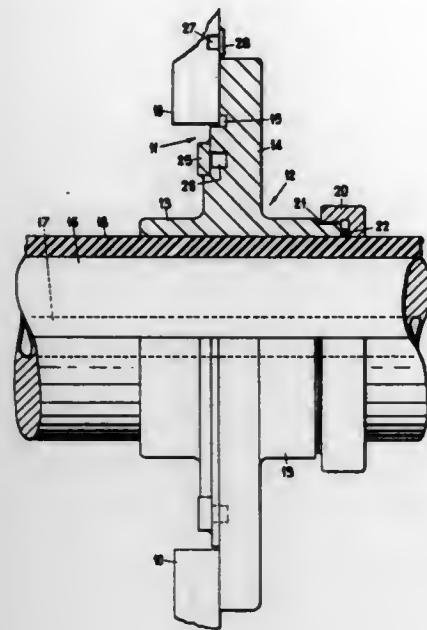


A portable electric tool including a housing having a motor disposed therein and provided with a rotatable armature shaft. A plastic fan for moving cooling air through the housing is secured and located on the armature shaft in a novel fashion which securely and accurately locates the fan on the shaft and minimizes stresses developed in the fan.

3,829,723
ALTERNATING CURRENT DYNAMO ELECTRIC MACHINES
Jeffery Gerald Heard, Stafford, England, assignor to The English Electric Company Limited, London, England
Filed Oct. 10, 1972, Ser. No. 296,101
Int. Cl. H02k 9/00, 9/20
U.S. Cl. 310—54
5 Claims

A dynamo electric machine, especially a large alternating current hydrogen-cooled generator, in which each winding terminal comprises an electrically insulated conductor

secured and located in an aperture in the machine housing by means of a metal fitting, includes at least one duct in good



thermally conductive relationship with the fitting for the passage of a fluid coolant for cooling the fitting.

3,829,724

IMPROVEMENTS IN OR RELATING TO AN ELECTRIC GENERATOR WITH ADJUSTABLE ECCENTRIC MEMBER FOR VARYING THE OUTPUT VOLTAGES

Michael Gilbert Sutton, and Michael Edward Gales, both of Peterborough, England, assignors to British Domestic Appliances Limited, Peterborough, England

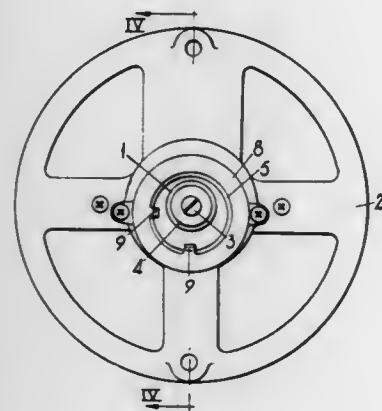
Filed Aug. 14, 1973, Ser. No. 388,200

Claims priority, application Great Britain, Aug. 16, 1972, 38147/72

Int. Cl. H02k 11/00

U.S. Cl. 310-67 R

10 Claims



A tachogenerator, for use for example, in motor speed control circuits, comprising a rotatable permanent magnet, a stationary coil spaced from the magnet, and an annular member of magnetic material disposed eccentrically with respect to the axis of rotation of the magnet and formed with at least one projection which extends into the space between the magnet and the coil for forming a path for magnetic flux coupling with the coil, the position of the projection being adjustable, for example by incremental angular movement of the annular member, so as to vary the output voltage from the coil for a given speed of rotation of the magnet.

RECTIFIER ASSEMBLY FOR BRUSHLESS EXCITATION SYSTEMS

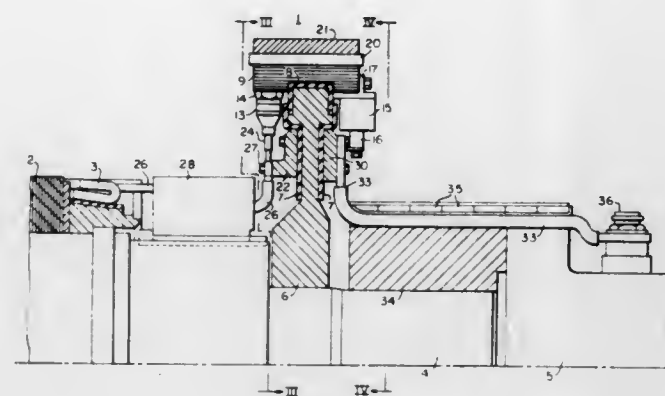
Sigrud R. Petersen, Irwin, and Josiah L. Young, Export, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 21, 1973, Ser. No. 334,327

Int. Cl. H02k 11/00

U.S. Cl. 310-68 D

6 Claims



In a brushless excitation system, a rotating rectifier assembly is provided in which the rectifier diodes and associated fuses are mounted on heat sinks which are supported about the periphery of a rotatable support wheel.

3,829,726

ELECTRICALLY DRIVEN BALL OR ROLL SCREW MECHANISM

Sven Walter Nilsson, Partille, Sweden, assignor to SKF Industrial Trading and Development Company B.V., Jutphaas, Netherlands

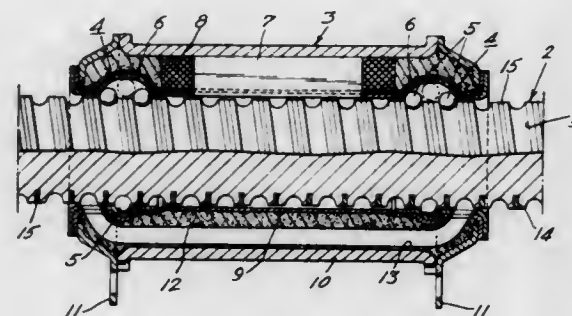
Filed Jan. 17, 1973, Ser. No. 324,442

Claims priority, application Sweden, Jan. 25, 1972, 793/72

Int. Cl. H02k 7/06; F16h 25/22

U.S. Cl. 310-83

10 Claims



An electrically driven screw mechanism comprising an elongated rotor member in the form of a spindle having helically shaped grooves and including rotor windings on the spindle between the helically shaped grooves, a plurality of rolling elements engageable in the grooves, a stator member of generally cylindrical shape circumscribing the rotor member including stator windings and pole cores mounted therein, bearing units adjacent opposite axial ends of the stator member including a pocket spanning at least two grooves in the rotor member and defining recirculation means of an endless path for a plurality of rolling elements.

3,829,727

CHARACTER GENERATION CATHODE-RAY TUBE USING TANTALUM TARGET

Akimitsu Aoyama, Osaka, Japan, assignor to Matsushita Electric Industrial Company Limited, Kadoma City, Osaka, Japan

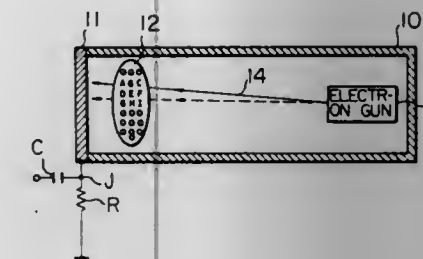
Filed June 19, 1972, Ser. No. 263,970

Claims priority, application Japan, June 18, 1971, 46-44332

Int. Cl. H01j 31/08, 31/58

U.S. Cl. 313-399

1 Claim



Herein disclosed is an improved character generation cathode-ray tube having a target made of tantalum and having a patterned tantalum oxide film formed on one surface thereof.

3,829,728

INLET SCREEN FOR AN ELECTRONIC OPTICAL IMAGE AMPLIFIER AND METHOD OF MAKING IT

Friedrich Gudden, Erlangen, and Wolfgang Schubert, Frauenaurach, both of Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

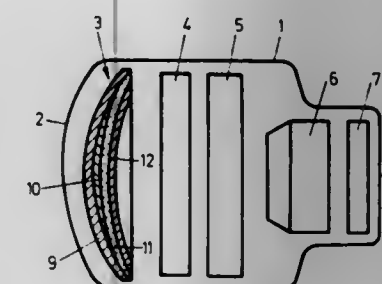
Filed July 6, 1972, Ser. No. 269,355

Claims priority, application Germany, July 8, 1971, 2134110

Int. Cl. H01j 31/50

U.S. Cl. 313-101

3 Claims



An inlet screen for an electronic optical image amplifier has a luminous layer placed upon a carrier which is followed by a photo cathode. The invention is particularly characterized in that the luminous layer is provided from the center to the edge with an absorbing substance in a manner counteracting the dropping brightness.

3,829,729

TUNGSTEN-HALOGEN LAMP

Arnold E. Westlund, Jr., Manchester; Lewis H. Palmer, III, Marblehead; Emery G. Audesse, Salem, all of Mass., and Leroy S. Huston, Derry, N.H., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed July 13, 1973, Ser. No. 378,975

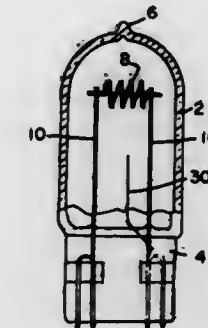
Int. Cl. H01k 1/38, 1/44

U.S. Cl. 313-174

10 Claims

A tungsten-halogen lamp having an aluminosilicate glass envelope with a wedge base. Lead-in wires of molybdenum are

secured through the base in a pinch seal and support an unstabilized tungsten coil filament by clamping. The lamp may in-



clude a getter in the form of a tantalum wire or strip which is also secured in the base pinch seal.

3,829,730

GETTER ASSEMBLY

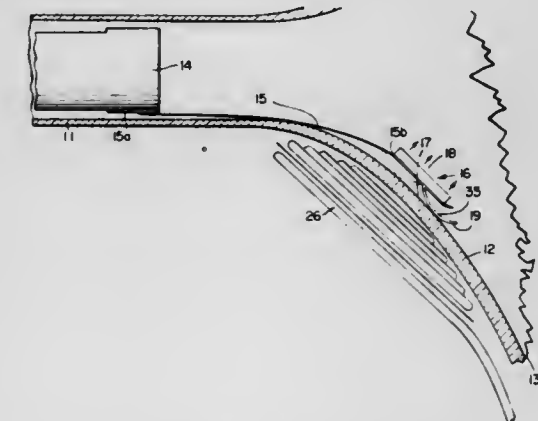
Clair W. Reash, Fairview Park, and Vincent Pietrasz, Cleveland, both of Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Filed June 12, 1973, Ser. No. 369,241

Int. Cl. H01j 19/20

U.S. Cl. 313-174

7 Claims



An improved getter assembly is provided for slideable insertion into a TV picture tube comprising a getter container, supported by an extended flexible spring-like support arm adapted to urge the getter assembly against the wall of the picture tube, the getter container having at least one side wall and a connecting floor member and a small cross section wire member depending downwardly from the floor member and having as a part thereof at least two laterally spaced apart curved base portions extending into said picture tube substantially parallel to the spring-like support member and for contacting the inner walls of the tube and supporting the getter container off the wall of the tube.

3,829,731

TUNGSTEN-BROMINE CYCLE LAMP

Germain Remi T'Jampens, and Gerrit Prakken, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

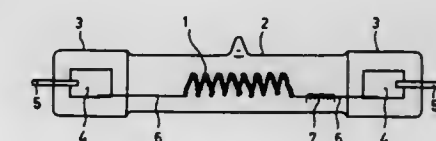
Filed Apr. 30, 1973, Ser. No. 355,907

Claims priority, application Netherlands, May 17, 1972, 7206616

Int. Cl. H01k 1/54

U.S. Cl. 313-174

2 Claims



A tungsten-bromine cycle lamp which comprises a metal chosen from the group formed by titanium, zirconium, hafni-

um, vanadium, niobium and tantalum as a material regulating the oxygen pressure.

3,829,732

GAS-DYNAMIC DISCHARGE LIGHT

Viktor Viktorovich Sysun, korpus 707 kv. 71; Jury Georgievich Basov, korpus 309 kv. 32, and Vladimir Ivanovich Roldugin, korpus 347 kv. 34, all of Moscow Zelenograd, U.S.S.R.

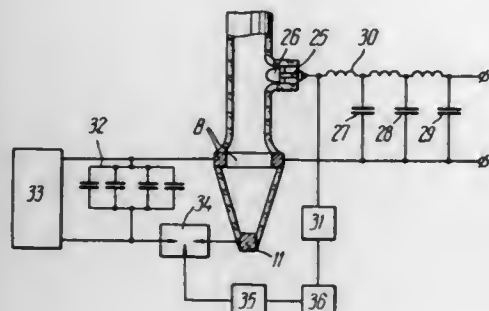
Filed Oct. 10, 1972, Ser. No. 296,155

Claims priority, application U.S.S.R., Oct. 11, 1971, 1704150

Int. Cl. H01j 61/54

U.S. Cl. 313—198

9 Claims



A gas-dynamic discharge light source comprising at least two discharge chambers made of a thermally stable dielectric material with light-reflecting properties, filled with a working medium, and linked together through the medium of an optically transparent tube, each discharge chamber having at one end a central electrode unit while positioned near the joint between each said discharge chamber and the optically transparent tube is an annular electrode unit coaxial with a respective central electrode unit; said optically transparent tube provided with a means for pre-ionization and transferring of at least part of the working medium therefrom into said discharge chambers through the electrode units; the working electrodes of said electrode units between which there flows working current initiating gas-discharge plasma and shock waves in said optically transparent tube are connected to control pulsed electric power storages.

3,829,733
SPARK GAP

Viktor Borisovich Belyaev, ulitsa, 4 kv. 19; Ekaterina Sergeevna Butrova, ulitsa Poletaeva 25, kv. 4; Yury Vladimirovich Kiselev, ulitsa Podgornaya 5, kv. 29, and Galina Tikhonovna Pozharskaya, ulitsa Tarolkovka Porharcaya 10, kv. 45, all of Ryazan, U.S.S.R.

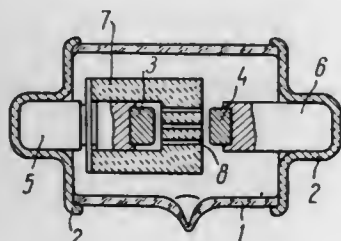
Continuation of Ser. No. 221,661, Jan. 28, 1972, abandoned.

This application Jan. 29, 1973, Ser. No. 327,860

Int. Cl. H01j 17/02

U.S. Cl. 313—205

2 Claims



A spark-gap device is disclosed which comprises an envelope forming a gas-filled space. The space accommodates electrodes; namely, a cathode and an anode. The inter-electrode space accommodates a bushing of dielectric material attached to one of the electrodes. The bushing is provided with at least one duct made in the body of the bushing so that the spark discharge occurring between the electrodes passes through the duct having a constant longitudinal section.

3,829,734

GLOW DISCHARGE DISPLAY DEVICE

John Michael Stuart Schofield, Salfords near Redhill, England, assignor to U.S. Philips Corporation, New York, N.Y.

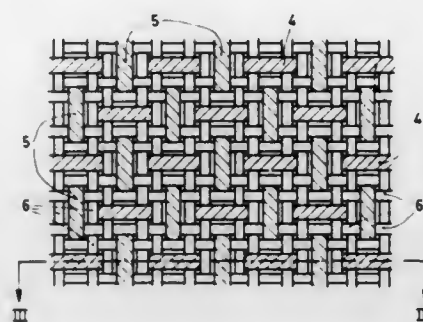
Filed Apr. 19, 1973, Ser. No. 352,582

Claims priority, application Great Britain, May 8, 1972, 21359/72

Int. Cl. H01j 1/02

U.S. Cl. 313—217

5 Claims



Electrical glow discharge display device comprising first and second sets of spaced elongate conductors. The conductors of the first set cross those of the second set to form a cross-bar addressing system for the resulting electrode pairs at the cross points of the conductors of the first set with those of the second. Said electrode pairs define an array of individually addressable glow-discharge paths through a gas atmosphere contained in the device. The conductors are supported in the desired configuration by means of fibres of electrically insulating material such as fibre glass with which they are interwoven. The fibres substantially completely surround each individual discharge path to separate it from the adjacent paths. The weave may be supported between a pair of plates, one of which is transparent, and which are sealed together around their edges to contain the discharge gas.

3,829,735

AIRFIELD LIGHTING CIRCUIT ARRANGEMENTS

Monty David Berlock, London, and Tadeusz Dobrowolski, Ilford, both of England, assignors to Plessey Handel Und Investments A.G., Zug, Switzerland

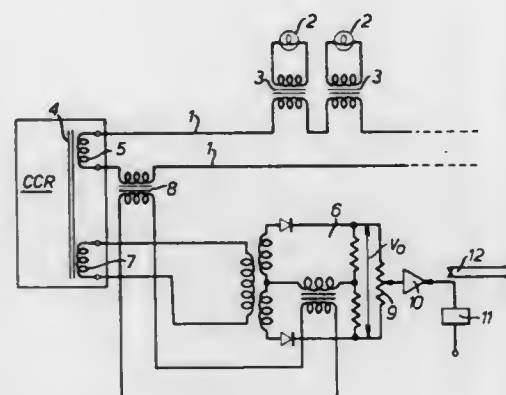
Filed Jan. 19, 1973, Ser. No. 324,943

Claims priority, application Great Britain, Jan. 28, 1972, 4012/72; Apr. 14, 1972, 17446/72

Int. Cl. H01j 7/42

U.S. Cl. 315—131

9 Claims



An airfield lighting circuit arrangement in which a plurality of lamp units are connected in the form of a loop circuit to which power supply means is connected, gating means being provided to which voltage waveforms corresponding to the loop current and the loop supply voltage are applied for affording an output signal which is indicative of the phase difference between said waveforms and therefore indicative of the number of lamp unit failures in the loop circuit.

3,829,736

REACTIVE ENERGY STATIC COMPENSATOR TO PROTECT THYRISTOR RECTIFIERS

Ananie Schirman, Brussels, Belgium, assignor to Ateliers de Constructions Electriques de Charleroi, Charleroi, Belgium

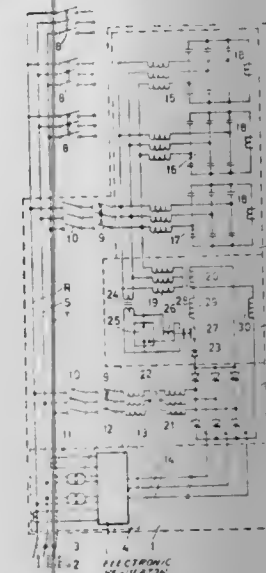
Filed Oct. 25, 1972, Ser. No. 300,705

Claims priority, application Belgium, Oct. 25, 1971, 3510

Int. Cl. H02h 7/00

U.S. Cl. 317—33 SC

10 Claims



Inductive circuit apparatus having an iron core comprising at least one first winding connected to a network and a second winding connected to an equipment designed for a predetermined nominal voltage or current. The apparatus is characterized in that a diode, of the freewheeling type, is connected between the terminals of the second winding in such a manner as to short-circuit such winding for the induced current in the second winding, and in that an interrupting device, connected in series with the diode, is closed in the absence of voltage across the terminals of the first winding and is operated to open the circuit of the diode after the dampening of a transient current induced by the energization of the first winding.

3,829,737

PIEZO-ELECTRIC LIGHTERS

Lars Bertil Johnsson, Jonkoping, Sweden, assignor to Societe Anonyme GENOUD & CIE, Venissieux (Rhône), France

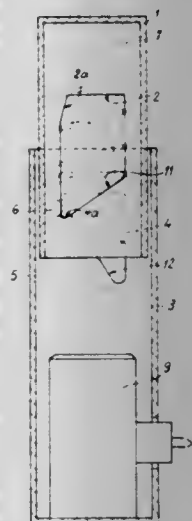
Filed July 18, 1973, Ser. No. 380,292

Claims priority, application France, July 28, 1972, 72.27950

Int. Cl. F23q 13/00, 3/01

U.S. Cl. 317—81

7 Claims



An upwardly open outer casing, containing a piezo-electric member, telescopically guides a downwardly open inner casing serving as an actuator for an ignition mechanism. The walls of the two casings are formed with partly registering slots terminating in oppositely sloping lower camming edges, the

outer slot being provided at the upper end of its camming edge with a notch normally receiving a lug on a cylindrical striker axially slidable in the two prismatic casings. Upon depression of the inner casing against the force of a spring bearing upon the striker, a beveled upper edge of the inner groove cams the lug out of the notch whereupon the spring drives the striker into collision with the piezo-electric member. Upon the subsequent release of the actuator constituted by the inner casing, the two lower camming edges coact to return the lug to its notch as the striker is restored by the spring to its normal position.

3,829,738

MICA CAPACITOR

Masuiichi Makihara, Tokyo, Japan, assignor to Shinnittoku Denki Kabushiki Kaisha, Tokyo, Japan

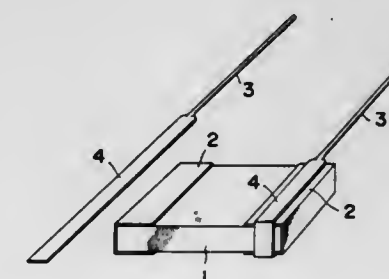
Filed Sept. 5, 1973, Ser. No. 394,588

Claims priority, application Japan, 48-44620

Int. Cl. H01g 1/14

U.S. Cl. 317—261

1 Claim



A mica capacitor having lead conductors having a strip-like end portion wound on the mica capacitor at each end thereof through a lead-out foil. With this construction, the thickness of the capacitor can be reduced without reducing the strength of attachment of the leads. Also, it is possible to reduce the manufacturing steps and eliminate failure of soldering.

3,829,739

IGNITION DEVICE FOR BURNER INSTALLATIONS

Niels Lervad Andersen, and Ejvind Hubschmann, both of Nordborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark

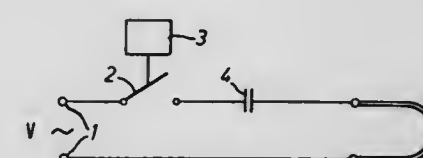
Filed Aug. 13, 1973, Ser. No. 387,673

Claims priority, application Germany, Sept. 1, 1972, 2243120

Int. Cl. F23q 7/10

U.S. Cl. 317—98

1 Claim



The invention relates to an oil burner ignition system of the type having an electrically heatable silicon carbide incandescent resistor. Aging of the resistor causes the resistance to increase with a resulting drop in the power input. A capacitor is used in series with the resistor to compensate for the increase in resistance of the resistor as it ages. It is also found that the capacitor causes the resistor to become incandescent more rapidly.

3,829,740

COOLING ARRANGEMENT FOR A DIRECT CURRENT POWER SUPPLY

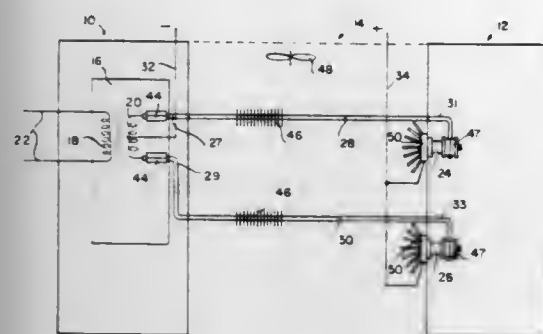
Jack O. Beasley, Indianapolis, Ind., assignor to The Buehler Corporation, Indianapolis, Ind.

Filed July 9, 1973, Ser. No. 377,529

Int. Cl. H05k 7/20

U.S. Cl. 317-100

26 Claims



Apparatus and method for dissipating the heat generated by the components of a power supply. The components can be isolated from one another in a plurality of sealed compartments. Each isolated component can be thermally connected to a heat pipe which is operative to transfer heat generated by the respective component out of its sealed compartment to a heat sink which is in communication with ambient air currents.

3,829,741

MOUNTING FOR PRINTED CIRCUIT BOARDS

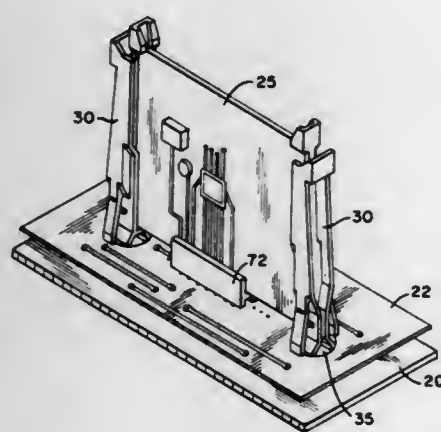
Stuart E. Athey, Troy, Ohio, assignor to The Hobart Manufacturing Company, Troy, Ohio

Filed Jan. 15, 1973, Ser. No. 323,538

Int. Cl. H02b 1/02

U.S. Cl. 317-101 DH

3 Claims



A mother printed circuit board is supported in spaced parallel relation to a metal base plate by a plurality of unitary plastic support stands. The stands have lower ends which are keyed onto the base plate, with integral locking fingers which extend outwardly above corresponding apertures formed in the mother board providing ease of assembly of the mother board onto the support base without the necessity for using fasteners or mounting screws. The same support stands are provided with vertically extending guides and locking arms for retaining a daughter board in perpendicular relation to the mother board again without the use of fasteners or mounting screws. In practice, a plurality of pairs of support stands may be used with a single mother board to permit insertion of a corresponding plurality of daughter boards.

3,829,742

VOLTAGE TRANSFORMER FOR A FULLY INSULATED METAL-CLAD, HIGH-VOLTAGE SWITCHING INSTALLATION

Willi Muller, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

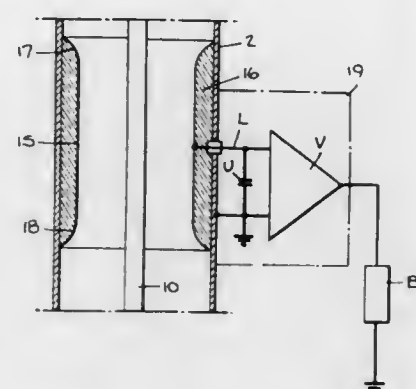
Filed Sept. 17, 1973, Ser. No. 397,922

Claims priority, application Germany, Sept. 15, 1972, 2245779

Int. Cl. H02b 1/18

U.S. Cl. 317-103

6 Claims



A voltage transformer is disclosed for a fully insulated metal-clad, high-voltage switching installation equipped with a metal outer tube surrounding a high-voltage conductor. The voltage transformer includes a pressure vessel mounted gas-tight to the outer tube of the switching installation. A metal rod-like extension is connected to the high-voltage conductor and is arranged in the pressure vessel. A laminar electrode is also arranged within the pressure vessel in surrounding relation to the rod-like extension to conjointly define therewith a high-voltage capacitor. A low-voltage capacitor is connected to the high-voltage capacitor so as to constitute therewith a capacitive voltage divider. An amplifier is connected to low-voltage capacitor and has an output connectable to a load.

3,829,743

VARIABLE CAPACITANCE DEVICE

Tadao Kohashi, Osaka, Japan, assignor to Matsushita Electric Industrial Company, Kadoma City, Osaka, Japan

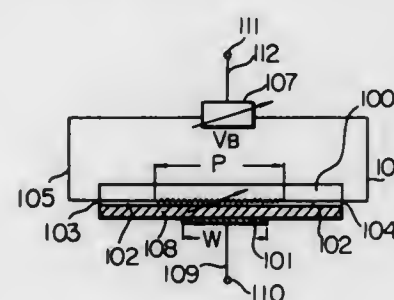
Division of Ser. No. 72,695, Sept. 16, 1970, abandoned. This application July 10, 1972, Ser. No. 270,171

Claims priority, application Japan, Sept. 18, 1969, 44-75637; Sept. 19, 1969, 44-76061; Sept. 22, 1969, 44-77179

Int. Cl. H011 1/14

U.S. Cl. 317-235 B

8 Claims



This specification discloses variable capacitance devices which vary their capacitances under the influence of DC bias voltages or radiations. One embodiment comprises a PN junction diode, a dielectric thin film deposited on the surface of said junction diode at which the junction terminates and a conducting electrode deposited on the dielectric thin film, in which the area of an equivalent plate electrode formed in said junction diode is varied by changing the thickness of a depletion region. In another embodiment, a nonlinear resistance layer deposited on the dielectric thin film is employed. As a DC voltage as applied to the nonlinear resistance layer is increased, the lateral conductivity of the nonlinear resistance layer increases and the area of the equivalent plate electrode

facing the conducting electrode is increased. A further embodiment employs a thin film transistor or a MIS transistor to vary the area of the equivalent plate electrode provided therein.

3,829,744

GAS FILLED MEASURING CONDENSER

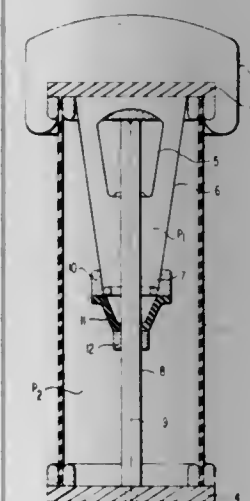
Friedrich Raupach, Wildensorger Strasse 9, Bamberg, Germany

Filed Mar. 23, 1973, Ser. No. 344,146

Claims priority, application Germany, Mar. 24, 1972, 2214288

U.S. Cl. 317-244

Int. Cl. H01g 5/02



A condenser, especially for measurement purposes, in which the high voltage electrode and the low voltage electrode are arranged on the inside of an insulating casing housing filled with a gas; the space between the high voltage electrode and the low voltage electrode or a space enclosed by an auxiliary electrode surrounding the high voltage and low voltage electrodes is closed off insulatingly gas-tight and the pressure of the gas in this space is higher than the pressure of the gas in the space formed between such electrodes and the insulating casing housing.

3,829,745

TECHNIQUES FOR MAINTAINING SUBSTANTIALLY CONSTANT TENSION IN WEB

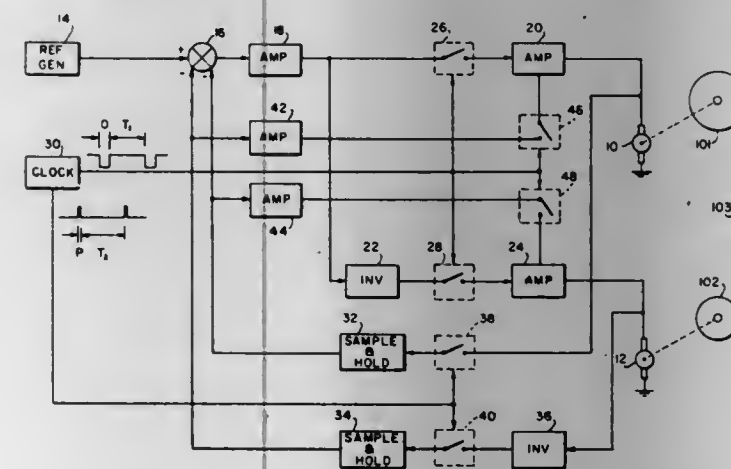
In W. Ha, San Jose, and John C. Fravel, Los Gatos, both of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Feb. 2, 1973, Ser. No. 329,054

Int. Cl. B65h 77/00

U.S. Cl. 318-7

12 Claims



A method of and apparatus for maintaining substantially constant tension in a web that is bi-directionally transported between first and second reels are disclosed in accordance with the teachings of the present invention. First and second motors are mechanically coupled to the first and second reels

to effect direct reel-to-reel drive whereby the web is transported therebetween. First and second currents proportional to the respective angular velocities of the first and second reels are derived and at least one of the first and second currents is applied to at least one of the motors as a reverse biasing current therefor to provide a reverse torque to the motor whereby the rotation of the motor is opposed.

3,829,746

LINEAR MOTOR WITH ELECTRO-MAGNETIC CONTROL

Trong Nguyen Van, 1 Allee du Dauphine 78170, La Celle St. Cloud, and Louis Joseph Fechant, 19 Rue Albert ler 78, Le Vesinet, both of France

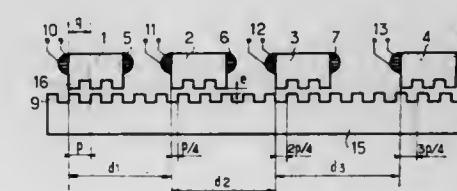
Filed Sept. 21, 1972, Ser. No. 290,860

Claims priority, application France, Sept. 28, 1971, 71.34794

U.S. Cl. 318-135

Int. Cl. H02k 41/02

3 Claims



Linear motor with electromagnetic control, characterized by the fact that it has a first rectilinear magnetic element having throughout the whole of its length uniformly distributed teeth opposite which there is a limited number of teeth belonging to other magnetic elements subjected to the action of a field created by a winding.

For use as a linear drive for textile machines, handling equipment and others.

3,829,747

CONTROL SYSTEM FOR SYNCHRONOUS MOTOR

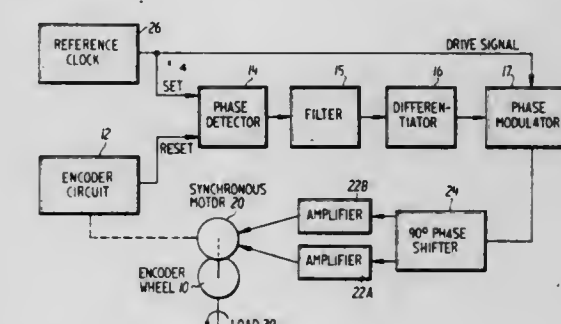
Martin G. Woolson, Baltimore, and Gilbert H. Frank, Columbia, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 22, 1973, Ser. No. 343,708

Int. Cl. H02p 7/36

U.S. Cl. 318-175

10 Claims



A synchronous motor control system achieves an increase in motor damping by electronic means. Additional circuitry is employed in the motor drive electronics to respond to disturbances in load torque occurring on the motor shaft and to introduce a selected amount of phase modulation to the motor drive signal for compensation. An encoder wheel attached to the motor shaft and encoder electronics derive a signal corresponding in frequency to the rotation of the motor shaft. A phase detector circuit continuously measures the phase difference between the motor drive signal frequency and the motor shaft encoded frequency. Through a process of filtering and differentiation, the time rate of change in phase difference is measured, and the resulting electrical voltage

3,829,755 SEQUENCER FOR A MULTIPLE SWITCHING REGULATOR

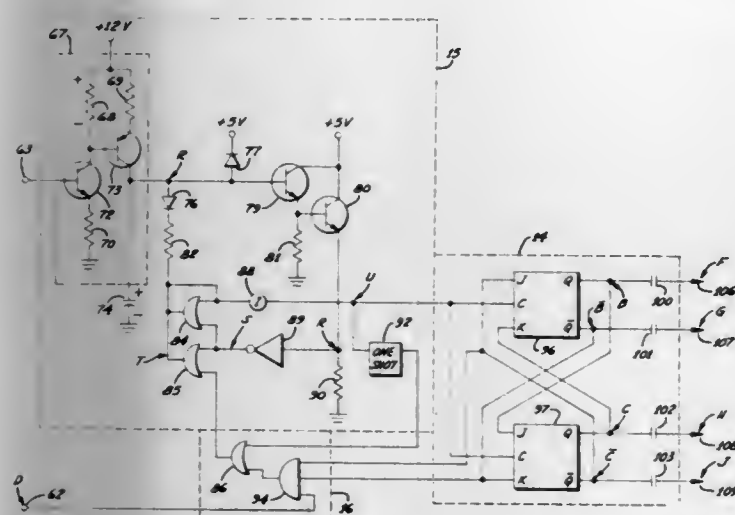
John R. Nowell, Phoenix, Ariz., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed Apr. 5, 1973, Ser. No. 348,571

Int. Cl. H02m 3/22

U.S. Cl. 321-2

8 Claims



The sequencer employs a variable current source, a Schmidt trigger circuit, a one-shot, a pair of master-slave flip-flops and logic gates to provide pulses for operating a multiple switching regulator. A logic gate disables the sequencer to prevent the generation of pulses while a portion of the switching regulator is delivering current to an output terminal and thereby prevents possible damage to the switching regulator.

3,829,756 POWER CONTROL APPARATUS FOR DIRECT- CURRENT LINES

Werner Hockstetter, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

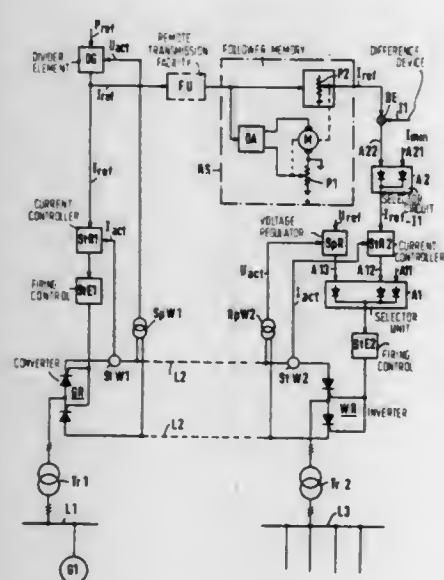
Filed Jan. 26, 1973, Ser. No. 326,772

Claims priority, application Germany, Jan. 29, 1972, 2204229

Int. Cl. H02m 1/18

U.S. Cl. 321-4

2 Claims



A power control apparatus for controlling the power transmitted over a direct-current line connected between alternating-current lines is disclosed. The direct-current line is con-

nected to the alternating-current lines by a converter and inverter respectively. The power control apparatus includes a converter firing unit connected to the converter, a converter current controller connected to the converter firing unit, and a power regulator connected to the converter current controller for supplying the same with a current reference value. An inverter firing unit is connected to the inverter and a voltage controller and an inverter current controller are provided for setting respective voltages on the direct-current line. One of these voltages is smaller than the other at a given time. A connection circuit connects the last-two mentioned controllers to the inverter firing unit so as to cause the controller corresponding to the one voltage to act upon the inverter firing unit at the given time. The inverter current controller has an input for receiving a current reference value smaller than the current reference value supplied to the converter current controller. The inverter current controller is configured to stabilize the current in the direct-current line to the current reference value supplied to the inverter current controller in a predetermined time interval. A remote transmission arrangement is connected between the power regulator and the inverter current controller for adjusting the current reference value supplied to the inverter current controller in response to a change in the power after the time interval has elapsed.

3,829,757 SYSTEM FOR CONTROLLING THE FREQUENCY OF AN ALTERNATING CURRENT CONVERTER IN RESPONSE TO LOAD CHANGES

Hermann Frank, Sulzbach/Taunus, and Rudolf Huber, Bobingen, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/am Main-Hoechst, Germany

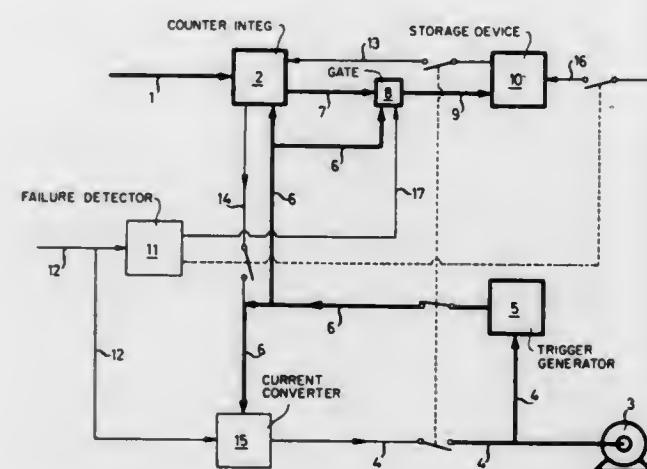
Continuation-in-part of Ser. No. 162,979, July 15, 1971. This application Jan. 31, 1973, Ser. No. 326,557

Claims priority, application Germany, July 18, 1970, 2035811

Int. Cl. H02m 7/00

U.S. Cl. 321-18

8 Claims



Alternating current having a selected frequency is produced by a converter to operate a synchronous motor at a desired speed. The frequency of the alternating current is determined by an accumulating circuit that supplies synchronizing impulses to the converter at a rate determined by the setting of the accumulating circuit and in response to a pilot signal. During failure of power to run the converter, a trigger generator responsive to voltage from the decelerating motor changes the control setting of the circuit so that, upon restoration of power, synchronizing pulses will be produced at a lower repetition rate, causing the frequency of alternating current from the converter to be commensurate with the reduced speed of the motor.

3,829,758 AC-DC GENERATING SYSTEM

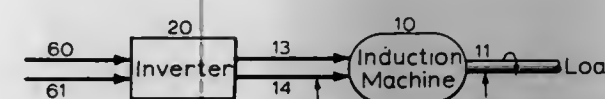
George H. Studtmann, Mount Prospect, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Feb. 2, 1972, Ser. No. 222,939

Int. Cl. H02p 9/00

U.S. Cl. 322-28

11 Claims



An induction machine driven as a generator has its output connections coupled to the output connections of a static inverter circuit, connected to operate not as an inverter but as a switching system. A capacitor is coupled to the bus conductors of the switching system. D-c excitation is furnished to the induction generator system only for starting, and is then disconnected. At rated speed the static inverter circuit operates as a switching system to regulate connection of the capacitor to the induction generator on a time-sharing basis, replacing the directly connected capacitor bank in known systems. In multi-phase systems the capacitor is not required, as the switching system periodically directs the flow of reactive energy from one phase to another of the inductive machine. By regulating the frequency of the switching operation the overall system can be made to generate effectively over a wide range of input speeds. An a-c output voltage is available from the common terminals between the induction generator and the switching system, and a d-c output voltage is also available from separate conductors of the switching system.

3,829,759 MEANS FOR GENERATING REACTIVE POWER

Kjeld Thorborg, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vastera, Sweden

Filed Jan. 18, 1973, Ser. No. 218,844

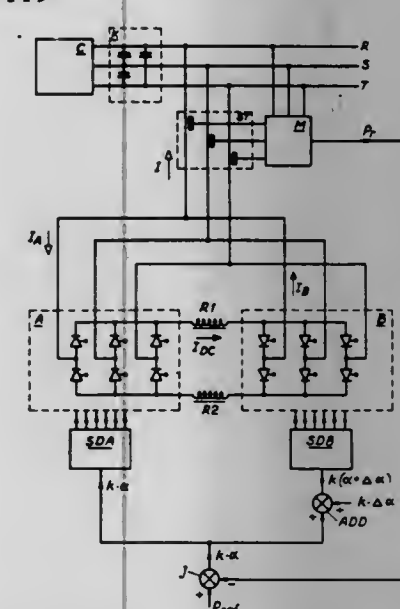
The portion of the term of this patent subsequent to June 19, 1990, has been

disclaimed.

Int. Cl. G05f

U.S. Cl. 323-119

9 Claims



An arrangement for generating reactive power includes first and second line-commutated converters, the AC terminals of which are connected to an alternating voltage network to which a capacitor bank is also connected. Two branchless connections connect the converters in anti-parallel relation on the DC side and constitute an unloaded DC intermediate line, each DC terminal of each converter being connected by a branchless reactor connection to a DC terminal of the other converter.

3,829,760 SPIN ECHO FREQUENCY HOPPING

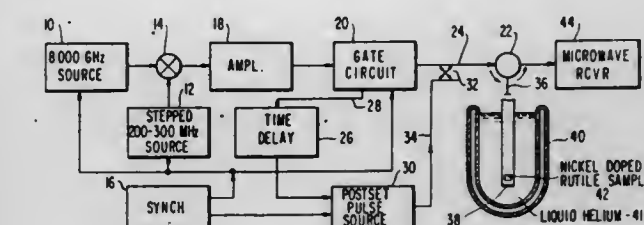
Donald A. Bozanic; Dickron Mergerian, both of Baltimore; Ronald W. Minarik, Lutherville, and Peter H. Pincoffs, West Severna Park, all of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 27, 1971, Ser. No. 173,491

Int. Cl. G01n 27/78

U.S. Cl. 324-.5 R

9 Claims



A means for decreasing the time between successive spin echo sequences for a zero field spin echo system utilizing a nickel doped rutile sample by incrementally stepping or frequency hopping the RF carrier of the stored pulse over a predetermined operating frequency band and coupling each sequence to the sample before a thermal equilibrium of the spin system is reached for the immediately preceding sequence. Thus a single spin echo sample having a relatively wide bandwidth is multiplexed or time shared for a plurality of RF carrier frequencies.

3,829,761 CELL DEVICE FOR MEASURING ELECTRIC CONDUCTIVITY OF LIQUIDS

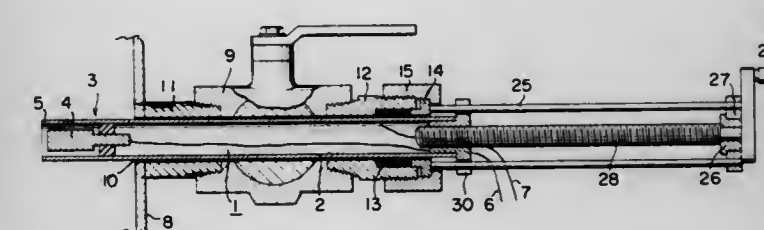
Tetuo Shimizu, and Akikazu Nishikawa, both of Tokyo, Japan, assignors to Denki Kagaku Keiki Co. Ltd., Tokyo, Japan

Filed Dec. 13, 1973, Ser. No. 314,525

Int. Cl. G01n 27/42

U.S. Cl. 324-30 B

3 Claims



Mounting means for demountably mounting a cell device for measuring electric conductivity of liquid to a liquid tank so as to insert a detecting cell fixed on one end of a supporter tube of the device into a liquid in the tank through a gate valve attached to an opening in the tank wall is disclosed in accordance with the teaching of this invention. Said means comprises parallel guide rails to be fixed demountably to the outer of the gate valve to extend outwardly, a screw rod supported on the outer end of the rails, and a nut fixed on the end of said supporter tube and driven along said rails by said screw rod.

A detecting cell of the cell device according to this invention, in which a cylindrical electrode and a central electrode are disposed concentrically and electrically insulated by a glass insulator sealed to said electrode by glass-to-metal sealing is also disclosed.

3,829,762

METHOD AND DEVICE FOR MAGNETOGRAPHIC INSPECTION

Friedrich M. O. Forster, Grathwohlstrasse 4, D-7410 Reutlingen, Germany

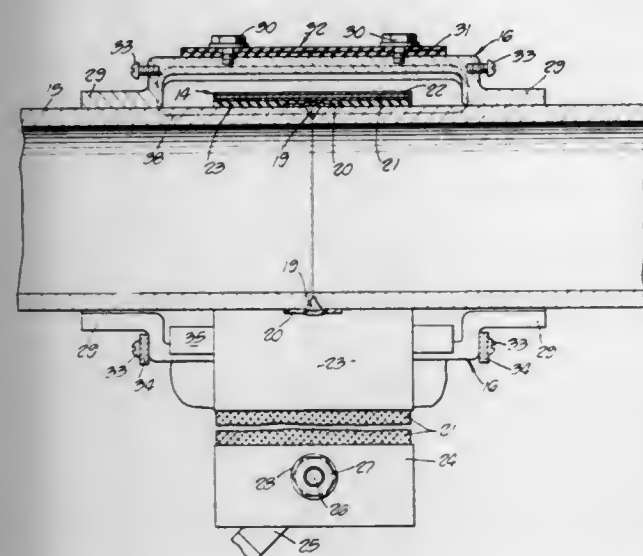
Filed Aug. 6, 1973, Ser. No. 385,999

Claims priority, application Germany, Aug. 8, 1972, 2239014

Int. Cl. G01r 33/12

U.S. Cl. 324—37

10 Claims



Clamps are received onto a pipe and include ferromagnetic portions which bridge the circumferential pipe regions being tested. A band shaped magnetizing coil is not moved during test so that radial forces do not have to be taken into consideration. Thus, extremely high magnetizing field intensities are permissible without adverse practical effect. The return of the magnetic flow over the clamps results in a magnetic circuit which is, for all practical purposes, closed. The ferromagnetic clamps collect the magnetic lines of force which would otherwise have closed over the air, and in this manner amplify the magnetic flux passing through the pipe. A storage tape is applied directly to the pipe, over which the magnetizing coil and clamps are arranged.

3,829,763

AUTOMOTIVE VOLTAGE AND CONTINUITY TESTER

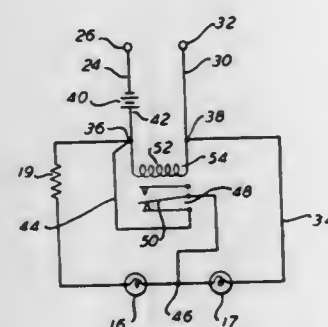
Philip J. Morin, 118 Market St., Fort Kent, Maine 04743

Filed May 4, 1973, Ser. No. 357,087

Int. Cl. G01r 31/02

U.S. Cl. 324—51

6 Claims



An automotive voltage and continuity testing apparatus. The test circuit of the apparatus includes an indicator branch having in series a pair of indicating lamps. One side of a battery is connected to a first terminal point of the indicating branch, and a first test lead is connected to the other side of the battery. A second test lead is connected to the second terminal point of the indicating branch, so that when the pair of test leads are connected to a common conductor for testing continuity, the battery potential is applied at the terminal points of the indicator branch. A switched shorting branch is connected between the first terminal point and a point

between the indicator lamps. The switch in said shorting branch is activated by an actuating branch connecting the terminal points. The switch is normally closed to short one of the indicating lamps and the battery potential is of such magnitude that the current through the switch actuating branch during continuity testing is insufficient to actuate the switch, whereby only one indicator lamp is lit if continuity is present. When a potential is electrically applied across the test leads, which potential in series with the battery provides a total potential exceeding a predetermined value, the current through the switch actuating branch opens the switch to electrically remove the shorting branch, permitting both of the indicator lamps to light. Such action thus permits automotive hot wires to be detected by contacting the hot wire with the second lead while the first lead is connected to a ground point on the auto chassis. A casing contains the test circuit and battery, with the test leads extending from the casing to enable the test functions. The indicating lamps, which may be LED's project through openings of the casing, as to be visible to an operator of the apparatus.

3,829,764

METHOD AND APPARATUS FOR MEASURING PHYSICAL AND/OR CHEMICAL PROPERTIES OF MATERIALS

Renato Guiseppe Bosio, 745 Louis Hebert, Longueuil, Quebec, Canada

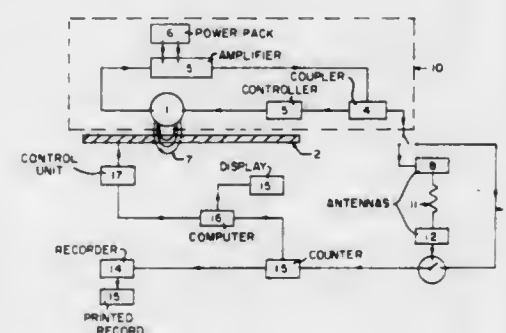
Filed Apr. 3, 1973, Ser. No. 347,418

Claims priority, application Great Britain, Apr. 5, 1972, 15597/72

Int. Cl. G01r 27/04

U.S. Cl. 324—58 R

28 Claims



A method and apparatus for measuring physical and/or chemical properties of materials such as dielectric constants, solid content, or the like without establishing any physical contact with the material. The method and the apparatus rely upon the generation of electromagnetic waves, presumably radio frequency waves in a fringing field which is directed toward the surface of the material to be tested. The electromagnetic waves are coupled through this material and a sensor in an oscillator circuit and this oscillator circuit generates an oscillating frequency proportional to the property of the material.

3,829,765

ELECTRONIC APPARATUS FOR DETECTION AND IDENTIFICATION OF ENERGIZED AND/OR NONENERGIZED ELECTRICAL CONDUCTORS

Lawrence L. Siler, 2175 S.W. 79th Ave., Portland, Oreg. 97225

Continuation of Ser. No. 121,273, March 5, 1971, abandoned.

This application Dec. 26, 1972, Ser. No. 318,283

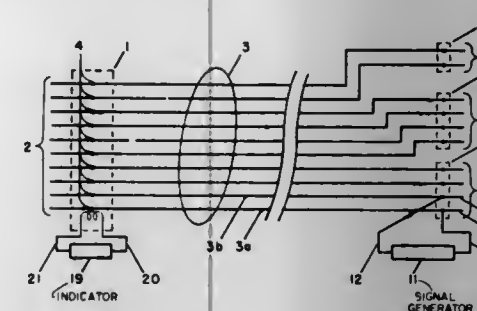
Int. Cl. G01r 19/16; G01r 31/02

U.S. Cl. 324—67

3 Claims

An electrical circuit locator means comprises signal generator means connectable to electrical lead means at one location

and indicator means electrically connectable to the electrical lead means at another location to indicate the correct electrical



cal lead means from among other adjacent electrical lead means.

3,829,766

ELECTROCARDIOGRAM MONITORING APPARATUS

Rudolf Herz, Denzlingen, Germany, assignor to Fritz Hellige, & Co., G.m.b.H., Breisgau, Germany

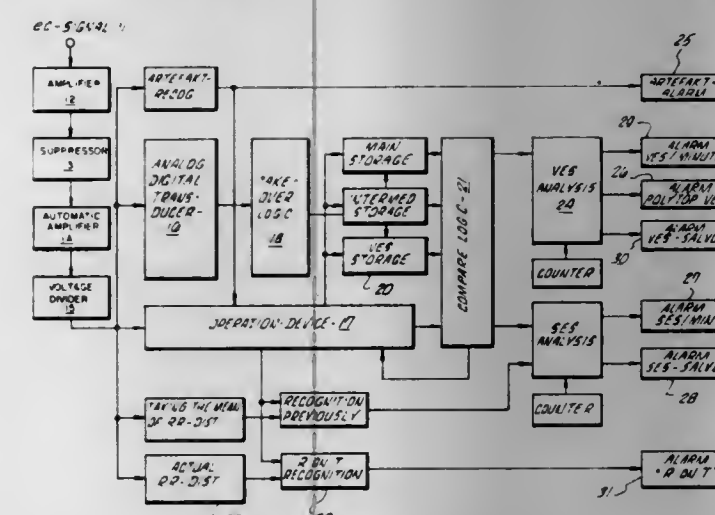
Filed Apr. 2, 1973, Ser. No. 346,913

Claims priority, application Germany, Apr. 11, 1972, 2217235

Int. Cl. G01r 23/16

U.S. Cl. 324—77 R

9 Claims



A monitoring apparatus is disclosed for automatically analyzing electrocardiograms in order to detect myocardial infarction. The apparatus for observing heart rhythm disturbances comprises a logic system which establishes a sequence of timed windows occurring during scanned heartbeat intervals. The logic system further electrically records and stores the windows in which electrocardiogram threshold levels occur over several regular heartbeat intervals to provide a normal, reference pattern. After which, the logic system electronically determines the window or windows in which the threshold levels occur in subsequent heartbeat cycles. A compare logic system is then provided to compare the determined window or windows with the normal, reference pattern. Finally, an alarm system is provided that is responsive to any variations or non-identities of the compared patterns.

3,829,767

RADIO COMMUNICATION SYSTEM FOR USE IN CONFINED SPACES AND THE LIKE

Paul Delogne, 42 Avenue Adrien Bayet, Brussels, Belgium

Continuation-in-part of Ser. No. 109,367, Jan. 25, 1971, abandoned. This application June 28, 1973, Ser. No. 374,654

Claims priority, application Belgium, Feb. 18, 1970, 85381; Aug. 3, 1972, 120619

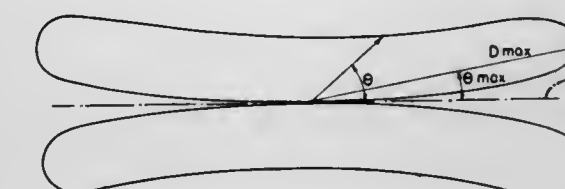
Int. Cl. H04b 1/00

U.S. Cl. 325—26

13 Claims

A radio communication for use within confined spaces including at least one coaxial-type cable in which electric signals

are propagated at a reduced attenuation, such signals being screened by the outer conductor of the cable, annular transverse gaps in the outer conductor forming interruptions used to facilitate passage of radiated electromagnetic waves and provide communication with mobile or possibly fixed radio transmitters and receivers not directly connected to the cable.



Low insertion loss of the gaps is achieved by impedance matching elements being positioned thereon. A rigid low-loss dielectric material casing may house the impedance matching elements and encompass the transverse gap. The casing may be longitudinally split and formed of detachable halves to permit access thereto so as to facilitate replacement and exchange of the impedance matching elements.

3,829,768

SUPERCONDUCTING GRADIOMETER FOR MEASURING FIRST AND SECOND DERIVATIVES OF A MAGNETIC FIELD

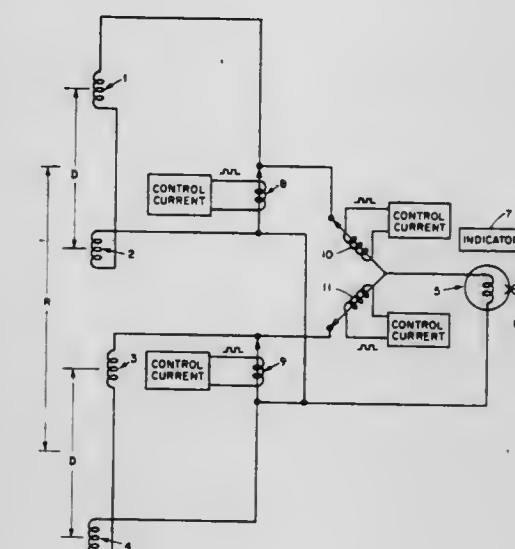
James Nicol, Dover, Mass.; Sidney Shapiro, Rochester, N.Y., and Martyn F. Roetter, Cambridge, Mass., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sept. 4, 1973, Ser. No. 394,430

Int. Cl. G01r 33/02

U.S. Cl. 324—43 R

9 Claims



The first and second derivatives of a magnetic field are measured by two pairs of spaced superconducting sensing coils which are aligned along a common axis with the individual coils of each pair connected in electrical opposition so that the net current flowing therethrough is proportional to the gradient of the magnetic field in which these pairs are disposed. Superconducting switches associated with these coils are selectively operated to direct these net currents through a superconducting field coil during mutually exclusive time intervals. The resultant magnetic field is measured by a magnetometer which provides an indication of the average value of the magnetic field gradient and the second derivative thereof.

3,829,769

FREQUENCY MEASURING APPARATUS

Hitoshi Ashida, Gyoda, Japan, assignor to Takeda Riken Industry Company Limited, Tokyo, Japan

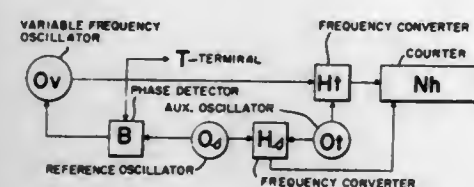
Filed Jan. 22, 1973, Ser. No. 325,582

Claims priority, application Japan, Jan. 22, 1972, 47-8073

Int. Cl. G01r 23/14

U.S. Cl. 324—79 D

4 Claims



This invention relates to a frequency measuring apparatus whereby a local oscillation frequency is determined by positively observing the higher harmonic number and the super-high frequencies ranging from several to several scores of gigahertz are precisely measured by using this higher harmonic number measuring apparatus.

3,829,770

DIRECTIONAL COUPLER FOR TRANSMISSION LINES

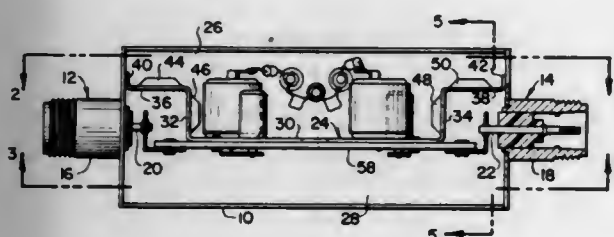
Harold E. Stevens, Lyndhurst, Ohio, assignor to Coaxial Dynamics, Inc., Cuyahoga, Ohio

Filed Oct. 26, 1971, Ser. No. 192,529

Int. Cl. G01r 21/04; H01p 5/14

U.S. Cl. 324—95

6 Claims



A directional coupler for detecting and measuring unidirectional wave signals propagated along a transmission line. The coupler includes an insulative board, having a first layer of conductive material secured to one of the faces of the insulative board and a second layer of conductive material secured to the other face of the insulative board to define a predetermined impedance with respect to a ground plane partition member. A coupling element comprising a third layer of conductive material is also secured to the other face of the insulative board to define a predetermined impedance with respect to the second layer of conductive material. The ground plane partition member and the second layer of conductive material serve as a section of the transmission line. The coupling element is connected to a signal measuring network for developing an output signal having a value representative of the value of an unidirectional wave signal propagated along the transmission line. The assembly including the insulative board and plural conductive layers is mounted in a housing, and the partition member is electrically bonded to four of the side walls of the housing in order to define a pair of chambers within the housing and serves the function of substantially preventing the passage of electrical fields between these chambers.

3,829,771

DEVICE FOR DISPLAYING MEASURED VALUES

Franz Burkhardt, Therwil, and Konrad Hammacher, Kaiseraugst, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

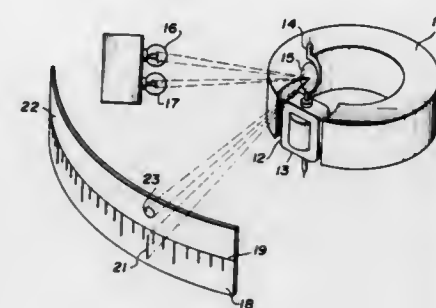
Filed Aug. 12, 1971, Ser. No. 171,222

Claims priority, application Switzerland, Aug. 25, 1970, 12636/70

U.S. Cl. 324—96

Int. Cl. G01r 13/00

11 Claims



An apparatus for displaying or indicating the trend or amplitude of fluctuation of an analogically indicated scalar measurement comprising a substance layer on the scale surface of an indicator means, which substance visibly undergoes a reversible alteration with a change in environmental conditions, the reversion of the visible alteration displaying a time-delay when compared with the formation thereof, is described.

3,829,772

LOAD SURVEY RECORDER FOR MEASURING ELECTRICAL PARAMETERS

Norman F. Marsh; Gary W. Morand, both of Springfield, and David G. Sokol, Chatham, all of Ill., assignors to Sangamo Electric Company, Springfield, Ill.

Filed Apr. 19, 1973, Ser. No. 352,551

Int. Cl. G01r 13/04

U.S. Cl. 324—113

18 Claims



A survey recorder for measuring electrical loads and providing a magnetic tape record of data with time reference signals in format capable of providing computer compatible information. The data recording circuit utilizes a light emitting diode with a phototransistor to determine each quantum measurement by the meter, and a trigger circuit driven by the phototransistor feeds a solid state divider circuit which is programmable to provide various I/O pulse ratio outputs to the data recording head. A power outage circuit detects outages which are greater than a predetermined duration and provides distinctive pulses to a time recording circuit to effect a recognizable format on the magnetic tape which identifies the power outage.

3,829,773

ANALYZER PANEL

William A. Nigg, Kalamazoo, Mich., assignor to Allen Electric and Equipment Company, Kalamazoo, Mich.

Filed Dec. 2, 1971, Ser. No. 204,085

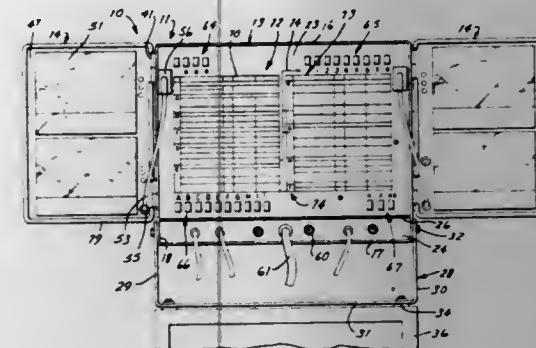
Int. Cl. G01r 1/00, 1/04

U.S. Cl. 324—114

11 Claims

Apparatus for automotive testing includes a cabinet including a housing for electrical test circuitry. The housing has a

front wall defined by at least one recessed panel. The panel carries, in full view of the operator, instructions for making a series of tests on automotive vehicles and at least one series of switch actuating push-buttons visually keyed to such instructions and disposed adjacent the edges of the panel. Meter cases are hinged to the opposite ends of the circuitry housing



and have recessed front walls which carry meters electrically connected to the circuitry in the housing. The meter cases are pivotable to close the cabinet, that is, to cover said panel, and thereby also cover said meter faces, when the apparatus is not in use. When the cabinet is opened for use, the meter faces, push-buttons and instructions are visible to the operator of the apparatus. A bracket is provided for supporting the cabinet.

3,829,774

MICROPOWER AUTOPOLARITY VOLTMETER

Walter J. Cerveny, Lima, Ohio, assignor to Trippett Corporation, Bluffton, Ohio

Continuation-in-part of Ser. No. 70,369, Sept. 8, 1970, Pat.

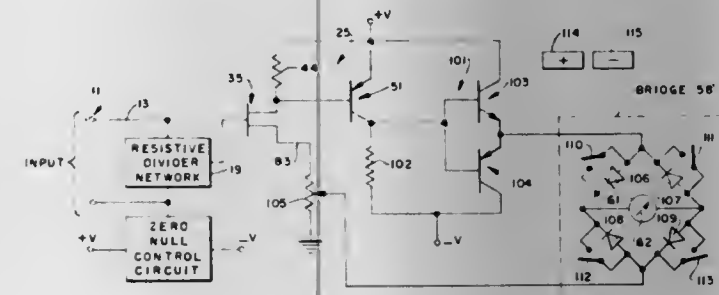
No. 3,746,984. This application May 30, 1972, Ser. No.

257,683

Int. Cl. G01r 15/08, 19/14

U.S. Cl. 324—115

23 Claims



A highly sensitive circuit for an electrical instrument for causing the indicator on a meter to read linearly upscale for positive or negative DC signals, AC signals, or a combination of AC or DC signals applied to the input of the circuit. The circuit may also operate in a micropower mode with sufficiently low current drain to permit the instrument to operate continuously for a time nearly equal to the shelf life of the battery power source. In a first embodiment, the input signal to be measured is provided to an input circuit which includes a resistive divider network in circuit with a null control circuit for selecting the range of input signals. A selected proportion of the input signal is applied to the input of a field effect transistor (FET). The output from the FET is applied to the input of an amplifying transistor having its output in circuit with a bridge network. The bridge network includes a pair of oppositely poled diodes in circuit with fixed resistors so that a first diode conducts for positive signals and a second diode conducts for negative signals from the transistor. A meter is connected in circuit with the diodes and is arranged so that the

indicator on a meter reads upscale whether the output of the amplifier comprises positive or negative DC signals or AC signals or a combination of both. A feedback circuit includes a resistive network in circuit with the bridge for selecting the appropriate circuit sensitivity for the function to be performed by the circuit. The output from the resistive network in the feedback path is connected to a pair of transistors connected in a Darlington configuration, the output of which is connected to the FET. The input circuit also includes a switching circuit for providing a coupling capacitor in series circuit with the input signals to block DC when AC signals are being measured, then to provide a low pass filter in circuit with the input signals when DC signals are being measured. The circuit according to the invention may be also used to measure resistance and current. In the micropower power mode, the FET and the amplifying transistor are each operated in a starved mode. The starved pair of transistors are coupled to the diode bridge network through a complementary emitter follower amplifier to drive the bridge circuit. An alternate bridge circuit comprises switches in circuit with each of the diodes in a 4-diode bridge so that when these switches open, the circuit will operate in the autopolarity mode. The closure of respective pairs of switches will cause the instrument to operate in either the positive or negative mode. In one embodiment for measuring resistance, a low power "ohms" measurement is provided by substituting a low current regulator power source for the normal battery in the probe circuit. In addition, the gain of the amplifier stages is increased. The resulting circuit enables in-circuit resistance measurements in which the voltage applied to the circuit to be tested is sufficiently low that unwanted biasing of semiconductive junctions in the test circuit is avoided.

The method of using the circuit of the invention is also disclosed wherein the indicator on the meter is caused to indicate a null reading in the absence of an input signal to the circuit by adjusting the null control circuit and sensing the indicator on the meter until a null is reached. The null control circuit may also be used to provide a storage feature for the circuit.

3,829,775

METER WITH ELECTRICALLY SELECTABLE SCALES

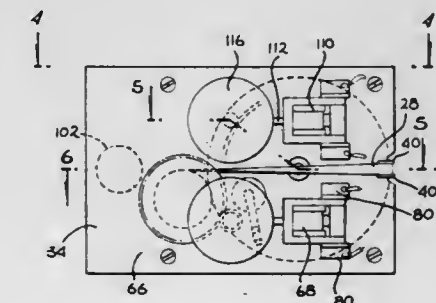
Gordon L. Brock, 20701 Beach Blvd., Space No. 31, Huntington Beach, Calif. 92648

Continuation-in-part of Ser. No. 221,667, Jan. 28, 1972, abandoned. This application Jan. 22, 1973, Ser. No. 325,571

Int. Cl. G01r 15/08, 17/06

U.S. Cl. 324—115

10 Claims



A meter with electrically selectable scales which allows the remote selection of both the electrical signals to be measured and the corresponding scale on which the measurement is to be made. The indicating mechanism is comprised of a band transparent at one end and partially opaque at the other end. The junction between the transparent and opaque areas serves as a pointer or indicator. A spring take-up means at one end of the band maintains the band in tension and a servo drive take-up system at the other end of the band moves the band in unison with a feedback potentiometer to balance a bridge network. A cylindrical member located behind the band contains

a plurality of scales thereon. A drive motor rotates the cylinder about its axis, with a solenoid locking the cylinder at the electrically selected scale and de-energizing the drive motor. The selection of electrical signals to be measured and the appropriate scale for its measurement are selected in unison through a gang switch which may be remotely located. An alternate embodiment utilizing a single drive motor for both the cylindrical members and the band is disclosed.

3,829,776

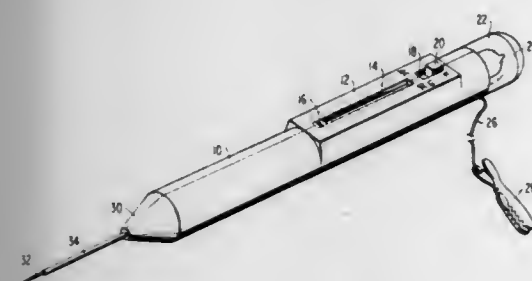
PEN TYPE VOLTMETER

Elpidio Lozoya, 209 E. Railway, El Paso, Tex. 88045
Filed July 31, 1973, Ser. No. 384,224

Int. Cl. G01r 13/36, 1/06

U.S. Cl. 324-122

10 Claims



A relatively compact voltage tester generally in the form of a pen or pencil adapted to be carried in a shirt pocket or the like and including a tubular casing with a spring biased connecting rod attached to a metallic probe, both being movably mounted in the casing with the probe projecting from one end thereof. The probe is applied to the circuit point to be tested whereupon the voltage appearing thereat is coupled across a selected strip resistor also carried in the casing. The rod is mechanically connected to a sliding contact member positioned against the strip resistor which then acts as a voltage pick off. The selected strip resistor and contact member comprise a potentiometer and is operable such that as the probe is depressed against the spring by pushing the casing toward the circuit point, a neon lamp lights at a certain depressed position. A pointer also coupled to the rod acts in combination with a calibrated scale on the outer surface of the casing to provide a reading of the voltage applied across the potentiometer.

3,829,777

CONTROL SYSTEM FOR DIVERSITY TRANSMISSION IN A TERRESTRIAL STATION OF SATELLITE COMMUNICATION

Takuro Muratani; Hideki Saito, and Tatsuo Watanabe, all of Tokyo, Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-To, Japan

Filed Feb. 2, 1973, Ser. No. 329,206

Claims priority, application Japan, Feb. 10, 1972, 47-13976

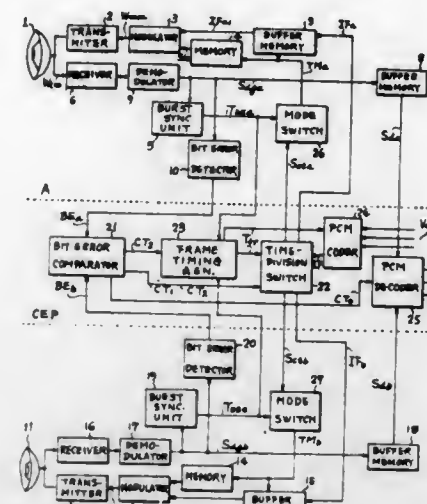
Int. Cl. H04b 7/20

U.S. Cl. 325-4

3 Claims

A control system for diversity transmission from a terrestrial station which performs time-division multiple access to a satellite communication repeater through a selected one of a plurality of transmission paths established between the satellite and the terrestrial station, in which the transmission paths are alternately selected in synchronism with a signal received over a selected one of the transmission paths when the error rate of all the transmission paths is lower than a reference

threshold value, and in which a selected one of the transmission paths having the lowest error rate is continuously used



when the error rates of the transmission paths are not all lower than the reference threshold value.

3,829,778

CALL APPARATUS IN A SINGLE OSCILLATOR MICROWAVE TRANSCIEVER

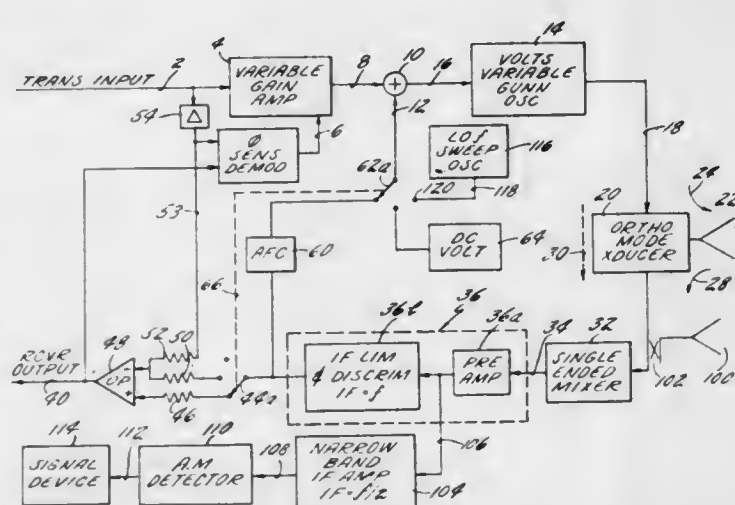
Salvatore Amoroso, Jr., Fairfield, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Mar. 26, 1973, Ser. No. 345,141

Int. Cl. H04b 1/40

U.S. Cl. 325-17

10 Claims



Call apparatus, in a single oscillator transceiver in which a portion of the transmitter oscillator energy is mixed with received energy so as to provide received signals on an intermediate frequency carrier, for amplification in an FM receiver, includes a broad beam antenna coupling energy into the transmission line between an information transmit/receive antenna and the information FM receiver channel. A calling signal received by the broad beam antenna is passed through the same single ended mixer and preamplifier as are received information signals; from the preamplifier, calling signals are passed to a narrow band AM receiver having an IF frequency which is one half of the frequency of the IF amplifier/limiter of the information receiver channel; the output of the narrow band AM receiver feeds a detector which operates a signaling device. Systems employ pairs of such transceivers, wherein one normally transmits at a frequency higher by the IF frequency than the other, such that each can generate its IF frequency from a portion of its transmitter oscillator output. To call another transceiver, the frequency of the transmitter oscillator is swept at a low frequency rate about a frequency half way between the normal transmit/receive frequencies.

3,829,779

MULTILEVEL CODE TRANSMISSION SYSTEM

Hiroshi Fujimoto, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

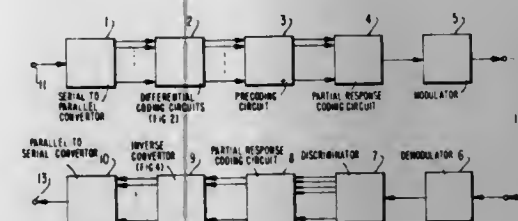
Filed Feb. 1, 1973, Ser. No. 328,809

Claims priority, application Japan, Feb. 4, 1972, 47-13015

Int. Cl. H04b 1/62, 1/66

U.S. Cl. 325-38 A

5 Claims



A multilevel code transmission system is made capable of transmission and reception of correct signals even if the demodulation carrier is 180 degrees out of phase by dividing the levels of a multilevel code to be transmitted into pairs and subjecting the transmission signal to differential coding, pair by pair. At the receiver, the levels are again divided into pairs, and the differentially coded signal is inversely converted.

3,829,780

DATA MODEM WITH ADAPTIVE FEEDBACK EQUALIZATION FOR CANCELLATION OF LEAD-IN AND TRAILING TRANSIENTS

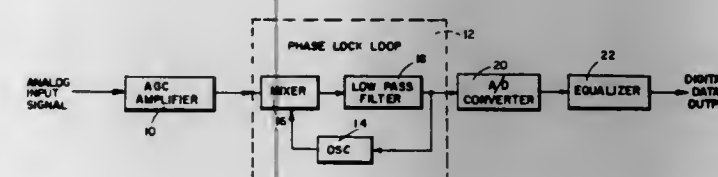
Stanley A. White, Yorba Linda, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 14, 1972, Ser. No. 306,389

Int. Cl. H03h 7/36

U.S. Cl. 325-42

15 Claims



An adaptively equalized data modem affords cancellation of both lead-in and trailing transients, affording optimum correction of distortion in, and resulting intersymbol interference of, digital data received over a transmission channel. Adaptive feedback equalization is employed, as known heretofore, for adaptively learning the impulse response of the transmission channel, through cross-correlation of previously received data bits with the signal currently received. A correction signal is derived by multiplying the learned impulse response values by the stored data bits and summing the products. The correction signal is utilized in a feedback path to cancel trailing transients. Preliminary data decisions are produced in an input delay line system for multiplying with corresponding ones of the learned impulse response values, to produce cancellation terms corresponding generally to lead-in transients. A succession of preliminary data decisions of any desired number may be produced for developing a desired number of lead-in terms, and thereby to afford a desired degree of accuracy in the cancellation of the lead-in transients. Whereas the preliminary data decisions are discarded, the lead-in transient cancellation terms developed in accordance therewith, and the trailing transient cancellation terms developed through adaptive feedback equalization, provide for cancellation of both lead-in and trailing transients and a high degree of accuracy in recovery of the transmitted digital data.

3,829,781

AIRCRAFT EMERGENCY WARNING SYSTEM

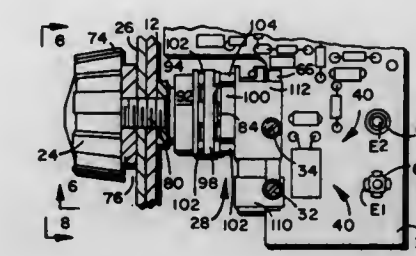
Richard A. Letson, Santa Ana, and Walter P. Cormey, Newport Beach, both of Calif., assignors to Pacific Communications, Inc., Santa Ana, Calif.

Filed June 19, 1972, Ser. No. 263,873

Int. Cl. H04b 1/02

U.S. Cl. 325-115

11 Claims



An aircraft emergency warning system comprising a radio signal generator having an integral power source, such as a battery, and an antenna for sending said signal. The signal is initiated by a switch which operates manually or upon "G" forces being exerted thereon, such as those forces encountered in a crash of an aircraft in which the emergency system is implaced.

The emergency system can be integrally tested by a "test means" in the form of the signal being "effectuated" and operating a test light. When the system is armed, a crash causes "G" forces during the crash to turn on the warning system through the switch. The switch comprises a relay which is closed by a first magnet. The first magnet has its forces normally shunted through an armature. Upon crash the armature is latched by a second magnet which holds it in place, causing said first magnet to close the relay which completes a circuit for issuing an emergency signal.

3,829,782

ELECTROCARDIOGRAPH TELEMETRY SYSTEM HAVING CIRCUITRY FOR INDICATING INOPERATIVE CONDITIONS

Richard F. Dillman, Lexington; James L. Larsen, Needham Heights, and Alfred M. Nardizzi, Dedham, all of Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

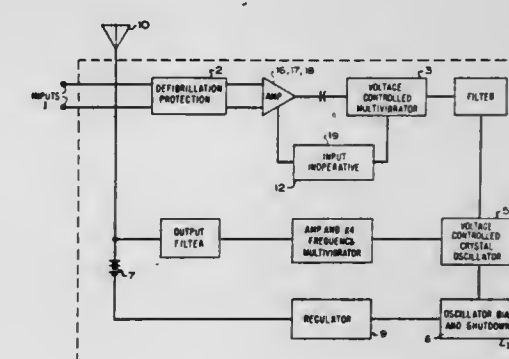
Division of Ser. No. 207,859, Dec. 14, 1971, Pat. No.

3,768,017. This application June 25, 1973, Ser. No. 373,552

Int. Cl. H04b 1/04

U.S. Cl. 325-186

2 Claims



Special circuitry in the transmitter of an electrocardiograph (ECG) telemetry system detects various malfunctions of the system and changes the transmitted signal to indicate their

presence to the system receiver. When the transmitter detects that an input electrode has become detached from the patient, it changes the frequency of the subcarrier signal to indicate this problem to the receiver. The receiver monitors the subcarrier frequency and flashes an alarm light when the frequency corresponds to the electrode inoperative condition. When the voltage output from an aging battery becomes too low to adequately energize the transmitter, special circuitry stops the transmission of signals from the transmitter. When the receiver cannot detect a transmitted signal, it indicates that either the battery needs replacement or the transmitter is out of range.

3,829,783

GENERATOR FOR GENERATING A NUMBER OF SELECTED FREQUENCIES

Gradus Cornelis Groenendaal, Emmasingel, Eindhoven; Hans Cool; Jacob De Vos, both of Jan ver der Heydenstraat 41, Hilversum, and Eduard Willem Van Zuuren, Emmasingel, Eindhoven, all of Netherlands

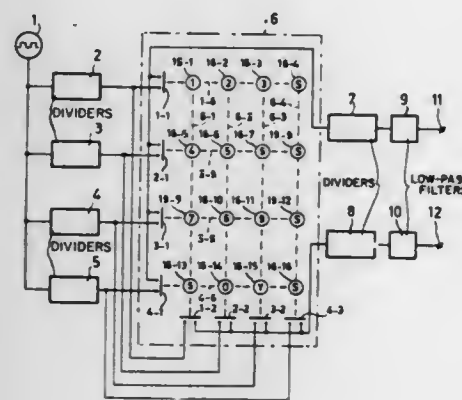
Filed Feb. 26, 1973, Ser. No. 335,673

Claims priority, application Netherlands, Mar. 4, 1972, 7202908

Int. Cl. H03b 19/00

U.S. Cl. 328—14

8 Claims



A generator for generating a number of selected frequencies, comprising a pulse oscillator and a number of dividers which are connected thereto, a second number of dividers which also coupled to the former dividers via a switching network in order to adjust, under the control of the switching network, dividends which produce desired combinations of frequencies derived from the oscillator frequencies, in particular tone frequencies for tone pushbutton selection signalling, the dividers of the second group also being binary-to-digital signal converters to which first-order RC-networks are connected in order to suppress higher harmonics.

3,829,784

SWITCHING DEVICE

Kamran Eshraghian, Hillcrest, Australia, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,232

Claims priority, application Australia, Nov. 29, 1971, 7205/71

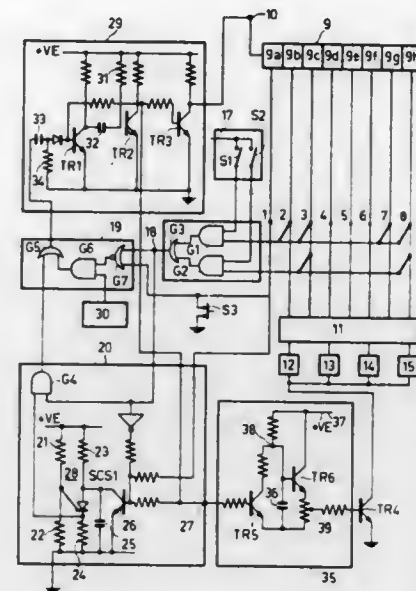
Int. Cl. H03k 17/28

U.S. Cl. 328—130

5 Claims

A switching and timing device comprising a series of control points each of which is associated with a combination of switching. Clock pulses cause actuation information to be ad-

vanced to control points in sequence, at either low rates for performance of functions, or at high rates to omit functions as-



3,829,785

CIRCUIT ARRANGEMENT FOR DIGITAL FREQUENCY MEASUREMENT

Gerd Schroder, and Dietrich Meyer-Ebrecht, both of Hamburg, Germany, assignors to U.S. Philips Corporation, New York, N.Y.

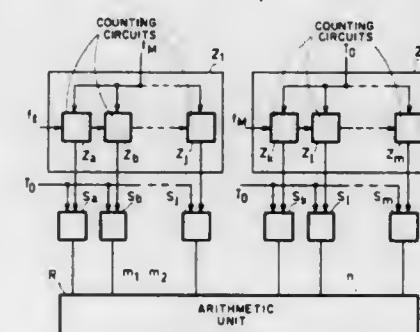
Filed Apr. 25, 1973, Ser. No. 354,395

Claims priority, application Germany, Apr. 28, 1972, 2220878

Int. Cl. G01r 23/00

U.S. Cl. 328—130

9 Claims



For the measurement of the unknown frequency or period of a measuring signal within a given measuring time interval the number of full cycles of the measuring signal within the measuring time interval are counted in a first group of counting circuits and the fractions of the measuring signal cycles at the beginning and at the end of the measuring time interval are counted with the aid of a clock pulse train of fixed frequency in a second group of counting circuits. For a measuring signal of high frequency, the capacity of the first group should be large, whereas that of the second group need only be small, because the fractions at the beginning and at the end of the measuring time interval are correspondingly small. For a measuring signal of low frequency this is just the other way round, so that the total number of counting circuits is independent of the frequency and is only determined by the required resolution. When these counting circuits are divided into groups in accordance with the frequency of the measuring signal, the required number of counting circuits can be substantially reduced. In order to ensure that the values for determining the unknown frequency are obtained within the measuring time interval only, the counting circuits may be divided into three groups, so that the subsequent computing equipment may also be reduced considerably.

3,829,786

DYNAMIC CONSTRAINT OF A CONTROL SIGNAL

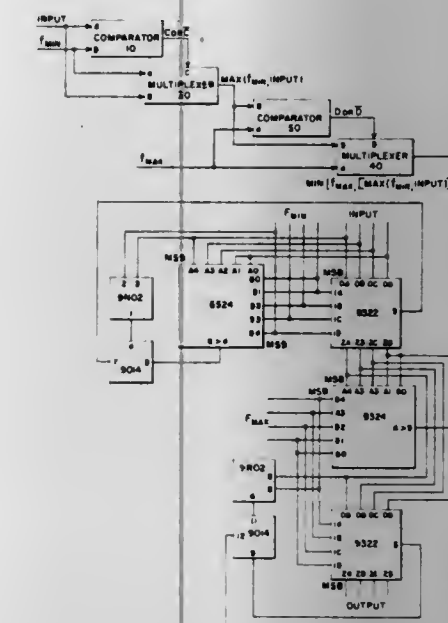
Robert E. Hoffman, Erie, Pa.; John A. Cline; Christopher S. Fuselier, and John D. D'Atre, all of Pittsfield, Mass., assignors to General Electric Company

Filed Feb. 20, 1973, Ser. No. 334,118

Int. Cl. H03k 5/20

U.S. Cl. 328—147

6 Claims



The invention relates to limiting circuits and more particularly to circuits which limit a signal between a minimum and maximum value, wherein the minimum and maximum limits may make dynamic changes. The circuit of this system utilizes electronic comparator and multiplexer circuitry to constrain the output of the circuit to equal the input signal between upper and lower limits. These upper and lower limits may be varied while the circuit is in operation.

3,829,787

BROADBAND MILLIMETER WAVE PARAMETRIC AMPLIFIER

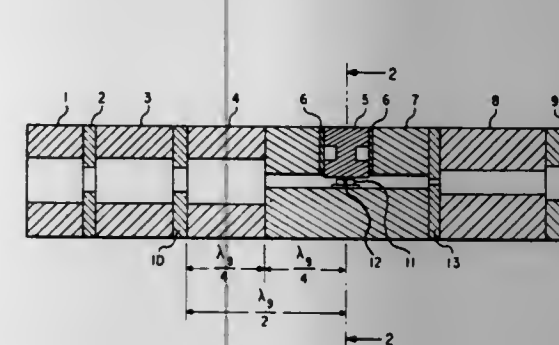
James J. Whelehan, Jr., Smithtown, and Erich Henry Kraemer, Huntington, both of N.Y., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Nov. 29, 1973, Ser. No. 420,279

Int. Cl. H03f 7/04

U.S. Cl. 330—4.9

9 Claims



A millimeter wave parametric amplifier including a series self-resonant varactor and a parallel resonant transmission cavity compensating the off-resonant variation in varactor reactance to extend the bandwidth of the amplifier. A low pump frequency is used, placing the idler frequency below the signal frequency. A waveguide beyond cutoff at the idler frequency, enclosing the varactor, minimizes idler power loss and aids in tuning the varactor to the idler frequency.

3,829,788

ELECTRIC POWER AMPLIFICATION AT LOW FREQUENCIES

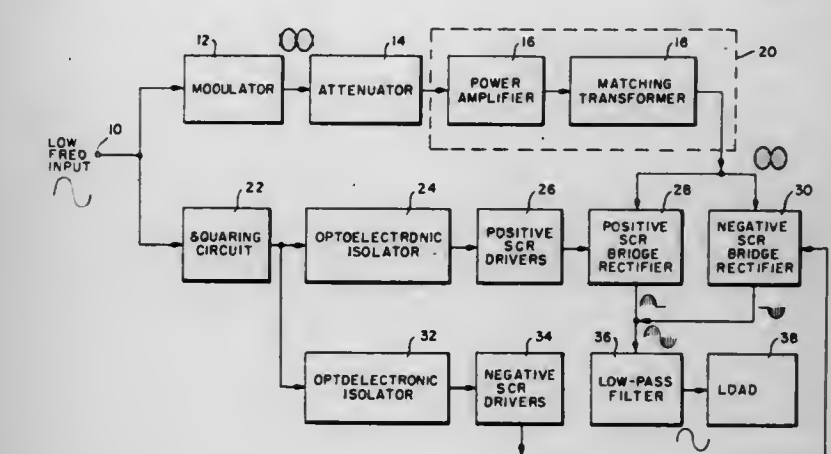
Robert E. Ford, Orlando, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 21, 1972, Ser. No. 317,324

Int. Cl. H03f 3/38

U.S. Cl. 330—10

8 Claims



A modulator-demodulator amplifier having high power gain at frequencies from D.C. to 200 Hz. The low frequency signal to be amplified is full wave rectified (producing half cycles at twice the low frequency) and subsequently used to modulate a higher frequency signal which falls in the band pass of a conventional power amplifier. After amplification, the modulated signal is rectified so as to produce alternate positive and negative half cycles of the original low frequency. The signal is then fed to a low pass filter which retrieves the envelope of the modulated signal which constitutes an amplified version of the low frequency signal. This concept is also applicable to higher frequency amplification, i.e., radio and video frequency amplifiers, to extend their response to include the audio frequency range.

3,829,789

MICROAMPERE CURRENT SOURCE

Cornelis Mulder, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

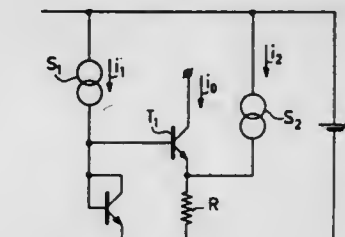
Continuation of Ser. No. 100,205, Dec. 21, 1970, abandoned.

This application Dec. 6, 1972, Ser. No. 312,484

Int. Cl. H03f 1/32

U.S. Cl. 330—23

3 Claims



A microampere current source for an integrated circuit comprising a first d-c current source for providing an input control current of at most 10 μ A, first and second semiconductor circuits having substantially equal emitter characteristics, a resistor coupled to said first and second semiconductor circuits to form a closed loop and a second d-c current source coupled to the loop. The first semiconductor circuit comprises a rectifier and is coupled to the second semiconductor circuit so as to provide for the passage of the input control current through the base-emitter path of the semiconductor circuits. The second d-c current source provides a reference potential

to the emitter of the second semiconductor circuit and supplies a current to the resistor of such magnitude that the voltage drop across the rectifier exceeds the base-emitter voltage of the second semiconductor circuit by between 20 and 540 millivolts.

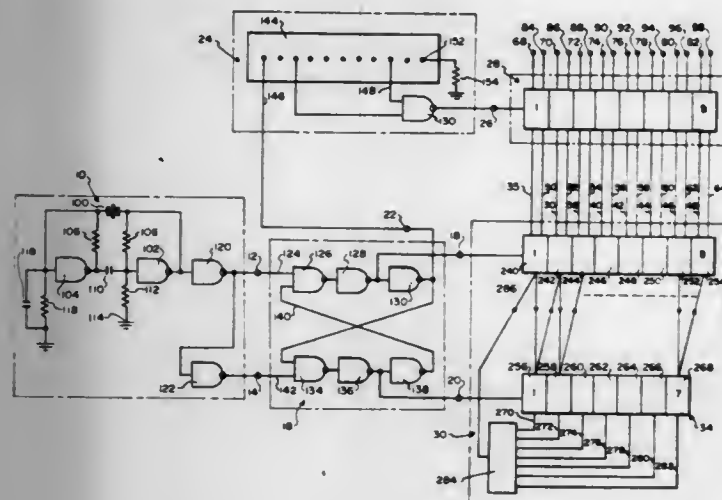
3,829,790

CLOCK DISTRIBUTION CIRCUIT

Max S. Macrander, Warrenville, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Sept. 14, 1973, Ser. No. 397,544
Int. Cl. H03b 27/00

U.S. Cl. 331-61

7 Claims



A clock distribution circuit that generates consecutive timing pulses of a first predetermined time duration on a first plurality of output lines and a corresponding number of timing pulses of a second predetermined duration that is less than the first time duration on a second plurality of output lines. The leading edge of every timing pulse of the second time duration is nearly coincident with the leading edge of a corresponding timing pulse of the first predetermined duration. To generate the two sets of timing pulses, the clock circuit is provided with a crystal controlled oscillator, a phase feedback stage, a dual rank shift register, delay gating, feedback gating and feed forward gating arrangements.

3,829,791

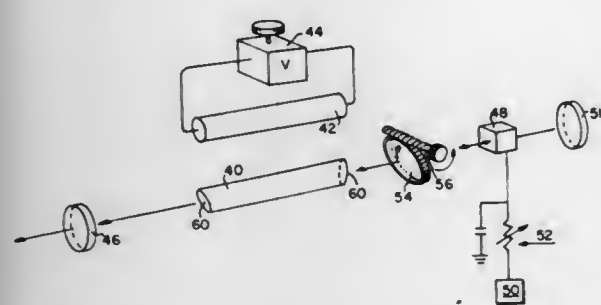
VARIABLE PULSE LASER

Jacob Schwartz, Arlington, Mass., assignor to Sanders Associates, Inc., Nashua, N.H.
Continuation of Ser. No. 847,795, July 23, 1969, abandoned, which is a continuation-in-part of Ser. No. 630,861, April 14, 1967, abandoned. This application Sept. 8, 1971, Ser. No. 178,830

Int. Cl. H01s 3/10

U.S. Cl. 331-94.5

4 Claims



A solid state laser having a non linear absorption element inserted in the optical path between the emissive rod and a

reflecting surface of the Fabry-Perot cavity. The absorption element is preferably transparent to radiation at the fundamental frequency below a selected threshold. Above the threshold the element increases its absorption as the intensity of the radiation at the fundamental frequency increases. The amplitude, shape and duration of the laser output pulses are controllably variable through adjustment of the pump intensity, rotation of the non linear absorption element and variation of the turn-on time of the laser Q-switch.

3,829,792

METHOD FOR THE INCREASE OF OUTPUT OF GAS LASERS AND APPARATUS FOR CARRYING OUT THE METHOD

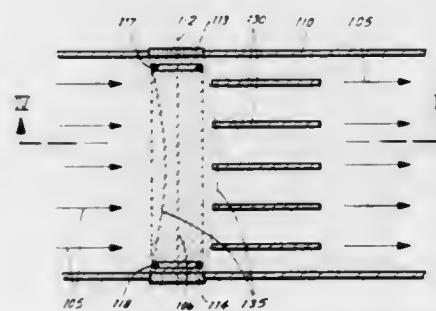
Gunthard Born; Klaus-Dieter Erben, both of Munich, and Friedbert Mohr, Fronberg, all of Germany, assignors to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschränkter Haftung, München, Germany
Filed Sept. 20, 1971, Ser. No. 182,094

Claims priority, application Germany, Sept. 24, 1970, 2047187; Oct. 27, 1970, 2052731

Int. Cl. H01s 3/22, 3/04

U.S. Cl. 331-94.5 PE

7 Claims



A method and apparatus for generating a gas laser. Gas is caused to circulate in a closed cycle and circulates transversely through a resonant zone positioned on the laser axis. Gas flows through the resonant zone at subsonic speed and under simultaneous electric excitation. Magnetic pole pieces are arranged adjacent the resonant zone for controlling and stabilizing the discharge path of the laser. In the apparatus aspects of the invention an evacuated flow tunnel for closed circuit circulation of gas is provided with a resonant zone transversely across the flow path. Such zone is arranged with electric excitation means and resonator mirrors as required. Pole pieces are provided adjacent the resonant zone for guiding and stabilizing a discharge path of the laser. Blower and cooling means are also provided in the gas flow path. In a further embodiment, flow plates are aligned with the gas flow direction and placed immediately downstream from the resonant zone to assist in preventing the gas discharge of the laser path from bending out of the predetermined position.

3,829,793

METAL ATOM OXIDATION LASER

Reed J. Jensen; Walter W. Rice, and Willard H. Beattif, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Nov. 7, 1972, Ser. No. 304,578

Int. Cl. H01s 3/00

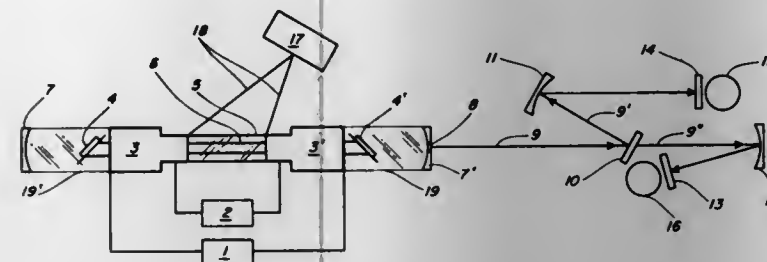
U.S. Cl. 331-94.5 P

28 Claims

A chemical laser which operates by formation of metal or carbon atoms and reaction of such atoms with a gaseous oxidizer in an optical resonant cavity. The lasing species are

diatomic or polyatomic in nature and are readily produced by exchange or other abstraction reactions between the metal or

transistor which amplifies an input signal to provide an output signal to a load which includes a crystal in a feedback path to



carbon atoms and the oxidizer. The lasing molecules may be metal or carbon monohalides or monoxides.

3,829,794

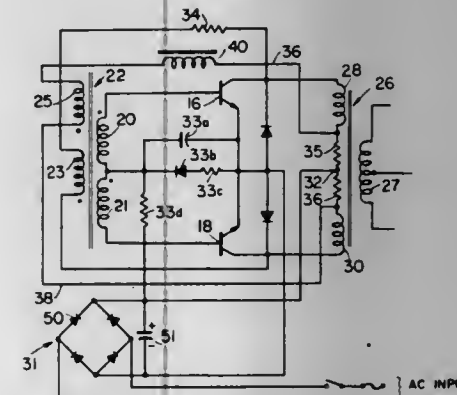
CIRCUIT FOR REDUCING THE DIRECT CURRENT COMPONENT OF AN ALTERNATING CURRENT OUTPUT SIGNAL

George A. Gautherin, Woodside, N.Y., assignor to Lambda Electronics Corporation, Melville, N.Y.
Continuation-in-part of Ser. No. 121,064, March 4, 1971. This application Nov. 30, 1972, Ser. No. 310,788

Int. Cl. H02m 7/52

U.S. Cl. 331-113 A

16 Claims



A feedback arrangement for removing the net direct current component from the output transformer of an inverter due to an unbalanced volt-time characteristic of the output signal, wherein a direct current signal is used to adjust the respective conduction periods of the inverter switching devices. A portion of the total output signal in the primary of the output transformer is sampled by small resistors and filtered to derive an essentially direct current signal that excites an auxiliary winding magnetically coupled to the core of a saturable input transformer so as to change the core operating point and thereby to alter the switching control signal in a manner tending to reduce the direct current component of the output signal.

3,829,795

CRYSTAL OSCILLATOR USING FIELD EFFECT TRANSISTORS IN AN INTEGRATED CIRCUIT

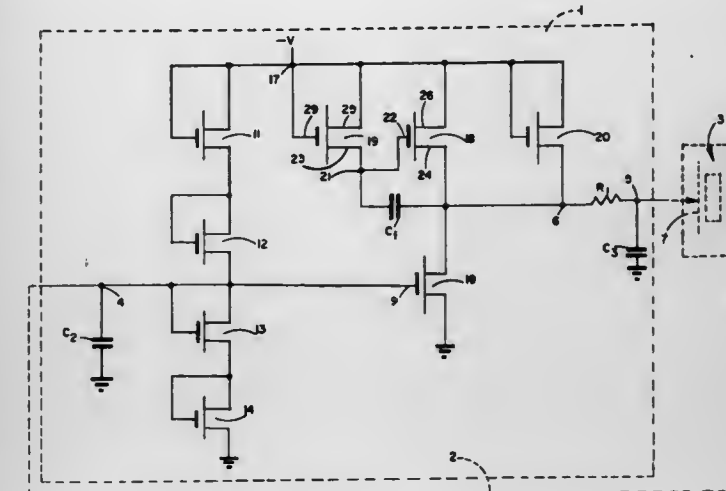
Jack L. Minney, Long Beach, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.
Continuation of Ser. No. 171,670, Aug. 13, 1971, abandoned. This application June 18, 1973, Ser. No. 371,012

Int. Cl. H03b 5/36

U.S. Cl. 331-116 R

9 Claims

A crystal controlled oscillator circuit including a constant current source which supplies current to a field effect



an input terminal. A bias circuit is connected to the gate electrode of the field effect transistor amplifier.

3,829,796

ELECTRONIC AMPLITUDE MODULATOR, IN PARTICULAR FOR MODULATING SIGNALS INTENDED FOR NAVIGATION PURPOSES

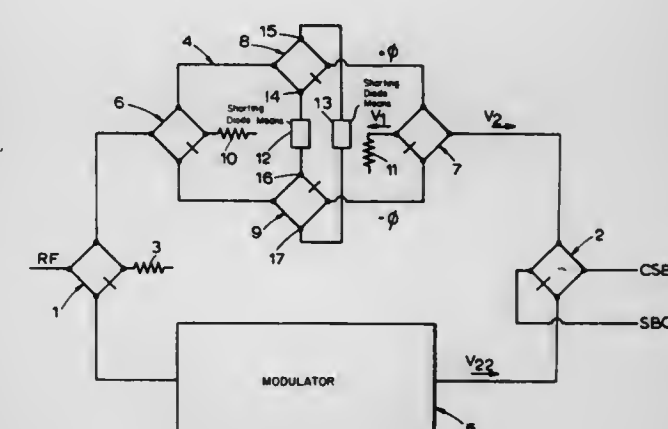
Petter Magnar Bakken, Trondheim, Norway, assignor to Elektronikklaboriet ved NTH, Gløshaugen, Trondheim, Norway

Continuation-in-part of Ser. No. 28,788, April 15, 1970, abandoned. This application July 31, 1972, Ser. No. 276,800
Claims priority, application Norway, Apr. 16, 1969, 1544/69

Int. Cl. H03c 1/52

U.S. Cl. 332-44

6 Claims



An electronic amplitude modulator for modulating low frequency signals on the radio or high frequency signals from a transmitter. The associated antenna system can be supplied with the signals which are required according to the conventional structure of the system. Means are provided for bringing the amplitude of the output signal to a number of predetermined values having such duration and being in such succession that the desired envelope of the output signal is obtained with sufficient approximation. Such means comprise a transmission line adapted to be short-circuited electronically by means of shorting devices located at preselected fixed points along the line.

3,829,797

MODULATOR AND METHOD

Edward M. Karkar, San Francisco, and Nicolas Kovalevski, Menlo Park, both of Calif., assignors to Karkar Electronics, Inc., San Francisco, Calif.

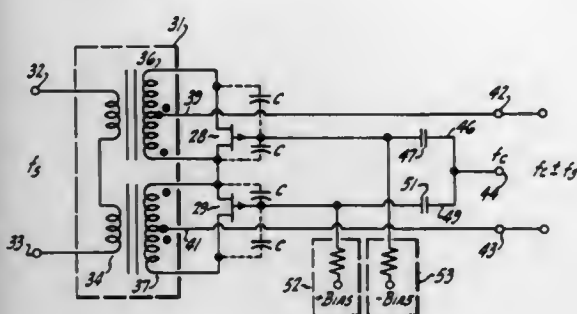
Continuation of Ser. No. 248,953, May 1, 1972, abandoned.

This application July 23, 1973, Ser. No. 381,490

Int. Cl. H03c 1/54, 1/38

U.S. Cl. 332-43 B

5 Claims



An amplitude modulator using an FET, or MOSFET and a coupling and phase splitting device capable of accepting both single ended and balanced inputs (like for example, a differential amplifier or a center tapped choke coil, or a transformer). The source and drain terminals are connected to the differential inputs (outputs) of the device, and the signal to the single ended input of the device. The carrier is applied to the gate terminal of the FET or MOSFET. The switching action of the device is equally efficient for both single ended and differential inputs (outputs). However, the carrier leak voltage is being applied simultaneously to both terminals of the differential input and thus suppressed in the output by virtue of high suppression of longitudinal (common) mode pertinent to devices with differential inputs (outputs). Other modulators are disclosed including a double balanced modulator using two complimentary field effect transistors and a double balanced modulator using two field effect transistors of the same conductivity type.

3,829,798

CASCADE TRANSVERSAL-FILTER PHASE-COMPENSATION NETWORK

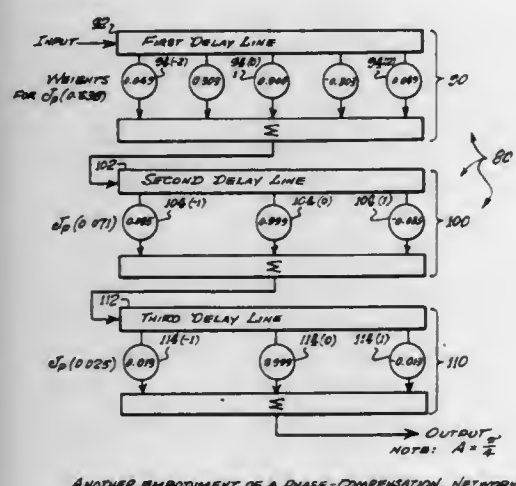
George W. Byram, and Jeffrey M. Speiser, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 15, 1973, Ser. No. 406,720

Int. Cl. H03h 7/28, 7/30; H04b 3/04

U.S. Cl. 333-70 T

3 Claims



ANOTHER EMBODIMENT OF A PHASE-COMPENSATION NETWORK

A phase-compensation network, capable of modifying the phase response of a filter or network while leaving unchanged the amplitude response, comprising a cascaded combination of simple transversal filters, each of which comprises a delay

line; at least one tapped weighted element whose input is connected to the delay line; and a signal summer whose input is connected to the outputs of the weighted elements. The elements of each simple transversal filter correspond to the values of the Bessel function of fixed argument and for successive integral indices of the order, including the zeroth order, only significant values of positive and negative indices of the order being used, the element corresponding to the zeroth order being in the center of its specific transversal filter. The output of one transversal filter constitutes the input to the next succeeding filter in the cascade, each transversal filter corresponding to one of a set of fixed arguments of a Bessel function of the first kind, the set of fixed arguments being obtained from the coefficients of a phase function when expressed in Fourier series form.

3,829,799

SEMICONDUCTOR IMPEDANCE CIRCUIT AND OSCILLATOR USING THE SAME

Takeo Miyata; Seiya Hamada, both of Kanagawa-ken; Katsuki Inoue, and Mikito Baba, both of Tokyo, all of Japan, assignors to Mitsumi Electric Company, Tokyo, Japan

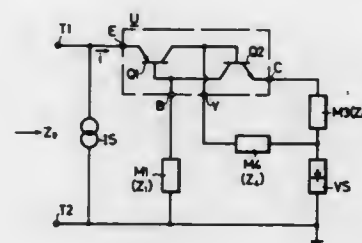
Filed Aug. 23, 1972, Ser. No. 283,188

Claims priority, application Japan, Aug. 28, 1971, 46-66224; Aug. 17, 1972, 47-82527; Aug. 17, 1972, 47-82528; Mar. 22, 1972, 47-28661

Int. Cl. H03b 7/06; H03h 1/10

U.S. Cl. 333-80 T

9 Claims



A semiconductor impedance conversion circuit which employs a semiconductor circuit consisting of two transistors, three impedance elements or circuits, a DC voltage source and a DC current source and in which a negative impedance conversion function is obtained between two terminals.

An oscillator employing the above semiconductor impedance conversion circuit and an oscillating capacitor.

3,829,800

HF COAXIAL PLUG CONNECTOR

George Spinner, Erzgebirgskreis 33, 8 Munich 2, Germany

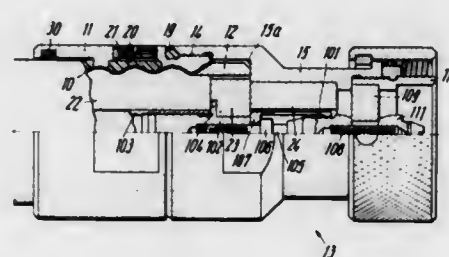
Filed June 2, 1972, Ser. No. 259,160

Claims priority, application Germany, June 4, 1971, 2127927

Int. Cl. H01p 1/04; H02q 15/08

U.S. Cl. 333-97 R

12 Claims



A HF coaxial plug connector comprises a clamping ring which can be fixed on the outer casing of a cable. The connector has a conical machined out part, onto which the end of the cable casing is crimped and on the end of the cable casing a

cone with the same setting angle is axially clamped. The cone is formed by a pressure ring, separated from a head of the plug connector, and the pressure ring is adapted to be axially clamped by an end annular face of the head of the plug connector without carrying out a rotary movement in relation to the clamping ring.

3,829,801

SIGNAL SWITCHING AND DISTRIBUTING SYSTEMS

Michael John Priestly, Stockport, and Eric Cornthwaite, Denton, both of England, assignors to International Computer Limited, London, England

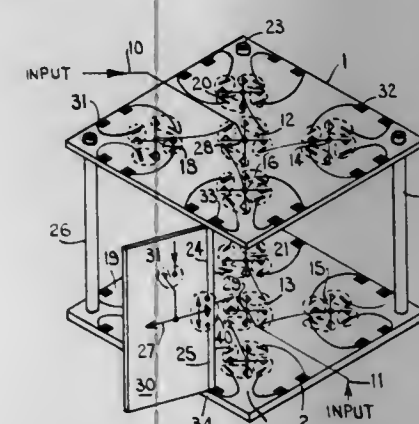
Filed Nov. 1, 1972, Ser. No. 302,706

Claims priority, application Great Britain, Nov. 2, 1971, 50,787/71

Int. Cl. H01p 5/02, 1/10

U.S. Cl. 333-7

2 Claims



A signal distribution system for applying signals to a device under test is described. An input signal is applied to a centre point of a first group of four relays on a substrate. The group of relays are arranged so that the input signal may be switched to one of four similar groups of relays so that the input signal may therefore be switched by operation of the appropriate relays to one of sixteen outputs. The overall transmission path lengths from the input point to each output are equal to thus provide all the paths with the same electrical characteristics. Further similar substrates may be spaced from the first substrate and in this case a common output channel for all substrates may be provided on a connecting plane.

3,829,802

PROCESS FOR WINDING A COIL ON A REED SWITCH HAVING COIL FORM MEANS MOUNTED ON THE SWITCH CAPSULE

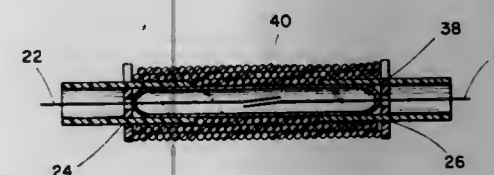
Richard L. Collette, Hoffman Estates, Ill., assignor to Guardian Electric Manufacturing Company, Chicago, Ill.

Filed Aug. 21, 1973, Ser. No. 390,316

Int. Cl. H01h 51/28

U.S. Cl. 335-154

8 Claims



A coil is wound about an elongated glass capsule of a reed switch and held between plastic tubes attached to each end of the capsule. The plastic tubes extend over the opposite ends of the capsule and may be glued or fitted thereon. Flanges extend outward from the tubes and the coil is then wrapped on the capsule where it is maintained in position by the flanges. Outward extensions of the tubes protect the leads of the reed

switch and correct concentricity tolerances on the glass capsule allowing use of conventional coil winding apparatus.

3,829,803

SEATING DETECTING DEVICE

Tsuneo Maeda, Aichi, Japan, assignor to Kabushiki Kaisha Tokai-Rika-Denki-Seisakusho, Aichi, Japan

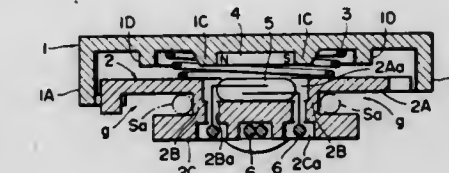
Filed Dec. 10, 1973, Ser. No. 423,616

Claims priority, application Japan, Dec. 30, 1972, 48-3851

Int. Cl. H01h 3/14

U.S. Cl. 335-205

1 Claim



A seating detecting device comprising a pressure receiving member of synthetic resin, a bracket of synthetic resin, a permanent magnet mounted in the pressure receiving member, and a magnetically actuated switch mounted in the bracket. The device is simple in construction, inexpensive and mechanically strong and can be very easily mounted on the seat spring in the seat of vehicles.

3,829,804

DEFLECTION YOKE MOUNTING ASSEMBLY

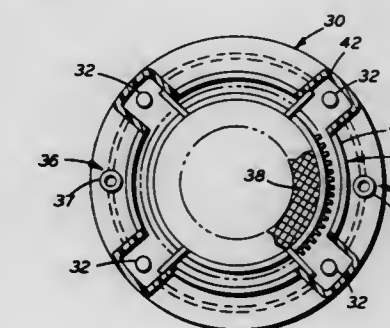
Floyd E. Alfrich, Waterloo, and Fred A. Hovey, Geneva, both of N.Y., assignors to GTE Sylvania Incorporated, Stamford, Conn.

Filed Nov. 14, 1973, Ser. No. 415,717

Int. Cl. H01f 7/00

U.S. Cl. 335-210

6 Claims



A deflection yoke mounting assembly for semi-permanently mounting a deflection yoke in operative position on the neck of a cathode ray tube is provided. The assembly comprises an annular tube ring having six spaced projecting hollow studs which is to be bonded to the rear of a tube. A yoke retainer ring carrying a deflection yoke has four hollow pockets which receive four of the hollow studs. A hardenable adhesive is dispensed into the hollow pockets and about the four studs and simultaneously into the two remaining hollow-studs whereby the yoke retainer ring is bonded to the annular tube ring and the annular tube ring is bonded to the tube in a single operation.

3,829,805

APPARATUS FOR MAGNETICALLY SUPPRESSING OSCILLATIONS

Heinrich Spodig, Netteberge 84, 4711 Bork, Westfalen, Germany

Filed Nov. 8, 1972, Ser. No. 304,759

Claims priority, application Germany, Nov. 9, 1971, 2155532

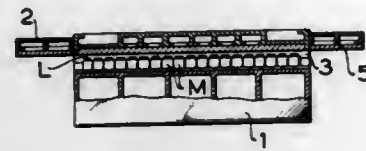
Int. Cl. H01f 7/20

U.S. Cl. 335-289

18 Claims

Oscillations and vibrations in a machine tool are suppressed by magnets generating a magnetic flux flowing through a sta-

tionary part and a movable part of the machine tool. The portions of the magnets from which concentrated magnetic flux



emanates, are not in contact with the stationary and movable parts, and are spaced by an air gap from the magnet housing.

3,829,806

SINTERED FERROMAGNETIC CORE HAVING ACCURATELY ADJUSTED DIMENSIONS

Franciscus Johannes Maria Lathouwers, and Jacob De Groot, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 184,696, Sept. 29, 1971, Pat. No. 3,775,841. This application Aug. 14, 1973, Ser. No. 388,256 Claims priority, application Netherlands, Oct. 9, 1970, 7014813

Int. Cl. H01f 27/24

U.S. Cl. 336—83

4 Claims



A sintered ferromagnetic coil core having accurately adjusted dimensions obtained by coating the cores in a mold with a layer of coating material consisting of a binder and a ferromagnetic powder.

3,829,807

CONTACT HOLDER WITH ADJUSTABLY MOUNTED SWITCH

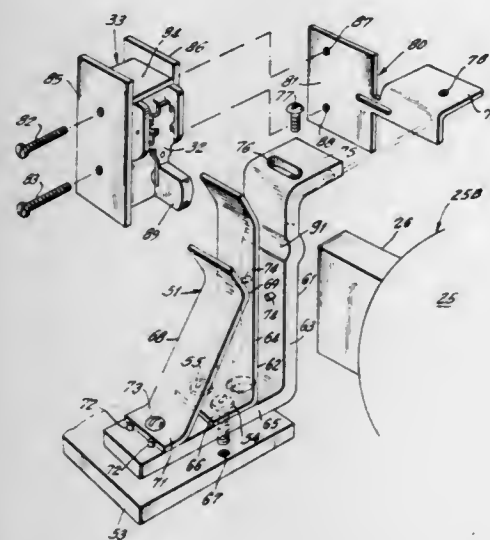
Keith Theophil Krueger, Bellefontaine, Ohio, assignor to I-T-E Imperial Corporation, Spring House, Pa.

Filed Mar. 22, 1973, Ser. No. 343,851

Int. Cl. H01h 85/00, 71/20

U.S. Cl. 337—6

10 Claims



A female-type clip or holder removably engages a terminal of an electrical device having an ejectable pin means. The terminal is engaged by the spaced arms of the holder, with one of these arms being relatively stiff and the other being relatively flexible. Biasing means acting on the flexible arm provides pressure between the holder and the terminal held therein. A normally open switch is mounted to the relatively stiff arm so as to be adjustable for differently sized electrical devices.

3,829,808 FUSE HOUSING CONSTRUCTION UTILIZING EXTRUDED TERMINALS AND PROCESS FOR MAKING SAME

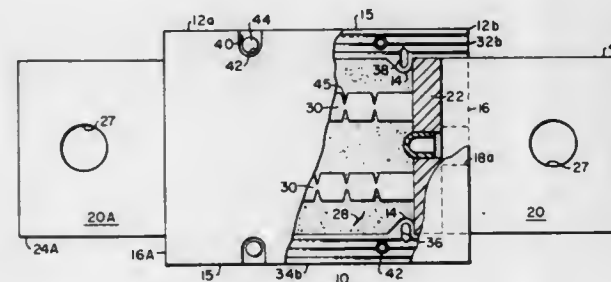
Donald D. Blewitt, Pittsburgh; Frank L. Cameron, Irwin, and Charles H. Vondracek, Murrysville, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 14, 1973, Ser. No. 332,460

Int. Cl. H01h 85/02

U.S. Cl. 337—186

10 Claims



An electrical fuse structure having electrically conducting T-shaped terminals. Two T-shaped terminals are disposed in spaced portions of an electrically insulating box-shaped fuse housing subsection so that part of the top or cross bar portion of the T-shaped terminal is positioned between an internal set of ribs and an inner portion of a housing subsection end wall. A similar fuse housing subsection is disposed over the remaining part of the top portion of the T-shaped member to enclose it. The housing subsections are secured in a complementary arrangement by bolts or rivets disposed in appropriate holes in the two subsections. The two subsections are thus joined to form a completely enclosed box in which the cross bar portions of the terminals are securely enclosed within the box at either end thereof, and with only the vertical or stem portions of the T-shaped terminals extending outwardly through openings in the ends of the box. Sand or other pulverulent arc quenching material is introduced into the inner chamber of the fuse housing through a hole drilled in the cross bar portion of one terminal which communicates with the inner chamber of the box and with the outside of the fuse housing through a suitable aligned opening in the fuse housing. After sand has been introduced into the fuse housing, the hole is sealed with a suitable plug. Fuse elements extend between the enclosed bar portions of the terminals within the enclosed chamber of the fuse housing. Ther fuse elements are surrounded by the pulverulent sand or crystalline material.

3,829,809

THERMAL LIMITER CONSTRUCTION AND ELECTRICAL SWITCH AND SYSTEM UTILIZING THE SAME

Emil Robert Plasko, Dayton, Ohio, assignor to Micro Devices Corp., Dayton, Ohio

Filed Mar. 26, 1973, Ser. No. 344,745

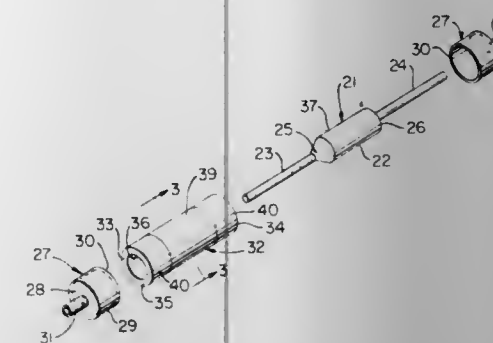
Int. Cl. H01h 61/02, 63/13

U.S. Cl. 337—107

20 Claims

A thermal limiter construction having a thermally responsive device provided with a body portion and a pair of leads extending from the body portion for interconnecting the device in an electrical circuit to be controlled thereby. The device opening the electrical connection between the leads thereof when the device is sensing a certain temperature condition. A sleeve is telescoped over the body portion of the device with the sleeve having an inner insulative peripheral surface disposed adjacent the device and an outer electrical heater thereon which when energized will provide the certain temperature condition to be sensed by the device to open the electrical connection between the leads. Such thermal limiter construction can be utilized with a switch housing so that the

electrical heater will only be operated when the switch thereof is in a closed position, such switch forming part of an electrical



interlock control system for the oven door of a microwave oven or the like.

3,829,810

BUSHING, FUSE AND FUSEHOLDER

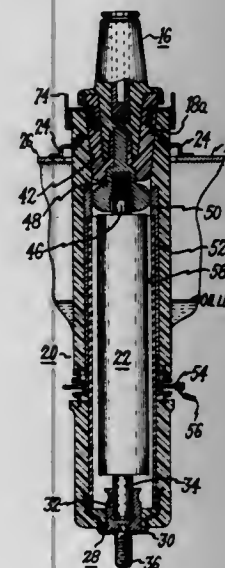
Bertrand V. Giegerich, Pittsfield, Mass., assignor to General Electric Company, Pittsfield, Mass.

Filed Dec. 22, 1971, Ser. No. 211,017

Int. Cl. H01h 85/02

U.S. Cl. 337—202

11 Claims



A bushing, fuse and fuseholder especially useful in electrical apparatus such as distribution transformers for underground power distribution systems. The electrical apparatus is provided with a bushing, a fuse and a fuseholder, the fuseholder being secured to the wall of the apparatus and extending into the interior thereof. The bushing has the fuse secured thereto and is inserted into the fuseholder. The bottom of the fuse makes electrical contact with a lower contact in the fuseholder. The upper portion of the fuse makes contact with the bushing to provide electrical continuity through the bushing and the fuse to the bottom contact in the fuseholder. The bushing may be in the form of an adapter to receive a standard bushing insert or it may include the insert. A standard elbow termination or similar member may be attached to the bushing to energize the electrical apparatus through the fuse and fuseholder. In another embodiment, the fuseholder has a second contact to allow use with loop feed distribution.

3,829,811

FAN AND HIGH TEMPERATURE LIMIT CONTROL FOR WARM AIR FURNACES

David E. Miller, Waterloo, Ill., assignor to Emerson Electric Co., St. Louis, Mo.

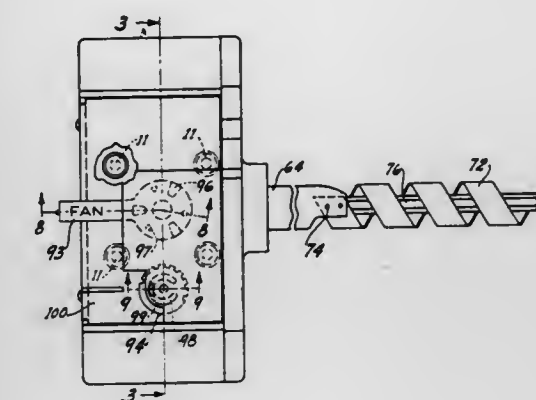
Filed July 19, 1973, Ser. No. 380,552

Int. Cl. H01h 37/52

U.S. Cl. 337—353

14 Claims

The control device has a helical bimetal element, a fan switch, a high temperature limit switch, and a single rotary



venient means for calibrating, and novel fan switch adjustment means to vary the automatic operation or to effect continuous operation of the fan are other salient features of the device.

3,829,812

CURRENT INTERRUPTER FOR ELECTRIC CIGAR LIGHTER

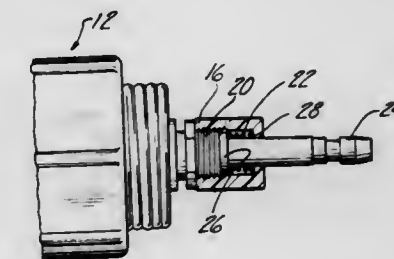
Shigeru Inaba, Kanagawa, Japan, assignor to Niles Parts Co., Ltd., Tokyo, Japan

Filed July 16, 1973, Ser. No. 379,734

Int. Cl. H01h 37/46

U.S. Cl. 337—382

1 Claim



The current interrupter according to this invention has for its object to prevent overheating of electric cigar lighters. Said interrupter includes a tube which is made of thermoplastic resin of low inflammability. Within said tube, the terminal of the cigar lighter and an auxiliary terminal are placed coaxially and in contact with each other by means of a spring. When the cigar lighter has reached above the predetermined temperature, said thermoplastic tube softens and deforms axially by the action of the spring whereby as the contact between said terminals breaks, the current supply to the cigar lighter will be suspended at once.

3,829,813

POTENTIOMETER

Robert F. Klug, and Larry B. Lindquist, both of Columbus, Nebr., assignors to Dale Electronics Inc., Columbus, Nebr.

Filed Apr. 26, 1973, Ser. No. 354,482

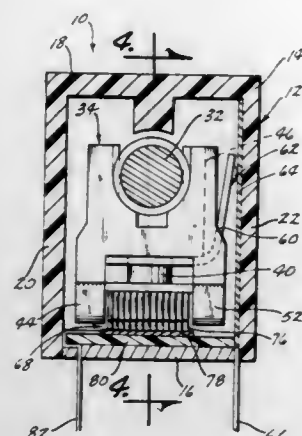
Int. Cl. H01c 9/02

U.S. Cl. 338—180

11 Claims

A potentiometer comprising a housing having an elongated leadscrew rotatably mounted therein. A wiper block is mounted on the leadscrew and adapted for longitudinal movement thereon when the leadscrew is rotated. A resistance element is mounted in the housing adjacent the leadscrew. A collector bar is also positioned in the housing and is spaced from and extending above the resistance element, and is disposed in

a plane parallel to the leadscrew. A wiper means is secured to the block means and has a plurality of juxtapositioned fingers



adapted to engage the resistance element. A collector arm is connected to the wiper means and slidably engages the collector bar.

3,829,814

LOGGING CABLE CONNECTOR

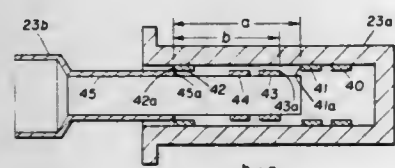
Andrew J. D. Straus, Dallas, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 22, 1972, Ser. No. 317,846

Int. Cl. H01r 3/06

U.S. Cl. 339—14 R

4 Claims



In a borehole logging tool, a connector is utilized to couple electrical power from a logging cable to the sensitive elements within the borehole tool. The connector includes a male and a female member, the electrical ground conductors on the male and female members being arranged to make contact prior to the electrical power conductors on the male and female members making contact.

3,829,815

COMMON GROUND STUD MODULE

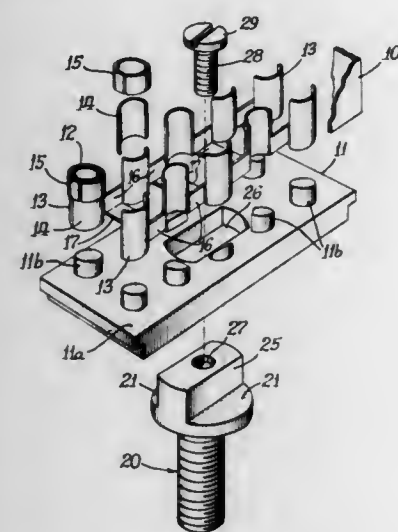
John L. Rutkowski, Mt. Prospect, Ill., assignor to Appleton Electric Company, Chicago, Ill.

Filed July 2, 1973, Ser. No. 375,960

Int. Cl. H01r 3/06

U.S. Cl. 339—14 R

6 Claims



A wiring module has a plurality of sockets within an insulating case. A grounding stud suitable for mounting the module

on a metal support has an end which extends through the case, a flange that abuts the outside of the case and a screw which clamps some of the socket structure against the inside of the case.

3,829,816

COUPLING ASSEMBLY

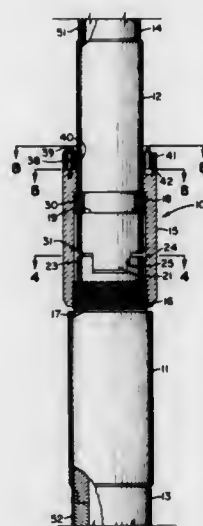
Adelbert Barry, and Karl O. Heintz, both of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.

Filed Aug. 21, 1972, Ser. No. 282,892

Int. Cl. H01r 3/04

U.S. Cl. 339—16 R

4 Claims



An improved coupling assembly for joining a pair of pipe sections includes a pin member connected to one of the pipe sections, a box member connected to the other of the pipe sections, and a collar mounted on one of the members and adapted to be threadedly connected to the other member. The assembly also includes a one-way clutch which permits the collar to be rotated in one direction but not the opposite direction. The improved coupling assembly includes a plug-type connector which is adapted to provide an electric circuit across the joint of the connected members.

3,829,817

ELECTRICAL CONNECTION DEVICES

Alan Robert Beavitt, Towcester, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland

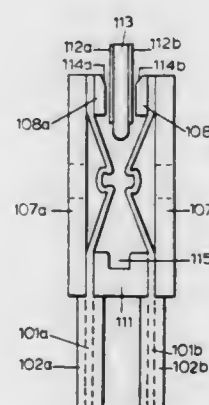
Filed Sept. 22, 1972, Ser. No. 291,520

Claims priority, application Great Britain, Oct. 7, 1971, 46621/71; Jan. 8, 1972, 05690/72

Int. Cl. H01r 13/54; H05k 1/07

U.S. Cl. 339—17 F

8 Claims



A variety of connection devices, and methods for their manufacture, having contact members which make contact

with conductive pads of printed circuit boards, the pads being pitched at 0.25mm or thereabouts. Each contact member comprises a resilient strip of conductive material which, in order to accommodate pad irregularities, is shaped to present two contact-making crests spaced from each other along the length of the strip, and joined to each other by an intervening loop of the strip.

3,829,818

BUS STRIP

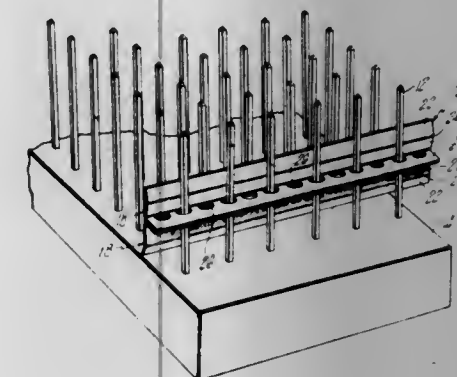
Michael F. Iosue, Tempe, Ariz., and Robert E. Sanders, Old Saybrook, Conn., assignors to Rogers Corporation, Rogers, Conn.

Filed Aug. 22, 1973, Ser. No. 390,439

Int. Cl. H01r 3/108

U.S. Cl. 339—19

10 Claims



A bus strip which can be mounted on an array of terminal posts merely by pushing the bus strip into mounting engagement with a desired plurality of terminal posts is disclosed. The bus strip is a one piece configuration having a central spine with a pair of wings radiating in opposite directions from one end of the spine. The spine is provided with a series of holes adjacent the junction of the spine and wings to mount the bus strip on an array of terminal posts, and the wings are contoured so as to spring load the strip against the terminal posts with three points of contact. The bus strip may also be provided with gaps in the wings and spine whereby contact with posts may be skipped as desired.

3,829,819

FUSED ELECTRICAL PLUG

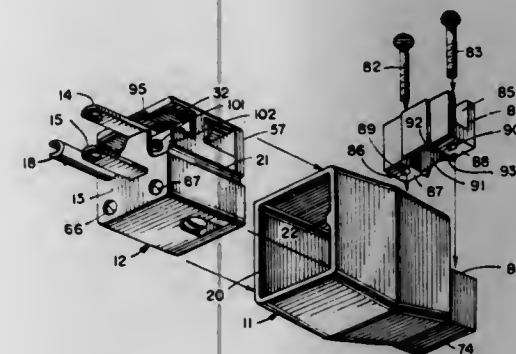
George R. Eckart, Lake Zurich, Ill., assignor to Daniel Woodhead Inc., Northbrook, Ill.

Filed Oct. 30, 1972, Ser. No. 302,230

Int. Cl. H01r 13/58, 13/68

U.S. Cl. 339—44 R

8 Claims



A dead front, back-wired electrical plug having a front accessible fuse mounted in a fuse well in the front face, a pivotable safety cover on the front face swingable into covering and uncovering relationship with the well, and a hollow plug housing with back-wired terminal posts for the respective contact blades and ground pin which project from the front face.

3,829,820

PLUG AND SOCKET CONNECTOR

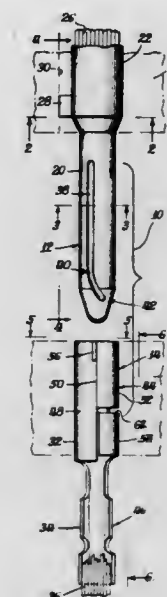
Oswald Hubner, Neuenstadt, and Horst Wilhelm Benker, Heilbronn, both of Germany, assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed July 13, 1972, Ser. No. 271,502

Int. Cl. H01r 13/54

U.S. Cl. 339—88 C

4 Claims



A stamped pin and socket connector; the pin and socket are both generally tubular, but split longitudinally at one side; the pin has an external groove, generally longitudinal but with a curved portion at the leading end; the socket has slightly overlapping edges at the leading end, one of which has a nose that enters the groove in the pin, and the curve in the groove forces the socket to "wind up" and tighten on the pin and make firm contact engagement therewith.

3,829,821

LATCHING SYSTEM FOR AN ELECTRICAL CONNECTOR ASSEMBLY AND A TOOL FOR ACTUATING SAID SYSTEM

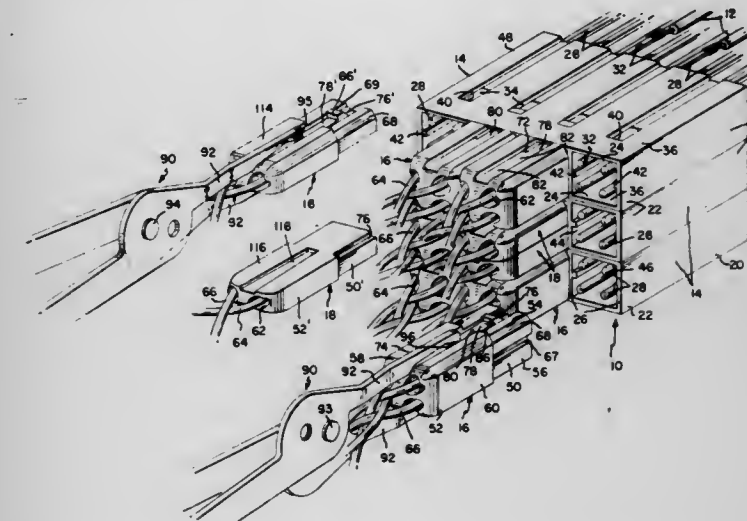
Paul B. Derr, Middletown; Gilbert Douglas Ferdon, Hummelstown, and Robert George Harwood, Mechanicsburg, all of Pa., assignors to AMP Incorporated, Harrisburgh, Pa.

Filed Sept. 29, 1972, Ser. No. 293,640

Int. Cl. H01r 13/64

U.S. Cl. 339—91 R

11 Claims



A changeable interconnecting means comprising a plurality of receptacles arranged in a tightly packed stack with their sides against each other. The receptacles contain contact pins arranged in cells. The pins are connected to external conductors by wires extending from the rearward ends of the pins. In-

terconnections are made by plug members containing sockets which are dimensioned to fit snugly into the cells. The plug members are individually removable by virtue of latching means recessed in their sides which engage complementary latching means in the receptacles.

3,829,822

CONNECTING ELEMENT FOR CONDUCTORS

Hans Geiser, Westheim, and Gunter Tessorf, Backnang, both of Germany, assignors to Licentia Patent-Verwaltungs GmbH, Frankfurt am Main, Germany

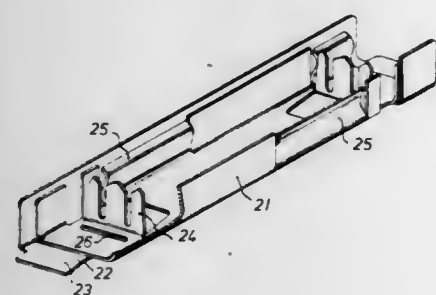
Filed Oct. 20, 1972, Ser. No. 299,321

Claims priority, application Germany, Oct. 23, 1971, 2152954; Oct. 23, 1971, 7140267

Int. Cl. H01r 9/08

U.S. Cl. 339-98

5 Claims



A connector for connecting conductors without soldering includes a blade portion and a contact portion. The blade portion has a blade which will sever the ends of the wires when the connector is assembled. A comb is positioned within the contact portion for receiving the wires and cutting through their insulation. The two portions are constructed so that they can be pressed together to form a completed connector.

3,829,823

COLLAR FOR AUTOMOBILE VEHICLE BATTERY

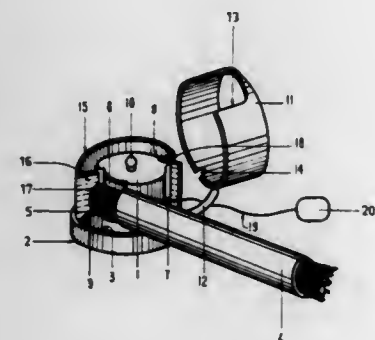
Gerard Paul Louis Dumesnil, 17 Rue Saint Marc, Epinay, France

Filed May 22, 1972, Ser. No. 255,589

Int. Cl. H01r 11/22

U.S. Cl. 339-228

8 Claims



Collar for battery of automobile vehicles comprising an insulating hood in the form of a hollow boss surrounded at its base by an annular flange with a raised edge, the boss being fitted onto the terminal of the battery and comprising a hole revealing a portion of the terminal on which is applied the bared end of a cable by means of an elastic member partially surrounding the boss, and a cap insulating the assembly.

3,829,824
CLAMP BOLT FOR AN AUTOMOTIVE VEHICLE BATTERY

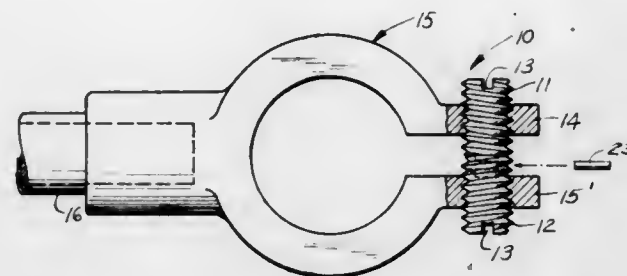
Edward L. Pillschafske, P.O. Box 965, Henderson, Nev. 89015

Filed May 18, 1973, Ser. No. 361,637

Int. Cl. H01r 11/26

U.S. Cl. 339-230 C

3 Claims



A bolt device for securing a cable clamp to a battery, the device consisting primarily of a right hand threaded member and a left hand threaded member, one of the members having a shank for being received within an opening of the other threaded member, the arrangement receiving a transverse pin for securement to each other.

3,829,825

TENSION CONNECTOR ASSEMBLY FOR CABLE AND THE LIKE

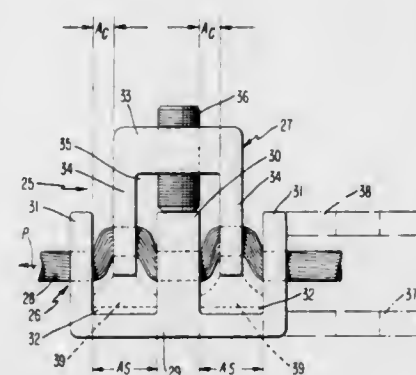
Ronald G. Hawkins, Jefferson, Tex., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Feb. 8, 1971, Ser. No. 113,428

Int. Cl. H01r 13/12; F16g 11/06

U.S. Cl. 339-242

28 Claims



Tension connector assembly for cable and the like including a base spring member and a keeper spring member in opposed facing relation, each member having legs extending toward the other member and corresponding cable engaging seats defined across the legs of such member and facing the same such member, the opposing legs of the members being correspondingly offset to permit relative movement of the members toward and away from each other and corresponding overlapping alignment of the base seats and keeper seats in opposed facing relation for cooperative opposed seating engagement of the corresponding seats with a portion of a cable insertable thereacross to interconnect thereby the legs of base member with the legs of the keeper member, and adjustable tension exerting means interposed operatively between the members to urge them away from each other and in turn the opposed seats under tension against the correspondingly opposed portions of the girth of the cable adjacent thereto.

3,829,826

CABLE FASTENER FOR ELECTROCARDIOGRAPH ELECTRODES

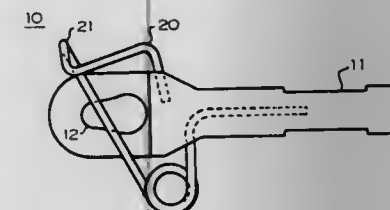
Donald M. Brown, Bedford, and Roger E. Dennison, Waltham, both of Mass., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 22, 1972, Ser. No. 282,742

Int. Cl. H01r 11/22

U.S. Cl. 339-255 R

3 Claims



A cable fastener provides an electrically conducting mechanical connection between a standard male snap fastener commonly used as an electrocardiograph electrode and a cable. The male snap fastener is positively held in contact with the cable fastener by a spring.

3,829,827

ACOUSTICAL HOLOGRAPHY SYSTEM FOR ACOUSTIC IMAGE CONVERSION

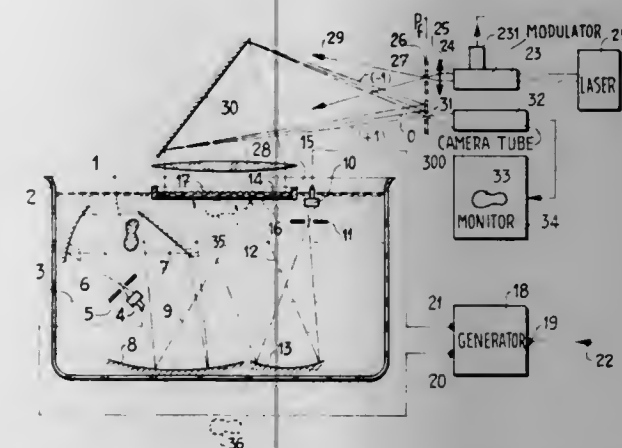
Joel Ernvein, Paris, France, assignor to Thomson-CSF, Paris, France

Filed May 23, 1972, Ser. No. 256,019

Claims priority, application France, May 28, 1971, 71.19581; Aug. 27, 1971, 71.31183

Int. Cl. G01s 9/66; G01n 29/04

U.S. Cl. 340-5 H



The present invention relates to acoustical holography systems and more particularly to the liquid surface relief method of acoustic image conversion.

The system in accordance with the invention comprises means for optically reconstructing the acoustic hologram formed at the surface of a fluid; the operation of the reconstructing means is limited to the phases of insonification of the fluid surface.

3,829,828

SPEED RESPONSIVE TIMING CIRCUIT FOR VEHICLE LIGHT OPERATION

Don W. Hutchinson; Richard A. Kniesly, and Richard O. Stants, all of Kokomo, Ind., assignors to Ko An, Inc., Anderson, Ind.

Continuation-in-part of Ser. No. 148,075, May 28, 1971, abandoned. This application Nov. 21, 1972, Ser. No. 308,474

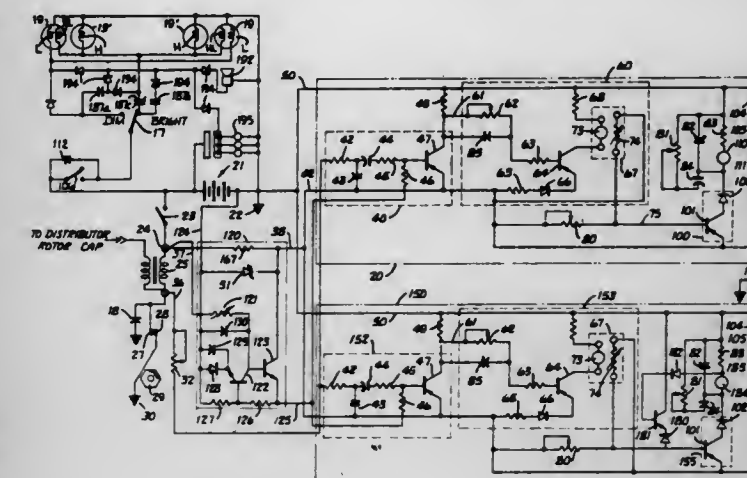
Int. Cl. B60q 1/54

U.S. Cl. 340-62

16 Claims

An electrical circuit controls vehicle lights proportionally to the vehicle speed with a time holding capability. One circuit

connects the vehicle lights to a source of electrical energy upon attainment of a predetermined vehicle speed. Another circuit connects and disconnects in cyclical manner the vehicle lights to a source of electrical energy. In one embodiment, both circuits have a trigger subcircuit with a variable resistor responsive to cyclical operation of a light. A transistorized am-



plifier is connected to the output of a speed responsive signal generator and is also connected to the trigger subcircuit. A switch is connected to the variable resistor being activated as the resistance of the variable resistor decreases. An adjustable time delay subcircuit delays deactivation of the switch. In another embodiment, both circuits have light emitting diodes and photo-detectors for the trigger subcircuits.

3,829,829

AUTOMOBILE THEFT ALARM WITH IGNITION CONTROLLED AUTOMATIC ARMING MEANS

Rudor M. Teich, 6040 Blvd. E., West New York, N.J. 07093

Division of Ser. No. 217,181, Jan. 12, 1972, Pat. No.

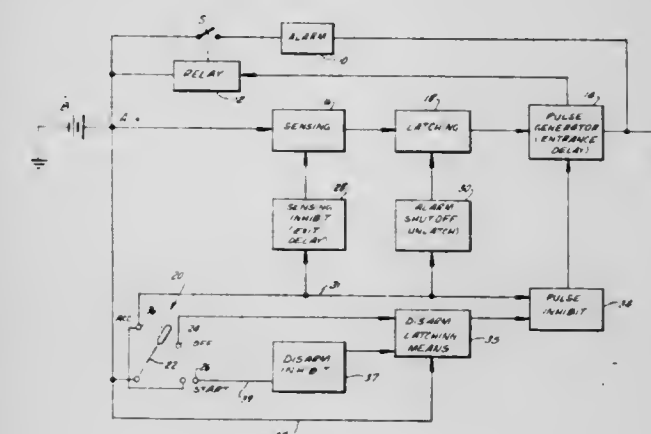
3,671,934, which is a continuation-in-part of Ser. No. 86,222, Nov. 2, 1970, Pat. No. 3,740,713. This application Dec. 4,

1972, Ser. No. 311,939

Int. Cl. B60r 25/10

U.S. Cl. 340-64

3 Claims



A vehicle alarm system adapted to provide a pulsed actuation of an audible alarm upon unauthorized entry is provided with means to automatically rearm the circuit a predetermined interval after the ignition switch is turned off. The alarm is activated by a pulse generating circuit which is energized by a sensing circuit responsive to the rate of change of voltage at the vehicle battery terminals and is latched in its energized condition until the ignition switch is turned on. Means are provided to render the sensing circuit ineffective while the ignition switch is on and for a predetermined interval after it is turned off to allow the driver sufficient time to exit the vehicle. The pulse generating circuit is provided with an inherent initial time delay to provide the driver sufficient time to enter the vehicle and turn the ignition switch on.

Means are provided for disarming the circuit when the ignition switch is turned to the accessory position and held in such position for a predetermined time interval, failing which the circuit will be automatically rearmed upon turning the ignition off. The practical effectiveness of the system is greatly enhanced by the requirement that the driver take positive action to disarm the alarm.

3,829,830

CIRCUIT FOR SWITCHING D. C. POWER

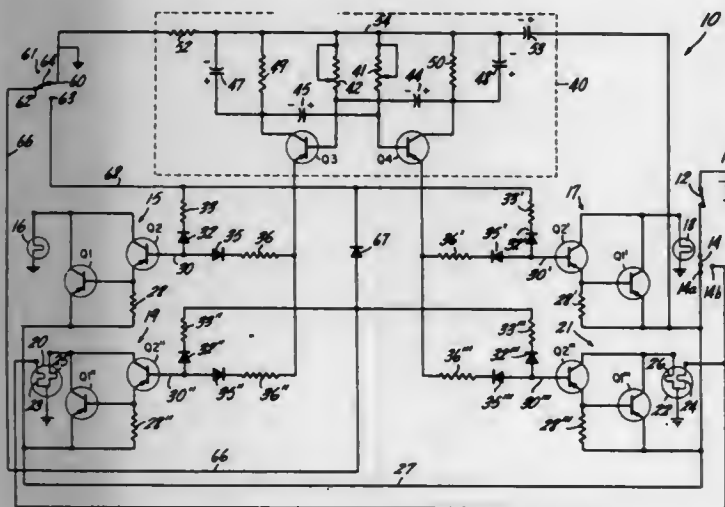
John J. Scarpino, Garden City, N.Y., assignor to Hope-Tronics, Limited, Hempstead, N.Y.

Filed Mar. 16, 1972, Ser. No. 235,053

Int. Cl. G08b 5/38

U.S. Cl. 340-81 R

4 Claims



A circuit for delivering pulsed or constant power to a set of loads, particularly headlamps whose flashing serves as an alert. A number of transistor amplifiers serves as switches to switch moderately high power to the loads from a D.C. source. Two alternating, out-of-phase outputs of a continuously running astable multivibrator bias associated transistor switches into and out of conduction. This causes out of phase pulsed or flashing actuation of loads. An overriding, continuous bias potential, supplied to some, all, or none of the transistor switches, causes steady energization of some, all, or none of the loads. A remote switch controls the delivery of the continuous bias potential to selected transistor switches. When less than all loads operate continuously, the remaining pulsed loads include loads from both out-of-phase groups.

3,829,831

PATTERN RECOGNIZING SYSTEM

Shinji Yamamoto, Hachioji, and Kazuo Nakata, Kokubunji, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

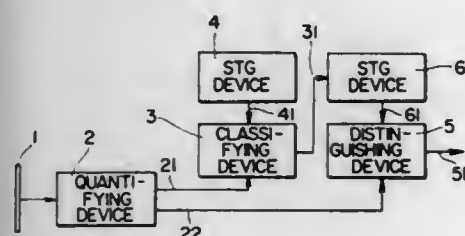
Filed Nov. 10, 1972, Ser. No. 305,316

Claims priority, application Japan, Nov. 10, 1971, 46-89021

Int. Cl. G06k 9/12

U.S. Cl. 340-146.3 AQ

5 Claims



An unknown pattern is converted into first and second electrical signals respectively corresponding to 32×32 picture elements and 8×8 picture elements. The second electrical signal and signals of reference patterns for classification are compared, to select a probable category of reference patterns for discrimination. Reference patterns belonging to the probable category are taken out from among the discriminating

reference patterns prepared beforehand. Signals of the patterns taken out and the first electrical signal are compared, to carry out the discrimination of the unknown pattern.

3,829,832

SYSTEM FOR RECOGNIZING PATTERNS

Harumi Kawasaki, Tokyo, Japan, assignor to Asaki Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

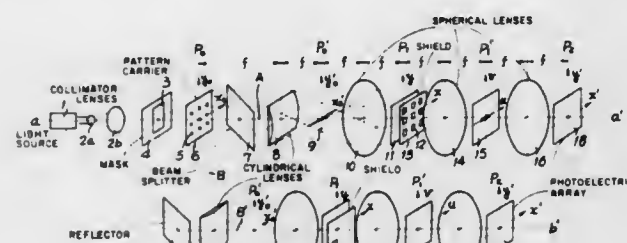
Filed Jan. 24, 1973, Ser. No. 326,259

Claims priority, application Japan, Jan. 27, 1972, 47-10006

Int. Cl. G06k 9/08

U.S. Cl. 340-146.3 P

8 Claims



A system for recognizing patterns arranged in rows and columns with the rows forming elements of a given input group and the columns forming elements of a given input group so that there are a pair of input groups. Images of all of the elements of one of these input groups are simultaneously transmitted to a matched filter while the elements of the other input groups are sequentially transmitted to the matched filter. The matched filter produces in an output plane a plurality of sets of correlation pattern images corresponding to the number of elements of the group which has the images of its elements simultaneously transmitted, with the arrangement of the memorized patterns at the matched filter being such that the positions of the simultaneously transmitted images can be separated according to the location in the group of elements whose images are simultaneously transmitted. A photoelectric structure responds to the correlation images in the output plane for sending corresponding signals to a computer structure which identifies the patterns.

3,829,833

CODE ELEMENT IDENTIFICATION METHOD AND APPARATUS

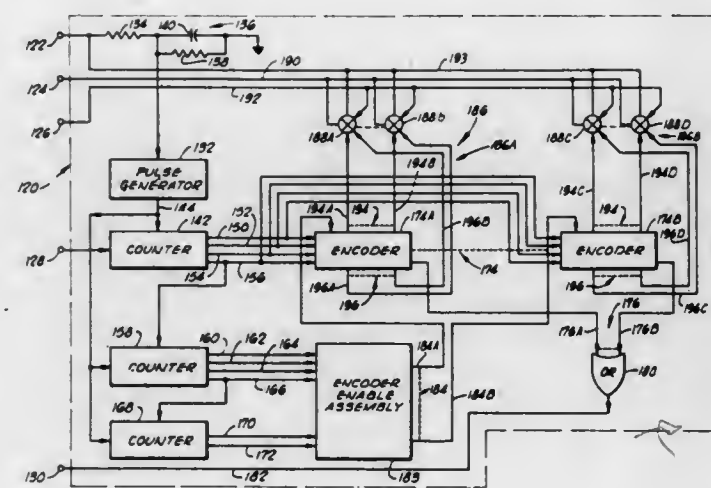
Charles C. Freeny, Jr., Fort Worth, Tex., assignor to Information Identification Company, Inc., Ft. Worth, Tex.

Filed Oct. 24, 1972, Ser. No. 300,098

Int. Cl. H04q 3/02; G06k 17/00

U.S. Cl. 340-149 R

22 Claims



An improved code element identification method and apparatus wherein a code element assembly receives an interrogate signal from a code identifier assembly in an activated

position of the code identifier assembly when the code element assembly is positioned in a code identifying proximity with the code identifier assembly, the code element assembly emitting a time oriented encoded responder signal in response to the received interrogate signal. The code identifier assembly receives and decodes the responder signal and generates a code valid signal in response to an identified code encoded in the received responder signal and a foreign code signal in response to an unidentified code encoded in the received responder signal. In one aspect, the present invention also contemplates an improved binary encoder module receiving a clock signal of a predetermined frequency and emitting an output signal encoded with a predetermined code.

3,829,834

ELECTRICAL COMBINATION LOCK APPARATUS

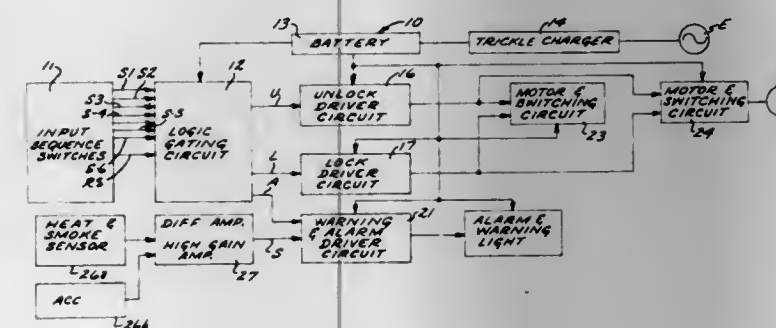
John T. Frankland, 8350 Decca, Long Beach, Calif. 90808, and Richard J. McLaughlin, 4203 W. 141 St., Hawthorne, Calif. 90250

Filed Sept. 10, 1973, Ser. No. 395,973

Int. Cl. H04q 9/00

U.S. Cl. 340-149 R

10 Claims



An electrical combination lock including a plurality of switches, connected in parallel to ground across a capacitor, for respectively producing when depressed a ground signal to corresponding first terminals of NAND gate latches. The NAND gate latches are connected in cascade to a reset signal switch at the second input terminals thereof whereby each NAND gate is switched to one state upon the depression of the reset switch and then to the other state upon depression of the corresponding combination switches. The same cascade connection of the latches will latch the latches in their switched states if the switch depression sequence follows the connection sequence and any other switch sequence will only register a change in state of one of the latch outputs concurrent with the depression of the switch while the second output will remain in its original state. Thus any switching sequence can be obtained, which, if followed, will latch all of the latches in the second state. This change in state of all of the latches is collected at a combination NAND gate, which, when receiving all signals of a particular state, activates a lock drive motor in a direction determined by the position thereof, either to open or close a lock. All other permutations of latch state, except one, are collected at other NAND gates to activate an alarm. The remaining permutation is reserved to reset the lock if a wrong sequence is depressed by error. The respective switches are connected to ground across an R-C circuit such that the depression thereof must occur within a predetermined interval. Also the power for the circuits is supplied by a battery continuously charged by a battery charger such that the combination lock is independent of an external power supply.

3,829,835

MULTI-SIGNAL ENCODER AND TRANSPONDER

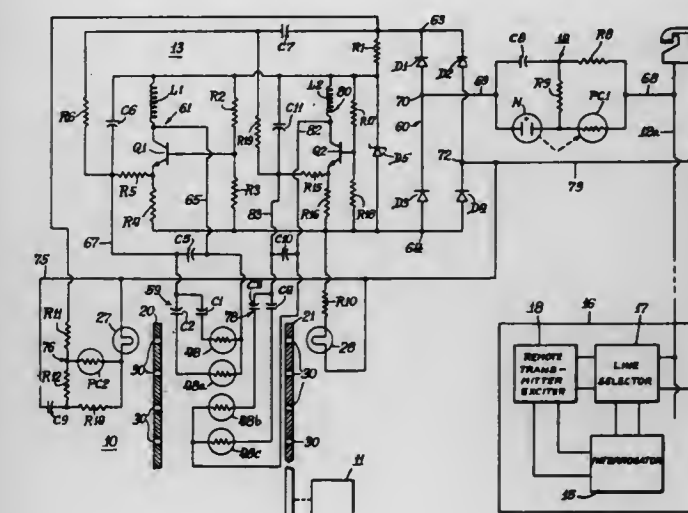
Victor E. Stewart, Jr., South Milwaukee, Wis., assignor to McGraw-Edison Company, South Milwaukee, Wis.

Filed Sept. 20, 1972, Ser. No. 290,513

Int. Cl. H04q 9/00

U.S. Cl. 340-151

10 Claims



A position encoder and transponder for use in an automatic remote meter reading system and including disc means coupled to the meter being read and perforated in accordance with a position code and position means having a plurality of photoresponsive information bit means operatively associated with the coded disc. An oscillator provides two different tone signals in accordance with associated capacitive parameters and capacitance means is associated with each photoresponsive means for being placed in a parallel circuit relation with the capacitive parameters in accordance with the position of the coded disc so that a different pair of tone signals will be provided for each disc position.

3,829,836

LOCKING SYSTEM RESPONSIVE TO AN ELECTRONIC KEY

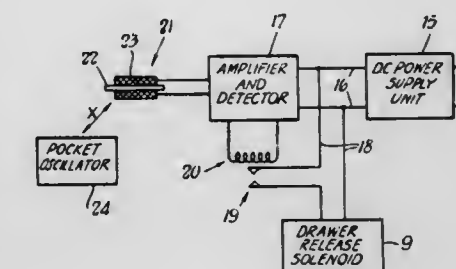
Walter Wilson Hugh Clarke, Marsh Ln., Eversley, Hampshire, England

Filed Oct. 13, 1972, Ser. No. 297,303

Int. Cl. H04q 9/10, 9/12

U.S. Cl. 340-171 R

9 Claims



A locking system comprises locking means locking, for example, a drawer, an inductive pick-up and means for responding to an output from the pick-up to release the locking means, and a key device having an inductive field generator which can produce an output in the pick-up by induction at close range. The sensing system can be tuned to respond only to a key device generating one or more particular frequencies and a lockout arrangement can be provided to prevent release if any other frequency is present.

3,829,837

CONTROLLER FOR ROTATIONAL STORAGE DEVICE HAVING LINKED INFORMATION ORGANIZATION

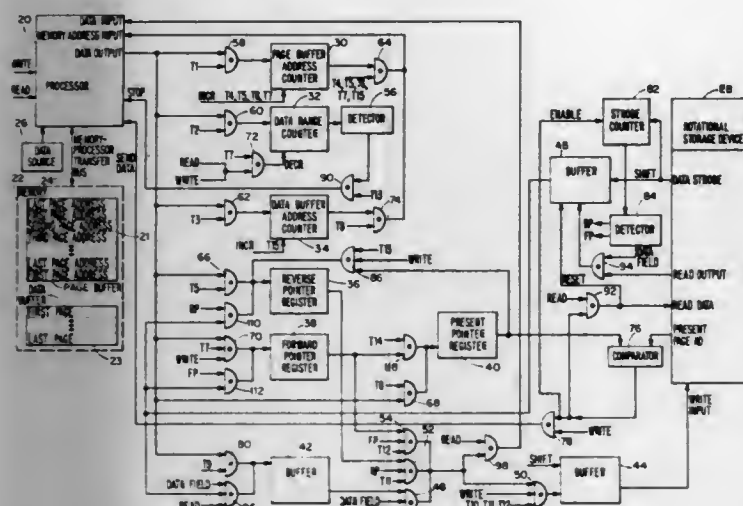
William W. Farr, Jr., Holliston, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed June 24, 1971, Ser. No. 156,259

Int. Cl. G06f 7/22

U.S. Cl. 340—172.5

36 Claims



A rotational storage device such as a drum or disk includes a plurality of circumferential tracks on the surface thereof. Each track includes a plurality of segments or pages, and each page includes data, a reverse pointer and a forward pointer stored therein. A record is comprised of one or more pages which are linked together by the forward and reverse pointers. The first page of the record links to the last and second pages and so on until the last page of the record links to the next to last and first page of the record. Controller apparatus is shown for reading, writing and editing using the reverse and forward pointers.

3,829,838

COMPUTER-CONTROLLED THREE-DIMENSIONAL PATTERN GENERATOR

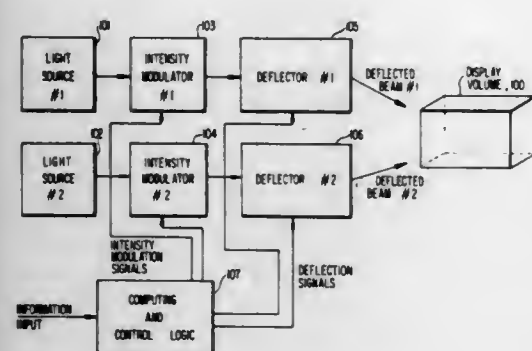
Jordan D. Lewis, Worthington; Carl M. Verber, and Robert B. McGhee, both of Columbus, all of Ohio, assignors to Battelle Development Corporation, Columbus, Ohio

Continuation-in-part of Ser. No. 87,214, Nov. 5, 1970, which is a continuation-in-part of Ser. No. 880,882, Nov. 28, 1969, abandoned. This application July 30, 1971, Ser. No. 167,765

Int. Cl. G06f 1/00, 9/00; G02b 1/00

U.S. Cl. 340—172.5

179 Claims



Computing and control logic generates control signals in response to input data specifying the coordinate positions of a plurality of points of a three-dimensional pattern. The control signals control the generation and cooperation of changes in energy levels within a medium which is capable of undergoing a change in optical properties in response to energy level changes within the medium, thereby producing within the medium an optical pattern representing the three-dimensional display of the three-dimensional pattern. In the preferred embodiment, the medium is a display volume of material in which

a luminous display of the three-dimensional pattern is created by selective two-step excitation of emission centers in the volume. Other media, including a halographic recording medium, are also disclosed.

3,829,839

PRIORITY INTERRUPT SYSTEM

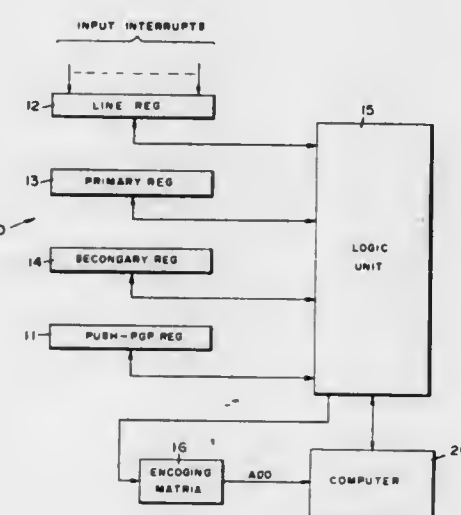
Harvey L. Jeane, Tujunga, Calif., assignor to California Institute of Technology, Pasadena, Calif.

Filed July 24, 1972, Ser. No. 274,348

Int. Cl. G06f 9/18

U.S. Cl. 340—172.5

10 Claims



A priority interrupt system is disclosed comprising four registers including a push pop register. In the system, designed to accommodate up to n interrupts of different priority levels, each of the registers is of n bits, with the orders of the bits in the registers corresponding to the priority levels of the different interrupts. The highest order set bit in the push pop register indicates the priority level of the interrupt for which a sub-routine is being executed. Any lower order set bit indicates the priority level of an interrupt for which a sub-routine has been previously started and thereafter interrupted to service a subsequently received interrupt of a higher priority level. The sub-routines are structured so that when a sub-routine is completed the highest order set bit in the push pop register is reset and the controlled computer automatically returns to complete the sub-routine associated with the next highest order set bit in the push pop register. The other registers are used to receive the various interrupts, to compare the highest priority level of any of them with the highest order set bit in the push pop register to determine whether or not the computer's operation should be interrupted.

3,829,840

VIRTUAL MEMORY SYSTEM

John L. Burk; Spurgeon G. Hogan, Jr., both of Poughkeepsie; Russell H. Larson, Wappingers Falls, and Bruce L. McGilvray, Pleasant Valley, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed July 24, 1972, Ser. No. 274,771

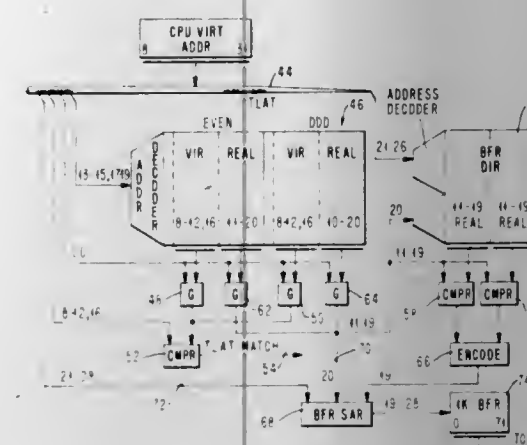
Int. Cl. G06f 3/00

U.S. Cl. 340—172.5

2 Claims

This specification describes a virtual memory system comprising a main storage and a smaller high speed buffer. Both main storage and the buffer are real-address oriented. Current virtual-to-real address translations are retained in a Translation Look Aside Table (TLAT) and real addresses of data stored in the buffer are maintained in a buffer directory. The CPU-provided virtual address causes access to the TLAT and

to the buffer directory. The virtual address stored in the word accessed from the TLAT is compared to the virtual address



from the CPU and the real addresses accessed from the TLAT and the buffer directory are compared to each other. If both comparisons are equal, the data is accessed from the buffer.

3,829,841

COMPUTER MONITORING DEVICE

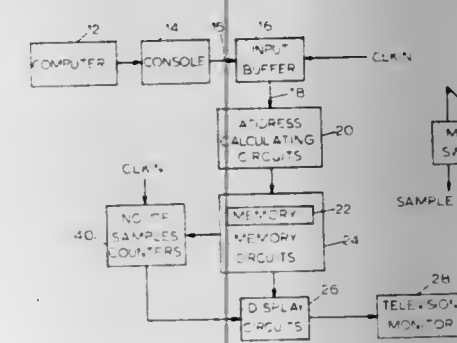
William Steinberg, Waterloo, Ontario, Canada, assignor to Computer Performance Instrumentation Incorporated, Kitchener, Ontario, Canada

Filed Dec. 8, 1972, Ser. No. 313,606

Int. Cl. G06f 1/00

U.S. Cl. 340—172.5

22 Claims



A device for generating a histogram from a varying digital input word and for displaying the histogram as a series of vertical segments on a television monitor. The input word may be any word existing in a computer, e.g. it may be the program counter, thus to produce a histogram showing the frequency of occurrence of addresses of instructions used by the computer. The device includes a memory having a number of discrete memory addresses. One or more input words are assigned to each memory address, as preset by base address and resolution controls, and each time such word or words occur, the memory location at that address is incremented to produce a histogram.

To display on a television monitor the histogram in memory, an X-axis position counter produces a series of counts during each horizontal scan of the monitor beam, to address successive memory locations during counting, so that each count corresponds to one memory location and also to a discrete X-axis position of the beam. A Y-axis position counter generates a count representing the Y-axis position of the beam. For each X-axis position, the content of the memory location associated therewith is read into a comparison circuit and compared with the Y-axis beam position. If the memory content of the addressed location is sufficiently great relative to the beam Y-axis position, the comparison circuit produces a pulse used to create a spot on the screen at the X and Y coordinates in question, so that as scanning progresses, the histogram segments are traced out on the screen.

3,829,842

AUTOMATIC SELF-TESTING PROGRAMMABLE INDUSTRIAL CONTROLLER

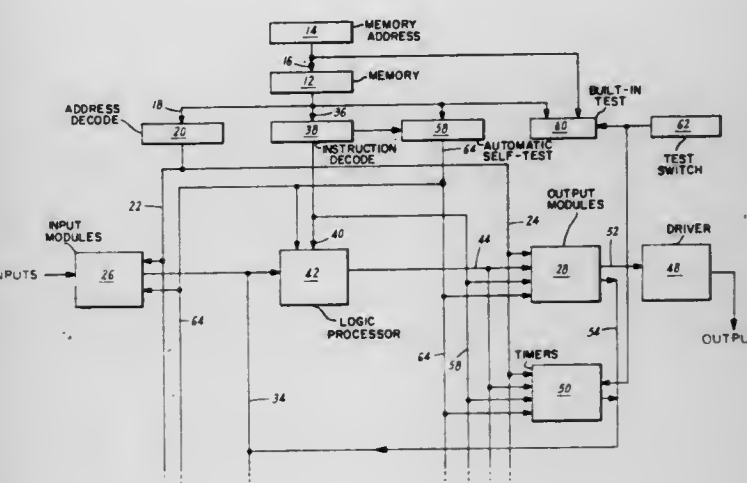
David H. Langdon, Enfield; James C. Prentice, Bolton, and David L. Van Olinda, Somers, all of Conn., assignors to Terry Controls Corporation, South Windsor, Conn.

Filed Feb. 22, 1973, Ser. No. 334,777

Int. Cl. G05b 1/00; G06f 1/00, 1/100

U.S. Cl. 340—172.5

18 Claims



A programmable industrial logic controller is provided for accomplishing the sequencing operations and other related control tasks performed by a logic control system of the type adapted for controlling machine and process equipment. The controller includes input means, memory means, control logic means, automatic self-test means, output means and manual test means. The input means functions to receive inputs supplied to the controller corresponding to the existing conditions of a plurality of parameters of the equipment being controlled. A pre-established set of instructions is stored in the memory means relating to the operation of the equipment being controlled. The control logic means functions to operate in response to a set of instructions stored in the memory means. Further, the control logic means functions to generate outputs, for controlling the operation of the equipment, from the series of instructions extracted from the memory means. Automatic self-test means are provided for periodically performing a self test of the controller to determine whether the controller is functioning properly. The output means is connected in circuit relation with control logic means and receives therefrom the outputs generated thereby. The outputs received by the output means are supplied thereby to the equipment being controlled. The manual test means are provided to permit manual test of selected controller functions.

3,829,843

READOUT CIRCUITRY FOR ELASTIC DATA BIT STORES

Michael Peter Cichetti, Jr., Staten Island, N.Y., and Robert Jeffrey Fretz, Red Bank, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 4, 1973, Ser. No. 347,855

Int. Cl. G06f 5/06; G11c 19/00

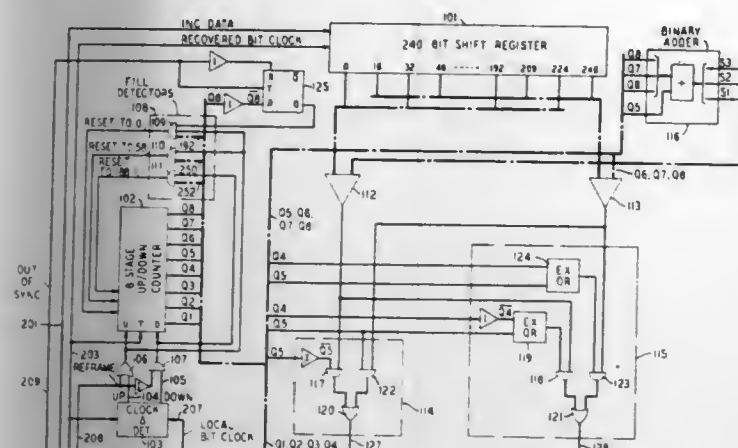
U.S. Cl. 340—172.5

13 Claims

Shift register stages delay incoming frames of data to align each frame with framing pulses of a local clock and to compensate for jitter of the incoming data stream. Variable delay is provided by a counter whose count is increased or decreased in accordance with whether the incoming bit rate is greater than or less than the local clock rate and by decoding and reading gates which decode the count to select the register output stage. The register is arranged into groups of stages, one reading gate for each group to provide coarse adjustment of the delay. The read out data is applied to a second

and a third shift register, one reading gate for each stage of these registers to provide fine adjustment of the delay. As the

phase-shifted signals when they are near their peak amplitudes, which is arranged to occur when line voltage is not at its peak amplitude, then processing the sensed signals and



count is increased (or decreased) the outputs of adjacent groups in the primary register are read out, in an overlapping sequence, and then passed to the second and third registers.

3,829,844

INTERROGATION APPARATUS AND METHOD INCLUDING A RECORD CARRIER FOR STORING IMAGES WITH ADDRESSES

Frans Wessel Zonneveld, and Johannes Westhof, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

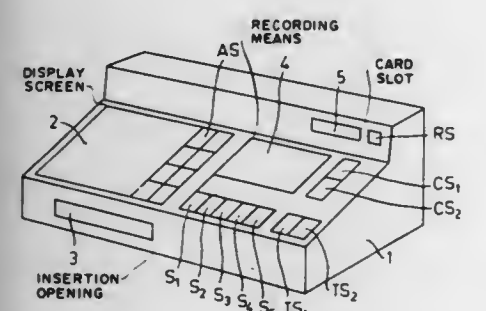
Filed June 1, 1973, Ser. No. 366,092

Claims priority, application Netherlands, June 10, 1972, 7207935

Int. Cl. G06f 3/00

U.S. Cl. 340-172.5

9 Claims



A record carrier which is suitable for the storage of image information in the form of questions, and an interrogation apparatus in which the image information can be displayed in individual images. The record carrier comprises one an address location with an address for each image, so that the image is identified. The answers to questions are recorded on a recording medium in the interrogation apparatus, in combination with the address of the question image. This recording medium is used in a computer system, the combination of address and answer being a storage address of the computer store. The images of the record carrier can furthermore be provided with a type indication which indicates types of questions.

3,829,845

PROCESS CONTROL METHOD AND APPARATUS

David K. Means, Ann Arbor, Mich., assignor to Reliance Electric Company, Cleveland, Ohio

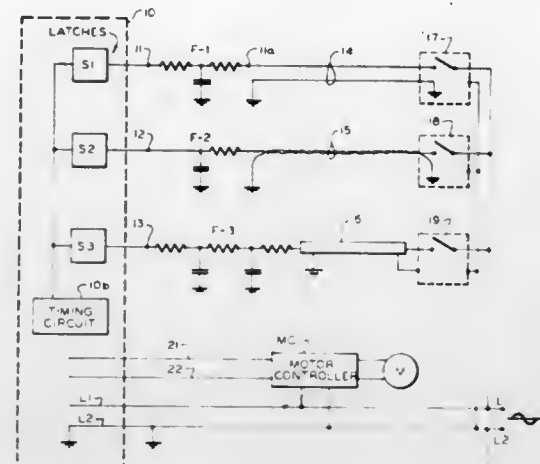
Filed Aug. 24, 1973, Ser. No. 391,349

Int. Cl. G06f 3/00

U.S. Cl. 340-172.5

14 Claims

Noise immunity is enhanced in a digital computer controlled process by phase-shifting input signals before they are sampled by the computer to remove high frequency noise using small filters having short time constants, by sensing the



transmitting command signals either the first or a subsequent time after such sensing that the line voltage passes through zero.

3,829,846

MULTI-FUNCTION LOGIC MODULE EMPLOYING READ-ONLY ASSOCIATIVE MEMORY ARRAYS

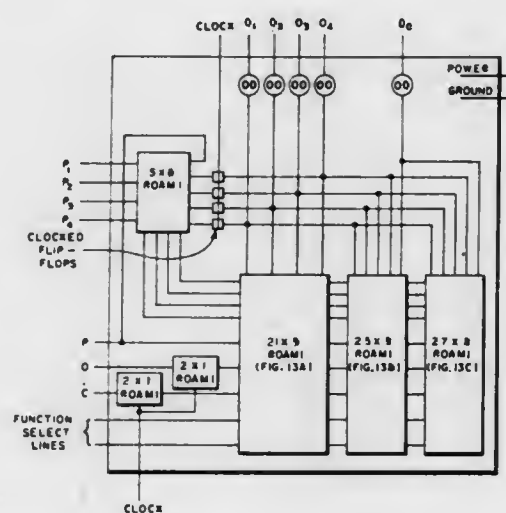
Robert Orval Berg, and Kenneth James Thurber, both of St. Paul, Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 15, 1972, Ser. No. 306,689

Int. Cl. G11c 15/00, 17/00

U.S. Cl. 340-173 AM

3 Claims



A selectable-function, logic module, capable of being implemented on a single large-scale integrated (LSI) chip, in which all logical operations, including internal control functions, are performed by read-only associative memory (ROAM) arrays. Such modules, capable of both static combinational logic and sequential logic, may be employed as the basic building-blocks for large-scale processing systems or subsystems replacing the variety of discrete-function logic devices which would otherwise be employed.

3,829,847

OPTICAL MEMORY USING TRAPPED ELECTRONS IN A CRYSTAL OF PHOTOCONDUCTOR MATERIAL

James Vincent Masi, Monroe, Conn., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Dec. 6, 1972, Ser. No. 312,661

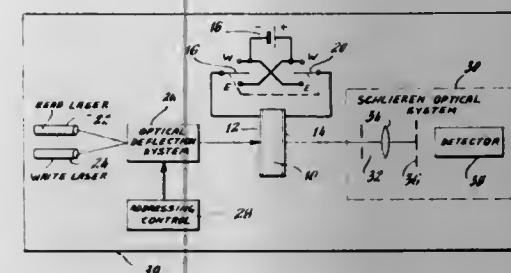
Int. Cl. G11c 11/42

U.S. Cl. 340-173 LT

23 Claims

This invention provides an optical memory for data bits which memory consists of at least one crystal of a stable

photoconductor type material such as zinc oxide (ZnO) which material may have its index of refraction change in response to the concurrent application thereto of two energy elements, an electric field of suitable potential and light energy of a first suitable frequency. One of the elements, for example, the electric field, is normally applied to the crystal and the other element, for example light, is selectively applied to spots on the crystal at which it is desired to store bits of information. The index of refraction of each such spot is changed, storing a data bit thereat. This change in index of refraction is detected



by, for example, applying a light beam of a different frequency to the crystal and utilizing either an imaging system, or a polarizer and an analyzer to detect the change in index of refraction. Erasure of data may be accomplished by reversing the electric field or by irradiating the crystal with heat or light energy at a longer wavelength than that utilized for read or write. Information may be stored at various depths within the crystal by varying the electric field across the crystal or by generating the field normal to the crystallographic C axis of the crystal and utilizing electrodes at different depths of the crystal to generate the field.

3,829,848

STUCK ACTUATOR ALARM

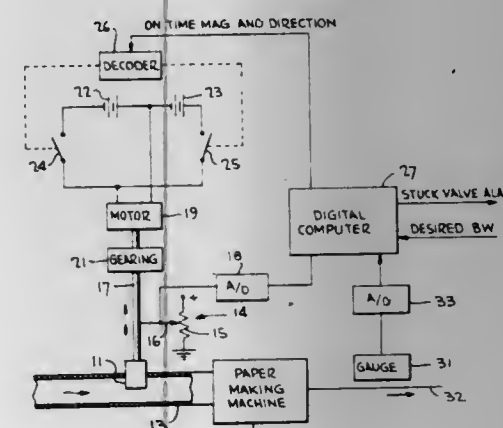
John E. Eickelberg, and James S. Rice, both of Columbus, Ohio, assignors to Industrial Nucleonics Corporation, Columbus, Ohio

Filed Mar. 29, 1971, Ser. No. 128,719

Int. Cl. G08b 21/00

U.S. Cl. 340-238

10 Claims



A system for and method of determining if an actuator, such as a motor driving a stem of a valve in a line feeding a fibrous slurry to a paper making machine, is in a stuck condition includes a position transducer for the actuator. A control signal for the actuator may be periodically supplied to the actuator. A computer responds to the magnitude of the control signal and an indication of the actual position of the actuator, as derived by an analog-to-digital converter responsive to a position transducer for the actuator. The computer compares the position of the actuator before and after the control signal is supplied to the actuator. In response to the two positions being the same, a signal indicative of the amount the actuator should have moved in response to the control signal is derived and compared with a predetermined value for the minimum

amount of detectable movement for the actuator to derive a stuck actuator alarm signal selectively.

3,829,849

MEANS FOR PROVIDING THERMOCOUPLE FAILURE DETECTION IN A MULTIPLE PROBE SYSTEM

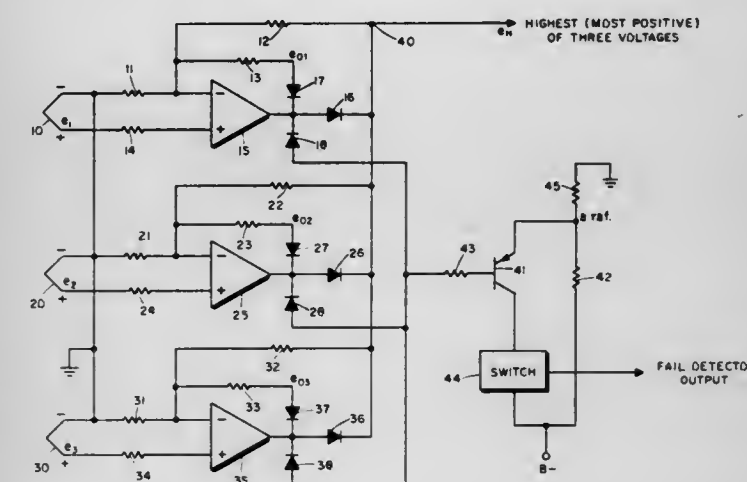
Reuben L. Stauffer, Hampton, Va., assignor to The Bendix Corporation, Southfield, Mich.

Filed Mar. 26, 1973, Ser. No. 345,160

Int. Cl. G08b 21/00

U.S. Cl. 340-248 E

5 Claims



A select high multiple thermocouple probe circuit includes a plurality of operational amplifiers, each operational amplifier being associated respectively with an individual thermocouple. Each thermocouple is resistively coupled across the input terminals of its associated operational amplifier so that the operational amplifier generates an output signal which is proportional to the temperature at which the thermocouple is exposed. The output terminals of each operational amplifier is connected through an associated diode to a circuit output terminal so that only the highest operational amplifier output voltage appears at the circuit output terminal. The operational amplifier feedback circuits are arranged so that should a thermocouple become either open or shorted, the output voltage from that operational amplifier becomes abnormal. This abnormal voltage is sensed through a further diode network to indicate that a thermocouple failure has occurred.

3,829,850

PROXIMITY DETECTOR

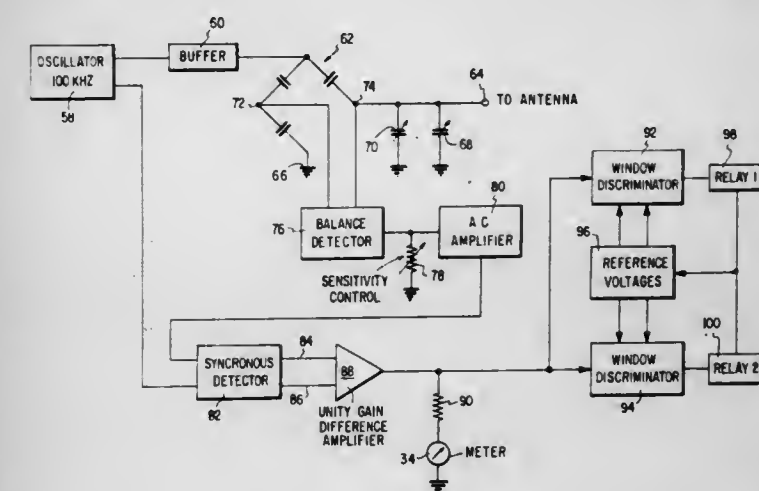
John W. Guetersloh, Hamburg, N.Y., assignor to Tyco Laboratories, Inc., Waltham, Mass.

Filed Dec. 17, 1971, Ser. No. 209,333

Int. Cl. G08b 13/00

U.S. Cl. 340-258 C

22 Claims



A capacitive proximity detector protects against injury, damage or unauthorized entry into a protected area. It com-

prises an unbalanced capacitive bridge including an antenna or sensor which produces an output proportional to the capacitance of the antenna to ground. A change in capacitance is detected and the resulting signal is applied to a pair of "windows" having maximum and minimum values which, if exceeded, operate a pair of relays and produce a suitable visual indication. Many fail-safe and other safety features are provided in the detector.

3,829,851

INTRUSION DETECTION APPARATUS EMPLOYING A PRESSURE-DIFFERENTIAL DETECTOR

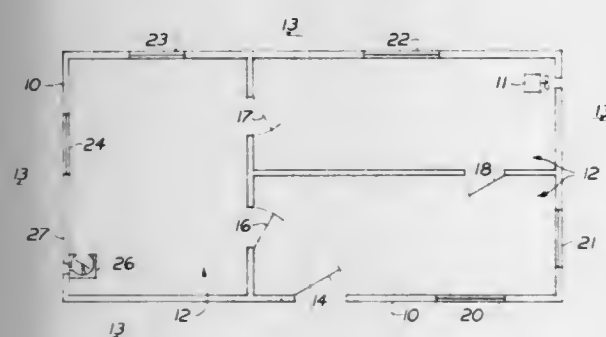
John A. Evans; Clarence S. Chavis, both of Hayward, and Rodney R. Ward, Castro Valley, all of Calif., assignors to William H. Clark, III, Lafayette, Calif.

Filed June 21, 1973, Ser. No. 372,227

Int. Cl. G08b 13/20

U.S. Cl. 340—258 R

14 Claims



An intrusion detection apparatus employs a pressure differential generating means, such as a blower of fan, and a pressure differential sensor which senses changes in pressure from a steady state condition which occur upon the opening of doors or windows. A highly sensitive balanced and gravity biased vane is mounted in a chamber formed for communication between the volume enclosed by the structure and the exterior thereof to provide a sensor enabling an accurate, reproducible sensing of small changes in openings to the exterior without being triggered by movement within the structure. A photoelectric vane detection means is employed to determine vane position without physically contacting the same. Means for adjusting the response sensitivity of the vane and an armed-before-alarm circuit are also disclosed.

3,829,852

ANALOG-TO-DIGITAL CONVERTER

Per-Erik Nilsson, and Bengt-Ake Harald Sjogren, both of Karlskoga, Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed May 3, 1972, Ser. No. 249,805

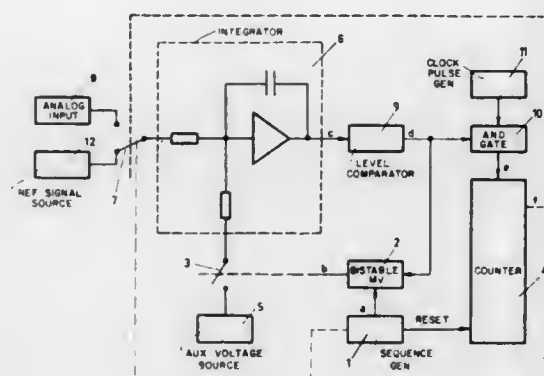
Int. Cl. H03k 13/20

U.S. Cl. 340—347 NT

6 Claims

An analog-to-digital converter comprising: an integrating circuit producing an output signal; a counter for producing a digital representation; first means for controlling the counter and the integrating

circuit to perform a conversion cycle wherein for a period of predetermined length, starting when the output signal reaches a predetermined level different from its level at the start of the conversion cycle, the integrating circuit integrates an analog signal and thereafter integrates a reference signal of opposite polarity to the analog signal, and the counter is controlled to produce a digital



representation of the analog signal in terms of the reference signal; second means for controlling the integrating circuit to integrate an auxiliary signal of the same polarity as that of the analog signal for at least part of the time from the start of the conversion cycle until the output signal of the integrating circuit reaches the predetermined level.

3,829,853

HIGH-SPEED ANALOG-TO-DIGITAL CONVERTER

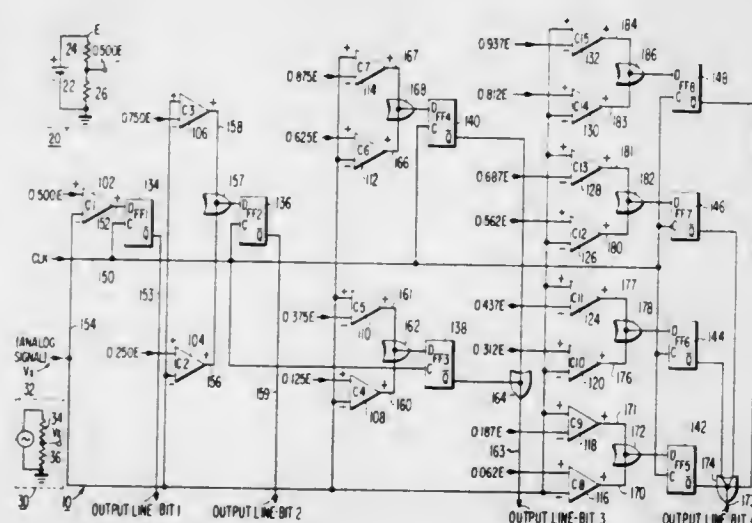
David Daniel Freedman, Cinnaminson, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 7, 1972, Ser. No. 278,270

Int. Cl. H03k 13/02

U.S. Cl. 340—347 AD

1 Claim



An analog input voltage is fed to each input of a plurality of comparators. The other input of each comparator is connected to a source of reference potential having a plurality of fixed reference voltage levels representing the digital quantization levels. The outputs of the comparators drive encoding logic including a plurality of clocked flip-flop stages. The complementary outputs of the flip-flop stages are connected to corresponding output lines to provide the binary digits of the equivalent digital word. The parallel-binary output signal is, at any instant, a true representation of the analog input voltage, that was present at the output of the comparators preceding each clock pulse.

3,829,854

OCTANT DETERMINATION SYSTEM FOR AN ANALOG TO DIGITAL CONVERTER

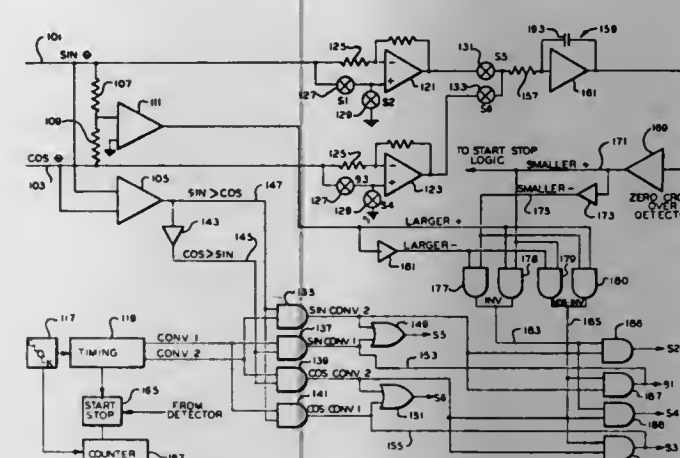
Arnold J. Brand, Parsippany, N.J., and Sidney M. Sacks, Monsey, N.Y., assignors to The Singer Company, Little Falls, N.J.

Filed May 7, 1973, Ser. No. 358,172

Int. Cl. H03k 13/00

U.S. Cl. 340—347 AD

14 Claims



An improved system for making an octant determination in an analog to digital converter used to compute the tangent of an angle from sine and cosine inputs in which the output of the zero crossover detector of the converter is used to make the octant determination.

3,829,855

TYPING SYSTEM WITH FORM PROGRAMMED FORMAT CONTROL

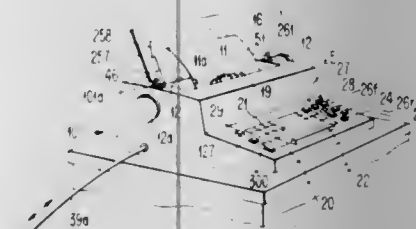
Robert Adolph Kolpek, and James Thomas Loisele, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 20, 1973, Ser. No. 371,820

Int. Cl. G06k 7/08

U.S. Cl. 340—172.5

22 Claims



A forms format program is read from pre-printed markings on a typing form to assist the operator in moving accurately and quickly to different typing fields. Depression of the tabulation key can select tabulation to a form selected tab stop, vertical feed and automatic line return. A field return key generates new lines within a column defined by form selected tab stops. Marks on a typing form can both initiate and terminate repeat forward or reverse indexing to provide a search for a new vertically displaced typing field. Typing status functions such as single or double line spacing are automatically selected by markings on the form.

3,829,856

PAGING VISUAL SIGNAL

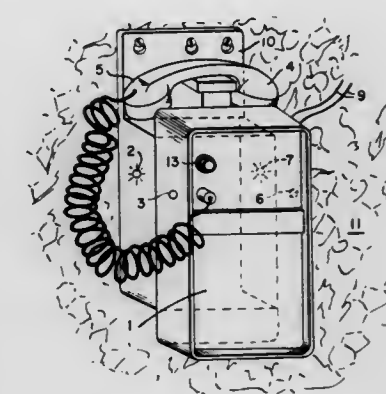
George J. Conroy, Bethel Park, and Howard E. Parkinson, Irwin, both of Pa., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Oct. 11, 1973, Ser. No. 405,603

Int. Cl. G08b 5/38

U.S. Cl. 340—366 R

5 Claims



A telephone visual paging system that is actuated by an audio signal. The audio input current is used to power two or more light emitting diodes which are housed on a telephone receiver. Other than the audio signal power supply, no separate power supply system is needed to power these light sources. By superimposing variations caused by the audio input signal on the periodic switching signals from a multivibrator, the light emitting diodes can generate a semaphore radiation action to get the visual attention of an observer. This invention is particularly useful in hazardous gaseous environments, like coal mines, where electric wiring connections and the possibility of ignitions from electric sources should be minimized.

3,829,857

OPTICAL SIGNALLING

William Bell Allan, Leeds; Jeffrey Douglas Rattle, Basingstoke, and Arthur Gordon Atkinson, Addingham near Ilkley, all of England, assignors to The Rank Organisation Limited, London, England

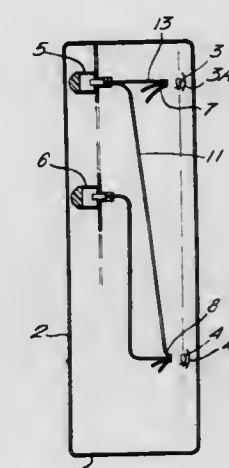
Filed June 1, 1971, Ser. No. 148,852

Claims priority, application Great Britain, June 1, 1970, 26342/70

Int. Cl. H04I 23/00

U.S. Cl. 340—380

4 Claims



Visual display devices containing a matrix of areas which can be selectively illuminated to display a predetermined legend or symbol. In place of individual lamps used hitherto, the proposed visual display devices utilise bundles of optical fibres coupled to a reduced number of light sources, thus simplifying the associated control circuitry.

3,829,858

ARRANGEMENT IN A RADAR EQUIPMENT FOR INDICATING A VARIABLE THRESHOLD LEVEL ON THE INDICATOR

Bengt Bergkvist, Jarfalla, Sweden, assignor to U.S. Philips Corporation, New York, N.Y.

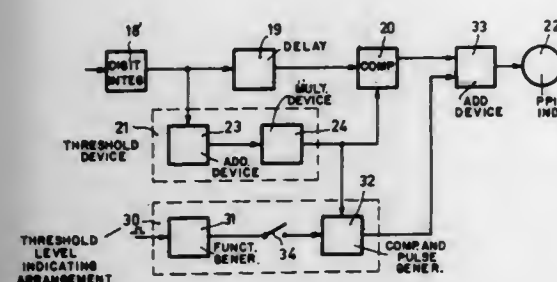
Filed Feb. 15, 1973, Ser. No. 332,733

Claims priority, application Sweden, Feb. 28, 1972, 2434/72

Int. Cl. G01s 9/02, 7/06

U.S. Cl. 343-7 A

1 Claim



A radar equipment comprising a receiver in which incoming echo pulses are compared with a threshold level, which is variable and in each interval adjusted to a value based upon a measurement of the noise or disturbance energy, only such echo pulses being passed to an indicator which have an amplitude exceeding the threshold level. According to the invention the value of the threshold level, set in each moment, is indicated on the indicator, whereby the uncertainty as regards the sensitivity of the radar equipment caused by the variable threshold level is eliminated.

3,829,859

LOW-NOISE FUZE

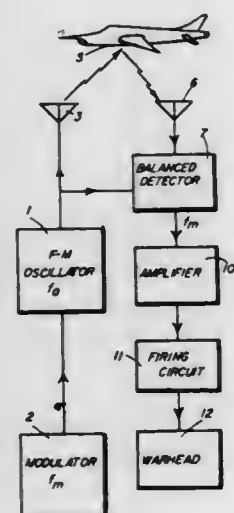
Henry P. Kalmus, 3255 O St., N.W., Washington, D.C. 20007; Harold Goldberg, 5910-32nd St., N.W., Washington, D.C. 20015, and Milton Sanders, 1445 Ferndale Ave., Chicago, Ill.

Filed Oct. 6, 1954, Ser. No. 460,789

Int. Cl. F42c 13/04; G01s 9/24

U.S. Cl. 343-7 PF

3 Claims



This invention relates to the radio-proximity type of ordnance fuze in which the presence of a target is detected by the reflection of a radio signal transmitted from the fuze.

3,829,860

SIGNAL CORRELATOR

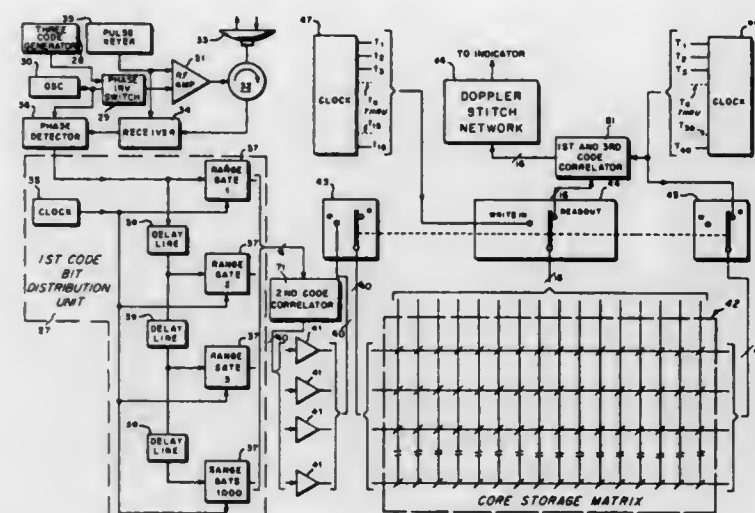
Thomas P. Cutler, Chestnut Hill, Mass., and Kenneth Dollinger, Nashua, N.H., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 25, 1971, Ser. No. 109,603

Int. Cl. G01s 9/44; G06f 15/34

U.S. Cl. 343-9

18 Claims



A signal encoded with three superimposed binary codes is divided into a predetermined number of parallel lines equal to the number of bits in the first code and passed to a second code correlator. Each parallel output of the second code correlator is sampled and stored in a corresponding row of a core storage matrix so that each row of the matrix contains a history of the polarity of the corresponding signal. The bits stored on each row represent the third code sequence while the overall polarity of one row relative to the next adjacent row is governed by the first code. One at a time each row of signals is vertically read out in parallel to a long shift register having multiple sections. Each section is masked for output in accordance with the third code. The entire mask on each section is either normal or inverted in accordance with the first code. The shift register output is connected to a summing network which adds the corresponding bits in each section to produce parallel analog outputs. The signal, now correlated for the first, second and third codes, may be further processed for any remaining information such as doppler frequency in the case of a received radar signal.

3,829,861

TRAILING WIRE ANTENNA

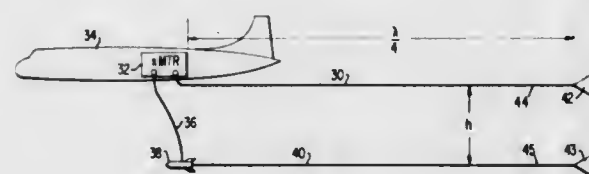
James J. Karaganis, Rockville, and Peter R. Payne, Silver Spring, both of Md., assignors to Wyle Laboratories, El Segundo, Calif.

Filed Oct. 10, 1967, Ser. No. 674,314

Int. Cl. H01q 1/30

U.S. Cl. 343-707

15 Claims



An improved trailing wire antenna system adapted to be trailed behind a flying aircraft and whose radiation is substantially completely vertically polarized rather than horizontally polarized. The antenna system consists essentially of two parallel antenna conductors which form a resonant transmission line, the horizontal radiation from which is substantially

suppressed so that most of the radiation is vertically polarized. The antenna system is particularly useful in the low and very low frequency ranges.

3,829,862

RIDGE SCAN ANTENNA

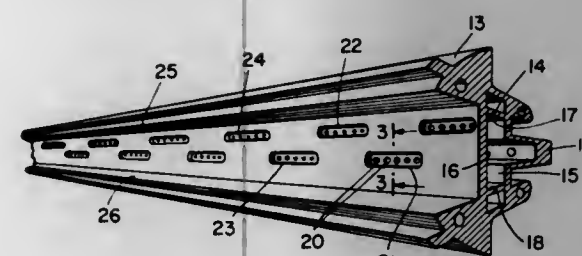
David W. Young, 627 N. Beechwood Dr., Burbank, Calif. 91506

Filed Apr. 20, 1973, Ser. No. 353,201

Int. Cl. H01q 3/36, 13/20

U.S. Cl. 343-767

24 Claims



An elongated horizontally disposed waveguide has a series of holes in one longitudinal side wall dimensioned below cut-off so as to be non-resonant and insensitive to wave length variations. The dimensioning and spacing of the holes on the one longitudinal side wall provides for radiation of a fan shaped beam in a vertical plane having a fairly broad elevational angle and an extremely narrow azimuth angle. The fan shaped beam itself is caused to scan through a given angle in azimuth by means of a ridge member reciprocated wholly within a new waveguide structure T shaped in cross section. In addition to the unique waveguide shape and hole design for coupling energy from the waveguide, novel input and output transition structures are provided. The waveguide is typically used in the leading edge of an aircraft wing as a radar antenna.

3,829,863

POLARIZING FEED APPARATUS FOR BICONICAL ANTENNAS

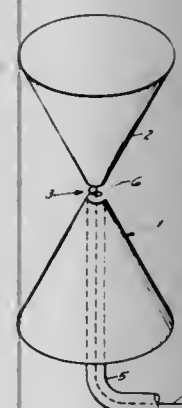
Stephen E. Lipsky, East Hills, N.Y., assignor to General Instrument Corporation, Newark, N.J.

Filed Mar. 12, 1973, Ser. No. 340,322

Int. Cl. H01q 13/00, 19/00, 21/00

U.S. Cl. 343-773

12 Claims



Apparatus is disclosed for feeding a single biconical antenna of the type having an upper and a lower cone which are con-

nected to a coaxial feed line, the apices of said cones being in close proximity. The apparatus comprises means for vertically feeding said antenna, the vertical feed means being located at the apices of the cones. Means are also provided for horizontally feeding the antenna, the horizontal feed means being located in the vicinity of the apices of said cones. This combination of feed apparatuses permits the utilization of the vertical, horizontal, slant linear and circular polarization without the necessity of an external polarizer.

3,829,864

TRANSMITTING STACKED AERIAL

David Matveevich Truskanov, ulitsa Ostroumova, 10, kv. 35; Kirill Rudolfovich Brunin, Nalichnaya ulitsa, 33, kv. 13, and Lev Semenovich Ratner, prospekt Morisa Toresa, 30, kv. 37, all of Leningrad, U.S.S.R.

Continuation-in-part of Ser. No. 380,227, July 18, 1973, abandoned, which is a continuation of Ser. No. 264,407, June 15, 1972, abandoned, which is a continuation of Ser. No. 40,960, May 27, 1970, abandoned. This application Oct. 15, 1973, Ser. No. 406,615

Int. Cl. H01q 21/00

U.S. Cl. 343-833

8 Claims



A transmitting stacked aerial comprising a current-conducting cylindrical support and tiers comprising current-energized radiators. In each tier, radiators are arranged equidistantly along at least some portion of the periphery of the cross-section of the support and are radially oriented relative to the surface thereof. Radiators in each tier are offset in azimuth relative to those of each next tier through a preset angle and are energized with currents of an equal phase, consecutively shifted by 90° from tier to tier. Radiators in each tier are offset in azimuth relative to those in each next tier through an angle of $\psi/4$ (ψ being an angle between adjacent radiators in the same tier). The angle ψ is less than an angle $\beta = [(2\lambda_0/D) \cdot 57.3]^\circ$, where D is a diameter of the support and λ is the mid-band wavelength. Radiators in each tier are consecutively offset in azimuth relative to those in the next tier through said angle of $\psi/4$. The radiators are energized with currents of an equal phase, consecutively shifted in one direction by 90° from tier to tier.

In another embodiment, a transmitting stacked aerial also comprises an additional tier of radiators arranged in the middle of the radiating portion of the aerial. This additional tier is designed to rule out troughs in the radiation pattern of the aerial in the vertical plane and is arranged symmetrically with respect to the first and last tiers. Additional radiators are arranged equidistantly along the periphery of the cross-section of the aerial support, with an angle Σ between adjacent additional radiators being less than an angle $\gamma = [(\lambda_0/2D) \cdot 57.3]^\circ$.

Additional radiators are energized with currents of an equal phase, shifted by an angle of 90°, through four radiators. All concerning the second embodiment only holds true with an even number of main tiers.

3,829,865

ELECTRIC EXPOSURE METER WITH OPERATIONAL FUNCTION

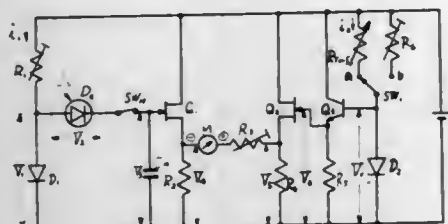
Shoji Kamasako, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-To, Japan

Filed Apr. 4, 1973, Ser. No. 347,693

Claims priority, application Japan, Apr. 14, 1972, 47-44152[U]

Int. Cl. G03j 1/42

U.S. Cl. 354-24



An electric exposure meter for receiving light from an object and for indicating camera aperture value, exposure time or object brightness. A differential amplifier has first and second inputs and an output. An output signal is formed across the output proportional to the difference between signals applied at each of the inputs. A first circuit includes a photo sensitive element for sensing object light and providing a corresponding object brightness signal to the first input. A memory circuit is coupled to the first input and to the object brightness signal for storing a corresponding signal and for applying the stored signal to the first input. A second circuit has a second output circuit and includes: a first manually adjustable resistor for causing an adjustable voltage to be applied by the second circuit at the second output circuit representative of the difference between film sensitivity and exposure time or between film sensitivity and aperture value; a second resistor for causing a constant prefixed voltage to be applied by the second circuit at the second output circuit; and a switch for switching the second output circuit between the first resistor and the second resistor. A meter is coupled across the differential amplifier output circuit and a direct meter indication of aperture value on exposure time or object brightness.

3,829,866

DEVICE FOR DETECTING A PRECISE FOCUSING POINT AND AN AUTOMATIC FOCUS ADJUSTING DEVICE

Tsukumo Nobusawa, No. 255 Minami-Ohizumi, Nerima-ku, Tokyo, Japan, assignor to Asahi Optical Co., Ltd., Tokyo, Japan

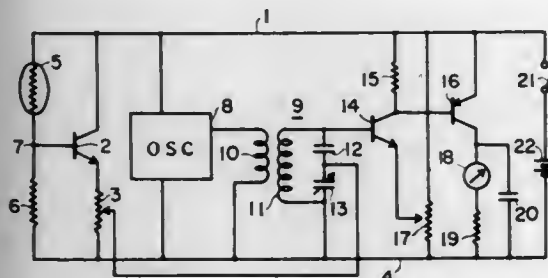
Filed May 9, 1973, Ser. No. 358,525

Claims priority, application Japan, June 17, 1972, 47-60024

Int. Cl. G03b 3/00

U.S. Cl. 354-25

9 Claims



A device for detecting a precise focussing point, particularly for use in a camera, characterized in that the sharpness of focus of a photographic object, detected by a photoelectric element disposed on or in the vicinity of a predetermined focal plane (a focussing or film plane) on an optical axis of a lens or

optical path thereof, is converted into a DC signal and a resonant circuit having a variable resonance frequency controlled by said DC signal produces an output indicative of precise focussing when the resonant circuit responds to the oscillation frequency of an oscillation circuit which is adapted to oscillate at a fixed frequency.

3,829,867

CAMERA EQUIPPED WITH AN AUTOMATIC EXPOSURE CONTROL SYSTEM

Shigeo Ono, Yokohama, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

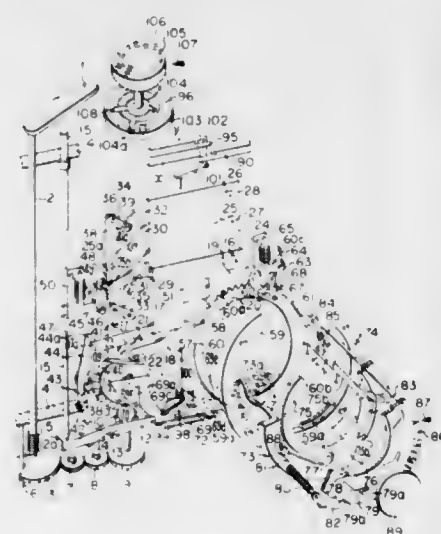
Filed June 29, 1971, Ser. No. 157,943

Claims priority, application Japan, July 3, 1970, 45/57742

Int. Cl. G03b 7/08

U.S. Cl. 95-10 CE

24 Claims



A camera having a taking lens with an adjustable aperture, shutter means mounted for movement from an initial position to a terminal position, and constructed and arranged that the time period between initiation and termination of movement is determinative of the exposure time of said camera, and an automatic exposure system including photosensitive means responsive to the light which is passed through the taking lens for providing a first electric signal relating to the brightness of the light, memory means coupled to the photosensitive means for memorizing the value of the brightness of the light passed through the taking lens after adjustment of the aperture, selectively actuable control means for adjusting the size of said aperture in response to the first electric signal and a predetermined exposure time of the camera, selectively actuable exposure means for adjusting the exposure time of said shutter means in response to the value of light memorized by the memory means, and switch means for selectively actuating either said control means for adjusting the size of said aperture or said control means for adjusting the exposure time of said shutter means.

3,829,868

CAMERA HAVING A RETAINABLE EXPOSURE CONTROL DEVICE

Hiroshi Aizawa, 2130 Yamazaki-cho, Machida-shi, Tokyo; Akio Sunouchi, 872 Shimonoge, Kawasaki-shi, Kanagawa-ken, and Mitsutoshi Ogiso, 458-3 Shimokuchi Nitta-machi, Kawasaki-shi, Kanagawa-ken, all of Japan

Filed Mar. 26, 1973, Ser. No. 345,139

Claims priority, application Japan, Mar. 30, 1972, 47-31968

Int. Cl. G03b 7/12

U.S. Cl. 354-45

4 Claims

A TTL (Through the Taking Lens) photometry single lens reflex camera having a motor drive means mounted detachably or in a built-in manner. A camera having a retainable exposure control device which can repeatedly take a

3,829,870

PHOTOGRAPHIC CAMERA

Masanobu Ogoro, Yokohama, and Kiyoshi Takashi, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

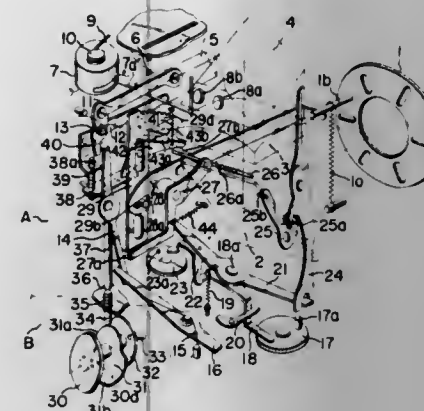
Filed May 16, 1973, Ser. No. 360,647

Claims priority, application Japan, May 22, 1972, 47-51091

Int. Cl. G03b 7/08

U.S. Cl. 354-50

8 Claims



clamping condition to put the EE mechanism inoperative and which further can repeatedly take a photograph in such a manner that in the case the photographing period is long, the EE mechanism is operated following the pointer of meter.

3,829,869

PHOTO FINISH RECORD SYSTEM

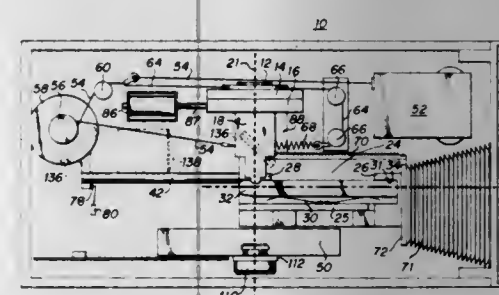
Jack E. Balko, Grand Prairie; Davis F. Moffatt, Richardson, both of Tex., and Durward F. Searcy, Shreveport, La., assignors to Specialty Instruments Corp., Grand Prairie, Tex.

Filed Dec. 29, 1972, Ser. No. 319,193

Int. Cl. G03b 17/24

U.S. Cl. 95-1.1

9 Claims



A photo finish record system produces a time sequence photograph of race contestants crossing a finish line in alignment with a numerical display of elapsed time: the recording unit of the system has a lens and narrow aperture focusing images of a narrow band including the finish line on a self-developing film carried at constant speed past the lens by a film carriage driven on a linear track by a constant force spring motor acting on the carriage through a cable which is wound on a pulley controlled by a constant speed governor. An electronic clock drives a light emitting diode display producing visible numerical indications of elapsed time, which are projected onto one edge of the film. An automatic control cycle is provided whereby the unit is activated only when signaled by a photoelectric sensor near the finish line. The interruption of a light beam by a contestant nearing the finish line causes the sensor to operate a switching circuit releasing a film advance latch, opening the camera shutter and turning on the lighted time display, all of which functions are deactivated a predetermined time after restoration of the beam to the photoelectric sensor, except that the cycle is retriggerable by another finishing contestant. An opening is provided on the carriage for through the lens alignment of the unit upon actuation of a manual alignment control which releases the film advance latch and stops the carriage with the opening aligned with the lens.

3,829,871

PHOTOGRAPHIC APPARATUS

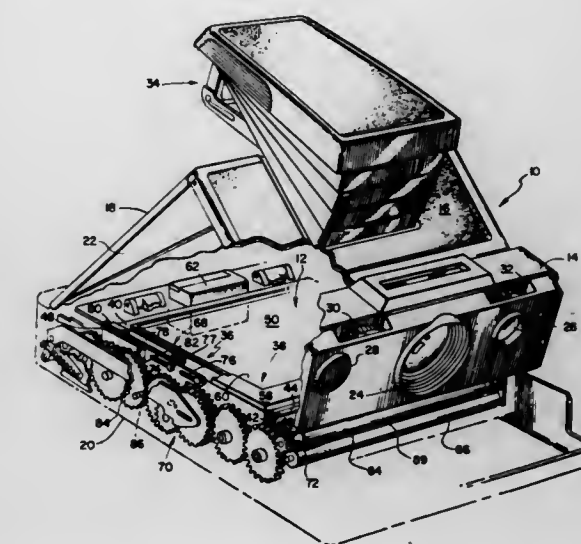
Nicholas Gold, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed July 2, 1973, Ser. No. 375,500

Int. Cl. G03b 17/50

U.S. Cl. 354-86

3 Claims



Photographic apparatus for use with a film unit of the self-developing type including a chamber for locating a film unit in position for exposure and a pair of rollers mounted adjacent a

leading edge of a film unit located in the exposure position. The rollers are adapted to define a longitudinally extending gap which defines an acute angle with the leading edge of the film unit located in the exposure position. Structure is provided for canting the film unit as it is advanced from the exposure position, subsequent to exposure, toward the rollers such that the leading edge of the exposed film unit is parallel with the longitudinally extending gap as the film unit enters the gap.

3,829,872

MEANS FOR OPERATING MIRROR AND DIAPHRAGM PRESET DEVICE IN A SINGLE LENS REFLEX CAMERA
Hiroshi Ueda, Nara, and Kiyoshi Nishitani, Osaka, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

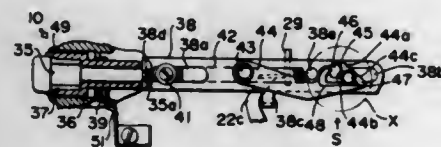
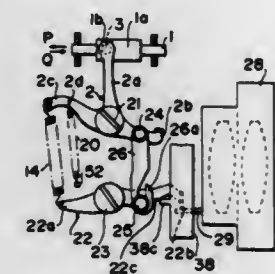
Filed Jan. 5, 1973, Ser. No. 321,467

Claims priority, application Japan, Jan. 13, 1972, 47-5542

Int. Cl. G03b 19/12

U.S. Cl. 354-156

5 Claims



A manual operating device for the movable mirror and the diaphragm preset device in a single lens reflex camera, whereby, in connection with a shutter releasing operation of the camera, it is made possible to manually operate a mirror which is movable between a viewing position and a picture taking position, and also a lens diaphragm presetting device which is adapted to adjust a fully opened lens diaphragm to a preset position. Both the coupling of a reciprocating shaft, associated with the shutter releasing operation of the camera, to a mirror driving mechanism which is adapted to rotate the mirror from a viewing position to a picture taking position, and the coupling of said reciprocating shaft to the lens diaphragm presetting device, are effected by manipulation of an operating button; or the rotation of the mirror from the viewing position to the picture taking position and the operation of the lens diaphragm to assume a preset position may be manually effected by using said operating button, irrespective of the shutter releasing operation of the camera.

3,829,873

SINGLE LENS REFLEX CAMERA PROVIDED WITH A SHUTTER CONTROLLED ELECTRICALLY

Toshinori Imura, and Akira Yamanaka, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka-fu, Japan

Filed June 27, 1973, Ser. No. 374,169

Claims priority, application Japan, July 1, 1972, 47-65441; Aug. 12, 1972, 47-94213

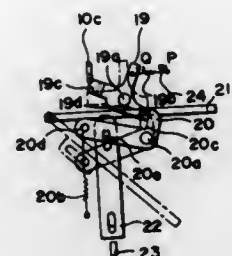
Int. Cl. G03b 17/44

U.S. Cl. 354-156

17 Claims

A single lens reflex camera is provided with an electrically controlled shutter network including an electromagnet in

which, when the electromagnet fails to operate due to the drop of the battery voltage below a predetermined value, the movable reflex mirror, which is movable between the viewing position and the picture taking position, is arrested and held in the picture taking position, after the releasing operation of the



3,829,874

INTERLOCK MECHANISM INTERLOCKING CAMERA SHUTTER WITH A DOUBLE-FRAME FILM ADVANCE PREVENTION APPARATUS

Yukio Morino, Tokyo, Japan, assignor to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

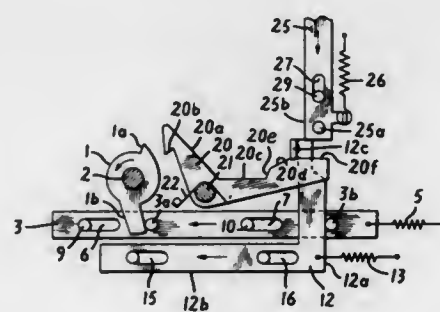
Filed Oct. 10, 1972, Ser. No. 296,091

Claims priority, application Japan, Oct. 11, 1971, 46-80030

Int. Cl. G03b 19/04

U.S. Cl. 95-31 R

2 Claims



Apparatus preventing a double-frame advance of the film thereby precluding successive film frames from being wound without taking an exposure on each frame. A film-advance enabling lever is actuated from a rest position in which it releases the film advance or wind mechanism of the camera. The film-advance enabling lever is actuated by a shutter-cocking lever which is actuated by advancing the camera film one frame with the camera wind or advance lever which likewise charges or cocks the shutter. An interlock is actuated by the film-advance enabling lever locking the shutter in a charged state when the shutter-cocking lever, actuated upon advancement of the film, is restored to its rest position. The interlock locks the film-advance enabling lever in an operative position thereof and is itself released by the shutter-release lever when the shutter-release button is depressed. A shutter-release plate or lever temporarily retains the film-advance enabling lever from being completely restored to its rest position so that it precludes enabling of film advancing until it is completely restored to its rest position at which time it releases the film-advancing mechanism and releasably locks the shutter-release lever in position, so that an exposure cannot be taken until the next successive film-advance or take up has taken place.

3,829,875

PHOTOGRAPHIC CAMERA FOR USE WITH ROLL FILM

Alfred Winkler, Munich; Dieter Engelsmann, Unterhaching; Horst Karl, Munich, and Rolf Schroeder, Baldham, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

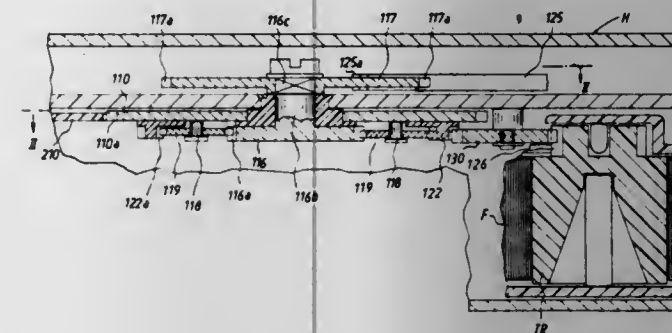
Filed Nov. 26, 1973, Ser. No. 418,854

Claims priority, application Germany, Nov. 24, 1972, 2257683

Int. Cl. G03b 17/42, 1/16

U.S. Cl. 354-206

10 Claims



A still camera for use with roll film having a row of perforations, one for each film frame, employs a planetary transmission whose planet carrier is rotatable by hand, whose internal gear rotates the takeup reel during transport of film, and whose sun gear can cock the shutter or perform another function while the internal gear is held against rotation. The sun gear is held against rotation by a lever during a first stage of rotation of the planet carrier while the internal gear rotates the takeup reel. A feeler scans the moving film and penetrates into an oncoming perforation to thereby disengage the lever from the sun gear so that the latter can rotate during a second stage of rotation of the planet carrier as soon as the internal gear is arrested due to resistance of the takeup reel to rotate in a direction to collect exposed film. The lever has a tooth which engages complementary teeth of the sun gear during the first stage of rotation of the planet carrier; such teeth constitute an overload clutch which allows the sun gear to rotate against the opposition of the lever in response to rotation of the planet carrier when the latter transmits a predetermined force while the internal gear is also held against rotation. This prevents a tearing of the film and/or damage to component parts of the camera.

3,829,876

FILM COUNT INDICATING MEANS FOR CAMERAS THAT CAN PERFORM MULTIPLE OVERLAPPING EXPOSURE

Naoyuki Uno, Kawagoe, and Fumio Urano, Wako, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-To, Japan

Filed May 8, 1973, Ser. No. 358,264

Claims priority, application Japan, May 16, 1972, 47-57140[U]

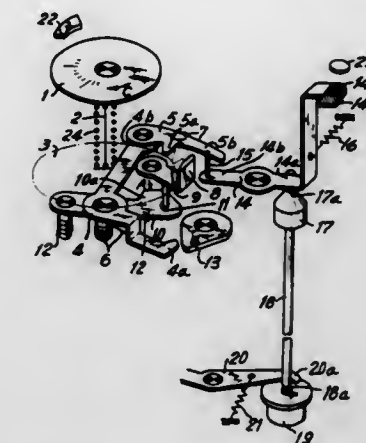
Int. Cl. G03b 17/42, 17/36

U.S. Cl. 354-209

9 Claims

A camera which can be manipulated to provide intentional multiple exposures. The camera has a film-advancing structure for advancing an unexposed film frame into an exposure position in response to cocking of a shutter of the camera. Also, the camera has a frame-counting structure for counting the number of exposed frames in response to cocking of the camera shutter. A manually operable structure is accessible to the operator of the camera to be manipulated for creating conditions suitable for carrying out an intentional multiple ex-

posure. This manually operable structure is operatively connected on the one hand with the film-advancing structure and



3,829,877

CAMERA ELECTRIC SHUTTER WITH MECHANICAL DELAY DEVICE

Kiyoshi Kitai, Tokyo, Japan, assignor to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 97,512, Dec. 14, 1970, abandoned.

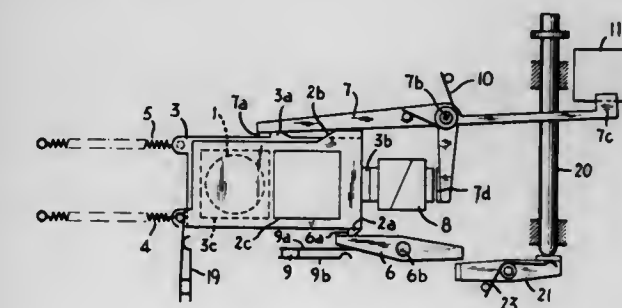
This application Dec. 21, 1972, Ser. No. 317,709

Claims priority, application Japan, Dec. 16, 1969, 44-100815

Int. Cl. G03b 9/00

U.S. Cl. 354-246

2 Claims



An electric shutter in which an electrical circuit normally controls the automatic closing of the shutter lens aperture. A mechanical device in the shutter coactive with the electrical circuit closes the shutter lens aperture mechanically, automatically when the electrical circuit is deenergized or insufficiently energized because of an exhausted power source or because of other reasons.

3,829,878

FOCAL PLANE SHUTTER WITH GROUPS OF SHUTTER BLADES

Eiichi Onda, Misato; Mitsuo Koyama, and Tadashi Nakagawa, both of Chiba, all of Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Sept. 12, 1973, Ser. No. 396,434

Claims priority, application Japan, Sept. 14, 1972, 47-107061

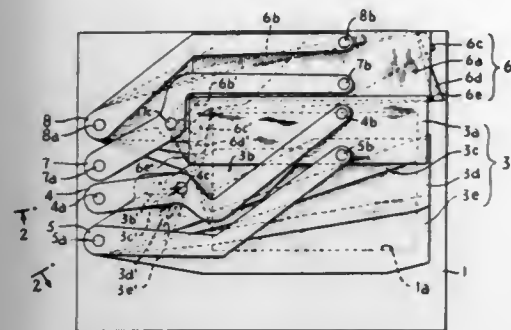
Int. Cl. G03b 9/36

U.S. Cl. 354-246

3 Claims

A focal plane shutter having two groups of shutter blades. One group opens the shutter and the other closes it. The groups each have a slit-forming shutter blade translated on a pair of levers. The remaining blades of each group are pivoted and pivotally actuated. The slit-forming shutter blades each

have a straight edge moved across the shutter aperture normal to a plane traversing the shutter aperture so that the exposure



aperture is accurately developed as the shutter is opened or closed. The pivoted blades have an angle of movement that is minimum.

3,829,879

LOW-COST PHOTOGRAPHIC FLUID SPREADING APPARATUS

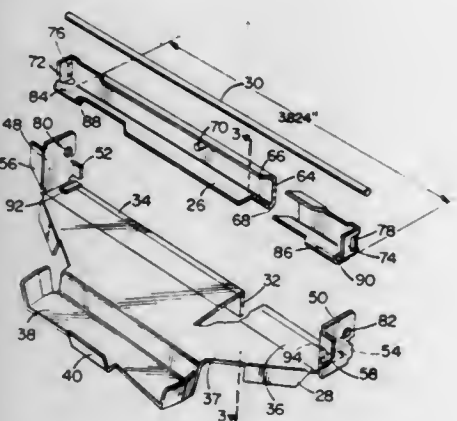
Sheldon D. Powers, Stoneham, and Earl R. Thoenen, Newburyport, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 133,906, April 14, 1971, abandoned. This application Aug. 9, 1973, Ser. No. 386,956

Int. Cl. G03b 17/52

U.S. Cl. 354—304

19 Claims



Fluid spreading apparatus for use in a camera of the self-developing type having a first sheet-contacting facing surface of relatively large radius arcuate crosssectional configuration and a second substantially flat sheet-contacting facing surface which co-act to exert a compressive force on superposed sheet materials as such materials are progressively drawn therebetween. A platform extends in front of the flat sheet-contacting facing surface and is canted at a predetermined angle with respect thereto. Extending in front of this platform is a ramp which is canted at a predetermined angle with respect to the platform to guide at least some of the sheet materials onto the platform as they are advanced from a film pack towards the sheet-contacting surfaces. Edge control members connected to the arcuate sheet-contacting surface urge longitudinal edges of one of the sheets into engagement with the other sheet in advance of the sheet-contacting surfaces.

3,829,880

SCHOTTKY BARRIER PLASMA THYRISTOR CIRCUIT

Surinder Krishna, Balston Lake, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 5, 1973, Ser. No. 321,409

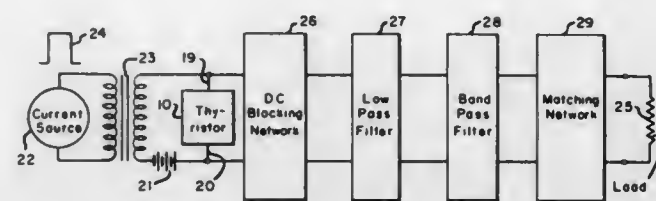
Int. Cl. H011 9/00

U.S. Cl. 357—15

10 Claims

A plasma thyristor is provided for faster recycling of the plasma mode and sharper output signals. A silicon semicon-

ductor body has a low impurity concentration preferably below 5×10^{14} atoms/cm³, has first and second opposed major surfaces, and preferably has a width of greater than about 80 microns. A first Schottky barrier contact is made at the first major surface. A second Schottky barrier or ohmic contact is made at the second major surface. Power sources apply (i) a reverse bias voltage across the first Schottky barrier contact



between the contacts causing the carrier depletion field to extend from the first Schottky barrier contact the width of the body to the second contact, and (ii) a current pulse across the body between the contacts having a density greater than the saturation current density of the body. Preferably, the plasma thyristor is used to generate high power, fast rise-time electrical signals.

ERRATUM

For Class 357—023 see:
Patent No. 3,829,743

3,829,881

VARIABLE CAPACITANCE DEVICE

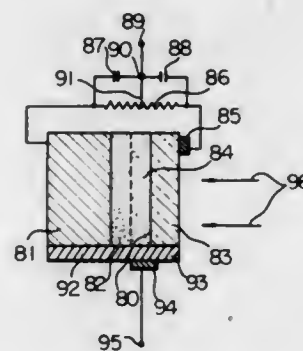
Tadao Kohashi, Osaka, Japan, assignor to Matsushita Electric Industrial Company, Limited, Kadoma City, Osaka, Japan
Division of Ser. No. 72,695, Sept. 16, 1970, abandoned. This application July 10, 1972, Ser. No. 270,172

Claims priority, application Japan, Sept. 18, 1969, 44-75637; Sept. 22, 1969, 44-77179; Sept. 18, 1969, 44-76061

Int. Cl. H011 15/00

U.S. Cl. 357—23

5 Claims



This specification discloses variable capacitance devices which vary their capacitances under the influence of DC bias voltages or radiations. One embodiment comprises a PN junction diode, a dielectric thin film deposited on the surface of said junction diode at which the junction terminates and a conducting electrode deposited on the dielectric thin film, in which the area of an equivalent plate electrode formed in said junction diode is varied by changing the thickness of a depletion region. In another embodiment, a nonlinear resistance layer deposited on the dielectric thin film is employed. As a DC voltage as applied to the nonlinear resistance layer is increased, the lateral conductivity of the nonlinear resistance layer increases and the area of the equivalent plate electrode facing the conducting electrode is increased. A further embodiment employs a thin film transistor of a MIS transistor to vary the area of the equivalent plate electrode provided therein.

3,829,882

VARIABLE RESISTANCE FIELD EFFECT TRANSISTOR

Michio Arai, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

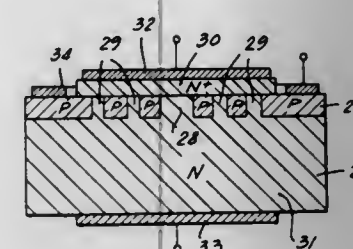
Filed Feb. 12, 1973, Ser. No. 331,350

Claims priority, application Japan, Feb. 12, 1972, 47-15132

Int. Cl. H011 1/14

U.S. Cl. 357—23

5 Claims



A variable resistance field effect transistor with a wide range of resistance and a linear ohmic characteristic having one or more small channels and one or more large channels formed by a gate region between a source region and a drain region in which both the small and large channels are located closer to the source electrode than to the drain electrode. The field effect transistor is such that as the gate voltage is changed from full drain current flow to pinch-off, the small channels are pinched off at first, after which the large channel or channels will reach a pinch-off voltage. In depletion type field effect transistors, with zero voltage on the gate electrode, the entire current through all of the small channels is much larger than the total current flowing through the large channels. The small channels may be of different size, since even if one channel is pinched off at a certain gate voltage, the next larger channel is not pinched off at that voltage. In another embodiment, the gate region is such that the channel area is gradually increased so that the pinch-off voltage is also gradually changed in accordance with the size of the channel.

3,829,883

MAGNETIC FIELD DETECTOR EMPLOYING PLURAL DRAIN IGFET

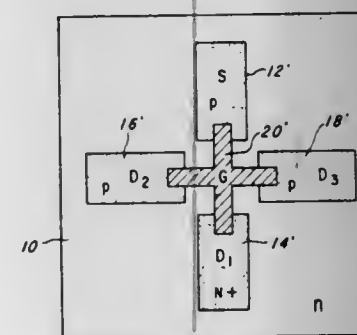
Robert Thomas Bate, 512 Westshore Dr., Richardson, Tex. 75080

Continuation of Ser. No. 285,291, Aug. 31, 1972. This application Nov. 9, 1973, Ser. No. 414,570

Int. Cl. H011 17/00

U.S. Cl. 317—235 R

5 Claims



A mode of operation of a three-drain configured insulated gate field effect transistor which is extremely sensitive to magnetic fields is disclosed. The gate of the transistor is biased to a level less than transistor threshold, or alternatively, is connected to substrate ground. A first drain region opposite the source is biased to achieve avalanche breakdown of the junction. The other two drains are defined on either side of a line joining the source and first drain. These two drains are biased at a voltage below that required for avalanche of their junctions. In response to a magnetic field a voltage difference is generated across these two drains. In one embodiment of the

invention, the region opposite the source is of a conductivity type the same as the substrate. In this configuration the detector does not require avalanche breakdown.

3,829,884

CHARGE-COUPLED DEVICE AND METHOD OF FABRICATION OF THE DEVICE

Joseph Borel, Echiroles; Jacques Lacour, Grenoble, and Gerard Merckel, La Tronche, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

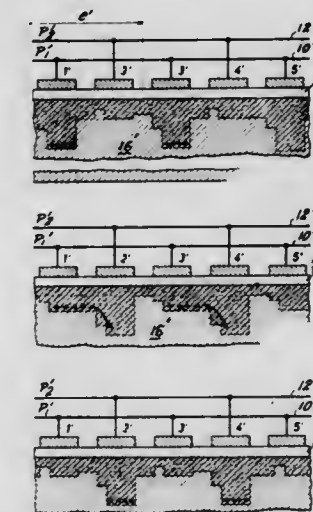
Filed Jan. 13, 1972, Ser. No. 217,595

Claims priority, application France, Jan. 14, 1971, 71.01182

Int. Cl. H011 1/14

U.S. Cl. 357—24

4 Claims



A charge-coupled device in which the storage and transfer of information in the form of charges consisting of minority carriers are carried out with only two clocks. The device comprises a doped semiconductor substrate coated with an insulating thin film carrying a linear series of conductive electrodes. A variably doped surface region of the substrate creates a potential barrier for the minority carriers upstream of a charge-storage region. The same value of potential is fixed respectively for the odd-numbered electrodes and for the even-numbered electrodes, these values being modified in cycles so as to transfer the charge from each alternate electrode to one of the adjacent electrodes.

A method of fabrication of the device consists in forming an insulating film and an assembly of conductive electrodes on a semiconductor substrate and in ion implantation by means of an ion beam in order to increase the doping of the substrate beneath one edge of the electrodes.

3,829,885

CHARGE COUPLED SEMICONDUCTOR MEMORY DEVICE

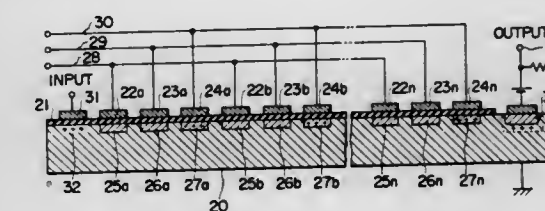
Junichi Nishizawa, Sendai, and Terumoto Nonaka, Shizuoka, both of Japan, assignors to Zaidan Hojin Handotai Kenkyu Shinkokai, Sendai-shi, Miyagi-ken, Japan

Filed Oct. 12, 1972, Ser. No. 296,875

Int. Cl. H011 1/14

U.S. Cl. 357—24

27 Claims



A charge coupled device has gold-containing regions in portions adjacent to the surface of an N type Si substrate being in contact with a SiO₂ film and corresponding to electrodes

disposed separately on the SiO_2 film. Holes introduced into the Si substrate are trapped in the gold-containing regions by the application to the electrodes, of an electric field having strength sufficient to produce an inversion region in the Si substrate, that is a P type region, in at least a part of the gold-containing regions within the Si substrate, so that the holes can be advantageously memorized for a long period of time, e.g., many hours, without applying an electric field to the charge coupled device.

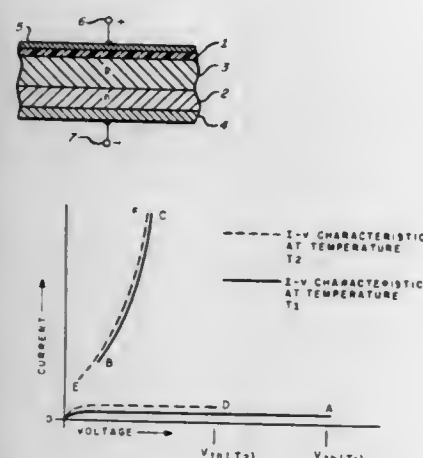
3,829,886

BISTABLE SEMICONDUCTOR TEMPERATURE SENSOR
Harry Kroger, Sudbury, Mass., assignor to Sperry Rand Corporation, New York, N.Y.

Filed May 21, 1973, Ser. No. 361,924
Int. Cl. H011 3/00

U.S. Cl. 357-28

15 Claims



A bistable semiconductor switching device for attachment to apparatus to be protected from overheating employs a diode configuration with a non-linear resistance layer and uses controlled conduction characteristics for providing major sensitivity to temperature of the transition point in the switching device between low and high impedance states. The existence of a transition point is sought by placing a wave form having a repeating envelope across the switching device. If, at some time after the start of the wave form, the sensor device makes a transition from its high to its low impedance state, the sensed large increase in current flowing through the switching device operates an alarm for warning purposes or other actuatable device for control purposes. Alternatively, temperature may be computed and directly displayed on the basis of the sensed transition point.

3,829,887

TARGET OF A CATHODE-RAY TUBE

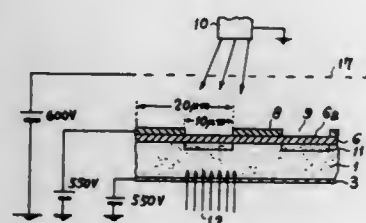
Takehumi Katow, Tokyo, Japan, assignor to Iwaski Tsushinki Kabushiki Kaisha (a/k/a Swatsu Electric Co., Ltd.), Tokyo, Japan

Filed Dec. 26, 1972, Ser. No. 318,641
Claims priority, application Japan, Dec. 24, 1971, 46-3154; Aug. 10, 1972, 47-79508

Int. Cl. H011 15/00

U.S. Cl. 357-31

5 Claims



A target of a cathode-ray tube comprises a semiconductor substrate of a single conductivity type monocrystalline and method.

semiconductor having a major surface uniformly coated by a highly insulating material layer, and a metallic electrode having a plurality of apertures formed therein disposed on a surface of the insulating layer. Another electrode is disposed on a second major surface of the substrate.

3,829,888

SEMICONDUCTOR DEVICE AND THE METHOD OF MAKING THE SAME

Norikazu Hashimoto, Hachioji, and Toshiaki Masuhara, Tokorozawa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

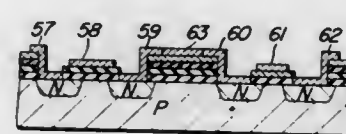
Filed Jan. 4, 1972, Ser. No. 215,375

Claims priority, application Japan, Jan. 8, 1971, 46-248

Int. Cl. H011 1/19

U.S. Cl. 357-41

4 Claims



A semiconductor device comprising a p type semiconductor substrate including an n channel depletion mode metal-oxide-semiconductor field effect transistor provided with a gate insulating double layer formed of a silicon oxide layer and a phosphosilicate glass layer and an n channel enhancement mode metal-oxide-semiconductor field effect transistor provided with a gate insulating double layer formed of a silicon oxide layer and an alumina layer, the portions of the semiconductor substrate other than those where the field effect transistors are formed being provided with a double layer of a silicon oxide layer and an alumina layer, or of an alumina layer and a phosphosilicate glass layer.

3,829,889

SEMICONDUCTOR STRUCTURE

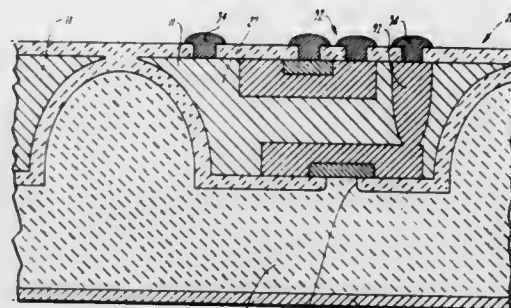
David F. Allison, Palo Alto, and David A. Maxwell, Sunnyvale, both of Calif., assignors to Signetics Corporation, Sunnyvale, Calif.

Continuation-in-part of Ser. No. 338,802, Jan. 20, 1964, abandoned, which is a continuation-in-part of Ser. No. 330,697, Dec. 16, 1963, abandoned. This application Aug. 24, 1964, Ser. No. 391,704

Int. Cl. H011 19/00

U.S. Cl. 357-49

13 Claims



This invention relates to a semiconductor structure and method and more particularly to isolated integrated circuitry and method.

3,829,890

ION IMPLANTED RESISTOR AND METHOD

David S. Perloff, Sunnyvale; John T. Kerr, Cupertino, and James A. Marley, Saratoga, all of Calif., assignors to Corning Glass Works, New York, N.Y. and Signetics Corporation, Sunnyvale, Calif., part interest to each

Filed Nov. 1, 1971, Ser. No. 194,366

Int. Cl. H011 1/00, 15/00

U.S. Cl. 357-91

4 Claims

U.S. Cl. 360-73

10 Claims



Ion implanted resistor formed in a body of crystalline semiconductor material of a first conductivity type and a known bulk resistivity with at least one region of implanted ions in the body having a conductivity opposite that of the body. The resistance changes no more than 3 percent from the room temperature value between -50 and 125°C . Between 0° and 70°C , the change is only 0.3 percent.

In the method, ion implanted resistors having the desired sheet resistivity are formed by varying the implantation energy and/or the thickness of a stopping layer. In addition, the resistor is annealed at a temperature ranging from 550°C to 650°C .

3,829,891

SYSTEM FOR COUPLING MAGNETIC RECORDING AND REPRODUCING MACHINE WITH TELEVISION RECEIVER

Kasaku Uchida, Osaka, Japan, assignor to Matsushita Electric Industrial Company, Limited, Kadoma, Osaka, Japan

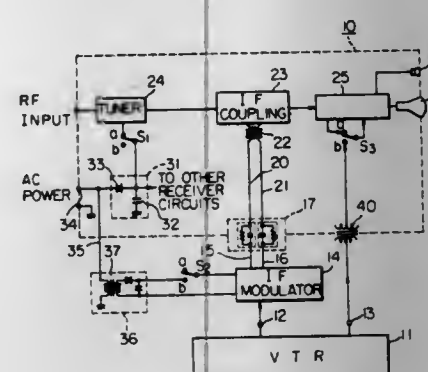
Filed July 17, 1972, Ser. No. 272,225

Claims priority, application Japan, July 16, 1971, 46-53449; July 16, 1971, 46-53450

Int. Cl. H04n 5/78; G11b 31/00

U.S. Cl. 360-33

3 Claims



The system includes a video modulator wherein a locally generated carrier wave of a certain frequency is modulated by a video signal from a video tape recording and reproducing machine, the modulated signal being delivered to a television receiver. A plurality of ganged switches have a first position to turn off the tuner of the television receiver and to simultaneously couple the modulated signal to the receiver's video if amplifier for reproduction on the screen. A second position turns the receiver's tuner on, disconnects the modulator from the receiver, and connects the machine to a second tuner, so that one can record video signals in one channel by the machine while observing picture information of another channel on the screen.

3,829,892

AUTOMATIC TRACKING MATCHING SYSTEM

Michinori Nagahiro, Nishinomiya; Masahiro Deguchi, and Akio Kuroe, both of Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 8, 1973, Ser. No. 321,738

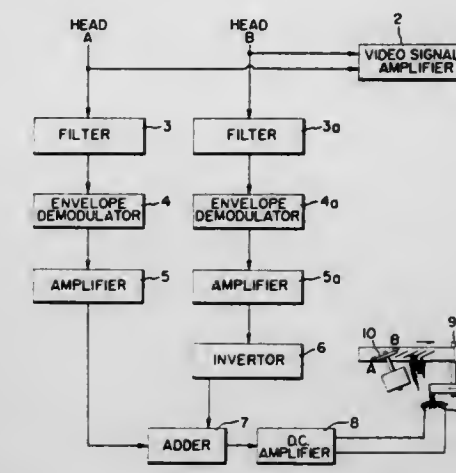
Claims priority, application Japan, Jan. 17, 1972, 47-7156

Int. Cl. G11b 5/52, 19/28

4 Claims

U.S. Cl. 360-73

10 Claims



Control signals with a predetermined level are recorded in parallel with the information signal recording tracks which are recorded upon a recording medium being in parallel with each other, spaced apart from each other by a predetermined distance and inclined at an angle relative to the direction of the transport of the recording medium. The speed of the recording medium is so controlled that the relative position of the control signals relative to the reproducing head or heads or the degree of overlap of the control signals over the information signal recording track may be maintained constant and the level of the control signals reproduced may be maintained constant when the control signals are reproduced by the information signal reproducing head or heads.

3,829,893

TAPE SPEED MONITOR

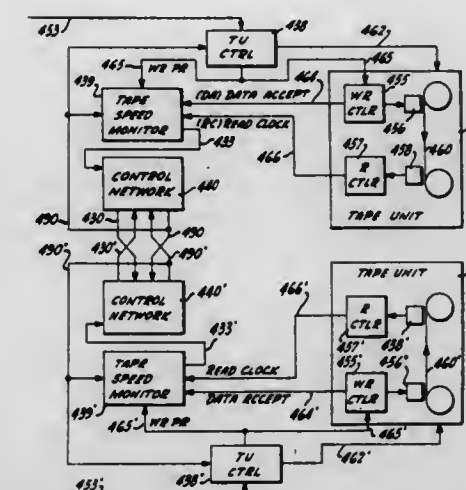
James R. Baichtal, Los Altos, Calif., assignor to Vidar Corporation, Mountain View, Calif.

Filed May 29, 1973, Ser. No. 365,029

Int. Cl. G11b 15/22

U.S. Cl. 360-73

16 Claims



Disclosed is a tape speed monitor for monitoring the speed of magnetic tape in a magnetic tape storage unit and for providing an error signal whenever the tape speed is not within a predetermined range. The tape speed is measured by comparing the lapsed time between written data and the same data reread during the normal operation of a read-after-write tape unit. Two tape speed monitors are employed in combination within a redundant, highly reliable telephone local message metering system.

3,829,894

PARAMETRIC MAGNETIC SENSOR

Teruji Watanabe, Niza; Takasuke Fukui, Tokyo, and Shizuo Suzuki, Kawasaki, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-To, Japan

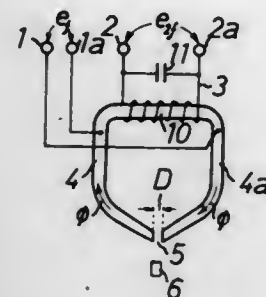
Filed Oct. 18, 1972, Ser. No. 298,572

Claims priority, application Japan, Oct. 22, 1971, 46-83719; June 13, 1972, 47-58206

Int. Cl. G11b 5/30, 5/34

U.S. Cl. 360—111

7 Claims



A parametrically excited magnetic sensor, in which an inductance element is formed with a magnetic substance and a winding wound on the magnetic substance, in which a capacitor is connected in parallel to the winding to form a resonance circuit, in which an AC exciting current magnetic field is applied to the magnetic substance to generate a second harmonic oscillation wave having a frequency twice the frequency of the AC exciting current in the resonance circuit, so that a minute magnetic field is detected by utilizing a change in the phase of the second harmonic oscillation wave caused in accordance with the polarity of the minute magnetic field. The magnetic substance forms a part of magnetic circuit having a narrow gap so that the gap portion issued as a magnetic detecting head.

3,829,895

MULTI-CHANNEL MAGNETIC HEAD WITH OFFSET GAP LINES

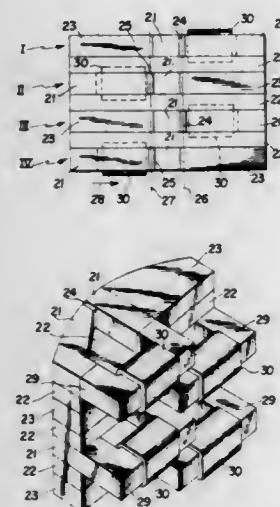
Takashi Tanaka, Osaka, and Yasuo Nomura, Hyoga, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

Continuation of Ser. No. 64,608, Aug. 17, 1970, which is a division of Ser. No. 882,926, May 8, 1969, abandoned. This application Aug. 27, 1973, Ser. No. 391,753

Int. Cl. G11b 5/24, 5/14

U.S. Cl. 360—121

5 Claims



A multichannel magnetic head is provided with two offset gap lines formed in the face of the core tips. Non-magnetic material insulates adjacent core tips, and cross-talk is reduced by an over-lapping core construction. Various length back cores are provided to minimize the head size; but reluctances are equalized by varying core material, core cross-sectional area, or the gap between the back and the tip cores.

3,829,896

BIAS MEANS FOR BATCH FABRICATED MAGNETIC HEAD AND METHOD OF MANUFACTURE THEREOF

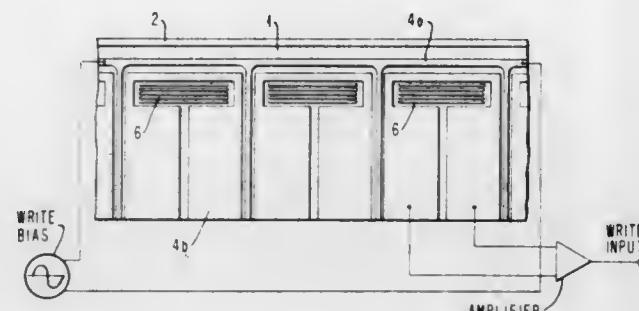
George W. Brock; Maxwell R. Cannon, both of Boulder, and Frank B. Shelledy, Longmont, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 8, 1972, Ser. No. 304,691

Int. Cl. G11b 5/20, 5/42, 5/22

U.S. Cl. 360—125

19 Claims



A bias current path for a plurality of thin film, batch fabricated magnetic recording heads is placed on a substrate in the same plane as the recording windings. The active portion of the bias path surrounds a recording conductor and both the path and conductor are encompassed by a plurality of head pole pieces.

3,829,897

CARTRIDGE CLAMP

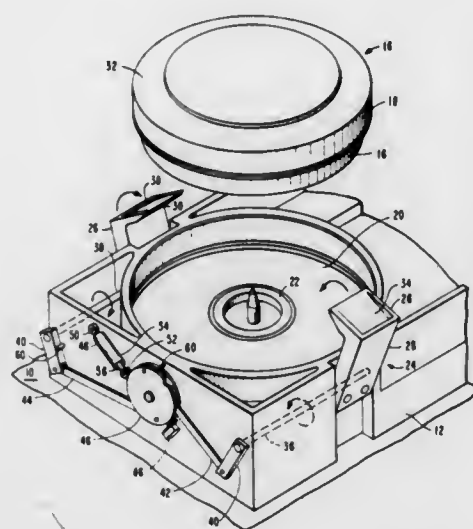
Robert F. Stebe, Thousand Oaks, Calif., assignor to VRC California Inc., Los Angeles, Calif.

Filed May 4, 1973, Ser. No. 357,197

Int. Cl. G11b 25/04

U.S. Cl. 360—133

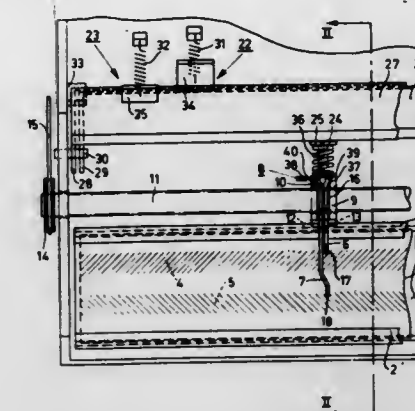
16 Claims



A magnetic disc cartridge memory unit is disclosed having a pair of interconnecting clamping members releasably holding a disc cartridge in the memory unit when the clamping members are in a first position, and allowing removal or replacement of the cartridge when the clamping members are moved into a second position. The clamping members are interconnected so that movement of one into one of the positions results in movement of the other clamping member into a corresponding position, and vice versa. A rod rigidly couples each of the clamping members to a cranking element. Each cranking element is pivotally coupled at the end opposite the rod to a different elongated connecting element. A circular element

rotatably mounted between the cranking elements is pivotally coupled at opposite ends to the elongated connecting elements. A biasing unit coupled between the base and the circular element biases the circular element in one or the other of two opposite positions.

be moved independently of each other toward an index strip for marking. The two scribes are retained in the rest position



3,829,898

MARKING DEVICE IN A DICTATING APPARATUS

Lothar Jager, Vienna, Austria, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 14, 1973, Ser. No. 340,956

Claims priority, application Austria, Mar. 23, 1972, 2511/72

Int. Cl. G11b 27/34

U.S. Cl. 360—137

2 Claims

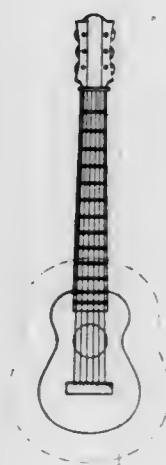
The invention relates to a marking device for use in a recording and/or playback apparatus, specifically a dictation machine. The device has two superposed scribes which can

by a single spring, and a locking device is provided for at least one of the scribes, to retain this scriber in its rest position when the other scriber is actuated.

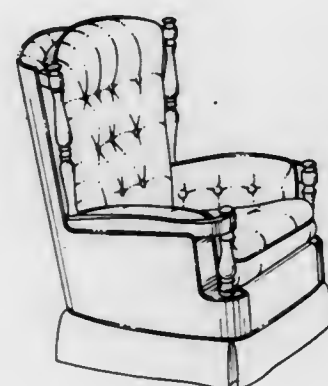
DESIGNS

AUGUST 13, 1974

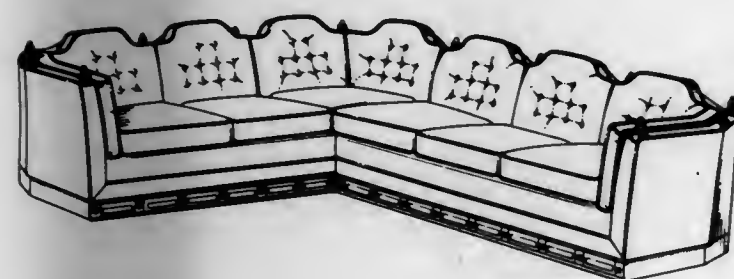
232,330
COMBINED CONFECTIONERY STICK AND DRINK STIRRER
Thomas J. Cappadona, 131 Glenwood Ave., Jersey City, N.J. 07306
Filed Feb. 16, 1973, Ser. No. 333,209
Term of patent 14 years
Int. Cl. D1-99; D7-04
U.S. Cl. D1-99



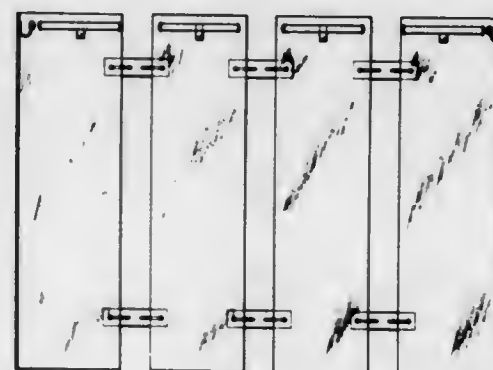
232,332
CHAIR
Thomas Winrow, 530 S. Sleight St., Naperville, Ill. 60540
Filed Dec. 30, 1971, Ser. No. 214,533
Term of patent 14 years
Int. Cl. D6-01
U.S. Cl. D6-71



232,331
SEAT
Thomas Winrow, 530 S. Sleight St., Naperville, Ill. 60540
Filed Aug. 2, 1972, Ser. No. 277,432
Term of patent 14 years
Int. Cl. D6-01
U.S. Cl. D6-62



232,333
JEWELRY DISPLAY RACK
Robert D. Joyce, Gloucester, R.I., assignor to Richton International Corporation, New York, N.Y.
Filed Jan. 29, 1973, Ser. No. 327,755
Term of patent 14 years
Int. Cl. D20-02
U.S. Cl. D6-139

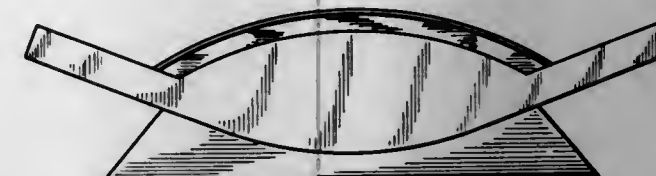


AUGUST 13, 1974

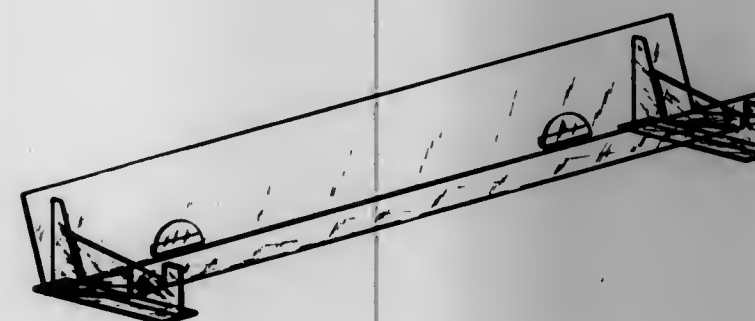
U. S. PATENT OFFICE

723

232,334
INDEX CARD HOLDER
Hilda L. Neilsen, Metuchen, N.J., assignor to Zephyr American Corporation, Long Island City, N.Y.
Filed Jan. 15, 1973, Ser. No. 323,755
Term of patent 14 years
Int. Cl. D6-04
U.S. Cl. D6-140



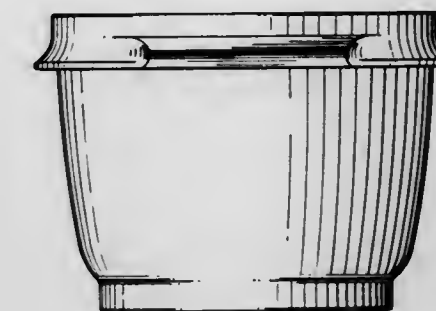
232,335
COUNTER DISPLAY STAND FOR CIGARETTE PACKAGES
William H. Glover, Locust, George E. Schmidt, Jr., Highlands, and Kenneth J. Donnelly, Long Branch, N.J., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed July 25, 1972, Ser. No. 274,941
Term of patent 14 years
Int. Cl. D6-04
U.S. Cl. D6-181



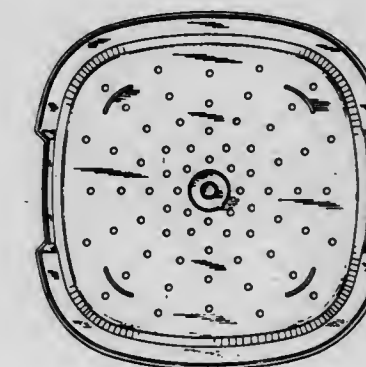
232,336
DISPOSABLE PLASTIC DISH
Paul Davis, Swampscott, Mass., assignor to Sweetheart Plastics, Inc., Wilmington, Mass.
Original design application Jan. 31, 1972, Ser. No. 222,428, now Patent No. 229,812, dated Jan. 8, 1974. Divided and this application May 7, 1973, Ser. No. 358,177
Term of patent 14 years
Int. Cl. D7-01
U.S. Cl. D7-1



232,337
SERVING BOWL OR THE LIKE
Edward N. Montesi, Barrington, R.I., assignor to Dart Industries, Inc., Los Angeles, Calif.
Filed Jan. 16, 1973, Ser. No. 324,008
Term of patent 14 years
Int. Cl. D7-01
U.S. Cl. D7-20



232,338
COLANDER
Robert Daenen, Erembodegem, Belgium, assignor to Dart Industries, Inc., Los Angeles, Calif.
Filed Apr. 23, 1973, Ser. No. 353,284
Term of patent 14 years
Int. Cl. D7-04
U.S. Cl. D7-47



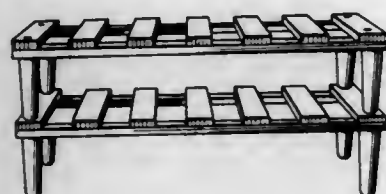
232,339
MILK CARTON HOLDER
James G. Wise, 3725 NW. 34th St., Oklahoma City, Okla. 73112
Filed Mar. 27, 1972, Ser. No. 238,733
Term of patent 14 years
The portion of the term of the patent subsequent to Feb. 2, 1988, has been disclaimed
Int. Cl. D7-06
U.S. Cl. D7-70



232,340

WINE BOTTLE RACK
Michael Lax, New York, N.Y., assignor to Julie Pomerantz, Inc., New York, N.Y.
Filed May 26, 1972, Ser. No. 257,472
Term of patent 14 years
Int. Cl. D6—99

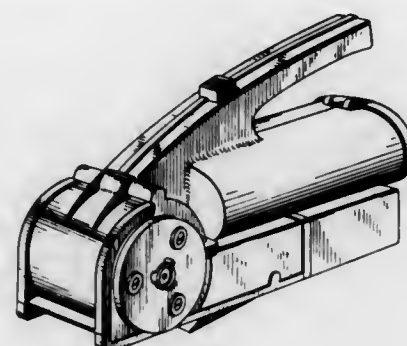
U.S. Cl. D7—71



232,343

ORNAMENTAL DESIGN FOR A CORDLESS ELECTRIC BROOM
John S. Doyel, 404 W. 20th St., New York, N.Y. 10011
Filed Mar. 26, 1973, Ser. No. 344,609
Term of patent 14 years
Int. Cl. D15—05

U.S. Cl. D7—164



232,341

COMBINED TRAY AND TUMBLER HOLDER
Manus Mudde, Berkel-Enschot, Netherlands, assignor to Dart Industries, Inc., doing business as The West Bend Company, West Bend, Wis.
Filed Jan. 22, 1973, Ser. No. 325,922
Claims priority, application Switzerland Aug. 4, 1972
Term of patent 14 years
Int. Cl. D7—06

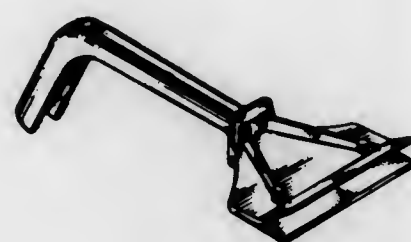
U.S. Cl. D7—71



232,344

COOKING GRILL SCRAPER
Peter Momcilovich, 6515 58th NE., Seattle, Wash. 98115
Filed June 7, 1972, Ser. No. 260,717
Term of patent 14 years
Int. Cl. D7—05

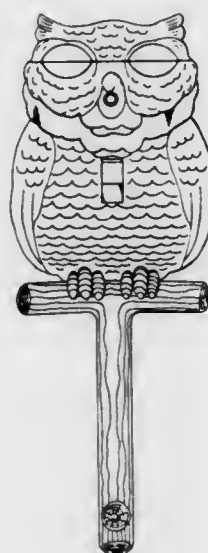
U.S. Cl. D7—184



232,345

TOGGLE SWITCH OPERATING DEVICE
Stuart J. Roberts, Denville, N.J.; Harold Rosenbaum, 29 Brittany Road, Montville, N.J. 07045; and Sol Inspector, 59 Fairfield Ave., West Caldwell, N.J. 07006; said Roberts assignor to said Rosenbaum and said Inspector
Filed Aug. 27, 1973, Ser. No. 391,776
Term of patent 14 years
Int. Cl. D8—09

U.S. Cl. D8—183



232,342

PROTECTIVE GUARD FOR CUTLERY
Udo Bosnyak, Mariazellerstr. 70, 8605 Kapfenberg, Austria
Filed Mar. 10, 1972, Ser. No. 233,853
Term of patent 14 years
Int. Cl. D7—99

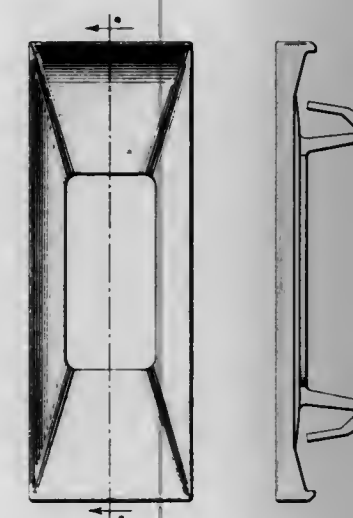
U.S. Cl. D7—74



232,346

ESCUTCHEON PLATE FOR AN ELECTRICAL DEVICE
Giovanni Cali, Piazza del Liberty 8, Milan, Italy
Filed Nov. 23, 1971, Ser. No. 201,622
Term of patent 3½ years
Int. Cl. D8—09; D13—03

U.S. Cl. D8—188



232,347

BOTTLE
Stefan Macko, Milwaukee, Wis., assignor to Miller Brewing Company, Milwaukee, Wis.
Filed Sept. 15, 1972, Ser. No. 289,494
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—1



232,348

DISPENSING PACKET OR THE LIKE
Charles E. Cloud, Wilmette, Ill., assignor to Cloud Machine Corporation, Skokie, Ill.
Filed Dec. 3, 1971, Ser. No. 204,780
Term of patent 14 years
Int. Cl. D9—03

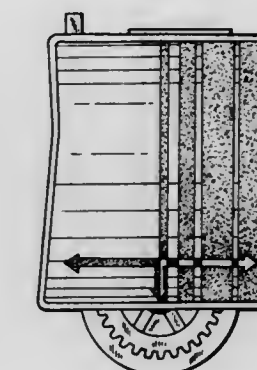
U.S. Cl. D9—192



232,349

LINEAR DISTANCE MEASURING DEVICE
Nicholas G. Polydoros, Kenilworth, and Burnell J. Wollar, Barrington, Ill., assignors to ENM Company, Chicago, Ill.
Filed Oct. 13, 1972, Ser. No. 297,235
Term of patent 14 years
Int. Cl. D10—04

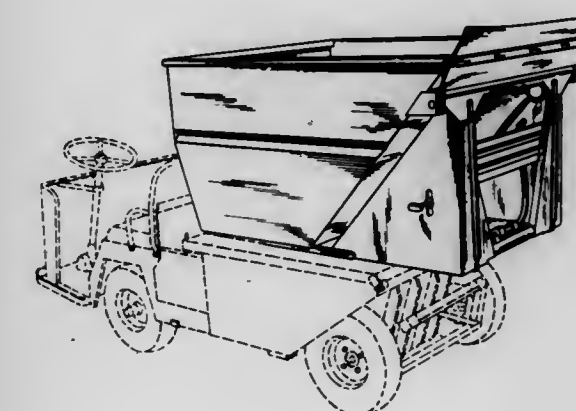
U.S. Cl. D10—70



232,350

DUMP BODY FOR SMALL TRUCK
Roy F. Broyhill, Dakota City, Nebr. 68731
Filed Feb. 14, 1972, Ser. No. 226,394
Term of patent 14 years
Int. Cl. D12—08

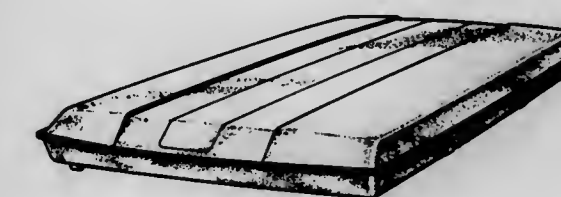
U.S. Cl. D12—15



232,351

CAR TOP CAMPER
Satoru Nozaki, Toyota, and Fukuo Matsui, Yokohama, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan
Filed Feb. 20, 1973, Ser. No. 333,724
Claims priority, application Japan Oct. 20, 1972
Term of patent 14 years
Int. Cl. D12—08

U.S. Cl. D12—156



232,352

PROPELLER FOR LOG LINE KNOTMETER

Fred W. Tann, Los Angeles, Calif., assignor to Dawn Electronics, Hawthorne, Calif.

Filed Apr. 7, 1972, Ser. No. 242,277

Term of patent 14 years

Int. Cl. D12-99

U.S. Cl. D12-214



232,353

TREAD PLATE MATERIAL OR THE LIKE

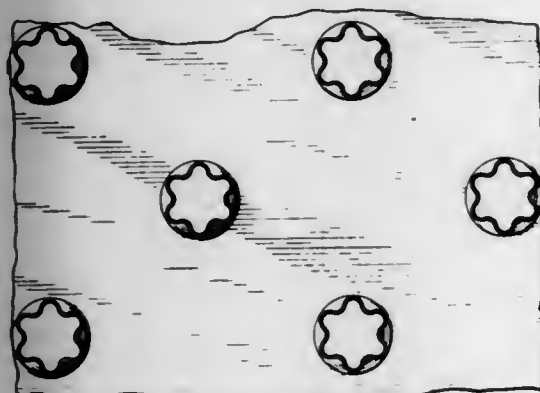
Benjamin Sieradzki, Berkeley, Calif., assignor to Chemetron Corporation, Chicago, Ill.

Filed Nov. 17, 1971, Ser. No. 199,832

Term of patent 14 years

Int. Cl. D25-01

U.S. Cl. D13-1 J



232,354

DWELLING

William J. Whitaker, 3517 Imperial Highway, Lynwood, Calif. 90262

Filed July 24, 1972, Ser. No. 274,380

Term of patent 14 years

Int. Cl. D25-03

U.S. Cl. D13-1 A



232,355

COVERED TEST TUBE

Gerhard Wiedmann, Butzberg, Switzerland, assignor to Greiner Electronic AG, Langenthal, Switzerland

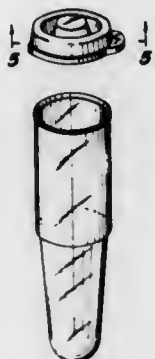
Filed May 23, 1973, Ser. No. 363,243

Claims priority, application Switzerland Jan. 11, 1973

Term of patent 14 years

Int. Cl. D24-02

U.S. Cl. D16-1 R



232,356

ARROW TAIL FEATHER

Francis W. Melton, 1306 47th St., Des Moines, Iowa 50310

Filed May 10, 1973, Ser. No. 359,098

Term of patent 14 years

Int. Cl. D22-05

U.S. Cl. D22-12



232,357

AUTOMATIC HOOK SETTER

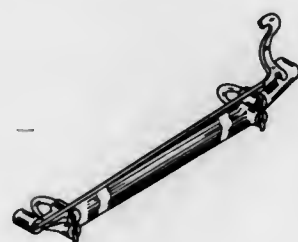
Vaughnie B. Langwell, 4002 E. 15th St., Amarillo, Tex. 79104

Filed May 21, 1973, Ser. No. 362,474

Term of patent 14 years

Int. Cl. D22-05

U.S. Cl. D22-23



232,358

FISH HOOK BAITER

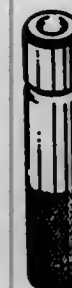
Charles C. Gray and Klena B. Gray, both of 608 N. Jefferson, Hutchinson, Kans. 67501

Filed Nov. 13, 1970, Ser. No. 25,970

Term of patent 14 years

Int. Cl. D22-05

U.S. Cl. D22-31



232,359

GARDEN SOAKER

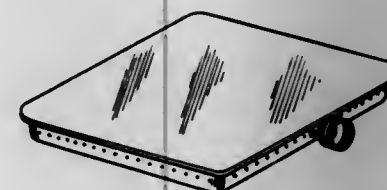
William W. Robinson, Birmingham, Mich. (1012 E. Wilson Ave., Apt. 5, Glendale, Calif. 91206)

Filed Mar. 31, 1972, Ser. No. 240,334

Term of patent 14 years

Int. Cl. D23-01

U.S. Cl. D23-6



232,360

PLUMBING VENT VALVE

Robert R. Watts, Blue Springs, Mo., assignor to Watco Plastics, Inc.

Filed May 11, 1972, Ser. No. 252,528

Term of patent 7 years

Int. Cl. D23-01

U.S. Cl. D23-19



232,361

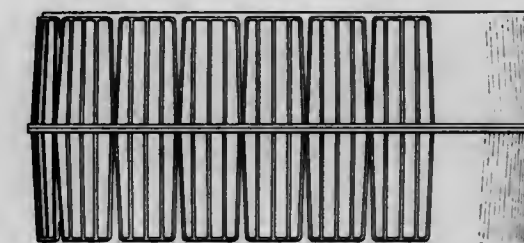
CASING FOR REFRIGERATION SYSTEM CONDENSING UNITS OR THE LIKE

William C. Martin, Jr., Syracuse, Walter W. Hoyle, Fayetteville, and Fred V. Honnold, Jr., North Syracuse, N.Y., assignors to Carrier Corporation, Syracuse, N.Y. Continuation-in-part of abandoned design application Ser. No. 233,852, Mar. 10, 1972. This application July 2, 1973, Ser. No. 375,566

Term of patent 7 years

Int. Cl. D23-04

U.S. Cl. D23-139



232,362

FAN

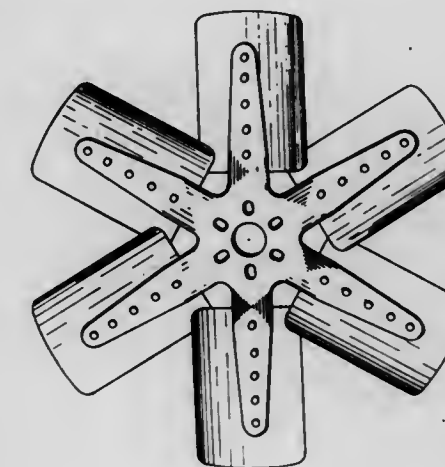
Bern M. Bonifant, Tacoma, Wash., assignor to Flex-A-Lite Corporation, Tacoma, Wash.

Filed July 13, 1973, Ser. No. 379,166

Term of patent 14 years

Int. Cl. D23-04

U.S. Cl. D23-165



232,363

TELEPHONE STAND WITH INDEX

Yuen Se-Kit, 46 Hoi Yuen Road, 4th Floor, Kwun Tong, Kowloon, Hong Kong

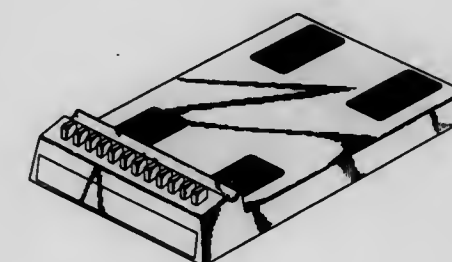
Filed Apr. 11, 1972, Ser. No. 243,111

Claims priority, application Great Britain Oct. 14, 1971

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D26-14 A

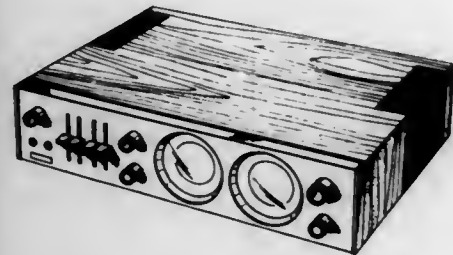


232,364

COMBINED AMPLIFIER AND SPEAKER
Yoshiaki Iida and Hanji Takahashi, Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 20, 1973, Ser. No. 343,051
Claims priority, application Japan Sept. 20, 1972
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D26-14 G



232,365

INTERCOMMUNICATION INTERCONNECT TELEPHONE

Steven T. Churchill, Wilton, Athanassios Iliakidis, Norwalk, and Richard B. Pell and Jonas M. Shapiro, Stamford, Conn., assignors to Executone, Inc., Long Island City, N.Y.

Filed Aug. 15, 1973, Ser. No. 388,684
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D26-14 A

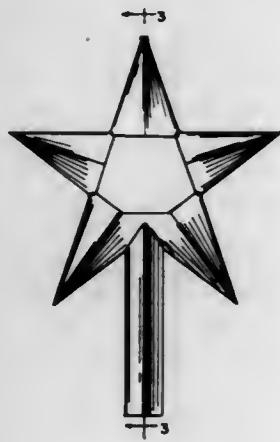


232,366

CHRISTMAS ORNAMENT
Richard F. Goonen, 107 Washington St., Lafayette, Ind. 47905

Filed Apr. 30, 1973, Ser. No. 355,934
Term of patent 14 years
Int. Cl. D11-02

U.S. Cl. D29-1 B



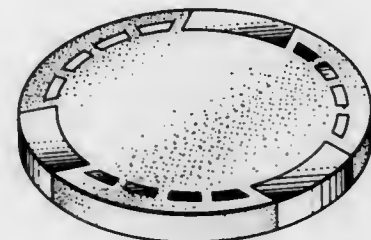
232,367

GAME CHIP

Joseph H. Garaventa, Reno, Nev., assignor to Harrah's Club, Reno, Nev.

Filed Mar. 20, 1972, Ser. No. 236,540
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D34-5 PC



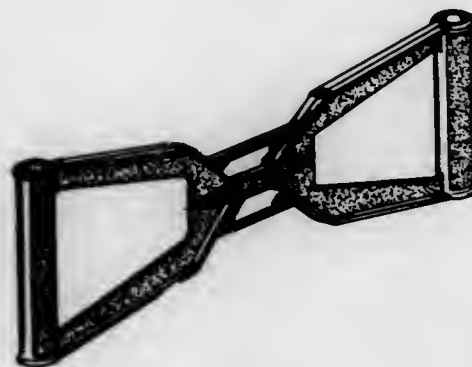
232,368

EXERCISER

Eugene A. Shales, 3901 Los Feliz Blvd., Apt. 207, Los Angeles, Calif. 90027

Filed Aug. 11, 1972, Ser. No. 279,846
Term of patent 14 years
Int. Cl. D21-02

U.S. Cl. D34-5 K

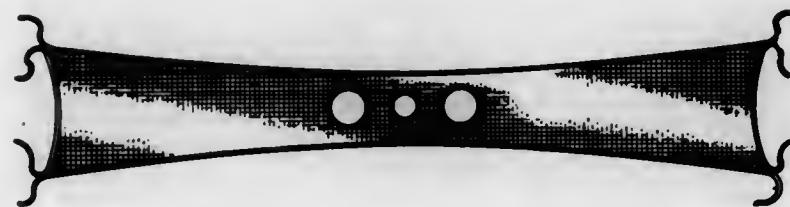


232,369

APERTURED NET FOR HANDBALL PLAYING GAMES

McKinley Tolliver, 3867 Cardinal Blvd., Daytona Beach, Fla. 32019
Filed Oct. 10, 1972, Ser. No. 296,211
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D34-5 PP



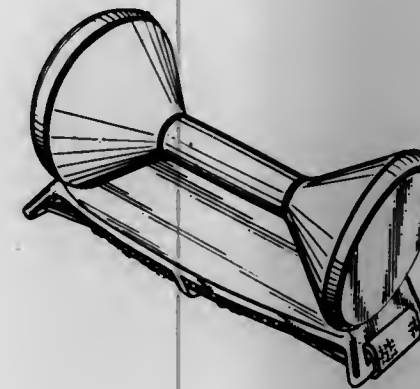
232,370

SIT-UP EXERCISER

John Hasekian, 108 Putnam, Watertown, Mass. 02172
Filed Oct. 16, 1972, Ser. No. 297,781

Term of patent 14 years
Int. Cl. D21-02

U.S. Cl. D34-5 K



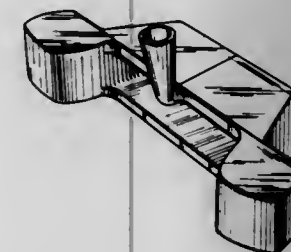
232,371

GOLF PUTTER HEAD

Jerome E. Becker, 3285 Woodbine St., Los Angeles, Calif. 90064

Filed Dec. 15, 1972, Ser. No. 315,412
Term of patent 14 years
Int. Cl. D21-02

U.S. Cl. D34-5 GH



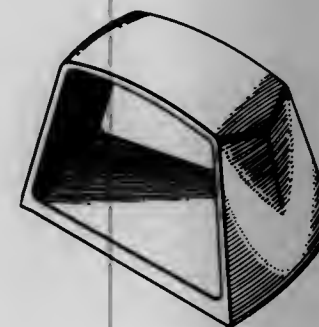
232,372

ANTI-CROSSING ATTACHMENT FOR SKIS

Douglas L. Grant, 11 Bayview Road, Marblehead, Mass. 01945

Filed Nov. 14, 1973, Ser. No. 415,822
Term of patent 14 years
Int. Cl. D21-02

U.S. Cl. D34-14 D



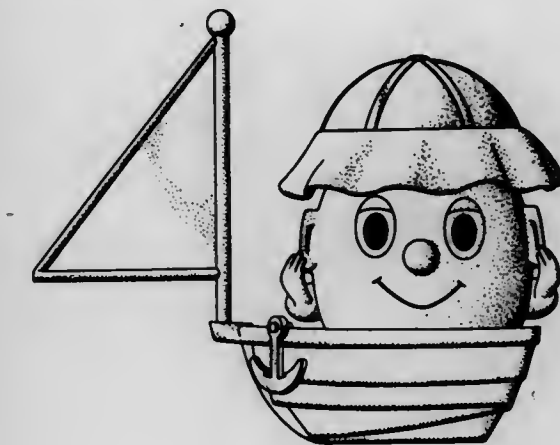
232,373

HUMPTY DUMPTY SAILOR TOY

Paul L. Luzius, Brentwood, Tenn., and Jerrold J. Krumholz, West Orange, N.J., assignors to Kusan, Inc., Nashville, Tenn.

Filed May 22, 1973, Ser. No. 362,655
Term of patent 14 years
Int. Cl. D21-01

U.S. Cl. D34-15 JJ



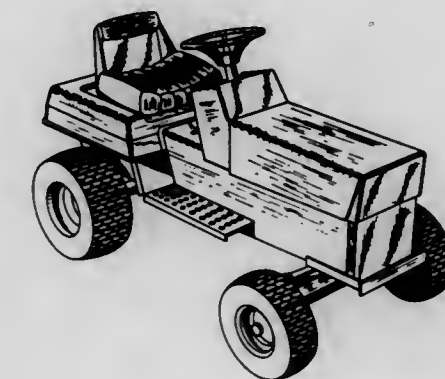
232,374

TRACTOR

Douglas Raymon Houst, Pattersonville, James Wesley Stackhouse and Carlton La Verne Wetherby, Scotia, and Donald Scott Cooper, Schenectady, N.Y., assignors to General Electric Company

Filed Dec. 13, 1972, Ser. No. 314,731
Term of patent 14 years
Int. Cl. D12-09

U.S. Cl. D40-5 R



232,375

FINGER RING

Bernard I. Mechanic, 9314 Lincolnwood Drive, Evanston, Ill. 60203

Filed Apr. 2, 1973, Ser. No. 346,958
Term of patent 14 years
Int. Cl. D11-01

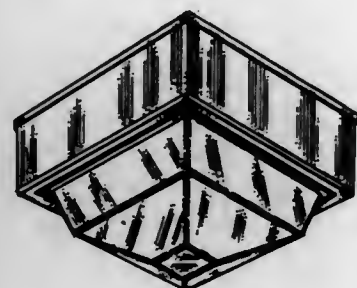
U.S. Cl. D45-10 C



232,376
LUMINAIRE

Theodor G. Yahraus and James L. Grindle, Hendersonville, N.C., assignors to General Electric Company
Filed Feb. 20, 1973, Ser. No. 334,115
Term of patent 14 years
Int. Cl. D26—03

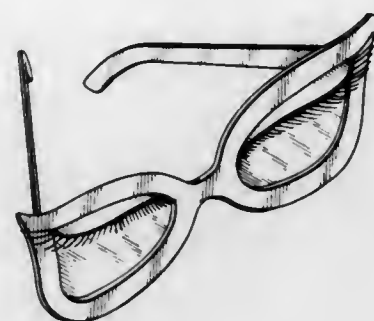
U.S. Cl. D48—31



232,379
SUNGLASSES

Robert Arner, 638 Iron St., Lehigh, Pa. 18235
Filed June 19, 1973, Ser. No. 371,388
Term of patent 14 years
Int. Cl. D16—06

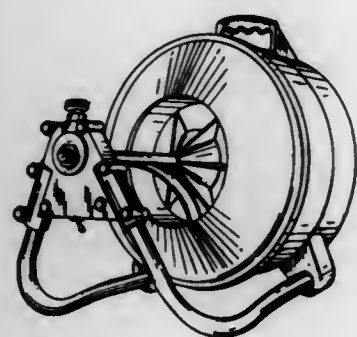
U.S. Cl. D57—1 D



232,377

SEWER AND DRAIN PIPE CLEANING MACHINE
Henry G. Peterson, Des Moines, and Tom Grimes, Altoona, Iowa, assignors to Roto Rooter Corporation, West Des Moines, Iowa
Filed Apr. 16, 1973, Ser. No. 351,264
Term of patent 14 years
Int. Cl. D15—05

U.S. Cl. D49—10



232,380

PAIR OF SPECTACLES
David W. Johnsen, Southbridge, Mass., assignor to American Optical Corporation, Southbridge, Mass.
Filed Aug. 20, 1973, Ser. No. 389,902
Term of patent 14 years
Int. Cl. D16—06

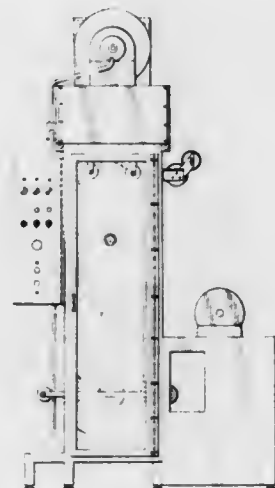
U.S. Cl. D57—1 F



232,381

PHOTOGRAPHIC PRINT DRYER
John N. Harman, Jr., La Canada, and James S. Livingston, Reseda, Calif., assignors to Drewry Photocolor Corporation, Burbank, Calif.
Filed Mar. 27, 1972, Ser. No. 238,740
Term of patent 14 years
Int. Cl. D16—04

U.S. Cl. D61—1 Q



232,378

PAPER TOWEL DISPENSER
Mary Ann Keith, 7401 W. 103rd, Lenexa, Kans. 66212
Filed Nov. 19, 1971, Ser. No. 200,665
Term of patent 14 years
Int. Cl. D7—99

U.S. Cl. D52—2 C



232,382
FONT OF TYPE

Kozo Yamamoto, Hirakata, and Toshio Watahiki, Kadoma, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma, Osaka, Japan
Filed Apr. 24, 1972, Ser. No. 247,261
Term of patent 14 years
Int. Cl. D18—03

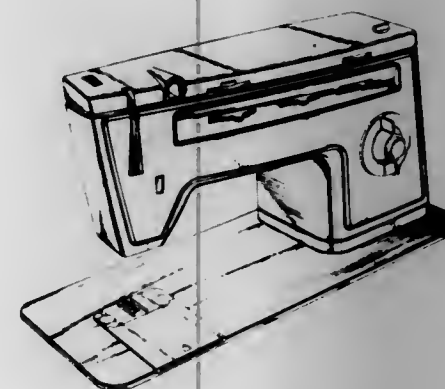
U.S. Cl. D64—12 B

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232,383

SEWING MACHINE FRAME OR SIMILAR ARTICLE
Donald M. Genaro, Hawthorn, N.J., assignor to The Singer Company, New York, N.Y.
Filed Mar. 20, 1973, Ser. No. 334,178
Term of patent 14 years
Int. Cl. D15—09

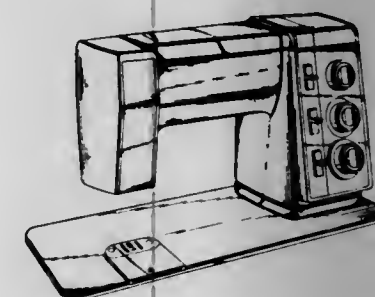
U.S. Cl. D70—1



232,384

SEWING MACHINE FRAME OR SIMILAR ARTICLE
George D. La Police, Somerville, and Wayne A. Current, Cranford, N.J., assignors to The Singer Company, New York, N.Y.
Filed Mar. 29, 1973, Ser. No. 346,234
Term of patent 14 years
Int. Cl. D15—09

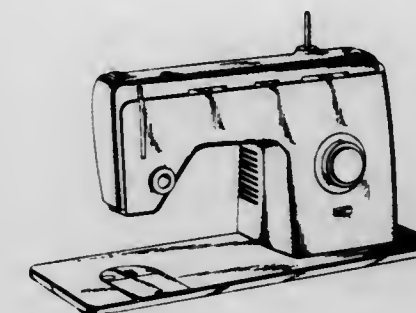
U.S. Cl. D70—1



232,385

SEWING MACHINE FRAME
Michael P. Ballone, New Providence, N.J., assignor to The Singer Company, New York, N.Y.
Filed May 18, 1973, Ser. No. 361,722
Term of patent 14 years
Int. Cl. D15—09

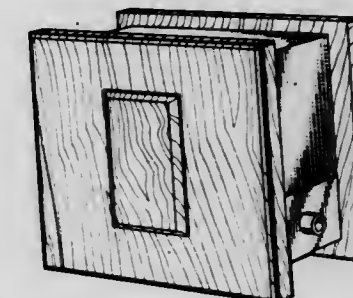
U.S. Cl. D70—1



232,386

SMOKE DETECTION UNIT
Jeffrey E. Hamm, 7432 Eastbourne Circle 84121, and Robert S. Jenson, 2981 Middleton Way 84117, both of Salt Lake City, Utah
Filed Feb. 8, 1973, Ser. No. 330,528
Term of patent 14 years
Int. Cl. D29—02

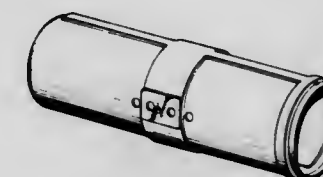
U.S. Cl. D72—1 R



232,387

RECEPTACLE FOR NEWSPAPERS AND THE LIKE
Edward H. Coy III and Robert John Halisey, both of Lookout Drive, Lake Hayward, Colchester, Conn. 06415
Filed Feb. 1, 1973, Ser. No. 328,867
Term of patent 14 years
Int. Cl. D31—00

U.S. Cl. D74—9 R

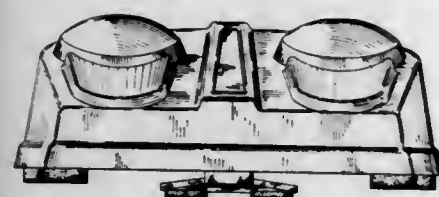
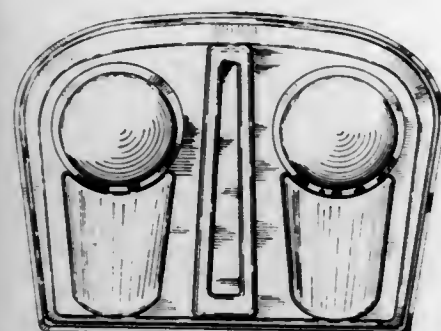


232,388

FOOT MASSAGER

Samuel L. McNair, Overland Park, Kans., assignor to
Dazey Products Co.
Filed June 20, 1973, Ser. No. 371,736
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D83—1 S



232,389

MEDICAL TWEEZERS

Per Danielsson, Ljungby, and Göte Karlsson, Gnosjö,
Sweden, assignors to Per Danielsson and Göte Karlsson
Filed Mar. 15, 1972, Ser. No. 235,108
Term of patent 14 years
Int. Cl. D24—02; D8—05

U.S. Cl. D83—12 R



232,390

ACCESSORY HAIRPIECE

Christopher John Vincent White, 53 Eglantine Road,
London SW. 18, England
Filed July 6, 1973, Ser. No. 377,075
Claims priority, application Great Britain Jan. 19, 1973
Term of patent 3½ years
Int. Cl. D28—04

U.S. Cl. D86—10 J



232,391

ACCESSORY HAIRPIECE

Christopher John Vincent White, 53 Eglantine Road,
London SW. 18, England
Filed July 6, 1973, Ser. No. 377,076
Claims priority, application Great Britain Jan. 19, 1973
Term of patent 3½ years
Int. Cl. D28—04

U.S. Cl. D86—10 J



232,392

ACCESSORY HAIRPIECE

Christopher John Vincent White, 53 Eglantine Road,
London SW. 18, England
Filed July 6, 1973, Ser. No. 377,077
Claims priority, application Great Britain Jan. 19, 1973
Term of patent 3½ years
Int. Cl. D28—04

U.S. Cl. D86—10 J

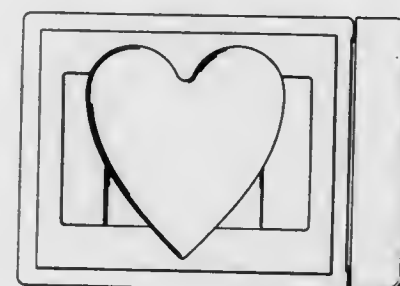


232,393

COMBINED TAPE CASSETTE HOLDER AND PICTURE FRAME

Michael H. Barkman, Palatine, Ill., assignor to Wabash
Tape Corporation, Des Plaines, Ill.
Filed Apr. 3, 1972, Ser. No. 240,886
Term of patent 7 years
Int. Cl. D3—99

U.S. Cl. D87—1 D

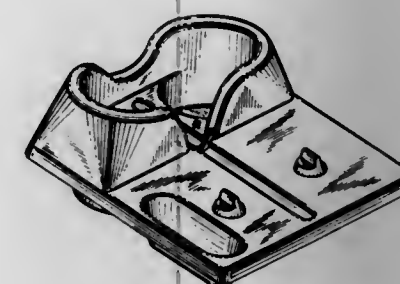


232,394

STORAGE TRAY FOR A CASSETTE AND FILM STRIPS

Allen S. Braverman, Paramus, N.J., assignor to Plastic
Reel Corporation of America, Carlstadt, N.J.
Filed Oct. 24, 1972, Ser. No. 300,020
Term of patent 14 years
Int. Cl. D3—02

U.S. Cl. D87—1 D



232,395

SHAVER

J. Edward Brenneman and Robert S. Waters, Lancaster,
Pa., assignors to Schick Incorporated, Lancaster, Pa.
Filed Feb. 16, 1973, Ser. No. 333,026
Term of patent 14 years
Int. Cl. D28—03

U.S. Cl. D95—3 A



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 13TH DAY OF AUGUST, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A & C Park Incorporated: *See—*
Park, Alexander C., 3,829,117.
- Aarna, Agu Yanovich; Kisler, Karl Ritsovich; Gerkhardovich, Peep; and Tanner, Juri Albert-Mikhaelovich, to Tallinsky Politeknicheskyy Institut. Method of producing resorcinol resins by reacting with N-methylol caprolactam. 3,829,528, Cl. 260-841.000.
- AB Bygg-Och Transportekonomi (BT): *See—*
Bryntse, Anders Ivar; and Berkestad, Karl Erik, 3,828,650.
- AB Printing Equipment: *See—*
Eriksson, Algot Ingemar, 3,829,702.
- Abbott, Charles Theodor, Jr.; and Smith, George Cummingha, Jr., to Procter & Gamble Company, The. Detergent compositions containing n-chloro-imides. 3,829,385, Cl. 252-95.000.
- ABC Packaging Machine Corporation: *See—*
Reichert, Donald G., 3,828,659.
- Abe, Atsushi: *See—*
Tsuchiya, Toshio; and Abe, Atsushi, 3,828,872.
- Abe, Takeshi, to Ricoh Co., Ltd. Card-storing device. 3,829,188, Cl. 312-184.000.
- Abraham, Marvin M.: *See—*
Chen, Yok; and Abraham, Marvin M., 3,829,391.
- Abrams, Aubrey Leon, to General Stationery Supplies (Proprietary) Limited. Tethered ball apparatus. 3,829,093, Cl. 273-95.00a.
- Acme-Cleveland Corporation: *See—*
Flueckiger, Noah, 3,828,901.
- Adamovke Strojirny Narodni podnik: *See—*
Jurny, Josef, 3,829,084.
- Adams, Guy E., to Solitron Devices, Inc. Electronic ignition system. 3,828,751, Cl. 123-148.00e.
- Adams Robert T.; Heath, William A.; and Wuopio, Richard A., to Chevron Research Company. Isobutane oxidation to produce alcohol useful in motor fuel. 3,829,510, Cl. 260-632.00c.
- Addressograph-Multigraph Corporation: *See—*
Shelffo, Loren E., 3,829,314.
- Aeppli, Otto T.: *See—*
Wegst, Walter F.; and Aeppli, Otto T., 3,829,386.
- Aerospace Corporation, The: *See—*
Birnbaum, Milton, 3,829,696.
- Aerpat A.G., Zug: *See—*
Sheffield, David John; Prosser, Paul Edward; and Charman, Bernard William, 3,828,603.
- AGFA-Gevaert Aktiengesellschaft: *See—*
Meeussen, Louis Achilles; Bestenreiner, Friedrich; and Huber, Hans-Peter, 3,829,610.
- Winkler, Alfred; Engelsmann, Dieter; Karl, Horst; and Schroeder, Rolf, 3,829,875.
- Zahn, Wolfgang; Weinert, Volker; Thiene, Hans; and Hujer, Friedrich, 3,829,214.
- AGFA-Gevaert N.V.: *See—*
Pietermaat, Francois Paul; Peytier, Andre; and Berckmans, Walter, 3,829,608.
- Aggogle Inc.: *See—*
Shorin, Joseph E.; and Ricci, Vero, 3,828,995.
- Aghnides, Elie P. Spray producing device. 3,829,026, Cl. 239-394.000.
- Aginfor AG fur Industrielle Forschung: *See—*
Guttinger, Heinrich, 3,829,256.
- Aglitsky, Vladimir Efimovich: *See—*
Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Martitsovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtdil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
- Ahlbom, Sten H.; and Hansson, Sture J., H., to Saab-Scania Aktiebolag. Automatic video contrast tracker. 3,829,614, Cl. 178-6.800.
- Ahrendt, Donald A., to Allis-Chalmers Corporation. Pivoted overhead guard. 3,829,121, Cl. 280-150.00c.
- Aichele Associates, Inc.: *See—*
Marshall, John J., 3,829,753.
- Ainoura, Masato, to Tsukihoshi Gomu Kabushiki Kaisha (The Moon-Star Rubber Ltd.) and Kabushiki Kaisha Kashifuji Tekkoshu (Kabushifuji Works, Ltd.). Method of forming a screw shaped gear hone. 3,829,298, Cl. 51-298.000.
- Aisin Seiki Kabushiki Kaisha: *See—*
Inada, Masami, 3,829,169.
- Aizawa, Hiroshi; Sunouchi, Akio; and Ogiso, Mitsutoshi. Camera having a retainable exposure control device. 3,829,868, Cl. 354-45.000.
- Akai Electric Company Limited: *See—*
Sakamoto, Hiroo, 3,829,178.
- Akin, Alfred A., Jr.: *See—*
Van Exel, Gerrit A.; and Akin, Alfred A., Jr., 3,829,194.
- Akred, Brian John: *See—*
Sowerby, Austen Edgar; and Akred, Brian John, 3,829,484.
- Aktiebolaget Bofors: *See—*
Nilsson, Per-Erik; and Sjogren, Bengt-Ake Harald, 3,829,852.
- Aktiebolaget Fredr. Wagner: *See—*
Oestergren, Henrik William Stig, 3,828,917.
- Aktiebolaget Svenska Elektromagneter: *See—*
Carlsson, Hans Thorsten Henrik, 3,828,754.
- Aktiebolaget Svenska Tlaktfabriken: *See—*
Broberg, Georg, 3,828,511.
- Aktieselskabet Niro Atomizer: *See—*
Damgaard-Iversen; Hansen, Ove Emil; and Lund, Bjorn, 3,828,837.
- Albright & Wilson Limited: *See—*
Sowerby, Austen Edgar; and Akred, Brian John, 3,829,484.
- Alburn, Harvey E.; Clark, Donald E.; Grant, Norman H.; and Lapidus, Milton, to American Home Products Corporation. Hydroxamic acid esters of pentanecarboxylic acids. 3,829,459, Cl. 260-453.00r.
- Alburn, Harvey E., to American Home Products Corporation. Method of treating neisseria gonorrhoea with dihydroampicillin. 3,829,576, Cl. 424-271.000.
- Alco Standard Corporation: *See—*
Wulf, Karl A., 3,829,283.
- Aldinger, Ulrich; Kersten, Gunter; and Knodel, Emil, to Robert Bosch GmbH. Slide shoe and piston arrangement. 3,828,653, Cl. 91-488.000.
- Alexander, David Ord, 15% to Wiczer, Sol B. Underwater speaking device. 3,828,887, Cl. 181-126.000.
- Alexander, George F.: *See—*
Oestmann, Eldon D.; and Alexander, George F., 3,829,172.
- Alexandrov, Adolf Martitsovich: *See—*
Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Martitsovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtdil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
- Alfrich, Floyd E.; and Hovey, Fred A., to GTE Sylvania Incorporated. Deflection yoke mounting assembly. 3,829,804, Cl. 335-210.000.
- Alker, Heinrich, to Olbo Textilwerke GmbH, Firma. Two-component yarns. 3,828,544, Cl. 57-152.000.
- Allais, Andre; Meier, Jean; and Dube, Jacques, to Roussel-Uclaf. Novel benzoylphenylacetic acid esters in the treatment of pain and inflammation. 3,829,585, Cl. 424-278.000.
- Allan, William Bell; Rattle, Jeffrey Douglas; and Atkinson, Arthur Gordon. Rank Organisation Limited, The Optical signalling. 3,829,857, Cl. 340-380.000.
- Allen Electric and Equipment Company: *See—*
Nigg, William, 3,829,773.
- Allied Chemical Corporation: *See—*
Litke, Alvin Carl, 3,829,287.
- Allis, Louis, Company, The: *See—*
Rettig, Charles E., 3,829,754.
- Allis-Chalmers Corporation: *See—*
Ahrendt, Donald A., 3,829,121.
- Pelanz, Herbert M., 3,829,707.
- Sutton, Max E., 3,829,128.
- Allison, David F.; and Schweizer, John E., Jr., to Scientific Micro Systems, Inc. Method for processing semiconductor wafers. 3,829,335, Cl. 148-189.000.
- Allison, David F.; and Maxwell, David A., to Signetics Corporation. Semiconductor structure. 3,829,889, Cl. 357-49.000.
- Allmanna Svenska Elektriska Aktiebolaget: *See—*
Larsson, Hans-Gunnar; and Bergman, Carl, 3,829,261.
- Thorborg, Kjeld, 3,829,759.
- Alpermann, Hans-Georg: *See—*
Bartmann, Wilhelm; and Alpermann, Hans-Georg, 3,829,571.
- Bartmann, Wilhelm; Alpermann, Hans-Georg; and Jochum, Christian, 3,829,572.
- Aluminum Company of America: *See—*
Hawkins, Ronald G., 3,829,825.
- Alvarez, Guillermo Diaz, to Gee-Dee International, Inc. Method and apparatus for processing soil for planting. 3,828,859, Cl. 172-50.000.
- Alvarez, Luis W., to Humphrey Research Associates, mesne. Method of forming an optical element of reduced thickness. 3,829,536, Cl. 264-1.000.
- Alyanak, Edward J., to Bendix Corporation, The. Method of spectral analysis. 3,829,218, Cl. 356-74.000.
- Alza Corporation: *See—*
Ness, Richard A., 3,828,777.
- Amakasu, Mitsuzi: *See—*

Yoshida, Tokuji; and Amakasu, Mitsuzi, 3,828,538.
 Amchem Products, Inc., mesne: See—
 Miki, Shinsuke; and Nishida, Takao, 3,829,371.
 Rosenthal, Henry, 3,829,537.
 American Home Products Corporation: See—
 Wise, Louis M.; and Bozek, Edmund J. Jr., 3,829,387.
 American Bank Note Company: See—
 Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,828,672.
 Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,828,673.
 American Can Company: See—
 Feinberg, Jacob Howard, 3,829,369.
 Zugic, Joseph Paul, 3,828,668.
 American Cyanamid Company: See—
 Deb, Satyendra Kumar, 3,829,196.
 American Cystoscope Makers, Inc.: See—
 Curtiss, Lawrence F.; and Hall, Richard W., 3,828,790.
 American Flange & Manufacturing Co. Inc.: See—
 Laurizio, Jeremiah J., 3,828,418.
 American Home Products Corporation: See—
 Alburn, Harvey E.; Clark, Donald E.; Grant, Norman H.; and Lapidus, Milton, 3,829,459.
 Alburn, Harvey E., 3,829,576.
 Wolf, Milton; Sellstedt, John H.; and Fenichel, Richard L., 3,829,488.
 American Metal Climax, Inc.: See—
 Ronzio, Richard A.; Lane, John W.; and Vincent, John D., 3,829,550.
 American Telephone and Telegraph Company: See—
 Brandon, Arthur Cecil, 3,829,618.
 Ammco Tools, Inc.: See—
 Mitchell, Wallace F., 3,828,487.
 Amoroso, Salvatore, Jr., to United Aircraft Corporation. Call apparatus in a single oscillator microwave transceiver. 3,829,778, Cl. 325-17.000.
 AMP Incorporated: See—
 Derr, Paul B.; Ferdon, Gilbert Douglas; and Harwood, Robert George, 3,829,821.
 Amtmann, Jurgin: See—
 Smitzer, Louis A.; and Amtmann, Jurgin, 3,829,215.
 Anaconda Company, The: See—
 Hansen, Theodore E.; and Moran, Thomas M., 3,829,603.
 Anderle, Joseph A.; and Neira, George, to Levolor Lorentzen, Inc. Venetian blind having tilt-limiting attachment. 3,828,838, Cl. 160-176.000.
 Andersen, Joseph J., to Evans, Chandler, Inc. Fluidic valve modulator. 3,829,058, Cl. 251-25.000.
 Anderson, Arthur A., to Specialty Manufacturing Company. Valve assembly. 3,828,817, Cl. 137-625.470.
 Anderson, Bernard Fornelius, to Du Pont de Nemours, E. I., and Company. Agricultural mulch films adapted for plant penetration. 3,828,471, Cl. 47-9.000.
 Anderson, Forrest Symington, to Anderson Mavor Limited. Overload cut-out mechanism for mining machine mechanical haulage mechanism. 3,828,900, Cl. 192-12.00a.
 Anderson, Lawrence; and Bentzen, Bruce D., to Medical Incorporated. Collet for holding heart valve. 3,828,787, Cl. 128-303.00r.
 Anderson Mavor Limited: See—
 Anderson, Forrest Symington, 3,828,900.
 Anderson, Niels Lervad; and Hubschmann, Ejvind, to Danfoss A/S. Ignition device for burner installations. 3,829,739, Cl. 317-98.000.
 Anderson, Ralph; and Beyer, Rodney B., to Future Systems, Inc. Process for treating waste photographic processing solution and recovering residual silver therefrom as a silver halide. 3,829,549, Cl. 423-43.000.
 Andrychuk, Dmetro, to Texas Instruments Incorporated. Image conversion and amplifying device. 3,829,692, Cl. 250-330.000.
 Annettoni, Ezio, to Chemetron Corporation, mesne. Dual action microswitch actuator. 3,829,644, Cl. 200-153.00t.
 Anspach, William E., Jr. Holder for X-ray cassettes. 3,829,699, Cl. 250-475.000.
 Anzai, Masao; and Miyatake, Masayuki, to Toppan Printing Co. Ltd. and Toyo Ink Manufacturing Co., Ltd. Sublimation transfer dyeing with 4,8-dihydroxy-1-arylamino-anthraquinones. 3,829,286, Cl. 8-2.500.
 Aoki, Masayoshi: See—
 Nozawa, Hideo; Aoki, Masayoshi; and Isono, Shoji, 3,828,549.
 Aoshika, Masayuki: See—
 Nanjyo, Toshio; Aoshika, Masayuki; and Nakamura, Akinori, 3,829,595.
 Aoshima, Kazuyoshi: See—
 Kato, Mitsukuni; Komai, Takeshi; and Aoshima, Kazuyoshi, 3,829,503.
 Aoyama, Akimitsu, to Matsushita Electric Industrial Company Limited. Character generation cathode-ray tube using tantalum target. 3,829,727, Cl. 313-399.000.
 Aoyama, Yahyo, to Miyata Kinzoku Kogyo Kabushiki Kaisha. Calk for golf shoes. 3,828,364, Cl. 2-67.00b.
 Apicella, Anthony. Simultaneous embossing and printing. 3,828,666, Cl. 101-24.000.
 Apple, Charles N., Sr., to Metafab Industries, Inc. Tube joining system. 3,828,414, Cl. 29-200.00b.
 Appleton Electric Company: See—
 Rutkowski, John L., 3,829,815.
 Aquarius, Conradus Hubertus. Apparatus for forming lollipops. 3,829,262, Cl. 425-126.00s.
 Arai, Michio, to Sony Corporation. Variable resistance field effect transistor. 3,829,882, Cl. 357-23.000.
 Araki, Toru; and Yamamoto, Shigeo, to National Research Institute for Metals. Process for the manufacture of steel of good machinability. 3,829,312, Cl. 75-129.000.
 ARCO Nuclear Company, mesne: See—
 Purdy, David L., 3,828,371.
 Ardal & Sunddal Verk A/S: See—
 Brautaset, Steinar; and Otterbeck, Finn, 3,829,050.
 Argereu, William. Sound deadening means for use on a bar feeding and a bar working machine. 3,828,630, Cl. 82-2.500.
 Arkin, Theodore E. Set of golf clubs and means for carrying same. 3,829,092, Cl. 273-77.00a.
 Arnel, Jack, to Iso Nuclear Corp., mesne. Self-packaged hypodermic syringe. 3,828,775, Cl. 128-218.00n.
 Armstrong Cork Company: See—
 Lewicki, Walter J., Jr., 3,828,725.
 Armstrong, Robert G. Apparatus for inductively heating tubular metal workpieces. 3,829,650, Cl. 219-10.690.
 Arnold, Dan M.: See—
 Schultz, Ward E.; Smith, Harry D., Jr.; and Arnold, Dan M., 3,829,686.
 Arnold, Harmon W.: See—
 Platt, Thomas W.; and Arnold, Harmon W., 3,829,048.
 Aroyo, Jacky Sivcho: See—
 Julev, Stoyan Iliev; Milkov, Mihail Yordanov; Dachev, Lyubomir Petrov; Vasilev, Rosen Petrov; Kostov, Vasil Alexandrov; and Aroyo, Jacky Sivcho, 3,829,344.
 Asahi Kasei Kogyo Kabushiki Kaisha: See—
 Ishida, Shinichi; Oshima, Noboru; Kurita, Kunio; Suzuki, Isamu; and Ohno, Hidetoshi, 3,829,379.
 Asahi Kasei Kogyo K.K.: See—
 Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsuma, Katsuyoshi; and Furukawa, Hitoshi (said Sakurai assor. to), 3,829,228.
 Asahi Kogaku Kogyo Kabushiki Kaisha: See—
 Kamasako, Shoji, 3,829,865.
 Kawasaki, Harumi, 3,829,832.
 Takahashi, Yasuo, 3,829,198.
 Uno, Naoyuki; and Urano, Fumio, 3,829,876.
 Asahi Optical Co.: See—
 Nobusawa, Tsukumo, 3,829,866.
 Asano, Masafumi: See—
 Muraoka, Hisashi; Asano, Masafumi; Ohashi, Taizo; and Shimazaki, Yuzo, 3,829,555.
 Ascencio, Ramon J., to Douglas & Lomason Company. Mechanical attachment of thermoplastic material to a base sheet. 3,829,355, Cl. 161-114.000.
 Asfura, Abraham C. Miele. Process for handling fluids in heat transfer equipment. 3,828,843, Cl. 165-1.000.
 Ashby, Eugene C.; Taylor, William D.; and Winkler, Donald A., to Ethyl Corporation. Aluminum hydride product. 3,829,390, Cl. 252-188.000.
 Ashida, Hitoshi, to Takeda Riken Industry Company Limited. Frequency measuring apparatus. 3,829,769, Cl. 324-79.00d.
 Ashland Oil Inc.: See—
 McKillip, William J.; and Culbertson, Billy M., 3,829,407.
 Aslund, Nils Robert Dahr, to Saab-Scania Aktiebolag. Device to introduce an optic measuring index at photoelectric detection of photographic plates. 3,829,222, Cl. 356-203.000.
 Aspinwall, Peter, to Comstock & Wescott, Inc. Reversibly mountable book cutter. 3,828,409, Cl. 29-105.00a.
 Associated Engineering Limited: See—
 Hunt, Norman, 3,828,818.
 Assouline, Georges; Hareng, Michel; and Leiba, Eugene, to Thomson-CSF. Liquid crystal image converter system responsive to ionizing radiation. 3,829,684, Cl. 250-213.00r.
 Ateliers de Constructions Electriques de Charleroi (ACEC) Societe Anonyme: See—
 Schirman, Ananie, 3,829,736.
 Athey, Stuart E., to Hobart Manufacturing Company, The. Mounting for printed circuit boards. 3,829,741, Cl. 317-101.00h.
 Atkin, Robert F., to Pyrocom, Inc. Incinerator. 3,828,701, Cl. 110-8.00a.
 Atkins, Herbert Ashley, to Beecham Group Limited. Bottle closure. 3,828,962, Cl. 215-41.000.
 Atkinson, Arthur Gordon: See—
 Allan, William Bell; Rattle, Jeffrey Douglas; and Atkinson, Arthur Gordon, 3,829,857.
 Atre, John D.: See—
 Hoffman, Robert E.; Cline, John A.; Fuselier, Christopher S.; and Atre, John D., 3,829,786.
 Audesse, Emery G.: See—
 Westlund, Arnold E., Jr.; Palmer, Lewis H., III; Audesse, Emery G.; and Huston, Leroy S., 3,829,729.
 Auh, Chung M.: See—
 Malcosky, Norman D.; McLean, Ronald H.; Singh, Kanwal N.; and Auh, Chung M., 3,828,575.
 Automated Building Components, Inc.: See—
 Jureit, John Calvin, 3,828,514.
 Automobiles Peugeot: See—
 Chevreton, Remy, 3,829,184.
 Lecaillet, Pierre; and Dresser, Bruno, 3,828,649.

Miokovic, Stevan, 3,829,176.
 Roger, Yves, 3,828,628.
 Avco Corporation: See—
 Hohenberg, Rudolph; and Duly, Alan R., 3,829,666.
 A.V.I. Alpenlanische Veredelungs-Industrie Gesellschaft m.b.H.: See—
 Boyer, Wilhelm; Ritter, Josef; and Ritter, Gerhard, 3,828,416.
 Baba, Keizi: See—
 Naitou, Nobuyoshi; Baba, Keizi; Huziwaru, Sige-hisa; and Yamanaka, Takesi, 3,828,904.
 Baba, Mikito: See—
 Miyata, Takeo; Hamada, Seiya; Inoue, Katsuaki; and Baba, Mikito, 3,829,799.
 Babcock & Wilcox Company, The: See—
 Jabsen, Felix S., 3,828,868.
 Silk, Edmond J.; and Moore, Claude A., 3,828,518.
 Babcock & Wilcox Limited: See—
 Cox, Eric Reginald; and Wall, John Shiel Clements, 3,828,915.
 Kron, Heinz; and Grommes, Helmut, 3,829,031.
 Babich, Edward: See—
 Offutt, Elmer Bradley; and Babich, Edward, 3,828,971.
 Bachofner, Peter: See—
 Chaudhuri, Kiranendu; and Bachofner, Peter, 3,829,365.
 Backscheider, Nickolas A. Bulk film loading device. 3,829,035, Cl. 242-71.700.
 Bader, Henry; and January, Susan C., to Polaroid Corporation. Synthesis of 3-(3'-carboxy-4'-hydroxy-1'-naphtyl) -3-(3'-carboxy-4'-hydroxy-1'-naphtyl) naphthalide. 3,829,443, Cl. 260-343.20r.
 Badische Anilin- & Soda-Fabrik Aktiengesellschaft: See—
 Keppler, Hans-Georg; Zuern, Ludwig; and Stahnecker, Erhard, 3,829,378.
 Mueller, Albrecht; Zeeh, Bernd; and Kiefer, Hans, 3,829,482.
 Baechle, Charles H. Power tool accessory. 3,828,484, Cl. 51-170.0eb.
 Baer, Ralph H.: See—
 Goldfarb, Adolph E.; Everitt, Delmar K.; Chesley, Ronald F.; and Baer, Ralph H., 3,829,094.
 Baer, Ralph H., to Sanders Associates, Inc. Method of employing a television receiver for active participation in a simulated shooting game. 3,829,095, Cl. 273-101.100.
 Bagdad Plastics Company: See—
 Dayne, Eddy K.; and Land, Wilbur G., 3,829,061.
 Bagprint Ltd.: See—
 Kleinhaut, Samuel, 3,829,002.
 Bagprint Ltd.: See—
 Kleinhaut, Samuel, 3,829,001.
 Bagwell, Thomas W.: See—
 James, Russell P., 3,828,443.
 Baichtal, James R., to Vidar Corporation. Tape speed monitor. 3,829,893, Cl. 360-73.000.
 Baker, Cecil J.; and Beckett, Leo G., to Whirlpool Corporation. Apparatus for freezing ice bodies. 3,829,056, Cl. 249-121.000.
 Baker, Don R., to Stauffer Chemical Company. Biocidal active carbamyl hydrazones. 3,829,486, Cl. 260-554.000.
 Baker, Donald O., to Linear Devices Inc. Geological movement detectors. 3,828,435, Cl. 33-1.00h.
 Baker Perkins Limited: See—
 Shaw, James Thomas; and Lilley, Raymond Percy Arthur, 3,828,482.
 Bakken, Peter Magnar, to Elektronikkaboratoriet ved NTH. Electronic amplitude modulator, in particular for modulating signals intended for navigation purposes. 3,829,796, Cl. 332-44.000.
 Balamuth, Lewis: See—
 Kuris, Arthur; Balamuth, Lewis; and Karatjas, Manuel, 3,828,770.
 Balayan, Ruben Dzhangirovich: See—
 Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Maititovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtndil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
 Baldocchi, Archie. Holster for pistols. 3,828,990, Cl. 224-2.00c.
 Balko, Jack E.; Moffatt, Davis F.; and Searcy, Durward F., to Specialty Instruments Corporation. Photo finish record system. 3,829,869, Cl. 95-1.100.
 Ballast-Nedam Groep N.V.: See—
 De Koning, Jan; Van Der Veen, Romke; and Wolters, Tjako Aaldrik, 3,828,451.
 Balzers Patent- und Beteiligungs-Aktiengesellschaft: See—
 Thelen Alfred, 3,829,197.
 Banks, Michael E.; Lusk, Walter D.; and Ottinger, Robert S., to United States of America, Health, Education and Welfare. Disposal of waste plastic and recovery of valuable products therefrom. 3,829,558, Cl. 423-481.000.
 Barnebey, Herbert L., to Barnebey-Cheney Co. Fluid flow control valves. 3,828,816, Cl. 137-625.280.
 Barnebey-Cheney Co.: See—
 Barnebey, Herbert L., 3,828,816.
 Barnes Engineering Company: See—
 Schwarz, Frank, 3,829,693.
 Barrett, Harrison H., to Raytheon Company. High intensity radiation. 3,829,688, Cl. 250-272.000.
 Barrillon, Claude Gerbelot: See—
 Berthoulet, Jean; and Barrillon, Claude Gerbelot, 3,829,451.
 Barry, Adelbert; and Heintz, Karl O., to Esso Production Research Company. Coupling assembly. 3,829,816, Cl. 339-16.00r.
 Barry, Richard H.; Matluck, Meyer; and Orshitzer, Philip, to Hoffmann-La Roche Inc. Emollient cleansing compositions. 3,829,563, Cl. 424-70.000.
 Bartmann, Wilhelm; and Alpermann, Hans-Georg, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Analgesic composition. 3,829,571, Cl. 424-250.000.
 Bartmann, Wilhelm; Alpermann, Hans-Georg; and Jochum, Christian, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Analgesic composition. 3,829,572, Cl. 424-250.000.
 Barton, Lloyd: See—
 Rothstein, Milton; Kaplan, Martin; and Barton, Lloyd, 3,829,341.
 Basf Wyandotte: See—
 Schmolka, Irving R.; and Seizinger, Reinhold K., 3,829,506.
 BASF Wyandotte Corporation: See—
 Horn, Peter; and Schuster, Ludwig, 3,829,458.
 Wegst, Walter F.; and Aeppli, Otto T., 3,829,386.
 Basov, Jury Georgievich: See—
 Sysun, Viktor Viktorovich; Basov, Jury Georgievich; and Roldugin, Vladimir Ivanovich, 3,829,732.
 Bastide, Paul. Safety apparatus for a vehicle. 3,829,122, Cl. 280-150.00b.
 Bate, Robert Thomas. Magnetic field detector employing plural drain inlet. 3,829,883, Cl. 357-23.000.
 Bates Packaging Services, Inc., mesne: See—
 Mueller, Martin; and Wingo, Mason C., 3,828,660.
 Batrukova, Maria Grigorievna: See—
 Krasnov, Mikhail Mikhailovich; Stelmakh, Mitrofan Fedorovich; Malyshev, Boris Nikolaevich; Prozorov, Vladimir Nikolaevich; Saprykin, Pavel Ivanovich; and Batrukova, Maria Grigorievna, 3,828,788.
 Battelle Development Corporation: See—
 Lewis, Jordan D.; Verber, Carl M.; and McGhee, Robert B., 3,829,838.
 Bauer Corporation: See—
 Rehm, Roger P., 3,828,889.
 Bauerle, John F. Omni angle rotary table. 3,828,727, Cl. 118-500.000.
 Bausch & Lomb Incorporated: See—
 Blum, Raymond T.; and Laughman, George J., 3,828,483.
 Van Exel, Gerrit A.; and Akin, Alfred A., Jr., 3,829,194.
 Bayer Aktiengesellschaft: See—
 Beck, Gunther; and Holtschmidt, Hans, 3,829,435.
 Buttner, Gerhard; and Klauke, Erich, 3,829,460.
 Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, 3,829,565.
 Raue, Roderich; and Dorsch, Hans-Lothar, 3,829,418.
 Raue, Roderich; Kruckenberg, Winfried; and Rohe, Ernst-Heinrich, 3,829,461.
 Staffe, Adolf; and Gerlach, Klaus, 3,829,466.
 Wunderlich, Klaus; and Bien, Hans-Samuel, 3,829,452.
 Zumach, Gerhard; Kuhle, Engelbert; Behrenz, Wolfgang; and Hammann, Ingeborg, 3,829,437.
 Bayer, Horst O.; and Weiler, Ernest D., to Rohm & Haas Company. Fungicidal dithiomalonamides and their congeners. 3,828,580, Cl. 424-320.000.
 Bayer, Horst O.; and Weiler, Ernest D., to Rohm & Haas Company. Fungicidal dithiomalonamides and their congeners. 3,829,580, Cl. 424-320.000.
 Baynes, Gene P., to General Motors Corporation. Combination apex and corner seal spring for rotary engine. 3,829,259, Cl. 418-121.000.
 Beale, William T., to Research Corporation. Means and method for prevention of piston creep in free-piston reciprocating device. 3,828,558, Cl. 60-520.000.
 Beam, Jon W. Tobacco smoking equipment. 3,828,799, Cl. 131-195.000.
 Beasley, Jack O., to Buehler Corporation, The. Cooling arrangement for a direct current power supply. 3,829,740, Cl. 317-100.000.
 Beattie, Willard H.: See—
 Jensen, Reed J.; Rice, Walter W.; and Beattie, Willard H., 3,829,793.
 Beaver, Commodore E. Lock assembly. 3,828,591, Cl. 70-56.000.
 Beavitt, Alan Robert, to Plessey Handel und Investments A.G. Electrical connection devices. 3,829,817, Cl. 339-17.00f.
 Becht, Carl T.: See—
 Biddle, Franklin Keith; and Becht, Carl T., 3,828,656.
 Bechtold, Johann, to Maschinenfabrik Moenus Aktiengesellschaft. Machine for treating lasted uppers. 3,828,384, Cl. 12-1.00a.
 Beck, Gunther; and Holtschmidt, Hans, to Bayer Aktiengesellschaft. 2,5-Dichlorothiazolothiazole and process for preparing same. 3,829,435, Cl. 260-306.80f.
 Beck, Joseph J., to McQuay-Perfex, Inc. Recuperators for incinerators. 3,829,285, Cl. 432-223.000.
 Becker, Roger T.; Hatter, Stephen L.; and McMullin, Donald, Jr., to Kalamazoo Conveyor Company. Harpoon conveyor. 3,828,920, Cl. 198-221.000.
 Beckett, Leo G.: See—
 Baker, Cecil J.; and Beckett, Leo G., 3,829,056.
 Becknell, William R. Vehicular retractable cover. 3,829,154, Cl. 296-98.000.
 Beckwith Corporation: See—
 Closson, Addison W.; and Beckwith, Harry L., 3,829,351.
 Beckwith, Harry L.: See—
 Closson, Addison W.; and Beckwith, Harry L., 3,829,351.
 Beecham Group Limited: See—
 Atkins, Herbert Ashley, 3,828,962.

Billett, Eric Harold; and Miller, David, 3,829,474.
 Behrenz, Wolfgang: See—
 Zumach, Gerhard; Kuhl, Engelbert; Behrenz, Wolfgang; and Hammann, Ingeborg, 3,829,437.
 Belinkoff, Irving R.: See—
 Farber, Milton H.; and Belinkoff, Irving R., 3,828,760.
 Bell Telephone Laboratories, Incorporated: See—
 Cichetti, Michael Peter, Jr.; and Fretz, Jeffrey, 3,829,843.
 Dembiak, Matthew R.; and Webster, George H. (said Webster as-sor. to), 3,829,340.
 Logan, Ralph Andre; and Thurmond, Carl Dryer, 3,829,556.
 Rawson, Eric Gordon, 3,829,195.
 Beloit Corporation: See—
 Brenner, Lawrence A.; and Scholl, Charles H., 3,828,523.
 Melead, James J., 3,829,274.
 Belonozhko, Alla Mikhailovna: See—
 Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexan-drovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilevna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
 Belyaev, Igor Alexandrovich. Trolley wire suspension for use in over-head contact wire system of electric transport. 3,829,630, Cl. 191-41.000.
 Belyaev, Viktor Borisovich; Butrova, Ekaterina Sergeevna; Kiselev, Jury Vladimirovich; and Pozharskaya, Galina Tikohnovna. Spark gap. 3,829,733, Cl. 313-205.000.
 Bemis, Edwin G. Fluid-jet-abrasive device and system. 3,828,478, Cl. 51-11.000.
 Bender, Donald A.: See—
 Evers, James D., deceased, 3,828,810.
 Bender, Louis. Pill dispenser with cartridge and pill advanced indica-tor. 3,828,972, Cl. 221-197.000.
 Bender, Louisa E.: See—
 Evers, James D., deceased, 3,828,810.
 Bendix Corporation, The: See—
 Alyanak, Edward J., 3,829,218.
 Centner, Ronald M.; and Velek, Robert J., 3,829,750.
 Ludwig, George, 3,828,743.
 Sanford, Norman Ray; Waincott, Alan Dale; and Skelton, Billy Keith, 3,828,477.
 Stauffer, Reuben L., 3,829,849.
 Benerito, Ruth R.: See—
 Berni, Ralph J.; Benerito, Ruth R.; and Soignet, Donald M., 3,829,290.
 Beneteau, Donald J. Back-up locking cylinder. 3,828,652, Cl. 91-445.000.
 Benker, Horst Wilhelm: See—
 Hubner, Oswald; and Benker, Horst Wilhelm, 3,829,820.
 Benson, Ernest J.: See—
 Tull, Alonzo E.; Benson, Ernest J.; and Weiveris, William V., 3,828,914.
 Benson, William. Hovercraft secondary lift system. 3,829,043, Cl. 244-12.00r.
 Bentley, Ralph L. Sign and support apparatus. 3,828,455, Cl. 40-125.00h.
 Bentul Equipment Corporation: See—
 Tull, Alonzo E.; Benson, Ernest J.; and Weiveris, William V., 3,828,914.
 Bentzen, Bruce D.: See—
 Anderson, Lawrence; and Bentzen, Bruce D., 3,828,787.
 Benz, Hans, to Brown Boveri-Sulzer Turbomachinery Ltd. Mounting for a stator blade adjusting cylinder on an axial compressor. 3,829,234, Cl. 415-138.000.
 Berckmans, Walter: See—
 Pietermaat, Francois Paul; Peytier, Andre; and Berckmans, Walter, 3,829,608.
 Berg, Robert Orval; and Thurber, Kenneth James, to Honeywell Inc. Multi-function logic module employing read-only associative memory arrays. 3,829,846, Cl. 340-173.0am.
 Berger, Abe: See—
 Wilkus, Edward V.; and Berger, Abe, 3,829,455.
 Berger, Joel G.; and Teller, Sonia R., to Endo Laboratories, Inc., mesne. Process for the preparation of certain indolobenzazepine derivatives. 3,829,431, Cl. 260-294.80a.
 Berger, Julius; and Rosenberger, Michael, to Hoffman-La Roche Inc. (-)-9-Oxo-5(s)-hydroxy-decanoic acid lactone. 3,829,447, Cl. 260-343.500.
 Berger, Samuel. Self-adjustable shirt collar. 3,828,365, Cl. 2-128.000.
 Bergkvist, Bengt, to U.S. Philips Corporation. Arrangement in a radar equipment for indicating a variable threshold level on the indicator. 3,829,858, Cl. 343-7.00a.
 Bergman, Carl: See—
 Larsson, Hans-Gunnar; and Bergman, Carl, 3,829,261.
 Beringer Hydraulik R. Beringer & Co.: See—
 Haussler, Hubert, 3,828,813.
 Berkestad, Karl Erik: See—
 Bryntse, Anders Ivar; and Berkestad, Karl Erik, 3,828,650.
 Berlock, Monty David; and Dobrowski, Tadeusz, to Plessey Handel und Investments A.G. Airfield lighting circuit arrangements. 3,829,735, Cl. 315-131.000.

Berman, Harold, to Morton-Norwich Products, Inc. Method for mak-ing γ -butyl 2,4,5-trichloro phenyl carbonate. 3,829,456, Cl. 260-463.000.
 Bernard, Henry W. Golf ball sphericity gauge. 3,828,442, Cl. 33-178.00b.
 Bernardi Bros., Inc.: See—
 Bernardi, Robert P., 3,828,716.
 Bernardi, Robert P., to Bernardi Bros., Inc. Mooring device. 3,828,716, Cl. 114-221.00r.
 Bernath, John. Jacketed bullet. 3,828,678, Cl. 102-92.000.
 Bernheim, Willy: See—
 Deiner, Hans; Hofstetter, Hans; and Bernheim, Willy, 3,829,288.
 Berni, Ralph J.; Benerito, Ruth R.; and Soignet, Donald M., to United States of America, Agriculture. Reaction of sodium cellulose with mono- and difunctional epoxides in non-aqueous media. 3,829,290, Cl. 8-120.000.
 Berry, Chapman: See—
 Hackenbert, Robert A.; Tyrseck, Walter J.; and Berry, Chapman, 3,829,005.
 Berry, George R., to Berry, Inc. Tank for bulk transport and storage of semisolid materials. 3,828,988, Cl. 222-389.000.
 Berry, Inc.: See—
 Berry, George R., 3,828,988.
 Berthou, Jean; and Barrillon, Claude Gerbelot, to Progil. Process for producing trimellitic anhydride. 3,829,451, Cl. 260-346.400.
 Bertin & Cie: See—
 Boy-Marcotte, Jean Louis; Simmonnet, Jacques Louis Paul; Marchal, Philippe Albert Hippolyte; and Verrien, Jean Prudent Fernand Rene, 3,828,574.
 Bertram, James L.; Whiteside, Ross C., Jr.; and Franke, Preston H., Jr., to Dow Chemical Company, The. Hydrogen sulfide-modified epoxy resins and flexible laminates therefrom. 3,829,354, Cl. 161-88.000.
 Best, Freddie W.: See—
 Neumann, Calvin L.; and Best, Freddie W., 3,828,797.
 Bestenreiner, Friedrich: See—
 Meeussen, Louis Achilles; Bestenreiner, Friedrich; and Huber, Hans-Peter, 3,829,610.
 Bethlehem Steel Corporation: See—
 Hafner, Claude J.; and Bush, Bruce D., 3,828,454.
 Heselwood, James C., 3,828,437.
 Bettoli, Phillip Stephen, to GAF Corporation. Siding assembly struc-ture. 3,828,510, Cl. 52-548.000.
 Betz Laboratories, Inc.: See—
 Brink, Robert H., Jr.; Shema, Bernard F.; Justice, Roger L.; and Swered, Paul, 3,829,305.
 Lange, K. Robert; Stern, Arthur M.; Gasner, Lawrence L.; and Hsu, Yuan Tsun, 3,829,388.
 Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,829,424.
 Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,829,575.
 Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,829,586.
 Betzoldt, Louis F., to Neibauer, Lance A. Puzzle assembly with inter-secting peices. 3,829,101, Cl. 273-160.000.
 Beyer, Rodney B.: See—
 Anderson, Ralph; and Beyer, Rodney B., 3,829,549.
 Beyers, Billy Wesley, Jr., to RCA Corporation. Video disc playback eddy current speed control system. 3,829,612, Cl. 178-6.60a.
 Bianchi, Massimo; and Conti, Gianni, to Bili S.p.A. Sink cap with ac-cess slot. 3,828,584, Cl. 66-107.000.
 Biddle, Franklin Keith; and Becht, Carl T., to Senco Products Inc. An-ular piston stop structure. 3,828,656, Cl. 92-85.000.
 Bien, Hans-Samuel: See—
 Wunderlich, Klaus; and Bien, Hans-Samuel, 3,829,452.
 Billett, Eric Harold; and Miller, David, to Beecham Group Limited. 5,5-Diphenylpent-4-enoic acids and related compounds. 3,829,474, Cl. 260-515.00r.
 Billi S.p.A.: See—
 Bianchi, Massimo; and Conti, Gianni, 3,828,584.
 Bird, Stanford W., to Plastronics Corporation. Carton carrier. 3,829,143, Cl. 294-31.200.
 Birnbaum, Milton, to Aerospace Corporation, The. Atmospheric NO2 monitor. 3,829,696, Cl. 250-365.000.
 Biron, Raymond Joseph: See—
 Peckinpaugh, Frank Lee; Stables, Wilbur Leon; and Biron, Raymond Joseph, 3,828,404.
 Birrell, Peter Leslie, to Cornelius Company, The. Method of and means for dispensing. 3,828,973, Cl. 222-1.000.
 Bisarya, Satish C.: See—
 Green, Michael J.; and Bisarya, Satish C., 3,829,416.
 Biskup, Edward J., to General Motors Corporation. Steering mechanism for articulated vehicle. 3,828,882, Cl. 180-79.20b.
 Bixier, Antonio. Internal combustion engine. 3,828,741, Cl. 123-58.0ab.
 Bizerba-Werke Wilhelm Kraut KG: See—
 Schwarz, Josef, 3,828,870.
 Black and Decker Manufacturing Company: See—
 Rosenthal, Francis Joseph, Jr.; and Grieb, Dale Christian, 3,829,722.
 Black and Decker Manufacturing Company, The: See—
 Rosenthal, Francis Joseph, Jr., 3,829,721.
 Black, Sivalis & Bryson, Inc.: See—
 McMinn, Robert E.; and Jamison, Mickey B., 3,828,850.

Blais, Pierre J.J.B.; Carlson, David J.; and Wiles, David M., to Canadian Patents and Development Limited. Bonding condensation polymers to polymeric base materials. 3,829,324, Cl. 117-47.00a.
 Blake, Ivan C.; and Cercione, Ronald, to Yardney International Cor-poration. Novel process for preparation of silver chloride powder. 3,829,539, Cl. 264-13.000.
 Bleicher, Manfred; Falchle, Jorg; Hahner, Reinhard; Hansel, Gernot; Schmid, Wolfgang; and Wanner, Karl, to Bosch, Robert, GmbH. Combined portable electric impact wrench and chipping hammer. 3,828,863, Cl. 173-48.000.
 Blewitt, Donald D.; Cameron, Frank L.; and Vondracek, Charles H., to Westinghouse Electric Corporation. Fuse housing construction utilizing extruded terminals and process for making same. 3,829,808, Cl. 337-106.000.
 Bliss, George D.: See—
 Hill, Robert; Bliss, George D.; and Szakacs, Janos B., 3,828,732.
 Blouch, Roger D., to International Mobile Machines Corporation. Ringer blocking attachment for telephones. 3,829,616, Cl. 179-2.00a.
 Blum, Raymond T.; and Laughman, George J., to Bausch & Lomb In-corporated. Optical lens generating machine having spherical bear-ing workpiece holder. 3,828,483, Cl. 51-124.001.
 Blumcraft of Pittsburgh: See—
 Horgan, William J. Jr., 3,828,394.
 Horgan, William J. Jr., 3,828,592.
 Blustain, Stanley, to Stam Instruments Corp. Method for cleaning resilient webs. 3,829,328, Cl. 134-1.000.
 Boaz, Edward G. Self-energizing and self-aligning double-acting brake assembly. 3,828,895, Cl. 188-77.00r.
 Bobard, Emile. Tractor-set resulting from the coupling of a tractor to a straddle tractor, able to be driven by a single driver. 3,828,871, Cl. 180-1.00f.
 Bock, Walter R., to Oonaar Corporation. Deferred time meter. 3,828,907, Cl. 194-72.000.
 Boeck, David J., to FMC Corporation. Snow caster deflector cap locking device. 3,828,450, Cl. 37-43.00r.
 Boehringer, C. H., Sohn: See—
 Heider, Joachim; Enberlein, Wolfgang; and Engelhardt, Gunther, 3,829,570.
 Boehringer Ingelheim GmbH: See—
 Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, 3,829,574.
 Schroder, Ludwig; Thomas, Klaus; and Goeth, Hanns, 3,829,426.
 Boeing Company, The: See—
 Schmitt, Hubert A., 3,828,422.
 Stearns, Gabriel E., 3,829,020.
 Woter, Allan Roy, 3,828,606.
 Boekkooi, Anton, to U.S. Philips Corporation. Method of manufactur-ing electric lamps. 3,828,407, Cl. 29-25.110.
 Bognaes, Ragnar; and Solberg, Olav, to Kvaerner Brug AS. LNG cargo tank insulation system. 3,828,709, Cl. 114-74.00a.
 Boie, Immo: See—
 Krimm, Heinrich; Freitag, Dieter; and Boie, Immo, 3,829,462.
 Bolger, Joseph. Swivel locking caster brake. 3,828,392, Cl. 16-35.00r.
 Bolton, Robert Benjamin. Anti-theft device for vehicles. 3,828,593, Cl. 70-209.000.
 Bonmarito, Dominic M. Shock absorbing mounting for motor vehicle. 3,829,142, Cl. 293-86.000.
 Bonafino, Edward J.; Gilbert, Richard L.; and Mako, John, to Interna-tional Business Machines Corporation. Print line registration indica-tor. 3,828,669, Cl. 101-111.000.
 Bonke, Henry A. Sharpening device. 3,828,486, Cl. 51-249.000.
 Bonney, John L. V., Jr., to Perma-Blade, Inc. Method and apparatus for producing windshield wiper blades. 3,828,638, Cl. 83-356.100.
 Bonnot Co., The: See—
 Schweizer, William P. Jr., 3,829,594.
 Bonnot, Pierre Edmond Michel. Polyvalent pliable container. 3,828,964, Cl. 220-1.500.
 Booher, Harold R.: See—
 Rouf, Edgar J.; and Booher, Harold R., 3,829,167.
 Boon, Bruce Theodore Edward, to Eastern Cyclone Industries, Inc. Anti-stoppage apparatus and method for air conveying systems. 3,829,165, Cl. 302-59.000.
 Booth, Franklin W.; and Bruce, Robert A., to United States of Amer-ica, National Aeronautics and Space Administration. Centrifugal lyophobic separator. 3,828,524, Cl. 55-43.000.
 Boothroy, George: See—
 Fleming, Robert W.; and Boothroy, George, 3,828,431.
 Borchert, Jerome A., to Continental Can Company, Inc. Compartment bag assembly for dispensing containers. 3,828,977, Cl. 222-95.000.
 Borden, Inc., mesne: See—
 Kirch, John N., 3,829,323.
 Borel, Joseph; Lacour, Jacques; and Merckel, Gerard, to Commissariat a l'Energie Atomique. Charge-coupled device and method of fabri-cation of the device. 3,829,884, Cl. 357-24.000.
 Borg, Henry A. Vehicle test fixture. 3,828,614, Cl. 74-16.000.
 Borg-Warner Corporation: See—
 Duzey, Ozbek, 3,828,762.
 Fogelberg, Mark J., 3,828,877.
 Heathwaite, Hewart H.; and Mead, Robert H., 3,828,620.
 Struttman, Hilarius S., 3,829,182.
 Studtmann, George H., 3,829,758.
 Borgos, Jerome E.: See—
 Schliemann, Louis F.; and Borgos, Jerome E., 3,828,492.
 Borie, Robert: See—

Carbonnet, Henri; and Borie, Robert, 3,829,243.
 Borisenko, Gleb Pavlovich; Chernobryvenko, Jury Sergeevich; Kutsov, Jury Georgievich; Gorbanev, Arkady Alexeevich; Kukushkin, Oleg Nikolaevich; Krivobokov, Vladimir Nikolaevich; Pobegailo, Grigory Gavrilovich; and Nashivanko, Vitaly Dmitrievich. Roll stand 3,828,600, Cl. 72-249.000.
 Born, Gunthard; Erben, Klaus-Dieter; and Mohr, Friedbert, to Mes-serschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Method for the increase of output of gas lasers and apparatus for car-rying out the method. 3,829,792, Cl. 331-94.5pe.
 Borovansky, Alois: See—
 Jelinek, Vaclav, deceased; Semonsky, Miroslav; Hartl, Jiri; and Borovansky, Alois, 3,829,473.
 Borse, Dietrich; Lockemann, Albert; and Cordsen, Gerd, to Ernst Winter & Sohn. Apparatus for applying solid lubricant to the materi-al working face of a tool. 3,828,646, Cl. 90-11.00r.
 Bosch, Robert, GmbH: See—
 Bleicher, Manfred; Falchle, Jorg; Hahner, Reinhard; Hansel, Ger-not; Schmid, Wolfgang; and Wanner, Karl, 3,828,863.
 Elwert, Dietmar; and Gaege, Gotz, 3,829,635.
 Riedel, Wolfgang, 3,829,204.
 Schnabel, Eberhard; and Gotz, Werner, 3,829,168.
 von Lewis, Alexander, 3,829,060.
 Von Loewis of Menar, Alexander; and Riesenberger, Klaus-Otto, 3,829,166.
 Bosch, Robert, Photokino GmbH: See—
 Krumbein, Fritz, 3,829,039.
 Bosco, Charles D.: See—
 Zeto, Robert J.; Bosco, Charles D.; and Hryckowian, Eugene, 3,829,303.
 Bosio, Renato Guiseppe. Method and apparatus for measuring physi-cal and/or chemical properties of materials. 3,829,764, Cl. 324-58.00r.
 Botnick, Irlin H. Fixture shutoff valve with drain. 3,828,815, Cl. 137-625.260.
 Bottone, Salvatore, Jr., to General Electric Company. Apparatus for controlling variation in a characteristic of strand-like material. 3,829,751, Cl. 318-645.000.
 Bouillard, Henry: See—
 Bouillard, Rene; and Bouillard, Henry, 3,829,023.
 Bouillard, Rene; and Bouillard, Henry. Atomizing device. 3,829,023, Cl. 239-318.000.
 Bourat, Guy, to Rhode-Poulenc S.A. Method for forced flow elec-trophoresis. 3,829,370, Cl. 204-180.00p.
 Bourgeois, Alain, to Elastelle Paul Fontanille & Fils. Method of an in-stallation for continuous manufacture of unsewn articles of clothing. 3,828,367, Cl. 2-224.00a.
 Bournazel, Jacques, to Societe Pour l'Industrialisation du Material "In-dumat". Tripod supporting a framing table for concrete works. 3,829,053, Cl. 248-354.00s.
 Bouton, Frank M., Jr.; and Prints, Thomas R., to Floating Poing Systems, Inc. Floating point arithmetic unit adopted for converting a computer to floating point arithmetic. 3,829,673, Cl. 235-164.000.
 Boutonnet, Alexandre; Clavelet, Georges; and Morieras, Gilbert, to Societe Rhodiaceta. Effect yarns and process for producing the same. 3,828,542, Cl. 57-140.0by.
 Bowen, Dennis Herbert, to United Kingdom Atomic Energy Authority. Armour. 3,828,699, Cl. 109-80.000.
 Bowling, Joseph E., Jr.: See—
 Carpenter, James H.; and Bowling, Joseph E., Jr., 3,829,029.
 Bowman, David N., 1/2 interest to Bowman, Morris L. Rice farming implement. 3,828,702, Cl. 111-52.000.
 Bowman, Morris L.: See—
 Bowman, David N., 3,828,702.
 Boy-Marcotte, Jean Louis; Simmonnet, Jacques Louis Paul; Marchal, Philippe Albert Hippolyte; and Verrien, Jean Prudent Fernand Rene, to Bertin & Cie and Entreprise de Recherches et d'Activites Petrolieres Elf. Rotary-injector type distributor. 3,828,574, C. 62-467.000.
 Boyer, Wilhelm; Ritter, Josef; and Ritter, Gerhard, to A.V.I. Alpen-lanische Veredelungs-Industrie Gesellschaft m.b.H. Method of rein-forcing concrete. 3,828,416, Cl. 29-417.000.
 Bozanic, Donald A.; Mergerian, Dickron; Minarik, Ronald W.; and Pincoffs, Peter H., to Westinghouse Electric Corporation. Spin echo frequency hopping. 3,829,760, Cl. 324-50r.
 Bozek, Edmund J. Jr.: See—
 Wise, Louis M.; and Bozek, Edmund J. Jr., 3,829,387.
 Bradburn, Eugene H.; and Tidwell, James T., to United States of Amer-ica, Atomic Energy Commission. Brazing alloy. 3,829,313, Cl. 75-146.000.
 Bradbury, Bernard G., to Rexnord Inc. Dynamic stop. 3,828,688, Cl. 104-252.000.
 Bradley, Curtis E. Safety wheel and tire securing assembly. 3,828,836, Cl. 152-158.000.
 Braen, H. Peter; and Hafner, Raymond A., to Mohawk Data Sciences Corporation. Fan-folded paper stacker for high speed printer. 3,829,080, Cl. 270-61.00f.
 Brand, Arnold J.; and Sacks, Sidney M., to Singer Company, The. Oc-tant determination system for an analog to digital converter. 3,829,854, Cl. 340-347.0ad.
 Brandon, Arthur Cecil, to American Telephone and Telegraph Com-pany. Line usage measuring circuit. 3,829,618, Cl. 179-8.00a.
 Bratland, Arthur O. Membrane substance concentrates. 3,829,592, Cl. 426-491.000.
 Braum, W., Company, mesne: See—

Lerner, Nathan B., 3,828,959.
 Brautaset, Steinar; and Otterbeck, Finn, to Ardal & Sunndal Verk A/S. Suspension means for awning housing. 3,829,050, Cl. 248-223.000.
 Brejner, Gunnar. Pressure maintaining for a liquid heating plant. 3,829,012, Cl. 237-8.000.
 Brenner, Lawrence A.; and Scholl, Charles H., to Beloit Corporation. Automatic inside head holder structure. 3,828,523, Cl. 53-380.000.
 Brico Engineering Limited: See—
 Farmer, Edwin Bruce; and Cadle, Terence Michael, 3,829,295.
 Bridgestone Liquefied Gas Company, Ltd.: See—
 Yamamoto, Katsuro, 3,828,608.
 Briggs, Eugene C.; and Wellbaum, William C., to Koehring Corporation. Burner module for application to an air intake manifold or other gas flow conduit. 3,829,281, Cl. 432-63.000.
 Briggs, Walton E.; and Maliakal, Joseph C., to Varian Associates. Leak detection apparatus and inlet interface. 3,828,527, Cl. 55-158.000.
 Bright, Hugh H.; Davis, Lee W.; and Tanaszek, Frank J., to Little Giant Corporation. Utility pump. 3,829,248, Cl. 417-410.000.
 Brink, Robert H., Jr.: See—
 Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,829,424.
 Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,829,575.
 Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,829,586.
 Brink, Robert H., Jr.; Shema, Bernard F.; Justice, Roger L.; and Swered, Paul, to Betz Laboratories, Inc. Slime control compositions containing phenolic compounds and their use. 3,829,305, Cl. 71-67.000.
 British Domestic Appliances Limited: See—
 Sutton, Michael Gilbert; and Gailles, Michael Edward, 3,829,724.
 British Visqueen Limited: See—
 Ellison, Anthony Alexander, 3,829,007.
 Britton, James E.; and Welch, John A., to General Tire Company, The. Bendable elastomeric expansion joint. 3,829,229, Cl. 404-69.000.
 Broberg, Georg, to Aktiebolaget Svenska Tlaktfabriken. Process and device for anchoring a band used to mount ventilation ducts etc. in a construction. 3,828,511, Cl. 52-741.000.
 Brock, George W.; Cannon, Maxwell R.; and Shelledy, Frank B., to International Business Machines Corporation. Bias means for batch fabricated magnetic head and method of manufacture thereof. 3,829,896, Cl. 360-125.000.
 Brock, Gordon L. Meter with electrically selectable scales. 3,829,775, Cl. 324-115.000.
 Brodbeck, Helmut; and Haller, Hans, to Efka-Werke Fritz Kiehn G.m.b.H. Method and apparatus for producing cigarette filter sleeves. 3,828,658, Cl. 93-1.000.
 Brogren, Erik E., to Chicago Bridge & Iron Company. Tank with internal fail-safe valve. 3,828,819, Cl. 137-630.150.
 Brohawn, Charles L., to United States of America, Army. Munition. 3,828,675, Cl. 102-2.000.
 Brown & Williamson Tobacco Corporation: See—
 Finn, Everett N., 3,828,796.
 Harper, Patrick H.; Gregory, Charles F.; and Fisher, Phillip R., 3,828,798.
 Litzinger, Elmer Francis, 3,828,800.
 Schoeb, John, 3,829,164.
 Brown, Arnold L.: See—
 Gerwick, Ben C., Jr.; Talbo, William J., Jr.; Hughes, Keith E.; and Brown, Arnold L., 3,828,708.
 Brown Boveri-Sulzer Turbomachinery Ltd.: See—
 Benz, Hans, 3,829,234.
 Brown, Donald M.; and Dennison, Roger E., to Hewlett-Packard Company. Cable fastener for electrocardiograph electrodes. 3,829,826, Cl. 339-255.000.
 Brown, Frank E., to Minnesota Mining and Manufacturing Company. Disposable dental mirror. 3,829,199, Cl. 350-308.000.
 Browne, David Alexander. Fruit de-stoning method and apparatus. 3,829,591, Cl. 426-285.000.
 Bruce, Robert A.: See—
 Booth, Franklin W.; and Bruce, Robert A., 3,828,524.
 Brueckink, Bernard, to Holec N.V. Injector. 3,828,748, Cl. 123-139.000.
 Bruhn, Max R. C., Jr., to Grand Haven Stamped Products Company. Adjustable linkage. 3,828,625, Cl. 74-512.000.
 Brunin, Kirill Rudolfovich: See—
 Truskanov, David Matveevich; Brunin, Kirill Rudolfovich; and Ratner, Lev Semenovich, 3,829,864.
 Bryntse, Anders Ivar; and Berkestad, Karl Erik, to AB Bygg-Och Transportekonomi (BT). Multispeed hydraulic or pneumatic device. 3,828,650, Cl. 91-411.000.
 Bublitz, Donald E.: See—
 Kurihara, Norman H.; and Bublitz, Donald E., 3,829,425.
 Buch, Roman; Kocsis, Louis L.; and Sadove, Max S., to Theratron Corporation. Nebulizing apparatus and system. 3,828,773, Cl. 128-194.000.
 Buchanan, Robert A.; Tecotzky, Melvin; and Wickersheim, Kenneth A. Rare earth phosphors for X-ray conversion screens. 3,829,700, Cl. 250-483.000.
 Buck, Frederick A.; and Fritsch, Robert E. Direct-entry cash register. 3,828,465, Cl. 235-6.000.
 Buddendeck, Gerald A.; and Cox, Herman L., to Xerox Corporation. Image registration in a multiple magnification photocopying system. 3,829,209, Cl. 355-14.000.
 Buehler Corporation, The: See—
 Beasley, Jack O., 3,829,740.
 Buell, Eugene F.: See—
 Moore, Gerald, 3,828,629.
 Buffington, Robert B.: See—
 Meadows, Ernest D.; and Buffington, Robert B., 3,829,036.
 Buice, Joel B.; and Schwenker, David G., to General Electric Company. Self-bonding capacitor case insulation. 3,828,423, Cl. 29-570.000.
 Bulova Watch Company, Inc.: See—
 Koehler, Dale R., 3,829,697.
 Bunker Ramo Corporation: See—
 Hubner, Oswald; and Benker, Horst Wilhelm, 3,829,820.
 Huttner, Theo, 3,828,427.
 Masi, James Vincent, 3,829,847.
 Bunn, Stuart E.; and Owsley, Herbert B. Plate valve structure. 3,829,253, Cl. 417-504.000.
 Burdick, Robert E., to Rolair Systems, Inc. Low profile transporter. 3,828,884, Cl. 180-125.000.
 Burdick, Robert E., to Rolair Systems, Inc. Retractable guide mechanism. 3,829,116, Cl. 280-43.230.
 Burgess Products Company Limited: See—
 Storer, Barrie William, 3,828,507.
 Burgess Vibrocrafter, Inc.: See—
 Oberto, Edwin L., 3,829,018.
 Burk, John L.; Hogan, Spurgeon G., Jr.; Larson, Russell H.; and McGilvray, Bruce L., to International Business Machines Corporation. Virtual memory system. 3,829,840, Cl. 340-172.500.
 Burkhardt, Franz; and Hammacher, Konrad, to Hoffmann-La Roche, Inc. Device for displaying measured values. 3,829,771, Cl. 324-96.000.
 Burleigh, Derek James Sutherland; and Hawkins, Brian Desmond, to Imperial Chemical Industries Limited. Cobalt oxide catalyst. 3,829,393, Cl. 252-459.000.
 Burlington Industries, Inc.: See—
 Pugh, Charles D., 3,828,540.
 Tesoro, Giuliana C., 3,829,289.
 Burns, Henry C.; and McConnell, George C., to Chromalloy Pharmaceutical, Inc. Method for control of white muscle disease. 3,828,566, Cl. 424-131.000.
 Burns, Henry C.; and McConnell, George C., to Chromalloy Pharmaceutical, Inc. Method for control of white muscle disease. 3,829,566, Cl. 424-131.000.
 Burroughs Corporation: See—
 Klehm, William G., Jr., 3,829,632.
 Bush, Bruce D.: See—
 Hafner, Claude J.; and Bush, Bruce D., 3,828,454.
 Butler, Gene R., to Sperry Rand Corporation. Remote control mechanism for a bale unloading wagon. 3,828,945, Cl. 214-8.500.
 Butrova, Ekaterina Sergeevna: See—
 Belyaev, Viktor Borisovich; Butrova, Ekaterina Sergeevna; Kiselev, Yuri Vladimirovich; and Pozharskaya, Galina Tikhonovna, 3,829,733.
 Butterfield, Louis M. Tethered pins pinsetter. 3,829,089, Cl. 273-44.000.
 Buttery, Ron G.: See—
 Guadagni, Dante G.; and Buttery, Ron G., 3,829,582.
 Butti, Adriano; Prino, Giuseppe; and Mantovani, Marisa, to Crinos Industria Farmacobiologica S.p.A. Alkali metal salts of nucleotides useful as medicines for the fibronilicity system. 3,829,567, Cl. 424-180.000.
 Buttner, Gerhard; and Klauke, Erich, to Bayer Aktiengesellschaft. Preparation of trifluoromethyl aromatic isocyanates. 3,829,460, Cl. 260-453.000.
 Butula, Ivan; and Karlovic, Gordana, to Pliva Pharmaceutical and Chemical Works. Process for preparing D,N,N'-bis-(1-hydroxymethylpropyl)-ethylene diamine. 3,829,493, Cl. 260-584.000.
 Bykov, Alexandr Vasilievich; Scherbakov, Vsevolod Sergeevich; Sudarkin, Lev Alexandrovich; and Pavlov, Roman Vladimirovich; deceased (by Gogolina, Tatyana Viktorovna; administrator). Device for controlling the capacity of reciprocating compressor. 3,829,25, Cl. 417-559.000.
 Byram, George W.; and Speiser, Jeffrey M., to United States of America, Navy. Cascade transversal-filter phase-compensation network. 3,829,798, Cl. 333-70.000.
 Byrd, Priscilla D.; and Fritz, Henry E., to Union Carbide Corporation. Preparation of substituted hydroxy propionates. 3,829,415, Cl. 260-231.000.
 C. Reichert Optische Werke AG: See—
 Sitte, Hellmuth, 3,828,641.
 Cadle, Terence Michael: See—
 Farmer, Edwin Bruce; and Cadle, Terence Michael, 3,829,295.
 Cathamer, George J.; Coleman, Ivan V.; and Lee, David K. K., to GTE Automatic Electric Laboratories, Incorporated. Central automatic message accounting system. 3,829,617, Cl. 179-7.100.
 Caldwell, Richard L., to Mobil Oil Corporation. Radioactive well logging to distinguish water and hydrocarbon saturation by delayed neutrons from oxygen. 3,829,687, Cl. 250-269.000.
 California Institute of Technology: See—
 Jeane, Harvey L., 3,829,839.
 Calim, Thomas F. Machine for producing frozen confections. 3,828,572, Cl. 62-340.000.
 Cameron, Frank L.: See—
 Blewitt, Donald D.; Cameron, Frank L.; and Vondracek, Charles H., 3,829,808.
 Campbell, Alexander J.: See—

Cornish, Alan H.; Foster, George W.; and Campbell, Alexander J., 3,828,372.
 Campbell Chain Company: See—
 Fink, Richard H., 3,828,550.
 Campbell, Charles R.: See—
 Mueller, Werner H.; and Campbell, Charles R., 3,829,490.
 Campbell, Robert N., Jr.: See—
 Gottlieb, Carl R.; and Campbell, Robert N., Jr., 3,829,145.
 Canadian Patents and Development Limited: See—
 Blais, Pierre J.J.B.; Carlsson, David J.; and Wiles, David M., 3,829,324.
 Canning, Michael L., to Intersil Incorporated. CMOS digital division network. 3,829,713, Cl. 307-225.000.
 Cannon, Maxwell R.: See—
 Brock, George W.; Cannon, Maxwell R.; and Shelledy, Frank B., 3,829,896.
 Cannondale Corporation: See—
 Davis, Ronald N., 3,829,125.
 Canon Kabushiki Kaisha: See—
 Furahashi, Akira, 3,829,662.
 Ogoro, Masanobu; and Takashi, Kiyoshi, 3,829,870.
 Capdevielle, Marcel: See—
 Capdevielle, Pierre, 3,828,555.
 Capdevielle, Pierre, 30% to Giros, Jean-Loup and 30% to Capdevielle, Marcel. Power plant for various vehicles. 3,828,555, Cl. 60-413.000.
 Car Tapes Inc.: See—
 Herst, Richard J., 3,828,720.
 Carbonnet, Henri; and Bonie, Robert, to Groupement Atomique Alsacienne Atlantique. Forous conductive ceramic electrodes for corrosive liquid metal conduction pump. 3,829,243, Cl. 417-50.000.
 Carborundum Company, The: See—
 Carpenter, James H.; and Bowling, Joseph E., Jr., 3,829,029.
 Cottis, Steve G.; Economy, James; and Nowak, Bernard E., 3,829,406.
 Green, John S.; Luttrell, John E.; and Schmitz, James E., 3,828,934.
 Cardinal of Adrian, Inc.: See—
 MacDonald, Robert D., 3,829,137.
 Carillon, Frank R.; Meyer, William E.; and Ramazzotti, Dario J., to McNeil Corporation. Rotational molding machine. 3,829,272, Cl. 425-430.000.
 Carl Hurth Maschinen-und Zahnradfabrik: See—
 Loos, Herbert, 3,828,597.
 Carlisle Corporation: See—
 Smith, Jerry L.; and Powling, Frank F., 3,829,633.
 Carlson, Norman R.; and Zitelli, William E., to Westinghouse Electric Corporation. Hybrid computer system for rapid generation of electric power system loadflow solutions and transient stability analysis. 3,829,667, Cl. 235-151.210.
 Carlsson, David J.: See—
 Blais, Pierre J.J.B.; Carlsson, David J.; and Wiles, David M., 3,829,324.
 Carlsson, Hans Thorsten Henrik, to Aktiebolaget Svenska Elektromagnet. Flywheel magneto ignition device with capacitor-thyristor ignition combined with generator. 3,828,754, Cl. 123-149.000.
 Carlsson, Sven A., to Phelps Dodge Industries, Inc. Modular wall section for buildings. 3,828,502, Cl. 52-309.000.
 Carmichael, Robert J.: See—
 Hazelett, Robert William; and Carmichael, Robert J., 3,828,841.
 Carpenter, James H.; and Bowling, Joseph E., Jr., to Carborundum Company, The. Abrasive blast cleaning system. 3,829,029, Cl. 241-19.000.
 Carr, Albert A.: See—
 Fleming, Robert W.; and Carr, Albert A., 3,828,578.
 Fleming, Robert W.; and Carr, Albert A., 3,829,578.
 Carr, Albert A.; Kinsolving, C. Richard; and Meyer, Donald R., to Richardson-Merrell Inc. Substituted piperidinoalkanone oxime derivatives. 3,829,433, Cl. 260-293.790.
 Carr, Albert A.; and Grunwell, Joyce F., to Richardson-Merrell Inc. Xanthene derivatives. 3,829,440, Cl. 260-335.000.
 Carrier Corporation: See—
 Lesczynski, Michael, 3,828,567.
 Carroll, J. W., & Sons; a division of U.S. Industries, Inc.: See—
 Jones, Bill F., 3,829,680.
 Carter, George D.: See—
 Edenborough, Harry K.; Wernicke, Kenneth G.; and Carter, George D., 3,829,240.
 Carter, John S. Bicycle transporting rack. 3,828,993, Cl. 224-42.100.
 Cary, Paul O. Machine for producing thin section specimens. 3,828,758, Cl. 125-13.000.
 Case, J. I., Company: See—
 Klee, Maurice, 3,828,952.
 Case, Laura K., to Ittek Corporation. Physical development process utilizing viscous sensitizing metal solution. 3,829,317, Cl. 96-48.000.
 Casensky, Bohuslav: See—
 Vit, Jaroslav; Casensky, Bohuslav; Mamula, Milan; and Machacek, Jiri, 3,829,449.
 Casio Computer Co., Ltd.: See—
 Kashio, Toshio, 3,829,664.
 Cater, Jerome D. Carpet cleaning machine. 3,828,390, Cl. 15-321.000.
 Caterpillar Tractor Co.: See—
 Oestmann, Eldon D.; and Alexander, George F., 3,829,172.
 Stedman, Robert N., 3,829,173.
 Caterpillar Tractor Company: See—
 Oestmann, Eldon D., 3,828,873.
 Weis, Roger R., 3,828,742.
 Cawley, Leo P. Electrolytic cell means. 3,829,375, Cl. 204-299.000.
 Celanese Corporation: See—
 Cohen, Stuart Lyle; and Stackman, Robert William (said Stackman assor. to), 3,829,405.
 Powanda, Thomas Michael, 3,829,530.
 Serad, George A.; and MacLean, Alexander F., 3,829,468.
 Zey, Edward Gustave, 3,829,507.
 Centner, Ronald M.; and Velek, Robert J., to Bendix Corporation. The Self-adaptive process control. 3,829,750, Cl. 318-561.000.
 Centre de Recherches Metallurgiques: See—
 Courard, Camille Alphonse, 3,829,073.
 Centre Electronique Horloger S.A.: See—
 Vittoz, Eric Andre, 3,829,714.
 Cerchione, Joseph D. Folding cut pack. 3,828,992, Cl. 224-9.000.
 Cercone, Ronald: See—
 Blake, Ivan C.; and Cercone, Ronald, 3,829,539.
 Cernocky, Jiri; Riha, Miloslav; and Martinec, Josef, to Zbojovka Vsetin, narodni podnik. Guiding comb for picking the web by a stream of gaseous pressure medium. 3,828,828, Cl. 139-127.000.
 Cervantes, Joyce P. Sanitary napkin. 3,828,786, Cl. 128-290.000.
 Cerveny, Walter J., to Triplett Corporation. Micropower autopolarity voltmeter. 3,829,774, Cl. 324-115.000.
 Ceskoslovenska Akademie Ved: See—
 Vit, Jaroslav; Casensky, Bohuslav; Mamula, Milan; and Machacek, Jiri, 3,829,449.
 Chamberlain Industries Limited: See—
 Mason, Brian Edward; and Young, Michael Iain, 3,828,400.
 Champion International Corporation: See—
 Hain, Paul O., 3,829,325.
 Chancey, James C.; and Ellis, Leonard C., Jr. Reinforced concrete construction. 3,828,500, Cl. 52-292.000.
 Chandler Evans Inc.: See—
 Dawes, Michael H., 3,828,807.
 Pocock, Adrian R. A.; and Cole, Michael A., 3,829,665.
 Charest, Kenneth; Hanley, Robert F.; and Ornstein, Jacob L., to Texas Instruments Incorporated. Thermostat metals. 3,829,296, Cl. 29-195.500.
 Charles, Ernest; Leroi, Jean-Claude; and Pech, Michel, to Progil. Process for the treatment of aqueous solutions of phenol and hydrogen chloride. 3,829,509, Cl. 260-621.000.
 Charman, Bernard William: See—
 Sheffield, David John; Prosser, Paul Edward; and Charman, Bernard William, 3,828,603.
 Charns, Norman; and Matthews, Leo J., to General Motors Corporation. Bleed cap for a vehicle air cushion inflator. 3,829,124, Cl. 280-150.000.
 Chaska Chemical Company, Inc.: See—
 Petsch, Harold A., 3,829,019.
 Chaudhuri, Kiranendu; and Bachofner, Peter, to Swiss Aluminium Ltd. Method of operating a cell for the recovery of aluminum by electrolysis of aluminum oxide in a fluoride melt. 3,829,365, Cl. 204-67.000.
 Chavis, Clarence S.: See—
 Evans, John A.; Chavis, Clarence S.; and Ward, Rodney R., 3,829,851.
 Chechik, Ljudmila Efimovna: See—
 Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
 Chekhovskay, Violettaefimovna: See—
 Tolstoguzov, Vladimir Borisovich; Izjumov, Dmitry Borisovich; Grinberg, Valery Yakovlevich; Marusova, Alla Nikolaevna; and Chekhovskay, Violettaefimovna, 3,829,587.
 Chemetron Corporation: See—
 Rogers, Gerald L., 3,829,679.
 Chemetron Corporation, mesne: See—
 Annettoni, Ezio, 3,829,644.
 Chemical Development Corporation: See—
 Creighton, Albert M.; and Devaney, William D., 3,828,980.
 Chemische Fabrik Pforsee GmbH: See—
 Deiner, Hans; Hofstetter, Hans; and Bernheim, Willy, 3,829,288.
 Chemische Werke Huls, AG: See—
 Sommer, Neidhart; and Nordsiek, Karl-Heinz, 3,829,409.
 Chemische Werke Huls Aktiengesellschaft: See—
 Rassaerts, Heinz, 3,829,472.
 Chen, Yok; and Abraham, Marvin M., to United States of America, Atomic Energy Commission. Submerged arc crystal growth process for growing transparent alkaline earth oxide single crystals. 3,829,391, Cl. 252-301.400.
 Cheng, Paul P. L., to Shing, Fu, Mfg. & Lumber Co., Ltd. Jointless construction method of the wooden products. 3,829,337, Cl. 156-63.000.
 Chernakov, Gennady Anatolievich: See—
 Olshansky, Nikolai Alexandrovich; Smelyansky, Matvei Yakovlevich; Lopatko, Anatoly Petrovich; Tkachev, Leonid Grigorievich; Kozhaev, Arkady Filippovich; Sapozhnikov, Alexander Ivanovich; and Chernakov, Gennady Anatolievich, 3,829,651.
 Chernobryvenko, Yuri Sergeevich: See—

- Borisenko, Gleb Pavlovich; Chernobrivenko, Jury Sergeevich; Kutsov, Jury Georgievich; Gorbanev, Arkady Alexeevich; Kukushkin, Oleg Nikolaevich; Krivobokov, Vladimir Nikolaevich; Pobegailo, Grigory Gavrilovich; and Nashivanko, Vitaly Dmitrievich, 3,828,600.
- Chernyshev, Valentin Vasilievich: See—
Larjukhin, Grigory Artemovich; Chernyshev, Valentin Vasilievich; Nikitin, Vladislav Iosifovich; Serikov, Jury Mitrofanovich; and Kosinov, Vyacheslav Georgievich, 3,828,560.
- Chesley, Ronald F.: See—
Goldfarb, Adolph E.; Everitt, Delmar K.; Chesley, Ronald F.; and Baer, Ralph H., 3,829,094.
- Chestnutt, David, to United States of America, National Aeronautics and Space Administration. Variably positioned guide vanes for aerodynamic choking. 3,829,237, Cl. 415-181.000.
- Chevret, Remy, to Regie Nationale des Usines Renault and Automobiles Peugeot. Automatic play take-up bearing bushes. 3,829,184, Cl. 308-237.000.
- Chevron Research Company: See—
Adams Robert T.; Heath, William A.; and Wuopio, Richard A., 3,829,510.
Hannah, Eric D., 3,829,470.
Hutchison, Stanley O., 3,829,134.
- Chicago Bridge & Iron Company: See—
Brogren, Erik E., 3,828,819.
McCabe, John Stanton, 3,828,565.
- Chicago Musical Instrument Co.: See—
Morez, Eugene S., 3,828,643.
- Chikazawa, Katsuichi: See—
Ogura, Katsutoshi; and Chikazawa, Katsuichi, 3,828,665.
- Chodnekar, Madhukar Subraya; Pfiffner, Albert; Rigassi, Norbert; Schwieter, Ulrich; and Suchy, Milos, to Hoffmann-La Roche Inc. Methyleneedioxy-phenoxy derivatives as agents for upsetting hormone balance in insects. 3,829,577, Cl. 424-278.000.
- Christensen, Svend; and Nielsen, Jacob August, to Crisplant A/S. Conveyor systems. 3,828,681, Cl. 104-88.000.
- Chromalloy Pharmaceutical, Inc.: See—
Burns, Henry C.; and McConnell, George C., 3,828,566.
Burns, Henry C.; and McConnell, George C., 3,829,566.
- Chugai, Alexei Dmitrievich: See—
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- Chvatal, Leland A.: See—
Hopkins, Walker L.; Chvatal, Leland A.; and White, William D., 3,829,376.
- Ciba Limited: See—
Martin, Henry; Duerr, Dieter; and Hitz, Hans Rudolf, 3,829,485.
- Ciba-Geigy (Japan) Ltd.: See—
Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsuma, Katsuyoshi; and Furukawa, Hitoshi (said Furukawa assor. to), 3,829,228.
- Ciba-Geigy AG: See—
Sieber, Alexander; Kny, Hermann; and Oliver, Ward H., 3,829,496.
- Ciba-Geigy Corporation: See—
Sieber, Alexander; Kny, Hermann; and Oliver, Ward H., 3,829,496.
- Cicchetti, Michael Peter, Jr.; and Fretz, Jeffrey, to Bell Telephone Laboratories, Incorporated. Readout circuitry for elastic data bit stores. 3,829,843, Cl. 340-172.500.
- Cimbollek, Gerhard: See—
Irmischer, Klaus; Kramer, Josef; Cimbollek, Gerhard; Orth, Dieter; Nowak, Herbert; and Freisberg, Karl-Otto, 3,829,421.
- Cincinnati Milacron-Heald Corporation: See—
Uhtenwoldt, Herbert Rudolf, 3,828,481.
- Clapsaddle, George S., Jr., to Clapsaddle Sales and Service Inc. Vehicle power take-off assembly. 3,828,878, Cl. 180-53.0fe.
- Clapsaddle Sales and Service Inc.: See—
Clapsaddle, George S., Jr., 3,828,878.
- Clare, Billy C.: See—
Gamm, Paul B.; and Clare, Billy C., 3,828,785.
- Clark, Donald E.: See—
Alburn, Harvey E.; Clark, Donald E.; Grant, Norman H.; and Lapidus, Milton, 3,829,459.
- Clark, I. Dwight: See—
Darmara, Falih N.; and Clark, I. Dwight, 3,829,538.
- Clark, Thomas R., to National Cash Register Company, The. Servo-drive positioning device. 3,828,893, Cl. 188-67.000.
- Clark, William H., III: See—
Evans, John A.; Chavis, Clarence S.; and Ward, Rodney R., 3,829,851.
- Clarke, Walter Wilson Hugh. Locking system responsive to an electronic key. 3,829,836, Cl. 340-171.00r.
- Clavelet, Georges: See—
Boutonnet, Alexandre; Clavelet, Georges; and Morieras, Gilbert, 3,828,542.
- Claycomb, Dean A. Manually operated spring loaded jack lock assembly. 3,829,078, Cl. 269-310.000.
- Clayton, James William Barnes: See—
Croasdale, Fred; Clayton, James William Barnes; and Norman, Keith, 3,828,539.
- Clearman, Jack F.: See—
Robandt, William F., II; and Clearman, Jack F., 3,828,975.
- Cleaveland, Charles M., to Westinghouse Electric Corporation. Heat conducting fins for bus bars and other electrical conductors. 3,829,647, Cl. 200-289.000.
- Clement, Robert A., to Du Pont de Nemours, E. I., and Company. Catalytic synthesis of substituted pyridines from acetylenes and nitriles. 3,829,429, Cl. 260-290.00p.
- Clements, Lloyd W., to Ireco Industries, Inc. Trail line shoe. 3,828,809, Cl. 137-344.000.
- Cline, John A.: See—
Hoffman, Robert E.; Cline, John A.; Fuselier, Christopher S.; and Atre, John D., 3,829,786.
- Close, Stanley Wayne; Cordovani, John J.; and Shaffer, William E., to Stromberg-Carlson Corporation. Telephone ring trip circuit. 3,829,619, Cl. 179-18.0hb.
- Closson, Addison W.; and Beckwith, Harry L., to Beckwith Corporation. Stiffening material for shoe parts. 3,829,351, Cl. 161-50.000.
- Coates, Clarence A.: See—
Fisher, John G.; Weaver, Max A.; and Coates, Clarence A., 3,829,410.
- Coates, Clarence A., Jr.; and Weaver, Max A., to Eastman Kodak Company. Thiadiazyl-azo-indole compounds. 3,829,411, Cl. 260-158.000.
- Coats & Clark, Inc.: See—
Hannes, Karl, 3,828,406.
- Coaxial Dynamics, Inc.: See—
Stevens, Harold E., 3,829,770.
- Cogar Corporation: See—
Reuter, James L.; and Sandhu, Jagtar S., 3,828,722.
- Cohen, Arthur M. Means for arranging data. 3,828,453, Cl. 40-19.500.
- Cohen, Harold; and Noto, William L., to Shop-Rite Supermarkets, Inc. Shopping cart with article storage preventing means under basket. 3,829,114, Cl. 280-33.99r.
- Cohen, Stuart Lyle; and Stackman, Robert William, said Cohen assor. to Fiber Industries, Inc. and said Stackman assor. to Celanese Corporation. Phosphorus-containing polyesters. 3,829,405, Cl. 260-45.95d.
- Cole, Edward L.; and McCoy, Frederic C., to Texaco Inc. Catalyst composition and isoparaffinic-olefin alkylation utilizing strong acid with a sulfonamide. 3,829,525, Cl. 260-683.630.
- Cole, Gary William: See—
Horwath, Robert Otto; and Cole, Gary William, 3,829,362.
- Cole, Michael A.: See—
Pocock, Adrian R. A.; and Cole, Michael A., 3,829,665.
- Coleco Industries, Inc.: See—
Schneer, Marcel, 3,828,932.
- Coleman, Ivan V.: See—
Calthamer, George J.; Coleman, Ivan V.; and Lee, David K. K., 3,829,617.
- Coleman, W. Emile: See—
Rogers, Charles J.; and Coleman, W. Emile, 3,829,363.
- Collette, Richard L., to Guardian Electric Manufacturing Company. Process for winding a coil on a reed switch having coil form means mounted on the switch capsule. 3,829,802, Cl. 335-154.000.
- Collier, Samuel A.: See—
Peck, William H.; and Collier, Samuel A., 3,829,009.
- Collinge, Robert Alan, to Smith, F., & Co., (Witworth) Limited. Machinery for treating textiles in sheet form with a fluid medium. 3,828,589, Cl. 68-158.000.
- Collins, John J.: See—
Fornoff, Louis L.; Collins, John J.; and Taylor, Rolla D., 3,829,560.
- Collins, Joseph C., to Sterling Drug, Inc. 2-(Carboxyphenyl) ethyl and 2-(carboxyphenyl) vinyl cyclopropyl carbinols. 3,829,475, Cl. 260-520.000.
- Collins Radio Company: See—
Sather, Delaine C., 3,829,672.
- Colt Industries Operating Corp.: See—
De Martelaere, David L., 3,828,746.
- Columbia Broadcasting System, Inc.: See—
McMann, Renville H., 3,829,607.
- Columbia Gas System Service Corporation: See—
Malcosky, Norman D.; McLean, Ronald H.; Singh, Kanwal N.; and Auh, Chung M., 3,828,575.
- Combustion Equipment Associates, Inc.: See—
Monro, Richard J., 3,829,015.
- Commissariat a L'Energie Atomique: See—
Borel, Joseph; Lacour, Jacques; and Merckel, Gerard, 3,829,884.
- Commonwealth Scientific and Industrial Research Organization: See—
Merry, Lorraine Anne; and Solomon, David Henry, 3,829,564.
- Commonwealth Scientific Corporation: See—
Divecha, Amarnath P., 3,828,417.
- Compagnie Industrielle des Telecommunications: See—
Melchior, Gerard, 3,829,613.
- Computer Performance Instrumentation Incorporated: See—
Steinberg, William, 3,829,841.
- Comstock & Wescott, Inc.: See—
Aspinwall, Peter, 3,828,409.
- Condolios, Elie, to Societe Generale de Constructions Electriques et Mecaniques (Alsthom). Hydraulic dredging apparatus. 3,829,160, Cl. 299-8.000.

- Conover, Lloyd H.; and Woodward, Robert B., to Pfizer Inc. Octahydroanthracene-2-aminoacetic acids and esters and mixed anhydrides thereof. 3,829,453, Cl. 260-351.000.
- Conrad, Frank. Kick putt device. 3,829,091, Cl. 273-67.00r.
- Conrad, George A.: See—
Genzer, Jerome D.; and Conrad, George A., 3,829,498.
- Conrad, Victoria N.; and Nemecek, Charles A. Protective face mask. 3,828,366, Cl. 2-174.000.
- Conroy, George J.; and Parkinson, Howard E., to United States of America, Interior. Paging visual signal. 3,829,856, Cl. 340-366.00r.
- Container Corporation of America: See—
Murray, Lowell C.; and Ruble, John G., 3,829,008.
- Conti, Gianni: See—
Bianchi, Massimo; and Conti, Gianni, 3,828,584.
- Continental Can Company, Inc.: See—
Borchert, Jerome A., 3,828,977.
Kennedy, John B., Jr., 3,828,670.
Moller, Jens L., 3,828,963.
- Continental Oil Company: See—
Ferrell, Ralph T., 3,829,520.
- Tarter, James H., 3,828,875.
- Cook, Calvin S.: See—
Lohr, Raymond J.; Cook, Calvin S.; and Seiersen, William K., 3,829,126.
- Cooke, Clifford M. Hydraulic propulsion unit. 3,828,719, Cl. 115-35.000.
- Cool Hans: See—
Grenendaal, Gradus Cornelis; Cool Hans; De Vos, Jacob; and Van Zuuren, Eduard Willem, 3,829,783.
- Cooper, George W., to Fruehauf Corporation. Spreader list, trim and skew adjustment means. 3,828,940, Cl. 212-14.000.
- Cooper, George F. Portable barbecue assembly. 3,828,759, Cl. 126-9.00r.
- Cooper, Wayne E.: See—
Province, William F.; and Cooper, Wayne E., 3,828,413.
- Copa, William M.; and Pradt, Louis A., to Sterling Drug Inc. Waste gas purification. 3,828,525, Cl. 55-68.000.
- Cordovani, John J.: See—
Close, Stanley Wayne; Cordovani, John J.; and Shaffer, William E., 3,829,619.
- Cordsen, Gerd: See—
Borse, Dietrich; Lockemann, Albert; and Cordsen, Gerd, 3,828,646.
- Corman, James C.; and Walmet, Gunnar E., to General Electric Company. Heat transfer device. 3,828,849, Cl. 165-105.000.
- Corney, Walter P.: See—
Letson, Richard A.; and Corney, Walter P., 3,829,781.
- Cornelius Company, The: See—
Birrell, Peter Leslie, 3,828,973.
- Corning Glass Works: See—
Perloff, David S.; Kerr, John T.; and Marley, James A., 3,829,890.
- Cornish, Alan H.; Foster, George W.; and Campbell, Alexander J., to Koehler-Dayton, Inc. Recirculating sewerage system. 3,828,372, Cl. 4-10.000.
- Cornthwaite, Eric: See—
Priestley, Michael John; and Cornthwaite, Eric, 3,829,801.
- Correia, Manuel G. Portable milking stall. 3,828,733, Cl. 119-14.030.
- Cottis, Steve G.; Economy, James; and Nowak, Bernard E., to Carborundum Company, The. Fabricable infusible para-oxybenzoyl polyester production. 3,829,406, Cl. 260-47.00c.
- Coulter Information Systems, Inc.: See—
Kuehnle, Manfred R., 3,829,373.
- Council, Malcolm N., to Gardner-Denver Company. Crawler undercarriage. 3,828,874, Cl. 180-9.600.
- Courard, Camille Alphonse, to Centre de Recherches Metallurgiques. Devices blowing in oxygen through the bottoms of metallurgical converters. 3,829,073, Cl. 266-41.000.
- Cousino, Bernard A., to Faraday, Inc. Tape cartridge and player apparatus. 3,829,033, Cl. 242-55.19a.
- Coutinho, John. Hydraulic jib. 3,828,941, Cl. 212-144.000.
- Cox, A. B. Trailer hitch. 3,829,130, Cl. 280-479.000.
- Cox, Eric Reginald; and Wall, John Shiel Clements, to Babcock & Wilcox Limited. Material handling apparatus. 3,828,915, Cl. 198-88.000.
- Cox, Gordon John: See—
Grant, John William; and Cox, Gordon John, 3,829,311.
- Cox, Herman L.: See—
Buddendeck, Gerald A.; and Cox, Herman L., 3,829,209.
- Cox, Joseph F. Technique for aligning anchor bolts. 3,829,540, Cl. 264-34.000.
- CPM/Europe N.V.: See—
Vink, Johannes Albertus, 3,828,661.
- Crane Packing Company: See—
Wheelock, Edward A., 3,829,106.
- Crawford, Chester C. Pulp bound compacted fuels. 3,829,297, Cl. 44-15.00d.
- Creighton, Albert M.; and Devaney, William D., to Chemical Development Corporation. Dispenser for precisely metered dispensing of viscous fluids. 3,828,980, Cl. 222-137.000.
- Cricchio, Renato: See—
Maggi, Nicola; and Cricchio, Renato, 3,829,417.
- Crinos Industria Farmacobiologica S.p.A.: See—
Butti, Adriano; Prino, Giuseppe; and Mantovani, Marisa, 3,829,567.
- Crisplant A/S: See—
Christensen, Svend; and Nielsen, Jacob August, 3,828,681.
- Croasdale, Fred; Clayton, James William Barnes; and Norman, Keith, to Platt International Limited. Open-end textile spinning machines. 3,828,539, Cl. 57-58.910.
- Cross, David F. W.: See—
Oakes, Vincent; and Cross, David F. W., 3,829,396.
- Cross, J. Stanton, Sr. Delimbing method and apparatus. 3,828,835, Cl. 144-309.0ac.
- Crossman, Richard L., to Goodyear Tire & Rubber Company, The. Telescopic piston for added brake wear adjustment. 3,828,894, Cl. 188-71.800.
- Crowle, Brian, to Integrated Photomatrix Limited. Shift registers. 3,829,711, Cl. 307-221.00c.
- Crowley, Richard P. Oxybis (benzenesulfonyl)polyalkoxyalkanols and their use as surfactants. 3,829,500, Cl. 260-607.00a.
- Crown Zellerbach Corporation: See—
Reba, Imants; and Wolthausen, Edward C., 3,829,070.
- Crutchfield, Marvin M.; and Harken, Russel D., to Monsanto Company. Detergent formulations. 3,829,384, Cl. 252-89.000.
- Csanady, Michael, Jr.: See—
Fieglein, James M.; and Csanady, Michael, Jr., 3,829,232.
- Culbertson, Billy M.: See—
McKillop, William J.; and Culbertson, Billy M., 3,829,407.
- Culley, Donnell H., Jr. Mandrel for sanding drums. 3,828,489, Cl. 51-378.000.
- Curran, Adrian Charles Ward, to Wyeth, John, & Brother Limited. 8-Aryl-3-azabicyclo-[3,3,1]-nonanes. 3,829,427, Cl. 260-293.540.
- Curtiss, Lawrence F.; and Hall, Richard W., to American Cystoscope Makers, Inc. Surgical snare. 3,828,790, Cl. 128-320.000.
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Piber, Earl T., 3,829,645.
- Whelehan, James J. Jr.; and Kraemer, Erich Henry, 3,829,787.
- Dabell, Kenneth Hazelton; and Phillips, Raymond Jeffrey, to Lemand Engineering Limited. Travelling overhead carriage mining machine with articulated, tool carrying boom. 3,828,862, Cl. 173-43.000.
- Dachev, Lyubomir Petrov: See—
Julev, Stoyan Iliev; Milkov, Mihail Yordanov; Dachev, Lyubomir Petrov; Vasilev, Rosen Petrov; Kostov, Vasil Alexandrov; and Aroyo, Jacky Sivcho, 3,829,344.
- Daicel Ltd.: See—
Ikegami, Akiji; and Morita, Hideo, 3,829,438.
- Dale Electronics, Inc.: See—
Klug, Robert F.; and Lindquist, Larry B., 3,829,813.
- D'Amato, Salvatore F.: See—
Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,828,672.
- Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,828,673.
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- Dancy, William B., to International Minerals & Chemical Corporation. Solution mining process. 3,829,559, Cl. 423-497.000.
- Danfoss A/S: See—
Anderson, Niels Lervad; and Hubschmann, Ejvind, 3,829,739.
- Danyaev, Vladimir Egorovich: See—
Vragov, Jury Dmitrievich; Danyaev, Vladimir Egorovich; Trubin, Anatoly Petrovich; and Sinichkin, Sergei Gavrilovich, 3,828,647.
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Irsin, Robert P.; and Kwartiroff, Alexander, 3,829,626.
- Davenport, Raymond A., to Oktronics, Inc. Tape drive D.C. motor control system. 3,829,748, Cl. 318-257.000.
- Davis, Charles W.; and Roosa, Vernon D., said Davis assor. to Stanadyne, Inc. Fuel injector having self-cleaning filter. 3,829,014, Cl. 239-86.000.
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Bright, Hugh H.; Davis, Lee W.; and Tanaszek, Frank J., 3,829,248.
- Davis, Ronald N., to Cannondale Corporation. Bicycle trailer. 3,829,125, Cl. 280-204.000.
- Davis, Samuel R., Jr.; and Watson, Harry A., to Ipco Hospital Supply Corporation, mesne. Assembly blank for plastic utensils. 3,829,350, Cl. 161-41.000.
- Davis Water & Waste Industries, Inc.: See—
Glos, Edmond A. II, 3,828,806.
- Davis, Wilbur M.; and Yates, Robert E., to International Business Machines Corporation. Label printing machine. 3,828,667, Cl. 101-66.000.
- Dawes, Michael H., to Chandler Evans Inc. Pressure regulator. 3,828,807, Cl. 137-495.000.
- Dawson, Clarence G., to Food Equipment, Inc. Hand wash system. 3,828,978, Cl. 222-110.000.
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Uhrhane, Philip F.; and Day, Donald L., 3,828,494.
 Daye, Eddy K.; and Land, Wilbur G., to Bagdad Plastics Company. Gate valve seal. 3,829,061, Cl. 251-328.000.
 De Beers Industrial Diamond Division Limited: See—
 Custers, Joseph Lambert Maria; and Raal, Frederick Anton, 3,828,848.
 De Bonth, Petrus Cornelis Wilhelmus Maria; Osing, Halbe; Verborg, Cornelis Andries; and Muijderman, Everhardus Albertus, to U.S. Philips Corporation. Hydrodynamic extrusion device. 3,829,270, Cl. 425-381.200.
 De Groot, Jacob: See—
 Lathouwers, Franciscus Johannes Maria; and De Groot, Jacob, 3,829,806.
 De Koning, Jan; Van Der Veen, Romke; and Wolters, Tjako Aldrik, to Ballast-Nedam Groep N.V. Ducting system for suction dredgers having pivotally connected tube lengths. 3,828,451, Cl. 37-58.000.
 De Lille, Richard A.; and Erickson, Frederick E., to Gulf & Western Industries, Inc. Traffic signal controller. 3,828,616, Cl. 74-112.000.
 de Llano, Mary Duarte. Reflective means used in connection with fluorescent tubes or lamps. 3,829,677, Cl. 240-51.11r.
 De Martelaere, David L., to Colt Industries Operating Corp. Metering exhaust gas recirculation apparatus and system. 3,828,746, Cl. 123-119.00a.
 De Romano, Oscar Chilesotti. Method of manufacturing a porous article. 3,829,542, Cl. 264-71.000.
 Deb, Satyendra Kumar, to American Cyanamid Company. Variable high transmission device. 3,829,196, Cl. 350-160.00r.
 Deco Products Company: See—
 Storlie, Llewellyn O., 3,829,139.
 Deere & Company: See—
 Fickle, J. Clark; and Gerhardt, Ralph August, 3,828,532.
 Degremont Societe Generale d'Epuration et d'Assainissement: See—
 Rovel, Jean-Marie, 3,828,935.
 Deguchi, Masahiro: See—
 Nagahiro, Michinori; Deguchi, Masahiro; and Kuroe, Akio, 3,829,892.
 Deiner, Hans; Hofstetter, Hans; and Bernheim, Willy, to Chemische Fabrik Pfersee GmbH. Process for finishing cellulose-containing textiles. 3,829,288, Cl. 8-115.600.
 Del Missier, Richard J., to Tri-Way Industries, Inc. Convertible berth. 3,828,374, Cl. 5-9.00b.
 Delamater, Charles E.; Obermiller, Herbert C.; and Kryah, John C., to Diebold, Incorporated. Deal drawer safety device. 3,828,698, Cl. 109-19.000.
 Delano, Charles G. Apparatus for cementing well bore casing. 3,828,852, Cl. 166-78.000.
 Dell, Curtis G.: See—
 Janzen, Dennis W.; and Dell, Curtis G., 3,828,607.
 Delogne, Paul. Radio communication system for use in confined spaces and the like. 3,829,767, Cl. 325-26.000.
 Deloney, Hugh C.: See—
 Stranahan, John J.; Hollier, John C. L.; and Deloney, Hugh C., 3,829,275.
 Demag Aktiengesellschaft: See—
 Purath, Bernd, 3,828,691.
 Dembiak, Matthew R.; and Webster, George H., said Dembiak assor. to Western Electric Company, Incorporated and said Webster assor. to Bell Telephone Laboratories, Incorporated. Methods of making a tubular member having a sealed longitudinal seam. 3,829,340 Cl. 156-201.000.
 DeMendez, Michel Ossona; Dupuy, Jean-Marie; Harreton, Roland; and Foucard, Albert, to Rossel UCLAT. Apparatus for automatically measuring the light transmission factor or liquid test samples. 3,829,221, Cl. 356-201.000.
 Demozay, Daniel, to PEPRO, Societe pour le Developpement et al Vente de Specialites Chimiques. Insecticide composition derived from phosphoric esters containing one unsaturated aliphatic chain. 3,829,568, Cl. 424-203.000.
 Denki Kagaku Keiki Co., Ltd.: See—
 Shimizu, Tetuo; and Nishikawa, Akikazu, 3,829,761.
 Dennison, Roger E.: See—
 Brown, Donald M.; and Dennison, Roger E., 3,829,826.
 Depauw, Richard A.: See—
 Gochandour, Carroll Q.; and Depauw, Richard A., 3,828,794.
 Derman, Karl Gustav Einar, to Forsheda Ideutveckling AB. Locking and sealing device. 3,829,227, Cl. 403-377.000.
 Derr, Paul B.; Ferdon, Gilbert Douglas; and Harwood, Robert George, to AMP Incorporated. Latching system for an electrical connector assembly and a tool for actuating said system. 3,829,821, Cl. 339-91.00r.
 Deslongchamps, Pierre, to Universite de Sherbrooke. Ozonolysis of acetals. 3,829,413, Cl. 260-210.00r.
 Deussner, Herbert, to Klockner-Humboldt-Deutz Aktiengesellschaft. Satellite cooler for a rotary kiln. 3,829,282, Cl. 432-80.000.
 Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: See—
 Thiele, Kurt; and Posselt, Klaus, 3,829,469.
 Devaney, William D.: See—
 Creighton, Albert M.; and Devaney, William D., 3,828,980.
 DeVinney, George L. Method for imparting coloration to a textile yarn. 3,828,405, Cl. 28-72.160.
 DeVos, Jacob: See—
 Grenendaal, Gradus Cornelis; Cool Hans; DeVos, Jacob; and Van Zuuren, Eduard Willem, 3,829,783.
 Dey, Arabinda Narayan, to Mallory, P. R., & Co. Inc. High rate Li/MoO₃ organic electrolyte cell. 3,829,330, Cl. 136-6.01n.

Dhingra, Ashok Kumar, to Du Pont de Nemours, E.I., and Company. Process for preparing fiber reinforced metal composite structures. 3,828,839, Cl. 164-97.000.
 Diamond, Julius; and Douglas, George Henry, to Rorer, William H., Inc. Tetrahydronaphthylalkanoic acids and their derivatives. 3,829,467, Cl. 260-501.160.
 Dickert, Joseph John, Jr.; and Williams, Albert Lloyd, to Mobil Oil Corporation. Process for preparing keto containing phosphonates. 3,829,534, Cl. 260-970.000.
 Dickopp, Gerhard, to TED Bildplatten Aktiengesellschaft. Carrier and method for recording a signal thereon. 3,829,605, Cl. 178-5.4cd 7/07/20/72.
 Didier-Werke AG: See—
 Ottmar, Paul; and Stein, Hermann, 3,828,509.
 Diebold, Incorporated: See—
 Delamater, Charles E.; Obermiller, Herbert C.; and Kryah, John C., 3,828,698.
 Diery, Helmut; and Heiss, Lorenz. Halogenoalkyl-polyglycol ethers and process for preparing them. 3,829,508, Cl. 260-615.00b.
 Dietze, Wolfgang; Reuschel, Konrad; and Stut, Hans, to Siemens Aktiengesellschaft. Fixture for positioning semiconductor discs in a diffusion furnace. 3,828,726, Cl. 118-500.000.
 Dikoff, Joseph K. Check protector. 3,828,664, Cl. 101-19.000.
 Dillman, Richard F.; Larsen, James L.; and Nardizzi, Alfred M., to Hewlett-Packard Company. Electrocardiograph telemetry system having circuitry for indicating inoperative conditions. 3,829,782, Cl. 325-186.000.
 Dilot, Rolf Magnus. Compartmented container. 3,829,003, Cl. 229-31.00r.
 Divecha, Amarnath P., to Commonwealth Scientific Corporation. Method for fabricating composite material reinforced by uniformly spaced filaments. 3,828,417, Cl. 29-419.000.
 Dobrowolski, Tadeusz: See—
 Berlock, Monty David; and Dobrowolski, Tadeusz, 3,829,735.
 Doetsch, Peter: See—
 Nestler, Richard; and Doetsch, Peter, 3,828,694.
 Dolezal, Milton M.: See—
 Underwood, Jereld L.; Edmondson, Floyd D.; and Dolezal, Milton M., 3,828,674.
 Dollinger, Kenneth: See—
 Cutler, Thomas P.; and Dollinger, Kenneth, 3,829,860.
 Doolittle, Billy J., to Litton Business Systems, Inc. Looseleaf binder. 3,829,225, Cl. 402-17.000.
 Dorner, Nikolaus; and Freitag, Herbert, to Stabilus Industrie Und Handelsgesellschaft MBG. Column of adjustable length. 3,828,651, Cl. 91-416.000.
 Dorsch, Hans-Lothar: See—
 Raue, Roderich; and Dorsch, Hans-Lothar, 3,829,418.
 Doschko, Werner; and Rinklin, Hermann, to Imperial Chemical Industries, Limited. Production of texturized yarn. 3,828,537, Cl. 57-34.0hs.
 Doslik, Peter: See—
 Hutzler, Rene; Vinnemann, Antonius; and Doslik, Peter, 3,828,826.
 Doss, Richard C.; and Thomas, Moses L., to Phillips Petroleum Company. Hydrogenated polyphenols as sulfur solubilizers in polythiol sealants. 3,829,526, Cl. 260-75.00s.
 Dotter, John Henry. Pressure regulator faucet slide valve. 3,828,821, Cl. 137-636.400.
 Douglas & Lomason Company: See—
 Ascencio, Ramon J., 3,829,355.
 Douglas, Burke, to Dow Chemical Company, The. Lined conduit joints. 3,828,823, Cl. 138-109.000.
 Douglas, David W., to Physiological Electronics Corporation. Method and apparatus for detecting cardiac arrhythmias. 3,828,768, Cl. 128-2.06a.
 Douglas, George Henry: See—
 Diamond, Julius; and Douglas, George Henry, 3,829,467.
 Dow Chemical Company, The: See—
 Bertram, James L.; Whiteside, Ross C., Jr.; and Franke, Preston H., Jr., 3,829,354.
 Douglas, Burke, 3,828,823.
 Edamura, Fred Y.; McKendry, Lennon H.; and Larsen, Eric R., 3,829,489.
 Hickner, Richard A., 3,829,501.
 Kurihara, Norman H.; and Bubltz, Donald E., 3,829,425.
 Kyriacou, Demetrios, 3,829,430.
 Smith, Layle V., 3,829,269.
 Tsang, Floris Y., 3,829,331.
 Walles, Wilhelm E., 3,828,960.
 Dowell, Frederick Sidney: See—
 Stimson, Ian Leonard; Dowell, Frederick Sidney; and Healy, Benedict Pascal, 3,829,162.
 Dowling, Matthew M.: See—
 Goodin, James J.; and Dowling, Matthew M., 3,829,624.
 Downey, Rogers B.; and Thomas, Paul W., to Polaroid Corporation. Sensing device for controlling motion-picture processing and viewing. 3,829,205, Cl. 352-130.000.
 Dreksler, Moshe Y., to Dunham-Bush, Inc. Method of forming high integrity epoxy joint between aluminum tubes. 3,828,412, Cl. 29-157.00r.
 Dresser, Bruno: See—
 Lecaillet, Pierre; and Dresser, Bruno, 3,828,649.
 Driver, Wilfred D. Storable beds. 3,828,375, Cl. 5-160.00r.
 Drummond Instrument Company: See—

Drummond, Michael E.; and Robinson, John E., 3,828,987.
 Drummond, Michael E.; and Robinson, John E., to Drummond Instrument Company. Dispensing micropipette apparatus having disposable parts for delivering a preselected quantity of fluid. 3,828,987, Cl. 222-386.000.
 DSO 'Textil': See—
 Julev, Stoyan Iliev; Milkov, Mihail Yordanov; Dachev, Lyubomir Petrov; Vasilev, Rosen Petrov; Kostov, Vasil Alexandrov; and Aroyo, Jacky Sivcho, 3,829,344.
 Du Pont de Nemours, E. I., and Company: See—
 Anderson, Bernard Fornelius, 3,828,471.
 Clement, Robert A., 3,829,429.
 Ellis, Richard L., 3,829,581.
 Goodell, Gerald W., 3,829,395.
 Sheppard, Ronald J., 3,829,397.
 Du Pont de Nemours, E.I., and Company: See—
 Dhingra, Ashok Kumar, 3,828,839.
 Dube, Jacques: See—
 Allais, Andre; Meier, Jean; and Dube, Jacques, 3,829,585.
 Dubo, Harry H. Ejection apparatus and method for emptying refuse containers. 3,828,956, Cl. 214-510.000.
 Duerr, Dieter: See—
 Martin, Henry; Duerr, Dieter; and Hitz, Hans Rudolf, 3,829,485.
 Duke, Gene S.; and Heatherly, Lawrence E., to Duke, H. C., & Son, Inc. Piston pump for soft serve machine. 3,829,242, Cl. 417-38.000.
 Duke, H. C., & Son, Inc.: See—
 Duke, Gene S.; and Heatherly, Lawrence E., 3,829,242.
 Dulaney, George W. Humane elastic cinch. 3,828,521, Cl. 54-23.000.
 Duly, Alan R.: See—
 Hohenberg, Rudolph; and Duly, Alan R., 3,829,666.
 Dumesnil, Gerard Paul Louis. Collar for automobile vehicle battery. 3,829,823, Cl. 339-228.000.
 Duncan, Theodore. Wig cleaning device. 3,828,588, Cl. 68-5.00c.
 Dunham-Bush, Inc.: See—
 Dreksler, Moshe Y., 3,828,412.
 Dunlop Limited: See—
 Stimson, Ian Leonard; Dowell, Frederick Sidney; and Healy, Benedict Pascal, 3,829,162.
 Dupuy, Jean-Marie: See—
 DeMendez, Michel Ossona; Dupuy, Jean-Marie; Harreton, Roland; and Foucard, Albert, 3,829,221.
 Duquette, William L. Access closure for an air inflated structure. 3,828,490, Cl. 52-2.000.
 Duryea, Charles S. Boat flanking rudder system. 3,828,713, Cl. 114-163.000.
 Duzey, Ozbek, to Borg-Warner Corporation. Tubular heat exchanger. 3,828,762, Cl. 126-91.00a.
 Dynamics Corporation of America: See—
 Valbona, Bruno M.; and Voglesonger, Harry M., 3,829,071.
 Dynamics Corporation of America: See—
 Swanke, Roy L.; and Leonard, Robert M., 3,829,720.
 Dziuballe, Gerhard; and Weber, Albrecht, to Maschinenfabrik Hilma Gesellschaft mit beschränkter Haftung. Vise. 3,829,075, Cl. 269-28.000.
 E. I. du Pont de Nemours and Company: See—
 Janzen, Dennis W.; and Dell, Curtis G., 3,828,607.
 Eary, George D. Sr. Adjustable body rest. 3,828,377, Cl. 5-327.00b.
 Easom, Miller. Pneumatic rifle cast fishing rod. 3,828,459, Cl. 43-19.000.
 Eastern Cyclone Industries, Inc.: See—
 Boon, Bruce Theodore Edward, 3,829,165.
 Eastman Kodak Company: See—
 Coates, Clarence A., Jr.; and Weaver, Max A., 3,829,411.
 Fisher, John G.; Weaver, Max A.; and Coates, Clarence A., 3,829,410.
 Hargis, Charles W., 3,829,428.
 Krutak, James J., Sr., 3,829,436.
 Easton, Wayne B. High pressure gerotor type hydraulic motors. 3,829,258, Cl. 418-61.00b.
 Eaton, John L.; and Eeckhout, Roger V., to SMC Corporation. Steam generating subassembly for electric iron. 3,828,452, Cl. 38-77.830.
 Eberspacher, J.: See—
 Glatzel, Harmut; and Langen, Herbert, 3,828,755.
 Rich, Wolfgang, 3,828,761.
 Ebing, Walter: See—
 Frey, Gunter; Hoffacher, Arthur Nikolaus; and Ebing, Walter, 3,828,529.
 Eblen, Perry W. Gate opener. 3,828,475, Cl. 49-394.000.
 Eckart, George R., to Woodhead, Daniel, Inc. Fused electric plug. 3,829,819, Cl. 339-44.00r.
 Ecodyne Corporation, mesne: See—
 Machado, Mark A.; and Forchini, James F., 3,829,107.
 Economics Laboratory, Inc.: See—
 Seiberling, Dale A., 3,829,584.
 Economy, James: See—
 Cottis, Steve G.; Economy, James; and Nowak, Bernard E., 3,829,406.
 Edamura, Fred Y.; McKendry, Lennon H.; and Larsen, Eric R., to Dow Chemical Company, The. Substituted phenoxy and phenylthioacetates and derivatives thereof. 3,829,489, Cl. 260-559.00b.
 Edenborough, Harry K.; Wernicke, Kenneth G.; and Carter, George D., to Tectron Inc. Advanced geometry main rotor blade. 3,829,240, Cl. 416-223.000.
 Edmondson, Russell B. Jet ejector device. 3,829,247, Cl. 417-182.000.
 Edmondson, Floyd D.: See—

Underwood, Jereld L.; Edmondson, Floyd D.; and Dolezal, Milton M., 3,828,674.
 Educational Electronics, Inc.: See—
 Goodin, James J.; and Dowling, Matthew M., 3,829,624.
 Edwards, Bryant, to Illinois Tool Works Inc. Injection molding process. 3,829,548, Cl. 264-328.000.
 Eeckhout, Roger V.: See—
 Eaton, John L.; and Eeckhout, Roger V., 3,828,452.
 Efka-Werke Fritz Kiehn G.m.b.H.: See—
 Brodbeck, Helmut; and Haller, Hans, 3,828,658.
 Egan, Georgette S., to Hughes Aircraft Company. Working surface for radiant energy beam cutter. 3,828,697, Cl. 108-51.000.
 Egerborg, Bo Malte Staffan; Gadefelt, Goran Robert; Magbjer, Gunnar Ingemar; and Spang, Kjell. Concrete structural member with high internal damping. 3,828,504, Cl. 52-396.000.
 Ehlschlager, Arthur John, to Western Electric Company, Incorporated. Bi-directional translator. 3,829,620, Cl. 179-18.0et.
 Eickelberg, John E.; and Rice, James S., to Industrial Nucleonics Corporation. Stuck actuator alarm. 3,829,848, Cl. 340-238.000.
 Eidelberg, Jonah, to Electrical Fittings Corporation. Slip-fit electrical coupling. 3,829,136, Cl. 285-383.000.
 Eidet, Hakon, to K. Pettersens Sonner A/S. Combined boiler and heat exchanger for an absorption refrigeration unit operating on indifferent gas. 3,828,576, Cl. 62-490.000.
 Eimer, Klaus; and Thal, Heinz, to Ludwig Taprogge (Cleaning Installations for Pipe Heating Exchange). Filter screen installation. 3,828,930, Cl. 210-137.000.
 Eisenmann, Joseph; and Helgemeier, Heinrich. Tool for ballast compacting machine. 3,828,679, Cl. 104-12.000.
 Eisler, Paul. Electrically heated package. 3,829,654, Cl. 219-386.000.
 Eisner, Elmer, to Texaco Inc. Sismic pulse generator. 3,828,891, Cl. 181-119.000.
 Eissinger, Ramon C.; and Provancher, Ronald W., to Ford Motor Company. Hood auxiliary hold-down device. 3,828,885, Cl. 180-69.00c.
 Elastelle Paul Fontanille & Fils: See—
 Bourgeois, Alain, 3,828,367.
 Electrical Fittings Corporation: See—
 Eidelberg, Jonah, 3,829,136.
 Electrostatic Equipment Corporation: See—
 Goodridge, William C., 3,828,729.
 Elektronikkaboratoriet ved NTH: See—
 Bakken, Petter Magnar, 3,829,796.
 Elias Productions Incorporated: See—
 Fazekas, Charles, 3,828,605.
 Elliot, James E., to MCA Disco-Vision, Inc. Video disc player with variably biased pneumatic head. 3,829,622, Cl. 179-100.30v.
 Ellis, Leonard C.; and Kise, Mearl A., to Virginia Chemicals Inc. Groundwood pulp bleaching with sodium hydrosulfite containing diglycolates. 3,829,358, Cl. 162-71.000.
 Ellis, Leonard C., Jr.: See—
 Chancey, James C.; and Ellis, Leonard C., Jr., 3,828,500.
 Ellis, Richard L., to Du Pont de Nemours, E. I., and Company. Aliphatic polycyclic amidoximes as influenza antiviral agents. 3,829,581, Cl. 424-327.000.
 Ellison, Anthony Alexander, to British Visqueen Limited. Plastic-film bags. 3,829,007, Cl. 229-55.000.
 Ellison, Donald E., to Inland Container Corporation. Method for forming a reinforced fiberboard container. 3,829,000, Cl. 229-14.0ba.
 Ellsworth, Charles: See—
 Gioia, Louis M.; Ellsworth, Charles; and Webb, James L., 3,829,096.
 Elwert, Dietmar; and Gaege, Gotz, to Bosch, Robert, GmbH. Electrical insulating element such as a distributor cap. 3,829,635, Cl. 200-19.0wg.
 Elwood, Albert A. Low frequency drill bit apparatus and method of locating the position of the drill head below the surface of the earth. 3,828,867, Cl. 175-45.000.
 Ely, Richard N. Dental device. 3,828,804, Cl. 132-91.000.
 Emeny, George B. Liquid level control. 3,829,241, Cl. 417-17.000.
 Emerson Electric Co.: See—
 Miller, David E., 3,829,811.
 Emily Herman Thompson: See—
 Herman, Joseph L., 3,828,723.
 Emmons, George Harvey. Detachable support tray for ladders. 3,829,051, Cl. 248-238.000.
 Enberlein, Wolfgang: See—
 Heider, Joachim; Enberlein, Wolfgang; and Engelhardt, Gunther, 3,829,570.
 Endo Laboratories, Inc., mesne: See—
 Berger, Joel G.; and Teller, Sonia R., 3,829,431.
 Engelhard Minerals & Chemicals Corporation: See—
 Highberg, Carl W.; and Roesch, George R., 3,828,479.
 Engelhardt, Gunther: See—
 Heider, Joachim; Enberlein, Wolfgang; and Engelhardt, Gunther, 3,829,570.
 Engelsmann, Dieter: See—
 Winkler, Alfred; Engelsmann, Dieter; Karl, Horst; and Schroeder, Rolf, 3,829,875.
 Engis Corporation: See—
 Metzger, Michael V.; and Pearce, Reginald, 3,829,299.
 English Electric Company Limited, The: See—
 Heard, Jeffery Gerald, 3,829,723.
 Enns, Mark K.: See—
 Haley, Paul H.; and Enns, Mark K., 3,829,669.

Ensinger, William H. Adjustable wrist support for bowling. 3,829,090, Cl. 273154.00b.

Ensinger, Clifford H.; and Ruggiero, Edward M., to Texas Instruments Incorporated. Multi-character electronic display. 3,829,653, Cl. 219-216.000.

Entreprise de Recherches et d'Activites Petrolieres Elf. See—
Boy-Marcotte, Jean Louis; Simmonnet, Jacques Louis Paul; Marchal, Philippe Albert Hippolyte; and Verrien, Jean Prudent Fernand Rene, 3,828,574.

Epelbaum, Quido C. Adapter for convertible car seat and stroller. 3,829,113, Cl. 280-30.000.

Erben, Klaus-Dieter. See—
Born, Gunthard; Erben, Klaus-Dieter; and Mohr, Friedbert, 3,829,792.

ERCO Industries Limited. See—
Winfield, John D., 3,829,557.

Erickson, Frederick E. See—
De Lille, Richard A.; and Erickson, Frederick E., 3,828,616.

Erico Products, Inc. See—
Geiger, Willard L., 3,829,682.

Eriksson, Algot Ingemar, to AB Printing Equipment. Method and arrangement for checking the alignment of a paper sheet in paper sheet feed apparatus. 3,829,702, Cl. 250-557.000.

Eriksson, Karl Gunnar; Wahlgren, Sven Erik; and Mangen, Carl Arnold. Method and means for indicating temperature variations in a product, preferably a food product. 3,828,612, Cl. 73-356.000.

Erlichman, Irving, to Polaroid Corporation. Method of clamping and riveting parts. 3,828,421, Cl. 29-522.000.

Ernst Winter & Sohn. See—
Borse, Dietrich; Lockemann, Albert; and Cordsen, Gerd, 3,828,646.

Ervein, Joel, to Thomson-CSF. Acoustical holography system for acoustic image conversion. 3,829,827, Cl. 340-5.00h.

Eshraghian, Kamran, to U.S. Philips Corporation. Switching device. 3,829,784, Cl. 328-130.000.

Eskeli, Michael. Turbine having powered inner rotor for imparting additional velocity to entering fluid. 3,828,553, Cl. 60-330.000.

Eskeli, Michael. Heating and cooling wheel. 3,828,573, Cl. 62-401.000.

Essilor International. See—
Tagnon, Luc Andre, 3,828,842.

Esso Production Research Company. See—
Barry, Adelbert; and Heintz, Karl O., 3,829,816.

Esso Research and Engineering Company. See—
Mueller, Wolfgang H.; Thaler, Warren A.; and Oswald, Alexis A., 3,829,535.

Etablissements Carpano & Pons S.A. See—
Nepote, Alain Robert, 3,829,041.

Ethyl Corporation. See—
Ashby, Eugene C.; Taylor, William D.; and Winkler, Donald A., 3,829,390.

Kobetz, Paul; and Lindsay, Kenneth L., 3,829,471.

Robinson, Gene C., 3,829,383.

Ethyl Development Corporation. See—
Marchant, Paul A., 3,828,957.

Euroclean AB. See—
Heden, Olle, 3,829,024.

Evanea, George R.; Kuhla, Donald E.; and Sarges, Reinhard, to Pfizer Inc. Piperidinesulfonylurea derivatives. 3,829,434, Cl. 260-293.560.

Evans, Chandler, Inc. See—
Andersen, Joseph J., 3,829,058.

Evans, John A.; Chavis, Clarence S.; and Ward, Rodney R., to Clark, William H., III. Intrusion detection apparatus employing a pressure-differential detector. 3,829,851, Cl. 340-258.00r.

Evans, O. T. Gas well equipment. 3,829,245, Cl. 417-108.000.

Everitt, Delmar K. See—
Goldfarb, Adolph E.; Everitt, Delmar K.; Chesley, Ronald F.; and Baer, Ralph H., 3,829,094.

Evers, James D., deceased (by Bender, Louisa E.; executors; and Bender, Donald A.), to Midland-Ross Corporation. Temperature resistant seal and valve assembly. 3,828,810, Cl. 137-494.000.

Factory Mutual Research Corporation, mesne. See—
Woodward, Richard V.; and McMahon, Richard A., 3,828,855.

Fairbanks Morse Inc. See—
Reddy, K. Narashimha, 3,828,753.

Falchle, Jorg. See—
Bleicher, Manfred; Falchle, Jorg; Hahner, Reinhard; Hansel, Ger-
not; Schmid, Wolfgang; and Wanner, Karl, 3,828,863.

Faraday, Inc. See—
Cousino, Bernard A., 3,829,033.

Farallon Industries, Inc. See—
Shamlian, Ralph B.; and Hollingsworth, Ashley J., 3,828,611.

Farbenfabriken Bayer Aktiengesellschaft. See—
Krimm, Heinrich; Freitag, Dieter; and Boie, Immo, 3,829,462.

Farber, Milton H.; and Belinkoff, Irving R., to LCA Corporation. Oven. 3,828,760, Cl. 126-21.00a.

Farwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. See—
Bartmann, Wilhelm; and Alpermann, Hans-Georg, 3,829,571.

Bartmann, Wilhelm; Alpermann, Hans-Georg; and Jochum, Christian, 3,829,572.

Frank, Hermann; and Huber, Rudolf, 3,829,757.

Millauer, Hans, 3,829,512.

Rammelt, Peter-Paul; and Siegmund, Gunter, 3,829,483.

Schladsch, Hans Jakob, 3,829,454.

Speitschka, Ernst; and Landler, Josef, 3,829,439.

Zimmermann, Johann Wolfgang, 3,829,402.

Farmer, Edwin Bruce; and Cadle, Terence Michael, to Brico Engineering Limited. Sintered iron based articles infiltrated with copper based metals. 3,829,295, Cl. 29-182.100.

Farr, William W., Jr., to Honeywell Information Systems Inc. Con-
troller for rotational storage device having linked information or-
ganization. 3,829,837, Cl. 340-172.500.

Farren, Paul Lester. Storage system. 3,828,680, Cl. 104-88.000.

Farrington, Diane G. See—
Meloy, Gilbert K.; and Farrington, Diane G., 3,829,532.

Farrington, Grant M., Jr.; and Treffner, Walter S., to General Refrac-
tories Company. Direct bonded refractory bricks. 3,829,541, Cl. 264-
65.000.

Fazekas, Charles, to Elias Productions Incorporated. Surface friction
analyzer. 3,828,605, Cl. 73-9.000.

Fechant, Louis Joseph. See—
Van, Trong N'Guyen; and Fechant, Louis Joseph, 3,829,746.

Federal Paper Board Company, Inc. See—
Rossi, Harry J., 3,828,926.

Feinberg, Jacob Howard, to American Can Company. 4-Methoxy
benzene diazonium hexafluorophosphate catalyst for photopolymers
in epoxy systems. 3,829,369, Cl. 204-159.110.

Feiner, Maria; Gubler, Michel; and Guillon, Joseph, to Monsanto Com-
pany. Flame retardant composition. 3,829,394, Cl. 260-4.0ar.

Feingold, Michael H., to Polaroid Corporation. 3-(3'-Lower carboal-
koxy-4'-hydroxy-1'-naphthyl) -3-(3'-carboxy-4'-hydroxy-1'-naphthyl)
naphthalide. 3,829,445, Cl. 260-343.20r.

Fellenstein, Ronald L. Tonneau cover and seat assembly for pickup-
type vehicle boxes. 3,829,151, Cl. 296-64.000.

Fend, Heinrich, to VAT Aktiengesellschaft fur Vakuum- Apparate-
Technik. Deformable sealing ring arrangement. 3,829,062, Cl. 251-
332.000.

Fenichel, Richard L. See—
Wolf, Milton; Sellstedt, John H.; and Fenichel, Richard L.,
3,829,488.

Fenlon, Joseph A., Jr. See—
Spiroff, Carl M., 3,828,767.

Ferdon, Gilbert Douglas. See—
Derr, Paul B.; Ferdon, Gilbert Douglas; and Harwood, Robert
George, 3,829,821.

Ferrell, Ralph T., to Continental Oil Company. Inhibition of olefin
isomerization and reverse displacement in catalytic displacement
reactions. 3,829,520, Cl. 260-677.000.

Fiber Industries, Inc. See—
Cohen, Stuart Lyle; and Stackman, Robert William (said Cohen
assor. to), 3,829,405.

Fichtel & Sachs AG. See—
Schwerdhofer, Hans-Joachim, 3,828,627.

Fickle, J. Clark; and Gerhardt, Ralph August, to Deere & Company.
Harvesting machine suspension system. 3,828,532, Cl. 56-14.400.

Fidani, Antonio. See—
Veronica, Giacinto; and Fidani, Antonio, 3,829,389.

Fieglein, James M.; and Csanady, Michael, Jr., to Westinghouse Elec-
tric Corporation. System and method for operating a steam turbine
with dual hydraulic independent overspeed protection especially
adapted for a nuclear reactor powered steam turbine. 3,829,32, Cl.
415-1.000.

Fieser, Arthur H.; and Mobley, Loreley S. Metal slab conditioning
system. 3,829,072, Cl. 266-23.00h.

Figari, Jorge Galvez. Elevated monorail urban or suburban transporta-
tion system. 3,828,684, Cl. 104-124.000.

Finch, Robert A. See—
Peterson, Richard H.; and Finch, Robert A., 3,829,597.

Finckh Metalltuch- und Maschinenfabrik. See—
Holz, Emil, 3,829,360.

Fink, Richard H., to Campbell Chain Company. Coupling link.
3,828,550, Cl. 59-85.000.

Finlay, Robert L. Spring biased arrow rest. 3,828,757, Cl. 124-41.000.

Finn, Everett N., to Brown & Williamson Tobacco Corporation.
Cigarette cutoff and filter tip attachment registration apparatus.
3,828,796, Cl. 131-21.00b.

Finneran, John L. Rotary mower. 3,828,533, Cl. 56-320.200.

Finsterwalder, Gerhard, to Klockner-Humboldt-Deutz Aktien-
gesellschaft. Arrangement and embodiment of a spark plug with a
diesel reciprocating piston internal. 3,828,739, Cl. 123-32.00r.

Finucane, Thomas P.; and Halik, Joseph J., to General Foods Corpora-
tion. Dipeptide low-grade coffees. 3,829,588, Cl. 426-354.000.

Firestone Tire & Rubber Company, The. See—
Halasa, Adel F.; and Snyder, Dennis L., 3,829,554.

Fisher, John G.; Weaver, Max A.; and Coates, Clarence A., to Eastman
Kodak Company. 5-(Cyanovinylene)-2-thiazolylazo-aniline com-
pounds. 3,829,410, Cl. 260-158.000.

Fisher, John M. Method of making inflatable assembly with bulkheads
and resulting article. 3,829,353, Cl. 161-92.000.

Fisher, Phillip R. See—
Harper, Patrick H.; Gregory, Charles F.; and Fisher, Phillip R.,
3,828,798.

Flam, Eric, to Johnson & Johnson. Support means for the even dis-
tribution of body pressure. 3,828,378, Cl. 5-345.000.

Flannelly, William G., to Kaman Aerospace Corporation. Vibration
isolator. 3,829,052, Cl. 248-317.000.

Fleming, Ancel H. Proportional fluid distribution assembly for back
hoe having reciprocating teeth. 3,828,951, Cl. 214-138.00r.

Fleming, Robert W.; and Boothroy, George. Gas actuated dehoring
tool. 3,828,431, Cl. 30-228.000.

Fleming, Robert W.; and Carr, Albert A., to Richardson Merrell Inc.
Antiviral compositions containing bis-basic ethers and thioethers of
xanthene and xanthene-9-ones and methods of treating viruses
therewith. 3,828,578, Cl. 424-283.000.

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Antiviral compositions containing bis-basic ethers and thioethers of
xanthene and xanthene-9-ones and methods of treating viruses
therewith. 3,829,578, Cl. 424-283.000.

Flex-O-Latex, Inc. See—
Platt, Thomas W.; and Arnold, Harmon W., 3,829,048.

Flexnac Nodwell Ltd. See—
Thomas, Ian A., 3,829,174.

Floating Poing Systems, Inc. See—
Bouton, Frank M., Jr.; and Prints, Thomas R., 3,829,673.

Flores, Jose A. See—
Lent, William E.; and Flores, Jose A., 3,829,403.

Flueckiger, Noah, to Acme-Cleveland Corporation. Electric coupling
control means. 3,828,901, Cl. 192-12.00d.

Flying Dutchman, Inc. See—
Lepley, James W., 3,828,946.

Lepley, James W., 3,828,947.

FMC Corporation. See—
Boeck, David J., 3,828,450.

Hampton, Quentin L.; and Matras, Edward J., 3,828,933.

McRobert, Leon R., 3,828,534.

Neuman, Milton C., 3,828,657.

Wiethoff, Roger H., 3,828,654.

Fogelberg, Mark J., to Borg-Warner Corporation. Differential for four-
wheel drive. 3,828,877, Cl. 180-44.00r.

Food Equipment, Inc. See—
Dawson, Clarence G., 3,828,978.

Foot, Chauncey P., Jr. See—
Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote,
Chauncey P., Jr., 3,828,672.

Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote,
Chauncey P., Jr., 3,828,673.

Forchini, James F. See—
Machado, Mark A.; and Forchini, James F., 3,829,107.

Ford Motor Company. See—
Eissinger, Ramon C.; and Provancher, Ronald W., 3,828,885.

Hallstone, Victor L.; Harper, Ronald N.; and Oliver, Wilfred T.,
3,829,069.

Harrison, Clarence E., 3,829,717.

Holka, Thomas C., 3,829,123.

MacLennan, Alastair S., 3,829,236.

Medrick, John D., 3,828,745.

Zillner, Gunter, 3,828,623.

Ford, Robert E., to United States of America, Navy. Electric power
amplification at low frequencies. 3,829,788, Cl. 330-10.000.

Forni, Jay S. Bell fitting for reinforced plastic-mortar pipe and the like.
3,829,135, Cl. 285-55.000.

Fornoff, Louis L.; Collins, John J.; and Taylor, Rolla D., to Union Car-
bide Corporation. Recovery of sulfur dioxide from gas streams.
3,829,560, Cl. 423-522.000.

Forsheda Ideutveckling AB. See—
Derman, Karl Gustav Einar, 3,829,227.

Forster, Friedrich M. O. Method and device for magnetographic in-
spection. 3,829,762, Cl. 324-37.000.

Fosco International Limited. See—
Stanbridge, Roger Philip, 3,829,320.

Foster, George W. See—
Cornish, Alan H.; Foster, George W.; and Campbell, Alexander J.,
3,828,372.

Foucard, Albert. See—
DeMendez, Michel Ossona; Dupuy, Jean-Marie; Harreton, Ro-
land; and Foucard, Albert, 3,829,221.

Fowler, Larry G., to Sugar Cane Growers Cooperative of Florida.
Sugar cane loader-cleaner machine. 3,828,536, Cl. 56-502.000.

Fox, Donald H., to Spinal position patient restraint. 3,829,079, Cl.
269-328.000.

Fraleigh, Francis C. Outdoor wash stand. 3,828,373, Cl. 4-170.000.

Frame, Goudlas J. See—
Graham, Robert G.; and Frame, Goudlas J., 3,828,735.

Frank Gilbert H. See—
Woolfson, Martin G.; and Frank Gilbert H., 3,829,747.

Frank, Hermann; and Huber, Rudolf, to Farbwerke Hoechst Aktien-
gesellschaft vormals Meister Lucius & Bruning. Systeme for con-
trolling the frequency of an alternating current converter in response
to load changes. 3,829,757, Cl. 321-18.000.

Franke, Preston H., Jr. See—
Bertram, James L.; Whiteside, Ross C., Jr.; and Franke, Preston
H., Jr., 3,829,354.

Frankland, John T.; and McLaughlin, Richard J. Electrical combina-
tion lock apparatus. 3,829,834, Cl. 340-149.00r.

Fravel, John C. See—
Ha, In W.; and Fravel, John C., 3,829,745.

Frazier, Lauren, to General Electric Company. Ice maker. 3,828,568,
Cl. 62-186.000.

Freedman, David Daniel, to RCA Corporation. High-speed analog-to-
digital converter. 3,829,853, Cl. 340-347.0ad.

Freeny, Charles C., Jr., to Information Identification Company, Inc.
Code element identification method and apparatus. 3,829,833, Cl.
340-149.00r.

Frei, Paul, to Sulzer Brothers Ltd. Feed water control in forced circula-
tion steam generators. 3,828,738, Cl. 122-504.200.

Freisberg, Karl-Otto. See—
Irmischer, Klaus; Kramer, Josef; Cimbolek, Gerhard; Orth, Dieter;
Nowak, Herbert; and Freisberg, Karl-Otto, 3,829,421.

Freitag, Dieter. See—
Krimm, Heinrich; Freitag, Dieter; and Boie, Immo, 3,829,462.

Freitag, Herbert. See—
Dorner, Nikolaus; and Freitag, Herbert, 3,828,651.

Fretz, Jeffrey. See—
Cichetti, Michael Peter, Jr.; and Fretz, Jeffrey, 3,829,843.

Frey, Gunter; Hoffacher, Arthur Nikolaus; and Ebing, Walter, to
Knecht Filterwerke Gesellschaft mit beschraenkter Haftung. Ap-
paratus for filtering oil vapors. 3,828,529, Cl. 55-419.000.

Fritsch, Robert E. See—
Buck, Frederick A.; and Fritsch, Robert E., 3,828,465.

Fritz, Henry E. See—
Byrd, Priscilla D.; and Fritz, Henry E., 3,829,415.

Fritz, Hermann. See—
Gunter, Fritz; and Fritz, Hermann, 3,829,181.

Fritz, Wolfgang. See—
Neumann, Klaus; and Fritz, Wolfgang, 3,828,814.

Frost, C. L., & Son, Inc. See—
Frost, Charles C.; and Weis, Siegfried K., 3,828,619.

Frost, Charles C.; and Weis, Siegfried K., to Frost, C. L., & Son, Inc.
Hub or bearing housing, pulley and method of making the same.
3,828,619, Cl. 74-230.010.

Fruehauf Corporation. See—
Cooper, George W., 3,828,940.

Fuch, Alvin J., to Medalist Industries, Inc. Squeegee and flood bar ac-
tuator with peeling screen clamp. 3,828,671, Cl. 101-123.000.

Fuchs, Leo, to Mansfield Tire & Rubber Company, The. Concrete
form. 3,829,057, Cl. 249-175.000.

Fuhr, John R. Windshield wiper blade snow and ice scraper at-
tachment. 3,828,388, Cl. 15-250.410.

Fuji Photo Film Co., Ltd. See—
Ozutsu, Minoru; Miyazawa, Yoshihide; Motohashi, Katsuchi;
and Kiritani, Masataka, 3,829,322.

Fujii, Masaru; Oyagi, Syuji; Kamei, Tutomu; and Mori, Inosuke, to Mit-
subishi Jukogyo Kaishiki Kaisha. Control system for once-through
boilers. 3,828,737, Cl. 122-406.0st.

Fujikura Cable Works Ltd. See—
Ishikawa, Hisao; Osanai, Hiroshi; and Kawabata, Terutsugu,
3,829,602.

Fujimoto, Hiroshi, to Nippon Electric Company, Limited. Multilevel
code transmission system. 3,829,779, Cl. 325-38.00a.

Fujioka, Katsuchi, to Koyo Electronics Industry Co., Ltd. Device for
installing a housing or. 3,829,599, Cl. 174-48.000.

Fujita, Kinji, to Kabushiki Kaisha Suwa Seikosha. Quartz crystal
timepiece. 3,828,547, Cl. 58-50.00r.

Fukai, Masakazu. See—
Tohi, Atsumoto; Sakai, Kunio; Fukai, Masakazu; and Tsujimoto,
Yoshinobu, 3,829,333.

Fukui, Takasuke. See—
Watanabe, Teruji; Fukui, Takasuke; and Suzuki, Shizuo,
3,829,894.

Furahashi, Akira, to Canon Kabushiki Kaisha. Recording medium hav-
ing concealed information as input for electronic computer.
3,829,662, Cl. 235-61.12r.

Furon, Leon D.; Robinson, John A.; and Menick, Jack E., said Furon
and said Robinson assor. to said Menick, Jack E. Tube inspection
system with interlaced scanning. 3,828,609, Cl. 73-67.80s.

Furukawa, Hitoshi. See—
Miyasaka, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao;
Nagatsumo, Katsuyoshi; and Furukawa, Hitoshi, 3,829,228.

Fuselier, Christopher S. See—
Hoffman, Robert E.; Cline, John A.; Fuselier, Christopher S.; and
Atre, John D., 3,829,786.

Fuss, Gary. Lantern shields. 3,829,681, Cl. 240-110.000.

Fussell, Edward B., Jr.; and Redmon, Don L., to Water Bonnet, Inc.
Brace and method of bracing a windshield to a dashboard.
3,829,153, Cl. 296-90.000.

Futaki, Kiyoshi; Haino, Kozo; and Kohmura, Isao, to Mitsubishi Paper
Mills, Ltd. Heat sensitive recording paper. 3,829,401, Cl. 260-
38.000.

Future Systems, Inc. See—
Anderson, Ralph; and Beyer, Rodney B., 3,829,549.

Gadefelt, Goran Robert. See—
Egerborg, Bo Malte Staffan; Gadefelt, Goran Robert; Magbjør,
Gunnar Ingemar; and Spang, Kjell, 3,828,504.

Gaige, Gotz. See—
Elwert, Dietmar; and Gaige, Gotz, 3,829,635.

GAF Corporation. See—
Bettoli, Phillip Stephen, 3,828,510.

Gailes, Michael Edward. See—
Sutton, Michael Gilbert; and Gailes, Michael Edward, 3,829,724.

Gainesville Machine Company, Inc. See—
Harben, Grover S., Jr., 3,828,397.

Galgoczy, Gabor; Gyulai, Zoltan; Palagyi, Tivadar; and Wagensommer,
Jozsef. Non-slip, high strength bolted joints. 3,828,515, Cl. 52-
758.00f.

Gambashidze, Zurab Dmitrievich. See—
Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich;
Alexandrov, Adolf Martitovich; Suladze, Ippolit Davidovich;

- Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtdil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
- Gamm, Paul B.; and Clare, Billy C., to Jung Products, Inc. Liner for incontinent pants. 3,828,785, Cl. 128-288.000.
- Gardner, John Nicholson, to Smith Kline & French Laboratories. Guanidinoalkylbenzodioxan derivatives. 3,829,441, Cl. 260-340.300.
- Gardner, Lloyd E., to Phillips Petroleum Company. Conversion of gem-difluoro compounds to fluoroalkenes and fluoroalkapolyenes. 3,829,513, Cl. 260-653.500.
- Gardner, Willis W., to Waukesha Bearings Corporation. Pad construction for tilting pad thrust bearing. 3,829,180, Cl. 308-160.000.
- Gardner-Denver Company: See—
Council, Malcolm N., 3,828,874.
- Gartner Research & Development Co.: See—
Gartner, William Joseph, 3,828,771.
- Gartner, William Joseph, to Gartner Research & Development Co. Oral hygiene device. 3,828,771, Cl. 128-66.000.
- Gas Development Corporation: See—
Weil, Sanford A., 3,828,528.
- Gasner, Lawrence L.: See—
Lange, K. Robert; Stern, Arthur M.; Gasner, Lawrence L.; and Hsu, Yuan Tsun, 3,829,388.
- Gaston County Dyeing Machine Company: See—
Zeiffer, Dieter F., 3,828,410.
- Gates Rubber Company, The: See—
Russ, Paul E., Sr., 3,829,055.
- Gathright, Jack G.; and Park, Richard E., to Westinghouse Electric Corporation. Method and circuit for calculating the square root of the sum of two squares. 3,829,671, Cl. 235-158.000.
- Gauch, Hermann: See—
Von Hagen, Wolf-Rudiger; and Gauch, Hermann, 3,828,704.
- Gautherin, George A., to Lambda Electronics Corporation. Circuit for reducing the direct current component of an alternating current output signal. 3,829,794, Cl. 331-113.00a.
- Gazzola, Eles: See—
Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,828,672.
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- Gazzola, Ivaldo, deceased (by Gazzola, Eles; and Gazzola, Lanfranco; heirs); D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., to American Bank Note Company. Apparatus for fitting flexible printing plates and rigging to printing press cylinders. 3,828,67, Cl. 101-247.000.
- Gazzola, Ivaldo, deceased (by Gazzola, Eles; and Gazzola, Lanfranco; heirs); D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., to American Bank Note Company. Paper feed mechanism for cylinder press. 3,828,673, Cl. 101-232.000.
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Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,828,672.
- Gazzola, Ivaldo, deceased; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,828,673.
- Gebrueder Buehler AG: See—
Gmuier, Bruno A., 3,828,984.
- Gee-Dee International, Inc.: See—
Alvarez, Guillermo Diaz, 3,828,859.
- GEHAP Gesellschaft fur Handel und Patentverwertung mbH & Co., KG: See—
Schweikart, Horst, 3,829,719.
- Geiger, Ervin D. Flying saucer. 3,828,466, Cl. 46-74.00d.
- Geiger, Willard L., to Erico Products, Inc. Pulse coded railway signal system. 3,829,682, Cl. 246-125.000.
- Geiser, Hans; and Tessendorf, Gunter, to Licentia Patent-Verwaltungs GmbH. Connecting element for conductors. 3,829,822, Cl. 339-98.000.
- Geltenpoth, Ulrich: See—
Mnilk, Reinhold; Kurreck, Manfred; and Geltenpoth, Ulrich, 3,829,264.
- General Crude Oil & Minerals Company, S.A.: See—
Lynn, Lawrence, 3,829,553.
- General Electric Company: See—
Bottone, Salvatore, Jr., 3,829,751.
- Buice, Joel B.; and Schwenker, David G., 3,828,423.
- Corman, James C.; and Walmet, Gunnar E., 3,828,849.
- Frazier, Lauren, 3,828,568.
- Giegerich, Bertrand V., 3,829,810.
- Hoffman, Robert E.; Cline, John A.; Fuselier, Christopher S.; and Atre, John D., 3,829,786.
- Hunter, Richard F.; and Mietz, Gerhard O., 3,829,546.
- Jenkins, Thomas E., 3,829,191.
- Kilcoin, John Augustine, 3,829,637.
- Wilson, Arthur C., 3,828,763.
- General Foods Corporation: See—
Finucane, Thomas P.; and Halik, Joseph J., 3,829,588.
- General Instrument Corporation: See—
Lipsky, Stephen E., 3,829,863.
- Sfreddo, Alfred, 3,828,613.
- General Motors Corporation: See—
Baynes, Gene P., 3,829,259.
- Biskup, Edward J., 3,828,882.
- Charns, Norman; and Matthews, Leo J., 3,829,124.
- Owen, Robert E., 3,828,881.
- Prisk, Bert C., 3,829,342.
- Redding, Harry L., Jr., 3,829,120.
- Smith, George O., 3,829,294.
- Weisgerber, Thomas W., 3,828,569.
- General Refractories Company: See—
Farrington, Grant M., Jr.; and Treffner, Walter S., 3,829,541.
- General Stationery Supplies (Proprietary) Limited: See—
Abrams, Aubrey Leon, 3,829,093.
- General Tire & Rubber Company, The: See—
Herold, Robert Johnson, 3,829,505.
- General Tire Company, The: See—
Britton, James E.; and Welch, John A., 3,829,229.
- Genzer, Jerome D.; and Conrad, George A., to Warner-Lambert Company. Process for preparing 5-hydroxy-1-tetralone. 3,829,498, Cl. 260-590.000.
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Fickle, J. Clark; and Gerhardt, Ralph August, 3,828,532.
- Gerkhardovich, Peep: See—
Aarna, Agu Yanovich; Kiisler, Karl Ritsovich; Gerkhardovich, Peep; and Tanner, Juri Albert-Mikhaelovich, 3,829,528.
- Gerlach, Klaus: See—
Staffe, Adolf; and Gerlach, Klaus, 3,829,466.
- Gerstenberger, Roland W.; and Heater, Charles P., to Jensen Machinery Inc. Small piece folder. 3,829,081, Cl. 270-66.000.
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- Gilbert, Richard L.: See—
Bonafino, Edward J.; Gilbert, Richard L.; and Mako, John, 3,828,669.
- Gilbreth Company: See—
Spiegel, Jacob; and Miller, Albert R. (said Miller assor. to), 3,829,348.
- Gill, John Patrick, to Hydrotile Machinery Company. Concrete pipe machine with triangular frame. 3,829,268, Cl. 425-262.000.
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- Girling Limited: See—
Newstead, Charles; and Wright, Andrew Charles Walden, 3,828,898.
- Giros, Jean-Loup: See—
Capdevielle, Pierre, 3,828,555.
- Giroud, Germain. Head with lips movable by rods eccentrically mounted to a wheel. 3,828,469, Cl. 46-245.000.
- Glass Lined Water Heater Co., The: See—
Stein, Robert E., 3,828,847.
- Glass, Marvin & Associates: See—
Licitis, Gunars, 3,829,207.
- Glass, Marvin I.: See—
Morrison, Howard J.; and Glass, Marvin I., 3,828,462.
- Glatzel, Harmut; and Langen, Herbert, to Eberspacher, J. Auxiliary starter for diesel engines. 3,828,755, Cl. 123-179.00h.
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- Gmuier, Bruno A., to Gebrueder Buehler AG. Silo draining device. 3,828,984, Cl. 222-196.000.
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Schroder, Ludwig; Thomas, Klaus; and Goeth, Hanns, 3,829,426.
- Goetz, Jerry E., to Picker Corporation. X-ray apparatus with improved film cassette clamping and size sensing means. 3,829,698, Cl. 250-468.000.
- Gogolina, Tatyana Viktorovna: See—
Bykov, Alexandr Vasilievich; Scherbakov, Vsevolod Sergeevich; Sudarkin, Lev Alexandrovich; and Pavlov, Roman Vladimirovich, 3,829,255.
- Gold, Nicholas, to Polaroid Corporation. Photographic apparatus. 3,829,871, Cl. 354-86.000.
- Goldberg, Harold: See—
Kalmus, Henry P.; Goldberg, Harold; and Sanders, Milton, 3,829,859.
- Goldfarb, Adolph E.: See—
Goldfarb, Adolph E.; Everitt, Delmar K.; Chesley, Ronald F.; and Baer, Ralph H., 3,829,094.

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Marbukk, Veniamin Anatolievich; Lychak, Veniamin Samuilovich; and Goncharov, Evgeny Andreevich, 3,829,704.
- Gonsalves, Joseph E. Aerial bomb and optical light beam guidance system therefor. 3,829,047, Cl. 244-3.160.
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- Goodridge, William C., to Electrostatic Equipment Corporation. Electrostatic fluidized bed. 3,828,729, Cl. 118-634.000.
- Goodyear Tire & Rubber Company, The: See—
Crossman, Richard L., 3,828,894.
- Rouf, Edgar J.; and Booher, Harold R., 3,829,167.
- Gorbanev, Arkady Alexeevich: See—
Borisenko, Gleb Pavlovich; Chernobryvenko, Jury Sergeevich; Kutsov, Jury Georgievich; Gorbanev, Arkady Alexeevich; Kuskushkin, Oleg Nikolaevich; Krivobokov, Vladimir Nikolaevich; Pobegailo, Grigory Gavrilovich; and Nashivanko, Vitaly Dmitrievich, 3,828,600.
- Gorman, Walter M. Device for releasable gripping article. 3,828,402, Cl. 24-81.0ph.
- Goto, Kenya, to Tokyo Shibaura Electric Co., Ltd. Apparatus for detecting gases or corpuscles by light absorption and scattering. 3,829,694, Cl. 250-339.000.
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- Gottschalk, Charlotte H., 20% to Lee, Raymond Organization, Inc., The. Plastic foam bell for a baby carriage. 3,828,888, Cl. 181-33.00r.
- Gotz, Werner: See—
Schnabel, Eberhard; and Gotz, Werner, 3,829,168.
- Gouirand, Rene, to Mercadante, Joseph. Combined vehicle chassis and air suspension system. 3,829,118, Cl. 280-106.50r.
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- Grabhorn, Robert H.; and Westcott, Norman A., to Westcott & Grabhorn, Ltd. Insulator device. 3,828,967, Cl. 220-23.860.
- Grace, W. R., & Co.: See—
Newcomer, Keith E., 3,829,129.
- Grady, Michael J., 1/3 interest to Marshall A. Binder. Toilet seat retainer. 3,828,395, Cl. 16-137.000.
- Graff, Robert Martin, to Rohm & Haas Company. Additive for impact modified thermoplastics. 3,829,531, Cl. 260-859.000.
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- Grand Haven Stamped Products Company: See—
Bruhn, Max R. C., Jr., 3,828,625.
- Grano, James V., to Tools and Production, Inc. Rotary punch. 3,828,632, Cl. 83-345.000.
- Grant, John William; and Cox, Gordon John, to International Nickel Company, The. Addition alloys. 3,829,311, Cl. 75-122.000.
- Grant, Norman H.: See—
Alburn, Harvey E.; Clark, Donald E.; Grant, Norman H.; and Lapidus, Milton, 3,829,459.
- Graser, Adalbert, to Steiger A.G. Folding box. 3,829,004, Cl. 229-33.000 (7 01/04/73).
- Gravicast Patentverwertungsgesellschaft m.b.H.: See—
Tenner, Oskar, 3,828,974.
- Graybill, Howard W., to I-T-E Imperial Corporation. Tee connection for high voltage, high pressure oil, pipe type cables. 3,829,642, Cl. 200-148.00r.
- Green, Charles R.: See—
Schumacher, Joseph N.; and Green, Charles R., 3,828,795.
- Green, Ellis J., to Stone & Webster Engineering Corporation. Process for removing acid gases from a gas stream. 3,829,521, Cl. 260-677.00a.
- Green, John S.; Luttrell, John E.; and Schmitz, James E., to Carborundum Company, The. Media for wound filter elements. 3,828,934, Cl. 210-457.000.
- Green, Martin. Annular seal. 3,829,104, Cl. 277-29.000.
- Green, Michael J.; and Bisarya, Satish C., to Schering Corporation. Process for the manufacture of 3-keto-6-azido 4, 6-bis-dehydro steroids and intermediates useful therein. 3,829,416, Cl. 260-239.55r.
- Greenfield, Stanley A.: See—
Miller, George A.; and Greenfield, Stanley A., 3,829,492.
- Gregory, Charles F.: See—
Harper, Patrick H.; Gregory, Charles F.; and Fisher, Phillip R., 3,828,798.
- Grell, Wolfgang: See—
Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, 3,829,574.
- Grenendaal, Gradus Cornelis; Cool Hans; De Vos, Jacob; and Van Zuuren, Eduard Willem. Generator for generating a number of selected frequencies. 3,829,783, Cl. 328-14.000.
- Grieb, Dale Christian: See—
Rosenthal, Francis Joseph, Jr.; and Grieb, Dale Christian, 3,829,722.
- Grinberg, Valery Yakovlevich: See—
Tolstoguzov, Vladimir Borisovich; Izjumov, Dmitry Borisovich; Grinberg, Valery Yakovlevich; Marusova, Alla Nikolaevna; and Chekhovskay, Violetateofilovna, 3,829,587.
- Griss, Gerhart: See—
Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, 3,829,574.
- Grommes, Helmut: See—
Kron, Heinz; and Grommes, Helmut, 3,829,031.
- Gross, Frank R. Scroll roll. 3,828,998, Cl. 226-192.000.
- Gross, John, to Gulf & Western Manufacturing Company. Wrapping roll adjustment for a strip coiling machine. 3,828,598, Cl. 72-148.000.
- Gross-Given Mfg. Company: See—
Van Meter, Edmin L., 3,828,905.
- Groupeement Atomique Alsacienne Atlantique: See—
Carbonnet, Henri; and Borie, Robert, 3,829,243.
- Grunleitner, Hans; Kuhnlein, Hans; and Liska, Manfred, to Siemens Aktiengesellschaft. Transistor switching circuit arrangement for an inductive D-C circuit. 3,829,708, Cl. 307-202.000.
- Grunwell, Joyce F.: See—
Carr, Albert A.; and Grunwell, Joyce F., 3,829,440.
- Gruppo Lepetit S.p.A.: See—
Maggi, Nicola; and Cricchio, Renato, 3,829,417.
- GTE Automatic Electric Laboratories, Incorporated: See—
Cathamer, George J.; Coleman, Ivan V.; and Lee, David K. K., 3,829,617.
- Macrander, Max S., 3,829,790.
- Tripsas, Trifon P., 3,829,628.
- GTE Sylvania Incorporated: See—
Alfrich, Floyd E.; and Hovey, Fred A., 3,829,804.
- Westlund, Arnold E., Jr.; Palmer, Lewis H., III; Audesse, Emery G.; and Huston, Leroy S., 3,829,729.
- Guadagni, Dante G.; and Buttery, Ron G., to United States of America, Agriculture. Method of imparting fatty-fried flavor to foods and composition. 3,829,582, Cl. 426-65.000.
- Guardian Electric Manufacturing Company: See—
Collette, Richard L., 3,829,802.
- Gubler, Michel: See—
Feiner, Maria; Gubler, Michel; and Guillon, Joseph, 3,829,394.
- Gudden, Friedrich; and Schubert, Wolfgang, to Siemens Aktiengesellschaft. Inlet screen for an electronic optical image amplifier and method of making it. 3,829,728, Cl. 313-101.000.
- Guetersloh, John W., to Tyco Laboratories, Inc., mesne. Proximity detector. 3,829,850, Cl. 340-258.00c.
- Guglhor, Peter: See—
Huber, Walther; Hagen, Heinz; and Guglhor, Peter, 3,829,316.
- Guillon, Joseph: See—
Feiner, Maria; Gubler, Michel; and Guillon, Joseph, 3,829,394.
- Gulf & Western Industries, Inc.: See—
De Lille, Richard A.; and Erickson, Frederick E., 3,828,616.
- Gulf & Western Manufacturing Company: See—
Gross, John, 3,828,598.
- Gunther, Fritz; and Fritz, Hermann, to SKF Industrial Trading and Development Company B.V. Combined axial radial bearing. 3,829,181, Cl. 308-174.000.
- Gustav Wagner Maschinenfabrik: See—
Orendi, Roderich, 3,828,642.
- Guthart, Frank: See—
Gottlieb, Herbert; and Guthart, Frank, 3,828,640.
- Gutowski, Chester L.: See—
Smith, Richard A.; and Gutowski, Chester L., 3,828,833.
- Guttinger, Heinrich, to Aginfor AG fur Industrielle Forschung. Displacement machine. 3,829,256, Cl. 418-5.000.
- Gygli, Walter: See—
Hanni, Eduard; and Gygli, Walter, 3,829,074.
- Gyulai, Zoltan: See—
Galgoczy, Gabor; Gyulai, Zoltan; Palagyi, Tivadar; and Wagen-sommer, Jozsef, 3,828,515.
- H & M Vibro, Inc.: See—
Haverkamp, Edwin; and Morren, George J., 3,828,864.
- H. R. Electronics Company: See—
Levasseur, Joseph L., 3,828,903.
- Ha, In W.; and Fravel, John C., to Xerox Corporation. Techniques for maintaining substantially constant tension in web. 3,829,745, Cl. 318-7.000.
- Hackenbert, Robert A.; Tyrseck, Walter J.; and Berry, Chapman, to Robertson Paper Box Company, Inc. Folding container with folding closure ends. 3,829,005, Cl. 229-39.00r.
- Haenisch, Renate: See—
Schadlich, Gunther; Haenisch, Renate; and Moraw, Roland, 3,829,315.

Hafner, Claude J.; and Bush, Bruce D., to Bethlehem Steel Corporation. Destruction resistant tag. 3,828,454, Cl. 40-27.000.
 Hafner, Raymond A.: See—
 Braen, H. Peter; and Hafner, Raymond A., 3,829,080.
 Hagen, Heinz: See—
 Huber, Walther; Hagen, Heinz; and Guglior, Peter, 3,829,316.
 Hahner, Reinhard: See—
 Bleicher, Manfred; Falchle, Jorg; Hahner, Reinhard; Hansel, Ger-
 not; Schmid, Wolfgang; and Wanner, Karl, 3,828,863.
 Hailstone, Victor L.; Harper, Ronald N.; and Oliver, Wilfred T., to
 Ford Motor Company. Air valve carburetor with engine starting fuel
 enrichment means. 3,829,069, Cl. 261-44.00r.
 Hain, Paul O., to Champion International Corporation. Cast coating
 with improved speed and quality. 3,829,325, Cl. 117-64.00c.
 Haino, Kozo: See—
 Futaki, Kiyoshi; Haino, Kozo; and Kohmura, Isao, 3,829,401.
 Halasa, Adel F.; and Snyder, Dennis L., to Firestone Tire & Rubber
 Company. The Purification of phosphazene monomer. 3,829,554,
 Cl. 423-300.000.
 Haley, Paul H.; and Enns, Mark K., to Westinghouse Electric Corpora-
 tion. D.C. analog calculator for rapidly generating electric power
 system loadflow solutions. 3,829,669, Cl. 235-151.210.
 Halik, Joseph J.: See—
 Finucane, Thomas P.; and Halik, Joseph J., 3,829,588.
 Hall, Howard T., to Megadiamond Corporation. Method of making a
 unitary polycrystalline diamond composite and diamond composite
 produced thereby. 3,829,544, Cl. 264-125.000.
 Hall, John B.; and Vock, Manfred, to International Flavors &
 Fragrances, Inc. Novel di-lower alkyl and lower alkylene acetals of 2-
 and 3-phenyl-pentenals. 3,829,504, Cl. 260-611.000.
 Hall, Richard W.: See—
 Curtiss, Lawrence F.; and Hall, Richard W., 3,828,790.
 Haller, Hans: See—
 Brodbeck, Helmut; and Haller, Hans, 3,828,658.
 Hama, Tetsuro, to Kabushiki Kaisha Suwa Seikosha. Frequency divider
 circuit incorporating presetting means. 3,829,712, Cl. 307-225.00c.
 Hamabe, Takeshi; and Suzuki, Takashi, to Matsushita Electric Industri-
 al Co., Ltd. Continuous anodic oxidation method for aluminum and
 alloys thereof. 3,829,364, Cl. 204-28.000.
 Hamada, Seiya: See—
 Miyata, Takeo; Hamada, Seiya; Inoue, Katsuaki; and Baba,
 Mikito, 3,829,799.
 Hamel, Stephen D., to United States of America, Atomic Energy Com-
 mission. Mixing rotor for fast analyzer of rotary cuvette type with
 means for enhancing the mixing of sample and reagent liquids.
 3,829,223, Cl. 356-246.000.
 Hamilton, Thomas. Tool for gripping and performing work operations
 on building materials and the like. 3,829,231, Cl. 408-108.000.
 Hamma, Gerhard, to Maschinenfabrik Spaichingen GmbH. Device for
 storing pre-selected patterns for circular knitting machines having a
 plurality of systems. 3,828,583, Cl. 66-50.00r.
 Hammacher, Konrad: See—
 Burkhardt, Franz; and Hammacher, Konrad, 3,829,771.
 Hammann, Ingeborg: See—
 Zumach, Gerhard; Kuhle, Engelbert; Behrenz, Wolfgang; and
 Hammann, Ingeborg, 3,829,437.
 Hammerle A.G., Maschinenfabrik: See—
 Hanni, Eduard; and Gygli, Walter, 3,829,074.
 Hampton, Quentin L.; and Matras, Edward J., to FMC Corporation.
 Plant for wastewater treatment. 3,828,933, Cl. 210-195.000.
 Han, Shu-Tang: See—
 Thompson, Norman S.; Nicholls, Gordon A.; and Han, Shu-Tang,
 3,829,357.
 Hanawa, Masaaki: See—
 Okada, Senry; Hanawa, Masaaki; Ohoka, Mitsuo; Nagawa,
 Seishichiro; and Nawa, Toshio, 3,829,273.
 Hancock, Bruce Jay. System for raising and using water. 3,829,246, Cl.
 417-121.000.
 Hanley, Robert F.: See—
 Charest, Kenneth; Hanley, Robert F.; and Ornstein, Jacob L.,
 3,829,296.
 Hannah, Eric D., to Chevron Research Company. Alkylphenol disul-
 fonation process. 3,829,470, Cl. 260-512.00r.
 Hannes, Karl, to Coats & Clark, Inc. Method for forming a cast hinge.
 3,828,406, Cl. 29-11.000.
 Hanni, Eduard; and Gygli, Walter, to Hammerle A.G., Maschinen-
 fabrik. Work-table on machines for processing metal. 3,829,074, Cl.
 267-130.000.
 Hanotier, Jacques D. V.; and Hanotier-Bridoux, Monique G. S., to
 Labofina S.A. Process for the oxidation of quinoline. 3,829,432, Cl.
 260-295.50r.
 Hanotier-Bridoux, Monique G. S.: See—
 Hanotier, Jacques D. V.; and Hanotier-Bridoux, Monique G. S.,
 3,829,432.
 Hans, Paul. Quick change wheel assembly. 3,829,163, Cl. 301-9.0dn.
 Hansel, Gernot: See—
 Bleicher, Manfred; Falchle, Jorg; Hahner, Reinhard; Hansel, Ger-
 not; Schmid, Wolfgang; and Wanner, Karl, 3,828,863.
 Hansen, Ove Emil: See—
 Damgaard-Iversen; Hansen, Ove Emil; and Lund, Bjorn,
 3,828,837.
 Hansen, Theodore E.; and Moran, Thomas M., to Anaconda Company.
 The Power cable with grounding conductors. 3,829,603, Cl. 174-
 115.000.
 Hansson, Sture J., H.: See—

Ahlbom, Sten H.; and Hansson, Sture J., H., 3,829,614.
 Hara, Michio: See—
 Nara, Akinao; Hara, Michio; Kanema, Seiichi; and Kano, Minoru,
 3,828,685.
 Hara, Shigeyoshi; Yamada, Takeyoshi; and Yoshida, Tsunemasa, to
 Teijin Limited. Novel polyamideimide precursors and hardenable
 compositions containing the same. 3,829,399, Cl. 260-32.6nt.
 Harben, Grover S., Jr., to Gainesville Machine Company, Inc. Poultry
 stunning apparatus. 3,828,397, Cl. 17-11.000.
 Hardtmann, Goetz E.; and Ott, Hans, to Sandoz-Wander Inc., mesne.
 1,4-Substituted-pyrimidin-2(1H)-ones. 3,829,422, Cl. 260-251.00r.
 Hareng, Michel: See—
 Assouline, Georges; Hareng, Michel; and Leiba, Eugene,
 3,829,684.
 Hargis, Charles W., to Eastman Kodak Company. Process for the cata-
 lytic vapor-phase synthesis of alkylpyridines. 3,829,428, Cl. 260-
 290.00p.
 Harken, Russel D.: See—
 Crutchfield, Marvin M.; and Harken, Russel D., 3,829,384.
 Harkey, Andrew D. Tire changing tool. 3,828,955, Cl. 214-332.000.
 Harkey, Fred W.; and Harkey, Thelma F. Spare tire mounted, motor
 vehicle radiator cooling apparatus. 3,828,879, Cl. 180-54.00a.
 Harkey, Thelma F.: See—
 Harkey, Fred W.; and Harkey, Thelma F., 3,828,879.
 Harley, Daniel C.: See—
 Nelson, Norman C.; and Harley, Daniel C., 3,829,676.
 Harnischfeger Corporation: See—
 Schwantes, Herbert A., 3,828,950.
 Harper, Patrick H.; Gregory, Charles F.; and Fisher, Phillip R., to
 Brown & Williamson Tobacco Corporation. Aromatic tobacco form-
 ing process. 3,828,798, Cl. 131-145.000.
 Harper, Ronald N.: See—
 Hailstone, Victor L.; Harper, Ronald N.; and Oliver, Wilfred T.,
 3,829,069.
 Harreton, Roland: See—
 DeMendez, Michel Ossona; Dupuy, Jean-Marie; Harreton, Ro-
 land; and Foucard, Albert, 3,829,221.
 Harris Automated Machinery Company: See—
 Harris, Sterling G.; Smith, Joseph D.; McCall, David D.; Moore,
 Glenn S.; Hidden, William P.; and Svendsen, Noel, 3,828,398.
 Harris, Sterling G.; Smith, Joseph D.; McCall, David D.; Moore, Glenn
 S.; Hidden, William P.; and Svendsen, Noel, to Harris Automated
 Machinery Company, mesne. Method and apparatus for shucking
 bivalves. 3,828,398, Cl. 17-74.000.
 Harris-Intertype Corporation: See—
 Hayasi, Nisiki; and Morrison, Walter C., 3,829,338.
 Harrison, Clarence E., to Ford Motor Company. Reference voltage
 compensation for zener diode regulation circuit. 3,829,717, Cl. 307-
 297.000.
 Harrison, John G. Golf swing training device. 3,829,102, Cl. 273-
 186.00a.
 Hart, Cornelis Maria, to U.S. Philips Corporation. Integrated circuit
 comprising supply polarity independent current injector. 3,829,718,
 Cl. 307-304.000.
 Hartl, Jiri: See—
 Jelinek, Vaclav, deceased; Semonsky, Miroslav; Hartl, Jiri; and
 Borovansky, Alois, 3,829,473.
 Hartman, Wyatt, to Lee, Raymond Organization, Inc., The. Screen
 repair machine. 3,828,832, Cl. 140-109.000.
 Hartsough, Albert Charles: See—
 Long, Donald Charles; Hartsough, Albert Charles; and Sanford,
 Robert Fincher, 3,829,683.
 Harvey, Michael J.: See—
 Haynes, Harold L.; and Harvey, Michael J., 3,829,302.
 Harwood, Robert George: See—
 Derr, Paul B.; Ferdon, Gilbert Douglas; and Harwood, Robert
 George, 3,829,821.
 Hasegawa, Norio: See—
 Saito, Masaru; Hasegawa, Norio; and Murase, Kenaki, 3,828,902.
 Hashimoto, Saburo, to Union Oil Company of California. Reduction of
 water pollution by biological denitrification. 3,829,377, Cl. 210-
 11.000.
 Hashimoto, Norikazu; and Masuhara, Toshiaki, to Hitachi, Ltd.
 Semiconductor device and the method of making the same.
 3,829,888, Cl. 357-41.000.
 Haskins, Lewis B., to Johns-Manville Corporation. Apparatus compris-
 ing a hold-down device. 3,828,501, Cl. 52-303.000.
 Hatter, Stephen L.: See—
 Becker, Roger T.; Hatter, Stephen L.; and McMullin, Donald, Jr.,
 3,828,920.
 Hau, Antonin, to Ustav pro vyzkum motorvych vozidel. Torque con-
 verter. 3,828,554, Cl. 60-361.000.
 Haussler, Hubert, to Beringer Hydraulik R. Beringer & Co. Control
 device for load-independent flow regulation. 3,828,813, Cl. 137-
 596.130.
 Hautau, Charles F.: See—
 Stewart, T. Dale; Stewart, Thomas D.; and Hautau, Charles F.,
 3,828,690.
 Haverkamp, Edwin; and Morren, George J., to H & M Vibro, Inc. Pile
 driver and extractor. 3,828,864, Cl. 173-49.000.
 Hawera Probst Kommanditgesellschaft Hartmetall-Werkzeugfabrik
 Ravensburg: See—
 Weng, George Ernst, 3,828,480.
 Hawkins, Brian Desmond: See—

Burleigh, Derek James Sutherland; and Hawkins, Brian Desmond,
 3,829,393.
 Hawkins, Ronald G., to Aluminum Company of America. Tension con-
 nector assembly for cable and the like. 3,829,825, Cl. 339-242.000.
 Hayashibara, Ken: See—
 Yuen, Shokichi, 3,829,583.
 Hayasi, Nisiki; and Morrison, Walter C., to Harris-Intertype Corpora-
 tion. Double facer machine heat control. 3,829,338, Cl. 156-64.000.
 Haynes, Grover. Nose ornament and sachet. 3,828,577, Cl. 63-2.000.
 Haynes, Harold L.; and Harvey, Michael J., to Owens-Corning
 Fiberglas Corporation. Method of changing surface characteristics
 of sized glass fibers, fibers having changeable surface characteristics.
 3,829,302, Cl. 65-3.000.
 Hazelett, Robert William; and Carmichael, Robert J., to Hazelett Strip-
 Casting Corporation. Twin-belt metal casting machine having
 removable core assembly including coolant applicators and back-up
 rollers. 3,828,841, Cl. 164-278.000.
 Hazelett Strip-Casting Corporation: See—
 Hazelett, Robert William; and Carmichael, Robert J., 3,828,841.
 Healy, Benedict Pascal: See—
 Stimson, Ian Leonard; Dowell, Frederick Sidney; and Healy,
 Benedict Pascal, 3,829,162.
 Heard, Jeffery Gerald, to English Electric Company Limited, The. Al-
 ternating current dynamo electric machines. 3,829,723, Cl. 310-
 54.000.
 Heater, Charles P.: See—
 Gerstenberger, Roland W.; and Heater, Charles P., 3,829,081.
 Heater, Charles P., to Jensen Corporation. Textile folding apparatus.
 3,828,989, Cl. 223-37.000.
 Heath, William A.: See—
 Adams Robert T.; Heath, William A.; and Wuopio, Richard A.,
 3,829,510.
 Heatherly, Lawrence E.: See—
 Duke, Gene S.; and Heatherly, Lawrence E., 3,829,242.
 Heathwaite, Hewart H.; and Mead, Robert H., to Borg-Warner Cor-
 poration. Drive system. 3,828,620, Cl. 74-242.15b.
 Heberlein & Co. AG: See—
 Raschle, Josef, 3,828,541.
 Heden, Olle, to Euroclean AB. Washing and high pressure jet cleaning
 apparatus. 3,829,024, Cl. 239-310.000.
 Heidelberger Druckmaschinen Aktiengesellschaft: See—
 Jeschke, Willi; and Pollich, Gerhard, 3,829,085.
 Heider, Joachim; Enberlein, Wolfgang; and Engelhardt, Gunther, to
 Boehringer, C. H., Sohn. Therapeutic compositions and method.
 3,829,570, Cl. 424-241.000.
 Heilmeier, Horst Joseph. Mounting of sheet material. 3,829,054, Cl.
 248-490.000.
 Heim, James A.: See—
 James, Russell P., 3,828,443.
 Heinrich, Hellmuth Carl. Iron preparation and process for its manufac-
 ture. 3,829,561, Cl. 424-44.000.
 Heintz, Karl O.: See—
 Barry, Adelbert; and Heintz, Karl O., 3,829,816.
 Heinz, H. J., Company: See—
 Smith, Richard A.; and Gutowski, Chester L., 3,828,833.
 Heisler, Raymond A. Unitary container having a hinged panel with a
 tray configuration. 3,828,389, Cl. 15-257.006.
 Heiss, Lorenz: See—
 Diery, Helmut; and Heiss, Lorenz, 3,829,508.
 Helgmeier, Heinrich: See—
 Eisenmann, Joseph; and Helgmeier, Heinrich, 3,828,679.
 Heller, Johannes, to International Business Machines Corporation.
 Multilayer magnetic structure and methods of making same.
 3,829,372, Cl. 204-192.000.
 Hellige, Fritz, & Co., G.m.b.H.: See—
 Herz, Rudolf, 3,829,766.
 Hemingway, Maurice; and Ward, Trevor, to Hotwork Limited. Heat
 treatment apparatus. 3,829,284, Cl. 432-183.000.
 Hennenberg, Wilhelm: See—
 Glindmeyer, Friedrich; Limpens, Karl; and Hennenberg, Wilhelm,
 3,828,825.
 Henrick, Clive A.: See—
 Siddall, John B.; and Henrick, Clive A., 3,829,465.
 Hennicks, Evan R. Submerged litter collector. 3,828,931, Cl. 210-
 163.000.
 Herman, Fritz. Rodent trap. 3,828,460, Cl. 43-61.000.
 Herman, Joseph L., to Emily Herman Thompson. Galvanizing ap-
 paratus for wire and the like. 3,828,723, Cl. 118-63.000.
 Hermanns, Jakob, to Saint-Gobain Industries. Armored flat glass and
 method of making it. 3,829,352, Cl. 161-57.000.
 Hermanson, Terry, to Mr. Christmas, Incorporated. Collapsible artifi-
 cial tree. 3,829,349, Cl. 161-24.000.
 Herold, Robert Johnson, to General Tire & Rubber Company, The.
 Polyethers and method for making the same. 3,829,505, Cl. 260-
 611.00b.
 Herst, Richard J., to Car Tapes Inc. Dual purpose dial mechanism.
 3,828,720, Cl. 116-124.100.
 Herz, Rudolf, to Hellige, Fritz, & Co., G.m.b.H. Electrocardiogram
 monitoring apparatus. 3,829,766, Cl. 324-77.00r.
 Heselwood, James C., to Bethlehem Steel Corporation. Device for
 measuring elongated material. 3,828,437, Cl. 33-134.00r.
 Hesston Corporation: See—
 Lundahl, Ezra Cordell, 3,828,535.
 Hewlett-Packard Company: See—

Brown, Donald M.; and Dennison, Roger E., 3,829,826.
 Dillman, Richard F.; Larsen, James L.; and Nardizzi, Alfred M.,
 3,829,782.
 Hewson, Kenneth E.: See—
 Sutton, Lawrence R.; Ranno, Carl P.; and Hewson, Kenneth E.,
 3,828,391.
 Hickey, William E., Jr., to Tec Group, Inc., The. Homogenizing
 method and apparatus. 3,828,929, Cl. 210-70.000.
 Hickner, Richard A., to Dow Chemical Company, The. Polyether-
 polythiols, method of preparation and mixtures of polythioether-
 polythiols with epoxide resins. 3,829,501, Cl. 260-609.00d.
 Hidden, William P.: See—
 Harris, Sterling G.; Smith, Joseph D.; McCall, David D.; Moore,
 Glenn S.; Hidden, William P.; and Svendsen, Noel, 3,828,398.
 Highberg, Carle W.; and Roesch, George R., to Engelhard Minerals &
 Chemicals Corporation. Multiple spindle cluster for sheet glass core
 drilling machine. 3,828,479, Cl. 51-81.00r.
 Hill, Donald E.; Payne, Stanley D.; and Walker, Robert G., to Industra
 Products Inc. Apparatus for winding and placing coils in the slots of a
 stator. 3,828,830, Cl. 140-1.000.
 Hill, Robert; Bliss, George D.; and Szakacs, Janos B. Reverse flow
 flushing apparatus for animal housing systems. 3,828,732, Cl. 119-
 22.000.
 Hilsinger Corporation, The: See—
 Whiting, Harold F., 3,829,201.
 Hilti Aktiengesellschaft: See—
 Magyar, Charles; Root, Lewis A.; and Senger, Edwin C.,
 3,828,925.
 Hingley, Colin G., to SKF Industries, Inc. Ultra high speed rolling bear-
 ing assembly. 3,829,183, Cl. 308-213.000.
 Hinz, Edward W., to Tempco Industrial Heater Corporation. Electric
 band heaters. 3,829,657, Cl. 219-535.000.
 Hioki, Kazuo; and Onoda, Michio, to Nissan Motor Company, Limited.
 Ignition system for an automotive engine having exhaust recircula-
 tion arrangement. 3,828,752, Cl. 123-148.0ds.
 Hiramatsu, Katsuzo, to Mitsubishi Denki Kabushiki Kaisha. Quaterna-
 ry stereophonic sound reproduction apparatus. 3,829,615, Cl. 179-
 1.0gg.
 Hirasawa, Masataka; and Kawagai, Kenji, to Tokyo Shibaura Electric
 Co., Ltd. Logic circuit arrangement using insulated gate field effect
 transistors. 3,829,710, Cl. 307-205.000.
 Hitachi Cable, Ltd.: See—
 Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao;
 Nagatsuma, Katsuyoshi; and Furukawa, Hitoshi (said Nagatsu-
 ma assor. to), 3,829,228.
 Hitachi, Ltd.: See—
 Hashimoto, Norikazu; and Masuhara, Toshiaki, 3,829,888.
 Kurita, Seiichi; Kaneko, Makoto; and Iikawa, Mituo, 3,829,179.
 Nara, Akinao; Hara, Michio; Kanema, Seiichi; and Kano, Minoru,
 3,828,685.
 Nouri, Makoto; and Seki, Susumu, 3,829,668.
 Tsunoda, Yoshito; and Oshida, Yoshitada, 3,829,193.
 Yamamoto, Shinji; and Nakata, Kazuo, 3,829,831.
 Hitachi Metals, Ltd.: See—
 Yamashita, Keitarou; and Tanaka, Shogo, 3,828,730.
 Hitz, Hans Rudolf: See—
 Martin, Henry; Duerr, Dieter; and Hitz, Hans Rudolf, 3,829,485.
 Hobart Manufacturing Company, The: See—
 Athey, Stuart E., 3,829,741.
 Hobbs, L. T., to US Supply Company. Vehicle windshield assembly.
 3,829,152, Cl. 296-78.000.
 Hockstetter, Werner, to Siemens Aktiengesellschaft. Power control ap-
 paratus for direct-current lines. 3,829,756, Cl. 321-4.000.
 Hodogaya Chemical Co., Ltd.: See—
 Ozutsumi, Minoru; Miyazawa, Yoshihide; Motohashi, Katsuichi;
 and Kiritani, Masataka, 3,829,322.
 Hoenig, Karl Blake. Bicycle hanger. 3,828,936, Cl. 211-19.000.
 Hoesch Maschinenfabrik Deutschland Aktiengesellschaft: See—
 Raffenberg, Bruno, 3,828,689.
 Hoffman, Robert E.; Cline, John A.; Fuselier, Christopher S.; and Atre,
 John D., to General Electric Company. Dynamic constraint of a con-
 trol signal. 3,829,786, Cl. 328-147.000.
 Hoffman-La Roche Inc.: See—
 Berger, Julius; and Rosenberger, Michael, 3,829,447.
 Leimgruber, Willy; and Weigle, Manfred, 3,829,423.
 Hoffmann-La Roche Inc.: See—
 Barry, Richard H.; Matluck, Meyer; and Orshitzer, Philip,
 3,829,563.
 Burkhardt, Franz; and Hammacher, Konrad, 3,829,771.
 Chodnek, Madhukar Subraya; Pfiffner, Albert; Rigassi, Norbert;
 Schwieter, Ulrich; and Suchy, Milos, 3,829,577.
 Hoflacher, Arthur Nikolaus: See—
 Frey, Gunter; Hoflacher, Arthur Nikolaus; and Ebing, Walter,
 3,828,529.
 Hofmann, Alwin, to Mero-Werke AG. Resilient floor, especially for
 gymnasiums. 3,828,503, Cl. 52-393.000.
 Hofstetter, Hans: See—
 Deiner, Hans; Hofstetter, Hans; and Bernheim, Willy, 3,829,288.
 Hogan, Spurgeon G., Jr.: See—
 Burk, John L.; Hogan, Spurgeon G., Jr.; Larson, Russell H.; and
 McGilvray, Bruce L., 3,829,840.
 Hohenberg, Rudolph; and Duly, Alan R., to Avco Corporation. Circuit
 for automatic referring of gas turbine performance parameters.
 3,829,666, Cl. 235-151.300.

- Hohne, Rudol. Device for the distribution of gas in a liquid. 3,829,068, Cl. 261d36.00r.
- Holcombe, Gordon B. Apparatus for activating a chemiluminescent wand. 3,829,678, Cl. 240-252.00r.
- Holec N.V.: See—
Bruekink, Bernard, 3,828,748.
- Holka, Thomas C., to Ford Motor Company. Seat belt positioner. 3,829,123, Cl. 280-150.0sb.
- Holkestad, Howard P., to Marsh, J. L., Incorporated. Anti-theft packaging device. 3,828,922, Cl. 206-1.500.
- Holland, Harvison C.: See—
Rockwell, Edward A.; and Holland, Harvison C., 3,829,170.
- Hollandsche Beton Groep N.V.: See—
Jansz, Joost Werner, 3,828,866.
- Hollier, John C. L.: See—
Stranahan, John J.; Hollier, John C. L.; and Deloney, Hugh C., 3,829,275.
- Hollingsworth, Ashley J.: See—
Shamlian, Ralph B.; and Hollingsworth, Ashley J., 3,828,611.
- Hollins, Jesse R. Internal combustion engine crank case oil vapor condensing means. 3,828,744, Cl. 123-119.00b.
- Hollins, Jesse R. Apparatus for transporting articles in the space above the outboard passenger portion of the front seat of a motor vehicle. 3,828,994, Cl. 224-42.46b.
- Holloway, Frances F., executrix: See—
Holloway, William P., deceased, 3,828,886.
- Holloway, William P., deceased (by Holloway, Frances F., executrix). Geophysical exploration apparatus. 3,828,886, Cl. 181-118.000.
- Holm, Jens Christian, to Jepsersen, A., & Son International A/S. Device for connecting and disconnecting core tubes to a trolley in concrete casting machines. 3,829,265, Cl. 425-161.000.
- Holm, William J., to Riggs & Lombard, Inc. Fabric treatment apparatus. 3,828,587, Cl. 68-3.00s.
- Holstein & Kappert, Maschinenfabrik Phonix GmbH: See—
Mnilk, Reinhold; Kurreck, Manfred; and Geltenpoth, Ulrich, 3,829,264.
- Holtschmidt, Hans: See—
Beck, Gunther; and Holtschmidt, Hans, 3,829,435.
- Holtsclaw, Jerrell D.: See—
Holtsclaw, Robert G.; and Holtsclaw, Jerrell D., 3,828,919.
- Holtsclaw, Robert G.; and Holtsclaw, Jerrell D. Feed conveyor with selective discharge. 3,828,919, Cl. 198-160.000.
- Holz, Emil, to Finckh Metalltuch-und Maschinenfabrik. Roller having a cylindrical surface of flat belts and corrugated belts. 3,829,360, Cl. 162-357.000.
- Holzworth, George R. Articulated platform for hand trucks and the like. 3,829,063, Cl. 254-2.00r.
- Honda Giken Kogyo Kabushiki Kaisha: See—
Tsuchiya, Toshio; and Abe, Atsushi, 3,828,872.
- Honea, Richard P. Instrument for applying tape to a planar surface. 3,829,347, Cl. 156-577.000.
- Honeywell Inc.: See—
Berg, Robert Orval; and Thurber, Kenneth James, 3,829,846.
- Keller, Hans W., 3,828,424.
- Honeywell Information Systems Inc.: See—
Farr, William W., Jr., 3,829,837.
- Nowell, John R., 3,829,755.
- Hope-Tronics, Limited: See—
Scarpino, John J., 3,829,830.
- Hopkins, Walker L.; Chvatal, Leland A.; and White, William D., to Texaco Inc. Apparatus and method for controlling the level of oil in a surge drum. 3,829,376, Cl. 208-89.000.
- Horgan, William J. Jr., to Blumcraft of Pittsburgh. Hinge-device and method. 3,828,394, Cl. 16-129.000.
- Horgan, William J. Jr., to Blumcraft of Pittsburgh. Rolling bolt lock. 3,828,592, Cl. 70-134.000.
- Horiuchi, Hideo: See—
Murayama, Keisuke; Morimura, Syoji; Horiuchi, Hideo; Matsui, Katsuaki; Kurumada, Tomoyuki; and Ohta, Noriyuki, 3,829,404.
- Horn, Peter; and Schuster, Ludwig, to BASF Wyandotte Corporation. Procedure for the continuous manufacture of organic isocyanates. 3,829,458, Cl. 260-453.0ph.
- Horwath, Robert Otto; and Cole, Gary William, to Standard Brands Incorporated. Process for enzymatically isomerizing glucose to fructose. 3,829,362, Cl. 195-31.00f.
- Hoshino, Masao; and Oka, Yuushi, to Takeda Chemical Industries, Ltd. Method for attenuation of mumps virus. 3,829,361, Cl. 195-1.300.
- Hotwork Limited: See—
Hemingway, Maurice; and Ward, Trevor, 3,829,284.
- Houdaille Industries, Inc.: See—
Koch, Roland G., 3,829,109.
- Houston Chronicle Publishing Company: See—
Underwood, Jereld L.; Edmondson, Floyd D.; and Dolezal, Milton M., 3,828,674.
- Hovey, Fred A.: See—
Alfrich, Floyd E.; and Hovey, Fred A., 3,829,804.
- Hoyer, August, to Xerox Corporation. Automatic document handler. 3,829,082, Cl. 271-4.000.
- H.R. Electronics Company: See—
Levasseur, Joseph L., 3,829,634.
- Hryckowian, Eugene: See—
Zeto, Robert J.; Bosco, Charles D.; and Hryckowian, Eugene, 3,829,303.
- Hsu, Yuan Tsun: See—
Lange, K. Robert; Stern, Arthur M.; Gasner, Lawrence L.; and Hsu, Yuan Tsun, 3,829,388.
- Huber, Hans-Peter: See—
Meeussen, Louis Achilles; Bestenreiner, Friedrich; and Huber, Hans-Peter, 3,829,610.
- Huber, Rudolf: See—
Frank, Hermann; and Huber, Rudolf, 3,829,757.
- Huber, Walther; Hagen, Heinz; and Gugghor, Peter, to Siemens Aktiengesellschaft. Method for the preparation of metallic layers on a substrate. 3,829,316, Cl. 96-36.00z.
- Hubner, Oswald; and Benker, Horst Wilhelm, to Bunker Ramo Corporation. Plug and socket connector. 3,829,820, Cl. 339-88.00c.
- Hubschmann, Ejvind: See—
Anderson, Niels Lervad; and Hubschmann, Ejvind, 3,829,739.
- Huddleston, Robert F., to Mallory, P. R., & Co., Inc. Make and break electrical contact. 3,829,648, Cl. 200-264.000.
- Hufnagel, Robert E., to Perkin-Elmer Corporation. The. Image signal enhancement system for a scanning electron microscope. 3,829,691, Cl. 250-311.000.
- Hughes Aircraft Company: See—
Egan, George S., 3,828,697.
- Margolis, Maier, 3,829,659.
- Wheeler, Bryce A., 3,829,192.
- Hughes, Fred C.; and Hughes, James C. Furniture support. 3,829,049, Cl. 248-188.700.
- Hughes, James C.: See—
Hughes, Fred C.; and Hughes, James C., 3,829,049.
- Hughes, Keith E.: See—
Gerwick, Ben C., Jr.; Talbo, William J., Jr.; Hughes, Keith E.; and Brown, Arnold L., 3,828,708.
- Hui, In-Wai, to Winner Food Products Limited. Continuous preparation of pastry. 3,829,593, Cl. 426-496.000.
- Hujer, Friedrich: See—
Zahn, Wolfgang; Weinert, Volker; Thiene, Hans; and Hujer, Friedrich, 3,829,214.
- Hultgren, Kent G.: See—
Scalzo, Augustine J.; and Hultgren, Kent G., 3,829,233.
- Humberto Viadas Enriquez: See—
Scott, Modesto Ochoa, 3,828,626.
- Humphrey, Dallas R. Package including disposable utensil. 3,828,999, Cl. 229-1.50c.
- Humphrey Research Associates, mesne: See—
Alvarez, Luis W., 3,829,536.
- Hundeck, Joachim: See—
Ohorodnik, Alexander; Sennewald, Kurt; Hundeck, Joachim; and Stutzke, Paul, 3,829,478.
- Hunt, Norman, to Associated Engineering Limited. Fluid control valves. 3,828,818, Cl. 137-625.650.
- Hunter, Don L.: See—
Strong, Philip L.; Hunter, Don L.; and Le Fevre, Cecil W., 3,829,308.
- Hunter, Richard F.; and Mietz, Gerhard O., to General Electric Company. Sealing of molded bushings. 3,829,546, Cl. 264-262.000.
- Huo, Wendell Y. Slide rule with decimal point location means. 3,829,663, Cl. 235-64.300.
- Hura, Michael Wickliffe, to Picker Corporation. Radiation collimator. 3,829,701, Cl. 250-511.000.
- Hurco Manufacturing Company, Inc.: See—
Roch, Gerald V., 3,828,639.
- Hurzler, Rene; Vinnemann, Antonius; and Doslik, Peter, to Sulzer Brothers, Ltd. Jacquard mechanism. 3,828,826, Cl. 139-59.000.
- Huston, Leroy S.: See—
Westlund, Arnold E., Jr.; Palmer, Lewis H., III; Audesse, Emery G.; and Huston, Leroy S., 3,829,729.
- Hutchinson, Don W.; Kniesly, Richard A.; and Stants, Richard O., to Ko An, Inc. Speed responsive timing circuit for vehicle light operation. 3,829,828, Cl. 240-62.000.
- Hutchison, Stanley O., to Chevron Research Company. Rotary tubular coupling. 3,829,134, Cl. 285-14.000.
- Hutson Industries, Inc.: See—
Darnell, James R., 3,829,598.
- Huttner, Theo, to Bunker Ramo Corporation. Method for producing a glass-encapsulated reed-contact switch. 3,828,427, Cl. 29-622.000.
- Huziware, Sigehisa: See—
Naitou, Nobuyoshi; Baba, Keizi; Huziware, Sigehisa; and Yamanaka, Takesi, 3,828,904.
- Hydrotile Machinery Company: See—
Gill, John Patrick, 3,829,268.
- I-T-E Imperial Corporation: See—
Graybill, Howard W., 3,829,642.
- Krueger, Keith Theophil, 3,829,807.
- I.C.I. America, Inc.: See—
Kauffman, Joel M., 3,829,481.
- Ideal Industries, Inc.: See—
Scott, William J., 3,828,706.
- Igarashi, Ryuji, to Tokyo Shibaura Denki Kabushiki Kaisha. Microwave oven. 3,829,649, Cl. 219-10.550.
- Igwe, Godwill M. Motor vehicle bumper. 3,829,141, Cl. 293-71.00p.
- Imhels, Johannes. Band adjusting device for garments. 3,828,370, Cl. 2-322.000.

- Iida, Teiji; and Yoshimura, Noboru, to Toyota Jidosha Kogyo Kabushiki Kaisha. Reclining seat. 3,829,156, Cl. 297-216.000.
- Ikawa, Mituo: See—
Kurita, Seiichi; Kaneko, Makoto; and Ikawa, Mituo, 3,829,179.
- Iizuka, Toru; Tonooka, Katsuo; Saitoh, Torahiko; and Yasuda, Isao, to Kohkoku Chemical Industry Co., Ltd. Water-proof battery case. 3,829,332, Cl. 136-173.000.
- Ikegami, Akihi; and Morita, Hideo, to Daicel Ltd. Process for stabilizing propane-sulfone. 3,829,438, Cl. 260-327.00s.
- Ikejima, Yoritaka: See—
Yamada, Norio; Ikejima, Yoritaka; Takasu, Hiromi; Kubo, Masao; and Tanaka, Yoshimasa, 3,828,430.
- Illinois Tool Works Inc.: See—
Edwards, Bryant, 3,829,548.
- Shelton, Orville Allen, 3,828,604.
- Imaoka Hiroshi: See—
Omori, Thomas T.; and Imaoka Hiroshi, 3,829,327.
- Imperial Chemical Industries Limited: See—
Burleigh, Derek James Sutherland; and Hawkins, Brian Desmond, 3,829,393.
- Doschko, Werner; and Rinklin, Hermann, 3,828,537.
- Robertson William Neil, 3,829,543.
- Sampson, Roy John; and Spencer, Christopher Buxton, 3,829,519.
- Imperial Metal Industries (KYNOC) Limited: See—
Ives, Andrew George; and Wortley, John Philip Atkinson, 3,829,366.
- Imperial-Eastman Corporation: See—
Strybel, Richard V., 3,829,077.
- IMS, Limited: See—
Ogle, Robert Walter, 3,828,779.
- Imura, Toshinori; and Yamanaka, Akira, to Minolta Camera Kabushiki Kaisha. Single lens reflex camera provided with a shutter controlled electrically. 3,829,873, Cl. 354-156.000.
- Inaba, Shigeho; Yamamoto, Michihiro; Ishizumi, Kikuo; Mori, Kazuo; Koshiba, Masao; and Yamamoto, Hisao, to Sumitomo Chemical Company. 3,4-Dihydro-2(1H)-quinazolinones and preparation thereof. 3,829,420, Cl. 260-251.0qb.
- Inaba, Shigeru, to Niles Parts Co., Ltd. Current interrupter for electric cigar lighter. 3,829,812, Cl. 337-382.000.
- Inada, Masami, to Aisin Seiki Kabushiki Kaisha. Anti-skid brake control system for vehicles. 3,829,169, Cl. 303-21.00f.
- Industra Products Inc.: See—
Hill, Donald E.; Payne, Stanley D.; and Walker, Robert G., 3,828,830.
- Industrial Nucleonics Corporation: See—
Eickelberg, John E.; and Rice, James S., 3,829,848.
- Industrie Pirelli Società Per Azioni: See—
Portinari, Giovanni; and Zagarella, Adriano, 3,829,600.
- Information Identification Company, Inc.: See—
Freeny, Charles C., Jr., 3,829,833.
- Ingersoll-Rand Company: See—
Simon, Karlheinz A., 3,828,943.
- Inland Container Corporation: See—
Ellison, Donald E., 3,829,000.
- Inoue, Katsuaki: See—
Miyata, Takeo; Hamada, Seiya; Inoue, Katsuaki; and Baba, Mikito, 3,829,799.
- Institut Francais du Pétrole, des Carburants et Lubrifiants: See—
Wauquier, Jean-Pierre; and Wiegandt, Herbert Friedrich, 3,829,293.
- Institute of Paper Chemistry, The: See—
Thompson, Norman S.; Nicholls, Gordon A.; and Han, Shu-Tang, 3,829,357.
- Instrumed Products, Inc.: See—
Gottlieb, Herbert; and Guthart, Frank, 3,828,640.
- Insulation & Ceiling Supply: See—
Phillips, Richard C., 3,828,506.
- Integrated Photomatrix Limited: See—
Crowle, Brian, 3,829,711.
- Intercole Automation, Inc.: See—
Matsuoka, James T., 3,829,067.
- International Business Machines Corporation: See—
Bonafino, Edward J.; Gilbert, Richard L.; and Mako, John, 3,828,669.
- Brock, George W.; Cannon, Maxwell R.; and Shelledy, Frank B., 3,829,896.
- Burk, John L.; Hogan, Spurgeon G., Jr.; Larson, Russell H.; and McGilvray, Bruce L., 3,829,840.
- Davis, Wilbur M.; and Yates, Robert E., 3,828,667.
- Heller, Johannes, 3,829,372.
- Jannotte, Dexter A.; and Johnson, Alfred H., 3,829,601.
- Kolpek, Robert Adolph; and Loisselle, James Thomas, 3,829,855.
- International Computers Limited: See—
Priestley, Michael John; and Cornthwaite, Eric, 3,829,801.
- International Flavors & Fragrances, Inc.: See—
Hall, John B.; and Vock, Manfred, 3,829,504.
- International Harvester Company: See—
Gochandour, Carroll O.; and Depauw, Richard A., 3,828,794.
- Gochanour, Carroll Q., 3,828,793.
- International Minerals & Chemical Corporation: See—
Dancy, William B., 3,829,559.
- International Mobile Machines Corporation: See—
Blouch, Roger D., 3,829,616.
- International Nickel Company, The: See—
Grant, John William; and Cox, Gordon John, 3,829,311.
- International Telephone and Telegraph Corporation: See—
Short, Thomas D.; and Marcum, Donald R., 3,829,627.
- Intersil Incorporated: See—
Canning, Michael L., 3,829,713.
- Interstab Limited, mesne: See—
Oakes, Vincent; and Cross, David F. W., 3,829,396.
- Involvo AG: See—
Roth, Oscar, 3,828,986.
- Iosue, Michael F.; and Sanders, Robert E., to Rogers Corporation. Bus strip. 3,829,818, Cl. 339-19.000.
- Iowa Manufacturing Company: See—
Schrimper, Vernon L., 3,829,032.
- Iowa State University Research Foundation: See—
Quick, Graeme R., 3,828,531.
- Ipc Hospital Supply Corporation, mesne: See—
Davis, Samuel R., Jr.; and Watson, Harry A., 3,829,350.
- Ireco Industries, Inc.: See—
Clements, Lloyd W., 3,828,809.
- Irmischer, Klaus; Kramer, Josef; Cimbolek, Gerhard; Orth, Dieter; Nowak, Herbert; and Freisberg, Karl-Otto, to Merck Patent Gesellschaft mit beschränkter Haftung. 3-Aryl-benzazines. 3,829,421, Cl. 260-244.00r.
- Irsin, Robert P.; and Kwartiroff, Alexander, to Datadyne Corporation. Telephone line equalizer. 3,829,626, Cl. 179-170.00r.
- Isen, Allan A.: See—
O'Driscoll, Kenneth F.; and Isen, Allan A., 3,829,329.
- Ishida, Shinichi; Oshima, Noboru; Kurita, Kunio; Suzuki, Isamu; and Ohno, Hidetoshi, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for treating aldehydes. 3,829,379, Cl. 210-18.000.
- Ishii Civil Engineers Consulting Inst. Ltd.: See—
Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsumo, Katsuyoshi; and Furukawa, Hitoshi (said Ishii assor. to), 3,829,228.
- Ishii, Hiromichi: See—
Yamada, Kantaro; and Ishii, Hiromichi, 3,829,476.
- Ishii, Minoru: See—
Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsumo, Katsuyoshi; and Furukawa, Hitoshi, 3,829,228.
- Ishikawa, Hisao; Osanai, Hiroshi; and Kawabata, Terutsugu, to Fujikura Cable Works Ltd. Laminated shield tape for cable and laminate sheathed cable formed by using the laminated shield tape. 3,829,602, Cl. 174-102.00r.
- Ishikawa, Mineo; and Moriya, Kazuo, to Toyoda Koki Kabushiki Kaisha. Sizing system for measuring the diameter of a rotating work-piece of non-circular cross-section. 3,828,439, Cl. 33-143.001.
- Ishikawajima-Harima Jukogyo Kabushiki Kaisha: See—
Nanjyo, Toshio; Aoshika, Masayuki; and Nakamura, Akinori, 3,829,595.
- Ishizumi, Kikuo: See—
Inaba, Shigeho; Yamamoto, Michihiro; Ishizumi, Kikuo; Mori, Kazuo; Koshiba, Masao; and Yamamoto, Hisao, 3,829,420.
- Ismann, Herbert: See—
Pinette, Laurier A., 3,829,339.
- Iso Nuclear Corp., mesne: See—
Armel, Jack, 3,828,775.
- Isono, Shoji: See—
Nozawa, Hideo; Aoki, Masayoshi; and Isono, Shoji, 3,828,549.
- Itek Corporation: See—
Case, Laura K., 3,829,317.
- Magin, Irving J., 3,829,318.
- Wyant, James C., 3,829,219.
- Ives, Andrew George; and Wortley, John Philip Atkinson, to Imperial Metal Industries (KYNOC) Limited. Treatment of titanium cathode surfaces. 3,829,366, Cl. 204-105.00r.
- Iwasaki Tsushinki Kabushiki Kaisha (a/k/a Iwatsu Electric Co., Ltd.): See—
Katow, Takehumi, 3,829,887.
- Izumov, Dmitry Borisovich: See—
Tolstoguzov, Vladimir Borisovich; Izjumov, Dmitry Borisovich; Grinberg, Valery Yakovlevich; Marusova, Alla Nikolaevna; and Chekhovskay, Violettaefilovna, 3,829,587.
- Izumi, Yusuki: See—
Mizutani, Yukio; Izumi, Yusuki; and Watanabe, Yoshiaki, 3,829,495.
- Jabsen, Felix S., to Babcock & Wilcox Company, The. Fuel assembly for a nuclear reactor. 3,828,868, Cl. 176-78.000.
- Jackson, Alfred N. Cabinet prefabrication system. 3,829,190, Cl. 312-258.000.
- Jackson Communication Corporation: See—
Jackson, Richard L., 3,829,064.
- Jackson, Richard L., to Jackson Communication Corporation. Winch system. 3,829,064, Cl. 254-166.000.
- Jagenbert-Werke AG: See—
Klingen, Heinrich, 3,828,633.
- Jager, Lothar, to U.S. Philips Corporation. Marking device in a dictating apparatus. 3,829,898, Cl. 360-137.000.
- James, Russell P., 1/4 to Bagwell, Thomas W. and 1/4 to Heim, James A. Line square. 3,828,443, Cl. 33-227.000.
- Jamison, Mickey B.: See—
McMinn, Robert E.; and Jamison, Mickey B., 3,828,850.
- Jancik, Frantisek; and Polach, Josef, to SVIT, narodni podnik. Apparatus for assembling shoe parts. 3,828,385, Cl. 12-24.500.
- Jansz, Joost Werner, to Hollandsche Beton Groep N.V. Impulse driving apparatus. 3,828,866, Cl. 173-101.000.

January, Susan C.: See—
Bader, Henry; and January, Susan C., 3,829,443.
Janzen, Dennis W.; and Dell, Curtis G., to E. I. du Pont de Nemours and Company. Phase lock detection and control for piezoelectric fluid analyzers. 3,828,607, Cl. 73-23.000.
Jeane, Harvey L., to California Institute of Technology. Priority interrupt system. 3,829,839, Cl. 340-172.500.
Jeannotte, Dexter A.; and Johnson, Alfred H., to International Business Machines Corporation. Interlayer interconnection technique. 3,829,601, Cl. 174-68.500.
Jefferson Chemical Company, Inc.: See—
Yeakey, Ernest Leon; and Moss, Philip Hotchkiss, 3,829,494.
Jehu, Victor James; and Pearson, Leonard Charles, to National Research Development Corporation. Safety device for vehicles. 3,829,140, Cl. 293-15.000.
Jelinek, Vaclav: See—
Jelinek, Vaclav, deceased; Semonsky, Miroslav; Hartl, Jiri; and Borovansky, Alois, 3,829,473.
Jelinek, Vaclav, deceased (by Jelinekova, Vera; and Jelinek, Vaclav heirs); Semonsky, Miroslav; Hartl, Jiri; and Borovansky, Alois, to SPOFA, United Pharmaceutical Works. α , α -Diaryl- α , β -dihalocrotonic acids. 3,829,473, Cl. 260-515.00a.
Jelinkova, Vera: See—
Jelinek, Vaclav, deceased; Semonsky, Miroslav; Hartl, Jiri; and Borovansky, Alois, 3,829,473.
Jenkins, Thomas E., to General Electric Company. Means for sealing a component supporting assembly in a washing appliance tub. 3,829,191, Cl. 312-346.000.
Jenne, Oswald; Steinkuhl, Josef; Wiechmann, Otto; and Reimann, Gerhard, to Rheinstahl AG. Apparatus for the production of polyphase gypsum. 3,829,280, Cl. 432-58.000.
Jensen Corporation: See—
Heater, Charles P., 3,828,989.
Jensen Machinery Inc.: See—
Gerstenberger, Roland W.; and Heater, Charles P., 3,829,081.
Jensen, Reed J.; Rice, Walter W.; and Beattie, Willard H., to United States of America, Atomic Energy Commission. Metal atom oxidation laser. 3,829,793, Cl. 331-94.50p.
Jeschke, Willi; and Pollich, Gerhard, to Heidelberger Druckmaschinen Aktiengesellschaft. Sheet feeding apparatus. 3,829,085, Cl. 271-231.000.
Jespersen, A., & Son International A/S: See—
Holm, Jens Christian, 3,829,265.
Jet Forwarding, Inc.: See—
Yarbrough, James G., 3,828,965.
Jet Medical Products, Inc.: See—
Krasnow, David L., 3,828,766.
Jochum, Christian: See—
Bartmann, Wilhelm; Alpermann, Hans-Georg; and Jochum, Christian, 3,829,572.
Johns-Manville Corporation: See—
Haskins, Lewis B., 3,828,501.
Johnson & Johnson: See—
Flam, Eric, 3,828,378.
Kennette, John Wilson; and Ness, Irving Stanley, 3,828,783.
Johnson, Alfred H.: See—
Jeannotte, Dexter A.; and Johnson, Alfred H., 3,829,601.
Johnson, Allan S., to Topmatic Corporation. Tapping attachment adapted for numerical control. 3,829,230, Cl. 408-14.000.
Johnson, Charles A.: See—
Johnson, Charles A.; and Kimmel, Albert L. (said Kimmel assor. to said), 3,829,217.
Johnson, Charles A.; and Kimmel, Albert L., said Kimmel assor. to said Johnson, Charles A. Oil condition indicator. 3,829,217, Cl. 356-70.000.
Johnson, Delp W. Method of forming a multi-unit folding slab construction for use of restricted building site. 3,828,512, Cl. 52-745.000.
Johnson, Everett A.: See—
Silverman, Daniel; and Johnson, Everett A., 3,829,661.
Johnson, Marvin M.: See—
Zuech, Ernest A.; and Johnson, Marvin M., 3,829,516.
Zuech, Ernst A.; Johnson, Marvin M.; and Nowack, Gerhard P., 3,829,515.
Johnson Service Company: See—
Nolden, William F., 3,828,556.
Johnson, Verner A. Metal layer rivetform and two layer assembly. 3,828,517, Cl. 52-758.00d.
Johnsson, Lars Bertil, to Societe Anonyme Genoud & Cie. Piezo-electric lighters. 3,829,737, Cl. 317-81.000.
Johnstone, Colin G. Control assembly for attachment to a machine tool to control threat tapping operations. 3,828,383, Cl. 10-136.00e.
Jolin, Ray L. Auxiliary rudder. 3,828,718, Cl. 115-18.00r.
Jonas, Gerald L. Demi-cubic structures. 3,829,186, Cl. 312-100.000.
Jones, Bill F., to Carroll, J. W., & Sons; a division of U.S. Industries, Inc. Lighting panel. 3,829,680, Cl. 240-106.000.
Jones, James D., to Wind Wonder, Inc. Thermostat for power ventilators and the like. 3,829,010, Cl. 236-49.000.
Jones, Len M., to Well-Saver, Inc. Non-migrating reversible male sterilization coupler. 3,828,764, Cl. 128-1.00r.
Jones, Robert A. Method of stabilizing a comparatively flat roofed structure against wind. 3,828,498, Cl. 52-173.000.
Joseph, Horace M., to United States of America, Navy. Slow modulation distance measuring apparatus. 3,829,674, Cl. 235-181.000.
Joslyn Manufacturing and Supply Company: See—
Petres, Stephen Anthony, 3,828,562.
Julev, Stoyan Iliev; Milkov, Mihail Yordanov; Dachev, Lyubomir Petrov; Vasilev, Rosen Petrov; Kostov, Vasil Alexandrov; and Aroyo, Jacky Sivcho, to DSO "Textil". Machine for producing non woven floor coverings. 3,829,344, Cl. 156-435.000.
Jung Products, Inc.: See—
Gamm, Paul B.; and Clare, Billy C., 3,828,785.
Junker, Ralph Daniel. Consumable explosive cartridges. 3,828,676, Cl. 102-39.000.
Jureit, John Calvin, to Automated Building Components, Inc. Structural joint and connector plate therefor. 3,828,514, Cl. 52-753.00d.
Jurny, Josef, to Adamovke Strojirny Narodni podnik. Adjustable transfer gripper cylinder. 3,829,084, Cl. 271-277.000.
Justice, Roger L.: See—
Brink, Robert H., Jr.; Shema, Bernard F.; Justice, Roger L.; and Swered, Paul, 3,829,305.
K. Pettersens Sonner A/S: See—
Eidet, Hakon, 3,828,576.
K-Line Industries, Inc.: See—
Kammeraad, James A., 3,829,105.
K-Line Tool Company: See—
Kammeraad, James A.; and Kammeraad, Donald J., 3,828,415.
Kabushiki Kaisha Daini Seikoshu: See—
Nozawa, Hideo; Aoki, Masayoshi; and Isono, Shoji, 3,828,549.
Kabushiki Kaisha Kashifuji Tekkoshu (Kabushifuji Works, Ltd.): See—
Ainoura, Masato, 3,829,298.
Kabushiki Kaisha Medica: See—
Okayama, Sigeru, 3,829,212.
Kabushiki Kaisha Ricoh: See—
Shiina, Toshio; and Midorikawa, Akira, 3,829,083.
Kabushiki Kaisha Suwa Seikoshu: See—
Fujita, Kinji, 3,828,547.
Hama, Tetsuro, 3,829,712.
Saito, Toshiaki; and Kobayashi, Hisashi, 3,828,546.
Tsuruishi, Yuki, 3,828,545.
Kabushiki Kaisha Tokai Rika Denki Seisakusho: See—
Suzuki, Masaru, 3,829,638.
Kabushiki Kaisha Toyota Chuo Kenkyusho: See—
Kitano, Masao; and Kondo, Yasuo, 3,828,844.
Kabushiki Kaisha Tokai-Rika-Denki-Seisakusho: See—
Maeda, Tsuneo, 3,829,803.
Kadin, Saul B., to Pfizer Inc. Oxobenzofuran intermediates. 3,829,446, Cl. 260-343.300.
Kaelin, Bette M., to Marvin Glass & Associates. Doll. 3,828,467, Cl. 46-115.000.
Kahle Engineering Co.: See—
Napor, Carl A.; and Krumm, Charles G., 3,829,017.
Kakhniashvili, Avtandil Semenovich: See—
Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Martitovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtandil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
Kalamazoo Conveyor Company: See—
Becker, Roger T.; Hatter, Stephen L.; and McMullin, Donald, Jr., 3,828,920.
Kali-Chemie Aktiengesellschaft: See—
Rudolph, Werner; and Massonne, Joachim, 3,829,511.
Kalle Aktiengesellschaft: See—
Schadlich, Gunther; Haenisch, Renate; and Moraw, Roland, 3,829,315.
Kalmus, Henry P.; Goldberg, Harold; and Sanders, Milton. Low noise fuze. 3,829,859, Cl. 343-7.0pf.
Kaman Aerospace Corporation: See—
Flannelly, William G., 3,829,052.
Kamasako, Shoji, to Asahi Kogaku Kogyo Kabushiki Kaisha. Electric exposure meter with operational function. 3,829,865, Cl. 354-24.000.
Kamei, Tutomu: See—
Fujii, Masaru; Oyagi, Syuji; Kamei, Tutomu; and Mori, Inosuke, 3,828,737.
Kammeraad, Donald J.: See—
Kammeraad, James A.; and Kammeraad, Donald J., 3,828,415.
Kammeraad, Donald J.; and Kammeraad, James A. Method and apparatus for rebuilding valve guides. 3,828,756, Cl. 123-188.0gc.
Kammeraad, James A.: See—
Kammeraad, Donald J.; and Kammeraad, James A., 3,828,756.
Kammeraad, James A.; and Kammeraad, Donald J., to K-Line Tool Company. Method and apparatus for rebuilding valve guides. 3,828,415, Cl. 29-401.000.
Kammeraad, James A., to K-Line Industries, Inc. Double cup seal. 3,829,105, Cl. 277-183.000.
Kampmann, Gerhard; and Schneider, Felix, to Waggon Union GmbH. Sliding wall arrangement for covered railroad freight cars and containers. 3,828,693, Cl. 105-378.000.
Kanebo Ltd.: See—
Oohara, Saburo, 3,829,380.
Kaneko, Makoto: See—
Kurita, Seiichi; Kaneko, Makoto; and Iikawa, Mituo, 3,829,179.
Kanema, Seiichi: See—
Nara, Akinao; Hara, Michio; Kanema, Seiichi; and Kano, Minoru, 3,828,685.

Kanetaka, Junichi; Shimodaira, Takashi; and Mori, Shoichiro, to Mitsubishi Petrochemical Company Limited. Process for producing α -lactones and cyclic ethers. 3,829,448, Cl. 260-343.600.
Kano, Minoru: See—
Nara, Akinao; Hara, Michio; Kanema, Seiichi; and Kano, Minoru, 3,828,685.
Kanto Seiki Company, Limited: See—
Yamamoto, Yukio, 3,828,594.
Kaplan, Martin: See—
Rothstein, Milton; Kaplan, Martin; and Barton, Lloyd, 3,829,341.
Karaganis, James J.; and Payne, Peter R., to Wyle Laboratories, mesne. Trailing wire antenna. 3,829,861, Cl. 343-707.000.
Karatjas, Manuel: See—
Kuris, Arthur; Balamuth, Lewis; and Karatjas, Manuel, 3,828,770.
Karkar, Edward M.; and Kovalevski, Nicolas, to Karkar Electronics, Inc. Modulator and method. 3,829,797, Cl. 332-43.00b.
Karkar Electronics, Inc.: See—
Karkar, Edward M.; and Kovalevski, Nicolas, 3,829,797.
Karl, Horst: See—
Winkler, Alfred; Engelsmann, Dieter; Karl, Horst; and Schroeder, Rolf, 3,829,875.
Karlovic, Gordana: See—
Butula, Ivan; and Karlovic, Gordana, 3,829,493.
Kashio, Toshio, to Casio Computer Co., Ltd. Numerical value-ranking apparatus. 3,829,664, Cl. 235-92.0sh.
Kask, Eugene, to Rogers Corporation. Closure plug. 3,828,968, Cl. 220-24.500.
Kasle Steel Corporation: See—
Morrison, James J., 3,828,705.
Kaszupski, Stanley J., to United States of America, Army. Electric ignition element with secondary ignition capability. 3,828,677, Cl. 102-46.000.
Katada, Keiji: See—
Ogawa, Yoshikatsu; Katada, Keiji; Nakano, Mitsuhiro; and Yasumatsu, Kozi, 3,829,398.
Kato, Mitsukuni; Komai, Takeshi; and Aoshima, Kazuyoshi, to Nippons Oil and Fats Company Limited. Process for producing organic peroxides. 3,829,503, Cl. 260-610.00r.
Kato, Tetsuya; and Ohira, Tutomu, to Toray Industries, Inc. Flame retardant polyamide fiber composition using oxy-tin compounds and process for the preparation thereof. 3,829,400, Cl. 260-37.00n.
Katow, Takehumi, to Iwasaki Tsushinki Kabushiki Kaisha (a/k/a Iwatsu Electric Co., Ltd.). Target of a cathode-ray tube. 3,829,887, Cl. 357-31.000.
Kauffman, Joel M., to I.C.I. America, Inc. Process for preparing a thiodiacetyl halide. 3,829,481, Cl. 260-544.00y.
Kawabata, Terutsugu: See—
Ishikawa, Hisao; Osanai, Hiroshi; and Kawabata, Terutsugu, 3,829,602.
Kawagai, Kenji: See—
Hirasawa, Masataka; and Kawagai, Kenji, 3,829,710.
Kawamata, Yukio; Yamamoto, Keisuke; and Yamaguchi, Namio, to Matsushita Electric Industrial Co. Ltd. Stabilizing device for the synchronous detector of an AGC video feedback loop. 3,829,606, Cl. 178-5.80r.
Kawasaki, Harumi, to Asahi Kogaku Kogyo Kabushiki Kaisha. System for recognizing patterns. 3,829,832, Cl. 340-146.30p.
Kawasaki Kogyo Kabushiki Kaisha: See—
Nakano, Masao, 3,829,252.
Kazama, Seiji: See—
Matsui, Yutaka; Kazama, Seiji; and Nakabayashi, Masamitsu, 3,829,533.
Kebabian, Paul L., to Massachusetts Institute of Technology. Digital filter to realize efficiently the filtering required when multiplying or dividing the sampling rate of a digital signal by a composite integer. 3,829,670, Cl. 235-152.000.
Kel-Lite Industries, Inc.: See—
Nelson, Norman C.; and Harley, Daniel C., 3,829,676.
Keller, Carl H., Jr.: See—
Rybecki, Robert C.; and Keller, Carl H., Jr., 3,829,239.
Keller, Hans W., to Honeywell Inc. Method for batch fabricating semiconductor devices. 3,828,424, Cl. 29-583.000.
Kendall, Virgil D.: See—
Skritez, Rudolph A.; and Kendall, Virgil D., 3,828,488.
Kennametal Inc.: See—
Woodward, Bruce C., 3,829,267.
Kennedy, John B., Jr., to Continental Can Company, Inc. Method and apparatus for electrostatic printing using triboelectric inking developers. 3,828,670, Cl. 101-114.000.
Kennette, John Wilson; and Ness, Irving Stanley, to Johnson & Johnson. Absorbent facing material. 3,828,783, Cl. 128-284.000.
Kent, Alan; and Topley, Bryan, to United Kingdom of Great Britain and Northern Ireland, Minister of Supply in Her Britannic Majesty's Government of the. Preparation of alkyldichlorophosphines. 3,829,479, Cl. 260-543.00p.
Keppler, Hans-Georg; Zuern, Ludwig; and Stahnecker, Erhard, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Purification of waste water from styrene bead polymer production. 3,829,378, Cl. 210-42.000.
Kern, Horstmar, to Wieland-Werke A.G. Press-fitted joint between a transom bar and a frame or sash bar for use on windows, doors or the like. 3,828,516, Cl. 52-758.00h.
Kerr, John T.: See—
Perloff, David S.; Kerr, John T.; and Marley, James A., 3,829,890.
Kersten, Gunter: See—
Aldinger, Ulrich; Kersten, Gunter; and Knodel, Emil, 3,828,653.
Kewanee Machinery & Conveyor Co., a division of Chromalloy American Corporation: See—
Poland, Robert L., 3,828,860.
Kiefer, Hans: See—
Mueller, Albrecht; Zeeh, Bernd; and Kiefer, Hans, 3,829,482.
Kisler, Karl Ritsoch: See—
Aarna, Agu Yanovich; Kisler, Karl Ritsoch; Gerkhovich, Peep; and Tanner, Juri Albert-Mikhaelovich, 3,829,528.
Kilcoin, John Augustine, to General Electric Company. Limit switch having mechanism to eliminate unwanted reactivation thereof. 3,829,637, Cl. 200-47.000.
Kim, Keun Young; and Shaver, Kenneth J., to Monsanto Company. Dicalcium phosphate and its method of preparation. 3,829,562, Cl. 424-57.000.
Kimmel, Albert L.: See—
Johnson, Charles A.; and Kimmel, Albert L., 3,829,217.
King, Arthur S. Particle collector. 3,828,526, Cl. 55-118.000.
King, Calvin E. Swinging T-square. 3,828,436, Cl. 33-88.000.
King, Geoffrey: See—
Maigret, Robert; and King, Geoffrey, 3,829,709.
Kinsolving, C. Richard: See—
Carr, Albert A.; Kinsolving, C. Richard; and Meyer, Donald R., 3,829,433.
Kirch, John N., to Borden, Inc., mesne. Novel printing and coating system. 3,829,323, Cl. 117-45.000.
Kiritani, Masataka: See—
Ozutsu, Minoru; Miyazawa, Yoshihide; Motohashi, Katsuchi; and Kiritani, Masataka, 3,829,322.
Kiriya, Masashi: See—
Tsukakoshi, Osamu; and Kiriya, Masashi, 3,829,689.
Kirschner, Peter; and Rauer, Heinz Gunter, to Volkswagenwerk Aktiengesellschaft. Apparatus for static level regulation of a vehicle. 3,829,119, Cl. 280-124.00f.
Kise, Mearl A.: See—
Ellis, Leonard C.; and Kise, Mearl A., 3,829,358.
Kiselev, Jury Vladimirovich: See—
Belyaev, Viktor Borisovich; Butrova, Ekaterina Sergeevna; Kiselev, Jury Vladimirovich; and Pozharskaya, Galina Tikhonovna, 3,829,733.
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, to Bayer Aktiengesellschaft. Combating insects, acarids and nematodes using S, S-di(2-alkoxy-ethyl)-phosphoro- or phosphonothionothiolates. 3,829,565, Cl. 424-217.000.
Kitai, Kiyoshi, to Seiko Koki Kabushiki Kaisha. Camera electric shutter with mechanical delay device. 3,829,877, Cl. 95-53.0eb.
Kitano, Masao; and Kondo, Yasuo, to Nippondenso Co., Ltd., Toyota Jidosha Kogyo Kabushiki Kaisha and Kabushiki Kaisha Toyota Chuo Kenkyusho. Heat exchanging apparatus. 3,828,844, Cl. 165-8.000.
Klauke, Erich: See—
Buttner, Gerhard; and Klauke, Erich, 3,829,460.
Klee, Maurice, to Case, J. I., Company. Compact material-handling loader. 3,828,952, Cl. 214-140.000.
Kleemann, Manfred: See—
Kutter, Erhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, 3,829,574.
Klehm, William G., Jr., to Burroughs Corporation. Protective environment for keyboard actuatable switches. 3,829,632, Cl. 200-5.00a.
Klein, Konrad, to Zinser-Textilmaschinen GmbH. Installation for transporting spools. 3,828,682, Cl. 104-91.000.
Kleinewefers Industrie-Compagnie GmbH: See—
Scheunemann, Hans-Rudiger, 3,829,277.
Kleinhaut, Samuel, to Bagprint Ltd. One piece collapsible paper box. 3,829,001, Cl. 229-16.00a.
Kleinhaut, Samuel, to Bagprint Ltd. One piece collapsible paper box. 3,829,002, Cl. 229-16.00a.
Klingen, Heinrich, to Jagenbert-Werke AG. Method and apparatus for slitting materials such as aluminum or the like. 3,828,633, Cl. 83-56.000.
Klockner-Humboldt-Deutz Aktiengesellschaft: See—
Deussner, Herbert, 3,829,282.
Finsterwalder, Gerhard, 3,828,739.
Kloosterhouse, George. Masking fluid applicator. 3,829,224, Cl. 401-130.000.
Klug, Robert F.; and Lindquist, Larry B., to Dale Electronics, Inc. Potentiometer. 3,829,813, Cl. 338-180.000.
Knapp, Heinrich, to Robert Bosch GMBH. Fuel injection apparatus. 3,828,749, Cl. 123-139.00e.
Knapsack Aktiengesellschaft: See—
Ohorodnik, Alexander; Sennewald, Kurt; Hudeck, Joachim; and Stutzke, Paul, 3,829,478.
Knecht Filterwerke Gesellschaft mit beschraenkter Haftung: See—
Frey, Gunter; Hoflacher, Arthur Nikolaus; and Ebing, Walter, 3,828,529.
Kniesly, Richard A.: See—
Hutchinson, Don W.; Kniesly, Richard A.; and Stants, Richard O., 3,829,828.
Knodel, Emil: See—
Aldinger, Ulrich; Kersten, Gunter; and Knodel, Emil, 3,828,653.
Kny, Hermann: See—
Sieber, Alexander; Kny, Hermann; and Oliver, Ward H., 3,829,496.
Ko An, Inc.: See—

- Hutchinson, Don W.; Knesly, Richard A.; and Stants, Richard O., 3,829,828.
- Kobayashi, Norio: See—
Suzuki, Shigeyoshi; Kobayashi, Norio; and Shimizu, Kazuo, 3,829,319.
- Kobayashi, Hisashi: See—
Saito, Toshiaki; and Kobayashi, Hisashi, 3,828,546.
- Kobetz, Paul; and Lindsay, Kenneth L., to Ethyl Corporation. Reactions of alkyl sulfones with halide salts in aqueous systems. 3,829,471, Cl. 260-513.00r.
- Kobulia, Georgy Samsonovich: See—
Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Martitovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtndil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
- Koch, Christian, to Siemens Aktiengesellschaft. Method and apparatus for operating combustion engines. 3,828,736, Cl. 123-3.000.
- Koch, Edwin: See—
Schellhorn, Walter; and Koch, Edwin, 3,828,906.
- Koch, Paolo: See—
Perrotti, Emilio; and Koch, Paolo, 3,829,457.
- Koch, Roland G., to Houdaille Industries, Inc. Tool holder with spring operated nut. 3,829,109, Cl. 279-91.000.
- Kochs Adler, AG: See—
Sugland, Wolfgang; and Kochs Adler, AG, 3,828,703.
- Kockum Industries Incorporated: See—
Roderick, Olsen, Jr., 3,828,928.
- Kocsis, Louis L.: See—
Buch, Roman; Kocsis, Louis L.; and Sadove, Max S., 3,828,773.
- Koehler, Dale R., to Bulova Watch Company, Inc. Incrementally-adjustable regulator for nuclear pulse generator. 3,829,697, Cl. 250-370.000.
- Koehler-Dayton, Inc.: See—
Cornish, Alan H.; Foster, George W.; and Campbell, Alexander J., 3,828,372.
- Koehring Corporation: See—
Briggs, Eugene C.; and Wellbaum, William C., 3,829,281.
- Koepp Aktiengesellschaft: See—
Remmert, Hans-Jurgen, 3,829,343.
- Koering Company: See—
Wallenfang, Jerome A.; and Witt, Wilmer E., 3,829,030.
- Kohashi, Tadao, to Matsushita Electric Industrial Company. Variable capacitance device. 3,829,743, Cl. 357-23.000.
- Kohashi, Tadao, to Matsushita Electric Industrial Company, Limited. Variable capacitance device. 3,829,881, Cl. 357-23.000.
- Kohoku Chemical Industry Co., Ltd.: See—
Iizuka, Toru; Tonooka, Katsuo; Saitoh, Torahiko; and Yasuda, Isao, 3,829,332.
- Kohl, Karl. Tension bar for warp knitting machine. 3,828,586, Cl. 66-146.000.
- Kohmura, Isao: See—
Futaki, Kiyoshi; Haino, Kojo; and Kohmura, Isao, 3,829,401.
- Kokusai Denshin Denwa Kabushiki Kaisha: See—
Muratani, Takuro; Saito, Hideki; and Watanabe, Tatsuo, 3,829,777.
- Watanabe, Teruji; Fukui, Takasuke; and Suzuki, Shizuo, 3,829,894.
- Kolpek, Robert Adolph; and Loiselle, James Thomas, to International Business Machines Corporation. Typing system with form programmed format control. 3,829,855, Cl. 340-172.500.
- Komai, Takeshi: See—
Kato, Mitsukuni; Komai, Takeshi; and Aoshima, Kazuyoshi, 3,829,503.
- Komine, Isamu: See—
Usi, Genichi; and Komine, Isamu, 3,828,596.
- Kondo, Yasuo: See—
Kitano, Masao; and Kondo, Yasuo, 3,828,844.
- Koon, Billy W.; and Sylvester, Alfred Glenn. SCombination jack, anchor and hold-down apparatus. 3,828,491, Cl. 52-23.000.
- Kopp, Eugen, to Werner & Pleiderer. Device for uniformly adjusting the moisture content in a compacted mass. 3,828,444, Cl. 34-70.000.
- Kopp, Gerhard, to Messerschmitt-Bolkow-Blohm GmbH. Jet deflector for Vstol-aircraft. 3,829,021, Cl. 239-165.350.
- Kornis, Gabriel; and Nidy, Eldon G., to Upjohn Company. The Oxime substituted carbanilates. 3,829,463, Cl. 260-471.00c.
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- Korodi, Miklos. Applicator apparatus for depilatory composition. 3,828,724, Cl. 118-258.000.
- Korolev, Oleg Alexandrovich: See—
Turchaninov, Vasily Vasilievich; Shelkovnikov, Jury Petrovich; Machkov, Gennady Maximovich; and Korolev, Oleg Alexandrovich, 3,828,944.
- Koshiba, Masao: See—
Inaba, Shigeo; Yamamoto, Michihiro; Ishizumi, Kikuo; Mori, Kazuo; Koshiba, Masao; and Yamamoto, Hisao, 3,829,420.
- Kosinov, Vyacheslav Georgievich: See—
Larjukhin, Grigory Artemovich; Chernyshev, Valentin Vasilievich; Nikitin, Vladislav Iosifovich; Serikov, Jury Mitrofanovich; and Kosinov, Vyacheslav Georgievich, 3,828,560.
- Koss, Vernon J.: See—
Lund, Robert S.; and Koss, Vernon J., 3,828,840.
- Kostov, Vasil Alexandrov: See—
Julev, Stoyan Iliev; Milkov, Mihail Yordanov; Dachev, Lyubomir Petrov; Vasilev, Rosen Petrov; Kostov, Vasil Alexandrov; and Aroyo, Jacky Sivcho, 3,829,344.
- Kovalevski, Nicolas: See—
Karkar, Edward M.; and Kovalevski, Nicolas, 3,829,797.
- Koyama, Mitsuo: See—
Onda, Eiichi; Koyama, Mitsuo; and Nakagawa, Tadashi, 3,829,878.
- Koyo Electronics Industry Co., Ltd.: See—
Fujioka, Katsuchi, 3,829,599.
- Kozhaev, Arkady Filippovich: See—
Olshansky, Nikolai Alexandrovich; Smelyansky, Matvei Yakovlevich; Lopatko, Anatoly Petrovich; Tkachev, Leonid Grigorievich; Kozhaev, Arkady Filippovich; Sapozhnikov, Alexander Ivanovich; and Chernakov, Gennady Anatolievich, 3,829,651.
- Kraemer, Erich Henry: See—
Whelehan, James J. Jr.; and Kraemer, Erich Henry, 3,829,787.
- Kramer, Josef: See—
Irmischer, Klaus; Kramer, Josef; Cimbollek, Gerhard; Orth, Dieter; Nowak, Herbert; and Freisberg, Karl-Otto, 3,829,421.
- Krasnov, Mikhail Mikhailovich; Stelmakh, Mitrofan Fedorovich; Malyshev, Boris Nikolaevich; Prozorov, Vladimir Nikolaevich; Saprykin, Pavel Ivanovich; and Batrukova, Maria Grigorievna. Laser Ophthalmoscope. 3,828,788, Cl. 128-303.100.
- Krasnow, David L., to Jet Medical Products, Inc. Disposable medical electrode. 3,828,766, Cl. 128-2.10f.
- Kravetz, Louis, to Shell Oil Company. Process of removing polyvinyl alcohol size from fabrics with hydrogen peroxide. 3,829,291, Cl. 8-138.000.
- Kreha Corporation of America: See—
Omori, Thomas T.; and Imaoka Hiroshi, 3,829,327.
- Kreissig, Ernst Florian, to Schweizerische Lokomotiv-und Maschinenfabrik. System for transmitting traction and braking forces in a rail vehicle. 3,828,692, Cl. 105-65.000.
- Kreusel, Ulrich. Connector assemblies for hollow members. 3,829,226, Cl. 403-295.000.
- Kreutze, Gerhard: See—
Soehring, Gerhard; Moessner, Manfred; Kreutze, Gerhard; and Obstdfelder, Guenther, 3,829,206.
- Krimm, Heinrich; Freitag, Dieter; and Boie, Immo, to Farbenfabriken Bayer Aktiengesellschaft. Anthranilic acid esters nuclearly substituted with optionally substituted phenyl-alkyl. 3,829,462, Cl. 260-471.00r.
- Krishna, Surinder, to Westinghouse Electric Corporation. Schottky barrier plasma thyristor circuit. 3,829,880, Cl. 357-15.000.
- Krivobokov, Vladimir Nikolaevich: See—
Borisenko, Gleb Pavlovich; Chernobryvenko, Jury Sergeevich; Kutsov, Jury Georgievich; Gorbanev, Arkady Alexeevich; Kukushkin, Oleg Nikolaevich; Krivobokov, Vladimir Nikolaevich; Pobegailo, Grigory Gavrilovich; and Nashivanko, Vitaly Dmitrievich, 3,828,600.
- Kroger, Harry, to Sperry Rand Corporation. Bistable semiconductor temperature sensor. 3,829,886, Cl. 357-23.000.
- Kron, Heinz; and Grommes, Helmut, to Babcock & Wilcox Limited. Wear plate. 3,829,031, Cl. 241-182.000.
- Krukenberg, Winfried: See—
Raue, Roderich; Krukenberg, Winfried; and Rohe, Ernst-Heinrich, 3,829,461.
- Krueger, Keith Theophil, to I-T-E Imperial Corporation. Contact holder with adjustably mounted switch. 3,829,807, Cl. 337-6.000.
- Krumbein, Fritz, to Bosch, Robert, Photokino GmbH. Motion picture projector with film stripping mechanism. 3,829,039, Cl. 242-192.000.
- Krumm, Charles G.: See—
Napor, Carl A.; and Krumm, Charles G., 3,829,017.
- Krutak, James J., Sr., to Eastman Kodak Company. 3-[(Amino)-phenyl] indoline compounds and process for manufacturing the same. 3,829,436, Cl. 260-326.110.
- Kryah, John C.: See—
Delamater, Charles E.; Obermiller, Herbert C.; and Kryah, John C., 3,828,698.
- Kubo, Masao: See—
Yamada, Norio; Ikejima, Yoritaka; Takasu, Hiromi; Kubo, Masao; and Tanaka, Yoshimasa, 3,828,430.
- Kudamatsu, Akio: See—
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kojo, 3,829,565.
- Kuehnle, Manfred R., to Coulter Information Systems, Inc. Thin film deposition apparatus using segmented target means. 3,829,373, Cl. 204-298.000.
- Kugler, Tibor; and Rieger, Hans Wolfhart, to Swiss Aluminium Ltd. Electrode with protective coating. 3,829,374, Cl. 204-290.00r.
- Kuhla, Donald E.: See—
Evanega, George R.; Kuhla, Donald E.; and Sarges, Reinhard, 3,829,434.
- Kuhle, Engelbert: See—
Zumach, Gerhard; Kuhle, Engelbert; Behrenz, Wolfgang; and Hammann, Ingeborg, 3,829,437.
- Kuhnlein, Hans: See—
Grunleitner, Hans; Kuhnlein, Hans; and Liska, Manfred, 3,829,708.

- Kukushkin, Oleg Nikolaevich: See—
Borisenko, Gleb Pavlovich; Chernobryvenko, Jury Sergeevich; Kutsov, Jury Georgievich; Gorbanev, Arkady Alexeevich; Kukushkin, Oleg Nikolaevich; Krivobokov, Vladimir Nikolaevich; Pobegailo, Grigory Gavrilovich; and Nashivanko, Vitaly Dmitrievich, 3,828,600.
- Kuney, George Clark. Whirl-about toy. 3,829,087, Cl. 273-1.00r.
- Kunkle, Gerald E., to PPG Industries, Inc. Glass drawing conditioning means. 3,829,304, Cl. 65-193.000.
- Kunz, Frederick, and Company, Limited: See—
Kunz, Frederick L. G., 3,829,412.
- Kunz, Frederick L. G., to Kunz, Frederick, and Company, Limited. Chemically modified polysaccharides and process of preparing same. 3,829,412, Cl. 260-209.00r.
- Kuper, Heinrich: See—
Ortel, Gerhard, 3,829,345.
- Kurihara, Norman H.; and Bublit, Donald E., to Dow Chemical Company. The 6,7-Dichloro-p-dithiino (2,3-b)pyridine-2,3,8-tricarboxitrile. 3,829,425, Cl. 260-294.80c.
- Kuris, Arthur; Balamuth, Lewis; and Karatjas, Manuel, to Ultrasonic Systems, Inc. Ultrasonic method for cleaning teeth. 3,828,770, Cl. 128-62.00a.
- Kurita, Kunio: See—
Ishida, Shinichi; Oshima, Noboru; Kurita, Kunio; Suzuki, Isamu; and Ohno, Hidetoshi, 3,829,379.
- Kurita, Seiichi; Kaneko, Makoto; and Iikawa, Mituo, to Hitachi, Ltd. Bearing device for vertical-shaft rotary machines. 3,829,179, Cl. 308-160.000.
- Kuroe, Akio: See—
Nagahiro, Michinori; Deguchi, Masahiro; and Kuroe, Akio, 3,829,892.
- Kurreck, Manfred: See—
Mnlik, Reinhold; Kurreck, Manfred; and Geltenpoth, Ulrich, 3,829,264.
- Kurumada, Tomoyuki: See—
Murayama, Keisuke; Morimura, Syoji; Horiuchi, Hideo; Matsui, Katsuaki; Kurumada, Tomoyuki; and Ohta, Noriyuki, 3,829,404.
- Kutsov, Jury Georgievich: See—
Borisenko, Gleb Pavlovich; Chernobryvenko, Jury Sergeevich; Kutsov, Jury Georgievich; Gorbanev, Arkady Alexeevich; Kukushkin, Oleg Nikolaevich; Krivobokov, Vladimir Nikolaevich; Pobegailo, Grigory Gavrilovich; and Nashivanko, Vitaly Dmitrievich, 3,828,600.
- Kutter, Eberhard; Griss, Gerhart; Grell, Wolfgang; and Kleemann, Manfred, to Boehringer Ingelheim GmbH. Hypoglycemic pharmaceutical compositions and methods of use. 3,829,574, Cl. 424-258.000.
- Kuzmina, Ljudmila Nikolaevna: See—
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Nikolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- Kvaerner Brug A.S.: See—
Bognæs, Ragnar; and Solberg, Olav, 3,828,709.
- Kwartiroff, Alexander: See—
Irsin, Robert P.; and Kwartiroff, Alexander, 3,829,626.
- Kyriacou, Demetrios, to Dow Chemical Company. The Method for the preparation of tetrahalo-4-(alkylsulfonyl) pyridines. 3,829,430, Cl. 260-294.80f.
- L & L Products, Inc.: See—
Stevens, F. Bradley, 3,829,149.
- Labofina S.A.: See—
Hanotier, Jacques D. V.; and Hanotier-Bridoux, Monique G. S., 3,829,432.
- Lacour, Jacques: See—
Borel, Joseph; Lacour, Jacques; and Merckel, Gerard, 3,829,884.
- Lam, Josephine. Wearing apparel. 3,828,368, Cl. 2-227.000.
- Lambda Electronics Corporation: See—
Gauthier, George A., 3,829,794.
- Lambert, Robert D., to Multiply Development Corporation, Ltd. Apparatus for felting fibrous elements. 3,828,399, Cl. 19-155.000.
- Land, Wilbur G.: See—
Dayne, Eddy K.; and Land, Wilbur G., 3,829,061.
- Landler, Josef: See—
Speitschka, Ernst; and Landler, Josef, 3,829,439.
- Lane, John W.: See—
Ronzio, Richard A.; Lane, John W.; and Vincent, John D., 3,829,550.
- Langdon, David H.; Prentice, James C.; and Van Olinda, David L., to Terry Controls Corporation. Automatic self-testing programmable industrial controller. 3,829,842, Cl. 340-172.500.
- Lange, Clement, Jr. Swivel rocking chair. 3,829,157, Cl. 297-263.000.
- Lange, K. Robert; Stern, Arthur M.; Gasner, Lawrence L.; and Hsu, Yuan Tsun, to Betz Laboratories, Inc. Beneficiation of lignin solutions and pulp mill wastes. 3,829,388, Cl. 252-180.000.
- Langen, Herbert: See—
Glatzel, Harmut; and Langen, Herbert, 3,828,755.
- Langer, Vojtech; Nesvadba, Emil; and Prerova, Rokytne U., to Meopta, narodni podnik. Illuminating system of an enlarger. 3,829,210, Cl. 355-35.000.
- Lapidus, Milton: See—
Alburn, Harvey E.; Clark, Donald E.; Grant, Norman H.; and Lapidus, Milton, 3,829,459.
- Larjukhin, Grigory Artemovich; Chernyshev, Valentin Vasilievich; Nikitin, Vladislav Iosifovich; Serikov, Jury Mitrofanovich; and Kosinov, Vyacheslav Georgievich. Self-propelled machine with a driven work-performing member. 3,828,560, Cl. 60-709.000.
- Larkin, David L. Educational device. 3,828,447, Cl. 35-9.00r.
- Larsen, Eric R.: See—
Edamura, Fred Y.; McKendry, Lennon H.; and Larsen, Eric R., 3,829,489.
- Larsen, James L.: See—
Dillman, Richard F.; Larsen, James L.; and Nardizzi, Alfred M., 3,829,782.
- Larson, Russell H.: See—
Burk, John L.; Hogan, Spurgeon G., Jr.; Larson, Russell H.; and McGilvray, Bruce L., 3,829,840.
- Larsson, Hans-Gunnar; and Bergman, Carl, to Allmanna Svenska Elektriska Aktiebolaget. Apparatus for isostatic hot pressing of powder. 3,829,261, Cl. 425-78.000.
- Laswell, John E.; and Wildridge, John E., to United States of America. Navy. Delayed parachute disconnect. 3,829,146, Cl. 294-83.00a.
- Lathouwers, Franciscus Johannes Maria; and De Groot, Jacob, to U.S. Philips Corporation. Sintered ferromagnetic core having accurately adjusted dimensions. 3,829,806, Cl. 336-83.000.
- Laughman, George J.: See—
Blum, Raymond T.; and Laughman, George J., 3,828,483.
- Laurizio, Jeremiah J., to American Flange & Manufacturing Co. Inc. Closure combination and method. 3,828,418, Cl. 29-451.000.
- Law, William J. H. Partition with concealed slotted standard. 3,828,495, Cl. 52-36.000.
- Layson, Allen: See—
Witt, Jerry L.; and Layson, Allen, 3,828,827.
- LCA Corporation: See—
Farber, Milton H.; and Belinkoff, Irving R., 3,828,760.
- Le Fevre, Cecil W.: See—
Strong, Philip L.; Hunter, Don L.; and Le Fevre, Cecil W., 3,829,308.
- Le Suer, William Monroe, to Lubrizol Corporation. The Boron- and calcium-containing compositions and process. 3,829,381, Cl. 252-33.400.
- LeBlanc, Louis H. Cam pawl Actuator. 3,828,617, Cl. 74-127.000.
- Lebovits, Morris; and Schaff, James C. Fixed freeboard spar buoy. 3,828,380, Cl. 9-8.00r.
- Leclaitel, Pierre; and Dresser, Bruno, to Regie Nationale Des Usines Renault Billancourt and Automobiles Peugeot. Milling heads. 3,828,649, Cl. 90-15.000.
- Lechner, Gunther, to Reichert, C., Optische Werke AG. Cover for microtome and ultramicrotome freezing chamber. 3,828,571, Cl. 62-320.000.
- Leddy, Robert. Corner assembly for exterior siding. 3,828,499, Cl. 52-278.000.
- Lee, David K. K.: See—
Cathamer, George J.; Coleman, Ivan V.; and Lee, David K. K., 3,829,617.
- Lee, Raymond Organization, Inc.: See—
Gottschalk, Charlotte H., 3,828,888.
- Hartman, Wyatt, 3,828,832.
- Richtér, Calvin; and Van Wyck, William E., 3,828,858.
- Leffler, Dennis F., to Pelton & Crane Company. Treatment chair having improved movable arm support devices. 3,829,159, Cl. 297-417.000.
- Lehrer, Alexander. Marine load transfer system. 3,828,683, Cl. 104-114.000.
- Leiba, Eugene: See—
Assouline, Georges; Hareng, Michel; and Leiba, Eugene, 3,829,684.
- Leibinger, Berthold, to Trumpf & Co., Firma. Shear construction. 3,828,432, Cl. 30-241.000.
- Leifheit International Gunter Leifheit KG: See—
Liebscher, Johannes, 3,828,387.
- Leimgruber, Willy; and Weigle, Manfred, to Hoffman-La Roche Inc. 6-Substituted 1-phenazolin 5,10-dioxide derivatives. 3,829,423, Cl. 260-267.000.
- Leithiser, George L. Assemblage for forming and straightening. 3,828,602, Cl. 72-383.000.
- Lelong, Marion Pasteur. Figure-eight swing. 3,829,086, Cl. 272-85.000.
- Lemand Engineering Limited: See—
Dabell, Kenneth Hazelton; and Phillips, Raymond Jeffrey, 3,828,862.
- Lengnick, Guenther Fritz, to Stauffer Chemical Company. Room temperature curable organopolysiloxanes. 3,829,527, Cl. 260-827.000.
- Lengnick, Guenther Fritz, to Stauffer Chemical Company. Room-temperature curing organopolysiloxanes. 3,829,529, Cl. 260-827.000.
- Lenski, Robert J.; and Meyer, James H., to Sundstrand Corporation. Burner control. 3,829,276, Cl. 431-14.000.
- Lent, William E.; and Flores, Jose A., to United States of America, Navy. Lightweight ceramic lens for microwave antenna. 3,829,403, Cl. 264-44.000.
- Leonard, Robert M.: See—
Swanke, Roy L.; and Leonard, Robert M., 3,829,720.
- Leone, Salvatore. Metal trestle for manufacturing reinforced-concrete beams for floors. 3,828,505, Cl. 52-414.000.
- Leonildo, De Faveri Tron Antonio. Ski boot. 3,828,448, Cl. 36-2.5al.

- Lepley, James W., to Flying Dutchman, Inc. Bottom unloading means for silo. 3,828,946, Cl. 214-17.0da.
- Lepley, James W., to Flying Dutchman, Inc. Material dislodging means for silo. 3,828,947, Cl. 214-17.0da.
- Lerner, Nathan B., to Braum, W., Company, mesne. Safety cap operated by a key. 3,828,959, Cl. 215-9.000.
- Leroi, Jean-Claude: See—
Charles, Ernest; Leroi, Jean-Claude; and Pech, Michel, 3,829,509.
- Lesczynski, Michael, to Carrier Corporation. Level controller and liquid remover for a refrigeration system. 3,828,567, Cl. 62-160.000.
- Leslie, Henry R., and Samways, Roger J., to Lockheed Aircraft Corporation. Engine arrangement for high performance stol aircraft. 3,829,044, Cl. 244-13.000.
- Less, Raymond L. Guide. 3,829,065, Cl. 254-190.00c.
- Letson, Richard A., and Cormey, Walter P., to Pacific Communications, Inc. Aircraft emergency warning system. 3,829,781, Cl. 325-115.000.
- Levasseur, Joseph L., to H. R. Electronics Company. Vend control with escrow until available product selection. 3,828,903, Cl. 194-1.00n.
- Levasseur, Joseph L., to H.R. Electronics Company. Slide switch assembly having piggyback multiple actuators extending through common cover aperture. 3,829,634, Cl. 200-16.00r.
- Levey, John. Means for temporarily presetting interlocking elements of combination lock-type container finish closure and method for assembling same. 3,828,519, Cl. 53-15.000.
- Levorlo Lorenzen, Inc.: See—
Andler, Joseph A., and Neira, George, 3,828,838.
- Lewicki, Walter J., Jr., to Armstrong Cork Company. Curtain coater with restricted flow. 3,828,725, Cl. 118-324.000.
- Lewis, Gerald F. Safety pill containers. 3,828,961, Cl. 215-223.000.
- Lewis, Jordan D.; Verber, Carl M., and McGhee, Robert B., to Battelle Development Corporation. Computer-controlled three-dimensional pattern generator. 3,829,838, Cl. 340-172.500.
- Licentia Patent-Verwaltungs GmbH: See—
Geiser, Hans; and Tessendorf, Gunter, 3,829,822.
- Licitis, Gunars, to Glass, Marvin & Associates. Sound recording and reproducing device with visual image means. 3,829,207, Cl. 353-120.000.
- Liddell, William S. Stereoscopic optical apparatus. 3,829,202, Cl. 352-62.000.
- Liebscher, Johannes, to Leifheit International Gunter Leifheit KG. Rotatable brush for cleaning apparatus. 3,828,387, Cl. 15-182.000.
- Lilley, Raymond Percy Arthur: See—
Shaw, James Thomas; and Lilley, Raymond Percy Arthur, 3,828,482.
- Limpens, Karl: See—
Glindmeyer, Friedrich; Limpens, Karl; and Hennenberg, Wilhelm, 3,828,825.
- Lindblom, Frank W., to Textron, Inc. Temple hinge spring. 3,829,200, Cl. 351-113.000.
- Linde A.G.: See—
Spies, Anton; Stephan, Alfred; and Sellmaier, Alfons, deceased, 3,828,564.
- Lindquist, Larry B.: See—
Klug, Robert F., and Lindquist, Larry B., 3,829,813.
- Lindsay, Kenneth L.: See—
Kobetz, Paul; and Lindsay, Kenneth L., 3,829,471.
- Linear Devices Inc.: See—
Baker, Donald O., 3,828,435.
- Linkletter, Robert P. Safety dispensing device. 3,828,981, Cl. 222-153.000.
- L'Institut de Recherches Economiques et Sociales: See—
Mandel, Marc Jean-Christophe Noel, 3,828,446.
- Lipsky, Stephen E., to General Instrument Corporation. Polarizing feed apparatus for biconical antennas. 3,829,863, Cl. 343-773.000.
- Liska, Manfred: See—
Grunleitner, Hans; Kuhnlein, Hans; and Liska, Manfred, 3,829,708.
- Litke, Alvin Carl, to Allied Chemical Corporation. High strength liquid metallized azo colorants. 3,829,287, Cl. 8-42.00r.
- Little Giant Corporation: See—
Bright, Hugh H.; Davis, Lee W.; and Tanaszek, Frank J., 3,829,248.
- Litton Business Systems, Inc.: See—
Doolittle, Billy J., 3,829,225.
- Litzinger, Elmer Francis, to Brown & Williamson Tobacco Corporation. Tobacco smoke filter material. 3,828,800, Cl. 131-262.000.
- Lloyd, William A., to Versatec, Inc. Housing assembly for electrstatic printing machine. 3,829,185, Cl. 312-39.000.
- Lockemann, Albert: See—
Borse, Dietrich; Lockemann, Albert; and Cordsen, Gerd, 3,828,646.
- Lockheed Aircraft Corporation: See—
Leslie, Henry R.; and Samways, Roger J., 3,829,044.
- Lockridge, James E. Safety kneebord. 3,828,696, Cl. 108-43.000.
- Loewe Opta GmbH: See—
Richter, Heinz, 3,829,705.
- Logan, Ralph Andre; and Thurmond, Carl Dryer, to Bell Telephone Laboratories, Incorporated. Growth of gallium nitride crystals. 3,829,556, Cl. 423-409.000.
- Logvinenko, Dmitry Danilovich: See—
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- Lohr, Raymond J.; Cook, Calvin S.; and Seiersen, William K., to Marx, Louis, & Co., Inc. Child's vehicle simulating jet aircraft. 3,829,126, Cl. 280-240.000.
- Loiselle, James Thomas: See—
Kolpek, Robert Adolph; and Loiselle, James Thomas, 3,829,855.
- Long, Donald Charles; Hartsoogh, Albert Charles; and Sanford, Robert Fincher, to Princeton Electro Dynamics, Inc. Light controllable electrical switch. 3,829,683, Cl. 250-209.000.
- Loop A Line, Inc.: See—
McGahee, Welbourne D., 3,828,734.
- Loos, Herbert, to Carl Hurth Maschinen-und Zahnradfabrik. Gear working tool. 3,828,597, Cl. 72-102.000.
- Lopatko, Anatoly Petrovich: See—
Olshansky, Nikolai Alexandrovich; Smelyansky, Matvei Yakovlevich; Lopatko, Anatoly Petrovich; Tkachev, Leonid Grigorievich; Kozhaev, Arkady Filippovich; Sapozhnikov, Alexander Ivanovich; and Chernakov, Gennady Anatolievich, 3,829,651.
- Lortieje, Jean Hubertus Josef; Schmidt, Ernst Machiel; and Van der Put, Henricus Cornelis Adrianus, to U.S. Philips Corporation. Push-button control member with push-through coupling. 3,829,646, Cl. 200-159.00b.
- Lozoya, Elpidio. Pen type voltmeter. 3,829,776, Cl. 324-122.000.
- Lubrizol Corporation, The: See—
Le Suer, William Monroe, 3,829,381.
- Lucero, Ronald Ray. Four player chess game apparatus. 3,829,099, Cl. 273-131.0kc.
- Ludwig, George, to Bendix Corporation, The. Altitude compensated vacuum amplifier. 3,828,743, Cl. 123-117.00a.
- Ludwig Taprogge (Cleaning Installations for Pipe Heating Exchange): See—
Eimer, Klaus; and Thal, Heinz, 3,828,930.
- Lund, Bjorn: See—
Damgaard-Iversen; Hansen, Ove Emil; and Lund, Bjorn, 3,828,837.
- Lund, Robert S.; and Koss, Vernon J., to Pettibone Corporation. Cyclicly-operable machine adapted to produce and assemble cope and drag mold parts. 3,828,840, Cl. 164-195.000.
- Lundahl, Ezra Cordell, to Hesston Corporation. Hay loader. 3,828,535, Cl. 56-344.000.
- Luperti, Harry E., to Pitney-Bowes, Inc. Automatic envelope opener. 3,828,634, Cl. 83-94.000.
- Lusk, Walter D.: See—
Banks, Michael E.; Lusk, Walter D.; and Ottinger, Robert S., 3,829,558.
- Luttrell, John E.: See—
Green, John S.; Luttrell, John E.; and Schmitz, James E., 3,828,934.
- Lutz, Alfons, to Webasto-Werk W. Baier KG. Control device for power operated automobile sliding roofs. 3,829,155, Cl. 296-137.00f.
- Lychak, Veniamin Samuilovich: See—
Marbukh, Veniamin Anatolievich; Lychak, Veniamin Samuilovich; and Goncharov, Evgeny Andreevich, 3,829,704.
- Lynn, Lawrence, to General Crude Oil & Minerals Company, S.A. Process for treating borocalcic ores. 3,829,553, Cl. 423-279.000.
- MacDonald, Robert D., to Cardinal of Adrian, Inc. Door latch set. 3,829,137, Cl. 292-171.000.
- Machacek, Jiri: See—
Vit, Jaroslav; Casensky, Bohuslav; Mamula, Milan; and Machacek, Jiri, 3,829,449.
- Machado, Mark A., and Forchini, James F., to Ecodyne Corporation, mesne. Pipe joint. 3,829,107, Cl. 277-207.000.
- Machinenfabrik Spaichingen GmbH: See—
Hamma, Gerhard, 3,828,583.
- Machkov, Gennady Maximovich: See—
Turchaninov, Vasily Vasilievich; Shelkovnikov, Jury Petrovich; Machkov, Gennady Maximovich; and Korolev, Oleg Alexandrovich, 3,828,944.
- Macho, Helmut, to Saurer, Adolph, Ltd. Device for engaging and disengaging the dobby shaft and picking shaft of looms. 3,828,824, Cl. 139-1.00e.
- MacLean, Alexander F.: See—
Serad, George A.; and MacLean, Alexander F., 3,829,468.
- MacLennan, Alastair S., to Ford Motor Company. Variable pumping system for a propeller fan. 3,829,236, Cl. 415-156.000.
- Macrander, Max S., to GTE Automatic Electric Laboratories Incorporated. Clock distribution circuit. 3,829,790, Cl. 331-61.000.
- Maeda, Tsuneo, to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho. Seating detecting device. 3,829,803, Cl. 335-205.000.
- Magbjer, Gunnar Ingemar: See—
Egerborg, Bo Malte Staffan; Gadefelt, Goran Robert; Magbjer, Gunnar Ingemar; and Spang, Kjell, 3,828,504.
- Maggi, Nicola; and Cricchio, Renato, to Gruppo Lepetit S.p.A. Imidazole substituted rifamycins. 3,829,417, Cl. 260-239.30p.
- Magin, Irving J., to Itek Corporation. Photoprocessing stabilizer solutions. 3,829,318, Cl. 96-61.00r.

- Magyar, Charles; Root, Lewis A.; and Senger, Edwin C., to Hilti Aktiengesellschaft. Stud magazine. 3,828,925, Cl. 206-347.000.
- Mahy, Tyler X., to Norton Company. High surface area valve metal powder. 3,829,310, Cl. 75-5bb.
- Maigret, Robert; and King, Geoffrey, to Micro Components Corporation. Supply reversal protection circuit. 3,829,709, Cl. 307-202.000.
- Makihara, Masuichi, to Shinnittoku Denki Kabushiki Kaisha. Mica capacitor. 3,829,738, Cl. 317-261.000.
- Mako, John: See—
Bonafino, Edward J.; Gilbert, Richard L.; and Mako, John, 3,828,669.
- Malcosky, Norman D.; McLean, Ronald H.; Singh, Kanwal N.; and Auh, Chung M., to Columbia Gas System Service Corporation. Compact heating and cooling system. 3,828,575, Cl. 62-476.000.
- Maliakal, Joseph C.: See—
Briggs, Walton E.; and Maliakal, Joseph C., 3,828,527.
- Mallory, P. R., & Co. Inc.: See—
Dey, Arabinda Narayan, 3,829,330.
- Huddleston, Robert F., 3,829,648.
- Malyshev, Boris Nikolaevich: See—
Krasnov, Mikhail Mikhailovich; Stelmakh, Mitrofan Fedorovich; Malyshev, Boris Nikolaevich; Prozorov, Vladimir Nikolaevich; Saprykin, Pavel Ivanovich; and Batrukova, Maria Grigorievna, 3,828,788.
- Mamula, Milan: See—
Vit, Jaroslav; Casensky, Bohuslav; Mamula, Milan; and Machacek, Jiri, 3,829,449.
- Mandel, Alan F.: See—
Winkler, Charles L.; and Mandel, Alan F., 3,828,892.
- Mandel, Marc Jean-Christophe Noel, to L'Institut de Recherches Economiques et Sociales. Process for accelerating the learning of languages. 3,828,446, Cl. 35-35.00c.
- Mangen, Carl Arnold: See—
Eriksson, Karl Gunnar; Wahlgren, Sven Erik; and Mangen, Carl Arnold, 3,828,612.
- Mansfield Tire & Rubber Company, The: See—
Fuchs, Leo, 3,829,057.
- Mantovani, Marisa: See—
Butti, Adriano; Prino, Giuseppe; and Mantovani, Marisa, 3,829,567.
- Manus, Donald J., to Texas Instruments Incorporated. Method for making semiconductor packaged devices and assemblies. 3,828,425, Cl. 29-590.000.
- Marbukh, Veniamin Anatolievich; Lychak, Veniamin Samuilovich; and Goncharov, Evgeny Andreevich. Electric-hydraulic governor for a hydraulic turbine. 3,829,704, Cl. 307-187.000.
- Marchal, Philippe Albert Hippolyte: See—
Boy-Marcotte, Jean Louis; Simmonnet, Jacques Louis Paul; Marchal, Philippe Albert Hippolyte; and Verrien, Jean Prudent Fernand Rene, 3,828,574.
- Marchant, Paul A., to Ethyl Development Corporation. Container with safety closure. 3,828,957, Cl. 215-9.000.
- Marcum, Donald R.: See—
Short, Thomas D.; and Marcum, Donald R., 3,829,627.
- Maremont Corporation: See—
Nandyal, Srinath, 3,828,897.
- Terry, Stanley M., 3,829,652.
- Margolis, Maier, to Hughes Aircraft Company. System for compensating line-of-sight from stabilized platform against misdirection caused by lateral linear accelerations. 3,829,659, Cl. 235-61.50s.
- Mariani, Remo. Lighting means for underwater illumination. 3,829,675, Cl. 240-1.01p.
- Marley, James A.: See—
Perloff, David S.; Kerr, John T.; and Marley, James A., 3,829,890.
- Marsh, J. L., Incorporated: See—
Holkestad, Howard P., 3,828,922.
- Marsh, Norman F.; Morand, Gary W.; and Sokol, David G., to Sangamo Electric Company. Load survey recorder for measuring electrical parameters. 3,829,772, Cl. 324-113.000.
- Marshall A. Binder: See—
Grady, Michael J., 3,828,395.
- Marshall, John J., to Aichele Associates, Inc. Dual battery charger for vehicles. 3,829,753, Cl. 320-6.000.
- Martin, Henry; Duerr, Dieter; and Hitz, Hans Rudolf, to Ciba Limited. Thiourea compounds and biocidal preparations containing them. 3,829,485, Cl. 260-552.00r.
- Martin, John J. Collapsible baking pan. 3,828,966, Cl. 220-7.000.
- Martin Miller Gesellschaft m.b.H.: See—
Spengler, Ernst Maximilian; and Stursberg, Rolf Karl, 3,828,631.
- Martin, Robert C., to Texas Instruments Incorporated. Liquid crystal drive circuit. 3,828,548, Cl. 58-50.00r.
- Martin, Stephen J. Shont negative impedance amplifier. 3,829,625, Cl. 179-170.00g.
- Martinez, Josef: See—
Cernocky, Jiri; Riha, Miloslav; and Martinez, Josef, 3,828,828.
- Martinez, Francis M.; and Spahr, Philip K., to Singer Company, The. Electronic synchro drive system. 3,829,752, Cl. 318-654.000.
- Marubishi Yuka Kogyo Kabushiki Kaisha: See—
Ogawa, Yoshikatsu; Katada, Keiji; Nakano, Mitsuhiro; and Yasumatsu, Kozi, 3,829,398.
- Marusova, Alla Nikolaevna: See—
Tolstoguzov, Vladimir Borisovich; Izjumov, Dmitry Borisovich; Grinberg, Valery Yakovlevich; Marusova, Alla Nikolaevna; and Chekhovskaya, Violettaefilovna, 3,829,587.
- Marvin Glass & Associates: See—
Kaelin, Bette M., 3,828,467.
- Morrison, Howard J.; and Glass, Marvin I., 3,828,462.
- Marx, Louis, & Co., Inc.: See—
Lohr, Raymond J.; Cook, Calvin S.; and Seiersen, William K., 3,829,126.
- Maschinenfabrik Hilma Gesellschaft mit beschränkter Haftung: See—
Dziuballe, Gerhard; and Weber, Albrecht, 3,829,075.
- Maschinenfabrik Moenus Aktiengesellschaft: See—
Bechtold, Johann, 3,828,384.
- Mashovets, Tatyana Vadimovna: See—
Vitosky, Nikolai Alexandrovich; Vkhly Georgy Alexandrovich; Mashovets, Tatyana Vadimovna; and Ryvkin, Solomon Meerovich, 3,829,334.
- Masi, James Vincent, to Bunker Ramo Corporation. Optical memory using trapped electrons in a crystal of photoconductor material. 3,829,847, Cl. 340-173.01t.
- Mason, Athol James Malcolm. Apparatus for filling and emptying containers for use in fire fighting. 3,828,857, Cl. 169-53.000.
- Mason, Brian Edward; and Young, Michael Iain, to Chamberlain Industries Limited. 3,828,400, Cl. Hydraulic motors and the like.
- Massachusetts Institute of Technology: See—
Kebabian, Paul L., 3,829,670.
- Massonne, Joachim: See—
Rudolph, Werner; and Massonne, Joachim, 3,829,511.
- Masstabfabrik Schaffhausen AG: See—
Nestler, Richard; and Doetsch, Peter, 3,828,694.
- Master Molded Products Corporation: See—
Weinhart, Martin, 3,828,778.
- Masuhara, Toshiaki: See—
Hashimoto, Norikazu; and Masuhara, Toshiaki, 3,829,888.
- Material Control, Inc.: See—
Reiter, Robert C., 3,829,022.
- Matluck, Meyer: See—
Barry, Richard H.; Matluck, Meyer; and Orshitzer, Philip, 3,829,563.
- Matras, Edward J.: See—
Hampton, Quentin L.; and Matras, Edward J., 3,828,933.
- Matskin, Leonid Arkadievich: See—
Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Martitovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtndil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
- Matsui, Katsuaki: See—
Murayama, Keisuke; Morimura, Syoji; Horiuchi, Hideo; Matsui, Katsuaki; Kurumada, Tomoyuki; and Ohta, Noriyuki, 3,829,404.
- Matsui, Yutaka; Kazama, Seiji; and Nakabayashi, Masamitsu, to Takeda Chemical Industries, Ltd. Polyurethane adhesives based on w,w'-diisocyanate dimethylcyclo-hexane. 3,829,533, Cl. 260-858.000.
- Matsunaga, Akihiro. Method of making peanut flour. 3,829,589, Cl. 426-427.000.
- Matsuo, Jon T.; and Neippling, Lawrence E., to United States of America, Navy. Programmable, reversible drag, multi-stage parachute. 3,829,046, Cl. 244-152.000.
- Matsuoka, James T., to Intercole Automation, Inc. Apparatus for compoundin rubber, elastomer, plastic and like mixes. 3,829,067, Cl. 259-192.000.
- Matsushita Electric Industrial Co., Ltd.: See—
Hamabe, Takeshi; and Suzuki, Takashi, 3,829,364.
- Kawamata, Yukio; Yamamoto, Keisuke; and Yamaguchi, Namio, 3,829,606.
- Nagahiro, Michinori; Deguchi, Masahiro; and Kuroe, Akio, 3,829,892.
- Tanaka, Takashi; and Nomura, Yasuo, 3,829,895.
- Tohi, Atsutomo; Sakai, Kunio; Fukai, Masakazu; and Tsujimoto, Yoshinobu, 3,829,333.
- Matsushita Electric Industrial Company: See—
Kohashi, Tadao, 3,829,743.
- Matsushita Electric Industrial Company Limited: See—
Aoyama, Akimitsu, 3,829,727.
- Kohashi, Tadao, 3,829,881.
- Uchida, Kosaku, 3,829,891.
- Matsushita Electric Works, Ltd.: See—
Yamada, Norio; Ikejima, Yoritaka; Takasu, Hiromi; Kubo, Masao; and Tanaka, Yoshimasa, 3,828,430.
- Matsushita, Kazuo, to Yokohama Rubber Co., Ltd., The. Air cushion type fender for use with a quay-wall. 3,828,715, Cl. 114-219.000.
- Matthews, Leo J.: See—
Charns, Norman; and Matthews, Leo J., 3,829,124.
- Mattucci, Anna Maria; and Perrotti, Emilio, to Snam Progetti, S.p.A. Process for the preparation of hydroxy-hydroperoxides from olefins. 3,829,502, Cl. 260-610.00r.
- Maxwell, David A.: See—
Allison, David F.; and Maxwell, David A., 3,829,889.
- MCA Disco-Vision, Inc.: See—
Elliot, James E., 3,829,622.
- McCabe, John Stanton, to Chicago Bridge & Iron Company. Offshore liquid storage facility. 3,828,565, Cl. 62-45.000.
- McCall, David D.: See—
Harris, Sterling G.; Smith, Joseph D.; McCall, David D.; Moore, Glenn S.; Hidden, William P.; and Svendsen, Noel, 3,828,398.

- McClure, Charles A. Reinforced abrasive wheels. 3,828,485, Cl. 51-206.0nf.
- McConnell, George C.: *See—*
Burns, Henry C.; and McConnell, George C., 3,828,566.
Burns, Henry C.; and McConnell, George C., 3,829,566.
- McCoy, Frederic C.: *See—*
Cole, Edward L.; and McCoy, Frederic C., 3,829,525.
- McDonald, Bernard, to Medical Testing Systems, Inc. Genitourinary test instrument. 3,828,765, Cl. 128-2.00b.
- McDonnell Douglas Corporation: *See—*
Waters, Elmer D., 3,828,845.
- McGahee, Welbourne D., to Loop A Line, Inc. Animal collar or harness and leash with quick connector. 3,828,734, Cl. 119-109.000.
- McGhee, Robert B.: *See—*
Lewis, Jordan D.; Verber, Carl M.; and McGhee, Robert B., 3,829,838.
- McGilvray, Bruce L.: *See—*
Burk, John L.; Hogan, Spurgeon G., Jr.; Larson, Russell H.; and McGilvray, Bruce L., 3,829,840.
- McGraw-Edison Company: *See—*
Stewart, Victor E., Jr., 3,829,835.
- McKay, Alexander S., to Texaco Exploration Canada Ltd. Means and method for providing an output corresponding to the expected subsidence of a frozen earth formation. 3,829,685, Cl. 250-256.000.
- McKeen, Joseph E. Transport system utilizing fluid power. 3,828,687, Cl. 104-154.000.
- McKendry, Lennon H.: *See—*
Edamura, Fred Y.; McKendry, Lennon H.; and Larsen, Eric R., 3,829,489.
- McKillop, William J.; and Culbertson, Billy M., to Ashland Oil Inc. Poly-n, n-ethylene ureas and thermoset resinous compositions derived therefrom. 3,829,407, Cl. 260-77.50r.
- McLaughlin, Richard J.: *See—*
Frankland, John T.; and McLaughlin, Richard J., 3,829,834.
- McLean, Ronald H.: *See—*
Malcosky, Norman D.; McLean, Ronald H.; Singh, Kanwal N.; and Auh, Chung M., 3,828,575.
- McLellan, Reddy E. Four wheeled foot propelled child's toy vehicle steered by balance of rider. 3,829,127, Cl. 280-259.000.
- McLeod, Harold D. Quick load pressure pot. 3,829,025, Cl. 239-373.000.
- McMahon, Richard A.: *See—*
Woodward, Richard V.; and McMahon, Richard A., 3,828,855.
- McMann, Renville H., to Columbia Broadcasting System, Inc. Single tube color camera system and method. 3,829,607, Cl. 178-5.4st.
- McMinn, Robert E.; and Jamison, Mickey B., to Black, Sivals & Bryson, Inc. High temperature material introduction apparatus. 3,828,850, Cl. 165-109.000.
- McMullin, Donald, Jr.: *See—*
Becker, Roger T.; Hatter, Stephen L.; and McMullin, Donald, Jr., 3,828,920.
- McNeil Corporation: *See—*
Carillon, Frank R.; Meyer, William E.; and Ramazzotti, Dario J., 3,829,272.
- McQuay-Perfex, Inc.: *See—*
Beck, Joseph J., 3,829,285.
- McRobert, Leon R., to FMC Corporation. Article pickup machine. 3,828,534, Cl. 56-328.00r.
- Mead Johnson & Company: *See—*
Wu, Yao Hua; and Mueller, Arthur Jacob, 3,829,414.
- Mead, Robert H.: *See—*
Heathwaite, Hewart H.; and Mead, Robert H., 3,828,620.
- Meadows, Ernest D.; and Buffington, Robert B., to Meadows Industries Inc. Collapsible swift. 3,829,036, Cl. 242-110.100.
- Meadows Industries Inc.: *See—*
Meadows, Ernest D.; and Buffington, Robert B., 3,829,036.
- Means, David K., to Reliance Electric Company. Process control method and apparatus. 3,829,845, Cl. 340-172.500.
- Medalist Industries, Inc.: *See—*
Fuch, Alvin J., 3,828,671.
- Medical Incorporated: *See—*
Anderson, Lawrence; and Bentzen, Bruce D., 3,828,787.
- Medical Testing Systems, Inc.: *See—*
McDonald, Bernard, 3,828,765.
- Medrick, John D., to Ford Motor Company. Automatic choke control for engines. 3,828,745, Cl. 123-119.00f.
- Meussen, Louis Achilles; Bestenreiner, Friedrich; and Huber, Hans-Peter, to AGFA-Gevaert Aktiengesellschaft. Apparatus for simultaneous reproduction of visible and audible information. 3,829,610, Cl. 178-6.60a.
- Megadiamond Corporation: *See—*
Hall, Howard T., 3,829,544.
- Meier, Jean: *See—*
Allais, Andre; Meier, Jean; and Dube, Jacques, 3,829,585.
- Melcher, Robert, to Siemens Siegener Maschinenbau G.m.b.H. Injection molding machine. 3,829,266, Cl. 425-192.000.
- Melchior, Gerard, to Compagnie Industrielle des Telecommunications. Color intensity control system. 3,829,613, Cl. 178-6.800.
- Melead, James J., to Beloit Corporation. Interchangeable die lips for extrusion die and independently adjustable decks therefor. 3,829,274, Cl. 425-466.000.
- Meloy, Gilbert K.; and Farrington, Diane G., to Standard Oil Company. The Flame-resistant polyester composition. 3,829,532, Cl. 260-864.000.
- Menick, Jack E.: *See—*
Furon, Leon D.; Robinson, John A.; and Menick, Jack E., 3,828,609.
- Meopta, narodni podnik: *See—*
Langer, Vojtech; Nesvadba, Emil; and Prerova, Rokytnice U., 3,829,210.
- Mercadante, Joseph: *See—*
Gouirand, Rene, 3,829,118.
- Merck & Co., Inc.: *See—*
Mrozik, Helmut H., 3,829,487.
- Merck Patent Gesellschaft mit beschränkter Haftung: *See—*
Irmischer, Klaus; Kramer, Josef; Cimbollek, Gerhard; Orth, Dieter; Nowak, Herbert; and Freisberg, Karl-Otto, 3,829,421.
- Merckel, Gerard: *See—*
Borel, Joseph; Lacour, Jacques; and Merckel, Gerard, 3,829,884.
- Mergerian, Dickron: *See—*
Bozanic, Donald A.; Mergerian, Dickron; Minarik, Ronald W.; and Pincoffs, Peter H., 3,829,760.
- Mero-Werke AG: *See—*
Hofmann, Alwin, 3,828,503.
- Merrill, Edward W.; Estin, Hans H.; Cronkhite, Leonard W., Jr.; and Wolbach, William W., Trustees of the River, Charles, Foundation. Filter for removing polynuclear aromatic hydrocarbons from tobacco smoke. 3,828,801, Cl. 131-265.000.
- Merritt, Charles, to Substrate Inc. Vacuum packaging method and platen therefor. 3,828,520, Cl. 53-2.00a.
- Merry, Lorraine Anne; and Solomon, David Henry, to Commonwealth Scientific and Industrial Research Organization. Coated products for veterinary use. 3,829,564, Cl. 424-78.000.
- Messerschmitt-Bolkow-Blohm Gesellschaft mit Beschränkter Haftung: *See—*
Schmidt, Gunther, 3,828,551.
- Messerschmitt-Bolkow-Blohm Gesellschaft mit beschränkter Haftung: *See—*
Born, Gunthard; Erben, Klaus-Dieter; and Mohr, Friedbert, 3,829,792.
- Messerschmitt-Bolkow-Blohm GmbH: *See—*
Kopp, Gerhard, 3,829,021.
- Steenbeck, Ulf; and Weidinger, Hans, 3,828,686.
- Metabowerke K.G.; Closs, Rauch & Schnizler: *See—*
Schnizler, Albrecht, Jr., 3,828,865.
- Metafab Industries, Inc.: *See—*
Apple, Charles N., Sr., 3,828,414.
- Mettler, Hal C. Method and apparatus for ultrasonic treatment of lower tissues simultaneous with heating of subcutaneous, outer muscle and lower tissues. 3,828,769, Cl. 128-24.00a.
- Mettoy Company Limited: *See—*
Nicholls, Bryan Frederick, 3,829,111.
- Metzger, Michael V.; and Pearce, Reginald, to Engis Corporation. Molded abrasive article of iron-silicon alloy, and diamond powder. 3,829,299, Cl. 51-309.000.
- Meyer, Donald R.: *See—*
Carr, Albert A.; Kinsolving, C. Richard; and Meyer, Donald R., 3,829,433.
- Meyer, James H.: *See—*
Lanski, Robert J.; and Meyer, James H., 3,829,276.
- Meyer Products, Inc.: *See—*
Miceli, Marc L., 3,828,449.
- Meyer, William E.: *See—*
Carillon, Frank R.; Meyer, William E.; and Ramazzotti, Dario J., 3,829,272.
- Meyer-Ebrecht, Dietrich: *See—*
Schroder, Gerd; and Meyer-Ebrecht, Dietrich, 3,829,785.
- Miceli, Marc L., to Meyer Products, Inc. Plow blade lift frame and method of using same. 3,828,449, Cl. 37-41.000.
- Mickelson, Maurice G., to Pako Corporation. Reel spindle for multiple width reels. 3,829,034, Cl. 242-68.300.
- Micro Components Corporation: *See—*
Maigret, Robert; and King, Geoffrey, 3,829,709.
- Micro Devices Corporation: *See—*
Plasko, Emil Robert, 3,829,809.
- Midland-Ross Corporation: *See—*
Evers, James D., deceased, 3,828,810.
- Midorikawa, Akira: *See—*
Shiina, Toshio; and Midorikawa, Akira, 3,829,083.
- Mietz, Gerhard O.: *See—*
Hunter, Richard F.; and Mietz, Gerhard O., 3,829,546.
- Mihailovskii, Alexander, to Stauffer Chemical Company. 1-Picolyl-3-phenyl ureas and their utility as herbicides. 3,829,307, Cl. 71-94.000.
- Miki, Shinsuke; and Nishida, Takao, to Amchem Products, Inc., mesne. Method for coating the surface of a metallic material. 3,829,371, Cl. 204-181.000.
- Milkov, Mihail Yordanov: *See—*
Julev, Stoyan Iliev; Milkov, Mihail Yordanov; Dachev, Lyubomir Petrov; Vasilev, Rosen Petrov; Kostov, Vasil Alexandrov; and Aroyo, Jacky Sivcho, 3,829,344.
- Millauer, Hans, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the preparation of pentafluorethyl iodide and heptafluorisopropyl iodide. 3,829,512, Cl. 260-653.600.
- Miller, Albert R.: *See—*
Spiegel, Jacob; and Miller, Albert R., 3,829,348.
- Miller, Allyn C. Automatic sequencing high vacuum mechanical valve system and apparatus. 3,829,244, Cl. 417-53.000.
- Miller, David: *See—*

- Billett, Eric Harold; and Miller, David, 3,829,474.
- Miller, David E., to Emerson Electric Co. Fan and high temperature limit control for warm air furnaces. 3,829,811, Cl. 337-353.000.
- Miller, George A.; and Greenfield, Stanley A., to Rohm & Haas Company. Fungicidal salicylaldehyde hydrazones and azines. 3,829,492, Cl. 260-566.00b.
- Miller, Richard A., to Rusco Industries, Inc.. Molded bed frame leg. 3,828,376, Cl. 500-200.00r.
- Milner Corporation: *See—*
Milner, Sanford N.; and Milner Corporation, 3,829,547.
- Milner, Sanford N.; and Milner Corporation. Method for polymerizing plastic. 3,829,547, Cl. 264-297.000.
- Minarik, Ronald W.: *See—*
Bozanic, Donald A.; Mergerian, Dickron; Minarik, Ronald W.; and Pincoffs, Peter H., 3,829,760.
- Minnesota Mining and Manufacturing Company: *See—*
Brown, Frank E., 3,829,199.
- Natkanski, Zygmunt, 3,828,811.
- Nelson, Norman E., 3,829,040.
- Minney, Jack L., to Rockwell International Corporation. Crystal oscillator using field effect transistors in an integrated circuit. 3,829,795, Cl. 331-116.00r.
- Minolta Camera Kabushiki Kaisha: *See—*
Imura, Toshinori; and Yamanaka, Akira, 3,829,873.
- Uchida, Isamu, 3,828,644.
- Ueda, Hiroshi; and Nishitani, Kiyoshi, 3,829,872.
- Mintey, Montague R. Sail launching device. 3,828,712, Cl. 114-104.000.
- Miokovic, Stvan, to Regie Nationale des Usines Renault and Automobiles Peugeot. Stretcher-pulleys. 3,829,176, Cl. 308-18.000.
- Mishcon, Lester; and Reagan, Donald W., to Singer Company. The Apparatus for positioning jacks in slotted pattern wheel rings according to a predetermined pattern. 3,828,581, Cl. 66-1.00r.
- Mitchell, Robert W. Easel construction. 3,829,211, Cl. 355-74.000.
- Mitchell, Wallace F., to Ameco Tools, Inc. Grinder attachment for a lathe. 3,828,487, Cl. 51-259.000.
- Mitsubishi Denki Kabushiki Kaisha: *See—*
Hiramatsu, Katsuzo, 3,829,615.
- Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Fujii, Masaru; Oyagi, Syuji; Kamei, Tutomu; and Moti, Inosuke, 3,828,737.
- Mitsubishi Paper Mills, Ltd.: *See—*
Futaki, Kiyoshi; Haino, Kozo; and Kohmura, Isao, 3,829,401.
- Suzuki, Shigeyoshi; Kobayashi, Norio; and Shimizu, Kazuo, 3,829,319.
- Mitsubishi Petrochemical Company Limited: *See—*
Kanetaka, Junichi; Shimodaira, Takashi; and Mori, Shoichiro, 3,829,448.
- Mitsubishi Rayon Company, Ltd.: *See—*
Yamada, Kantaro; and Ishii, Hiromichi, 3,829,476.
- Mitsumi Electric Company, Limited: *See—*
Miyata, Takeo; Hamada, Seiya; Inoue, Katsuaki; and Baba, Mikito, 3,829,799.
- Miyasaka, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsuma, Katsuyoshi; and Furukawa, Hitoshi, said Miyasaka assor. to Nihon Kogyo Co., Ltd., said Ishii assor. to Ishii Civil Engineers Consulting Inst. Ltd., said Sakurai assor. to Asahi Kasei Kogyo K.K., said Suzuki assor. to Nihon Polymer Co., Ltd., said Nagatsuma assor. to Hitachi Cable, Ltd. and said Furukawa assor. to Ciba-Geigy (Japan) Ltd. Pavement expansion joint and joint seal. 3,829,228, Cl. 404-68.000.
- Miyata Kinzoku Kogyo Kabushiki Kaisha: *See—*
Aoyama, Yahyo, 3,828,364.
- Miyata, Takeo; Hamada, Seiya; Inoue, Katsuaki; and Baba, Mikito, to Mitsumi Electric Company, Limited. Semiconductor impedance circuit and oscillator using the same. 3,829,799, Cl. 333-80.00t.
- Miyatake, Masayuki: *See—*
Anzai, Masao; and Miyatake, Masayuki, 3,829,286.
- Miyazawa, Yoshihide: *See—*
Ozutsumi, Minoru; Miyazawa, Yoshihide; Motohashi, Katsuichi; and Kiritani, Masataka, 3,829,322.
- Mizuno, Yukio: *See—*
Gotoh, Miyuki; Mizuno, Yukio; and Shibata, Kazuo, 3,828,829.
- Mizutani, Yukio; Izumi, Yusuki; and Watanabe, Yoshiaki, to Tokuyama Soda Kabushiki Kaisha. Method of producing dimerized saturated ketones. 3,829,495, Cl. 260-586.00r.
- Mnlik, Reinhold; Kurreck, Manfred; and Geltenpoth, Ulrich, to Holstein & Kappert, Maschinenfabrik Phonix GmbH. Molding apparatus. 3,829,264, Cl. 425-149.000.
- Mobil Oil Corporation: *See—*
Caldwell, Richard L., 3,829,687.
- Dickert, Joseph John, Jr.; and Williams, Albert Lloyd, 3,829,534.
- Straus, Andrew J. D., 3,829,814.
- Mobley, Loreley S.: *See—*
Fieser, Arthur H.; and Mobley, Loreley S., 3,829,072.
- Mocarski, Zenon R., to S.R.C. Laboratories, Inc. Variable vacuum producing nozzle. 3,829,027, Cl. 239-410.000.
- Mochel, Ashton, to Ocean Power Generation, Inc. Electric generating apparatus converting the pushing action of waves into electrical power. 3,828,557, Cl. 60-503.000.
- Modine Manufacturing Company: *See—*
Qualley, Ray W.; and Thompson, Robert L., 3,829,279.
- Moeller, Wolfgang. Tile device for joining permanent ceiling tile to removable ceiling tile. 3,828,508, Cl. 52-489.000.
- Moessner, Manfred: *See—*
Soehring, Gerhard; Moessner, Manfred; Kreutze, Gerhard; and Obstdfelder, Guenther, 3,829,206.
- Moeyes, Gouines Phillippus Guilielmus; and Wittkamper, Johannes Martinus, to U.S. Philips Corporation. Method of manufacturing a chain of filaments for filament lamps, discharge tubes or the like. 3,828,831, Cl. 140-71.500.
- Moffatt, Davis F.: *See—*
Balko, Jack E.; Moffatt, Davis F.; and Searcy, Durward F., 3,829,869.
- Mohawk Data Sciences Corporation: *See—*
Braen, H. Peter; and Hafner, Raymond A., 3,829,080.
- Mohr, Friedbert: *See—*
Born, Gunthard; Erben, Klaus-Dieter; and Mohr, Friedbert, 3,829,792.
- Molins Limited: *See—*
Powell, Gordon Francis Wellington, 3,829,695.
- Moller, Jens L., to Continental Can Company, Inc. Recessed crown cap. 3,828,963, Cl. 215-40.000.
- Monro, Richard J., to Combustion Equipment Associates, Inc. Acoustic nozzle. 3,829,015, Cl. 239-102.000.
- Monroy, Heliodore. Apparatus for the production of 1,2 dihydroquinolines. 3,829,292, Cl. 23-263.000.
- Monsanto Company: *See—*
Crutchfield, Marvin M.; and Harken, Russel D., 3,829,384.
- Feiner, Maria; Gubler, Michel; and Guillon, Joseph, 3,829,394.
- Kim, Keun Young; and Shaver, Kenneth J., 3,829,562.
- Mueller, Werner H.; and Campbell, Charles R., 3,829,490.
- Ratts, Kenneth Wayne, 3,829,306.
- Tucker, William F., 3,829,382.
- Montecatini Edison S.p.A.: *See—*
Veronica, Giacinto; and Fidani, Antonio, 3,829,389.
- Moore, Claude A.: *See—*
Silk, Edmond J.; and Moore, Claude A., 3,828,518.
- Moore, George E., Jr., to Moore, Jewel B. Aircraft tow bar. 3,829,131, Cl. 280-493.000.
- Moore, Gerald, 1/3 to Buell, Eugene F. Multi-power ratchet wrenches. 3,828,629, Cl. 81-57.300.
- Moore, Glenn S.: *See—*
Harris, Sterling G.; Smith, Joseph D.; McCall, David D.; Moore, Glenn S.; Hidden, William P.; and Svendsen, Noel, 3,828,398.
- Moore, James C., to Portland Wire & Iron Works. Apparatus for removable securing sound-proofing material to a construction vehicle. 3,829,150, Cl. 296-39.00a.
- Moore, Jewel B.: *See—*
Moore, George E., Jr., 3,829,131.
- Moore, William H.; Richardson, George T.; and Pease, Floyd T., to Offshore Company, The. Drilling platform. 3,828,561, Cl. 61-46.500.
- Moran, Thomas M.: *See—*
Hansen, Theodore E.; and Moran, Thomas M., 3,829,603.
- Morand, Gary W.: *See—*
Marsh, Norman F.; Morand, Gary W.; and Sokol, David G., 3,829,772.
- Moraw, Roland: *See—*
Schadlich, Gunther; Haenisch, Renate; and Moraw, Roland, 3,829,315.
- Morelli, Alberto. Motor vehicle having wheels in a diamond pattern. 3,828,876, Cl. 180-21.000.
- Morey, Dennison H. Method, container and tool for growing and planting grapes and other deep and/or tap rooted plants. 3,828,473, Cl. 47-58.000.
- Morez, Eugene S., to Chicago Musical Instrument Co. Scanner for electronic musical instrument. 3,828,643, Cl. 84-115.000.
- Mori, Inosuke: *See—*
Fujii, Masaru; Oyagi, Syuji; Kamei, Tutomu; and Mori, Inosuke, 3,828,737.
- Mori, Kazuo: *See—*
Inaba, Shigeho; Yamamoto, Michihiro; Ishizumi, Kikuo; Mori, Kazuo; Koshida, Masao; and Yamamoto, Hisao, 3,829,420.
- Mori, Shoichiro: *See—*
Kanetaka, Junichi; Shimodaira, Takashi; and Mori, Shoichiro, 3,829,448.
- Morieras, Gilbert: *See—*
Boutonnet, Alexandre; Clavelet, Georges; and Morieras, Gilbert, 3,828,542.
- Morimura, Syoji: *See—*
Murayama, Keisuke; Morimura, Syoji; Horiuchi, Hideo; Matsui, Katsuaki; Kurumada, Tomoyuki; and Ohta, Noriyuki, 3,829,404.
- Morin, Philip J. Automotive voltage and continuity tester. 3,829,763, Cl. 324-51.000.
- Morinok Yukio, to Seiko Koki Kabushiki Kaisha. Interlock mechanism interlocking camera shutter with a double-frame film advance prevention apparatus. 3,829,874, Cl. 354-204.000.
- Morita, Hideo: *See—*
Ikegami, Akiji; and Morita, Hideo, 3,829,438.
- Morita, Yoshio. Remotely controlled latch system for fire doors and the like. 3,829,138, Cl. 292-254.000.
- Moriya, Kazuo: *See—*
Ishikawa, Mineo; and Moriya, Kazuo, 3,828,439.
- Morozko, Ekaterina Alexandrovna: *See—*
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna;

- Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Nikolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- Morre, MacDonald S. Carrier for interchangeable camera lenses. 3,828,991, Cl. 224-5.00v.
- Morren, George J.: See—
Haverkamp, Edwin; and Morren, George J., 3,828,864.
- Morrison, Charles F., Jr., to Valleylab Inc. Combined electrocoagulation-suction instrument. 3,828,780, Cl. 128-275.100.
- Morrison, Howard J.; and Glass, Marvin I., to Marvin Glass & Associates. Animated toy. 3,828,462, Cl. 46-41.000.
- Morrison, James J., to Kasle Steel Corporation. Method of manufacturing a pallet. 3,828,705, Cl. 113-116.00r.
- Morrison, Walter C.: See—
Hayasi, Nisiki; and Morrison, Walter C., 3,829,338.
- Morse, Glenn B. Assembly for converting a drill press to a wood lathe. 3,828,834, Cl. 144-1.00c.
- Morton-Norwich Products, Inc.: See—
Berman, Harold, 3,829,456.
- Mos Technology, Inc.: See—
Payne, P. Donald, 3,829,213.
- Mosch, Wolfgang. Mixing capsule. 3,828,434, Cl. 32-60.000.
- Mosler Safe Company, The: See—
Novak, Warren D., 3,829,203.
- Moss, Philip Hotchkiss: See—
Yeakey, Ernest Leon; and Moss, Philip Hotchkiss, 3,829,494.
- Motohashi, Katsuichi: See—
Ozutsumi, Minoru; Miyazawa, Yoshihide; Motohashi, Katsuichi; and Kiritani, Masataka, 3,829,322.
- Motorola, Inc.: See—
Schuette, Gunter G.; and Warner, William J., 3,828,750.
- Mr. Christmas, Incorporated: See—
Hermanson, Terry, 3,829,349.
- Mrozik, Helmut H., to Merck & Co., Inc. N-substituted-3,5-(trifluoromethyl or bromo) benzenesulfonamides. 3,829,487, Cl. 260-556.0ar.
- Mueller, Albrecht; Zeeh, Bernd; and Kiefer, Hans, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of N-(1-alken-1-yl)-carbonyl chlorides. 3,829,482, Cl. 260-544.00c.
- Mueller, Arthur Jacob: See—
Wu, Yao Hua; and Mueller, Arthur Jacob, 3,829,414.
- Mueller, Martin; and Wingo, Mason C., to Bates Packaging Services, Inc., mesne. Machine for making ice cream cookie sandwiches and similar food products. 3,828,660, Cl. 99-450.400.
- Mueller, Werner H.; and Campbell, Charles R., to Monsanto Company. Cycloalkanebis (methylamine) isomerization. 3,829,490, Cl. 260-563.00d.
- Mueller, Wolfgang H.; Thaler, Warren A.; and Oswald, Alexis A., to Esso Research and Engineering Company. Preparation of S-2-hydrocarbylthioalkyl esters of thiophosphorus acids. 3,829,535, Cl. 260-979.000.
- Muijderland, Everhardus Albertus: See—
De Bonth, Petrus Cornelis Wilhelmus Maria; Osing, Halbe; Verburg, Cornelis Andries; and Muijderland, Everhardus Albertus, 3,829,270.
- Mulder, Cornelius, to U.S. Philips Corporation. Microampere current source. 3,829,789, Cl. 330-23.000.
- Muller, Willi, to Siemens Aktiengesellschaft. Voltage transformer for a fully insulated metal-clad, high-voltage switching installation. 3,829,742, Cl. 317-103.000.
- Multiply Development Corporation, Ltd.: See—
Lambert, Robert D., 3,828,399.
- Muraoka, Hisashi; Asano, Masafumi; Ohashi, Taizo; and Shimazaki, Yuzo, to Tokyo Shibaura Electric Co., Ltd. Method of manufacturing silanes. 3,829,555, Cl. 423-347.000.
- Murase, Kenaki: See—
Saito, Masaru; Hasegawa, Norio; and Murase, Kenaki, 3,828,902.
- Muratani, Takuro; Saito, Hideki; and Watanabe, Tatsuo, to Kokusai Denshin Denwa Kabushiki Kaisha. Control system for diversity transmission in a terrestrial station of satellite communication. 3,829,777, Cl. 325-4.000.
- Murayama, Keisuke; Morimura, Syoji; Horiuchi, Hideo; Matsui, Katsuaki; Kurumada, Tomoyuki; and Ohta, Noriyuki, to Sankyo Company Limited. Stabilization of synthetic polymers with certain pipe ridino-thiazoline compounds. 3,829,404, Cl. 260-45.8sn.
- Murphree, Francis J., to United States of America, Navy. Sonar reverberation simulator. 3,829,596, Cl. 35-10.400.
- Murray, Lowell C.; and Ruble, John G., to Container Corporation of America. Combination gift wrap and receptacle. 3,829,008, Cl. 229-87.00r.
- N L Industries, Inc.: See—
Rutt, Truman C., 3,829,356.
- Nagahiro, Michinori; Deguchi, Masahiro; and Kuroe, Akio, to Matsushita Electric Industrial Co., Ltd. Automatic tracking matching system. 3,829,892, Cl. 360-73.000.
- Nagatsumo, Katsuyoshi: See—
Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsumo, Katsuyoshi; and Furukawa, Hitoshi, 3,829,228.
- Nagawa, Seishichiro: See—
Okada, Senry; Hanawa, Masaaki; Ohoka, Mitsuo; Nagawa, Seishichiro; and Nawa, Toshio, 3,829,273.
- Naitou, Nobuyoshi; Baba, Keizi; Huziwaru, Sighisa; and Yamanaka, Takeshi, to Omron Tateisi Electronics Company. Automatic vending machine including a plurality of customer units interconnected with a single processing and dispensing unit. 3,828,904, Cl. 19410.000.
- Nakabayashi, Masamitsu: See—
Matsui, Yutaka; Kazama, Seiji; and Nakabayashi, Masamitsu, 3,829,533.
- Nakagawa, Tadashi: See—
Onda, Eiichi; Koyama, Mitsuo; and Nakagawa, Tadashi, 3,829,878.
- Nakamura, Akinori: See—
Nanjo, Toshio; Aoshika, Masayuki; and Nakamura, Akinori, 3,829,595.
- Nakamura, Yoshio, to Toyo Purasu Sukuryu Kabushiki Kaisha (Toyo Plus Screw Co. Ltd.). Method of manufacturing a fastener such as a bolt, rivet, or the like. 3,828,382, Cl. 10-27.00r.
- Nakano, Masao, to Kawasaki Jukogyo Kabushiki Kaisha. Sealing arrangement for an air compressor. 3,829,252, Cl. 417-482.000.
- Nakano, Mitsuhiro: See—
Ogawa, Yoshikatsu; Katada, Keiji; Nakano, Mitsuhiro; and Yasumatsu, Kozi, 3,829,398.
- Nakata, Kazuo: See—
Yamamoto, Shinji; and Nakata, Kazuo, 3,829,831.
- Nambu, Shyuya, to Nissan Motor Company, Limited. Automotive air-fuel mixture heating system. 3,828,747, Cl. 123-122.0ab.
- Nandyal, Srinath, to Maremont Corporation. Special piston seal. 3,828,897, Cl. 188-317.000.
- Nanjo, Toshio; Aoshika, Masayuki; and Nakamura, Akinori, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. Electric direct-arc furnace. 3,829,595, Cl. 13-32.000.
- Napor, Carl A.; and Krumm, Charles G., to Kahle Engineering Co. Automatic flux spray dispenser. 3,829,017, Cl. 239-135.000.
- Nara, Akinao; Hara, Michio; Kanema, Seichi; and Kano, Minoru, to Hitachi, Ltd. Route control system for guided vehicles and the like. 3,828,685, Cl. 104-130.000.
- Nardizzi, Alfred M.: See—
Dillman, Richard F.; Larsen, James L.; and Nardizzi, Alfred M., 3,829,782.
- Nash, Gerald C. Adjustable pole support system. 3,828,937, Cl. 211-86.000.
- Nashivanko, Vitaly Dmitrievich: See—
Borisenko, Gleb Pavlovich; Chernobryvenko, Jury Sergeevich; Kutsov, Jury Georgievich; Gorbanev, Arkady Alexeevich; Kuskushkin, Oleg Nikolaevich; Krivobokov, Vladimir Nikolaevich; Pobegailo, Grigory Gavrilovich; and Nashivanko, Vitaly Dmitrievich, 3,828,600.
- National Cash Register Company, The: See—
Clark, Thomas R., 3,828,893.
- Soderstrom, Melvin A., 3,828,911.
- National Research Development Corporation: See—
Jehu, Victor James; and Pearson, Leonard Charles, 3,829,140.
- National Research Institute for Metals: See—
Araki, Toru; and Yamamoto, Shigeo, 3,829,312.
- Natkanski, Zygmunt, to Minnesota Mining and Manufacturing Company. Valve assembly. 3,828,811, Cl. 137-556.000.
- Natrass, Frank. Cargo sling. 3,829,144, Cl. 294-74.000.
- Nawa, Toshio: See—
Okada, Senry; Hanawa, Masaaki; Ohoka, Mitsuo; Nagawa, Seishichiro; and Nawa, Toshio, 3,829,273.
- Neal, William C. Kick-over tool. 3,828,853, Cl. 166-117.500.
- Neff, Frederick R. Electronic readout control. 3,828,622, Cl. 74-409.000.
- Neibauer, Lance A.: See—
Betzoldt, Louis F., 3,829,101.
- Neipling, Lawrence E.: See—
Matsuo, Jon T.; and Neipling, Lawrence E., 3,829,046.
- Neira, George: See—
Anderle, Joseph A.; and Neira, George, 3,828,838.
- Nelson, Norman C.; and Harley, Daniel C., to Kel-Lite Industries, Inc. Rechargeable flashlight. 3,829,676, Cl. 240-10.6ch.
- Nelson, Norman E., to Minnesota Mining and Manufacturing Company. Collapsing pin roller for tape cassette. 3,829,040, Cl. 242-199.000.
- Nemec, Charles A.: See—
Conrad, Victoria N.; and Nemec, Charles A., 3,828,366.
- Nepote, Alain Robert, to Etablissements Carpano & Pons S.A. Fishing reel drive mechanism. 3,829,041, Cl. 242-218.000.
- Ness, Irving Stanley: See—
Kennette, John Wilson; and Ness, Irving Stanley, 3,828,783.
- Ness, Richard A., to Alza Corporation. Microporous ocular device. 3,828,777, Cl. 128-260.000.
- Nestler, Richard; and Doetsch, Peter, to Masstabfabrik Schaffhausen AG. Adjustment-and arresting mechanism especially for a drafting table. 3,828,694, Cl. 108-10.000.
- Nesvadba, Emil: See—
Langer, Vojtech; Nesvadba, Emil; and Prerova, Rokytnice U., 3,829,210.
- Neuman, Milton C., to FMC Corporation. Piston for swash plate pump. 3,828,657, Cl. 92-258.000.
- Neumann, Calvin L.; and Best, Freddie W., to Reynolds Leasing Corporation, mesne. Tobacco expansion process utilizing microwave energy. 3,828,797, Cl. 131-140.00p.

- Neumann, Klaus; and Fritz, Wolfgang, to VEB Bergmann-Borsig/Goerlitz Maschinenbau. Electrical control arrangement for gas or steam turbines. 3,828,814, Cl. 137-599.000.
- Newcomer, Keith E., to Grace, W. R., & Co. Trailer hitch. 3,829,129, Cl. 280-416.00r.
- Newman, Stanley. Navigational computer. 3,829,658, Cl. 235-61.0nv.
- Newstead, Charles; and Wright, Andrew Charles Walden, to Girling Limited. Hydraulic actuating means for vehicle brakes. 3,828,898, Cl. 188-345.000.
- NGK Insulators, Ltd.: See—
Soejima, Shigeo; Ohmura, Akira; and Watanabe, Koichiro, 3,829,326.
- Niagara Blower Company: See—
Stutz, Robert C., 3,828,570.
- Nicholls, Bryan Frederick, to Mettoy Company Limited, The. Skates. 3,829,111, Cl. 280-11.300.
- Nicholls, Gordon A.: See—
Thompson, Norman S.; Nicholls, Gordon A.; and Han, Shu-Tang, 3,829,357.
- Nichols, Ronald A.; and Rakuson, George. Water skiing apparatus. 3,828,717, Cl. 115-6.100.
- Nicol, James; Shapiro, Sidney; and Roetter, Martyn F., to United States of America, Navy. Superconducting gradiometer for measuring first and second derivatives of a magnetic field. 3,829,768, Cl. 324-43.00r.
- Nidy, Eldon G.: See—
Kornis, Gabriel; and Nidy, Eldon G., 3,829,463.
- Kornis, Gabriel; and Nidy, Eldon G., 3,829,464.
- Nielsen, Jacob August: See—
Christensen, Svend; and Nielsen, Jacob August, 3,828,681.
- Nielsen, Lloyd A. Educational puzzle. 3,829,100, Cl. 273-157.00r.
- Nieuwenhoven, Hendricus Jacobus Cornelis: See—
van der Lely, Cornelis; and Nieuwenhoven, Hendricus Jacobus Cornelis, 3,828,954.
- Nigg, William, to Allen Electric and Equipment Company. Analyzer panel. 3,829,773, Cl. 324-114.000.
- Nihon Kogyo Co., Ltd.: See—
Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsumo, Katsuyoshi; and Furukawa, Hitoshi (said Miyasaki assor. to), 3,829,228.
- Nihon Polymer Co., Ltd.: See—
Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsumo, Katsuyoshi; and Furukawa, Hitoshi (said Suzuki assor. to), 3,829,228.
- Nikitin, Vladislav Iosifovich: See—
Larjukhin, Grigory Artemovich; Chernyshev, Valentin Vasilievich; Nikitin, Vladislav Iosifovich; Serikov, Jury Mitrofanovich; and Kosinov, Vyacheslav Georgievich, 3,828,560.
- Niles Parts Co., Ltd.: See—
Inaba, Shigeru, 3,829,812.
- Nilsson, Per-Erik; and Sjogren, Bengt-Ake Harald, to Aktiebolaget Bofors. Analog-to-digital converter. 3,829,852, Cl. 340-347.0nt.
- Nilsson, Sven Walter, to SKF Industrial Trading and Development Company B.V. Electrically driven ball or roll screw mechanism. 3,829,726, Cl. 310-83.000.
- Nippon Concrete Industries Co., Ltd.: See—
Okada, Senry; Hanawa, Masaaki; Ohoka, Mitsuo; Nagawa, Seishichiro; and Nawa, Toshio, 3,829,273.
- Nippon Electric Company, Limited: See—
Fujimoto, Hiroshi, 3,829,779.
- Tanaka, Kunihiro, 3,829,604.
- Nippon Felt Co., Ltd.: See—
Tsujibayashi, Koichi, 3,829,359.
- Nippon Kokag K.K.: See—
Ono, Shigeo, 3,829,867.
- Nippon Kokan Kabushiki Kaisha: See—
Usi, Genichi; and Komine, Isamu, 3,828,596.
- Nippondenso Co., Ltd.: See—
Kitano, Masao; and Kondo, Yasuo, 3,828,844.
- Nippon Oil and Fats Company Limited: See—
Kato, Mitsukuni; Komai, Takeshi; and Aoshima, Kazuyohi, 3,829,503.
- Nishida, Takao: See—
Miki, Shinsuke; and Nishida, Takao, 3,829,371.
- Nishiguchi, Kouichi, to Nissan Motor Company, Limited. System for reducing toxic compounds in exhaust gases from internal combustion engines. 3,828,552, Cl. 60-304.000.
- Nishikawa, Akikazu: See—
Shimizu, Tetuo; and Nishikawa, Akikazu, 3,829,761.
- Nishitani, Kiyoshi: See—
Ueda, Hiroshi; and Nishitani, Kiyoshi, 3,829,872.
- Nishizawa, Junichi; and Nonaka, Terumoto, to Zaidan Hojin Handotai Kenkyu Shinkokai. Charge coupled semiconductor memory device. 3,829,885, Cl. 357-24.000.
- Nissan Motor Company, Limited: See—
Gotoh, Miyuki; Mizuno, Yukio; and Shibata, Kazuo, 3,828,829.
- Hioki, Kazuo; and Onoda, Michio, 3,828,752.
- Nambu, Shyuya, 3,828,747.
- Nishiguchi, Kouichi, 3,828,552.
- Shimoda, Yasunori, 3,829,260.
- Yamamoto, Yukio, 3,828,594.
- Nitta, Tohei, to Westinghouse Electric Corporation. Electrical insulator having a special external surface configuration for improved performance in contaminated atmospheres. 3,829,629, Cl. 174-212.000.
- Nobusawa, Tsukumo, to Asahi Optical Co. Device for detecting a precise focusing point and an automatic focus adjusting device. 3,829,866, Cl. 354-25.000.
- Nolden, William F., to Johnson Service Company. Hydraulic actuator. 3,828,556, Cl. 60-432.000.
- Nomura, Yasuo: See—
Tanaka, Takashi; and Nomura, Yasuo, 3,829,895.
- Nonaka, Terumoto: See—
Nishizawa, Junichi; and Nonaka, Terumoto, 3,829,885.
- Nordsiek, Karl-Heinz: See—
Sommer, Neidhart; and Nordsiek, Karl-Heinz, 3,829,409.
- Norman, Keith: See—
Croasdale, Fred; Clayton, James William Barnes; and Norman, Keith, 3,828,539.
- North American Rockwell Corporation: See—
Reed, Edward L., 3,829,552.
- Norton Company: See—
Mahy, Tyler X., 3,829,310.
- Noto, William L.: See—
Cohen, Harold; and Noto, William L., 3,829,114.
- Noumi, Makoto; and Seki, Susumu, to Hitachi, Ltd. Double unit control device. 3,829,668, Cl. 235-153.0ae.
- Novak, Warren D., to Mosler Safe Company, The. Film cassette. 3,829,203, Cl. 352-78.00r.
- Nowack, Gerhard P.: See—
Zuech, Ernst A.; Johnson, Marvin M.; and Nowack, Gerhard P., 3,829,515.
- Nowak, Bernard E.: See—
Cottis, Steve G.; Economy, James; and Nowak, Bernard E., 3,829,406.
- Nowak, Herbert: See—
Irmischer, Klaus; Kramer, Josef; Cimbollek, Gerhard; Orth, Dieter; Nowak, Herbert; and Freisberg, Karl-Otto, 3,829,421.
- Nowell, John R., to Honeywell Information Systems, Inc. Sequencer for a multiple switching regulator. 3,829,755, Cl. 321-2.000.
- Nozaki, Kenzie, to Shell Oil Company. Production of diethyl ketone. 3,829,499, Cl. 260-597.00a.
- Nozawa, Hideo; Aoki, Masayoshi; and Isono, Shoji, to Kabushiki Kaisha Daini Seikosa. Watertight watch case. 3,828,549, Cl. 58-90.00r.
- N.V. Bekaert S.A.: See—
Van Vlaenderen, Roger, 3,829,545.
- Oakes, Vincent; and Cross, David F.W., to Interstab Limited, mesne. Vinyl chloride resins stabilized with metal compound-epoxy compound-phosphite combination. 3,829,396, Cl. 260-23.0xa.
- Obermiller, Herbert C.: See—
Delamater, Charles E.; Obermiller, Herbert C.; and Kryah, John C., 3,828,698.
- Oberto, Edwin L., to Burgess Vibrocrafters, Inc. Oscillating water sprinkler. 3,829,018, Cl. 239-242.000.
- Obstfelder, Guenther: See—
Soehring, Gerhard; Moessner, Manfred; Kreutze, Gerhard; and Obstfelder, Guenther, 3,829,206.
- Oce-van der Grinten N.V.: See—
Van Meijel, Henricus J. M.; and van der Sterren, Martin L., 3,829,208.
- Ocean Power Generation, Inc.: See—
Mochel, Ashton, 3,828,557.
- O'Connor, Chadwell. Roller band actuator. 3,828,615, Cl. 74-89.220.
- O'Connor, Robert. Vehicle seat harness. 3,829,158, Cl. 297-390.000.
- O'Driscoll, Kenneth F.; and Isen, Allan A., to Warner-Lambert Company, mesne. Method of cleaning a soft hydrophilic contact lens. 3,829,329, Cl. 134-26.000.
- Oestergren, Henrik William Stig, to Aktiebolaget Fredr. Wagner. Direction reversing device for transport equipment. 3,828,917, Cl. 198-127.00r.
- Oesterling, Thomas O.: See—
Stehle, Randall G.; and Oesterling, Thomas O., 3,828,579.
- Stehle, Randall G.; and Oesterling, Thomas O., 3,829,579.
- Oestmann, Eldon D., to Caterpillar Tractor Company. High drive-track-type vehicle. 3,828,873, Cl. 180-9.500.
- Oestmann, Eldon D.; and Alexander, George F., to Caterpillar Tractor Co. Recoil mechanism for track-type tractors. 3,829,172, Cl. 305-10.000.
- Offshore Company, The: See—
Moore, William H.; Richardson, George T.; and Pease, Floyd T., 3,828,561.
- Offutt, Elmer Bradley; and Babich, Edward, to Vendo Company, The. Divided shelf structure for helix type product dispensing machines. 3,828,971, Cl. 221-75.000.
- Ogawa, Yoshikatsu; Katada, Keiji; Nakano, Mitsuhiro; and Yasumatsu, Kozi, to Marubishi Yuka Kogyo Kabushiki Kaisha. Plasticized vinyl chloride polymer composition for transparent packing film. 3,829,398, Cl. 260-31.80r.
- Ogiso, Mitsutoshi: See—
Aizawa, Hiroshi; Sunouchi, Akio; and Ogiso, Mitsutoshi, 3,829,868.
- Ogle, Robert Walter, to IMS, Limited. Flex-o-jet. 3,828,779, Cl. 128-272.000.

- Ogoro, Masanobu; and Takashi, Kiyoshi, to Canon Kabushiki Kaisha. Photographic camera. 3,829,870, Cl. 354-50.000.
- Ogura, Katsutoshi; and Chikazawa, Katsuichi, to Sumitomo Electric Industries, Ltd. Marking apparatus for elongated objects. 3,828,665, Cl. 101-36.000.
- Ohashi, Taizo: See—
Muraoka, Hisashi; Asano, Masafumi; Ohashi, Taizo; and Shimazaki, Yuzo, 3,829,555.
- Ohira, Tutomu: See—
Kato, Tetsuya; and Ohira, Tutomu, 3,829,400.
- Ohmura, Akira: See—
Soejima, Shigeo; Ohmura, Akira; and Watanabe, Koichiro, 3,829,326.
- Ohno, Hidetoshi: See—
Ishida, Shinichi; Oshima, Noboru; Kurita, Kunio; Suzuki, Isamu; and Ohno, Hidetoshi, 3,829,379.
- Ohoka, Mitsuo: See—
Okada, Senry; Hanawa, Masaaki; Ohoka, Mitsuo; Nagawa, Seishichiro; and Nawa, Toshio, 3,829,273.
- Ohorodnik, Alexander; Sennwald, Kurt; Hunderick, Joachim; and Stutzke, Paul, to Knapsack Aktiengesellschaft. Process for preparing mono-chloroacetic acid. 3,829,478, Cl. 260-539.00a.
- Ohta, Noriyuki: See—
Murayama, Keisuke; Morimura, Syoji; Horiuchi, Hideo; Matsui, Katsuki; Kurumada, Tomoyuki; and Ohta, Noriyuki, 3,829,404.
- Oka, Yuushi: See—
Hoshino, Masao; and Oka, Yuushi, 3,829,361.
- Okada, Senry; Hanawa, Masaaki; Ohoka, Mitsuo; Nagawa, Seishichiro; and Nawa, Toshio, to Nippon Concrete Industries Co., Ltd. Device for separating concrete pole and the like from mold frame. 3,829,273, Cl. 425-444.000.
- Okayama, Sigeru, 1/2 to Kabushiki Kaisha Medica. Photographic enlargement instrument. 3,829,212, Cl. 355-75.000.
- Oktronics, Inc.: See—
Davenport, Raymond A., 3,829,748.
- Olbo Textilwerke GmbH, Firma: See—
Alker, Heinrich, 3,828,544.
- Oliver, Ward H.: See—
Sieber, Alexander; Kny, Hermann; and Oliver, Ward H., 3,829,496.
- Oliver, Wilfred T.: See—
Hailstone, Victor L.; Harper, Ronald N.; and Oliver, Wilfred T., 3,829,069.
- Olivetti, Ing., C., & C., S.p.A.: See—
Roano, Domenico; and Quarisa, Armando, 3,828,909.
- Olshansky, Nikolai Alexandrovich; Smelyansky, Matvei Yakovlevich; Lopatko, Anatoly Petrovich; Tkachev, Leonid Grigorievich; Kozhaev, Arkady Filippovich; Sapozhnikov, Alexandr Ivanovich; and Chernakov, Gennady Anatolevich. Method of electron-beam welding of thick parts by vertical and girth seams. 3,829,651, Cl. 219-121.00m.
- Omori, Thomas T.; and Imaoka Hiroshi, to Kreha Corporation of America. Carbon paper. 3,829,327, Cl. 117-226.000.
- Omon Tateisi Electronics Company: See—
Naitou, Nobuyoshi; Baba, Keizi; Huziwaru, Sige-hisa; and Yamanaka, Takesi, 3,828,904.
- Onda, Eiichi; Koyama, Mitsuo; and Nakagawa, Tadashi, to Seiko Koki Kabushiki Kaisha. Focal plane shutter with groups of shutter blades. 3,829,878, Cl. 354-246.000.
- Ono, Shigeo, to Nippon Kogaku K.K. Camera equipped with an automatic exposure control system. 3,829,867, Cl. 354-28.000.
- Onoda, Michio: See—
Hioki, Kazuo; and Onoda, Michio, 3,828,752.
- Oohara, Saburo, to Kanebo Ltd. Method and apparatus for cleaning waste liquid containing diluted dye. 3,829,380, Cl. 210-30.000.
- Orendi, Roderich, to Gustav Wagner Maschinenfabrik. Circular saw. 3,828,642, Cl. 83-823.000.
- Orenstein & Koppel AG: See—
Scholler, Gerhard, 3,828,913.
- Ortiz, Angel J. Pipe cutting and plugging machine. 3,828,408, Cl. 29-33.00r.
- Ornstein, Jacob L.: See—
Charest, Kenneth; Hanley, Robert F.; and Ornstein, Jacob L., 3,829,296.
- Orshitzer, Philip: See—
Barry, Richard H.; Matluck, Meyer; and Orshitzer, Philip, 3,829,563.
- Ortel, Gerhard, to Kuper, Heinrich. Process and apparatus for positioning sheets. 3,829,345, Cl. 156-393.000.
- Ortelli, Aurelio, to Riva Calzoni S.p.A. Exhaust valve for internal combustion engine. 3,828,808, Cl. 137-340.000.
- Orth, Dieter: See—
Irmscher, Klaus; Kramer, Josef; Cimbollek, Gerhard; Orth, Dieter; Nowak, Herbert; and Freisberg, Karl-Otto, 3,829,421.
- Osana, Hiroshi: See—
Ishikawa, Hisao; Osana, Hiroshi; and Kawabata, Terutsugu, 3,829,602.
- Oshida, Yoshitada: See—
Tsunoda, Yoshito; and Oshida, Yoshitada, 3,829,193.
- Oshima, Noboru: See—
Ishida, Shinichi; Oshima, Noboru; Kurita, Kunio; Suzuki, Isamu; and Ohno, Hidetoshi, 3,829,379.
- Osing, Halbe: See—
De Bonth, Petrus Cornelis Wilhelmus Maria; Osing, Halbe; Verburg, Cornelis Andries; and Muijderland, Everhardus Albertus, 3,829,270.
- Oswald, Alexis A.: See—
Mueller, Wolfgang H.; Thaler, Warren A.; and Oswald, Alexis A., 3,829,535.
- Ott, Hans: See—
Hardtmann, Goetz E.; and Ott, Hans, 3,829,422.
- Otterbeck, Finn: See—
Brautaset, Steinar; and Otterbeck, Finn, 3,829,050.
- Ottinger, Robert S.: See—
Banks, Michael E.; Lusk, Walter D.; and Ottinger, Robert S., 3,829,558.
- Ottmar, Paul; and Stein, Hermann, to Didier-Werke AG. Refractory block for lining firing and melting chambers. 3,828,509, Cl. 52-497.000.
- Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna. Method for the activation of loose ingredients of elastomer mixes. 3,829,028, Cl. 241-1.000.
- Ovonic Image Systems, Inc.: See—
Smitzer, Louis A.; and Arntmann, Jurgen, 3,829,215.
- Owen, Robert E., to General Motors Corporation. Annular dessiccant tank for air leveling systems. 3,828,881, Cl. 180-75.000.
- Owens-Corning Fiberglass Corporation: See—
Haynes, Harold L.; and Harvey, Michael J., 3,829,302.
- Russell, Robert G., 3,829,301.
- Owsley, Herbert B.: See—
Bunn, Stuart E.; and Owsley, Herbert B., 3,829,253.
- Oyagi, Syuji: See—
Fuji, Masaru; Oyagi, Syuji; Kamei, Tutomu; and Mori, Inosuke, 3,828,737.
- Ozutsu, Minoru; Miyazawa, Yoshihide; Motohashi, Katsuichi; and Kiritani, Masataka, to Hodogaya Chemical Co., Ltd. and Fuji Photo Film Co., Ltd. Pressure-sensitive phthalide compound copying sheet. 3,829,322, Cl. 117-36.800.
- Pacific Communications, Inc.: See—
Letson, Richard A.; and Cormey, Walter P., 3,829,781.
- Pahlas, Clark J., to Palmer, A.N., Company, The. Combination game and educational device. 3,829,088, Cl. 273-1.00m.
- Paimen, Tuomas. Brake adjuster. 3,828,896, Cl. 188-79.5sc.
- Pakhomov, Ilia Fedorovich: See—
Glushko, Mikhail Fedorovich; and Pakhomov, Ilia Fedorovich, 3,828,938.
- Pako Corporation: See—
Mickelson, Maurice G., 3,829,034.
- Palagyi, Tivadar: See—
Galgoczy, Gabor; Gyulai, Zoltan; Palagyi, Tivadar; and Wagen-sommer, Jozsef, 3,828,515.
- Palmer, A.N., Company, The: See—
Pahlas, Clark J., 3,829,088.
- Palmer, Lewis H., III: See—
Westlund, Arnold E., Jr.; Palmer, Lewis H., III; Audesse, Emery G.; and Huston, Leroy S., 3,829,729.
- Palumbo, Arnoldo. Resonating tethered tubular members. 3,828,468, Cl. 46-191.000.
- Park, Alexander C., to A & C Park Incorporated. Engine driven cart. 3,829,117, Cl. 280-96.100.
- Park, Richard E.: See—
Gathright, Jack G.; and Park, Richard E., 3,829,671.
- Parker, Levi C.: See—
Senn, Charles A., III; and Parker, Levi C., 3,829,524.
- Parkinson, Geoffrey John, to T.I. (Group Services) Limited. Gauging dimensions. 3,829,220, Cl. 356-160.000.
- Parkinson, Howard E.: See—
Conroy, George J.; and Parkinson, Howard E., 3,829,856.
- Patz, Paul. Multisection conveyor having adjustable elbow between adjacent conveyor sections. 3,828,916, Cl. 198-115.000.
- Pavlov, Roman Vladimirovich: See—
Bykov, Alexandr Vasilievich; Scherbakov, Vsevolod Sergeevich; Sudarkin, Lev Alexandrovich; and Pavlov, Roman Vladimirovich, 3,829,255.
- Payne, Bryan Oliver, to Vickers Limited. Image-splitting devices for sizing instruments. 3,829,609, Cl. 178-6.800.
- Payne, P. Donald, to Mos Technology, Inc. Artproof method for semiconductor devices. 3,829,213, Cl. 355-79.000.
- Payne, Peter R.: See—
Karaganis, James J.; and Payne, Peter R., 3,829,861.
- Payne, Stanley D.: See—
Hill, Donald E.; Payne, Stanley D.; and Walker, Robert G., 3,828,830.
- Peace, Franklin. Dispensing apparatus for applying exterminating and preservative compositions. 3,828,464, Cl. 43-131.000.
- Pearce, Reginald: See—
Metzger, Michael V.; and Pearce, Reginald, 3,829,299.
- Pearson, Leonard Charles: See—
Jehu, Victor James; and Pearson, Leonard Charles, 3,829,140.
- Pease, Floyd T.: See—
Moore, William H.; Richardson, George T.; and Pease, Floyd T., 3,828,561.
- Pech, Michel: See—

- Charles, Ernest; Leroy, Jean-Claude; and Pech, Michel, 3,829,509.
- Peck, William H.; and Collier, Samuel A. Solid bowl centrifugal separator. 3,829,009, Cl. 233-7.000.
- Peckinpaugh, Frank Lee; Stables, Wilbur Leon; and Biron, Raymond Joseph. Allied Chemical Corporation Commingling jet for multifilament yarn. 3,828,404, Cl. 28-1.400.
- Pelanz, Herbert M., to Allis-Chalmers Corporation. Gas insulated high voltage electrical transmission line with means for damping transients. 3,829,707, Cl. 307-147.000.
- Pelton & Crane Company: See—
Lefler, Dennis F., 3,829,159.
- Penberthy, Harvey Larry. Gasoline stove. 3,829,278, Cl. 431-227.000.
- PEPRO, Societe pour le Developpement et al Vente de Specialities Chimiques: See—
Demozay, Daniel, 3,829,568.
- Performance Industries, Inc.: See—
Sutton, Lawrence R.; Ranno, Carl P.; and Hewson, Kenneth E., 3,828,391.
- Perini, Paul A.: See—
Testaguzza, Gino S.; and Perini, Paul A., 3,828,496.
- Perkin-Elmer Corporation, The: See—
Hufnagel, Robert E., 3,829,691.
- Perkins, Garry R., to Spotnails, Inc. Coiled strip of collated fasteners. 3,828,924, Cl. 206-343.000.
- Perkins Marine Lamp and Hardware Corporation: See—
Perkins, Marvin S., 3,828,714.
- Perkins, Marvin S., to Perkins Marine Lamp and Hardware Corporation. Marine hardware. 3,828,714, Cl. 114-218.000.
- Perloff, David S.; Kerr, John T.; and Marley, James A., 1/2 interest to Corning Glass Works and 1/2 interest to Signetics Corporation. Ion implanted resistor and method. 3,829,890, Cl. 357-91.000.
- Perma-Blade, Inc.: See—
Bonney, John L. V., Jr., 3,828,638.
- Perrin, Duane O.; and Smegal, Julius G. Pipe coupling. 3,828,403, Cl. 24-270.000.
- Perrin, George S., to Plastic Research and Development Corporation. Drop spin fishing lure. 3,828,463, Cl. 43-42.110.
- Perrotti, Emilio: See—
Mattucci, Anna Maria; and Perrotti, Emilio, 3,829,502.
- Perrotti, Emilio; and Koch, Paolo. Process for the production of alkyl-sulfuric acids and corresponding salts. 3,829,457, Cl. 260-459.000.
- Persidsky, Maxim D. Optical system and method for counting sperm cells. 3,829,216, Cl. 356-36.000.
- Peters Machinery Company: See—
Talbat, Richard C.; Rose, Edward; and Roth, Robert A., 3,828,918.
- Peters, Max D. Filter system. 3,828,530, Cl. 55-473.000.
- Petersen, Sigurd R.; and Young, Josiah L., to Westinghouse Electric Corporation. Rectifier assembly for brushless excitation systems. 3,829,725, Cl. 310-68.00d.
- Peterson Machine Tool, Inc.: See—
Goering, Dan H., 3,829,257.
- Peterson, Richard H.; and Finch, Robert A. Keyboard instrument player system with time division multiplexing techniques and synchronized rhythm device. 3,829,597, Cl. 84-1.030.
- Peterson, William H., to Pullman Incorporated. Pneumatic hopper car door actuating system. 3,828,948, Cl. 214-63.000.
- Petres, Stephen Anthony, to Joslyn Manufacturing and Supply Company. Method and apparatus for installing anchors. 3,828,562, Cl. 61-53.500.
- Petsch, Harold A., to Chaska Chemical Company, Inc. Spinner assembly. 3,829,019, Cl. 239-251.000.
- Petibone Corporation: See—
Lund, Robert S.; and Koss, Vernon J., 3,828,840.
- Peytier, Andre: See—
Pietermaat, Francois Paul; Peytier, Andre; and Berckmans, Walter, 3,829,608.
- Pfiffner, Albert: See—
Chodnek, Madhukar Subraya; Pfiffner, Albert; Rigassi, Norbert; Schwieter, Ulrich; and Suchy, Milos, 3,829,577.
- Pfizer Inc.: See—
Conover, Lloyd H.; and Woodward, Robert B., 3,829,453.
- Evanega, George R.; Kuhla, Donald E.; and Sarges, Reinhard, 3,829,434.
- Kadin, Saul B., 3,829,446.
- Richards, Hugh C., 3,829,573.
- Phelon, R.E., Company, Inc.: See—
Phelon, Russell D.; and Van Amsterdam, John C., 3,828,426.
- Phelon, Russell D.; and Van Amsterdam, John C., to Phelon, R.E., Company, Inc. Method of fabricating magnetomotive devices. 3,828,426, Cl. 29-598.000.
- Phelps Dodge Industries, Inc.: See—
Carlsson, Sven A., 3,828,502.
- Phillips Petroleum Company: See—
Woodruff, Gene N., 3,829,321.
- Phillips, Charles E. Particulate material mixing machine. 3,829,066, Cl. 259-3.000.
- Phillips, Dale P.: See—
Phillips, Dale P.; and Schlesinger, Jefferson S. (said Schlesinger assor. to said), 3,829,590.
- Phillips, Dale P.; and Schlesinger, Jefferson S., said Schlesinger assor. to said Phillips, Dale P. Method of upgrading wheat. 3,829,590, Cl. 426-578.000.
- Phillips, Floyd L., Jr. Reynolds, R. J., Tobacco Company Composite slideable dispensing carton. 3,828,923, Cl. 206-254.000.
- Phillips Petroleum Company: See—
Doss, Richard C.; and Thomas, Moses L., 3,829,526.
- Gardner, Lloyd E., 3,829,513.
- Zuech, Ernest A., 3,829,514.
- Zuech, Ernest A.; and Johnson, Marvin M., 3,829,516.
- Zuech, Ernest A., 3,829,517.
- Zuech, Ernst A.; Johnson, Marvin M.; and Nowack, Gerhard P., 3,829,515.
- Phillips, Raymond Jeffrey: See—
Dabell, Kenneth Hazelton; and Phillips, Raymond Jeffrey, 3,828,862.
- Phillips, Richard C., to Insulation & Ceiling Supply. Ceiling panel insert. 3,828,506, Cl. 52-475.000.
- Physiological Electronics Corporation: See—
Douglas, David W., 3,828,768.
- Piber, Earl T., to Cutler-Hammer, Inc. Off-locking overhanging trigger switch. 3,829,645, Cl. 200-157.000.
- Picker Corporation: See—
Goetz, Jerry E., 3,829,698.
- Hura, Michael Wickliffe, 3,829,701.
- Pieper, Eberhard: See—
Stetter, Georg; and Pieper, Eberhard, 3,829,254.
- Pierie, Charles Gorgas. Door return and closure mechanism. 3,828,393, Cl. 16-65.000.
- Pietermaat, Francois Paul; Peytier, Andre; and Berckmans, Walter, to AGFA-Gevaert N.V. Device for recording images with signal level being maintained for one line period. 3,829,608, Cl. 178-6.60a.
- Pietrasz, Vincent: See—
Reash, Clair W.; and Pietrasz, Vincent, 3,829,730.
- Pillischafske, Edward L. Clamp bolt for an automotive vehicle battery. 3,829,824, Cl. 339-230.00c.
- Pincoffs, Peter H.: See—
Bozanic, Donald A.; Mergerian, Dickron; Minarik, Ronald W.; and Pincoffs, Peter H., 3,829,760.
- Pinette, Laurier A., 49 1/2% to Ismann, Herbert. Method and apparatus for forming fine mesh non-woven web. 3,829,339, Cl. 156-179.000.
- Pinkham, Jesse R., to Reynolds, R.J., Tobacco Company. Stsem and apparatus for handling green leaf tobacco at the warehouse level. 3,828,662, Cl. 100-7.000.
- Pitney-Bowes, Inc.: See—
Luperti, Harry E., 3,828,634.
- Plasko, Emil Robert, to Micro Devices Corporation. Thermal limiter construction and electrical switch and system utilizing the same. 3,829,809, Cl. 337-107.000.
- Plasser, Franz; Theurer, Josef; and Schubert, Egon, to Plasser, Franz Bahnbaumaschinen-Industrie Gesellschaft, m.b.H. Track surveying. 3,828,440, Cl. 33-144.000.
- Plasser, Franz Bahnbaumaschinen-Industrie Gesellschaft, m.b.H.: See—
Plasser, Franz; Theurer, Josef; and Schubert, Egon, 3,828,440.
- Plastic Forming Company, Inc., The: See—
Schurman, Peter T., 3,828,969.
- Plastic Research and Development Corporation: See—
Perrin, George S., 3,828,463.
- Plastronics Corporation: See—
Bird, Stanford W., 3,829,143.
- Platt International Limited: See—
Croasdale, Fred; Clayton, James William Barnes; and Norman, Keith, 3,828,539.
- Platt, Thomas W.; and Arnold, Harmon W., to Flex-O-Latros, Inc. Wire fabric. 3,829,048, Cl. 245-1.000.
- Plessey Handel und Investments A.G.: See—
Beavitt, Alan Robert, 3,829,817.
- Berlock, Monty David; and Dobrowolski, Tadeusz, 3,829,735.
- Pliva Pharmaceutical and Chemical Works: See—
Butula, Ivan; and Karlovic, Gordana, 3,829,493.
- Pobegailo, Grigory Gavrilovich: See—
Borisenko, Gleb Pavlovich; Chernobryvenko, Jury Sergeevich; Kutsov, Jury Georgievich; Gorbanev, Arkady Alexeevich; Kuskushkin, Oleg Nikolaevich; Krivobokov, Vladimir Nikolaevich; Pobegailo, Grigory Gavrilovich; and Nashivanko, Vitaly Dmitrievich, 3,828,600.
- Pocock, Adrian R. A.; and Cole, Michael A., to Chandler Evans Inc. Binary rate multiplier. 3,829,665, Cl. 235-150.300.
- Polach, Josef: See—
Jancik, Frantisek; and Polach, Josef, 3,828,385.
- Poland, Robert L., to Kewanee Machinery & Conveyor Co., a division of Chromalloy American Corporation. Agricultural implement with foldable wings. 3,828,860, Cl. 172-311.000.
- Polaroid Corporation: See—
Bader, Henry; and January, Susan C., 3,829,443.
- Downey, Rogers B.; and Thomas, Paul W., 3,829,205.
- Erlichman, Irving, 3,828,421.
- Feingold, Michael H., 3,829,445.
- Gold, Nicholas, 3,829,871.
- Powers, Sheldon D.; and Thoenen, Earl R., 3,829,879.
- Polin, Stanton G. Temporary colostomy tube. 3,828,782, Cl. 128-283.000.
- Polio Establishment: See—
Vogeli, Ernat, 3,829,175.
- Pollich, Gerhard: See—
Jeschke, Willi; and Pollich, Gerhard, 3,829,085.
- Poplinski, Charles A. Compactor for use in compacting and discharging loose material. 3,828,663, Cl. 100-42.000.

Portinari, Giovanni; and Zagarella, Adriano, to Industrie Pirelli Societa Per Azioni. Joint for electric cables having conductor insulated with an extruded dielectric. 3,829,600, Cl. 174-73.00r.

Portland Wire & Iron Works: See—
Moore, James C., 3,829,150.

Posselt, Klaus: See—
Thiele, Kurt; and Posselt, Klaus, 3,829,469.

Powanda, Thomas Michael, to Celanese Corporation. Oilless alkyls. 3,829,530, Cl. 260-850.000.

Powell, Gordon Francis Wellington, to Molins Limited. Rod guide assembly for continuous rod making machines. 3,829,695, Cl. 250-358.000.

Powers, Sheldon D.; and Thoenen, Earl R., to Polaroid Corporation. Low-cost photographic fluid spreading apparatus. 3,829,879, Cl. 354-304.000.

Powling, Frank F.: See—
Smith, Jerry L.; and Powling, Frank F., 3,829,633.

Poyak, Steve. Non-staking corner slugs for joining mitred extrusions. 3,828,401, Cl. 24-73.00b.

Pozharskaya, Galina Tikhonovna: See—
Belyaev, Viktor Borisovich; Butrova, Ekaterina Sergeevna; Kiselev, Yuri Vladimirovich; and Pozharskaya, Galina Tikhonovna, 3,829,733.

PPG Industries, Inc.: See—
Kunkle, Gerald E., 3,829,304.
Shealy, Robert G., 3,829,300.

Prade, Wolfgang, to Zbrojovka, Narodni podnik. Page end indicator mechanism for typewriters or like machines. 3,828,912, Cl. 197-189.000.

Pradt, Louis A.: See—
Copa, William M.; and Pradt, Louis A., 3,828,525.

Prager, Irwin D. Safety swim or safety float emergency float. 3,828,381, Cl. 9-316.000.

Prakken, Gerrit: See—
T'Jampens, Germain Remi; and Prakken, Gerrit, 3,829,731.

Pratt Manufacturing Corporation: See—
Smith, Richard W., 3,828,636.

Prefecture de Police: See—
Thiebault, Robert, 3,828,590.

Prentice, James C.: See—
Langdon, David H.; Prentice, James C.; and Van Olinda, David L., 3,829,842.

Prerova, Rokytnice U.: See—
Langer, Vojtech; Nesvadba, Emil; and Prerova, Rokytnice U., 3,829,210.

Pressley, Arthur Mitchell: See—
Goodbar, Reid C.; and Pressley, Arthur Mitchell, 3,828,543.

Price, Raymond M., to United States of America, Army, mesne. Propellants plasticized with high energy compounds and having high energy polymers as binder. 3,829,336, Cl. 149-19.300.

Priestley, Michael John; and Cornthwaite, Eric, to International Computers Limited. Signal switching and distributing systems. 3,829,801, Cl. 333-7.000.

Princeton Electro Dynamics, Inc.: See—
Long, Donald Charles; Hartsough, Albert Charles; and Sanford, Robert Fincher, 3,829,683.

Prino, Giuseppe: See—
Butti, Adriano; Prino, Giuseppe; and Mantovani, Marisa, 3,829,567.

Prints, Thomas R.: See—
Bouton, Frank M., Jr.; and Prints, Thomas R., 3,829,673.

Prisk, Bert C., to General Motors Corporation. Laminated liquid pump and method of making same. 3,829,342, Cl. 156-257.000.

Procter & Gamble Company, The: See—
Abbott, Charles Theodor, Jr.; and Smith, George Cummingha, Jr., 3,829,385.

Production Machinery Corporation: See—
Withrow, David A., 3,828,599.

Productions Sarcem S.A.: See—
Sallin, Pierre, 3,829,037.

Produits Chimiques Pechiney-Saint-Gobain: See—
Strini, Jean-Claude, 3,829,477.

Progil: See—
Berthou, Jean; and Barrillon, Claude Gerbelot, 3,829,451.
Charles, Ernest; Leroi, Jean-Claude; and Pech, Michel, 3,829,509.

Prosser, Paul Edward: See—
Sheffield, David John; Prosser, Paul Edward; and Charman, Bernard William, 3,828,603.

Provancher, Ronald W.: See—
Eissinger, Ramon C.; and Provancher, Ronald W., 3,828,885.

Province, William F.; and Cooper, Wayne E., to Ridge Tool Company. The. Pipe alignment device. 3,828,413, Cl. 29-200.00p.

Prozorov, Vladimir Nikolaevich: See—
Krasnov, Mikhail Mikhailovich; Stelmakh, Mitrofan Fedorovich; Malyshev, Boris Nikolaevich; Prozorov, Vladimir Nikolaevich; Saprykin, Pavel Ivanovich; and Batrukova, Maria Grigorievna, 3,828,788.

Pugh, Charles D., to Burlington Industries, Inc. Individual bobbin spindle stop motion for a twister. 3,828,540, Cl. 57-81.000.

Pullman Incorporated: See—
Peterson, William H., 3,828,948.
Quartulli, Orlando J., 3,828,474.

Purath, Bernd, to Demag Aktiengesellschaft. Railway vehicle. 3,828,691, Cl. 105-145.000.

Purdy, David L., to ARCO Nuclear Company, mesne. Self-contained artificial heart. 3,828,371, Cl. 3-1.000.

Pursley, Reedy Thomas. Portable syphonic pump. 3,829,249, Cl. 417-411.000.

Pyrocom, Inc.: See—
Atkin, Robert F., 3,828,701.

Qonaar Corporation: See—
Bock, Walter R., 3,828,907.

Qualley, Ray W.; and Thompson, Robert L., to Modine Manufacturing Company. Dual fuel burner apparatus. 3,829,279, Cl. 431-354.000.

Quarisa, Armando: See—
Roano, Domenico; and Quarisa, Armando, 3,828,909.

Quartulli, Orlando J., to Pullman Incorporated. Process for producing high strength reducing gas. 3,828,474, Cl. 48-214.000.

Quick, Graeme R., to Iowa State University Research Foundation. Vortex fan means for a crop gathering apparatus. 3,828,531, Cl. 56-12.900.

Raal, Frederick Anton: See—
Custers, Joseph Lambert Maria; and Raal, Frederick Anton, 3,828,848.

Raffenberg, Bruno, to Hoesch Maschinenfabrik Deutschland Aktien-gesellschaft. Device for rerailling rail vehicles. 3,828,689, Cl. 104-273.000.

Ragot, Raymond, to Speichim. Process for the smokeless burning of residues, and apparatus therefor. 3,828,700, Cl. 110-7.00s.

Rakuson, George: See—
Nichols, Ronald A.; and Rakuson, George, 3,828,717.

Ramazzotti, Dario J.: See—
Carillon, Frank R.; Meyer, William E.; and Ramazzotti, Dario J., 3,829,272.

Rammelt, Peter-Paul; and Siegmund, Gunter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the preparation of trifluoroacetyl chloride. 3,829,483, Cl. 260-544.00y.

Rank Organisation Limited, The: See—
Willis, John Robert; and Urquhart-Pullen, David Ian, 3,829,623.

Ranno, Carl P.: See—
Sutton, Lawrence R.; Ranno, Carl P.; and Hewson, Kenneth E., 3,828,391.

Ransburg Electro-Coating Corporation: See—
Scharfenberger, James A., 3,829,016.

Raschle, Josef, to Heberlein & Co. AG. Friction false-twist device. 3,828,541, Cl. 57-106.000.

Rassaerts, Heinz, to Chemische Werke Huls Aktiengesellschaft. Method for the separation of methallyl sulfonate. 3,829,472, Cl. 260-513.00b.

Ratner, Lev Semenovich: See—
Truskanov, David Matveevich; Brunin, Kirill Rudolfovich; and Ratner, Lev Semenovich, 3,829,864.

Ratnik, H. Ronald. Snow making apparatus. 3,829,013, Cl. 239-14.000.

Rattle, Jeffrey Douglas: See—
Allan, William Bell; Rattle, Jeffrey Douglas; and Atkinson, Arthur Gordon, 3,829,857.

Ratts, Kenneth Wayne, to Monsanto Company. Plant regulation with 2-halo-2',6'-disubstituted -N-amidomethyl-acetanilides. 3,829,306, Cl. 71-76.000.

Raue, Roderich; and Dorsch, Hans-Lothar, to Bayer Aktiengesellschaft. Benzimidazoline arylhydrazones dyestuffs. 3,829,418, Cl. 260-240.00g.

Raue, Roderich; Kruckenberg, Winfried; and Rohe, Ernst-Heinrich, to Bayer Aktiengesellschaft. Dyestuffs and process for their production. 3,829,461, Cl. 260-465.00d.

Rauer, Heinz Gunter: See—
Kirschner, Peter; and Rauer, Heinz Gunter, 3,829,119.

Raupach, Friedrich. Gas filled measuring condenser. 3,829,744, Cl. 317-244.000.

Raviv, Samuel. Electrolytic polishing of metals. 3,829,367, Cl. 204-129.950.

Rawson, Eric Gordon, to Bell Telephone Laboratories, Incorporated. Optical couplers. 3,829,195, Cl. 350-96.00r.

Ray, Louis Z. Turn lean restricter for motorcycles. 3,829,110, Cl. 280-8.000.

Raymond, John G., Jr. Surveying tape tensioning and leveling apparatus. 3,828,438, Cl. 33-137.00r.

Raytheon Company: See—
Barrett, Harrison H., 3,829,688.

RCA Corporation: See—
Beyers, Billy Wesley, Jr., 3,829,612.
Freedman, David Daniel, 3,829,853.
Goyer, Ronald Bruce, 3,829,716.
Schopp, James Conrad; and Stave, Frederick Roland, 3,829,611.
Warren, Henry Ray, 3,828,996.

Read, Brian. Pressure-monitoring relief valve. 3,828,812, Cl. 137-557.000.

Reagan, Donald W.: See—
Mishcon, Lester; and Reagan, Donald W., 3,828,581.

Reash, Clair W.; and Pietrasz, Vincent, to Union Carbide Corporation. Getter assembly. 3,829,730, Cl. 313-174.000.

Reba, Imants; and Wolthausen, Edward C., to Crown Zellerbach Corporation. Gasification system. 3,829,070, Cl. 261-77.000.

Redding, Harry L., Jr., to General Motors Corporation. Vehicle suspension system. 3,829,120, Cl. 280-124.00b.

Reddy, K. Narashimha, to Fairbanks Morse Inc. Flywheel magneto ignition system. 3,828,753, Cl. 123-148.00r.

Redmon, Don L.: See—
Fussell, Edward B., Jr.; and Redmon, Don L., 3,829,153.

Reed, Edward L., to North American Rockwell Corporation. Method of massively hydriding zirconium-uranium alloy. 3,829,552, Cl. 423-255.000.

Regie Nationale des Usines Renault: See—
Chevret, Remy, 3,829,184.
Miokovic, Stevan, 3,829,176.

Regie Nationale Des Usines Renault Billancourt: See—
Lecaillet, Pierre; and Dresser, Bruno, 3,828,649.
Roger, Yves, 3,828,628.

Rehm, Roger P., to Bauer Corporation. Multiple accessory attachment for ladders. 3,828,889, Cl. 182-107.000.

Reichert, C., Optische Werke AG: See—
Lechner, Gunther, 3,828,571.

Reichert, Donald G., to ABC Packaging Machine Corporation. Method of folding a box blank. 3,828,659, Cl. 93-49.00m.

Reimann, Gerhard: See—
Jenne, Oswald; Steinkuhl, Josef; Wiechmann, Otto; and Reimann, Gerhard, 3,829,280.

Reiter, Robert C., to Material Control, Inc. Aerating device for pulverulent material. 3,829,022, Cl. 239-288.500.

Reliance Electric Company: See—
Means, David K., 3,829,845.

Remmert, Hans-Jurgen, to Koepp Aktiengesellschaft. Process for laminating a foam plastics material with a sheet-like material. 3,829,343, Cl. 156-322.000.

Research Corporation: See—
Beale, William T., 3,828,558.
Vanderklaauw, Peter M., 3,828,513.

Retallack, Robert L. Electric railroad system with elevated conductor alongside the track. 3,829,631, Cl. 191-66.000.

Rettig, Charles E., to Allis, Louis, Company, The. Compensated adjustable frequency power supply of the inverter type. 3,829,754, Cl. 321-2.000.

Reuschel, Konrad: See—
Dietze, Wolfgang; Reuschel, Konrad; and Stut, Hans, 3,828,726.

Reuter, James L.; and Sandhu, Jagtar S., to Cogar Corporation. Apparatus for producing ion-free insulating layers. 3,828,722, Cl. 118-48.000.

Reynold Inc.: See—
Bradbury, Bernard G., 3,828,688.

Reynolds Leasing Corporation, mesne: See—
Neumann, Calvin L.; and Best, Freddie W., 3,828,797.

Reynolds, R. J. Tobacco Company: See—
Schumacher, Joseph N.; and Green, Charles R., 3,828,795.

Reynolds, R. J., Tobacco Company: See—
Pinkham, Jesse R., 3,828,662.

Reznicek, Frank. Tractor wheel dolly. 3,828,953, Cl. 214-332.000.

Rheinisch AG: See—
Jenne, Oswald; Steinkuhl, Josef; Wiechmann, Otto; and Reimann, Gerhard, 3,829,280.

Rhode-Poulenc S.A.: See—
Bourat, Guy, 3,829,370.

Ricci, Vero: See—
Shorin, Joseph E.; and Ricci, Vero, 3,828,995.

Rice, James S.: See—
Eickelberg, John E.; and Rice, James S., 3,829,848.

Rice, Leonard M., to Tri-Kem Corporation. Therapeutic composition and method for its use. 3,829,569, Cl. 424-232.000.

Rice, Walter W.: See—
Jensen, Reed J.; Rice, Walter W.; and Beattie, Willard H., 3,829,793.

Rich, Scott Rayfield. Frame assembly for mobile structures. 3,829,115, Cl. 280-34.00a.

Rich, Wolfgang, to Eberspacher, J. Space heater construction particularly for motor vehicles. 3,828,761, Cl. 126-90.00r.

Richards, Hugh C., to Pfizer Inc. Hexahydro pyrazinoquinolines as anti-schistosomal agents. 3,829,573, Cl. 424-250.000.

Richards, James C.: See—
Trescott, Edward B.; and Richards, James C., 3,829,480.

Richardson, Edwin A.: See—
Templeton, Charles C.; Street, Evan H., Jr.; and Richardson, Edwin A., 3,828,854.

Richardson, George T.: See—
Moore, William H.; Richardson, George T.; and Pease, Floyd T., 3,828,561.

Richardson Merrell Inc.: See—
Fleming, Robert W.; and Carr, Albert A., 3,828,578.

Richardson-Merrell Inc.: See—
Carr, Albert A.; Kinsolving, C. Richard; and Meyer, Donald R., 3,829,433.
Carr, Albert A.; and Grunwell, Joyce F., 3,829,440.
Fleming, Robert W.; and Carr, Albert A., 3,829,578.

Richt, Hubert, to Siemens Aktiengesellschaft. Direct-current motor with permanent-magnet rotor and sequentially energized stator windings. 3,829,749, Cl. 318-331.000.

Richter, Calvin; and Van Wyck, William E., 20% to Lee, Raymond, Organization, Inc., The. Fire escape and fire fighting capsule. 3,828,858, Cl. 169-62.000.

Richter, Heinz, to Loewe Opta GmbH. Circuit arrangement for establishing a constant potential of the chassis of an electrical device with relation to ground. 3,829,705, Cl. 307-94.000.

Richter, Reinhard H.; and Ulrich, Henri, to Upjohn Company. The. 4-Azidocarbonylphthalic anhydride, 4-isocyanatophthalic anhydride, and 4-lower alkoxy-carbonamido phthalic anhydride. 3,829,444, Cl. 260-346.300.

Ricoh Co., Ltd.: See—
Abe, Takeshi, 3,829,188.

Ridge Tool Company, The: See—
Province, William F.; and Cooper, Wayne E., 3,828,413.

Riedel, Wolfgang, to Bosch, Robert, GmbH. Switch actuating arrangement for use in motion picture projectors or the like. 3,829,204, Cl. 352-124.000.

Riegel Textile Corporation: See—
Goodbar, Reid C.; and Pressley, Arthur Mitchell, 3,828,543.

Rieger, Hans Wolfhart: See—
Kugler, Tibor; and Rieger, Hans Wolfhart, 3,829,374.

Riesenberg, Klaus-Otto: See—
Von Loewis of Menar, Alexander; and Riesenberg, Klaus-Otto, 3,829,166.

Rigassi, Norbert: See—
Chodnek, Madhukar Subraya; Pfiffner, Albert; Rigassi, Norbert; Schwieter, Ulrich; and Suchy, Milos, 3,829,577.

Riggs & Lombard, Inc.: See—
Holm, William J., 3,828,587.

Riha, Miloslav: See—
Cernocky, Jiri; Riha, Miloslav; and Martinec, Josef, 3,828,828.

Rinklin, Hermann: See—
Dorsch, Werner; and Rinklin, Hermann, 3,828,537.

Rion Kabushiki Kaisha: See—
Yao, Ching-Chun; and Tsuchiya, Hitoshi, 3,829,263.

Rist, Michel, to Societe Anonyme Francaise du Ferodo. Assisted steering control with automatic return, especially for automobile vehicles. 3,828,883, Cl. 180-79.20r.

Ritter, Gerhard: See—
Boyer, Wilhelm; Ritter, Josef; and Ritter, Gerhard, 3,828,416.

Ritter, Josef: See—
Boyer, Wilhelm; Ritter, Josef; and Ritter, Gerhard, 3,828,416.

Riva Calzoni S.p.A.: See—
Ortelli, Aurelio, 3,828,808.

River, Charles, Foundation: See—
Merrill, Edward W. (Estin, Hans H.; Cronkrite, Leonard W., Jr.; and Wolbach, William W., Trustees of the), 3,828,801.

Roano, Domenico; and Quarisa, Armando, to Olivetti, Ing., C., & C., S.p.A. Code keyboard for typewriters and similar office machines. 3,828,909, Cl. 197-16.000.

Robandt, William F., II; and Clearman, Jack F., to Whirlpool Corporation. Dispenser for washing apparatus. 3,828,975, Cl. 222-70.000.

Robert Bosch GmbH: See—
Aldinger, Ulrich; Kersten, Gunter; and Knodel, Emil, 3,828,653.
Knapp, Heinrich, 3,828,749.

Roberts, Grant W. Crab trap. 3,828,461, Cl. 43-102.000.

Robertshaw Controls Company: See—
Scott, Douglas R., 3,829,011.

Robertson, H. H., Company: See—
Vezmar, Alexander G., 3,828,493.

Robertson, Louis A.: See—
Testerman, Joseph E.; and Robertson, Louis A., 3,828,645.

Robertson Paper Box Company, Inc.: See—
Hackenbert, Robert A.; Tyrseck, Walter J.; and Berry, Chapman, 3,829,005.

Robertson William Neil, to Imperial Chemical Industries Limited. Melt spinning of polymers. 3,829,543, Cl. 214-78.000.

Robinson, Gene C., to Ethyl Corporation. Detergent builder and sequestering agent. 3,829,383, Cl. 252-89.000.

Robinson, John A.: See—
Furon, Leon D.; Robinson, John A.; and Menick, Jack E., 3,828,609.

Robinson, John E.: See—
Drummond, Michael E.; and Robinson, John E., 3,828,987.

Roch, Gerald V., to Hurco Manufacturing Company, Inc. Shear mounting for corner shearing machine. 3,828,639, Cl. 83-390.000.

Rockwell, Edward A.; and Holland, Harvison C. Anti-skid brake system. 3,829,170, Cl. 303-21.00g.

Rockwell, Edward A. Skid control system components. 3,829,171, Cl. 303-24.00c.

Rockwell International Corporation: See—
Minney, Jack L., 3,829,795.
White, Stanley A., 3,829,780.

Roderick, Olsen, Jr., to Kockum Industries Incorporated. Log-sorting apparatus. 3,828,928, Cl. 209-74.00r.

Roesch, George R.: See—
Highberg, Carl W.; and Roesch, George R., 3,828,479.

Roetter, Martyn F.: See—
Nicol, James; Shapiro, Sidney; and Roetter, Martyn F., 3,829,768.

Roger, Yves, to Regie Nationale Des Usines Renault Billancourt and Automobiles Peugeot. Methods of extruding helical gear blanks. 3,828,628, Cl. 76-107.00r.

Rogers, Charles J.; and Coleman, W. Emile, to United States of America, Environmental Protection Agency. Process for the production of high quality fungal protein from starch and starch processing wastes. 3,829,363, Cl. 195-32.000.

Rogers Corporation: See—

- Iosue, Michael F.; and Sanders, Robert E., 3,829,818.
Kask, Eugene, 3,828,968.
Rogers, Gerald L., to Chemtron Corporation. Lamp head assembly. 3,829,679, Cl. 240-52.00r.
Rohe, Ernst-Heinrich: See—
Raue, Roderich; Kruckenber, Winfried; and Rohe, Ernst-Heinrich, 3,829,461.
Rohm & Haas Company: See—
Bayer, Horst O.; and Weiler, Ernest D., 3,828,580.
Bayer, Horst O.; and Weiler, Ernest D., 3,829,580.
Graff, Robert Martin, 3,829,531.
Miller, George A.; and Greenfield, Stanley A., 3,829,492.
Weir, William David, 3,829,419.
Rohrmuller, August. Ball type game. 3,829,097, Cl. 273-125.00r.
Rolair Systems, Inc.: See—
Burdick, Robert E., 3,828,884.
Burdick, Robert E., 3,829,116.
Roldugin, Vladimir Ivanovich: See—
Sysun, Viktor Viktorovich; Basov, Jury Georgievich; and Roldugin, Vladimir Ivanovich, 3,829,732.
Ronzio, Richard A.; Lane, John W.; and Vincent, John D., to American Metal Climax, Inc. Process for making high purity molybdenum oxide and ammonium molybdate. 3,829,550, Cl. 423-54.000.
Roosa, Vernon D.: See—
Davis, Charles W.; and Roosa, Vernon D., 3,829,014.
Root, Lewis A.: See—
Magyar, Charles; Root, Lewis A.; and Senger, Edwin C., 3,828,925.
Rorer, William H., Inc.: See—
Diamond, Julius; and Douglas, George Henry, 3,829,467.
Rose, Edward: See—
Talbat, Richard C.; Rose, Edward; and Roth, Robert A., 3,828,918.
Rose, Ralph B. Car top advertising stand. 3,828,456, Cl. 40-129.00c.
Rosenberger, Michael: See—
Berger, Julius; and Rosenberger, Michael, 3,829,447.
Rosenthal, Francis Joseph, Jr.; and Grieb, Dale Christian, to Black and Decker Manufacturing Company. Fan mounting assembly. 3,829,722, Cl. 310-50.000.
Rosenthal, Francis Joseph, Jr., to Black and Decker Manufacturing Company. The Air flow baffle construction for electric motor devices. 3,829,721, Cl. 310-47.000.
Rosenthal, Henry, to Amchem Products, Inc., mesne. Method of making sponge propellant. 3,829,537, Cl. 264-3.00r.
Rossel UCLAT: See—
DeMendez, Michel Ossona; Dupuy, Jean-Marie; Harreton, Roland; and Foucard, Albert, 3,829,221.
Rossi, Harry J., to Federal Paper Board Company, Inc. Multi-unit package with curved contour. 3,828,926, Cl. 206-427.000.
Rotax Limited: See—
Sharpe, Raymond; and Triffitt, James Christopher Herbert, 3,828,618.
Roth, Eric Michael. Rug care implement. 3,828,386, Cl. 15-105.000.
Roth, Oscar, to Involve AG. Dispensing device with abrupt ejection terminating means. 3,828,986, Cl. 222-375.000.
Roth, Robert A.: See—
Talbat, Richard C.; Rose, Edward; and Roth, Robert A., 3,828,918.
Rothman, Evelyn Lorraine. Method for withdrawing menstrual fluid. 3,828,781, Cl. 128-278.000.
Rothstein, Milton; Kaplan, Martin; and Barton, Lloyd, to Solidyne, Inc. Dielectric sealing apparatus. 3,829,341, Cl. 156-380.000.
Rouf, Edgar J.; and Booher, Harold R., to Goodyear Tire & Rubber Company. The Automatic deceleration control system. 3,829,167, Cl. 303-21.00g.
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Allais, Andre; Meier, Jean; and Dube, Jacques, 3,829,585.
Rovel, Jean-Marie, to Degremont Societe Generale d'Epuration et d'Assainissement. Device for removing floated material in flotation processes. 3,828,935, Cl. 210-523.000.
Ruble, John G.: See—
Murray, Lowell C.; and Ruble, John G., 3,829,008.
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Ruggiero, Edward M.: See—
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Ruhl, Hermann. Pen chart analyzer. 3,829,660, Cl. 235-61.60a.
Rupert, William A. Automatic valve adapter. 3,829,059, Cl. 251-26.000.
Rusco Industries, Inc.: See—
Miller, Richard A., 3,828,376.
Russ, Paul E., Sr., to Gates Rubber Company. The Mold for locating transverse reinforcements in endless track. 3,829,055, Cl. 249-91.000.
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Russell, Robert G., to Owens-Corning Fiberglas Corporation. Method for preventing flooding of glass fiber bushings. 3,829,301, Cl. 65-2.000.
Russo, Leonard. Mixing and dispensing device. 3,828,983, Cl. 222-190.000.
Rutkowski, John L., to Appleton Electric Company. Common ground stud module. 3,829,815, Cl. 339-14.00r.
Rutt, Truman C., to N L Industries, Inc. Sintered ceramic bodies with porous portions. 3,829,356, Cl. 161-161.000.
Rybicki, Robert C.; and Keller, Carl H., Jr., to United Aircraft Corporation. Multiple element journal bearing. 3,829,239, Cl. 416-134.000.
Rys, Tadeusz J., to Square D Company. Stored-energy operating mechanism for switch blades. 3,829,643, Cl. 200-153.00c.
Ryswick, Edward L., to Varispace Industries, Inc. Force-responsive elastomeric gripper. 3,829,147, Cl. 294-93.000.
Ryvkin, Solomon Meerovich: See—
Vityovsky, Nikolai Alexandrovich; Vikhly Georgy Alexandrovich; Mashovets, Tatyana Vadimovna; and Ryvkin, Solomon Meerovich, 3,829,334.
Saab-Scania Aktiebolag: See—
Aslund, Nils Robert Dahr, 3,829,222.
Saah-Scania Aktiebolag: See—
Ahlbom, Sten H.; and Hansson, Sture J., H., 3,829,614.
Sacks, Sidney M.: See—
Brand, Arnold J.; and Sacks, Sidney M., 3,829,854.
Sadove, Max S.: See—
Buch, Roman; Kocsis, Louis L.; and Sadove, Max S., 3,828,773.
Saint-Gobain Industries: See—
Hermanns, Jakob, 3,829,352.
Saito, Hideki: See—
Muratani, Takuro; Saito, Hideki; and Watanabe, Tatsuo, 3,829,777.
Saito, Masaru; Hasegawa, Norio; and Murase, Kenaki, to Starting Industry Company Limited. Improved single lever remote control device for engines. 3,828,902, Cl. 192-096.
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Saitoh, Torahiko: See—
Iizuka, Toru; Tonooka, Katsuo; Saitoh, Torahiko; and Yasuda, Isao, 3,829,332.
Sakai, Kunio: See—
Tohi, Atsumoto; Sakai, Kunio; Fukai, Masakazu; and Tsujimoto, Yoshinobu, 3,829,333.
Sakamoto, Hiroo, to Akai Electric Company Limited. Bearing arrangement. 3,829,178, Cl. 308-132.000.
Sakurai, Hiroji: See—
Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsumo, Katsuyoshi; and Furukawa, Hitoshi, 3,829,228.
Sallin, Pierre, to Productions Sarcem S.A. Thread winding apparatus. 3,829,037, Cl. 242-158.200.
Sampson, Roy John; and Spencer, Christopher Buxton, to Imperial Chemical Industries Limited. Production of benzene. 3,829,519, Cl. 260-672.00r.
Samson, Wilfred Joseph, Jr., to Torin Corporation. Blower assembly. 3,829,250, Cl. 417-424.000.
Samsonite Corporation: See—
Scott, Charles J., 3,828,899.
Samways, Roger J.: See—
Leslie, Henry R.; and Samways, Roger J., 3,829,044.
Sanders Associates, Inc.: See—
Baer, Ralph H., 3,829,095.
Goldfarb, Adolph E.; Everitt, Delmar K.; Chesley, Ronald F.; and Baer, Ralph H., 3,829,094.
Schwartz, Jacob, 3,829,791.
Sanders, Milton: See—
Kalmus, Henry P.; Goldberg, Harold; and Sanders, Milton, 3,829,859.
Sanders, Robert E.: See—
Iosue, Michael F.; and Sanders, Robert E., 3,829,818.
Sandhu, Jagtar S.: See—
Reuter, James L.; and Sandhu, Jagtar S., 3,828,722.
Sandoz Ltd.: See—
Schelling, Hans-Peter; and Schaub, Fritz, 3,829,442.
Sandoz-Wander Inc., mesne: See—
Hardtmann, Goetz E.; and Ott, Hans, 3,829,422.
Sanford, Norman Ray; Waincott, Alan Dale; and Skelton, Billy Keith, to Bendix Corporation. The Closed loop grinder infeed control system w/automatic compensation for wheel diameter changes due to dressing operations. 3,828,477, Cl. 51-5.000.
Sanford, Robert Fincher: See—
Long, Donald Charles; Hartsough, Albert Charles; and Sanford, Robert Fincher, 3,829,683.
Sangamo Electric Company: See—
Marsh, Norman F.; Morand, Gary W.; and Sokol, David G., 3,829,772.
Sankyo Company Limited: See—
Murayama, Keisuke; Morimura, Syoji; Horiuchi, Hideo; Matsui, Katsuaki; Kurumada, Tomoyuki; and Ohta, Noriyuki, 3,829,404.
Santos, Manuel V. Surgical instruments. 3,828,791, Cl. 128-321.000.
Sapozhnikov, Alexandr Ivanovich: See—
Olshansky, Nikolai Alexandrovich; Smelyansky, Matvei Yakovlevich; Lopatko, Anatoly Petrovich; Tkachev, Leonid Grigorievich; Kozhaev, Arkady Filippovich; Sapozhnikov, Alexandr Ivanovich; and Chernakov, Gennady Anatolevich, 3,829,651.
Saprykin, Pavel Ivanovich: See—
Krasnov, Mikhail Mikhailovich; Stelmakh, Mitrofan Fedorovich; Malyshev, Boris Nikolaevich; Prozorov, Vladimir Nikolaevich; Saprykin, Pavel Ivanovich; and Batrukova, Maria Grigorievna, 3,828,788.
Sarges, Reinhard: See—

- Evanega, George R.; Kuhla, Donald E.; and Sarges, Reinhard, 3,829,434.
Sather, Delaine C., to Collins Radio Company. Serial binary square root apparatus. 3,829,672, Cl. 235-158.000.
Saucke, Heinz, to Weill & Reineke GmbH. Method and apparatus for tightening the water-submerged joints between wall-forming elements. 3,828,563, Cl. 61-60.000.
Saurer, Adolph, Ltd.: See—
Macho, Helmut, 3,828,824.
Sause, Henry, Jr. Extensible stanchion. 3,828,710, Cl. 114-75.000.
Scalzo, Augustine J.; and Hultgren, Kent G., to Westinghouse Electric Corporation. Turbine diaphragm seal structure. 3,829,233, Cl. 415-110.000.
Scarpino, John J., to Hope-Tronics, Limited. Circuit for switching D.C. power. 3,829,830, Cl. 340-81.00r.
Schadlich, Gunther; Haenisch, Renate; and Moraw, Roland, to Kalle Aktiengesellschaft. Methods of making half-tone prints. 3,829,315, Cl. 96-33.000.
Schaff, James C.: See—
Lebovits, Morris; and Schaff, James C., 3,828,380.
Scharfenberger, James A., to Ransburg Electro-Coating Corporation. Apparatus for spraying resin and expanded thermoplastic spheres. 3,829,016, Cl. 239-127.000.
Schaub, Fritz: See—
Schelling, Hans-Peter; and Schaub, Fritz, 3,829,442.
Schellhorn, Walter; and Koch, Edwin, to Seitz-Automaten GmbH. Automatic vending device for packaged containers such as bottles, cans or similar articles. 3,828,906, Cl. 194-59.000.
Schelling, Hans-Peter; and Schaub, Fritz, to Sandoz Ltd. Insecticidal 1,3-benzodioxol derivatives. 3,829,442, Cl. 260-340.500.
Scherbakov, Vsevolod Sergeevich: See—
Bykov, Alexandr Vasilievich; Scherbakov, Vsevolod Sergeevich; Sudarkin, Lev Alexandrovich; and Pavlov, Roman Vladimirovich, 3,829,255.
Schering Corporation: See—
Green, Michael J.; and Bisarya, Satish C., 3,829,416.
Scheunemann, Hans-Rudiger, to Kleinewefers Industrie-Compagnie GmbH. Mantle-radiation recuperator. 3,829,277, Cl. 431-109.000.
Schindler, Claude, to Zyma S.A. Dosing valve. 3,828,985, Cl. 222-207.000.
Schirman, Ananie, to Ateliers de Constructions Electriques de Charleroi (ACEC) Societe Anonyme. Reactive energy static compenstor to protect thyristor rectifiers. 3,829,736, Cl. 317-33.00c.
Schladetsch, Hans Jakob, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for preparing N-mono-(beta-cyanoethyl)-arylamines. 3,829,454, Cl. 260-465.00c.
Schlegel Manufacturing Company, The: See—
Smoot, Edward H., 3,828,445.
Schlesinger, Jefferson S.: See—
Phillips, Dale P.; and Schlesinger, Jefferson S., 3,829,590.
Schliemann, Louis F.; and Borgos, Jerome E. Structural module. 3,828,492, Cl. 52-36.000.
Schmerling, Louis, to Universal Oil Products Company. Polyhalosubstituted polyhydropolymeric dicarboxylic acid and anhydride. 3,829,450, Cl. 260-346.300.
Schmidt, Wolfgang: See—
Bleicher, Manfred; Falchle, Jorg; Hahner, Reinhard; Hansel, Ger- not; Schmidt, Wolfgang; and Wanner, Karl, 3,828,863.
Schmidt, Ernst Machiel: See—
Lortie, Jean Hubertus Josef; Schmidt, Ernst Machiel; and Van der Put, Henricus Cornelis Adrianus, 3,829,646.
Schmidt, Gunther, to Messerschmitt-Bolkow-Blohm Gesellschaft mit Beschränkter Haftung. Main stream liquid-fuel rocket engine construction and method of starting a liquid-fuel rocket engine. 3,828,551, Cl. 60-204.000.
Schmitt, Hubert A., to Boeing Company, The. Fatigue resistant fastener joint. 3,828,422, Cl. 29-525.000.
Schmitz, James E.: See—
Green, John S.; Luttrell, John E.; and Schmitz, James E., 3,828,934.
Schmolka, Irving R.; and Seizinger, Reinhold K., to Basf Wyandotte. Biodegradable surface active agents having good foam properties and foam stabilizing characteristics. 3,829,506, Cl. 260-615.00b.
Schnaibel, Eberhard; and Gotz, Werner, to Bosch, Robert, GmbH. Vehicle wheel brake anti-lock system. 3,829,168, Cl. 303-21.00c.
Schneer, Marcel, to Coleco Industries, Inc. Rotary swimming pool valve. 3,828,932, Cl. 210-169.000.
Schneider, Charles A., to Sherwin-Williams Company, The. Synthesis of alkynes by dehydrohalogenation. 3,829,522, Cl. 260-678.000.
Schneider, Felix: See—
Kampmann, Gerhard; and Schneider, Felix, 3,828,693.
Schneider, Winfried. Mosaic print head. 3,828,908, Cl. 197-1.00r.
Schneider, Albrecht, Jr., to Metabowerke K.G. Closs, Rauch & Schnitzler. Hammer drill. 3,828,865, Cl. 173-104.000.
Schoeb, John, to Brown & Williamson Tobacco Corporation. Pneumatic feeder for plural maker systems. 3,829,164, Cl. 302-28.000.
Schoeller, Alexander. Plastic bottle crates. 3,828,927, Cl. 206-511.000.
Schofield, John Michael Stuart, to U.S. Philips Corporation. Glow discharge display device. 3,829,734, Cl. 313-217.000.
Scholl, Charles H.: See—
Brenner, Lawrence A.; and Scholl, Charles H., 3,828,523.
Scholler, Gerhart, to Orenstein & Koppel AG. Lifting arrangement for cantilever arms of conveyors. 3,828,913, Cl. 198-9.000.
Schopp, James Conrad; and Stave, Frederick Roland, to RCA Corporation. Disc playback system with speed control of a belt drive. 3,829,611, Cl. 178-6.60a.
Schott, Lawrence A.: See—
Schott, Roger A.; and Schott, Lawrence A., 3,828,890.
Schott, Roger A.; and Schott, Lawrence A. Cable lubricating device. 3,828,890, Cl. 184-15.00r.
Schraeder, Herbert, to Volkswagenwerk Aktiengesellschaft. Two-way flap valve. 3,828,820, Cl. 137-625.400.
Schrimper, Vernon L., to Iowa Manufacturing Company. Hammer assemblies with reversible tips for hammermills. 3,829,032, Cl. 241-197.000.
Schroder, Gerd; and Meyer-Ebrecht, Dietrich, to U.S. Philips Corporation. Circuit arrangement for digital frequency measurement. 3,829,785, Cl. 328-130.000.
Schroder, Ludwig; Thomas, Klaus; and Goeth, Hanns, to Boehringer Ingelheim GmbH. (5-Nitro-2-furyl)-pyridines. 3,829,426, Cl. 260-297.00z.
Schroeder, Rolf: See—
Winkler, Alfred; Engelsmann, Dieter; Karl, Horst; and Schroeder, Rolf, 3,829,875.
Schubert, Egon: See—
Plasser, Franz; Theurer, Josef; and Schubert, Egon, 3,828,440.
Schubert, Wolfgang: See—
Gudden, Friedrich; and Schubert, Wolfgang, 3,829,728.
Schuette, Gunter G.; and Warner, William J., to Motorola, Inc. Over-voltage and electronic relay circuit for capacitor discharge ignition systems. 3,828,750, Cl. 123-148.00p.
Schultz, Ward E.; Smith, Harry D., Jr.; and Arnold, Dan M., to Texaco Inc. Pulsed neutron logging system with gain compenstion. 3,829,686, Cl. 250-261.000.
Schumacher, Joseph N.; and Green, Charles R., to Reynolds, R. J. Tobacco Company. Tobacco product. 3,828,795, Cl. 131-17.000.
Schurman, Peter T., to Plastic Forming Company, Inc., The. Plastic container. 3,828,969, Cl. 220-315.000.
Schuster, Ludwig: See—
Horn, Peter; and Schuster, Ludwig, 3,829,458.
Schwantes, Herbert A., to Harnischfeger Corporation. Universally movable control lever assembly. 3,828,950, Cl. 214-138.00r.
Schwartz, Jacob, to Sanders Associates, Inc., Variable pulse laser. 3,829,791, Cl. 331-94.500.
Schwarz, Frank, to Barnes Engineering Company. Dual field of view intrusion detector. 3,829,693, Cl. 250-338.000.
Schwarz, Josef, to Bizerba-Werke Wilhelm Kraut KG. Scale. 3,828,870, Cl. 177-155.000.
Schweikart, Horst, to GEHAP Gesellschaft fur Handel und Patentverwertung mbH & Co., KG. Contactless relay with a field plate located in the magnetic field of a control coil. 3,829,719, Cl. 307-309.000.
Schweizer, John E., Jr.: See—
Allison, David F.; and Schweizer, John E., Jr., 3,829,335.
Schweizer, William P., Jr., to Bonnot Co., The. Preparation of non-sticky cheese ribbons. 3,829,594, Cl. 426-516.000.
Schweizerische Lokomotiv-und Maschinenfabrik: See—
Kreissig, Ernst Florian, 3,828,692.
Schwenker, David G.: See—
Buice, Joel B.; and Schwenker, David G., 3,828,423.
Schwerdhofer, Hans-Joachim, to Fichtel & Sachs AG. Multiple-speed hub. 3,828,627, Cl. 74-750.00b.
Schwieter, Ulrich: See—
Chodnaker, Madhukar Subraya; Pfiffner, Albert; Rigassi, Norbert; Schwieter, Ulrich; and Suchy, Milos, 3,829,577.
Schwing, Friedrich. Squeeze pumps for delivering concrete. 3,829,251, Cl. 417-477.000.
Scientific Micro Systems, Inc.: See—
Allison, David F.; and Schweizer, John E., Jr., 3,829,335.
Scott, Charles J., to Samsonite Corporation. Orientation sensitive luggage latch. 3,828,899, Cl. 190-41.00r.
Scott, Douglas R., to Robertshaw Controls Company. Pneumatic control system for a fuel burning apparatus or the like. 3,829,011, Cl. 236-82.000.
Scott, Eugene W., to Westinghouse Electric Corporation. Overflow control dashpot-type float for a dishwasher switch assembly. 3,829,636, Cl. 200-34.000.
Scott, Modesto Ochoa, to Humberto Viadas Enriquez. Hand operated variable speed reducers. 3,828,626, Cl. 74-689.000.
Scott Paper Company: See—
Wolkowicz, Richard I., 3,829,408.
Scott, William J., to Ideal Industries, Inc. Method of making a terminal. 3,828,706, Cl. 113-119.000.
Sea-Land Service, Inc.: See—
Gottlieb, Carl R.; and Campbell, Robert N., Jr., 3,829,145.
Searcy, Durward F.: See—
Balko, Jack E.; Moffatt, Davis F.; and Searcy, Durward F., 3,829,869.
Seiberling, Dale A., to Economics Laboratory, Inc. Continuous separating and standardizing of milk. 3,829,584, Cl. 426-231.000.
Seiersen, William K.: See—
Lohr, Raymond J.; Cook, Calvin S.; and Seiersen, William K., 3,829,126.
Seiko Koki Kabushiki Kaisha: See—
Kitai, Kiyoshi, 3,829,877.
Morinok Yukio, 3,829,874.
Onda, Eiichi; Koyama, Mitsuo; and Nakagawa, Tadashi, 3,829,878.

- Seip, Gunter, to Siemens Aktiengesellschaft. Switching arrangement for remote controlled electrical loads. 3,829,706, Cl. 307-147.000.
- Seitz-Automaten GmbH: See—
Schellhorn, Walter; and Koch, Edwin, 3,828,906.
- Seizinger, Reinhold K.: See—
Schmolka, Irving R.; and Seizinger, Reinhold K., 3,829,506.
- Seki, Susumu: See—
Noumi, Makoto; and Seki, Susumu, 3,829,668.
- Sellmaier, Alfons, deceased: See—
Spies, Anton; Stephan, Alfred; and Sellmaier, Alfons, deceased, 3,828,564.
- Sellmaier, Anne-Rose, co-heir: See—
Spies, Anton; Stephan, Alfred; and Sellmaier, Alfons, deceased, 3,828,564.
- Sellstedt, John H.: See—
Wolf, Milton; Sellstedt, John H.; and Fenichel, Richard L., 3,829,488.
- Semonsky, Miroslav: See—
Jelinek, Vaclav, deceased; Semonsky, Miroslav; Hartl, Jiri; and Borovansky, Alois, 3,829,473.
- Senco Products Inc.: See—
Biddle, Franklin Keith; and Becht, Carl T., 3,828,656.
- Senger, Edwin C.: See—
Magyar, Charles; Root, Lewis A.; and Senger, Edwin C., 3,828,925.
- Senn, Charles A., III; and Parker, Levi C., to Texaco Inc. Dehydrogenation process for converting N-paraffin hydrocarbon into N-olefin hydrocarbon. 3,829,524, Cl. 260-283.300.
- Sennwald, Kurt: See—
Ohorodnik, Alexander; Sennwald, Kurt; Hudeck, Joachim; and Stutzke, Paul, 3,829,478.
- Sensorlok Corporation: See—
Wilkie, Wallace J., 3,829,703.
- Serad, George A.; and MacLean, Alexander F., to Celanese Corporation. Process for the production of peroxyacetic acid. 3,829,468, Cl. 260-502.00r.
- Serikov, Jury Mitrofanovich: See—
Larjukhin, Grigory Artemovich; Chernyshev, Valentin Vasilievich; Nikitin, Vladislav Iosifovich; Serikov, Jury Mitrofanovich; and Kosinov, Vyacheslav Georgievich, 3,828,560.
- Sfreddo, Alfred, to General Instrument Corporation. Tuner drive assembly with resetting fine tuning shaft. 3,828,613, Cl. 74-10.410.
- Shaffer, William E.: See—
Close, Stanley Wayne; Cordovani, John J.; and Shaffer, William E., 3,829,619.
- Shamlian, Ralph B.; and Hollingsworth, Ashley J., to Farallon Industries, Inc. Portable underwater indicating instrument for divers. 3,828,611, Cl. 73-300.000.
- Shannon, John J. Safety bottle cap. 3,828,958, Cl. 215-9.000.
- Shapiro, Sidney: See—
Nicol, James; Shapiro, Sidney; and Roetter, Martyn F., 3,829,768.
- Sharbaugh, Joseph C. Automatic grit feed. 3,828,979, Cl. 222-129.000.
- Sharpe, Raymond; and Triffitt, James Christopher Herbert, to Rotax Limited. Constant speed hydraulically controlled tork transmission with concentric, two piston valve, governor and constant ratio means. 3,828,618, Cl. 74-200.000.
- Shaver, Kenneth J.: See—
Kim, Keun Young; and Shaver, Kenneth J., 3,829,562.
- Shaw, James Thomas; and Lilley, Raymond Percy Arthur, to Baker Perkins Limited. Finishing machine with a workpiece conveying system. 3,828,482, Cl. 51-121.000.
- Shealy, Robert G., to PPG Industries, Inc. Bushing unit including cast iron bushing frame. 3,829,300, Cl. 65-1.000.
- Sheffield, David John; Prosser, Paul Edward; and Charman, Bernard William, to Aerpat A.G., Zug. Riveting apparatus. 3,828,603, Cl. 72-391.000.
- Shelffo, Loren E., to Addressograph-Multigraph Corporation. Photoelectrostatic developing materials. 3,829,314, Cl. 96-1.400.
- Shelkovnikov, Jury Petrovich: See—
Turchaninov, Vasily Vasilievich; Shelkovnikov, Jury Petrovich; Machkov, Gennady Maximovich; and Korolev, Oleg Alexandrovich, 3,828,944.
- Shell Oil Company: See—
Kravetz, Louis, 3,829,291.
- Nozaki, Kenzie, 3,829,499.
- Singleton, David M., 3,829,523.
- Templeton, Charles C.; Street, Evan H., Jr.; and Richardson, Edwin A., 3,828,854.
- Wulff, Harald P., 3,829,392.
- Shelledy, Frank B.: See—
Brock, George W.; Cannon, Maxwell R.; and Shelledy, Frank B., 3,829,896.
- Shelton, Orville Allen, to Illinois Tool Works Inc. Method and apparatus for forming tips of screws. 3,828,604, Cl. 72-469.000.
- Shelyakov, Oleg Parfirovich: See—
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- Shema, Bernard F.: See—
Brink, Robert H., Jr.; Shema, Bernard F.; Justice, Roger L.; and Swered, Paul, 3,829,305.
- Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, to Betz Laboratories, Inc. Slime control compositions and their use. 3,829,424, Cl. 424-263.000.
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- Sheppard, Ronald J., to Du Pont De Nemours, E. I., and Company. Acrylic coating composition for refinishing flexible substrates. 3,829,397, Cl. 260-31.80m.
- Sherwin-Williams Company, The: See—
Schneider, Charles A., 3,829,522.
- Shibata, Kazuo: See—
Gotoh, Miyuki; Mizuno, Yukio; and Shibata, Kazuo, 3,828,829.
- Shiina, Toshio; and Midorikawa, Akira, to Kabushiki Kaisha Ricoh. Automatic original feed device for electrophotographic duplicating machine. 3,829,083, Cl. 271-4.000.
- Shikoku Kakooki Co., Ltd.: See—
Ueda, Kazuo, 3,828,522.
- Shimazaki, Yuzo: See—
Muraoka, Hisashi; Asano, Masafumi; Ohashi, Taizo; and Shimazaki, Yuzo, 3,829,555.
- Shimizu, Kazuo: See—
Suzuki, Shigeyoshi; Kobayashi, Norio; and Shimizu, Kazuo, 3,829,319.
- Shimizu, Tetuo; and Nishikawa, Akikazu, to Denki Kagaku Keiki Co., Ltd. Cell device for measuring electric conductivity of liquids. 3,829,761, Cl. 324-30.00b.
- Shimoda, Yasunori, to Nissan Motor Company, Limited. Wear-resistant metal object and a method for the manufacture thereof. 3,829,260, Cl. 418-178.000.
- Shimodaira, Takashi: See—
Kanetaka, Junichi; Shimodaira, Takashi; and Mori, Shoichiro, 3,829,448.
- Shing, Fu, Mfg. & Lumber Co., Ltd.: See—
Cheng, Paul P. L., 3,829,337.
- Shinnittoku Denki Kabushiki Kaisha: See—
Makihara, Masuichi, 3,829,738.
- Shiokawa, Kozo: See—
Kishino, Shigeo; Kudamatsu, Akio; and Shiokawa, Kozo, 3,829,565.
- Shippers Automation, Inc.: See—
Stewart, T. Dale; Stewart, Thomas D.; and Hautau, Charles F., 3,828,690.
- Shop-Rite Supermarkets, Inc.: See—
Cohen, Harold; and Noto, William L., 3,829,114.
- Shorin, Joseph E.; and Ricci, Vero, to Aggogle Inc. Muffin separator. 3,828,995, Cl. 225-94.000.
- Short, Thomas D.; and Marcum, Donald R., to International Telephone and Telegraph Corporation. Automatic line insulation routiner. 3,829,627, Cl. 179-175.20r.
- Siddall, John B.; and Henrick, Clive A., to Zeecon Corporation. 4-(Ox-oalkoxy)benzoic acids and ester thereof. 3,829,465, Cl. 260-473.00r.
- Sidelinker, Wilson S. Method and apparatus for degassing aerosol cans and the like. 3,828,976, Cl. 222-83.500.
- Sieber, Alexander; Kny, Hermann; and Oliver, Ward H., to Ciba-Geigy AG and Ciba-Geigy Corporation. Process for the production of 4,4'-dibromobenzil. 3,829,496, Cl. 260-590.000.
- Siegemund, Gunter: See—
Rammelt, Peter-Paul; and Siegemund, Gunter, 3,829,483.
- Siemag Siegener Maschinenbau G.m.b.H.: See—
Melcher, Robert, 3,829,266.
- Siemens Aktiengesellschaft: See—
Dietze, Wolfgang; Reuschel, Konrad; and Stut, Hans, 3,828,726.
- Grunleitner, Hans; Kuhnlein, Hans; and Liska, Manfred, 3,829,708.
- Gudden, Friedrich; and Schubert, Wolfgang, 3,829,728.
- Hockstetter, Werner, 3,829,756.
- Huber, Walther; Hagen, Heinz; and Guglhor, Peter, 3,829,316.
- Koch, Christian, 3,828,736.
- Muller, Willi, 3,829,742.
- Richt, Hubert, 3,829,749.
- Seip, Gunter, 3,829,706.
- Zuckler, Karl, 3,829,641.
- Siemensma, Sidonius Volkert, to U.S. Philips Corporation. Temperature responsive control device. 3,828,559, Cl. 60-529.000.
- Signetries Corporation: See—
Allison, David F.; and Maxwell, David A., 3,829,889.
- Perloff, David S.; Kerr, John T.; and Marley, James A., 3,829,890.
- Siler, Lawrence L. Electronic apparatus for detection and identification of energized and/or nonenergized electrical conductors. 3,829,765, Cl. 324-67.000.
- Silk, Edmond J.; and Moore, Claude A., to Babcock & Wilcox Company, The. Fuel rod fabrication. 3,828,518, Cl. 53-12.000.
- Silverman, Daniel; and Johnson, Everett A. Access control system. 3,829,661, Cl. 235-61.70b.
- Simmonnet, Jacques Louis Paul: See—
Boy-Marcotte, Jean Louis; Simmonnet, Jacques Louis Paul; Marchal, Philippe Albert Hippolyte; and Verrien, Jean Prudent Fernand Rene, 3,828,574.

- Simon, Karlheinz A., to Ingersoll-Rand Company. Drill rod handling apparatus. 3,828,943, Cl. 214-2.500.
- Singer Company, The: See—
Brand, Arnold J.; and Sacks, Sidney M., 3,829,854.
- Martines, Francis M.; and Spahr, Philip K., 3,829,752.
- Mishcon, Lester; and Reagan, Donald W., 3,828,581.
- Singh, Kanwal N.: See—
Malcosky, Norman D.; McLean, Ronald H.; Singh, Kanwal N.; and Auh, Chung M., 3,828,575.
- Singleton, David M., to Shell Oil Company. Olefin disproportionation. 3,829,523, Cl. 260-683.00d.
- Sinichkin, Sergei Gavrilovich: See—
Vragov, Jury Dmitrievich; Danyaev, Vladimir Egorovich; Trubin, Anatoly Petrovich; and Sinichkin, Sergei Gavrilovich, 3,828,647.
- Sitte, Hellmuth, to C. Reichert Optische Werke AG. Apparatus for adjusting the elevation of a specimen in microtomes, particularly ultramicrotomes. 3,828,641, Cl. 83-703.000.
- Sjogren, Bengt-Ake Harald: See—
Nilsson, Per-Erik; and Sjogren, Bengt-Ake Harald, 3,829,852.
- Skarky, Floyd E. Table apparatus. 3,828,695, Cl. 108-26.000.
- Skelton, Billy Keith: See—
Sanford, Norman Ray; Wainscott, Alan Dale; and Skelton, Billy Keith, 3,828,477.
- SKF Industrial Trading and Development Company B.V.: See—
Gunther, Fritz; and Fritz, Hermann, 3,829,181.
- Nilsson, Sven Walter, 3,829,726.
- SKF Industries, Inc.: See—
Hingley, Colin G., 3,829,183.
- Skone-Palmer, John R. Remotely operable trigger actuator. 3,828,458, Cl. 42-69.00r.
- Skirlett, Rudolph A.; and Kendall, Virgil D., to Wallace-Murray Corporation. Method of maintaining the fluid permeability of a fired alumina, ball clay and talc fluid-release mold. 3,828,488, Cl. 51-319.000.
- Slack, William Frederick, to Van Dyk Research Corporation. Web cutter. 3,828,637, Cl. 83-348.000.
- Smagala-Romanoff, Edward A. Coded checks and in methods of coding. 3,829,133, Cl. 283-6.000.
- SMC Corporation: See—
Eaton, John L.; and Eeckhout, Roger V., 3,828,452.
- Smegal, Julius G.: See—
Perrin, Duane O.; and Smegal, Julius G., 3,828,403.
- Smelyansky, Matvei Yakovlevich: See—
Olshansky, Nikolai Alexandrovich; Smelyansky, Matvei Yakovlevich; Lopatko, Anatoly Petrovich; Tkachev, Leonid Grigorievich; Kozhaev, Arkady Filippovich; Sapozhnikov, Alexander Ivanovich; and Chernakov, Gennady Anatolevich, 3,829,651.
- Smith, F., & Co., (Witworth) Limited: See—
Collinge, Robert Alan, 3,828,589.
- Smith, George Cummingha, Jr.: See—
Abbott, Charles Theodor, Jr.; and Smith, George Cummingha, Jr., 3,829,385.
- Smith, George O., to General Motors Corporation. By-pass valve control. 3,829,294, Cl. 23-288.00f.
- Smith, Harry D., Jr.: See—
Schultz, Ward E.; Smith, Harry D., Jr.; and Arnold, Dan M., 3,829,686.
- Smith, Jerry L.; and Powling, Frank F., to Carlisle Corporation. Bridging push-button switch with plastic mating housing portions. 3,829,633, Cl. 200-16.00a.
- Smith, Joseph D.: See—
Harris, Sterling G.; Smith, Joseph D.; McCall, David D.; Moore, Glenn S.; Hadden, William P.; and Svendsen, Noel, 3,828,398.
- Smith Kline & French Laboratories: See—
Gardner, John Nicholson, 3,829,441.
- Smith, Lawson A. Sawmill with adjustable guides and spreaders. 3,828,635, Cl. 83-102.100.
- Smith, Layle V., to Dow Chemical Company, The. Foam plastic loose fill packing. 3,829,269, Cl. 425-308.000.
- Smith, Richard A.; and Gutowski, Chester L., to Heinz, H. J., Company. Aseptic container filling apparatus. 3,828,833, Cl. 141-85.000.
- Smith, Richard W., to Pratt Manufacturing Corporation. Rotary cutting apparatus. 3,828,636, Cl. 83-341.000.
- Smith, William H. Vehicle power system. 3,828,880, Cl. 180-66.00r.
- Smitzer, Louis A.; and Amtmann, Jurgen, to Ovonic Image Systems, Inc. Flash copier. 3,829,215, Cl. 355-113.000.
- Smoot, Edward H., to Schlegel Manufacturing Company, The. Clothes dryer seal. 3,828,445, Cl. 34-242.000.
- Snam Progetti, S.p.A.: See—
Mattucci, Anna Maria; and Perrotti, Emilio, 3,829,502.
- Snow, Gerald A., to United Industrial Syndicate, Inc. Apparatus for positively conveying sheet materials. 3,828,997, Cl. 226-172.000.
- Snyder, Dennis L.: See—
Halasa, Adel F.; and Snyder, Dennis L., 3,829,554.
- Snyder, Ellery P. Method and apparatus for the examination of articles for defects. 3,829,690, Cl. 250-302.000.
- Snyder, Stephen L. Riser controls for gliding parachutes. 3,829,045, Cl. 244-152.000.
- Societe Anonyme Francaise du Ferodo: See—
Rist, Michel, 3,828,883.
- Societe Anonyme Genoud & Cie: See—
Johnsson, Lars Bertil, 3,829,737.
- Societe d'Applications Generales d'Electricite et de Mecanique: See—
Glav, Guy-Paul, 3,828,910.
- Societe Generale de Constructions Electriques et Mecaniques (Alstom): See—
Condolios, Elie, 3,829,160.
- Societe Pour l'Industrialisation du Material "Indumat": See—
Bournazel, Jacques, 3,829,053.
- Societe Rhodiacta: See—
Boutonnet, Alexandre; Clavelet, Georges; and Morieras, Gilbert, 3,828,542.
- Soderstrom, Melvin A., to National Cash Register Company, The. Platen indexing actuator. 3,828,911, Cl. 197-114.00r.
- Soehring, Gerhard; Moessner, Manfred; Kreutze, Gerhard; and Obstfelder, Guenther. Film projector, especially for teaching machines. 3,829,206, Cl. 352-160.000.
- Soejima, Shigeo; Ohmura, Akira; and Watanabe, Koichiro, to NGK Insulators, Ltd. Glasslined product and a process for glasslining. 3,829,326, Cl. 117-70.00b.
- Sofy, Hugh M. Dial index machine. 3,829,076, Cl. 269-57.000.
- Soignet, Donald M.: See—
Berni, Ralph J.; Benerito, Ruth R.; and Soignet, Donald M., 3,829,290.
- Sokol, David G.: See—
Marsh, Norman F.; Morand, Gary W.; and Sokol, David G., 3,829,772.
- Solberg, Olav: See—
Bognaes, Ragnar; and Solberg, Olav, 3,828,709.
- Solidyne, Inc.: See—
Rothstein, Milton; Kaplan, Martin; and Barton, Lloyd, 3,829,341.
- Soliton Devices, Inc.: See—
Adams, Guy E., 3,828,751.
- Solomon, David Henry: See—
Merry, Lorraine Anne; and Solomon, David Henry, 3,829,564.
- Soloshenko, Nina Ivanovna: See—
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- Sommer, Neidhart; and Nordsiek, Karl-Heinz, to Chemische Werke Huls, AG. Block homopolymers of 1,3-butadiene and process for preparing them. 3,829,409, Cl. 260-94.20m.
- Sony Corporation: See—
Arai, Michio, 3,829,882.
- Sowerby, Austen Edgar; and Akred, Brian John, to Albright & Wilson Limited. Production of sulphonated material. 3,829,484, Cl. 260-545.00r.
- Spacesaver Corporation: See—
Staller, Marvin A., 3,829,189.
- Spademan, Richard G. Antifriction device. 3,829,112, Cl. 280-11.35c.
- Spahr, Philip K.: See—
Martines, Francis M.; and Spahr, Philip K., 3,829,752.
- Spanel, Abram N. Dry color applicator for hair. 3,828,802, Cl. 132-9.000.
- Spang, Kjell: See—
Egerborg, Bo Malte Staffan; Gadefelt, Goran Robert; Magbjer, Gunnar Ingemar; and Spang, Kjell, 3,828,504.
- Sparr, Anders V., Sr. Teat disinfecting cup for use after milking. 3,828,776, Cl. 128-248.000.
- Special Metals Corporation: See—
Darmara, Fahh N.; and Clark, I. Dwight, 3,829,538.
- Specialty Instruments Corporation: See—
Balko, Jack E.; Moffatt, Davis F.; and Searcy, Durward F., 3,829,869.
- Specialty Manufacturing Company: See—
Anderson, Arthur A., 3,828,817.
- Speck, Walter. Centrifugal pumps composed primarily of plastic components. 3,829,238, Cl. 415-197.000.
- Speichim: See—
Ragot, Raymond, 3,828,700.
- Speiser, Jeffrey M.: See—
Byram, George W.; and Speiser, Jeffrey M., 3,829,798.
- Speitschka, Ernst; and Landler, Josef, to Farbwerke Hoechst Aktiengesellschaft, vormals Meister Lucius & Bruning. Process for preparing compounds of the benzothioxanthene series. 3,829,439, Cl. 260-328.000.
- Spellman, Francis T., to Symons Corporation. Power-actuated distributing conveyor system for a ready-mix concrete truck. 3,828,949, Cl. 214-83.260.
- Spencer, Christopher Buxton: See—
Sampson, Roy John; and Spencer, Christopher Buxton, 3,829,519.
- Spengler, Ernst Maximilian; and Stursberg, Rolf Karl, to Martin Miller Gesellschaft m.b.H. Cutting die and process. 3,828,631, Cl. 83-20.000.
- Sperry Rand Corporation: See—
Butler, Gene R., 3,828,945.
- Kroger, Harry, 3,829,886.
- Spiegel, Jacob; and Miller, Albert R., said Miller assor. to Gilbreth Company. Decorative three-dimensional objects. 3,829,348, Cl. 161-16.000.
- Spiegel, Richard G. Shipping and display carton and blank therefor. 3,829,006, Cl. 229-51.0ts.

- Spies, Anton; Stephan, Alfred; and Sellmaier, Alfons, deceased (by Sellmaier, Anne-Rose, co-heir), to Linde A.G. Closed refrigerant cycle for the liquefaction of low-boiling gases. 3,828,564, Cl. 62-9.000.
- Spinal position patient restraint: See—
Fox, Donald H., 3,829,079.
- Spinner, George. HF coaxial plug connector. 3,829,800, Cl. 333-97.00r.
- Spiroff, Carl M., 20% to Fenlon, Joseph A., Jr. Angiographic and arteriographic catheters. 3,828,767, Cl. 128-2.050.
- Spodig, Heinrich. Apparatus for magnetically suppressing oscillations. 3,829,805, Cl. 335-289.000.
- SPOFA, United Pharmaceutical Works: See—
Jelinek, Vaclav, deceased; Semonsky, Miroslav; Hartl, Jiri; and Borovansky, Alois, 3,829,473.
- Spotnails, Inc.: See—
Perkins, Garry R., 3,828,924.
- Square D Company: See—
Rys, Tadeusz J., 3,829,643.
- S.R.C. Laboratories, Inc.: See—
Mocarski, Zenon R., 3,829,027.
- Stabilis Industrie Und Handelsgesellschaft MBG: See—
Dorner, Nikolaus; and Freitag, Herbert, 3,828,651.
- Stables, Wilbur Leon: See—
Peckinpah, Frank Lee; Stables, Wilbur Leon; and Biron, Raymond Joseph, 3,828,404.
- Stackman, Robert William: See—
Cohen, Stuart Lyle; and Stackman, Robert William, 3,829,405.
- Staffe, Adolf; and Gerlach, Klaus, to Bayer Aktiengesellschaft. Perfluoroalkanesulphonamides. 3,829,466, Cl. 260-481.00r.
- Stahnecker, Erhard: See—
Keppler, Hans-Georg; Zuern, Ludwig; and Stahnecker, Erhard, 3,829,378.
- Staller, Marvin A., to Spacesaver Corporation. Motorized mobile shelving apparatus. 3,829,189, Cl. 312-198.000.
- Stam Instruments Corp.: See—
Blustain, Stanley, 3,829,328.
- Stanadyne, Inc.: See—
Davis, Charles W.; and Roosa, Vernon D. (said Davis assor. to), 3,829,014.
- Stanbridge, Roger Philip, to Fosco International Limited. Hardening of refractory/sodium silicate mixtures. 3,829,320, Cl. 106-84.000.
- Standard Brands Incorporated: See—
Horwath, Robert Otto; and Cole, Gary William, 3,829,362.
- Standard Oil Company: See—
Wennerberg, Arnold N., 3,829,518.
- Standard Oil Company, The: See—
Melo, Gilbert K.; and Farrington, Diane G., 3,829,532.
- Stants, Richard O.: See—
Hutchinson, Don W.; Kniesly, Richard A.; and Stants, Richard O., 3,829,828.
- Starting Industry Company Limited: See—
Saito, Masaru; Hasegawa, Norio; and Murase, Kenaki, 3,828,902.
- Stauffer Chemical Company: See—
Baker, Don R., 3,829,486.
Lengnick, Guenther Fritz, 3,829,527.
Lengnick, Guenther Fritz, 3,829,529.
Mihailovski, Alexander, 3,829,307.
- Stauffer, Reuben L., to Bendix Corporation, The. Means for providing thermocouple failure detection in a multiple probe system. 3,829,849, Cl. 340-248.00e.
- Stave, Frederick Roland: See—
Schopp, James Conrad; and Stave, Frederick Roland, 3,829,611.
- Stearns, Gabriel E., to Boeing Company, The. Translating sleeve variable area nozzle and thrust reverser. 3,829,020, Cl. 239-265.130.
- Stebe, Robert F., to VRC California Inc. Cartridge clamp. 3,829,897, Cl. 360-133.000.
- Stedman, Robert N., to Caterpillar Tractor Co. Sealed pin joint for track assemblies. 3,829,173, Cl. 305-11.000.
- Steenbeck, Ulf; and Weidinger, Hans, to Messerschmitt-Bolkow-Blohm GmbH. Magnetic guide for a rail-way vehicle. 3,828,686, Cl. 104-148.0ms.
- Stehle, Randall G.; and Oesterling, Thomas O., to Upjohn Company, The. Stable solutions of PGE-type compounds. 3,828,579, Cl. 424-312.000.
- Stehle, Randall G.; and Oesterling, Thomas O., to Upjohn Company, The. Stable solutions of PGE-type compounds. 3,829,579, Cl. 424-312.000.
- Steiger A.G.: See—
Graser, Adalbert, 3,829,004.
- Steigerwald, Carl J., to VCA Corporation. Safety actuated for aerosol containers. 3,828,982, Cl. 222-153.000.
- Stein, Hermann: See—
Ottmar, Paul; and Stein, Hermann, 3,828,509.
- Stein, Lawrence, to United States of America, Atomic Energy Commission. Atmosphere purification on xenon, radon & radon daughter elements. 3,829,551, Cl. 423-210.000.
- Stein, Robert E., to Glass Lined Water Heater Co., The. Hot water heater. 3,828,847, Cl. 165-76.000.
- Steinberg, William, to Computer Performance Instrumentation Incorporated. Computer monitoring device. 3,829,841, Cl. 340-172.500.
- Steinkuhl, Josef: See—
Jenne, Oswald; Steinkuhl, Josef; Wiechmann, Otto; and Reimann, Gerhard, 3,829,280.
- Stelmakh, Mitrofan Fedorovich: See—
Krasnov, Mikhail Mikhailovich; Stelmakh, Mitrofan Fedorovich; Malyshev, Boris Nikolaevich; Prozorov, Vladimir Nikolaevich; Saprykin, Pavel Ivanovich; and Batrukova, Maria Grigorievna, 3,828,788.
- Stephan, Alfred: See—
Spies, Anton; Stephan, Alfred; and Sellmaier, Alfons, deceased, 3,828,564.
- Sterling Drug, Inc.: See—
Collins, Joseph C., 3,829,475.
- Copa, William M.; and Pradt, Louis A., 3,828,525.
- Stern, Arthur M.: See—
Lange, K. Robert; Stern, Arthur M.; Gasner, Lawrence L.; and Hsu, Yuan Tsun, 3,829,388.
- Stetter, Georg; and Pieper, Eberhard. Pump for concrete and the like. 3,829,254, Cl. 417-517.000.
- Stevens, F. Bradley, to L & L Products, Inc. Beam construction. 3,829,149, Cl. 296-28.00r.
- Stevens, Harold E., to Coaxial Dynamics, Inc. Directional coupler for transmission lines. 3,829,770, Cl. 324-95.000.
- Stewart, Harry M. Counter fixture. 3,829,187, Cl. 312-140.100.
- Stewart, T. Dale; Stewart, Thomas D.; and Hautau, Charles F., to Shippers Automation, Inc. Portable railway car mover. 3,828,690, Cl. 105-90.00a.
- Stewart, Thomas D.: See—
Stewart, T. Dale; Stewart, Thomas D.; and Hautau, Charles F., 3,828,690.
- Stewart, Victor E., Jr., to McGraw-Edison Company. Multi-signal encoder and transponder. 3,829,835, Cl. 340-151.000.
- Stimson, Ian Leonard; Dowell, Frederick Sidney; and Healy, Benedict Pascal, to Dunlop Limited. Wheel assemblies. 3,829,162, Cl. 301-6.00a.
- Stoller, Benjamin B., to Stroller Research Co. Mushroom spawn and method of making same. 3,828,470, Cl. 47-1.400.
- Stone & Webster Engineering Corporation: See—
Green, Ellis J., 3,829,521.
- Stoneburner, Jerry L. Coil rack. 3,829,148, Cl. 296-3.000.
- Storer, Barrie William, to Burgess Products Company Limited. False ceiling systems. 3,828,507, Cl. 52-484.000.
- Storlie, Llewellyn O., to Deco Products Company. Lock handle. 3,829,139, Cl. 292-349.000.
- Stranahan, John J.; Hollier, John C. L.; and Deloney, Hugh C., to Texaco, Inc. Smokeless gas flare. 3,829,275, Cl. 431-4.000.
- Straus, Andrew J. D., to Mobil Oil Corporation. Logging cable connector. 3,829,814, Cl. 339-14.00r.
- Strebel, Elwood L. Organic thermotropic nematic compounds. 3,829,491, Cl. 260-566.00f.
- Street, Evan H., Jr.: See—
Templeton, Charles C.; Street, Evan H., Jr.; and Richardson, Edwin A., 3,828,854.
- Strick Corporation: See—
Yurjevich, Howard, 3,828,476.
- Strini, Jean-Claude, to Produits Chimiques Pechiney-Saint-Gobain. Process for the preparation of acid chlorides and their acids. 3,829,477, Cl. 260-539.00r.
- Stroller Research Co.: See—
Stoller, Benjamin B., 3,828,470.
- Stromberg-Carlson Corporation: See—
Close, Stanley Wayne; Cordovani, John J.; and Shaffer, William E., 3,829,619.
- Strong, Philip L.; Hunter, Don L.; and Le Fevre, Cecil W., to United States Borax & Chemical Corporation. Alkoxy trifluoromethylaniline compounds and use as an herbicide. 3,829,308, Cl. 71-121.000.
- Struttman, Hilarius S., to Borg-Warner Corporation. Bearing construction. 3,829,182, Cl. 308-194.000.
- Strybel, Richard V., to Imperial-Eastman Corporation. Adjustable clamping means. 3,829,077, Cl. 269-107.000.
- Studer, Willi. Tape recording transport control system. 3,829,038, Cl. 242-190.000.
- Stuttmann, George H., to Borg-Warner Corporation. AC-DC generating system. 3,829,758, Cl. 322-28.000.
- Stursberg, Rolf Karl: See—
Spengler, Ernst Maximilian; and Stursberg, Rolf Karl, 3,828,631.
- Stut, Hans: See—
Dietze, Wolfgang; Reuschel, Konrad; and Stut, Hans, 3,828,726.
- Stutz, Robert C., to Niagara Blower Company. Heat exchange apparatus. 3,828,570, Cl. 62-282.000.
- Stutzke, Paul: See—
Ohorodnik, Alexander; Sennewald, Kurt; Hundek, Joachim; and Stutzke, Paul, 3,829,478.
- Substrate Inc.: See—
Merrit, Charles, 3,828,520.
- Suchy, Milos: See—
Chodnek, Madhukar Subraya; Pfiffner, Albert; Rigassi, Norbert; Schwieter, Ulrich; and Suchy, Milos, 3,829,577.
- Sudarkin, Lev Alexandrovich: See—
Bykov, Alexandr Vasilievich; Scherbakov, Vsevolod Sergeevich; Sudarkin, Lev Alexandrovich; and Pavlov, Roman Vladimirovich, 3,829,255.
- Sugar Cane Growers Cooperative of Florida: See—
Fowler, Larry G., 3,828,536.
- Sugland, Wolfgang; and Kochs Adler, AG. Template. 3,828,703, Cl. 112-121.150.
- Suladze, Ippolit Davidovich: See—

- Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Martitovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtdil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
- Sullivan, Donald E. Tape applicator. 3,829,346, Cl. 156-527.000.
- Sulzer Brothers Ltd.: See—
Frei, Paul, 3,828,738.
- Hurzeller, Rene; Vinnemann, Antonius; and Doslik, Peter, 3,828,826.
- Sumitomo Chemical Company: See—
Inaba, Shigeho; Yamamoto, Michihiro; Ishizumi, Kikuo; Mori, Kazuo; Koshiba, Masao; and Yamamoto, Hisao, 3,829,420.
- Sumitomo Electric Industries, Ltd.: See—
Ogura, Katsutoshi; and Chikazawa, Katsuichi, 3,828,665.
- Sundstrand Corporation: See—
Lensi, Robert J.; and Meyer, James H., 3,829,276.
- Sunouchi, Akio: See—
Aizawa, Hiroshi; Sunouchi, Akio; and Ogiso, Mitsutoshi, 3,829,868.
- Sussman, Ernst. Seal structure. 3,829,103, Cl. 277-74.000.
- Sutton, Lawrence R.; Ranno, Carl P.; and Hewson, Kenneth E., to Performance Industries, Inc. Tackless carpet stripping. 3,828,391, Cl. 16-16.000.
- Sutton, Max E., to Allis-Chalmers Corporation. Quick hitch adapter. 3,829,128, Cl. 280-461.00a.
- Sutton, Michael Gilbert; and Gales, Michael Edward, to British Domestic Appliances Limited. Improvements in or relating to an electric generator with adjustable eccentric member for varying the output voltage. 3,829,724, Cl. 310-67.00r.
- Suzuki, Hisao: See—
Miyasaki, Norihiko; Ishii, Minoru; Sakurai, Hiroji; Suzuki, Hisao; Nagatsumo, Katsuyoshi; and Furukawa, Hitoshi, 3,829,228.
- Suzuki, Isamu: See—
Ishida, Shinichi; Oshima, Noboru; Kurita, Kunio; Suzuki, Isamu; and Ohno, Hidetoshi, 3,829,379.
- Suzuki, Masaru, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Direction indicator automatic return device for turn indicator switches. 3,829,638, Cl. 200-61.270.
- Suzuki, Shigeyoshi; Kobayashi, Norio; and Shimizu, Kazuo, to Mitsubishi Paper Mills, Ltd. Wetting liquid composition for offset master plate. 3,829,319, Cl. 106-2.000.
- Suzuki, Shizuo: See—
Watanabe, Teruji; Fukui, Takasuke; and Suzuki, Shizuo, 3,829,894.
- Suzuki, Takashi: See—
Hamabe, Takeshi; and Suzuki, Takashi, 3,829,364.
- Svensen, Noel: See—
Harris, Sterling G.; Smith, Joseph D.; McCall, David D.; Moore, Glenn S.; Hidden, William P.; and Svensen, Noel, 3,828,398.
- Svensson, Uno. Method of crimping a socket to a rod formed of aluminum material. 3,828,420, Cl. 29-517.000.
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Jancik, Frantisek; and Polach, Josef, 3,828,385.
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Brink, Robert H., Jr.; Shema, Bernard F.; Justice, Roger L.; and Swered, Paul, 3,829,305.
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- Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,829,575.
- Shema, Bernard F.; Brink, Robert H., Jr.; and Swered, Paul, 3,829,586.
- Swiss Aluminium Ltd.: See—
Chaudhuri, Kiranendu; and Bachofner, Peter, 3,829,365.
- Kugler, Tibor; and Rieger, Hans Wolfhart, 3,829,374.
- Sylvester, Alfred Glenn S. Combination jack, anchor and hold-down apparatus: See—
Koon, Billy W.; and Sylvester, Alfred Glenn S. Combination jack, anchor and hold-down apparatus, 3,828,491.
- Symons Corporation: See—
Spellman, Francis T., 3,828,949.
- Sysun, Viktor Viktorovich; Basov, Jury Georgievich; and Roldugin, Vladimir Ivanovich. Gas-dynamic discharge light. 3,829,732, Cl. 313-198.000.
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Hill, Robert; Bliss, George D.; and Szakacs, Janos B., 3,828,732.
- Szczepanski, Harry. Automatic spray-painting machine. 3,828,721, Cl. 118-7.000.
- Tackett, Marcus, Jr., to Tange Drives, Inc. Shallow cup feeder and orienter. 3,828,921, Cl. 198-287.000.
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Ogoro, Masanobu; and Takashi, Kiyoshi, 3,829,870.
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Hoshino, Masao; and Oka, Yuushi, 3,829,361.
- Matsui, Yutaka; Kazama, Seiji; and Nakabayashi, Masamitsu, 3,829,533.
- Takeda Riken Industry Company Limited: See—
Ashida, Hitoshi, 3,829,769.
- Talbat, Richard C.; Rose, Edward; and Roth, Robert A., to Peters Machinery Company. Slug conveyor for conveying slugs of articles and releasing the slugs of articles for packaging. 3,828,918, Cl. 198-155.000.
- Talbo, William J., Jr.: See—
Gerwick, Ben C., Jr.; Talbo, William J., Jr.; Hughes, Keith E.; and Brown, Arnold L., 3,828,708.
- Tallinsky Politeknichesky Institut: See—
Aarna, Agu Yanovich; Kiisler, Karl Ritsoovich; Gerkhardovich, Peep; and Tanner, Yuri Albert-Mikhaelovich, 3,829,528.
- Tanaka, Kunihiro, to Nippon Electric Company Limited. Encased micro-circuit and the process for manufacturing the same. 3,829,604, Cl. 174-525.000.
- Tanaka, Shogo: See—
Yamashita, Keitarou; and Tanaka, Shogo, 3,828,730.
- Tanaka, Takashi; and Nomura, Yasuo, to Matsushita Electric Industrial Co., Ltd. Multi-channel magnetic head with offset gap lines. 3,829,895, Cl. 360-121.000.
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Yamada, Norio; Ikejima, Yoritaka; Takasu, Hiromi; Kubo, Masao; and Tanaka, Yoshimasa, 3,828,430.
- Tanaszek, Frank J.: See—
Bright, Hugh H.; Davis, Lee W.; and Tanaszek, Frank J., 3,829,248.
- Tangen Drives, Inc.: See—
Tackett, Marcus, Jr., 3,828,921.
- Tanner, Yuri Albert-Mikhaelovich: See—
Aarna, Agu Yanovich; Kiisler, Karl Ritsoovich; Gerkhardovich, Peep; and Tanner, Yuri Albert-Mikhaelovich, 3,829,528.
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- Taylor, Don A. Apparatus for molding strip material. 3,829,271, Cl. 425-385.000.
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- Taylor, Rolla D.: See—
Fornoff, Louis L.; Collins, John J.; and Taylor, Rolla D., 3,829,560.
- Taylor, William D.: See—
Ashby, Eugene C.; Taylor, William D.; and Winkler, Donald A., 3,829,390.
- Tec Group, Inc., The: See—
Hickey, William E., Jr., 3,828,929.
- Tecotzky, Melvin: See—
Buchanan, Robert A.; Tecotzky, Melvin; and Wickersheim, Kenneth A., 3,829,700.
- TED Bildplatten Aktiengesellschaft: See—
Dickopp, Gerhard, 3,829,605.
- Teich, Rudor M. Automobile theft alarm with ignition controlled automatic arming means. 3,829,829, Cl. 340-64.000.
- Teijin Limited: See—
Hara, Shigeyoshi; Yamada, Takeyoshi; and Yoshida, Tsunemasa, 3,829,399.
- Teleflex Incorporated: See—
Wiegand, Hans, 3,828,624.
- Telesco Brophey Limited: See—
Thur, Klaus, 3,828,805.
- Teller, Sonia R.: See—
Berger, Joel G.; and Teller, Sonia R., 3,829,431.
- Tempco Industrial Heater Corporation: See—
Hinz, Edward W., 3,829,657.
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- Tenenbaum, Paul: See—
Yurjevich, Howard, 3,828,476.
- Tenner, Oskar, to Gravicast Patentverwertungsgesellschaft m.b.H. Process for the emergency interruption of the flow of melt in a gravity casting plant. 3,828,974, Cl. 222-1.000.
- Terry Controls Corporation: See—
Langdon, David H.; Prentice, James C.; and Van Olinda, David L., 3,829,842.
- Terry, Stanley M., to Maremont Corporation. Arc welder and combined auxiliary power unit and method of arc welding. 3,829,652, Cl. 219-133.000.
- Tesoro, Giuliana C., to Burlington Industries, Inc. Process for decreasing the flammability of textiles and product produced thereby. 3,829,289, Cl. 8-115.700.
- Tessendorf, Gunter: See—
Geiser, Hans; and Tessendorf, Gunter, 3,829,822.
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- Texaco Exploration Canada Ltd.: See—
McKay, Alexander S., 3,829,685.
- Texaco Inc.: See—
Cole, Edward L.; and McCoy, Frederic C., 3,829,525.
Eisner, Elmer, 3,828,891.
Hopkins, Walker L.; Chvatal, Leland A.; and White, William D., 3,829,376.
Schultz, Ward E.; Smith, Harry D., Jr.; and Arnold, Dan M., 3,829,686.
Senn, Charles A., III; and Parker, Levi C., 3,829,524.
Stranahan, John J.; Hollier, John C. L.; and Deloney, Hugh C., 3,829,275.
- Texas Instruments Incorporated: See—
Andrychuk, Dmetro, 3,829,692.
Charest, Kenneth; Hanley, Robert F.; and Ornstein, Jacob L., 3,829,296.
Ensminger, Clifford H.; and Ruggiero, Edward M., 3,829,653.
Manus, Donald J., 3,828,425.
Martin, Robert C., 3,828,548.
- Textron Inc.: See—
Edenborough, Harry K.; Wernicke, Kenneth G.; and Carter, George D., 3,829,240.
Lindblom, Frank W., 3,829,200.
Uhrhane, Philip F.; and Day, Donald L., 3,828,494.
- Thal, Heinz: See—
Eimer, Klaus; and Thal, Heinz, 3,828,930.
- Thaler, Warren A.: See—
Mueller, Wolfgang H.; Thaler, Warren A.; and Oswald, Alexis A., 3,829,535.
- The Kendall Company, mesne: See—
Zoephel, Richard L., 3,828,784.
- Thelen Alfred, to Balzers Patent- und Beteiligungs-Aktiengesellschaft. Antireflective multilayer coating on a highly refractive substrate. 3,829,197, Cl. 350-164.000.
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Buch, Roman; Kocis, Louis L.; and Sadove, Max S., 3,828,773.
- Theurer, Josef: See—
Plasser, Franz; Theurer, Josef; and Schubert, Egon, 3,828,440.
- Thibault, Jacques P. Electrical heating envelopes. 3,829,655, Cl. 219-535.000.
- Thiebault, Robert, to Prefecture de Police. Wheel clamp. 3,828,590, Cl. 70-19.000.
- Thiele, Geraldine H. Method of fusing bones. 3,828,772, Cl. 128-92.00g.
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- Thiene, Hans: See—
Zahn, Wolfgang; Weinert, Volker; Thiene, Hans; and Hujer, Friedrich, 3,829,214.
- Thoenen, Earl R.: See—
Powers, Sheldon D.; and Thoenen, Earl R., 3,829,879.
- Thomas, Ian A., to Flextac Nodwell Ltd. Gang plate fastening assembly and endless track formed therewith. 3,829,174, Cl. 305-35.0eb.
- Thomas, Klaus: See—
Schroder, Ludwig; Thomas, Klaus; and Goeth, Hanns, 3,829,426.
- Thomas, Moses L.: See—
Doss, Richard C.; and Thomas, Moses L., 3,829,526.
- Thomas, Paul W.: See—
Downey, Rogers B.; and Thomas, Paul W., 3,829,205.
- Thompson, Norman S.; Nicholls, Gordon A.; and Han, Shu-Tang, to Institute of Paper Chemistry, The. Oxidative manufacture of pulp with chlorine dioxide. 3,829,357, Cl. 162-23.000.
- Thompson, Robert L.: See—
Qualley, Ray W.; and Thompson, Robert L., 3,829,279.
- Thomson-CSF: See—
Assouline, Georges; Hareng, Michel; and Leiba, Eugene, 3,829,684.
Ernein, Joel, 3,829,827.
- Thorborg, Kjeld, to Allmanna Svenska Elektriska Aktiebolaget. Means for generating reactive power. 3,829,759, Cl. 323-119.000.
- Thorneburg Hosiery Mills, Inc.: See—
Thorneburg, James L., 3,828,585.
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- Thur, Klaus, to Telesco Brophrey Limited. Self-closing umbrella frame. 3,828,805, Cl. 135-22.000.
- Thurber, Kenneth James: See—
Berg, Robert Orval; and Thurber, Kenneth James, 3,829,846.
- Thurmond, Carl Dryer: See—
Logan, Ralph Andre; and Thurmond, Carl Dryer, 3,829,556.
- T.I. (Group Services) Limited: See—
Parkinson, Geoffrey John, 3,829,220.
- Tidwell, James T.: See—
Bradburn, Eugene H.; and Tidwell, James T., 3,829,313.
- T'Jampens, Germain Remi; and Prakken, Gerrit, to U.S. Philips Corporation. Tungsten-bromine cycle lamp. 3,829,731, Cl. 313-174.000.
- Tkachev, Leonid Grigorievich: See—
Olshansky, Nikolai Alexandrovich; Smelyansky, Matvei Yakovlevich; Lopatko, Anatoly Petrovich; Tkachev, Leonid Grigorievich; Kozhaev, Arkady Filipovich; Sapozhnikov, Alexander Ivanovich; and Chernakov, Gennady Anatolievich, 3,829,651.
- Tohi, Atsutomo; Sakai, Kunio; Fukai, Masakazu; and Tsujimoto, Yoshinobu, to Matsushita Electric Industrial Co., Ltd. Method for diffusing an impurity substance into silicon carbide. 3,829,333, Cl. 148-1.500.
- Tokuyama Soda Kabushiki Kaisha: See—
Mizutani, Yukio; Izumi, Yusuki; and Watanabe, Yoshiaki, 3,829,495.
- Tokyo Shibaura Denki Kabushiki Kaisha: See—
Igarashi, Ryuji, 3,829,649.
- Tokyo Shibaura Electric Co., Ltd.: See—
Goto, Kenya, 3,829,694.
Hirasawa, Masataka; and Kawagai, Kenji, 3,829,710.
Muraoka, Hisashi; Asano, Masafumi; Ohashi, Taizo; and Shimazaki, Yuzo, 3,829,555.
- Tolstoguzov, Vladimir Borisovich; Izjumov, Dmitry Borisovich; Grinberg, Valery Yakovlevich; Marusova, Alla Nikolaevna; and Chekhovskay, Violettaefilovna. Method of making protein-containing foodstuffs resembling minced-meat. 3,829,587, Cl. 426-350.000.
- Tomy Kogyo Co., Ltd.: See—
Yamamoto, Hideyuki, 3,828,970.
- Tonooka, Katsuo: See—
Iizuka, Toru; Tonooka, Katsuo; Saitoh, Torahiko; and Yasuda, Isao, 3,829,332.
- Tools and Production, Inc.: See—
Grano, James V., 3,828,632.
- Topley, Bryan: See—
Kent, Alan; and Topley, Bryan, 3,829,479.
- Topmatic Corporation: See—
Johnson, Allan S., 3,829,230.
- Toppan Printing Co. Ltd.: See—
Anzai, Masao; and Miyatake, Masayuki, 3,829,286.
- Toray Industries, Inc.: See—
Kato, Tetsuya; and Ohira, Tutomu, 3,829,400.
- Torin Corporation: See—
Samson, Wilfred Joseph, Jr., 3,829,250.
- Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Martitovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtndil Semenovich; and Aglitsky, Vladimir Efimovich. Installation for pneumatic conveyance of containerized loads through a tube. 3,829,042, Cl. 243-3.000.
- Townsend Engineering Company: See—
Townsend, Ray T., 3,828,740.
- Townsend, Ray T., to Townsend Engineering Company. Rotary internal combustion engine and method of cooling the same. 3,828,740, Cl. 123-44.00e.
- Toyo Ink Manufacturing Co., Ltd.: See—
Anzai, Masao; and Miyatake, Masayuki, 3,829,286.
- Toyo Purasu Sukuryu Kabushiki Kaisha (Toyo Plus Screw Co. Ltd.): See—
Nakamura, Yoshio, 3,828,382.
- Toyoda Koki Kabushiki Kaisha: See—
Ishikawa, Mineo; and Moriya, Kazuo, 3,828,439.
- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
Iida, Teiji; and Yoshimura, Noboru, 3,829,156.
Kitano, Masao; and Kondo, Yasuo, 3,828,844.
- Tranchero, Jacques. Three-stage self-propelled crane. 3,828,939, Cl. 212-8.000.
- Treffner, Walter S.: See—
Farrington, Grant M., Jr.; and Treffner, Walter S., 3,829,541.
- Trescott, Edward B.; and Richards, James C. Method of oxidation of alkylidihalogenphosphines to their oxides. 3,829,480, Cl. 260-543.00p.
- Tri-Kem Corporation: See—
Rice, Leonard M., 3,829,569.
- Tri-Way Industries, Inc.: See—
Del Missier, Richard J., 3,828,374.
- Triffit, James Christopher Herbert: See—
Sharpe, Raymond; and Triffit, James Christopher Herbert, 3,828,618.
- Triplett Corporation: See—
Cerveny, Walter J., 3,829,774.
- Tripsas, Trifon P., to GTE Automatic Electric Laboratories, Incorporated. Trunk circuit number parity checking. 3,829,628, Cl. 179-175.20r.
- Trubin, Anatoly Petrovich: See—
Vragov, Jury Dmitrievich; Danyav, Vladimir Egorovich; Trubin, Anatoly Petrovich; and Sinichkin, Sergei Gavrilovich, 3,828,647.
- Trumpf & Co., Firma: See—
Leibinger, Berthold, 3,828,432.
- Truskanov, David Matveevich; Brunin, Kirill Rudolfovich; and Ratner, Lev Semenovich. Transmitting stacked aerial. 3,829,864, Cl. 343-833.000.
- Tsang, Floris Y., to Dow Chemical Company. The. Sodium borate glass compositions and batteries containing same. 3,829,331, Cl. 136-146.000.
- Tsantker, Karl Lazarevich: See—
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shantakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Nikolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- Tsimbler, Jury Abramovich: See—
Torochkov, Ivan Mikhailovich; Kobulia, Georgy Samsonovich; Alexandrov, Adolf Martitovich; Suladze, Ippolit Davidovich; Matskin, Leonid Arkadievich; Gambashidze, Zurab Dmitrievich; Balayan, Ruben Dzhangirovich; Tsimbler, Jury Abramovich; Kakhniashvili, Avtndil Semenovich; and Aglitsky, Vladimir Efimovich, 3,829,042.
- Tsuchiya, Hitoshi: See—
Yao, Ching-Chun; and Tsuchiya, Hitoshi, 3,829,263.
- Tsuchiya, Toshio; and Abe, Atsushi, to Honda Giken Kogyo Kabushiki Kaisha. Vehicle for use on snow, ice or the like. 3,828,872, Cl. 180-5.00r.
- Tsujibayashi, Koichi, to Nippon Felt Co., Ltd. Paper making machine having once-twisted endless felts. 3,829,359, Cl. 162-274.000.
- Tsujimoto, Yoshinobu: See—
Tohi, Atsutomo; Sakai, Kunio; Fukai, Masakazu; and Tsujimoto, Yoshinobu, 3,829,333.
- Tsukakoshi, Osamu; and Kiriya, Masashi, to Ulvac Corporation. System for measuring and recording gas chromatograms and mass spectra by a direct combination of a gas chromatograph and a quadrupole mass spectrometer. 3,829,689, Cl. 250-290.000.
- Tsukihoshi Gomu Kabushiki Kaisha (The Moon-Star Rubber Ltd.): See—
Ainoura, Masato, 3,829,298.
- Tsunoda, Yoshito; and Oshida, Yoshitada, to Hitachi, Ltd. Random phase plate for fourier transform holography. 3,829,193, Cl. 350-3.500.
- Tsuruishi, Yuki, to Kabushiki Kaisha Suwa Seikosha. Driving circuit for electronic timepiece. 3,828,545, Cl. 58-28.00a.
- Tucker, William F., to Monsanto Company. Doping control for semiconductor materials. 3,829,382, Cl. 252-62.30r.
- Tull, Alonzo E.; Benson, Ernest J.; and Weveris, William V., to Bental Equipment Corporation. Article unscrambler. 3,828,914, Cl. 198-30.000.
- Turchaninov, Vasily Vasilievich; Shelkovnikov, Jury Petrovich; Machkov, Gennady Maximovich; and Korolev, Oleg Alexandrovich. Pig piling device. 3,828,944, Cl. 214-6.500.
- Tyco Laboratories, Inc., mesne: See—
Guetersloh, John W., 3,829,850.
- Tyrseck, Walter J.: See—
Hackenbert, Robert A.; Tyrseck, Walter J.; and Berry, Chapman, 3,829,005.
- Uchida, Isamu, to Minolta Camera Kabushiki Kaisha. Detachable viewfinder arrangement for use in a photographic camera. 3,828,644, Cl. 88-54.000.
- Uchida, Kenji: See—
Gomes, John M.; and Uchida, Kenji, 3,829,309.
- Uchida, Kosaku, to Matsushita Electric Industrial Company, Limited. System for coupling magnetic recording and reproducing machine with television receiver. 3,829,891, Cl. 360-33.000.
- Uchino, Kunio. Bicycle drives. 3,828,621, Cl. 74-243.0pc.
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- Uhrhane, Philip F.; and Day, Donald L., to Textron Inc. Roof jack. 3,828,494, Cl. 52-15.000.
- Uhtenwoldt, Herbert Rudolf, to Cincinnati Milacron-Heald Corporation. Cam controlled machine for grinding a non-circular surface. 3,828,481, Cl. 51-101.00r.
- Ulrich, Henri: See—
Richter, Reinhard H.; and Ulrich, Henri, 3,829,444.
- Ultrasonic Systems, Inc.: See—
Kuris, Arthur; Balamuth, Lewis; and Karatjas, Manuel, 3,828,770.
- Ulvac Corporation: See—
Tsukakoshi, Osamu; and Kiriya, Masashi, 3,829,689.
- Umminger, Frederick W., Jr. Board game apparatus. 3,829,098, Cl. 273-131.0ab.
- Underwood, Jereld L.; Edmundson, Floyd D.; and Dolezal, Milton M., to Houston Chronicle Publishing Company. Printing press ink suppression apparatus. 3,828,674, Cl. 101-349.000.
- Union Carbide Corporation: See—
Byrd, Priscilla D.; and Fritz, Henry E., 3,829,415.
Fornoff, Louis L.; Collins, John J.; and Taylor, Rolla D., 3,829,560.
Reash, Clair W.; and Pietrasz, Vincent, 3,829,730.
- Union Oil Company of California: See—
Hashimoto, Saburo, 3,829,377.
- Union Special Maschinenfabrik: See—
Von Hagen, Wolf-Rudiger; and Gauch, Hermann, 3,828,704.
- Uniroyal, Inc.: See—
Witt, Jerry L.; and Layson, Allen, 3,828,827.
- United Aircraft Corporation: See—
Amoroso, Salvatore, Jr., 3,829,778.
Rybicki, Robert C.; and Keller, Carl H., Jr., 3,829,239.
- United Industrial Syndicate, Inc.: See—
Snow, Gerald A., 3,828,997.
- United Kingdom Atomic Energy Authority: See—
Bowen, Dennis Herbert, 3,828,699.
- United Kingdom of Great Britain and Northern Ireland, Minister of // Ireland, Secretary of State for Defense in Her: See—
Vyncomb, William Anthony, 3,828,497.
- United Kingdom of Great Britain and Northern Ireland, Minister of Supply in Her Britannic Majesty's Government of the: See—
Kent, Alan; and Topley, Bryan, 3,829,479.
- United States Borax & Chemical Corporation: See—
Strong, Philip L.; Hunter, Don L.; and Le Fevre, Cecil W., 3,829,308.
- United States of America
Agriculture: See—
Berni, Ralph J.; Benerito, Ruth R.; and Soignet, Donald M., 3,829,290.
Guadagni, Dante G.; and Buttery, Ron G., 3,829,582.
- Army: See—
Brohawn, Charles L., 3,828,675.
Kaszupski, Stanley J., 3,828,677.
Taylor, George R., 3,829,640.
Testerman, Joseph E.; and Robertson, Louis A., 3,828,645.
Zeto, Robert J.; Bosco, Charles D.; and Hryckowian, Eugene, 3,829,303.
- Army, mesne: See—
Price, Raymond M., 3,829,336.
- Atomic Energy Commission: See—
Bradburn, Eugene H.; and Tidwell, James T., 3,829,313.
Chen, Yok; and Abraham, Marvin M., 3,829,391.
Hamel, Stephen D., 3,829,223.
Jensen, Reed J.; Rice, Walter W.; and Beattie, Willard H., 3,829,793.
Stein, Lawrence, 3,829,551.
- Environmental Protection Agency: See—
Rogers, Charles J.; and Coleman, W. Emile, 3,829,363.
- Health, Education and Welfare: See—
Banks, Michael E.; Lusk, Walter D.; and Ottinger, Robert S., 3,829,558.
- Interior: See—
Conroy, George J.; and Parkinson, Howard E., 3,829,856.
Gomes, John M.; and Uchida, Kenji, 3,829,309.
- National Aeronautics and Space Administration: See—
Booth, Franklin W.; and Bruce, Robert A., 3,828,524.
Chestnutt, David, 3,829,237.
- Navy: See—
Byram, George W.; and Speiser, Jeffrey M., 3,829,798.
Cutler, Thomas P.; and Dollinger, Kenneth, 3,829,860.
Ford, Robert E., 3,829,788.
Joseph, Horace M., 3,829,674.
Laswell, John E.; and Wildridge, John E., 3,829,146.
Lent, William E.; and Flores, Jose A., 3,829,403.
Matsuo, Jon T.; and Neippling, Lawrence E., 3,829,046.
Murphree, Francis J., 3,829,596.
Nicol, James; Shapiro, Sidney; and Roetter, Martyn F., 3,829,768.
- Army: See—
Wentworth, Stanley E., 3,829,497.
- Universal Oil Products Company: See—
Schmerling, Louis, 3,829,450.
- Universite de Sherbrooke: See—
Deslongchamps, Pierre, 3,829,413.
- Uno, Naoyuki; and Urano, Fumio, to Asahi Kogaku Kogyo Kabushiki Kaisha. Film count indicating means for cameras that can perform multiple overlapping exposure. 3,829,876, Cl. 354-209.000.
- Upjohn Company, The: See—
Kornis, Gabriel; and Nidy, Eldon G., 3,829,463.
Kornis, Gabriel; and Nidy, Eldon G., 3,829,464.
Richter, Reinhard H.; and Ulrich, Henri, 3,829,444.
Stehle, Randall G.; and Oesterling, Thomas O., 3,828,579.
Stehle, Randall G.; and Oesterling, Thomas O., 3,829,579.
- Urano, Fumio: See—
Uno, Naoyuki; and Urano, Fumio, 3,829,876.
- Urquhart-Pullen, David Ian: See—
Willis, John Robert; and Urquhart-Pullen, David Ian, 3,829,623.
- U.S. Philips Corporation: See—
Bergkvist, Bengt, 3,829,858.
Boekkooi, Anton, 3,828,407.
De Bonth, Petrus Cornelis Wilhelmus Maria; Osing, Halbe; Verburg, Cornelis Andries; and Muijderman, Everhardus Albertus, 3,829,270.
Eshraghian, Kamran, 3,829,784.
Hart, Cornelis Maria, 3,829,718.
Jager, Lothar, 3,829,898.
Lathouwers, Franciscus Johannes Maria; and De Groot, Jacob, 3,829,806.
Lortetje, Jean Hubertus Josef; Schmidt, Ernst Machiel; and Van der Put, Henricus Cornelis Adrianus, 3,829,646.
Moey, Gossuines Philippus Guilielmus; and Wittkamper, Johannes Martinus, 3,828,831.
Mulder, Cornelius, 3,829,789.
Schofield, John Michael Stuart, 3,829,734.
Schroder, Gerd; and Meyer-Ebrecht, Dietrich, 3,829,785.
Siemens, Sidonius Volkert, 3,828,559.
T'Jampens, Germain Remi; and Prakken, Gerrit, 3,829,731.
Zonneveld, Frans Wessel; and Westhof, Johannes, 3,829,844.

- US Supply Company: See—
Hobbs, L. T., 3,829,152.
- Uji, Genichi; and Komine, Isamu, to Nippon Kokan Kaishiki Kaisha. Automatic control system for draw-forming with vibratory energy. 3,828,596, Cl. 72-8.000.
- Ustav pro vyzkum motorvych vozidel: See—
Hau, Antonin, 3,828,554.
- Valbona, Bruno M.; and Voglesonger, Harry M., to Dynamics Corporation of America. Room odor control. 3,829,071, Cl. 261-89.000.
- Valenta, Antonin. Shoe liners. 3,828,792, Cl. 128-619.000.
- Valleylab Inc.: See—
Morrison, Charles F., Jr., 3,828,780.
- Van Amsterdam, John C.: See—
Phelon, Russell D.; and Van Amsterdam, John C., 3,828,426.
- van der Lely, Cornelis; and Nieuwenhoven, Hendricus Jacobus Cornelis. Machines for displacing building sections. 3,828,954, Cl. 214-392.000.
- Van der Put, Henricus Cornelis Adrianus: See—
Lortieje, Jean Hubertus Josef; Schmidt, Ernst Machiel; and Van der Put, Henricus Cornelis Adrianus, 3,829,646.
- van der Sterren, Martin L.: See—
Van Meijel, Henricus J. M.; and van der Sterren, Martin L., 3,829,208.
- Van Der Veen, Romke: See—
De Koning, Jan; Van Der Veen, Romke; and Wolters, Tjako Aal-drik, 3,828,451.
- Van Dijk, Edsger Wybe. Radiator for central heating. 3,828,846, Cl. 165-49.000.
- Van Dyk Research Corporation: See—
Slack, William Frederick, 3,828,637.
- Van Etten, Bernardus Adrianus: See—
Vermeulen, Johannes Anthonius; and Van Etten, Bernardus Adrianus, 3,828,472.
- Van Exel, Gerrit A.; and Akin, Alfred A., Jr. to Bausch & Lomb Incorporated. Binocular. 3,829,194, Cl. 350-76.000.
- Van Meijel, Henricus J. M.; and van der Sterren, Martin L., to Océ-van der Grinten N.V. Copying apparatus. 3,829,208, Cl. 355-3.000.
- Van Meter, Edmin L., to Gross-Given Mfg. Company. Vending machine circuitry. 3,828,905, Cl. 194-10.000.
- Van Olinda, David L.: See—
Langdon, David H.; Prentice, James C.; and Van Olinda, David L., 3,829,842.
- van Sluys, Robert Nestor Joseph. U.S. Philips Corporation Noise reduction system. 3,829,715, Cl. 307-264.000.
- Van, Trong N'Guyen; and Fechant, Louis Joseph. Linear motor with electro-magnetic control. 3,829,746, Cl. 318-135.000.
- Van Vlaenderen, Roger, to N.V. Bekaert S.A. Process for manufacturing polyethylene terephthalate plastic coated wire. 3,829,545, Cl. 264-174.000.
- Van Wyck, William E.: See—
Richter, Calvin; and Van Wyck, William E., 3,828,858.
- Van Zuuren, Eduard Willem: See—
Grenendaal, Gradus Cornelis; Cool Hans; DeVos, Jacob; and Van Zuuren, Eduard Willem, 3,829,783.
- Vanderklaauw, Peter M., to Research Corporation. Method of erecting a multi-story building and apparatus therefor. 3,828,513, Cl. 52-745.000.
- Varian Associates: See—
Briggs, Walton E.; and Maliakal, Joseph C., 3,828,527.
- Varispace Industries, Inc.: See—
Ryswick, Edward L., 3,829,147.
- Vasilev, Rosen Petrov: See—
Julev, Stoyan Iliev; Milkov, Mihail Yordanov; Dachev, Lyubomir Petrov; Vasilev, Rosen Petrov; Kostov, Vasil Alexandrov; and Aroyo, Jacky Sivcho, 3,829,344.
- Vasiliev, Nikolai Grigorievich: See—
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- Vass, Alexander A. Adjustable rectal applicator with draining sleeve. 3,828,774, Cl. 128-241.000.
- VAT Aktiengesellschaft fur Vakuum-Apparate-Technik: See—
Fend, Heinrich, 3,829,062.
- VCA Corporation: See—
Steigerwald, Carl J., 3,828,982.
- Vdovenko, Nadezhda Vasilievna: See—
Ovcharenko, Fedor Danilovich; Chugai, Alexei Dmitrievich; Tsantker, Karl Lazarevich; Logvinenko, Dmitry Danilovich; Shelyakov, Oleg Parfirovich; Chechik, Ljudmila Efimovna; Belonozhko, Alla Mikhailovna; Morozko, Ekaterina Alexandrovna; Kuzmina, Ljudmila Niolaevna; Vdovenko, Nadezhda Vasilievna; Vasiliev, Nikolai Grigorievich; and Soloshenko, Nina Ivanovna, 3,829,028.
- VEB Bergmann-Borsig/Goerlitzer Maschinenbau: See—
Neumann, Klaus; and Fritz, Wolfgang, 3,828,814.
- Velek, Robert J.: See—
Centner, Ronald M.; and Velek, Robert J., 3,829,750.
- Vendo Company, The: See—
Offutt, Elmer Bradley; and Babich, Edward, 3,828,971.
- Verber, Carl M.: See—
Lewis, Jordan D.; Verber, Carl M.; and McGhee, Robert B., 3,829,838.
- Verburg, Cornelis Andries: See—
De Bonth, Petrus Cornelis Wilhelmus Maria; Osing, Halbe; Verburg, Cornelis Andries; and Muijderman, Everhardus Albertus, 3,829,270.
- Vergara, Adolfo: See—
Vergara, Jose D.; Vergara, Adolfo; and Zepeda, Juan L., 3,829,177.
- Vergara, Jose D.; Vergara, Adolfo; and Zepeda, Juan L. Security device for braking systems. 3,829,177, Cl. 303-84.00r.
- Verkuil, Steven M. Ice auger with slip clutch in drive. 3,828,861, Cl. 173-26.000.
- Vermeulen, Johannes Anthonius: See—
Vermeulen, Johannes Anthonius; and Van Etten, Bernardus Adrianus, 3,828,472.
- Vermeulen, Johannes Anthonius; and Van Etten, Bernardus Adrianus, to Vermeulen, Johannes Anthonius. Flower arranging element. 3,828,472, Cl. 47-41.000.
- Veronica, Giacinto; and Fidani, Antonio, to Montecatini Edison S.p.A. Process for preparing calcium nitrate and phosphoric acid solutions free from solid particles in suspension. 3,829,389, Cl. 252-182.000.
- Verrien, Jean Prudent Fernand Rene: See—
Boy-Marcotte, Jean Louis; Simmonnet, Jacques Louis Paul; Marchal, Philippe Albert Hippolyte; and Verrien, Jean Prudent Fernand Rene, 3,828,574.
- Versatec, Inc.: See—
Lloyd, William A., 3,829,185.
- Vezmar, Alexander G., to Robertson, H. H., Company. Explosion pressures release fastener. 3,828,493, Cl. 52-1.000.
- Vickers Limited: See—
Payne, Bryan Oliver, 3,829,609.
- Vidar Corporation: See—
Baichtal, James R., 3,829,893.
- Vikhly Georgy Alexandrovich: See—
Vitosky, Nikolai Alexandrovich; Vikhly Georgy Alexandrovich; Mashovets, Tatyana Vadimovna; and Ryvkin, Solomon Meerovich, 3,829,334.
- Vincent, John D.: See—
Ronzio, Richard A.; Lane, John W.; and Vincent, John D., 3,829,550.
- Vink, Johannes Albertus, to CPM/Europe N.V. Apparatus for the production of food pellets from a flour product. 3,828,661, Cl. 99-483.000.
- Vinnemann, Antonius: See—
Hurzelier, Rene; Vinnemann, Antonius; and Doslik, Peter, 3,828,826.
- Vinycumb, William Anthony, to United Kingdom of Great Britain and Northern Ireland, Minister of // Ireland, Secretary of State for Defense in Her. Ground anchors. 3,828,497, Cl. 52-155.000.
- Virginia Chemicals Inc.: See—
Ellis, Leonard C.; and Kise, Mearl A., 3,829,358.
- Vit, Jaroslav; Casensky, Bohuslav; Mamula, Milan; and Machacek, Jiri, to Ceskoslovenska Akademie Ved. Organically substituted sodium aluminum hydrides and method of making and using the same. 3,829,449, Cl. 260-345.900.
- Vitosky, Nikolai Alexandrovich; Vikhly Georgy Alexandrovich; Mashovets, Tatyana Vadimovna; and Ryvkin, Solomon Meerovich. Method of manufacture of a superconducting material. 3,829,334, Cl. 148-125.000.
- Vittoz, Eric Andre, to Centre Electronique Horloger S.A. Frequency dividing logic structure. 3,829,714, Cl. 307-225.00c.
- Vock, Manfred: See—
Hall, John B.; and Vock, Manfred, 3,829,504.
- Vogeli, Ernat, to Polio Establishment. Rail-suspended carriage. 3,829,175, Cl. 308-6.00r.
- Voglesonger, Harry M.: See—
Valbona, Bruno M.; and Voglesonger, Harry M., 3,829,071.
- Volkswagenwerk Aktiengesellschaft: See—
Kirschner, Peter; and Rauer, Heinz Gunter, 3,829,119.
- Schrader, Herbert, 3,828,820.
- Von Hagen, Wolf-Rudiger; and Gauch, Hermann, to Union Special Maschinenfabrik. Combined upper and lower feed for sewing machines. 3,828,704, Cl. 112-212.000.
- von Lewis, Alexander, to Bosch, Robert, GmbH. Magnet valve. 3,829,060, Cl. 251-129.000.
- Von Loewis of Menar, Alexander; and Riesenberger, Klaus-Otto, to Bosch, Robert, GmbH. Brake control apparatus for a motor car. 3,829,166, Cl. 303-21.00c.
- Vondracek, Charles H.: See—
Blewitt, Donald D.; Cameron, Frank L.; and Vondracek, Charles H., 3,829,808.
- Vragov, Jury Dmitrievich; Danyaev, Vladimir Egorovich; Trubin, Anatoly Petrovich; and Sinichkin, Sergei Gavrilovich. Method of milling workpieces. 3,828,647, Cl. 90-1.00c.
- VRC California Inc.: See—
Stebe, Robert F., 3,829,897.
- Wagensommer, Jozsef: See—
Galgoczy, Gabor; Gyulai, Zoltan; Palagyi, Tivadar; and Wagensommer, Jozsef, 3,828,515.
- Waggon Union GmbH: See—
Kampmann, Gerhard; and Schneider, Felix, 3,828,693.
- Wahlgren, Sven Erik: See—
Eriksson, Karl Gunnar; Wahlgren, Sven Erik; and Mangen, Carl Arnold, 3,828,612.

- Wainscott, Alan Dale: See—
Sanford, Norman Ray; Wainscott, Alan Dale; and Skelton, Billy Keith, 3,828,477.
- Walker, Robert G.: See—
Hill, Donald E.; Payne, Stanley D.; and Walker, Robert G., 3,828,830.
- Wall, John Shiel Clements: See—
Cox, Eric Reginald; and Wall, John Shiel Clements, 3,828,915.
- Wallace-Murray Corporation: See—
Skriletz, Rudolph A.; and Kendall, Virgil D., 3,828,488.
- Woollenweber, William E., Jr., 3,829,235.
- Wallenfang, Jerome A.; and Witt, Wilmer E., to Koering Company. Cam plate adjustment for recutter screen of forage harvester. 3,829,030, Cl. 241-89.100.
- Wallis, Wilhelm E., to Dow Chemical Company. The. Heat insulating container having plastic walls retaining vacuum. 3,828,960, Cl. 215-13.00r.
- Wallis, Norman William Henry. Fire blanket pack. 3,828,856, Cl. 169-50.000.
- Walmet, Gunnar E.: See—
Corman, James C.; and Walmet, Gunnar E., 3,828,849.
- Walston, Bobby J. Camper converta boat. 3,828,379, Cl. 9-1.00t.
- Wanner, Karl: See—
Bleicher, Manfred; Falchle, Jorg; Hahner, Reinhard; Hansel, Ger-not; Schmid, Wolfgang; and Wanner, Karl, 3,828,863.
- Wanner, Rudolf, to Zevatron, GmbH. Automatic soldering machine. 3,828,419, Cl. 29-503.000.
- Ward, Rodney R.: See—
Evans, John A.; Chavis, Clarence S.; and Ward, Rodney R., 3,829,851.
- Ward, Trevor: See—
Hemingway, Maurice; and Ward, Trevor, 3,829,284.
- Warner, William J.: See—
Schuette, Gunter G.; and Warner, William J., 3,828,750.
- Warner-Lambert Company: See—
Genzer, Jerome D.; and Conrad, George A., 3,829,498.
- Warner-Lambert Company, mesne: See—
O'Driscoll, Kenneth F.; and Isen, Allan A., 3,829,329.
- Warren, Henry Ray, to RCA Corporation. Record web control and drive apparatus. 3,828,996, Cl. 226-168.000.
- Watanabe, Koichiro: See—
Soejima, Shigeo; Ohmura, Akira; and Watanabe, Koichiro, 3,829,326.
- Watanabe, Tatsuo: See—
Muratani, Takuro; Saito, Hideki; and Watanabe, Tatsuo, 3,829,777.
- Watanabe, Teruji; Fukui, Takasuke; and Suzuki, Shizuo, to Kokusai Denshin Denwa Kabushiki Kaisha. Parametric magnetic sensor. 3,829,894, Cl. 360-111.000.
- Watanabe, Yoshiaki: See—
Mizutani, Yukio; Izumi, Yusuki; and Watanabe, Yoshiaki, 3,829,495.
- Water Bonnet, Inc.: See—
Fussell, Edward B., Jr.; and Redmon, Don L., 3,829,153.
- Waters, Elmer D., to McDonnell Douglas Corporation. Permafrost structural support with internal heat pipe means. 3,828,845, Cl. 165-45.000.
- Watson, Harry A.: See—
Davis, Samuel R., Jr.; and Watson, Harry A., 3,829,350.
- Waukesha Bearings Corporation: See—
Gardner, Willis W., 3,829,180.
- Wauquier, Jean-Pierre; and Wiegandt, Herbert Friedrich, to Institut Francais du Pétrole, des Carburants et Lubrifiants. Crystallization apparatus. 3,829,293, Cl. 23-273.00r.
- Wayland, Paul O., to Westinghouse Electric Corporation. Matrix-type electrodes having braze-penetration barrier. 3,828,428, Cl. 29-630.00c.
- Weaver, Max A.: See—
Coates, Clarence A., Jr.; and Weaver, Max A., 3,829,411.
- Fisher, John G.; Weaver, Max A.; and Coates, Clarence A., 3,829,410.
- Webasto-Werk W. Baier KG: See—
Lutz, Alfons, 3,829,155.
- Webb, James L.: See—
Gioia, Louis M.; Ellsworth, Charles; and Webb, James L., 3,829,096.
- Weber, Albrecht: See—
Dziuballe, Gerhard; and Weber, Albrecht, 3,829,075.
- Webster, George H.: See—
Dembiak, Matthew R.; and Webster, George H., 3,829,340.
- Wegst, Walter F.; and Aepli, Otto T., to BASF Wyandotte corporation. Surfactant-form depressant emulsion compositions. 3,829,386, Cl. 252-135.000.
- Weidinger, Hans: See—
Steenbeck, Ulf; and Weidinger, Hans, 3,828,686.
- Weigle, Manfred: See—
Leimgruber, Willy; and Weigle, Manfred, 3,829,423.
- Weil, Sanford A., to Gas Development Corporation. Adiabatic saturation cooling machine. 3,828,528, Cl. 55-388.000.
- Weiler, Ernest D.: See—
Bayer, Horst O.; and Weiler, Ernest D., 3,828,580.
- Bayer, Horst O.; and Weiler, Ernest D., 3,829,580.
- Weill & Reineke GmbH: See—
Saucke, Heinz, 3,828,563.
- Weinert, Volker: See—
Zahn, Wolfgang; Weinert, Volker; Thiene, Hans; and Hujer, Friedrich, 3,829,214.
- Weinhart, Martin, to Master Molded Products Corporation. Disposable ointment applicator. 3,828,778, Cl. 128-261.000.
- Weir, William David, to Rohm & Haas Company. Tetrahydro-4H-1,3,5-oxadiazin-4-one. 3,829,419, Cl. 260-244.000.
- Weis, Roger R., to Caterpillar Tractor Company. Engine control system. 3,828,742, Cl. 123-102.000.
- Weis, Siegfried K.: See—
Frost, Charles C.; and Weis, Siegfried K., 3,828,619.
- Weisgerber, Thomas W., to General Motors Corporation. Automotive air conditioning system. 3,828,569, Cl. 62-227.000.
- Weveris, William V.: See—
Tull, Alonzo E.; Benson, Ernest J.; and Weveris, William V., 3,828,914.
- Welch, John A.: See—
Britton, James E.; and Welch, John A., 3,829,229.
- Well-Saver, Inc.: See—
Jones, Len M., 3,828,764.
- Wellbaum, William C.: See—
Briggs, Eugene C.; and Wellbaum, William C., 3,829,281.
- Wells, George William: See—
Widdowson, Albert Henry; and Wells, George William, 3,828,582.
- Weng, George Ernst, to Haverla Probst Kommanditgesellschaft Hartmetall-Werkzeugfabrik Ravensburg. Tip sharpening machine for drills, especially twist drills. 3,828,480, Cl. 51-85.00r.
- Wennerberg, Arnold N., to Standard Oil Company. Process for production of polyarylenes. 3,829,518, Cl. 260-670.000.
- Wentworth, Stanley E., to United States of American, Army. Preparation of 1,4-bis (phenylglyoxaloyl) benzene. 3,829,497, Cl. 260-590.000.
- Wernberg, Niels-Erik B. Anaesthesia plant for animals to be slaughtered. 3,828,396, Cl. 17-1.00r.
- Werner & Pleiderer: See—
Kopp, Eugen, 3,828,444.
- Wernicke, Kenneth G.: See—
Edenborough, Harry K.; Wernicke, Kenneth G.; and Carter, George D., 3,829,240.
- Wesley, Robert B. Oxygen-hydrogen generation and sewage treatment method and system. 3,829,368, Cl. 204-149.000.
- Westcott & Grabhorn, Ltd.: See—
Grabhorn, Robert H.; and Westcott, Norman A., 3,828,967.
- Westcott, Norman A.: See—
Grabhorn, Robert H.; and Westcott, Norman A., 3,828,967.
- Western Electric Company, Incorporated: See—
Dembiak, Matthew R.; and Webster, George H. (said Dembiak as-sor. to), 3,829,340.
- Ehlschlager, Arthur John, 3,829,620.
- Westhof, Johannes: See—
Zonneveld, Frans Wessel; and Westhof, Johannes, 3,829,844.
- Westinghouse Electric Corporation: See—
Blewitt, Donald D.; Cameron, Frank L.; and Vondracek, Charles H., 3,829,808.
- Bozanic, Donald A.; Mergerian, Dickron; Mimarik, Ronald W.; and Pincoffs, Peter H., 3,829,760.
- Carlson, Norman R.; and Zitelli, William E., 3,829,667.
- Cleveland, Charles M., 3,829,647.
- Fieglein, James M.; and Csanady, Michael, Jr., 3,829,232.
- Gathright, Jack G.; and Park, Richard E., 3,829,671.
- Haley, Paul H.; and Enns, Mark K., 3,829,669.
- Krishna, Surinder, 3,829,880.
- Nitta, Tohei, 3,829,629.
- Petersen, Sigurd R.; and Young, Josiah L., 3,829,725.
- Scalzo, Augustine J.; and Hultgren, Kent G., 3,829,233.
- Scott, Eugene W., 3,829,636.
- Wayland, Paul O., 3,828,428.
- Winkler, Charles L.; and Mandel, Alan F., 3,828,892.
- Woolfson, Martin G.; and Frank Gilbert H., 3,829,747.
- Westlund, Arnold E., Jr.; Palmer, Lewis H., III; Audesse, Emery G.; and Huston, Leroy S., to GTE Sylvania Incorporated. Tungsten-halogen lamp. 3,829,729, Cl. 313-174.000.
- Wheeler, Bryce A., to Hughes Aircraft Company. Receive and display optical raster scan generator. 3,829,192, Cl. 350-7.000.
- Wheelock, Edward A., to Crane Packing Company. High pressure lip seal. 3,829,106, Cl. 277-205.000.
- Whelehan, James J. Jr.; and Kraemer, Erich Henry, to Cutler-Hammer, Inc. Broadband millimeter wave parametric amplifier. 3,829,787, Cl. 330-4.900.
- Whirlpool Corporation: See—
Baker, Cecil J.; and Beckett, Leo G., 3,829,056.
- Robandt, William F., II; and Clearman, Jack F., 3,828,975.
- White, Percy La Verne. Animal litter. 3,828,731, Cl. 119-1.000.
- White, Stanley A., to Rockwell International Corporation. Data modem with adaptive feedback cancellation of lead-in and trailing transients. 3,829,780, Cl. 325-42.000.
- White, William D.: See—
Hopkins, Walker L.; Chvatal, Leland A.; and White, William D., 3,829,376.
- Whiteside, Ross C., Jr.: See—
Bertram, James L.; Whiteside, Ross C., Jr.; and Franke, Preston H., Jr., 3,829,354.
- Whiting, Harold F., to Hilsinger Corporation, The. Cushioning mount for a lens in the rim of an ophthalmic mounting. 3,829,201, Cl. 351-154.000.
- Wickersheim, Kenneth A.: See—

- Buchanan, Robert A.; Tecotzy, Melvin; and Wickersheim, Kenneth A., 3,829,700.
- Wiczer, Sol B.: See—
Alexander, David Ord, 3,828,887.
- Widdowson, Albert Henry; and Wells, George William, to Wildt Mellor Bromley Limited. Knitting machine equipped with two part needles. 3,828,582, Cl. 66-13.000.
- Wiechmann, Otto: See—
Jenne, Oswald; Steinkuhl, Josef; Wiechmann, Otto; and Reimann, Gerhard, 3,829,280.
- Wiegand, Hans, to Teleflex Incorporated. Actuator assembly. 3,828,624, Cl. 74-501.00r.
- Wiegandt, Herbert Friedrich: See—
Wauquier, Jean-Pierre; and Wiegandt, Herbert Friedrich, 3,829,293.
- Wieland-Werke A.G.: See—
Kern, Horstmar, 3,828,516.
- Wiethoff, Roger H., to FMC Corporation. Piston for torque transmitting apparatus of the swash plate type. 3,828,654, Cl. 91-488.000.
- Wildridge, John E.: See—
Laswell, John E.; and Wildridge, John E., 3,829,146.
- Wildt Mellor Bromley Limited: See—
Widdowson, Albert Henry; and Wells, George William, 3,828,582.
- Wiles, David M.: See—
Blais, Pierre J.J.B.; Carlsson, David J.; and Wiles, David M., 3,829,324.
- Wilkie, Wallace J., to Sensorlok Corporation. Power sensing and shut-off apparatus. 3,829,703, Cl. 307-18.000.
- Wilks, Edward V.; and Berger, Abe. Aryl ketone containing organosilicon materials. 3,829,455, Cl. 260-448.20b.
- William Prym-Werke KG, Firma: See—
Glindmeyer, Friedrich; Limpens, Karl; and Henneberg, Wilhelm, 3,828,825.
- Williams, Albert Lloyd: See—
Dickert, Joseph John, Jr.; and Williams, Albert Lloyd, 3,829,534.
- Williams, Bobby J. Coaxial engine. 3,828,655, Cl. 92-31.000.
- Williams, Donzle W., Jr. Key holder. 3,828,595, Cl. 70-457.000.
- Williams, Richard E. Automotive air filter gauge. 3,828,441, Cl. 33-178.00b.
- Willme, Marcia B. Composite cover-support for cassettes and books. 3,829,132, Cl. 281-31.000.
- Willis, Arthur E. Decorative wall fixture. 3,828,457, Cl. 40-152.100.
- Willis, John Robert; and Urquhart-Pullen, David Ian, to Rank Organisation Limited, The. Planar voice coil loudspeaker. 3,829,623, Cl. 179-115.00v.
- Wilson, Arthur C., to General Electric Company. Oven door construction with front glass panel. 3,828,763, Cl. 126-200.000.
- Wind Wonder, Inc.: See—
Jones, James D., 3,829,010.
- Windsor, Robert K. Eyelash applicator. 3,828,803, Cl. 132-31.00a.
- Winfield, John D., to ERCO Industries Limited. Production of chlorine dioxide. 3,829,557, Cl. 423-478.000.
- Wingo, Mason C.: See—
Mueller, Martin; and Wingo, Mason C., 3,828,660.
- Winkler, Alfred; Engelsmann, Dieter; Karl, Horst; and Schroeder, Rolf, to AGFA-Gevaert Aktiengesellschaft. Photographic camera for use with roll film. 3,829,875, Cl. 354-206.000.
- Winkler, Charles L.; and Mandel, Alan F., to Westinghouse Electric Corporation. Elevator system. 3,828,892, Cl. 187-29.00r.
- Winkler, Donald A.: See—
Ashby, Eugene C.; Taylor, William D.; and Winkler, Donald A., 3,829,390.
- Winkler, Horst Guenther. Mounting device for the manufacture of dental prostheses. 3,828,433, Cl. 32-32.000.
- Winner Food Products Limited: See—
Hui, In-Wai, 3,829,593.
- Wirtgen, Reinhard. Apparatus for milling road surfaces. 3,829,161, Cl. 299-39.000.
- Wise, Louis M.; and Bozek, Edmund J. Jr., to Amercian Home Products Corporation. Caustic cleaner composition. 3,829,387, Cl. 252-156.000.
- Withrow, David A., to Production Machinery Corporation. Apparatus and method for leveling metal strip. 3,828,599, Cl. 72-163.000.
- Witt, Jerry L.; and Layson, Allen, to Uniroyal, Inc. Manufacture of woven wire tire cord fabric. 3,828,827, Cl. 139-99.000.
- Witt, Wilmer E.: See—
Wallenfang, Jerome A.; and Witt, Wilmer E., 3,829,030.
- Witte, Theo. Adjustable pressure control valve. 3,828,822, Cl. 138-45.000.
- Wittkamper, Johannes Martinus: See—
Moey, Gossuines Philippus Guilielmus; and Wittkamper, Johannes Martinus, 3,828,831.
- Wolf, Milton; Sellstedt, John H.; and Fenichel, Richard L., to American Home Products Corporation. Bis-(O-N-substituted-carbamylphenyl) disulfide and mercapto reduction product. 3,829,488, Cl. 260-558.00s.
- Wolkowicz, Richard I., to Scott Paper Company. Thermoplastic polymeric sheet containing antistat compound. 3,829,408, Cl. 260-88.250.
- Wolters, Tjako Aaldrik: See—
De Koning, Jan; Van Der Veen, Romke; and Wolters, Tjako Aaldrik, 3,828,451.
- Wolthausen, Edward C.: See—
Reba, Imants; and Wolthausen, Edward C., 3,829,070.
- Woodhead, Daniel, Inc.: See—
Eckart, George R., 3,829,819.
- Woodruff, Gene N., to Philips Petroleum Company. Stable asphalt-polyolefin emulsions. 3,829,321, Cl. 106-277.000.
- Woodward, Bruce C., to Kennametal Inc. Briquetting apparatus and die member arrangement therefor. 3,829,267, Cl. 425-237.000.
- Woodward, Richard V.; and McMahon, Richard A., to Factory Mutual Research Corporation, mesne. Fire extinguishing system nozzle. 3,828,855, Cl. 169-40.000.
- Woodward, Robert B.: See—
Conover, Lloyd H.; and Woodward, Robert B., 3,829,453.
- Woolfson, Martin G.; and Frank Gilbert H., to Westinghouse Electric Corporation. Control system for synchronous motor. 3,829,747, Cl. 318-175.000.
- Woolenweber, William E., Jr., to Wallace-Murray Corporation. Turbocharger compressor with dual collector chambers. 3,829,235, Cl. 415-143.000.
- Wortley, John Philip Atkinson: See—
Ives, Andrew George; and Wortley, John Philip Atkinson, 3,829,366.
- Woter, Allan Roy, to Boeing Company, The. Method for determining thermal fatigue of electronic components. 3,828,606, Cl. 23-15.00r.
- Wright, Andrew Charles Walden: See—
Newstead, Charles; and Wright, Andrew Charles Walden, 3,828,898.
- Wu, Yao Hua; and Mueller, Arthur Jacob, to Mead Johnson & Company. 2-(2-Indolyl)-indolines. 3,829,414, Cl. 260-239.00b.
- Wulf, Karl A., to Alco Standard Corporation. Rotary retort furnace. 3,829,283, Cl. 432-103.000.
- Wulff, Harald P., to Shell Oil Company. Heterogeneous catalysts for olefin epoxidation. 3,829,392, Cl. 252-430.000.
- Wunderlich, Klaus; and Bien; Hans-Samuel, to Bayer Aktiengesellschaft. Anthraquinone dyestuffs. 3,829,452, Cl. 260-372.000.
- Wuopio, Richard A.: See—
Adams Robert T.; Heath, William A.; and Wuopio, Richard A., 3,829,510.
- Wyant, James C., to Itek Corporation. Shearing interferometer. 3,829,219, Cl. 356-107.000.
- Wyeth, John, & Brother Limited: See—
Curran, Adrian Charles Ward, 3,829,427.
- Wyle Laboratories, mesne: See—
Karaganis, James J.; and Payne, Peter R., 3,829,861.
- Xerox Corporation: See—
Buddendeck, Gerald A.; and Cox, Herman L., 3,829,209.
- Ha, In W.; and Fravel, John C., 3,829,745.
- Hoyer, August, 3,829,082.
- Yang, Frank Y., 3,828,728.
- Yamada, Kantaro; and Ishii, Hiromichi, to Mitsubishi Rayon Company, Ltd. Process for oxidation of propylene. 3,829,476, Cl. 260-533.00n.
- Yamada, Norio; Ikejima, Yoritaka; Takasu, Hiromi; Kubo, Masao; and Tanaka, Yoshimasa, to Matsushita Electric Works, Ltd. Electric dry shaver with cut hair disposal means. 3,828,430, Cl. 30-41.500.
- Yamada, Takeyoshi: See—
Hara, Shigeyoshi; Yamada, Takeyoshi; and Yoshida, Tsunemasa, 3,829,399.
- Yamaguchi, Namio: See—
Kawamata, Yukio; Yamamoto, Keisuke; and Yamaguchi, Namio, 3,829,606.
- Yamamoto, Hideyuki, to Tomy Kogyo Co., Ltd. Combination article dispensing-amusement device. 3,828,970, Cl. 221-24.000.
- Yamamoto, Hisao: See—
Inaba, Shigeo; Yamamoto, Michihiro; Ishizumi, Kikuo; Mori, Kazuo; Koshiba, Masao; and Yamamoto, Hisao, 3,829,420.
- Yamamoto, Katsuro, to Bridgestone Liquefied Gas Company, Ltd. Method of hydraulically testing low temperature liquefied gas tank of a membrane type. 3,828,608, Cl. 73-37.000.
- Yamamoto, Keisuke: See—
Kawamata, Yukio; Yamamoto, Keisuke; and Yamaguchi, Namio, 3,829,606.
- Yamamoto, Michihiro: See—
Inaba, Shigeo; Yamamoto, Michihiro; Ishizumi, Kikuo; Mori, Kazuo; Koshiba, Masao; and Yamamoto, Hisao, 3,829,420.
- Yamamoto, Shigeo: See—
Araki, Toru; and Yamamoto, Shigeo, 3,829,312.
- Yamamoto, Shinji; and Nakata, Kazuo, to Hitachi, Ltd. Pattern recognizing system. 3,829,831, Cl. 340-146.3a.
- Yamamoto, Yukio, to Nissan Motor Company, Limited and Kanto Seiki Company, Limited. Locking device for a motor vehicle steering mechanism. 3,828,594, Cl. 70-252.000.
- Yamanaka, Akira: See—
Imura, Toshinori; and Yamanaka, Akira, 3,829,873.
- Yamanaka, Takesi: See—
Naitou, Nobuyoshi; Baba, Keizi; Huziwaru, Sigehisa; and Yamanaka, Takesi, 3,828,904.
- Yamashita, Keitarou; and Tanaka, Shogo, to Hitachi Metals, Ltd. Electrostic record developing apparatus. 3,828,730, Cl. 118-637.000.
- Yang, Frank Y., to Xerox Corporation. Xerographic development system. 3,828,728, Cl. 118-637.000.
- Yao, Ching-Chun; and Tsuchiya, Hitoshi, to Rion Kabushiki Kaisha. Apparatus for reduced pressure casting of synthetic resins. 3,829,263, Cl. 425-145.000.
- Yarbrough, James G., to Jet Forwarding, Inc. Container having resilient support means. 3,828,965, Cl. 220-1.500.
- Yardney International Corporation: See—

- Blake, Ivan C.; and Cercone, Ronald, 3,829,539.
- Yasuda, Isao: See—
Iizuka, Toru; Tonooka, Katsuo; Saitoh, Torahiko; and Yasuda, Isao, 3,829,332.
- Yasumatsu, Kozi: See—
Ogawa, Yoshikatsu; Katada, Keiji; Nakano, Mitsuhiro; and Yasumatsu, Kozi, 3,829,398.
- Yates, Robert E.: See—
Davis, Wilbur M.; and Yates, Robert E., 3,828,667.
- Yauchler, Richard A. Liquid contact inertia switch with reset plunger and electrolyte. 3,829,639, Cl. 200-61.470.
- Yeakey, Ernest Leon; and Moss, Philip Hotchkiss, to Jefferson Chemical Company, Inc. Stabilized 2-(2-aminoether) ethanol and ether. 3,829,494, Cl. 260-584.00c.
- Yokohama Rubber Co., Ltd.: See—
Matsushita, Kazuo, 3,828,715.
- Yoshida Engineering Co., Ltd.: See—
Yoshida, Tokuji; and Amakasu, Mitsuzi, 3,828,538.
- Yoshida, Tokuji; and Amakasu, Mitsuzi, to Yoshida Engineering Co., Ltd. High-speed double twist twisting apparatus mainly adapted to twist steel wires. 3,828,538, Cl. 57-58.540.
- Yoshida, Tsunemasa: See—
Hara, Shigeyoshi; Yamada, Takeyoshi; and Yoshida, Tsunemasa, 3,829,399.
- Yoshimura, Noboru: See—
Iida, Teiji; and Yoshimura, Noboru, 3,829,156.
- Young, David W. Ridge scan antenna. 3,829,862, Cl. 343-767.000.
- Young, John P. Boat bow step. 3,828,707, Cl. 114-50r.
- Young, Josiah L.: See—
Petersen, Sigrud R.; and Young, Josiah L., 3,829,725.
- Young, La Vern L. Young calf dehornor. 3,828,789, Cl. 128-303.100.
- Young, Michael Iain: See—
Mason, Brian Edward; and Young, Michael Iain, 3,828,400.
- Young, Roland O. Lifting device. 3,828,942, Cl. 214-1.0sw.
- Yuen, Shokichi, to Hayashibara, Ken. Mixture of maltobionic acid and monosodium glutamate as a food seasoning. 3,829,583, Cl. 426-175.000.
- Yurgevich, Howard, to Tenenbaum, Paul and Strick Corporation. Hinge assembly. 3,828,476, Cl. 49-501.000.
- Zagarella, Adriano: See—
Portinari, Giovanni; and Zagarella, Adriano, 3,829,600.
- Zahn, Gunter, to Ziller & Co. Method of making a frictional connection between an antifriction bearing and a sealing ring. 3,828,411, Cl. 29-148.40s.
- Zahn, Wolfgang; Weinert, Volker; Thienc, Hans; and Hujer, Friedrich, to Agfa-Gevaert Aktiengesellschaft. Photographic film copying apparatus. 3,829,214, Cl. 355-83.000.
- Zaidan Hojin Handotai Kenkyu Shinkokai: See—
Nishizawa, Junichi; and Nonaka, Terumoto, 3,829,885.
- Zapart, Bruno J. Collet-truing device. 3,829,108, Cl. 279-1.001.
- Zbojovka Vsetin, narodni podnik: See—
Cernocky, Jiri; Riha, Miloslav; and Martinec, Josef, 3,828,828.
- Zbrojovka, Narodni podnik: See—
Prade, Wolfgang, 3,828,912.
- Zeeh, Bernd: See—
Mueller, Albrecht; Zeeh, Bernd; and Kiefer, Hans, 3,829,482.
- Zeiffer, Dieter F., to Gaston County Dyeing Machine Company. Honeycomb roll. 3,828,410, Cl. 29-121.00r.
- Zepeda, Juan L.: See—
Vergara, Jose D.; Vergara, Adolfo; and Zepeda, Juan L., 3,829,177.
- Zeto, Robert J.; Bosco, Charles D.; and Hryckowian, Eugene, to United States of America, Army. Method of improving the dielectric properties of inorganic oxide glass-ceramic materials. 3,829,303, Cl. 65-32.000.
- Zevatron, GmbH: See—
Wanner, Rudolf, 3,828,419.
- Zey, Edward Gustave, to Celanese Corporation. Di-trimethylolpropane. 3,829,507, Cl. 260-615.00r.
- Ziller & Co.: See—
Zahn, Gunter, 3,828,411.
- Zillner, Gunter, to Ford Motor Company. Remote outside rearview mirror. 3,828,623, Cl. 74-491.000.
- Zimmermann, Johann Wolfgang, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the preparation of compositions comprising polyvinyl alcohol and a finely dispersed solid. 3,829,402, Cl. 260-42.130.
- Zinser-Textilmaschinen GmbH: See—
Klein, Konrad, 3,828,682.
- Zitelli, William E.: See—
Carlson, Norman R.; and Zitelli, William E., 3,829,667.
- Zoecon Corporation: See—
Siddall, John B.; and Henrick, Clive A., 3,829,465.
- Zoepfel, Richard L., to The Kendall Company, mesne. Conformable baby diaper. 3,828,784, Cl. 128-287.000.
- Zonneveld, Frans Wessel; and Westhof, Johannes, to U.S. Philips Corporation. Interrogation apparatus and method including a record carrier for storing images with addresses. 3,829,844, Cl. 340-172.500.
- Zuckler, Karl, to Siemens Aktiengesellschaft. Puffer-type electric switch. 3,829,641, Cl. 200-148.00a.
- Zuech, Ernest A., to Phillips Petroleum Company. Production of cycloalkylaromatics. 3,829,514, Cl. 260-668.00r.
- Zuech, Ernest A.; and Johnson, Marvin M., to Phillips Petroleum Company. Production of cycloalkylaromatics. 3,829,516, Cl. 260-668.00r.
- Zuech, Ernest A., to Phillips Petroleum Company. Production of cycloalkylaromatics. 3,829,517, Cl. 260-668.00r.
- Zuech, Ernst A.; Johnson, Marvin M.; and Nowack, Gerhard P., to Phillips Petroleum Company. Production of cycloalkylaromatics. 3,829,515, Cl. 260-668.00r.
- Zuern, Ludwig: See—
Keppler, Hans-Georg; Zuern, Ludwig; and Stahnecker, Erhard, 3,829,378.
- Zugic, Joseph Paul, to American Can Company. Identification system. 3,828,668, Cl. 101-40.000.
- Zumach, Gerhard; Kuhle, Engelbert; Behrenz, Wolfgang; and Hamann, Ingeborg, to Bayer Aktiengesellschaft. Substituted-phenyl-N-alkyl-N-trihalome-thylthio-carbamates. 3,829,437, Cl. 260-327.00m.
- Zyma S.A.: See—
Schindler, Claude, 3,828,985.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 13TH DAY OF AUGUST, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Akzona Inc.: See—
Rice, Charles M. Re. 28,117.
Anderson, Harold C., and D. F. Graff, to Litton Systems, Inc. Microwave generating apparatus including spurious signal suppression means. Re. 28,114, 8-13-74, Cl. 315-105.
Clark Equipment Co.: See—
Howard, Wayne B., and Sisson, Re. 28,113.
Cohen, Harvey K., 50% to Arnold Conn. Filter and water recirculation system. Re. 28,116, 8-13-74, Cl. 210-169.
Conn. Arnold: See—
Cohen, Harvey K. Re. 28,116.
Cooper, Herbert W., to Escoa Fintube Corp. Tube fins of outwardly-organized materials. Re. 28,114, 8-13-74, Cl. 165-180.
Eastman Kodak Co.: See—
Edens, Charles O., and Van Campen. Re. 28,112.
Edens, Charles O., and J. H. Van Campen, to Eastman Kodak Co. Color photographic elements and process. Re. 28,112, 8-13-74, Cl. 96-22.
Escoa Fintube Corp.: See—
Cooper, Herbert W. Re. 28,115.
Graff, David F.: See—
Anderson, Harold C., and Graff. Re. 28,114.
Hoffmann-La Roche, Inc.: See—
Osmond, John M., and Wickens. Re. 28,110.
Howard, Wayne B., and R. L. Sisson, to Clark Equipment Co. Automatic control system for hydrostatic drive. Re. 28,113, 8-13-74, Cl. 60-447.
Laverty, Richard C., to MSL Industries, Inc. Fastener with improved thread construction. Re. 28,111, 8-13-74, Cl. 85-46.
Litton Systems, Inc.: See—
Anderson, Harold C., and Graff. Re. 28,114.
MSL Industries, Inc.: See—
Laverty, Richard C. Re. 28,111.
Monterose, Henry: See—
Provenzano, James, Jr., Saunders, and Monterose. Re. 28,109.
Osmond, John M., and J. C. Wickens, to Hoffmann-La Roche, Inc. Chrysanthemic acid esters. Re. 28,110, 8-13-74, Cl. 260-468.
Provenzano, James, Jr., J. Saunders, and H. Monterose, to United Aircraft Corp. Selective data handling apparatus. Re. 28,109, 8-13-74, Cl. 340-172.5.
Rice, Charles M., to Akzona Inc. Production of torque yarn. Re. 28,117, 8-13-74, Cl. 57-34.
Saunders, John: See—
Provenzano, James, Jr., Saunders, and Monterose. Re. 28,109.
Sisson, Ronald L.: See—
Howard, Wayne B., and Sisson. Re. 28,113.
United Aircraft Corp.: See—
Provenzano, James, Jr., Saunders, and Monterose. Re. 28,109.
Van Campen, John H.: See—
Edens, Charles O., and Van Campen. Re. 28,112.
Wickens, James C.: See—
Osmond, John M., and Wickens. Re. 28,110.

LIST OF PLANT PATENTEEES

- Barberet, Alexandre, and H. Blanc, to Laboratoire de Physiologie Vegetale de la Londe Barberet & Blanc. Carnation plant. 3,591, 8-13-74, Cl. 70.
Barberet, Alexandre, and H. Blanc, to Laboratoire de Physiologie Vegetale de la Londe Barberet & Blanc. Carnation plant. 3,592, 8-13-74, Cl. 72.
Blanc, Henri: See—
Barberet, Alexandre, and Blanc. 3,591.
Barberet, Alexandre, and Blanc. 3,592.
Danielson, Robert E., to Pan-American Plant Co. Chrysanthemum. 3,587, 8-13-74, Cl. 78.
Laboratoire de Physiologie Vegetale de la Londe Barberet & Blanc: See—
Barberet, Alexandre, and Blanc. 3,591.
Barberet, Alexandre, and Blanc. 3,592.
Merrill, Grant. Peach plant. 3,589, 8-13-74, Cl. 43.
Merrill, Grant. Peach plant. 3,590, 8-13-74, Cl. 43.
Pan-American Plant Co.: See—
Danielson, Robert E. 3,587.
Shoesmith, Leonard H., to Pan-American Plant Co. Chrysanthemum plant. 3,588, 8-13-74, Cl. 78.

LIST OF DESIGN PATENTEEES

- American Optical Corp.: See—
Johnsen, David W. 232,380.
Arner, Robert. Sunglasses. 232,379, 8-13-74, Cl. D57-1.
Ballone, Michael P., to The Singer Co. Sewing machine frame. 232,385, 8-13-74, Cl. D70-1.
Barkman, Michael H., to Wabash Tape Corp. Combined tape cassette holder and picture frame. 232,393, 8-13-74, Cl. D87-1.
Becker, Jerome E. Golf putter head. 232,371, 8-13-74, Cl. D34-5.
Bonifant, Bern M., to Flex-a-Lite Corp. Fan. 232,362, 8-13-74, Cl. D23-165.
Bosnyak, Udo. Protective guard for cutlery. 232,342, 8-13-74, Cl. D7-74.
Braverman, Allen S., to Plastic Reel Corp. of America. Storage tray for a cassette and film strips. 232,394, 8-13-74, Cl. D87-1.
Brenneman, J. Edward, and R. S. Waters, to Schick Inc. Shaver. 232,395, 8-13-74, Cl. D95-3.
Broyhill, Roy F. Dump body for small truck. 232,350, 8-13-74, Cl. D12-15.
Call, Giovanni. Wall plate. 232,346, 8-13-74, Cl. D8-188.
Capadona, Thomas J. Combined confectionery stick and drink stirrer. 232,330, 8-13-74, Cl. D1-99.
Carrier Corp.: See—
Martin, William C., Jr., Hoyle, and Honnold. 232,361.
Chemetron Corp.: See—
Sieradzki, Benjamin. 232,353.
Churchill, Steven T., A. Illakidis, R. B. Pell, and J. M. Shapiro, to Executone, Inc. Intercommunication interconnect telephone. 232,365, 8-13-74, Cl. D26-14.
Cloud, Charles E., to Cloud Machine Corp. Dispensing packet. 232,348, 8-13-74, Cl. D9-192.
Cloud Machine Corp.: See—
Cloud, Charles E. 232,348.
Cooper, Donald S.: See—
Houst, Douglas R., Stackhouse, Wetherby, and Cooper. 232,374.
Coy, Edward H., III, and R. J. Hallsey. Receptacle for newspapers and the like. 232,387, 8-13-74, Cl. D74-9.
Current, Wayne A.: See—
La Police, George D., and Current. 232,384.
Daenen, Robert, to Dart Industries, Inc. Colander. 232,338, 8-13-74, Cl. D7-47.
Danielsson, Per, and G. Karlsson, to Per Danielson and Gote Karlsson. Medical tweezers. 232,389, 8-13-74, Cl. D83-12.
Dart Industries Inc.: See—
Daenen, Robert. 232,338.
Montesi, Edward N. 232,337.
Mudde, Manus. 232,341.
Davis, Paul, to Sweetheart Plastics, Inc. Disposable plastic dish. 232,336, 8-13-74, Cl. D7-1.
Dawn Electronics: See—
Tann, Fred W. 232,352.
Dazey Products Co.: See—
McNair, Samuel L. 232,388.
Donnelly, Kenneth J.: See—
Glover, William H., Schmidt and Donnelly. 232,335.
Doyel, John S. Ornamental design for a cordless electric broom. 232,343, 8-13-74, Cl. D7-164.
Drewry Photocolor Corp.: See—
Harman, John N., Jr., and Livingood. 232,381.
ENM Co.: See—
Polydor, Nicholas G., and Wollar. 232,349.
Executone, Inc.: See—
Churchill, Steven T., Illakidis, Pell, and Shapiro. 232,363.
Flex-a-Lite Corp.: See—
Bonifant, Bern M. 232,362.
Garaventa, Joseph H., to Harrah's Club. Game chip. 232,367, 8-13-74, Cl. D34-5.
Genaro, Donald M., to The Singer Co. Sewing machine frame or similar article. 232,383, 8-13-74, Cl. D70-1.
General Electric Co.: See—
Houst, Douglas R., Stackhouse, Wetherby, and Cooper. 232,374.
Yahraus, Theodor G., and Grindle. 232,376.

LIST OF DESIGN PATENTEEES

PI 47

- Glover, William H., G. E. Schmidt, Jr., and K. J. Donnelly, to R. J. Reynolds, Tobacco Co. Low-profile counter display stand for cigarette packages. 232,335, 8-13-74, Cl. D6-181.
Goonen, Richard F. Christmas ornament. 232,366, 8-13-74, Cl. D29-1.
Grant, Douglas L. Anti-crossing attachment for skis. 232,372, 8-13-74, Cl. D34-14.
Gray, Charles C., and K. B. Fish hook balter. 232,358, 8-13-74, Cl. D22-31.
Gray, Klena B.: See—
Gray, Charles C., and K. B. 232,358.
Greiner Electronic AG: See—
Wiedmann, Gerhard. 232,355.
Grimes, Tom: See—
Peterson, Henry G., and Grimes. 232,377.
Grindle, James L.: See—
Yahraus, Theodor G., and Grindle. 232,376.
Hallsey, Robert J.: See—
Coy, Edward H., III, and Hallsey. 232,387.
Hamm, Jeffrey E., and R. S. Jensen. Smoke detection unit. 232,386, 8-13-74, Cl. D72-1.
Harman, John N., Jr., and J. S. Livingood, to Drewry Photocolor Corp. Photographic print dryer. 232,381, 8-13-74, Cl. D61-1.
Harrah's Club: See—
Garaventa, Joseph H. 232,367.
Hasekian, John. Sit-up exerciser. 232,370, 8-13-74, Cl. D34-5.
Honnold, Fred W., Jr.: See—
Martin, William C., Jr., Hoyle, and Honnold. 232,361.
Houst, Douglas R., J. W. Stackhouse, C. L. Wetherby, and D. S. Cooper, to General Electric Co. Tractor. 232,374, 8-13-74, Cl. D40-5.
Hoyle, Walter W.: See—
Martin, William C., Jr., Hoyle, and Honnold. 232,361.
Iida, Yoshiaki, and H. Takahashi, to Matsushita Electric Industrial Co., Ltd. Combined amplifier and speaker. 8-13-74, Cl. D26-14.
Illakidis, Anthanasios: See—
Churchill, Steven T., Illakidis, Pell, and Shapiro. 232,365.
Inspector, Sol: See—
Roberts, Stuart J., Rosenbaum, and Inspector. 232,345.
Jensen, Robert S.: See—
Hamm, Jeffrey E., and Jensen. 232,386.
Johnsen, David W. American Optical Corporation. Pair of spectacles. 232,380, 8-13-74, Cl. D57-1.
Joyce, Robert D., to Richton International Corporation. Jewelry display rack. 232,333, 8-13-74, Cl. D6-139.
Karlsson, Gote: See—
Danielsson, Per, and Karlsson. 232,389.
Keith, Mary Ann. Paper towel dispenser. 232,378, 8-13-74, Cl. D52-2.
Krumholz, Jerrold J.: See—
Luzius, Paul L., and Krumholz. 232,373.
Kusan, Inc.: See—
Luzius, Paul L., and Krumholz. 232,373.
Langwell, Vaughn B. Automatic hook setter. 232,357, 8-13-74, Cl. D22-25.
La Police, George D., and W. A. Current, to The Singer Company. Sewing machine frame. 232,384, 8-13-74, Cl. D70-1.
Lax, Michael, to Pomerantz, Julie, Inc. Wine bottle rack. 232-340, 8-13-74, Cl. D7-71.
Livingood, James S.: See—
Harman, John N., Jr., and Livingood. 232,381.
Luzius, Paul L., and J. J. Krumholz, to Kusan, Inc. Humpty dumpty sailor toy. 232,373, 8-13-74, Cl. D34-15.
Macko, Stefan, to Miller Brewing Co. Bottle. 232,347, 8-13-74, Cl. D9-1.
Martin, William C., Jr., W. W. Hoyle, and F. V. Honnold, Jr., to Carrier Corp. Casing for refrigeration system condensing units or the like. 232,361, 8-13-74, Cl. D23-139.
Matsui, Fukuo: See—
Nozaki, Satoru, and Matsui. 232,351.
Matsushita Electric Industrial Co., Ltd.: See—
Iida, Yoshiaki, and Takahashi. 232,364.
Yamamoto, Kozo, and Watahiki. 232,382.
McNair, Samuel L., to Dazey Products Co. Foot massager. 232,388, 8-13-74, Cl. D83-1.
Mechanic, Bernard I. Finger ring. 232,375, 8-13-74, Cl. D45-10.
Melton, Francis W. Arrow tall feather. 232,356, 8-13-74, Cl. D22-12.
Miller Brewing Co.: See—
Macko, Stefan. 232,347.
Momcilovich, Peter. Cooking grill scraper. 232,344, 8-13-74, Cl. D7-184.
Montesi, Edward N., to Dart Industries Inc., Serving bowl or the like. 232,337, 8-13-74, Cl. D7-20.
Mudde Manus, to Dart Industries, Inc. Cocktail-caddy. 232-341, 8-13-74, Cl. D7-71.
Neilsen, Hildaaur L., to Zephyr American Corp. Index card holder. 232,334, 8-13-74, Cl. D6-140.
Nozaki, Satoru, and F. Matsui, to Toyota Jidosha Kabushiki Kaisha. Car top camper. 232,351, 8-13-74, D12-156.
Pell, Richard B.: See—
Churchill, Steven T., Illakidis, Pell and Shapiro. 232,365.
Peterson, Henry G., and T. Grimes, to Roto Rooter Corp. Sewer and drain pipe cleaning machine. 232,377, 8-13-74, D49-10.
Plastic Reel Corporation of America: See—
Braverman, Allen S. 232,394.
Polydor, Nicholas G., and B. J. Wollar, to ENM Co. Measuring device. 232,349, 8-13-74, D10-70.
Pomerantz, Julie, Inc.: See—
Lax, Michael. 232,340.
Reynolds, R. J., Tobacco Co.: See—
Glover, William H., Schmidt, Jr., and Donnelly. 232,335.
Richton International Corp.: See—
Joyce, Robert D. 232,333.
Roberts, Stuart J., H. Rosenbaum, and S. Inspector, to said Roberts assor. to said Rosenbaum and said Inspector. Toggle switch operating device. 232,345, 8-13-74, Cl. D8-183.
Robinson, William W. Garden soaker. 232,359, 8-13-74, D23-6.
Rosenbaum, Harold: See—
Roberts, Stuart J., Rosenbaum and Inspector. 232,345.
Roto Rooter Corp.: See—
Peterson, Henry G., and Grimes. 232,377.
Schick Inc.: See—
Brenneman, J. Edward, and Waters. 232,395.
Schmidt, George E., Jr.: See—
Glover, William H., Schmidt, and Donnelly. 232,335.
Se-Kit, Yuen. Telephone stand with index. 232,363, 8-13-74, Cl. D26-14.
Shales, Eugene A. Exerciser. 232,368, 8-13-74, Cl. D34-5.
Shapiro, Jonas M.: See—
Churchill, Steven T., Illakidis, Pell and Shapiro. 232,365.
Sieradzki, Benjamin, to Chemetron Corp. Tread plate material or the like. 232,353, 8-13-74, D13-1.
Singer Company, The: See—
Ballone, Michael P. 232,385.
Genaro, Donald M. 232,383.
La Police, George D., and Current. 232,384.
Stackhouse, James Wesley: See—
Houst, Douglas Raymon, Stackhouse, Wetherby, and Cooper. 232,374.
Sweetheart Plastics, Inc.: See—
Davis, Paul. 232,336.
Takahashi, Hanji: See—
Iida, Yoshiaki, and Takahashi. 232,364.
Tann, Fred W., to Dawn Electronics. Propeller for log line knotmeter. 232,352, 8-13-74, Cl. D12-214.
Tolliver, McKinley. Apertured net for hand ball playing games. 232,369, 8-13-74, Cl. D34-5.
Toyota Jidosha Kabushiki Kaisha: See—
Nozaki, Satoru, and Matsui. 232,351.
Wabash Tape Corp.: See—
Barkman, Michael H. 232,393.
Watahiki, Toshio: See—
Yamamoto, Kozo, and Watahiki. 232,382.
Watco Plastics, Inc.: See—
Watts, Robert R. 232,360.
Waters, Robert S.: See—
Brenneman, J. Edward, and Waters. 232,395.
Watts, Robert R., to Watco Plastics, Inc. Plumbing vent valve. 232,360, 8-13-74, Cl. D23-19.
Wetherby, Carl L.: See—
Houst, Douglas R., Stackhouse, Wetherby and Cooper. 232,374.
Whitaker, William J. Dwelling. 232,354, 8-13-74, Cl. D13-1.
White, Christopher J. V. Accessory hair piece. 232,390, 8-13-74, Cl. D86-10.
White, Christopher J. V. Accessory hair piece. 232,391, 8-13-74, Cl. D86-10.
White, Christopher J. V. Accessory hair piece. 232,392, 8-13-74, Cl. D86-10.
Wiedmann, Gerhard, to Greiner Electronic AG. Covered test tube. 232,355, 8-13-74, Cl. D16-1.
Winrow, Thomas. Seat. 232,331, 8-13-74, Cl. D6-62.
Winrow, Thomas. Chair. 232,332, 8-13-74, Cl. D6-71.
Wise, James G. Milk carton holder. 232,339, 8-13-74, Cl. D7-70.
Wollar, Burnell J.: See—
Polydor, Nicholas G., and Wollar. 232,349.
Yahraus, Theodor G., and J. L. Grindle, to General Electric Co. Luminaire. 232,376, 8-13-74, Cl. D48-31.
Yamamoto, Kozo, and T. Watahiki, to Matsushita Electric Industrial Co. Ltd. Font of type. 232,382, 8-13-74, Cl. D64-12.
Zephyr American Corp.: See—
Neilsen, Hildaaur L. 232,334.

ISSUED AUGUST 13, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2		401	3,828,415	81R	3,828,479	204	3,828,551	CLASS 74		42	3,828,663
23.9	3,828,369	417	3,828,416	85R	3,828,480	304	3,828,552	10.41	3,828,613	CLASS 101	
67B	3,828,364	419	3,828,417	101R	3,828,481	330	3,828,553	16	3,828,614	19	3,828,664
128	3,828,365	451	3,828,418	121	3,828,482	361	3,828,554	89.22	3,828,615	24	3,828,666
174	3,828,366	503	3,828,419	124L	3,828,483	413	3,828,555	112	3,828,616	36	3,828,665
224A	3,828,367	517	3,828,420	170EB	3,828,484	432	3,828,556	127	3,828,617	40	3,828,668
227	3,828,368	522	3,828,421	206NF	3,828,485	447	Re.28,113	200	3,828,618	66	3,828,667
239	3,828,369	525	3,828,422	249	3,828,486	503	3,828,557	230.01	3,828,619	111	3,828,669
322	3,828,370	570	3,828,423	259	3,828,487	520	3,828,558	242.15B	3,828,620	114	3,828,670
		583	3,828,424	298	3,828,488	529	3,828,559	243PC	3,828,621	123	3,828,671
		590	3,828,425	309	3,829,299	709	3,828,560	409	3,828,622	133	3,828,671
I	3,828,371	598	3,828,426	319	3,828,488			491	3,828,623	232	3,828,673
10	3,828,372	622	3,828,427	375	3,828,489	46.5	3,828,561	501R	3,828,624	247	3,828,672
170	3,828,373	630C	3,828,428	378	3,828,489	53.5	3,828,562	512	3,828,625	349	3,828,674
						60	3,828,562	689	3,828,626	CLASS 102	
							3,828,563	750B	3,828,627	2	3,828,675
9B	3,828,374	40.1	3,828,429	1	3,828,493			CLASS 75		39R	3,828,676
160	3,828,375	41.5	3,828,430	2	3,828,490			5BB	3,829,310	39	3,828,676
200R	3,828,376	228	3,828,431	15	3,828,494	9	3,828,564	1	3,829,309	46	3,828,677
327B	3,828,377	241	3,828,432	23	3,828,491	45	3,828,565	122	3,829,311	92	3,828,678
345R	3,828,378		3,828,433	36	3,828,492	143	3,828,566	129	3,829,312	CLASS 104	
345	3,828,378	32	3,828,434	91	3,828,496	160	3,828,567	146	3,829,313	12	3,828,679
		60	3,828,434	155	3,828,497	186	3,828,568			88	3,828,680
2.5	3,829,286	1H	3,828,435	173	3,828,498	227	3,828,569	CLASS 76		91	3,828,682
42R	3,829,287	88	3,828,436	278	3,828,499	282	3,828,570	107R	3,828,628	114	3,828,683
115.6	3,829,288	134R	3,828,437	303	3,828,500	320	3,828,571	CLASS 81		124	3,828,684
115.7	3,829,289	137R	3,828,438	309	3,828,501	340	3,828,572	57.3	3,828,629	114	3,828,685
120	3,829,290	143L	3,828,439	393	3,828,502	401	3,828,573	CLASS 82		130	3,828,686
138	3,829,291	144	3,828,440	396	3,828,504	467	3,828,574	2.5	3,828,630	148MS	3,828,687
		178B	3,828,441	414	3,828,505	476	3,828,575	CLASS 83		154	3,828,688
1T	3,828,379		3,828,442	475	3,828,506	490	3,828,576	20	3,828,631	252	3,828,688
8R	3,828,380	227	3,828,443	484	3,828,507	2	3,828,577	345	3,828,632	273	3,828,689
316	3,828,381		3,828,444	489	3,828,508	CLASS 64		56	3,828,633	CLASS 105	
		70	3,828,445	497	3,828,509	17A	3,828,578	94	3,828,634	51	3,828,697
27R	3,828,382	242	3,828,445	548	3,828,510	25	3,828,579	102.1	3,828,635	81	3,828,697
136E	3,828,383		3,828,446	741	3,828,511	30A	3,828,580	341	3,828,636	90A	3,828,690
		9R	3,828,447	745	3,828,512	CLASS 65		345	3,828,637	145	3,828,691
1A	3,828,384	10.4	3,829,596	753D	3,828,513	1	3,829,300	348	3,828,637	165	3,828,692
24.5	3,828,385	35C	3,828,446	758D	3,828,514	2	3,829,301	356.1	3,828,638	378	3,828,693
			3,828,446	758D	3,828,515	3	3,829,302	390	3,828,639	CLASS 106	
32	3,829,595	2.5A	3,828,448	758F	3,828,516	32	3,829,303	464	3,828,640	2	3,829,319
		67B	3,828,364	758H	3,828,516	193	3,829,304	703	3,828,641	84	3,829,320
105	3,828,386			CLASS 53				823	3,828,642	277	3,829,321
182	3,828,387			12	3,828,518	CLASS 66		CLASS 84		CLASS 108	
250.41	3,828,388	41	3,828,449	15	3,828,519	IR	3,828,581	1.03	3,829,597	10	3,828,694
257.06	3,828,389	43R	3,828,450	22A	3,828,520	13	3,828,582	115	3,828,643	26	3,828,695
321	3,828,390	58	3,828,451	167	3,828,521	50R	3,828,583	CLASS 85		43	3,828,696
				380	3,828,522	107	3,828,584	46	Re.28,111	CLASS 109	
		77.83	3,828,452			136	3,828,585	CLASS 88		19	3,828,698
16	3,828,391			23	3,828,521	146	3,828,586	1.5R	3,828,644	80	3,828,699
35R	3,828,392	19.5	3,828,453	CLASS 55		35S	3,828,587	54	3,828,644	CLASS 110	
65	3,828,393	27	3,828,454	43	3,828,524	5C	3,828,588	CLASS 89		75	3,828,700
125	3,828,394	125H	3,828,455	68	3,828,525	158	3,828,589	1.5D	3,828,645	8A	3,828,701
129	3,828,394	129C	3,828,456	118	3,828,526	CLASS 70		CLASS 90		CLASS 111	
137	3,828,395	152.1	3,828,457	158	3,828,527	19	3,828,590	11C	3,828,647	52	3,828,702
				388	3,828,528	56	3,828,591	11R	3,828,648	CLASS 112	
IR	3,828,396	69R	3,828,458	419	3,828,529	134	3,828,592	13.3	3,828,648	121.15	3,828,703
11	3,828,397	469	3,828,404	473	3,828,530	209	3,828,593	15	3,828,649	212	3,828,704
74	3,828,398			CLASS 56		252	3,828,594	CLASS 91		CLASS 113	
		19	3,828,459	12.9	3,828,531	457	3,828,595	411A	3,828,650	116R	3,828,705
155	3,828,399	42.11	3,828,463	14.4	3,828,532			416	3,828,651	119	3,828,706
		61	3,828,460	320.2	3,828,533	CLASS 71		445	3,828,652	CLASS 114	
15R	3,828,606	102	3,828,461	328R	3,828,534	64	3,829,305	488	3,828,653	5R	3,828,707
263	3,829,292	131	3,828,464	344	3,828,535	67	3,829,306		3,828,654	65A	3,828,708
273R	3,829,293			502	3,828,536	76	3,829,307	497	3,828,400	75	3,828,709
288F	3,829,294	15D	3,829,297	CLASS 57		94	3,829,307	CLASS 92		7A	3,828,710
				34HS	Re.28,117	121	3,829,308	31	3,828,655	103	3,828,711
73B	3,828,401	41	3,828,462		3,828,537			85	3,828,656	104	3,828,712
81PH	3,828,402	74D	3,828,466	58.54	3,828,538	8	3,828,596	258	3,828,657	163	3,828,713
270	3,828,403	115	3,828,467	58.91	3,828,539	102	3,828,597			218	3,828,714
		191	3,828,468	81	3,828,540	148	3,828,598	CLASS 93		219	3,828,715
1.4	3,828,404	245	3,828,469	106	3,828,541	163	3,828,599	1C	3,828,658	221R	3,828,716
72.16	3,828,405			140BY	3,828,542	249	3,828,600	49M	3,828,659	CLASS 115	
					3,828,543	334	3,828,601	1.4	3,829,314	6.1	3,828,717
11	3,828,406	1.4	3,828,470	152	3,828,544	383	3,828,602	22	Re.28,112	18R	3,828,718
25.11	3,828,407	9	3,828,471	CLASS 58		391	3,828,603	33	3,829,315	35	3,828,719
33R	3,828,408	41	3,828,472	28A	3,828,545	469	3,828,604	36.2	3,829,316	CLASS 116	
105A	3,828,409	58	3,828,473	28S	3,828,545			48PD	3,829,317	124.1	3,828,720
121R	3,828,410			42.5	3,828,546	9	3,828,605	61R	3,829,318	36.8	3,829,322
148.4S	3,828,411	214	3,828,474	50R	3,828,547	15R	3,828,606			45	3,829,323
157R	3,828,412				3,828,548	23	3,828,607	CLASS 99		47A	3,829,324
182.1	3,829,295	394	3,828,475	90R	3,828,549	37	3,828,608	450.4	3,828,660	64C	3,829,325
187.1	3,829,295	501	3,828,476	CLASS 59		67.8S	3,828,609	483	3,828,661	70B	3,829,326
195.5	3,829,296			85	3,828,550	140	3,828,610	CLASS 100		226	3,829,327
200B	3,828,414	5	3,828,477	CLASS 60		300	3,828,611	7	3,828,662		
200P	3,828,413	11	3,828,478	73	3,829,323	356	3,828,612				

CLASSIFICATION OF PATENTS

7	CLASS 118	3,828,721	22	CLASS 135	3,828,805	78	CLASS 166	3,828,852	41	CLASS 191	3,829,630	8.5R	3,828,945	151.3	3,829,666
48	3,828,722			CLASS 136	3,829,330	117.5	3,828,853	66	3,829,631	17DA	3,828,946	152	3,829,670	153AE	3,829,668
63	3,828,723			6LN	3,829,331	307	3,828,854	CLASS 169	3,828,902	63	3,828,948	158	3,829,671	158	3,829,672
258	3,828,724			146	3,829,332	40	3,828,855	096	3,828,903	83.26	3,828,949	164	3,829,673	164	3,829,674
324	3,828,725			173	3,829,333	50	3,828,856	12A	3,828,904	138R	3,828,950	181	3,829,675	181	3,829,676
500	3,828,726			CLASS 137	3,828,806	53	3,828,857	12D	3,828,901	140	3,828,952	49	3,829,010	49	3,829,011
634	3,828,729			111	3,828,808	62	3,828,858	1N	3,828,903	332	3,828,954	82	3,829,012	82	3,829,013
637	3,828,728			344	3,828,809	50	3,828,859	10	3,828,904	392	3,828,955	188PG	3,829,014	188PG	3,829,015
	3,828,730			494	3,828,810	311	3,828,860	59	3,828,906	510	3,828,956	188	3,829,016	188	3,829,017
				CLASS 119	3,828,811	26	3,828,861	72	3,828,907	CLASS 215	3,829,013	14	3,829,018	14	3,829,019
1	3,828,731			495	3,828,812	43	3,828,862	CLASS 195	3,829,013	9	3,829,014	86	3,829,020	86	3,829,021
14.03	3,828,733			556	3,828,813	31F	3,828,863	1.3	3,829,014	10.55	3,829,015	102	3,829,022	102	3,829,023
22	3,828,732			557	3,828,814	32	3,828,864	31F	3,829,015	10.69	3,829,016	127	3,829,024	127	3,829,025
109	3,828,734			599	3,828,815	48	3,828,865	32	3,829,016	10.69	3,829,017	135	3,829,026	135	3,829,027
				CLASS 122	3,828,816	49	3,828,866	41B	3,829,017	13R	3,829,018	242	3,829,028	242	3,829,029
6A	3,828,735			625.26	3,828,817	101	3,828,867	41R	3,829,018	223	3,829,019	251	3,829,030	251	3,829,031
406ST	3,828,737			625.28	3,828,818	104	3,828,868	CLASS 174	3,829,019	223	3,829,020	265.13	3,829,032	265.13	3,829,033
406.3T	3,828,738			625.4	3,828,819	15R	3,829,019	1R	3,829,020	337	3,829,021	288.5	3,829,034	288.5	3,829,035
504.2	3,828,736			630.15	3,828,821	48	3,829,020	16	3,829,021	10.55	3,829,022	310	3,829,036	310	3,829,037
				636.4	3,828,822	68.5	3,829,021	16	3,829,022	10.69	3,829,023	318	3,829,038	318	3,829,039
				CLASS 138	3,828,823	73R	3,829,022	114R	3,829,023	121EM	3,829,024	373	3,829,040	373	3,829,041
				45	3,828,824	102R	3,829,023	189	3,829,024	133	3,829,025	394	3,829,042	394	3,829,043
				109	3,828,825	115	3,829,024	CLASS 198	3,829,025	133	3,829,026	410	3,829,044	410	3,829,045
				CLASS 139	3,828,826	212	3,829,025	9	3,829,026	216	3,829,027	410	3,829,046	410	3,829,047
				35	3,828,827	525	3,829,026	30	3,829,027	367	3,829,028	410	3,829,048	410	3,829,049
				59	3,828,828	CLASS 175	3,828,867	88	3,829,028	386	3,829,029	410	3,829,050	410	3,829,051
				119F	3,828,829	45	3,828,868	115	3,829,029	535	3,829,030	410	3,829,052	410	3,829,053
				122AB	3,828,830	78	3,828,869	127R	3,829,030	CLASS 220	3,829,031	410	3,829,054	410	3,829,055
				139AJ	3,828,831	155	3,828,870	160	3,829,031	1.5	3,829,032	410	3,829,056	410	3,829,057
				139E	3,828,832	CLASS 177	3,828,869	221	3,829,032	7	3,829,033	410	3,829,058	410	3,829,059
				148CD	3,828,833	50	3,828,871	287	3,829,033	23.86	3,829,034	410	3,829,060	410	3,829,061
				148DS	3,828,834	54ST	3,829,034	CLASS 200	3,829,034	24.5	3,829,035	410	3,829,062	410	3,829,063
				148E	3,828,835	58R	3,829,035	5A	3,829,035	315	3,829,036	410	3,829,064	410	3,829,065
				148R	3,828,836	66A	3,829,036	16R	3,829,036	315	3,829,037	410	3,829,066	410	3,829,067
				148	3,828,837	6.6A	3,829,037	16R	3,829,037	315	3,829,038	410	3,829,068	410	3,829,069
				149D	3,828,838	6.8	3,829,038	19WG	3,829,038	315	3,829,039	410	3,829,070	410	3,829,071
				179H	3,828,839	CLASS 141	3,828,833	34	3,829,039	24	3,829,040	410	3,829,072	410	3,829,073
				188GC	3,828,840	IC	3,828,834	37	3,829,040	24	3,829,041	410	3,829,074	410	3,829,075
						309AC	3,828,835	47	3,829,041	24	3,829,042	410	3,829,076	410	3,829,077
						309DC	3,828,835	61.27	3,829,042	75	3,829,043	410	3,829,078	410	3,829,079
								61.47	3,829,043	197	3,829,044	410	3,829,080	410	3,829,081
								83N	3,829,044	197	3,829,045	410	3,829,082	410	3,829,083
								148A	3,829,045	1	3,829,046	410	3,829,084	410	3,829,085
								148R	3,829,046	70	3,829,047	410	3,829,086	410	3,829,087
								153SC	3,829,047	85.5	3,829,048	410	3,829,088	410	3,829,089
								153T	3,829,048	95	3,829,049	410	3,829,090	410	3,829,091
								157	3,829,049	110	3,829,050	410	3,829,092	410	3,829,093
								159B	3,829,050	129	3,829,051	410	3,829,094	410	3,829,095
								264	3,829,051	137	3,829,052	410	3,829,096	410	3,829,097
								289	3,829,052	153	3,829,053	410	3,829,098	410	3,829,099
								CLASS 204	3,829,053	190	3,829,054	410	3,829,100	410	3,829,101
								2A	3,829,054	196	3,829,055	410	3,829,102	410	3,829,103
								7.01R	3,829,055	207	3,829,056	410	3,829,104	410	3,829,105
								8A	3,829,056	375	3,829,057	410	3,829,106	410	3,829,107
								18ET	3,829,057	386	3,829,058	410	3,829,108	410	3,829,109
								18HB	3,829,058	389	3,829,059	410	3,829,110	410	3,829,111
								71R	3,829,059	1	3,829,060	410	3,829,112	410	3,829,113
								100.1R	3,829,060	1	3,829,061	410	3,829,114	410	3,829,115
								100.3V	3,829,061	1	3,829,062	410	3,829,116	410	3,829,117
								115.5PV	3,829,062	1	3,829,063	410	3,829,118	410	3,829,119
								156R	3,829,063	1	3,829,064	410	3,829,120	410	3,829,121
								290R	3,829,064	1	3,829,065	410	3,829,122	410	3,829,123
								170G	3,829,065	1	3,829,066	410	3,829,124	410	3,829,125
								170R	3,829,066	1	3,829,067	410	3,829,126	410	3,829,127
								175.2R	3,829,067	1	3,829,068	410	3,829,128	410	3,829,129
								CLASS 179	3,829,068	1	3,829,069	410	3,829,130	410	3,829,131
								1GO	3,829,069	1	3,829,070	410	3,829,132	410	3,829,133
								2A	3,829,070	1	3,829,071	410	3,829,134	410	3,829,135
								7.01R	3,829,071	1	3,829,072	410	3,829,136	410	3,829,137
								8A	3,829,072	1	3,829,073	410	3,829,138	410	3,829,139
								18ET	3,829,073	1	3,829,074	410	3,829,140	410	3,829,141
								18HB	3,829,074	1	3,829,075	410	3,829,142	410	3,829,143
								71R	3,829,075	1	3,829,076	410	3,829,144	410	3,829,145
								100.1R	3,829,076	1	3,829,077	410	3,829,146	410	3,829,147
								100.3V	3,829,077	1	3,829,078	410	3,829,148	410	3,829,149
								115.5PV	3,829,078	1	3,829,079	410	3,829,150	410	3,829,151
								156R	3,829,079	1	3,829,080	410	3,829,152	410	3,829,153
								290R	3,829,080	1	3,829,081	410	3,829,154	410	3,829,155
								170G	3,829,081	1	3,829,082	410	3,829,156	410	3,829,157
								170R	3,829,082	1	3,829,083	410	3,829,158	410	3,829,159
								175.2R	3,829,083	1	3,829,084	410	3,829,160	410	3,829,161
								CLASS 180	3,829,084	1	3,829,085	410	3,829,162	410	3,829,163
								IF	3,829,085	1	3,829,086	410	3,829,164	410	3,829,165
								5R	3,829,086	1	3,829,087	410	3,829,166	410	3,829,167
								9.5	3,829,087	1	3,829,088	410	3,829,168	410	3,829,169
								9.6	3,829,088	1	3,829,089	410	3,829,170	410	3,829,171
								14A	3,829,089	1	3,829,090	410	3,8		

CLASSIFICATION OF PATENTS

130	CLASS 401	197	3,829,224	5	CLASS 418	57	3,829,562	329	3,829,586	350	3,829,587
	3,829,224			36	3,829,256	70	3,829,563		3,829,586	354	3,829,588
17	CLASS 402	134	3,829,225	61B	3,829,257	78	3,829,564	78	3,829,261	427	3,829,589
	3,829,225	223	3,829,240	121	3,829,258	131	3,829,566	126S	3,829,262	478	3,829,590
295	CLASS 403			178	3,829,259	180	3,829,567	126.5	3,829,262	485	3,829,591
377	3,829,226				3,829,260	203	3,829,568	145	3,829,263	491	3,829,592
	3,829,227	17	3,829,241			217	3,829,565	149	3,829,264	496	3,829,593
68	CLASS 404	38	3,829,242	43	3,829,549	232	3,829,569	161	3,829,265	516	3,829,594
69	3,829,228	50	3,829,243	54	3,829,550	241	3,829,570	192	3,829,266		
	3,829,229	53	3,829,244	210	3,829,551	250	3,829,571	237	3,829,267	4	3,829,275
14	CLASS 408	108	3,829,245	255	3,829,552		3,829,572	262	3,829,268	14	3,829,276
108	3,829,230	121	3,829,246	279	3,829,553		3,829,573	308	3,829,269	109	3,829,277
	3,829,231	182	3,829,247	300	3,829,554	258	3,829,574	381.2	3,829,270	227	3,829,278
		410	3,829,248	347	3,829,555	263	3,829,575	385	3,829,271	354	3,829,279
	CLASS 415	411	3,829,249	409	3,829,556	271	3,829,576	430	3,829,272		
1	3,829,232	424	3,829,250	478	3,829,557	278	3,829,577	444	3,829,273	58	3,829,280
110	3,829,233	477	3,829,251	481	3,829,558		3,829,578	466	3,829,274	63	3,829,281
138	3,829,234	482	3,829,252	497	3,829,559	283	3,829,579			80	3,829,282
143	3,829,235	504	3,829,253	522	3,829,560	312	3,829,580	65	3,829,582	103	3,829,283
156	3,829,236	517	3,829,254			320	3,829,581	175	3,829,583	183	3,829,284
181	3,829,237	559	3,829,255	44	3,829,561	327	3,829,584	231	3,829,584	223	3,829,285

CLASSIFICATION OF DESIGNS

D01—	99	232,330			214	232,352	D26—	14A	232,363	D40—	5	232,374			232,385		
D06—	62	232,331		74	232,342	D13—	1A	232,354		D45—	10C	232,375	D72—	R	232,386		
	71	232,332		164	232,343		J	232,353		D48—	31	232,376	D74—	9	232,387		
	139	232,333		184	232,344	D16—	R	232,355	D29—	1B	232,366	D49—	10	232,377	D83—	1.5	232,388
	140	232,334	D08—	183	232,345	D22—	12	232,356	D34—	SGH	232,371	D52—	2C	232,378		12R	232,389
	181	232,335		188	232,346		23	232,357		PP	232,367	D57—	1D	232,379	D86—	10J	232,390
D07—	1	232,336	D09—	1	232,347		31	232,358		K	232,368		F	232,380			232,391
	20	232,337		192	232,348	D23—	6	232,359			232,370	D61—	Q	232,381			232,392
	27	232,396	D10—	70	232,349		19	232,360			232,372	D64—	12B	232,382	D87—	1D	232,393
	47	232,338	D12—	15	232,350		139	232,361		14D	232,372	D70—	I	232,383			232,394
	70	232,339		156	232,351		165	232,362		15JJ	232,373			232,384	D95—	3A	232,395
	71	232,340															

CLASSIFICATION OF PLANTS

P. —	43	3,589	P. —	3,590	P. —	70	3,591	P. —	72	3,592	P. —	78	3,587	P. —	3,588
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GEOGRAPHICAL INDEX
OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama.....	1	Kentucky.....	21	Oregon.....	41
Alaska.....	2	Louisiana.....	22	Pennsylvania.....	42
American Samoa.....	3	Maine.....	23	Puerto Rico.....	43
Arizona.....	4	Maryland.....	24	Rhode Island.....	44
Arkansas.....	5	Massachusetts.....	25	South Carolina.....	45
California.....	6	Michigan.....	26	South Dakota.....	46
Canal Zone.....	7	Minnesota.....	27	Tennessee.....	47
Colorado.....	8	Mississippi.....	28	Texas.....	48
Connecticut.....	9	Missouri.....	29	Utah.....	49
Delaware.....	10	Montana.....	30	Vermont.....	50
District of Columbia.....	11	Nebraska.....	31	Virginia.....	51
Florida.....	12	Nevada.....	32	Virgin Islands.....	52
Georgia.....	13	New Hampshire.....	33	Washington.....	53
Guam.....	14	New Jersey.....	34	West Virginia.....	54
Hawaii.....	15	New Mexico.....	35	Wisconsin.....	55
Idaho.....	16	New York.....	36	Wyoming.....	56
Illinois.....	17	North Carolina.....	37	U.S. Air Force.....	57
Indiana.....	18	North Dakota.....	38	U.S. Army.....	58
Iowa.....	19	Ohio.....	39	U.S. Navy.....	59
Kansas.....	20	Oklahoma.....	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1	3,829,145	3,828,786	3,829,470	9	3,829,896	3,828,513	3,828,767
2	3,829,547	3,828,809	3,829,486		Re.28,109	3,828,514	3,828,771
4	3,828,895	3,828,822	3,829,489		3,828,372	3,828,534	3,828,773
	3,828,836	3,828,858	3,829,499		3,828,401	3,828,536	3,828,778
	3,829,246	3,828,884	3,829,510		3,828,613	3,828,581	3,828,782
	3,829,418	3,828,931	3,829,523		3,828,634	3,828,601	3,828,784
	3,829,755	3,828,937	3,829,549		3,828,729	3,828,659	3,828,793
	3,829,818	3,828,940	3,829,552		3,828,810	3,828,714	3,828,794
5	3,828,436	3,828,945	3,829,558		3,828,925	3,828,723	3,828,802
	3,828,463	3,828,965	3,829,566		3,828,929	3,828,734	3,828,802
	3,829,154	3,828,981	3,829,582		3,828,969	3,828,806	3,828,811
6	3,828,379	3,828,983	3,829,622		3,828,969	3,828,821	3,828,819
	3,828,380	3,828,993	3,829,659		3,829,005	3,828,867	3,828,840
	3,828,383	3,829,025	3,829,674		3,829,014	3,828,921	3,828,860
	3,828,390	3,829,043	3,829,676		3,829,027	3,828,933	3,828,873
	3,828,403	3,829,046	3,829,678		3,829,052	3,828,989	3,828,897
	3,828,431	3,829,059	3,829,680		3,829,058	3,829,081	3,828,907
	3,828,441	3,829,061	3,829,696		3,829,071	3,829,087	3,828,918
	3,828,457	3,829,094	3,829,700		3,829,091	3,829,133	3,828,924
	3,828,470	3,829,099	3,829,713		3,829,096	3,829,153	3,828,948
	3,828,473	3,829,102	3,829,716		3,829,125	3,829,490	3,828,959
	3,828,478	3,829,107	3,829,745		3,829,196	3,829,559	3,828,963
	3,828,490	3,829,110	3,829,745		3,829,239	3,829,596	3,828,977
	3,828,512	3,829,112	3,829,775		3,829,250	3,829,625	3,828,982
	3,828,519	3,829,116	3,829,780		3,829,362	3,829,673	3,828,988
	3,828,566	3,829,134	3,829,781		3,829,434	3,829,699	3,829,018
	3,828,577	3,829,135	3,829,795		3,829,444	3,829,788	3,829,022
	3,828,609	3,829,170	3,829,797		3,829,446	3,828,397	3,829,077
	3,828,610	3,829,171	3,829,798		3,829,455	3,829,036	3,829,088
	3,828,611	3,829,185	3,829,834		3,829,600	3,829,044	3,829,092
	3,828,615	3,829,192	3,829,839		3,829,607	3,828,696	3,829,106
	3,828,632	3,829,194	3,829,851		3,829,607	3,828,992	3,829,121
	3,828,632	3,829,199	3,829,862		3,829,658	Re.28,111	3,829,172
	3,828,655	3,829,202	3,829,889		3,829,666	3,828,369	3,829,173
	3,828,664	3,829,215	3,829,890		3,829,690	3,828,369	3,829,182
	3,828,678	3,829,216	3,829,893		3,829,691	3,828,442	3,829,207
	3,828,687	3,829,230	3,829,897		3,829,693	3,828,462	3,829,242
	3,828,688	3,829,244	3,829,897	8	3,828,486	3,829,720	3,829,274
	3,828,697	3,829,297	3,828,498		3,828,501	3,829,778	3,829,276
	3,828,697	3,829,307	3,828,501		3,829,842	3,828,528	3,829,283
	3,828,701	3,829,308	3,828,506		3,829,847	3,828,565	3,829,299
	3,828,708	3,829,327	3,828,758	10	3,828,607	3,828,604	3,829,314
	3,828,712	3,829,331	3,828,780		3,828,839	3,828,604	3,829,450
	3,828,720	3,829,335	3,828,804		3,829,429	3,828,616	3,829,518
	3,828,732	3,829,336	3,828,899		3,829,581	3,828,622	3,829,548
	3,828,733	3,829,377	3,828,899	11	3,828,887	3,828,643	3,829,551
	3,828,742	3,829,392	3,829,055		3,829,859	3,828,660	3,829,584
	3,828,765	3,829,403	3,829,151		3,829,859	3,828,670	3,829,597
	3,828,769	3,829,425	3,829,190	12	3,828,443	3,828,706	3,829,617
	3,828,779	3,829,430	3,829,550		3,828,456	3,828,727	3,829,617
	3,828,781	3,829,465	3,829,618		3,828,460	3,828,750	3,829,628

3,829,637	3,828,426	3,829,703	3,829,697	3,828,911	3,829,150
3,829,657	3,828,455	3,829,717	3,829,829	3,828,923	3,829,765
3,829,663	3,828,481	3,829,750	3,829,853	3,829,049	3,828,365
3,829,758	3,828,527	3,829,753	3,829,854	3,829,152	3,828,371
3,829,772	3,828,766	3,829,773	3,829,793	3,829,159	3,828,393
3,829,790	3,828,766	3,829,845	Re. 28,112	3,829,300	3,828,394
3,829,802	3,828,801	Re. 28,114	Re. 28,115	3,829,405	3,828,394
3,829,802	3,828,958	3,828,424	Re. 28,116	3,829,468	3,828,437
3,829,811	3,828,976	3,828,530	3,828,366	3,829,546	3,828,454
3,829,815	3,828,980	3,828,654	3,828,368	3,828,942	3,828,464
3,829,819	3,829,063	3,828,657	3,828,381	3,828,376	3,828,471
3,828,399	3,829,117	3,828,667	3,828,388	3,828,435	3,828,476
3,828,465	3,829,201	3,828,777	3,828,402	3,828,449	3,828,485
3,828,466	3,829,205	3,828,787	3,828,406	3,828,477	3,828,493
3,828,533	3,829,219	3,828,817	3,828,428	3,828,479	3,828,523
3,828,639	3,829,296	3,828,905	3,828,445	3,828,488	3,828,550
3,828,830	3,829,310	3,828,922	3,828,453	3,828,558	3,828,588
3,828,877	3,829,317	3,828,999	3,828,459	3,828,572	3,828,592
3,828,880	3,829,330	3,829,006	3,828,483	3,828,575	3,828,602
3,828,919	3,829,351	3,829,019	3,828,492	3,828,598	3,828,624
3,828,934	3,829,373	3,829,034	3,828,495	3,828,599	3,828,629
3,828,967	3,829,443	3,829,040	3,828,502	3,828,638	3,828,677
3,828,996	3,829,445	3,829,258	3,828,508	3,828,656	3,828,716
3,829,000	3,829,481	3,829,846	3,828,567	3,828,690	3,828,725
3,829,011	3,829,497	3,828,635	3,828,570	3,828,698	3,828,762
3,829,016	3,829,500	3,829,127	3,828,620	3,828,785	3,828,772
3,829,056	3,829,521	3,829,130	3,828,648	3,828,815	3,828,803
3,829,128	3,829,540	3,828,484	3,828,663	3,828,816	3,828,833
3,829,129	3,829,670	3,828,768	3,828,669	3,828,847	3,828,855
3,829,146	3,829,688	3,828,903	3,828,676	3,828,889	3,828,892
3,829,157	3,829,707	3,828,949	3,828,676	3,828,894	3,828,979
3,829,218	3,829,729	3,828,957	3,828,722	3,828,901	3,828,987
3,829,235	3,829,768	3,828,971	3,828,724	3,828,946	3,829,072
3,829,414	3,829,782	3,829,048	3,828,728	3,829,947	3,829,079
3,829,603	3,829,786	3,829,098	3,828,744	3,828,998	3,829,103
3,829,611	3,829,826	3,829,108	3,828,751	3,829,033	3,829,115
3,829,611	3,829,837	3,829,187	3,828,760	3,829,035	3,829,126
3,829,612	3,829,860	3,829,225	3,828,770	3,829,064	3,829,183
3,829,612	3,829,871	3,829,306	3,828,774	3,829,067	3,829,213
3,829,648	3,829,879	3,829,382	3,828,775	3,829,113	3,829,231
3,829,740	3,829,886	3,829,384	3,828,807	3,829,148	3,829,232
3,829,828	3,829,886	3,829,562	3,828,849	3,829,167	3,829,232
3,828,475	Re. 28,113	3,829,634	3,828,991	3,829,229	3,829,233
3,828,531	3,828,373	3,829,679	3,828,994	3,829,241	3,829,267
3,828,532	3,828,391	3,829,100	3,828,995	3,829,249	3,829,304
3,828,578	3,828,415	3,828,953	3,829,002	3,829,259	3,829,305
3,828,591	3,828,447	3,829,813	3,829,013	3,829,271	3,829,305
3,828,740	3,828,496	3,828,707	3,829,015	3,829,272	3,829,348
3,828,832	3,828,517	3,829,309	3,829,026	3,829,281	3,829,388
3,828,878	3,828,569	3,829,824	3,829,065	3,829,301	3,829,424
3,828,950	3,828,614	3,828,617	3,829,082	3,829,302	3,829,459
3,828,952	3,828,619	3,828,941	3,829,090	3,829,320	3,829,467
3,829,032	3,828,625	3,829,080	3,829,097	3,829,323	3,829,488
3,829,051	3,828,721	3,829,089	3,829,118	3,829,325	3,829,492
3,829,139	3,828,735	3,829,095	3,829,136	3,829,346	3,829,531
3,829,268	3,828,743	3,829,791	3,829,147	3,829,353	3,829,531
3,829,672	3,828,745	3,828,378	3,829,158	3,829,363	3,829,534
3,828,526	3,828,746	3,828,378	3,829,186	3,829,381	3,829,575
3,828,719	3,828,756	3,828,389	3,829,203	3,829,385	3,829,576
3,828,757	3,828,759	3,828,418	3,829,209	3,829,407	3,829,580
3,829,009	3,828,823	3,828,429	3,829,287	3,829,433	3,829,586
3,829,009	3,828,834	3,828,452	3,829,289	3,829,440	3,829,616
3,829,253	3,828,864	3,828,499	3,829,318	3,829,491	3,829,642
3,829,257	3,828,875	3,828,510	3,829,328	3,829,505	3,829,647
3,829,375	3,828,881	3,828,637	3,829,329	3,829,532	3,829,667
3,828,568	3,828,882	3,828,640	3,829,341	3,829,554	3,829,669
3,828,763	3,828,885	3,828,668	3,829,349	3,829,594	3,829,683
3,828,796	3,828,890	3,828,713	3,829,356	3,829,620	3,829,725
3,828,798	3,828,893	3,828,783	3,829,406	3,829,633	3,829,808
3,828,800	3,828,920	3,828,790	3,829,415	3,829,636	3,829,821
3,829,163	3,828,960	3,828,838	3,829,431	3,829,643	3,829,856
3,829,191	3,828,961	3,828,859	3,829,456	3,829,650	3,828,630
3,829,245	3,828,975	3,828,914	3,829,475	3,829,682	3,829,200
3,829,522	3,829,076	3,828,926	3,829,525	3,829,698	3,829,539
3,829,855	3,829,078	3,828,972	3,829,536	3,829,701	3,829,709
3,828,853	3,829,101	3,829,017	3,829,537	3,829,730	3,828,398
3,829,247	3,829,105	3,829,045	3,829,538	3,829,741	3,828,423
3,829,290	3,829,109	3,829,114	3,829,588	3,829,770	3,828,461
3,829,383	3,829,120	3,829,165	3,829,601	3,829,774	3,828,543
3,829,390	3,829,123	3,829,195	3,829,619	3,829,807	3,828,827
3,829,390	3,829,124	3,829,303	3,829,621	3,829,809	3,828,835
3,829,471	3,829,137	3,829,338	3,829,626	3,829,838	3,828,835
3,828,997	3,829,142	3,829,340	3,829,639	3,829,848	3,829,524
3,829,339	3,829,149	3,829,367	3,829,640	3,828,413	3,829,217
3,829,652	3,829,211	3,829,367	3,829,751	3,828,695	3,828,489
3,829,763	3,829,236	3,829,369	3,829,752	3,828,799	3,828,489
3,829,763	3,829,269	3,829,387	3,829,787	3,828,951	3,828,886
3,828,395	3,829,294	3,829,408	3,829,794	3,828,955	3,829,057
3,828,521	3,829,342	3,829,408	3,829,804	3,828,955	3,829,223
3,828,645	3,829,347	3,829,416	3,829,810	3,829,248	3,829,313
3,828,675	3,829,355	3,829,422	3,829,830	3,829,321	3,829,391
3,829,029	3,829,368	3,829,423	3,829,840	3,829,513	3,829,410
3,829,047	3,829,386	3,829,441	3,829,843	3,829,514	3,829,411
3,829,224	3,829,395	3,829,447	3,829,850	3,829,515	3,829,428
3,829,350	3,829,395	3,829,487	3,829,863	3,829,516	3,829,436
3,829,480	3,829,397	3,829,498	3,829,880	3,829,517	3,829,436
3,829,569	3,829,463	3,829,504	Re. 28,117	3,829,520	3,829,627
3,829,671	3,829,464	3,829,504	3,828,405	3,829,520	3,828,425
3,829,721	3,829,501	3,829,530	3,828,410	3,829,526	3,828,458
3,829,722	3,829,506	3,829,535	3,828,414	3,829,590	3,828,491
3,829,747	3,829,527	3,829,541	3,828,540	3,829,624	3,828,520
3,829,760	3,829,529	3,829,556	3,828,585	3,829,661	3,828,548
3,829,861	3,829,578	3,829,560	3,828,605	3,829,661	3,828,553
3,828,392	3,829,579	3,829,562	3,828,662	3,829,748	3,828,556
3,828,409	3,829,632	3,829,631	3,828,795	3,828,710	3,828,557
3,828,421	3,829,665	3,829,675	3,828,797	3,828,928	3,828,561

3,828,573	3,829,291	3,829,825	3,828,683	3,828,845	3,828,776
3,828,595	3,829,354	3,829,833	3,828,702	3,828,879	3,828,916
3,828,674	3,829,376	3,829,869	3,828,711	3,828,943	3,829,030
3,828,680	3,829,419	3,829,883	3,828,868	3,829,020	3,829,066
3,828,764	3,829,419	3,828,535	3,828,966	3,829,070	3,829,180
3,828,850	3,829,494	3,828,789	3,829,086	3,829,278	3,829,189
3,828,852	3,829,507	3,829,143	3,829,164	3,828,377	3,829,279
3,828,854	3,829,553	3,829,544	3,829,237	3,828,494	3,829,285
3,828,869	3,829,598	3,828,587	3,829,358	3,828,450	3,829,357
3,828,874	3,829,653	3,828,841	3,829,849	3,828,525	3,829,412
3,828,891	3,829,686	3,828,404	3,828,374	3,828,636	3,829,412
3,828,978	3,829,687	3,828,417	3,828,422	3,828,671	3,829,645
3,829,010	3,829,692	3,828,438	3,828,606	3,828,671	3,829,681
3,829,131	3,829,776	3,828,500	3,828,606	3,828,753	3,829,754
3,829,240	3,829,814	3,828,518	3,828,718	3,828,753	3,829,835
3,829,275	3,829,816	3,828,524			

DESIGN PATENTS

6	232,352	12	232,369	20	232,377	29	232,360		232,384	42	232,379
	232,353	17	232,331		232,358	31	232,350		232,385		232,395
	232,354		232,332		232,378	32	232,367		232,394	44	232,333
	232,368		232,348		232,388	34	232,330	36	232,340		232,337
	232,371		232,349	25	232,336		232,334		232,343	49	232,357
	232,381		232,375		232,370		232,335		232,361		232,386
	232,396		232,393		232,372		232,345		232,374	53	232,344
9	232,365	18	232,366		232,380		232,373	37	232,376		232,362
	232,387	19	232,356	26	232,359		232,383	40	232,339	55	232,347

PLANT PATENTS

6	3,589		3,590	17	3,587						
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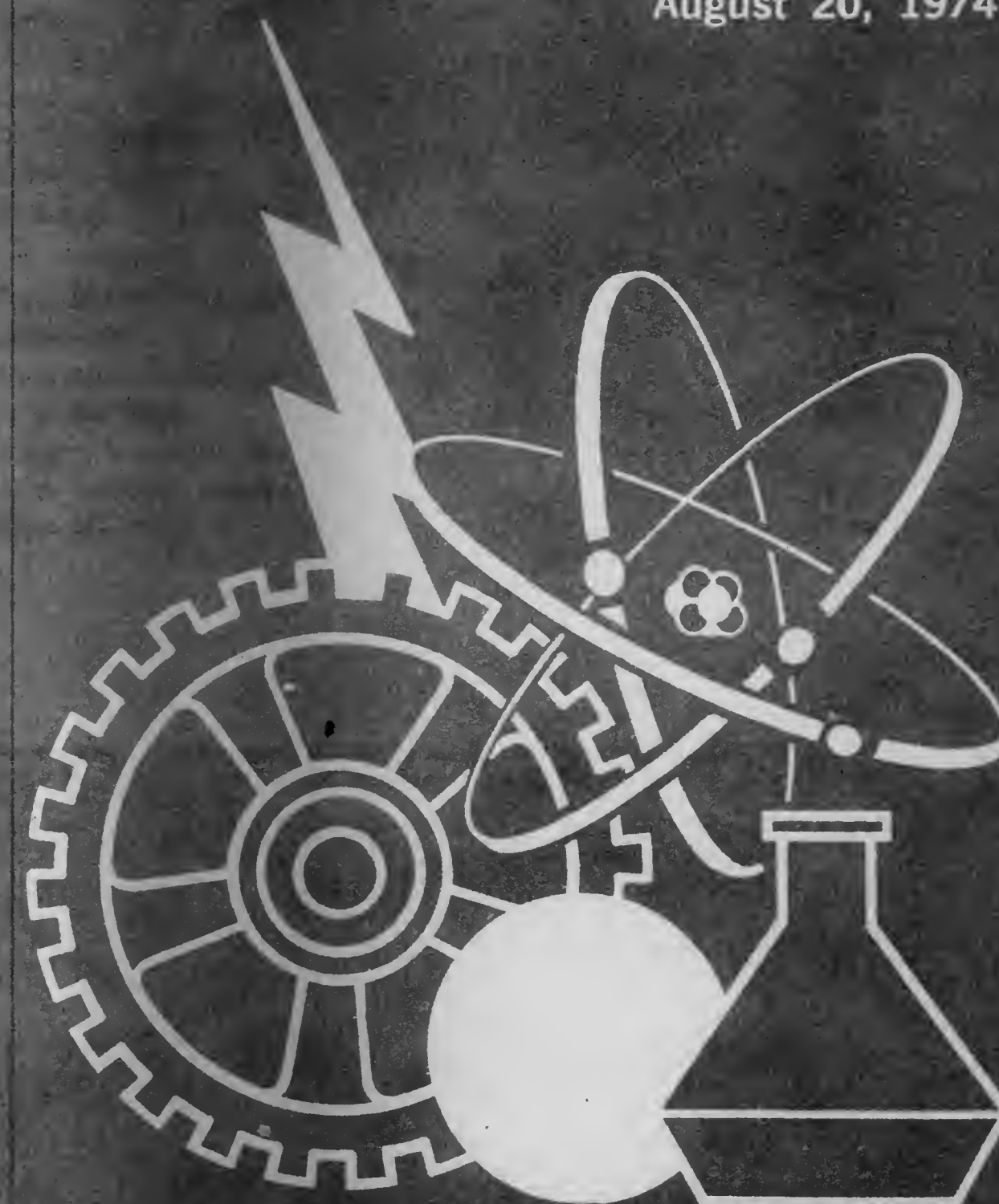
Vol. 925 Number 3

OFFICIAL GAZETTE

of the
UNITED STATES PATENT OFFICE

PATENTS

August 20, 1974



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

A UNITED STATES
DEPARTMENT OF
COMMERCE
PUBLICATION



U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary

PATENT OFFICE
C. Marshall Dann, Commissioner

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DEPARTMENT
OF COMMERCE

Patent
Office

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

August 20, 1974

Volume 925

Number 3

CONTENTS

	Page
Patent and Trademark Notices	
Use of Metric System of Measurement in Patent Applications	736
Interference Record	736
Return to Printing of Claims in Patent Official Gazette	736
Patent Notices	
Certificates of Correction for the Week of August 27, 1974	737
Condition of Patent Applications	738
Reissue Patents Granted (28,118)	739
Plant Patents Granted (3,593)	743
Patents Granted	
General and Mechanical (3,829,899)	744
Chemical (3,830,626)	935
Electrical (3,830,950)	995
Design Patents Granted (232,396)	1063
Index of Patentees	PI 1
Indices of Reissues, Plants and Designs	PI 40
Classification of	
Patents (Including Reissues)	PI 43
Designs and Plants	PI 46
Geographical Index of Residence of Inventors	
Patents (Including Reissues)	PI 47
Designs and Plants	PI 49

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PATENT OFFICE NOTICES

Use of Metric System of Measurements in Patent Applications

In order to minimize the necessity in the future for converting dimensions given in the English system of measurements to the metric system of measurements when using printed patents as research and prior art search documents, all patent applications are strongly encouraged to use *either* (1) only metric (S.I.) units, or (2) English units together with their metric system equivalents, when describing their inventions in the specifications of patent applications. This practice, however, is not being made mandatory at this time.

The initials S.I. stand for "Système International d'Unités," the French name for the International System of Units, a modernized metric system adopted in 1960 by the International General Conference of Weights and Measures based on precise unit measurements made possible by modern technology.

This request is made as part of the long-range program for conversion to metric units currently being conducted by the Federal Government.

Publications dealing with the metric system are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 and the American National Standards Institute, 1430 Broadway, New York, N.Y. 10018.

C. MARSHALL DANN,
Commissioner of Patents.

July 1, 1974.

Interference Record

It has come to the attention of the Patent Office that some practitioners have misinterpreted Rule 253 as requiring that

a set of copies of documentary exhibits be submitted as a part of each copy of the record (a total of four sets). To clarify the intent of the rule in this respect, it should be noted that paragraph (c) of Rule 253 requires only that each copy of the record contain the following:

- The testimony presented by the party concerned;
- A copy of the counts of the interference;
- A copy of the preliminary statement of the party concerned; and
- An index of exhibits.

Only one set of exhibits need be submitted.

GEORGE W. BOYS,

July 11, 1974. *Chairman, Board of Patent Interferences.*

Return to Printing of Claims in Patent Official Gazette

In the notice of May 22, 1972 (899 O.G. 820) interested parties were requested to submit written comments as to whether claims or abstracts should be printed in the Patent OFFICIAL GAZETTE. In view of the comments received, the Patent Office has decided to return to the pre-1968 practice of printing the broadest claim or claims, as selected by the examiner, in the Patent OFFICIAL GAZETTE. The printing of claims will begin with the October 1, 1974 issue of the Patent OFFICIAL GAZETTE. Abstracts will continue to be printed on patents.

C. MARSHALL DANN,
Commissioner of Patents.

AUGUST 20, 1974

U. S. PATENT OFFICE

787

Certificates of Correction for the Week of Aug. 20, 1974

D. 229,108	3,741,159	3,757,293	3,779,763
3,523,232	3,741,513	3,757,307	3,780,029
3,574,791	3,741,951	3,757,829	3,780,198
3,589,016	3,742,034	3,759,844	3,781,491
3,589,160	3,742,038	3,760,078	3,781,931
3,591,396	3,742,261	3,761,279	3,782,912
3,599,153	3,742,302	3,761,479	3,782,956
3,629,002	3,742,439	3,762,930	3,783,002
3,643,782	3,742,702	3,763,549	3,783,274
3,647,531	3,743,837	3,763,918	3,784,980
3,657,230	3,744,194	3,764,165	3,785,898
3,657,320	3,744,211	3,764,421	3,786,078
3,664,891	3,744,389	3,765,068	3,787,396
3,678,665	3,744,503	3,766,212	3,787,991
3,685,432	3,744,588	3,766,263	3,788,198
3,688,255	3,744,791	3,766,454	3,788,325
3,690,335	3,744,960	3,768,004	3,788,920
3,694,257	3,745,473	3,769,261	3,789,065
3,696,780	3,745,488	3,769,281	3,790,056
3,699,006	3,745,497	3,769,416	3,790,248
3,699,477	3,745,507	3,770,247	3,790,589
3,706,752	3,745,527	3,770,773	3,790,827
3,710,253	3,746,310	3,771,615	3,791,849
3,710,942	3,750,080	3,772,014	3,792,142
3,711,429	3,750,210	3,772,260	3,792,195
3,714,685	3,750,532	3,773,429	3,792,196
3,728,397	3,750,963	3,773,739	3,792,207
3,730,835	3,751,042	3,773,824	3,792,266
3,732,182	3,751,190	3,774,448	3,792,926
3,733,415	3,751,200	3,774,522	3,794,496
3,733,902	3,751,286	3,774,639	3,795,220
3,734,432	3,752,781	3,775,277	3,795,902
3,735,637	3,753,541	3,775,615	3,796,084
3,736,197	3,753,949	3,775,811	3,796,177
3,739,986	3,755,067	3,776,655	3,796,491
3,740,834	3,755,323	3,778,329	3,798,192
3,740,863	3,755,437	3,778,412	
3,741,115	3,756,188	3,779,713	

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF AUGUST 3, 1974

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director.....	9-25-73
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—R. F. BURNETT, Acting Director.....	8-1-73
Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director.....	11-16-74
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director.....	9-17-74
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director.....	8-15-73
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—W. L. CARSON, Director.....	12-26-73
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director.....	3-1-73
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director.....	11-1-73
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—N. ANSHER, Director.....	6-27-73
Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—L. FORMAN, Director.....	12-10-73
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGNS, GROUP 290—C. D. QUARFORTH, Director.....	3-26-73
Industrial Arts; Household, Personal and Fine Arts.	

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director.....	1-3-74
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director.....	10-29-73
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director.....	11-2-73
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Trolley; Printing; Typewriters; Stationery; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B. R. GAY, Director.....	9-26-73
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gear- ing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director.....	11-20-73
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	

Expiration of patents: The patents within the range of numbers indicated below expire during August 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,801,414 to 2,804,619, inclusive
Plant Patents..... Numbers 1,626 to 1,637, inclusive

REISSUES

AUGUST 20, 1974

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

28,118

FINISHING WHEELS

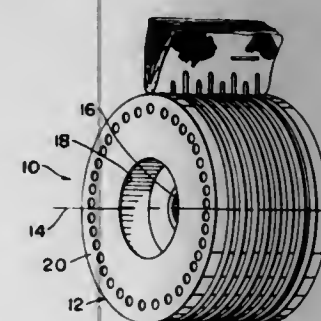
James A. Belanger, Livonia, Mich., assignor to Belanger, Inc., Northville, Mich.

Original No. 3,535,833, dated Oct. 27, 1970, Ser. No. 822,776, Feb. 24, 1969, which is a division of application Ser. No. 485,497, Sept. 7, 1965, now Patent No. 3,455,068. Application for reissue Apr. 14, 1971, Ser. No. 133,856

Int. Cl. B21b 9/02

U.S. Cl. 51—337

13 Claims



A rotary carrier affords a plurality of annular, axially spaced grooves in its outer surface, and a plurality of parallel pins extend through these grooves from one another. The pins parallel the carrier axis, and a plurality of generally radially extending finishing flaps are pivoted on the pins, each flap being provided with a retainer loop means on the radially inner end thereof. Such means is received in a carrier groove, the pin extending through the loop opening of the flap retainer means to mount the finishing flap for pivotal movement.

28,119

METHOD AND APPARATUS FOR INSERTING CONTACT MEMBERS INTO INSULATING BLOCKS

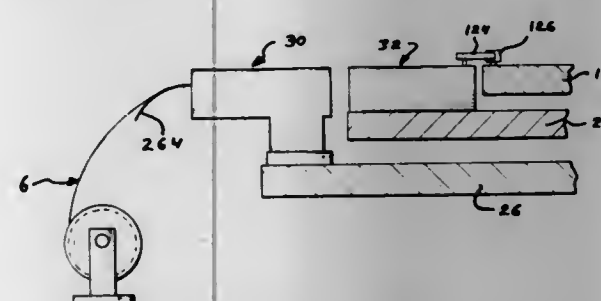
Willard Le Roy Busler, Kenneth Foster Folk, Howard Charles Phillips, and Milton Dean Ross, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Original No. 3,556,382, dated Jan. 19, 1971, Ser. No. 749,122, July 31, 1968. Application for reissue July 6, 1971, Ser. No. 160,224

Int. Cl. H05k 3/00, 13/04

U.S. Cl. 29—625

10 Claims



A method and apparatus for inserting contact terminals into coil bobbins is disclosed. Apparatus comprises an

indexing turntable having a plurality of bobbin holding jigs. A fixed table, located beneath the indexing turntable, has a plurality of bobbin inserters thereon. Bobbins are positioned in jigs and carried to inserters where terminals are inserted. In accordance with method aspect, the bobbins are moved towards the terminals to accomplish the inserting operation.

[Apparatus for inserting contact terminals into insulating blocks, such as bobbins, comprises an indexible turntable, having a plurality of bobbin holding jigs mounted thereon, and a fixed table, located beneath the turntable, on which a plurality of terminal applicators are mounted. Bobbins are approximately positioned in the jigs at a loading station and are carried past the several inserting stations. Each bobbin jig has clamping means which is actuated between the loading station and the first inserting station and which clamps the bobbin to the jig and accurately positions it on the periphery of the turntable so that the bobbins are precisely located with respect to the several applicators at the inserting stations. The applicators are adjusted to insert a terminal into each of the several terminal receiving openings in the bobbins, each applicator being movable relatively towards and away from the turntable during an operating cycle to insert a single terminal.]

28,120

SHUT-OFF NOZZLE FOR CAULKING CARTRIDGE

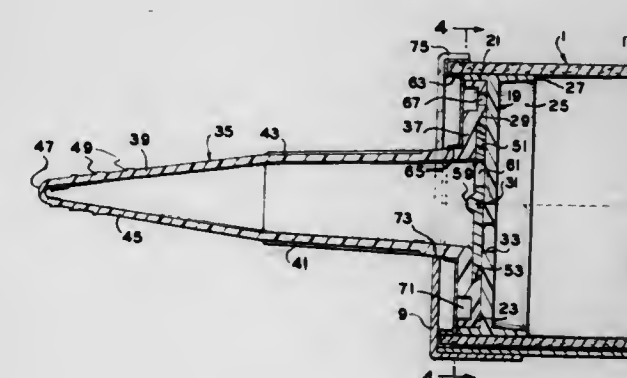
Lawrence H. Plumer, Rutland, Vt., assignor to Rutland Fire Clay Company, Rutland, Vt.

Original No. 3,658,213, dated Apr. 25, 1972, Ser. No. 100,752, Dec. 22, 1970. Application for reissue Aug. 22, 1972, Ser. No. 282,725

Int. Cl. G01f 13/00

U.S. Cl. 222—326

16 Claims

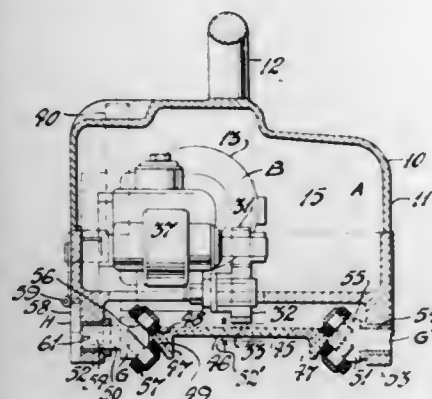


The end wall of the cartridge and the closure disc carried by the dispensing nozzle, each have a small discharge opening formed therein and, by rotating the nozzle relative to the end wall, the openings may be brought into alignment for discharging material from the cartridge or moved out of alignment for preventing the flow of caulking material from the cartridge.

28,121

SELF-GUIDING TOOLING SYSTEMS

John M. Gulley, deceased, late of Toronto, Ontario, Canada, by Michael F. Harris, Toronto, Ontario, Canada, assignor to Polygon Industries Limited, Toronto, Ontario, Canada
Original No. 3,485,306, dated Dec. 23, 1969, Ser. No. 746,698, July 8, 1968, which is a continuation of abandoned application Ser. No. 546,370, Apr. 29, 1966. Application for reissue Sept. 13, 1972, Ser. No. 288,740. Claims priority, application Great Britain, May 3, 1965, 18,473/65; Oct. 28, 1965, 45,629/65
Int. Cl. B23k 5/00; E21c 9/00, 11/00
U.S. Cl. 173—32 17 Claims

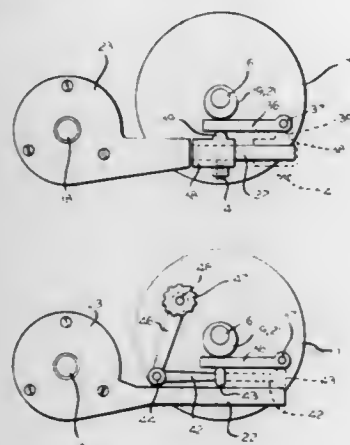


A wheelable cutting or welding torch or other tool holding carriage and track combination capable of cutting, welding or processing sheet material especially metal to predetermined shapes while track-adherent only to one surface thereof. The carriage is motor-driven, gear-connected, and wheel-locked to track, and may be either gear-disconnected for free-wheeling thereon, [of] or unlocked for bodily removal. Wheels automatically align with track on carriage-attachment thereto. Carriage can ride track regardless, within limits, of ascending or declining track curvature.

28,122

SPEED REDUCING MECHANISM

Arvid Dahlstrom, Chicago, Ill., assignor of a fractional part interest to Norman H. Andreasen, Northbrook, Ill.
Original No. 3,557,631, dated Jan. 26, 1971, Ser. No. 798,243, Jan. 2, 1969. Application for reissue Nov. 21, 1972, Ser. No. 308,506
Int. Cl. F16d 21/00
U.S. Cl. 74—125.5 8 Claims



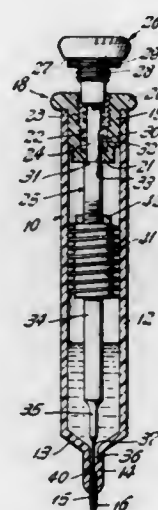
A speed reducing mechanism characterized by the absence of a gear train and comprising a driven shaft having an eccentric cooperating with a rock shaft connected through the medium of a one-way clutch to a

driven shaft. In an embodiment of the invention the angular movement of the rock shaft can be varied from zero to a desired maximum. In a further embodiment of the invention the single drive shaft operates a pair of rock shafts each in turn connected through one-way clutch means to a driven shaft.

28,123

DRAFTING PEN

Carlton M. Di Carlo, 3 Station Road, Madison, N.J. 07940
Original No. 3,594,092, dated July 20, 1971, Ser. No. 804,810, Mar. 6, 1969. Application for reissue Dec. 21, 1972, Ser. No. 317,110
Int. Cl. B43k 1/10
U.S. Cl. 401—258 10 Claims

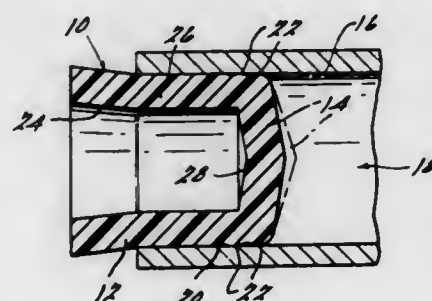


A reservoir drafting pen comprising a barrel having an ink storage portion and a tubular pen point at one end communicating therewith and an inner member having a stem capable of reciprocation and having a needle adapted to clean the tubular pen point and having a control member providing a novel vent and ink leakage control means, including a helical thread, for the pen. The drafting pen is easy to construct and assemble, easy to fill and clean or change the color of ink, cannot bleed through the tubular tip, and provides a uniform flow of ink.

28,124

METHOD OF SEALING TUBING

John R. Fueslein, Jeddo, Mich., and Edward C. Roper, deceased, late of Springdale, Conn., by Mueller Brass Co., Port Huron, Mich., assignee
Original No. 3,274,747, dated Sept. 27, 1966, Ser. No. 389,597, Aug. 14, 1964, which is a division of application Ser. No. 216,841, Aug. 14, 1962, now Patent No. 3,200,984. Application for reissue Feb. 9, 1973, Ser. No. 331,316
Int. Cl. B67b 1/04
U.S. Cl. 53—22 R 3 Claims

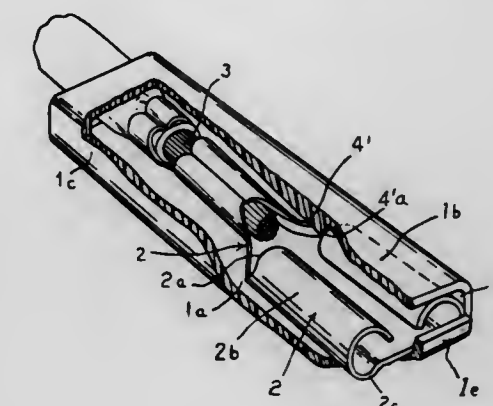


A method of maintaining the interior of straight lengths of copper tubing used in air conditioning and refrigeration

28,126

INSULATING PROTECTOR FOR CLIPS USED IN ELECTRICAL CONNECTIONS

Roger Poingt, Vincennes, France, assignor to Etablissements Proner, S.A., Montreuil, Seine-Saint-Denis, France
Original No. 3,517,370, dated June 23, 1970, Ser. No. 640,950, May 24, 1967. Application for reissue May 23, 1973, Ser. No. 364,014
Claims priority, application France, May 27, 1966, 63,251; May 10, 1967, 105,886
Int. Cl. H01r 11/28, 13/48
U.S. Cl. 339—59 R 3 Claims

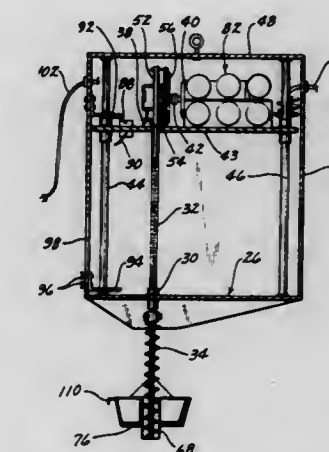


An insulating protector for a clip to be used for electrical connections is comprised of a sheath made from insulating material such as a molded plastic. The sheath is open at both ends, the front end of the sheath being provided with an upturned flange establishing a positive stop for the front end of the clip when inserted from the rear end of the sheath, and the sheath being also provided on one of its inner surfaces with a catch member in the form of a wedge or tongue which moves automatically into a locking engagement with a part of the clip after the clip has been fully inserted in the sheath thus preventing any backward movement of the clip.

28,127

SOIL SAMPLER DEVICE

William Chester Derry, Bayard, Iowa 50029
Original No. 3,593,809, dated July 20, 1971, Ser. No. 791,425, Jan. 15, 1969. Application for reissue July 20, 1973, Ser. No. 381,100
Int. Cl. E21b 3/02
U.S. Cl. 175—51 14 Claims

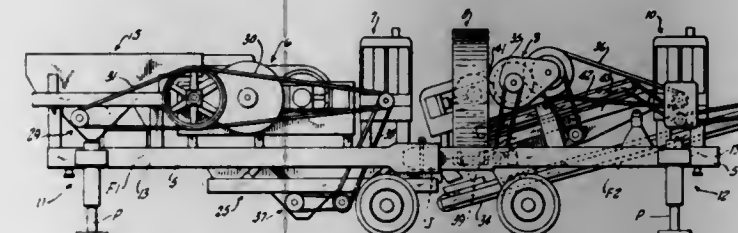


A device having an auger shaft connected to a frame. A motor platform is mounted on the threaded shaft and moves therewith while supporting a finger-shaped soil-sampling receptacle embracing the auger portion of the

28,125

PORTABLE CRUSHING PLANT

John N. Quinn, Madison, Wis., by Johnson Welding & Equipment Co. Inc., Madison, Wis., assignee
Original No. 3,409,235, dated Nov. 5, 1968, Ser. No. 544,203, Apr. 21, 1966. Application for reissue May 7, 1973, Ser. No. 358,256
Int. Cl. B02c 13/00, 19/00; B07b 1/40
U.S. Cl. 241—76 15 Claims



1. In a crushing plant:
 - (A) means providing a fore-and-aft extending frame;
 - (B) an elevator carried by the frame intermediate the front and rear ends thereof, said elevator having a low level receiving portion and a higher level discharge portion;
 - (C) a first crusher mounted on the frame means between the rear end thereof and the elevator and having an inlet at its top and an outlet at its bottom;
 - (D) means for directing coarse material to be crushed into the inlet of said first crusher;
 - (E) a first material advancing vibratory screen carried by the frame means and having a receiving portion beneath the outlet of said first crusher and a discharge end portion arranged to feed carryover material vibratory advanced therealong into the receiving portion of the elevator;
 - (F) a second crusher mounted on the frame means adjacent to the elevator and having an inlet in its top and an outlet at its bottom;
 - (G) means for conducting material from the discharge portion of the elevator into the inlet of the second crusher;
 - (H) first conveyor means having a receiving portion beneath the outlet of the second crusher and a discharging portion spaced forwardly from its receiving portion;
 - (I) a second vibratory screen having a receiving portion beneath the discharging portion of the first conveyor means and having a discharge end portion arranged to feed carryover materials vibratory advanced therealong into the receiving portion of the elevator;
 - (J) and second conveyor means extending forwardly beneath said first vibratory screen, the elevator and the second vibratory screen, for receiving finished materials from said vibratory screens, and having a discharging end portion located at the front end of the frame means.

auger shaft. The soil-sampling receptacle is maintained in yieldable engagement against the ground around the auger shaft and receives the soil sample which moves through a sleeve extending through the space between the finger-shaped receptacle whereupon the soil sample empties downwardly into the receptacle. Limit switches are provided to stop the operation of the unit at predetermined points in its upward and downward travel. The soil-sampling unit is adjustably mounted on the side of a pickup truck and is powered by the truck battery.

28,128

MOLTEN SALT HYDROCONVERSION PROCESS
Donald E. Hardesty and Thomas A. Rodgers, La Porte, Tex., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Original No. 3,677,932, dated July 18, 1972, Ser. No. 123,827, Mar. 12, 1971, which is a continuation-in-part of abandoned application Ser. No. 764,917, Oct. 3, 1968. Application for reissue July 30, 1973, Ser. No. 383,870

Int. Cl. C10g 13/08, 23/02, 29/12

U.S. Cl. 208—108

5 Claims

A new hydroconversion catalyst system comprising molten zinc halide in admixture with a modifying molten salt, such as an alkali metal halide, which markedly reduces the solubility of hydrocarbons in the salt melt, lowers salt viscosity and reduces tendency to foaming, all these changes in salt property being especially advantageous for practical applications in continuous hydrocarbon conversion processes.

28,129

METHOD OF PREPARING MERCAPTO-ALKYLALKOXY SILANES

Joseph A. Rakus and James G. Sharpe, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Original No. 3,590,065, dated June 29, 1971, Ser. No. 843,205, July 18, 1969. Application for reissue Aug. 17, 1973, Ser. No. 389,081

Int. Cl. C07f 7/18

U.S. Cl. 260—448.8 R

6 Claims

Mercaptoalkylalkoxy silanes are prepared by the simultaneous reaction of chloroalkylalkoxy silanes, thiourea or tetramethyl thiourea and ammonia, at a temperature of 100 to 145° C. The reaction is characterized by excellent yields of the desired mercaptoalkylalkoxy silanes without the necessity of using solvent and without the formation of undesired by-products. For example, chloropropyl-trimethoxy-silane is reacted with thiourea and ammonia at 125° C. to produce mercaptopropyltrimethoxysilane and guanidine hydrochloride.

28,130

SELF-CONTAINED INTERNAL HYDROTHERAPY APPARATUS

Rose Marie Hudson, Washington, D.C., assignor to Hudall Corporation, Bethesda, Md.
Original No. 3,678,932, dated July 25, 1972, Ser. No. 17,074, Mar. 6, 1970. Application for reissue Aug. 28, 1973, Ser. No. 392,219

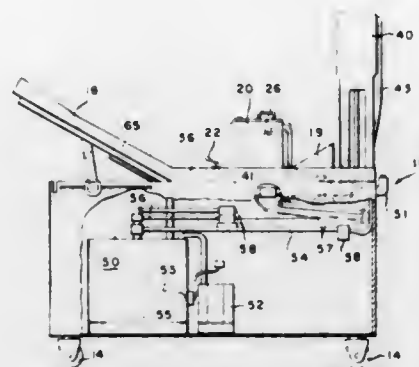
Int. Cl. A61m 3/00

U.S. Cl. 128—227

10 Claims

A self-contained internal hydrotherapy apparatus for treatment of human patients comprising a mobile cabinet

having a generally planar top surface designed to accommodate a reclining patient, a treatment system capable of infusing a desired treating solution into the body orifices and additionally externally cleansing the rectal and genital



28,131

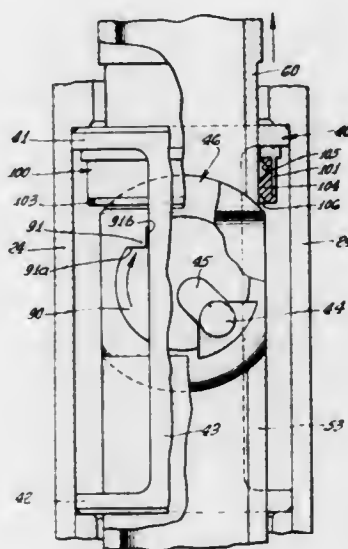
BALL VALVE WITH RESILIENT SEAL

Kurt Leutwyler, Houston, Tex., assignor to Baker Oil Tools, Inc., Los Angeles, Calif.
Original No. 3,741,249, dated June 26, 1973, Ser. No. 236,929, Mar. 22, 1971. Application for reissue Oct. 26, 1973, Ser. No. 409,853

Int. Cl. F16k 11/20

U.S. Cl. 137—629

18 Claims



A ball valve is incorporated in a subsurface shuton valve for wells. The ball valve is actuated rotatively and longitudinally within its support and effects sealing engagement with a stationary resilient seal by longitudinal movement.

PLANT PATENTS

GRANTED AUGUST 20, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,593

CARNATION PLANT

Alexandre Barberet, La Londe, France, assignor to Laboratoire de Physiologie Vegetale de La Londe, La Londe, France

Filed Nov. 10, 1972, Ser. No. 305,606

Int. Cl. A01h 5/00

U.S. Cl. Plt.—73

1 Claim

A new variety of carnation plant originated as a hybrid seedling resulting from a cross of two varieties of carnation plants in the personal collection of the applicant and distinguished by a very vigorous growth habit, strong stems, uniform coloring and superior productivity.

3,594

CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 2, 1973, Ser. No. 329,048

Int. Cl. A01h 5/00

U.S. Cl. Plt.—78

1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to uniqueness when compared to the cultivar Southern Gold by its approximately 1/2" to 3/4" larger flower size which results in a slightly higher percentage of cut in the top two grades (SAF Standards), with few culls and less variation in flower size within a plot; by its more incurved flower form with no swirl in the center of the flower as observed in Southern Gold, and by its improved form retention which provides approximately 2 to 4 days increased bench life and homelife.

3,595

ROSE PLANT

William A. Warriner, Tustin, Calif., assignor to Jackson & Perkins Company, Medford, Oreg.

Filed Feb. 14, 1973, Ser. No. 332,255

Int. Cl. A01h 5/00

U.S. Cl. Plt.—29

1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its vigorous growth, dark red buds, current red flowers, long vase life, resistance to rose powdery moldew, and broad oval leaflets.

3,596

ROSE PLANT

Floor A. G. van Engelen, De Kwakel, Netherlands, assignor to Math. Tantau

Filed Mar. 15, 1973, Ser. No. 341,790

Int. Cl. A01h 5/00

U.S. Cl. Plt.—24

1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique com-

ination of a vigorous bush having fast repeating habit of growth of medium size, double flowers of a shining yellow color, outstanding as a medium sized cut flower.

3,597

CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Mar. 7, 1973, Ser. No. 338,851

Int. Cl. A01h 5/00

U.S. Cl. Plt.—74

1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivars Improved Yellow Bonnie Jean and Yellow Bonnie Jean by its year round recommended flowering period as a spray pot; its true single daisy flower form, quite formal in appearance; its flowers which are approximately 3/4" smaller in diameter and of a much darker, more intense yellow flower color with little or no fading; its improved pot mum habit, including 6" to 8" less vigor, 6" more spread, and a far better response to present day growth regulators; its increased keeping quality of 7-13 days under home conditions as a spray pot; its foliage which is less sensitive to injury from applications of present day greenhouse insecticides, smoother with reduced prominence in venation and a more coarse serration of the leaf margin, and which is smaller, being 3/4" shorter in length, and 2/4" narrower in width; its improved low temperature tolerance, initiating and developing flower buds better at 54°-56° F.; its less prominent stipules, and absence of pollen in the flowers, which increases the keeping quality; its one week earlier response as a spray pot, having a consistent 9 week response which varies little throughout the seasons, and by its medium treatment rather than tall treatment for long day week timing, due to its shorter habit.

3,598

CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 22, 1973, Ser. No. 334,737

Int. Cl. A01h 5/00

U.S. Cl. Plt.—74

1 Claim

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness by its adaptation to commercial pot mum usage with the use of growth regulators to provide a more suitable pot habit than existing pink daisy commercial cultivars; its capability of being grown as a daisy spray pot mum from October through June 15 in most northern areas of the United States; and by its suitability for winter production as a spray pot in all areas of the United States; by its characteristic of breaking freely from a pinch and developing a high flower count per stem as a spray pot to produce a prolific flowering plant, and by its late 8 to 9 1/2 week response, which, combined with tall treatment, makes it an efficient pot plant to grow.

PATENTS

GRANTED AUGUST 20, 1974

GENERAL AND MECHANICAL

3,829,899

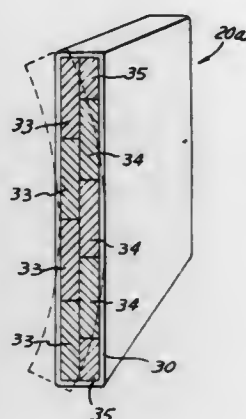
BULLETPROOF PROTECTIVE BODY ARMOR

Richard C. Davis, Box 581, Central Lake, Mich. 49622
Division of Ser. No. 251,077, May 8, 1972, Pat. No. 3,783,449.
This application Oct. 31, 1973, Ser. No. 411,318

Int. Cl. F41h 1/02

U.S. Cl. 2-2.5

5 Claims



A bulletproof body armor formed of a pad made of a number of loose sheets woven of heavy gauge nylon threads, with the pad being enclosed within a cloth envelope having a pocket formed therein in the plane of said pad. A semi-flexible metal insert plate is removably arranged within said pocket. The plate comprises a number of plate sections arranged in a common plane, in edge-to-edge contact, one above the other. Each of the edge-to-edge joints is covered by an overlapping cover plate. A flexible cloth-like sheet covers and is adhesively secured to the exposed surfaces of the plate sections to secure them together and permit flexing of the plate transversely to the joints.

3,829,900

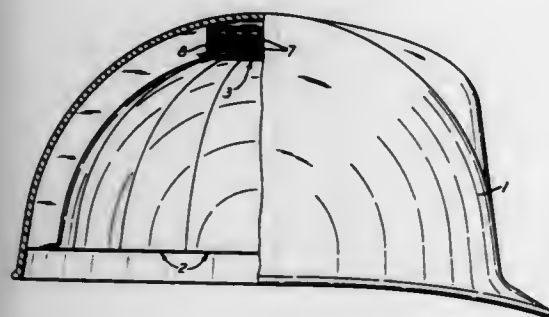
SAFETY HAT ENERGY ABSORBING LINER

Roy D. Marangoni, Pittsburgh, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed Aug. 30, 1973, Ser. No. 392,957

Int. Cl. A42b 3/00

U.S. Cl. 2-3 R



A dome-like liner that will fit inside of a safety hat is formed from a plurality of stacks of stiff but deformable tubes, the tubes in each stack being arranged in superimposed rows with the tubes in each row parallel and staggered relative to the tubes in the immediately adjoining rows. Each of the stacks is enclosed in a flexible sheath, the sheathed stacks being assembled to form the liner.

3,829,901

METHOD FOR FABRICATION OF LINED WEARING APPAREL

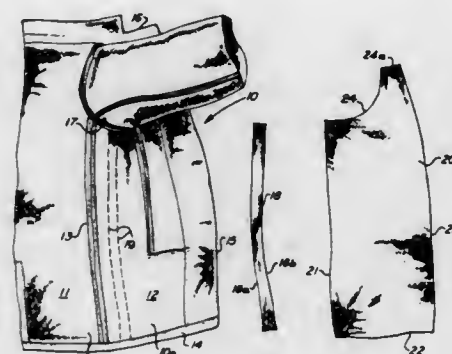
Abraham Massetti, Jessup, and Rocco N. Ciullo, Scranton, both of Pa., assignors to U.S. Industries, Inc., New York, N.Y.

Filed Apr. 25, 1973, Ser. No. 354,352

Int. Cl. A41d 1/00

U.S. Cl. 2-97

2 Claims



A method of fabricating a coat, jacket, or other item of apparel in which an outer shell is provided with a lining involves application of a connecting strip or strips to the outer shell, and separate prefabrication of the outer shell and the lining. The method comprises the steps of carrying out the various operations of construction of the shell of the coat on one production line, including the sewing of a fastening strip extending from the bottom edge of an armhole to the bottom edge of the shell on the inner face thereof, fabricating the lining on a separate and distinct production line, and then assembling the lining on the inner face of the shell by sewing its edges to edges of the shell and strip.

The wearing apparel hereof comprises an outer shell with an inner surface, having a connecting or fastening strip affixed to its inner surface in such manner that the connecting strip has a free edge. The free edge of the connecting strip is employed in the connection of a prefabricated lining to the shell.

3,829,902

GARMENT SUPPORTING MEANS USING WOVEN CANE

Jerald H. Fisher, 1246 Park Ave., New York, N.Y. 10029

Filed May 25, 1973, Ser. No. 363,883

Int. Cl. A41f 3/02, 9/00, 15/00

U.S. Cl. 2-338

9 Claims



A woven cane strip is reinforced by laminating its cross over strips with a flexible binder and coating, such as polyvinyl acetate or polyurethane. The result is a thin strong strip which can be easily bent but resists deformation in other directions. An edging strip such as leather, polyvinyl chloride, polyurethane, or cotton fabric may be sewn or sealed around all the

AUGUST 20, 1974

GENERAL AND MECHANICAL

745

3,829,905

TOILET IMPROVEMENTS

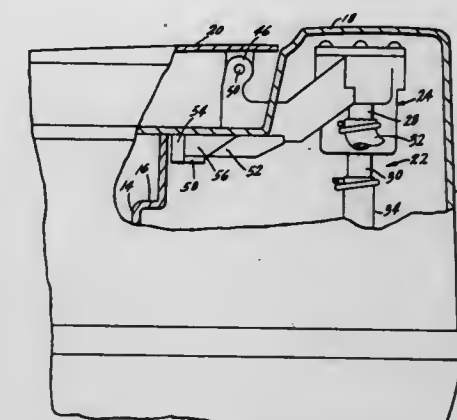
Christiaan J. H. Vanden Broek, Ann Arbor, Mich., assignor to Thetford Corporation, Ann Arbor, Mich.

Filed Oct. 10, 1972, Ser. No. 295,798

Int. Cl. A47k 17/00

U.S. Cl. 4-1

10 Claims



3,829,903

METHOD OF INHIBITING BLOOD CLOT ON SILICONE RUBBER MEDICAL DEVICES

Wayne H. Stati, Midland, and Jack L. Boone, Larkin Twp., Midland County, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Continuation-in-part of Ser. No. 314,210, Dec. 11, 1972, abandoned. This application Mar. 15, 1973, Ser. No. 341,654

Int. Cl. A61f 1/22, 1/24; A61m 25/00

U.S. Cl. 3-1

4 Claims

Medical devices for prolonged contact with blood are made of silicone rubber having powdered tungsten incorporated therein to inhibit blood clot formation on the device surfaces.

3,829,904

HIP JOINT PROSTHESES

Robin Sydney Mackwood Ling, Teignmouth, and Alan John Clive Lee, Exeter, both of England, assignors to National Research Development Corporation, London, England

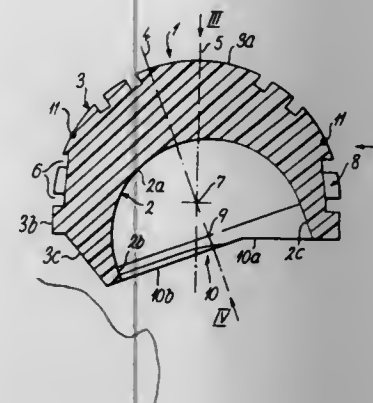
Filed Sept. 22, 1972, Ser. No. 291,160

Claims priority, application Great Britain, Sept. 24, 1971, 44709/71

Int. Cl. A61f 1/24

U.S. Cl. 3-1

11 Claims



A prosthetic hip cup is provided which is generally similar to the usual basically hemispherical form except that: the inner and outer surfaces have their spherical centres displaced, rather than coincident, to provide a greater wall thickness at the bottom of the cup compared to the side; and the axes of symmetry of the inner and outer surfaces are mutually angled to off-set the thickest part of the cup relative to the axis of the outer surface. This overall eccentricity provides greatest thickness in the main load bearing region of the cup, without introducing any significant disadvantage. An associated femoral device is also provided which is again generally similar to the usual ball headed tapered stem form except that: the ball is connected to the stem through a necked part without introducing a flange; and the stem is tapered in at least two different transverse directions. The absence of a flange simplifies the associated sectioning requirements for the femur, and the multiple tapering of the stem promotes better extrusion of gap-filling cement.

3,829,906

HOSPITAL PATIENT CARE UNIT

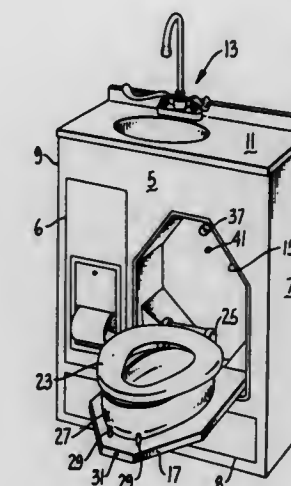
John L. McPhee, Burlingame, Calif., assignor to Aluminum Plumbing Fixture Corp., Burlingame, Calif.

Filed Jan. 8, 1973, Ser. No. 322,009

Int. Cl. E03d 1/00, 3/00, 5/00

U.S. Cl. 4-10

3 Claims



A hospital patient care unit is provided which consists of a folding toilet in a compact cabinet wherein the bowl of the toilet is removable so that the unit can be used either as a bedpan or in the normal manner. The unit is designed so that when it is closed, the bowl is automatically flushed and washed out and an interlock prevents opening the cabinet while the flushing operation is taking place.

3,829,907 BED ACCESSORY

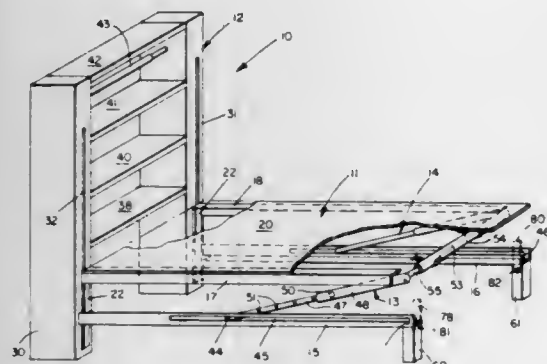
Donald A. Brunner, 56th AVN DET. APO, New York, N.Y. 09028

Filed Mar. 21, 1973, Ser. No. 343,465
Int. Cl. A47c 17/48

U.S. Cl. 5-8

17 Claims

An apparatus is provided, adapted for use with a bed, for providing a utility area over the bed. The utility area may be a work area or the like, or may be another bed (for example, a bunk bed) if desired, with the utility area being movable between a lower position and an upper position, and



preferably having an assist for facilitating upward movement or lifting thereof, and with the apparatus preferably being adjustable and adaptable for providing other features, such as storage or the like.

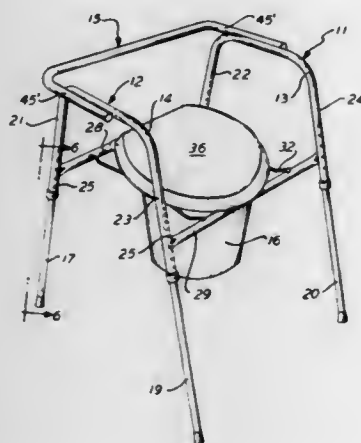
3,829,908 KNOCK-DOWN COMMODE DEVICE

Morton I. Thomas, Monroe, N.Y., assignor to Temco Products, Inc., Passaic, N.J.

Filed Apr. 9, 1973, Ser. No. 349,052
Int. Cl. A47k 11/02; A47b 45/00; A47c 9/00

U.S. Cl. 4-1

4 Claims



A knock-down commode device which may be packaged for shipment in a fraction of the dimensions of a conventional commode device, effectuating substantial savings in shipping costs and thus in the cost of the commode to the ultimate user. The commode may be shipped in knock-down form and may pursuant to the invention, be readily and sturdily assembled, without use of any special tools or skills. The commode device comprises a basic unit to receive the commode chamber, which may be packaged therewith and extension members to be connected to the commode unit to form therewith a complete commode of longer leg length. The commode of the invention is rugged and durable and is designed to be long lasting, safe, reliable and trouble free in use.

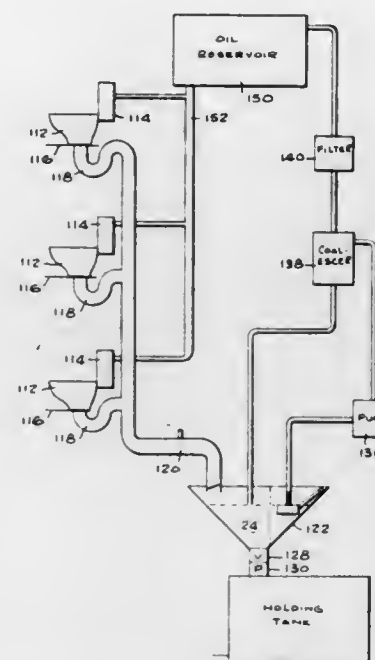
3,829,909 RECIRCULATING TOILET

Robert L. Rod, Marina Del Rey, and Theodore M. Woltanski, Hawthorne, both of Calif., assignors to Monogram Industries, Inc., Santa Monica, Calif.

Filed Mar. 5, 1973, Ser. No. 338,200
Int. Cl. E03d 1/00, 3/00, 5/00

U.S. Cl. 4-10

15 Claims



A recirculating toilet employs an oil as a reusable, inoffensive, flushing fluid. Human waste products are collected, the oil is separated, and the waste products are periodically transferred for disposition. The flushing fluid is filtered and recycled for further use.

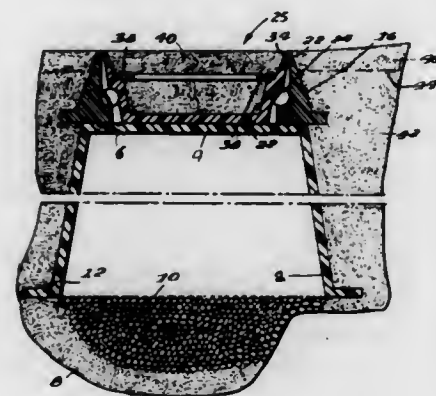
3,829,910 CHECK VALVE ARRANGEMENT FOR USE IN BOTTOMS OF SWIMMING POOLS

Samuel Kaufman, 509A Wilson Pl., Frederick, Md. 21701

Filed Jan. 4, 1973, Ser. No. 320,959
Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4-172

4 Claims



A device for preventing floating of swimming pools by allowing ground water to enter the pool when the pressure thereof is greater than the pressure in the pool includes a conical member tapering upwardly set in the bottom wall of the pool and ending a slight distance below the upper face of the finished pool bottom. Above this conical member and having its upper edge flush with the finished bottom is a check valve arrangement which includes a ring set in the concrete and having an upwardly tapering portion which ends in a very thin upper edge flush with the upper face of the concrete and having a plug portion which is hollow and likewise has a very thin

upper edge. These two parts have opposed seats which can engage an O-ring. The hollow plug is filled with concrete which is the same as that used in finishing the bottom of the pool so that the device is only slightly noticeable.

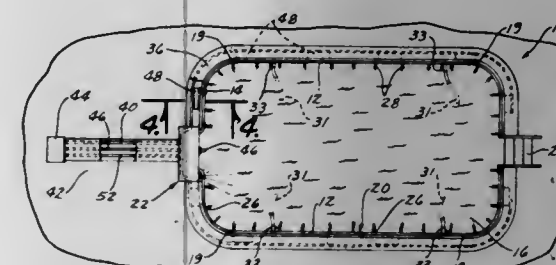
If ground water is present at a pressure greater than that of the water pressure in the pool, it will move upwardly through the cone and lift the plug valve so as to enter the pool.

3,829,911 SWIMMING POOL WATER CIRCULATION SYSTEM

Kenneth M. Bishop, 310 Market, Carlisle, Iowa 50047
Continuation-in-part of Ser. No. 1,438, Jan. 8, 1970, Pat. No. 3,682,311. This application Dec. 18, 1972, Ser. No. 316,259
Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4-172.17

13 Claims



A swimming pool system including an inlet conduit around the walls of the pool having spaced apart outlet openings directing fountains of water upwardly and inwardly for cooling in the night air and for providing a decorative fountain affect around the periphery of the pool. The inlet conduit is comprised of a plurality of sections each of which is connected to a control flow valve having a continuously rotatable valve element. The valve element is cylindrical and hollow and includes a series of peripheral rows of openings registerable with the inlet conduit sections. Each of the successive openings in the rows are different in shape and size to provide a continuously varying pattern of fountain activity. A reciprocal power means may be provided for reciprocating the cylindrical valve element such that different peripheral rows of openings register alternately with the sections of inlet conduit to further vary the pattern of fountain activity. A vane structure may be provided on the inlet end of the cylindrical valve element to cause the inlet water pressure to continuously rotate the valve element.

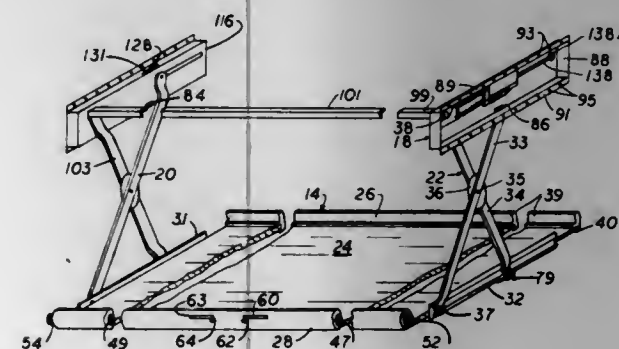
3,829,912 RETRACTABLE BED ASSEMBLIES

Howard M. Quakenbush, Monona Village, Wis., assignor to Flexsteel Industries, Inc., Dubuque, Iowa

Filed Sept. 1, 1971, Ser. No. 176,985
Int. Cl. A47c 17/14

U.S. Cl. 5-10 B

5 Claims



A retractable bed assembly adapted to be mounted to a support structure such as the wall of a recreational vehicle, to move between a storage position adjacent the ceiling and a use

position spaced vertically from the ceiling. The assembly includes a bed platform pivotally connected to the support structure by means of a first and second pair of linkages pivotally connected to the ends of the bed platform to enable it to be raised and lowered from the ceiling in a pivotal manner, while maintaining the bed platform in a position substantially parallel to the ceiling. A spring biases the bed platform into its storage position, and a latch secures the bed platform in its use position.

3,829,913 BED SETTEE

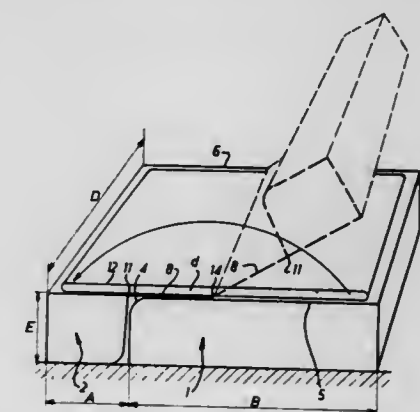
Charles Bernard, Paris, France, assignor to Societe Airborne S.A., Montrevil-Sous-Bols, France

Filed Dec. 26, 1972, Ser. No. 317,937
Claims priority, application France, Jan. 11, 1972, 72.00753

U.S. Cl. 5-46

Int. Cl. A47c 13/00, 17/00

3 Claims



A connectible bed-settee formed from a parallelepiped-shaped fixed block or seat, and an approximately parallelepiped-shaped mobile block or back of the same thickness and length as the seat block. The mobile block rests either on the seat block, along the back edge, in the "settee" position, or on the floor against the front edge, in the "bed" position, and is attached to the fixed block by a rectangular piece of fabric. The width of the fabric is equal to half the difference between the widths of the two blocks, and is attached by one edge to one longitudinal edge of the mobile block, and by the opposite edge to a line on the upper surface of the fixed block, the same distance from the front edge of this block as half the difference between the widths of the two blocks.

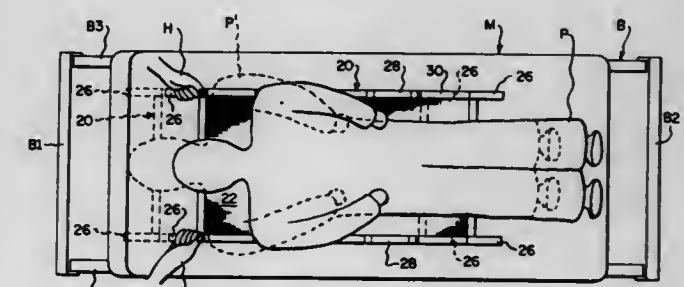
3,829,914 PATIENT POSITIONING DEVICE

Clara A. Treat, 103 Christiana St., North Tonawanda, N.Y. 14120

Filed Dec. 26, 1972, Ser. No. 318,401
Int. Cl. A47c 23/00, 3/32

U.S. Cl. 5-81 R

3 Claims



A patient positioning device includes an elongated flexible laminated sheet adapted to be arranged on a bed beneath the body of a patient and having a friction-type top surface for

frictionally supporting the patient and a slippery bottom surface slidable along the bed, longitudinal end loop handles at each corner of the sheet for pulling the patient along the bed and for removable anchoring to the bed to locate the patient in a predetermined position thereon, and a pair of longitudinal side strap handles spaced along each side of the sheet for transversely shifting and particularly lifting the patient, thereby adapting the device for use as a soft stretcher in transporting the patient.

3,829,915

DRIVE BRACKET CONNECTOR FOR PATIENT TRANSFER APPARATUS

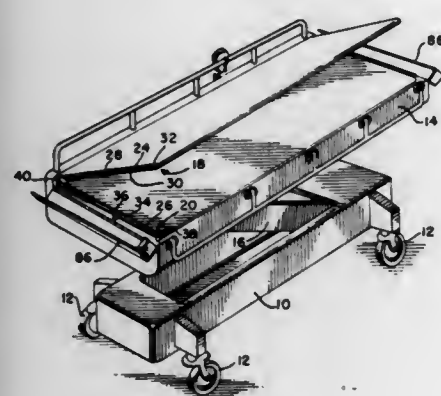
Albert Dunkin, South Norwalk, Conn., assignor to Diamond-head Corporation, Mountainside, N.J.

Filed May 25, 1973, Ser. No. 364,072

Int. Cl. A61g 1/02

U.S. Cl. 5—81 R

5 Claims U.S. Cl. 5—338



An improved drive bracket connector for use in patient transfer apparatus of the type having a pair of superimposed extensible apron assemblies each including a separator to be coupled to a drive chain. The drive bracket connector allows pivotal separation of the upper of the apron assemblies relative to the lower apron assembly thereby to facilitate cleaning operations as well as use of the apparatus as a bed sheet changing mechanism.

3,829,916

APPARATUS FOR HANDLING DISABLED PERSONS
David Richard James, Hasfield, England, assignor to Mecanalds Limited, Gloucester, England

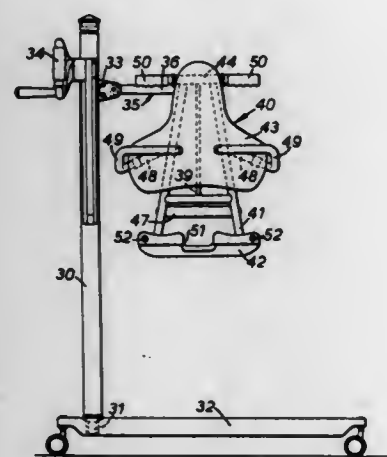
Filed Jan. 26, 1973, Ser. No. 327,121

Claims priority, application Great Britain, Jan. 29, 1972, 4347/72

Int. Cl. A47b 83/04

U.S. Cl. 5—86

11 Claims



Apparatus for handling hospital patients or other persons who are disabled or infirm facilitates lifting into and out of a

bath while firmly supported in a sitting position. The apparatus comprises lifting mechanism including a lifting arm which projects from a lifting column. A patient support member in the form of a seat is in use rigidly supported at the end of the arm remote from the column, with the fore-and-aft centre line of the seat offset from the axis of the column. The said centre line is tangential to a circle centred on the column in plan view, the arm being curved or cranked in plan view for connection at the rear of the seat.

3,829,917

THERAPEUTIC PILLOW

Earle W. De Laitre, deceased, late of Edina, Minn., and William P. Timberg, executor, 5207 Grandview Ln., Minneapolis, Minn. 55436

Filed Feb. 15, 1973, Ser. No. 332,671

Int. Cl. A47g 9/00

3 Claims



A therapeutic pillow for head and neck support of a user in a horizontal resting position on a supporting surface wherein a homogeneous, integral, generally elongate pad of resilient foam rubberlike material includes a pair of user supporting lobes on an upper face thereof, the lobes being separated by a trough therebetween and the lobes extending the length of the elongate dimension of the pad and overhanging the pad therealong such that when the head and neck of a user are placed on the upper face, they cause the overhanging portion of one of said lobes under and adjacent the user to stretchedly roll toward the supporting surface and outwardly from the pad to a position contacting the surface, thereby generating a restoring force and applying the force to the neck and head of the user thereby gently stretching the neck muscles of the user and encouraging a relaxed sleeping posture.

3,829,918

MEANS FOR INCREASING THE AIR PRESSURE WITHIN SELF-INFLATED HOLLOW BODIES FOR USE AS CUSHIONS AND FOR LIKE PURPOSES

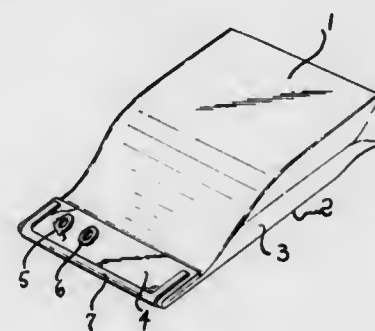
Paul Stamberger, 552 W. University Pky., Baltimore, Md. 21210

Continuation-in-part of Ser. No. 76,734, Sept. 30, 1970, Pat. No. 3,643,268. This application Feb. 22, 1972, Ser. No. 228,223

Int. Cl. A47c 27/08

U.S. Cl. 5—348 R

8 Claims



A hollow, airtight, box-like inflated body adapted to serve as an air filled cushion, pillow, mattress or the like and com-

prising flexible, air-impervious top and bottom portions of substantially the same size and configuration with a flexible air-impervious member extending between said top and bottom portions with the top and bottom edges thereof connected in airtight relation to the marginal edges of said top and bottom portions, respectively and of a height sufficient to form an air-filled body of the desired height, is provided with a relatively stiff member or members extending along a portion of the length of said air-impervious member with the upper and lower edges thereof connected to the adjacent edges of said top and bottom portions, respectively, and which relatively stiff member or members is or are provided with air inlet and an outlet valves of the desired construction in communication with the interior of said box-like body, movement of said stiff member or members from a horizontal position to a vertical position sucking air into said box-like body through said air inlet valve to inflate the box-like body, and continued movement of said stiff member or members from vertical to a horizontal position creating a pumping action causing an increase of the air pressure within said hollow box-like inflated body, means being provided for retaining said stiff member or members in horizontal position when the air pressure within said boxlike body has been increased to the desired degree. The interior of the box-like inflated body may be provided with a plurality of parallel side-by-side open-ended tube-like structures of semi-circular or circular transverse cross section.

3,829,919

BUOY

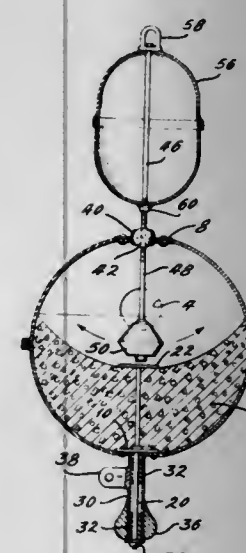
Edwin G. Mathae, 4017 Holly Hills, St. Louis, Mo. 63116

Filed Jan. 15, 1973, Ser. No. 323,514

Int. Cl. B63b 21/00

U.S. Cl. 9—8 R

8 Claims



A buoy includes a floating base and an elevated structure which is positioned above the base and may serve as a marker. The elevated structure is mounted on a rod which extends through a ball-and-socket fitting on the top of the base, and this rod is provided with a counterweight at its lower end. Thus, the elevated structure assumes an upright position, even if the base tilted by fast moving water. The base is attached to its anchor cable through a swivel arrangement so that the buoy will tend to roll around and pass to the sides of floating objects which come against it.

3,829,920

TOOL HEAD WITH MULTIPLE TOOLS AND COMMON OSCILLATABLE RECEDE AND COLLAPSE CAM MECHANISM

Fred Theuerkauf, Naples, Fla., assignor to The Pipe Machinery Company, Wickliffe, Ohio

Filed July 5, 1973, Ser. No. 376,308

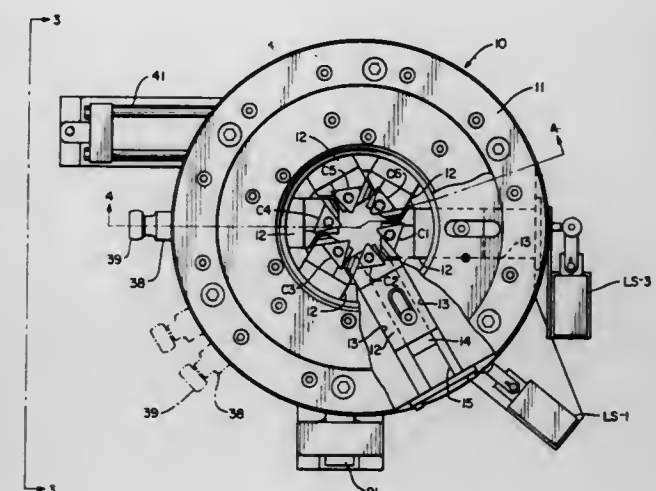
Int. Cl. B23g 1/22

U.S. Cl. 10—96 T

6 Claims

A pipe threading die head supports a plurality of radially reciprocable die carriers in circumferentially spaced relation

about a common axis. A cam plate is oscillatable relative to the head about the axis, and has elongated cam slots which are arranged in end to end spaced relation in a row extending circumferentially of the axis. The slots are connected by cam followers to the tool carriers, respectively. The slots are shaped so that, upon rotation of the cam plate relative to the head in one direction at a uniform rate, they first recede all of the carriers concurrently at the same rate of speed away from the axis part way toward their fully receded positions to produce a full depth taper cut, and then recede the carriers at increased



rates, to run out and collapse positions. Beginning with the second slot in the series, each slot, during run-out, recedes its associated carrier at a greater rate than the rate of recession of the immediately preceding carrier. The die head and a coaxial pipe supporting chuck are relatively rotated about the axis while driven relatively toward and away from each other endwise of the rotational axis. A cam maintains the recessions for taper cutting and die run-out to collapsed position in predetermined fixed relation to the relative advance of the head and pipe held in the chuck.

3,829,921

TAP WITH REPLACEABLE CUTTING INSERT

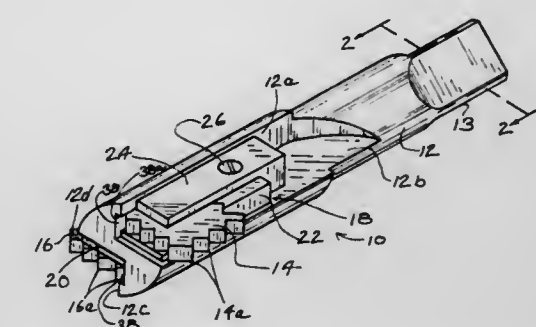
Edward J. Delaney, Valley Pky. E., Joliet, Ill. 60433

Filed Apr. 16, 1973, Ser. No. 351,256

Int. Cl. B23g 5/06

U.S. Cl. 10—141 R

5 Claims



A tap for producing internal threads in pipes or the like is provided, including a holder portion, a generally flat insert having cutting threads along one of its edges, and means for releasably securing the cutting insert to the holder, with the securing means including a clamp member for engaging the insert against the holder and means for releasably fastening the clamp member and insert tightly against the holder. The securing means may also include a base member interposed between the insert and the holder and having a seat sized and shaped to fit and receive the insert. To enhance positive locking of the insert onto the holder, a slot may be provided in

the holder for receiving a marginal portion of the insert to thereby counteract torque forces exerted on the insert from the thread cutting action. Cutting inserts which are particularly useful are generally square or triangular in shape and may be provided with cutting threads along any or all of their edges.

3,829,922

ELECTRIC TOOTHBRUSH

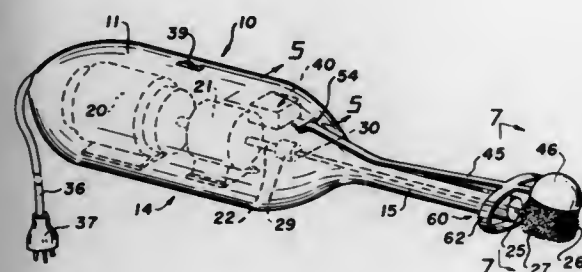
John N. Koblanski, 9904 N.E. 14th St., Bellevue, Wash. 98004

Filed Jan. 8, 1973, Ser. No. 322,030

Int. Cl. A61c 17/00; A46b 13/02

U.S. Cl. 15—23

5 Claims



An electric toothbrush is provided with a rotary brush which is rotated by a reversible electric motor partly controlled by a reversing switch. A longitudinally extending guard is supported alongside the rotary brush for movement in a plane substantially parallel to the axis of rotation of the brush and between a normal position on one side of the brush and other positions. Movement of the guard away from the normal position operates the reversing switch to change the direction of rotation of the motor and thereby the rotary brush.

3,829,923

SWEEPING ELEMENTS

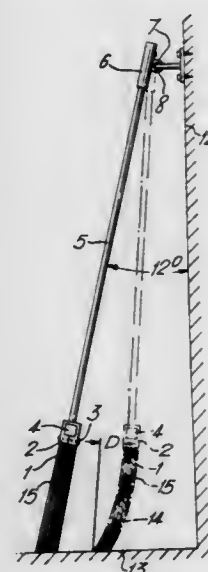
Gilbert Shaw, Middlebury, and Martin Vesper Thompson, Bristol, both of Vt., assignors to Polymers Inc., Middlebury, Vt.

Filed Feb. 2, 1973, Ser. No. 329,123

Int. Cl. A46b 9/06

U.S. Cl. 15—159 A

2 Claims



A fire resistant sweeping element comprising a filamentary mixture of polyvinyl chloride filaments and polypropylene filaments, the polyvinyl chloride filaments being included in an amount sufficient to restrain combustion of the polypropylene filaments.

3,829,924

WINDSHIELD WIPER ARRANGEMENT

Gunter Dittich, Buhlertal, and Erich Kolb, Eisental, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

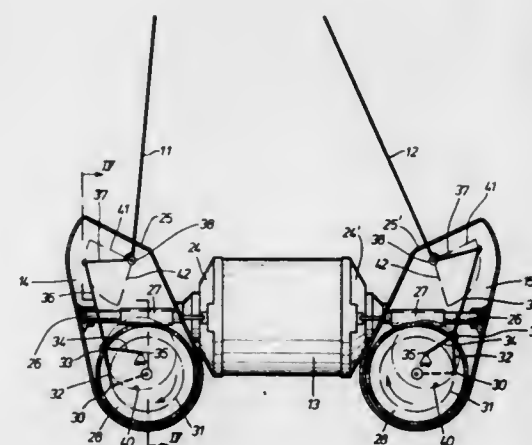
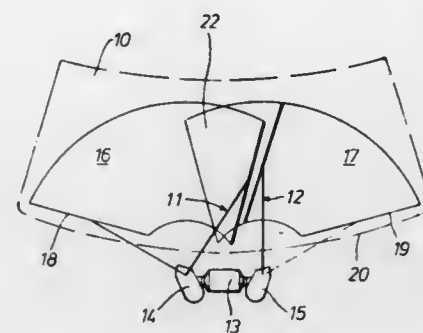
Filed June 23, 1972, Ser. No. 265,798

Claims priority, application Germany, June 24, 1971, 2131307

Int. Cl. B60s 1/24

U.S. Cl. 15—250.14

10 Claims



A pair of wipers are each mounted for pivotal movement between an inner and an outer direction-reversing end position. The wiping fields of the wipers overlap in the region of the inner end positions. A motor drives the wipers via cranks associated with the latter. One of the wipers has associated with it a crank which moves in a uniform circular path, and at least the other wiper has associated with it a crank which moves in a non-uniform path, linkage means connecting the two cranks with one another. With this arrangement the wipers are so driven that when one wiper is moving away from its inner towards its outer direction-reversing end position, the other wiper just enters the region of overlap of the wiping fields on its way towards its inner direction-reversing end position.

3,829,925

OSCILLATORY OUTPUT DEVICES

John Henry Kirkland, and Samuel Eric Harvey, both of Coventry, England, assignors to Dunlop Limited, London, England

Filed Dec. 6, 1972, Ser. No. 312,755

Claims priority, application Great Britain, Dec. 15, 1971, 58711/71

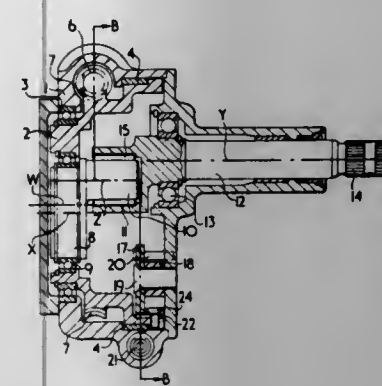
Int. Cl. B60s 1/24

U.S. Cl. 15—250.17

7 Claims

A device for converting continuous rotary motion to oscillatory motion comprising an annular continuously rotatable member rotatable about a first fixed axis, an eccentric member mounted within the continuously rotatable member for rotation about a second movable axis parallel but eccentric

to the first axis, and an output member rotatable about a third fixed axis parallel to the first and second axes, the eccentric and output members being interconnected for relative rotational movement about a fourth movable axis parallel to the third axis, the inter-relation of the four axes being such that



continuous rotation of the continuously rotatable member produces displacement of the second axis about the first axis, resulting in oscillatory movement of the eccentric within the continuously rotatable member, which in turn produces oscillatory movement of the output member by virtue of the oscillation of the fourth axis about the third axis.

3,829,926

PAINT BUCKET

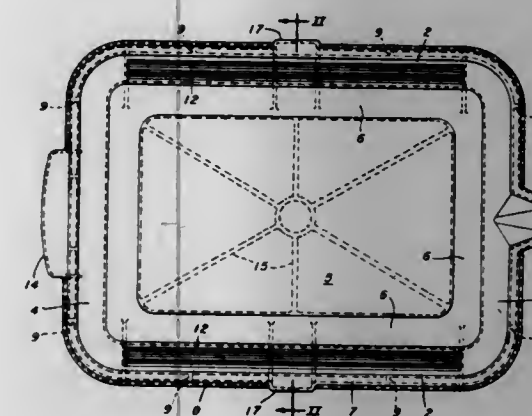
Mack Salladay, Greentree Borough, Pa., assignor to Action Industries, Inc., Cheswick, Pa.

Filed Oct. 5, 1972, Ser. No. 295,178

Int. Cl. B44d 3/12

U.S. Cl. 15—257.06

2 Claims



A four-sided paint bucket has a pouring spout at one end and corrugated areas on the two opposed longer sides. It is deep enough so that it is only partially filled by a gallon of paint. It permits a paint roller to be rolled up the corrugated sides above the liquid level with corrugations assuring rotation of the roller to remove excess paint.

3,829,927

DOCTORS FOR PAPER MAKING MACHINES

Albert Henry John Boyland, London, England, assignor to Vickers Limited, London, England

Filed May 3, 1973, Ser. No. 356,806

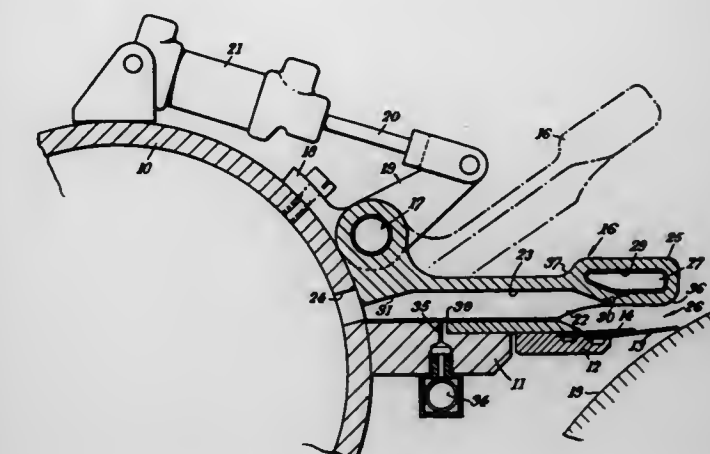
Claims priority, application Great Britain, May 4, 1972, 20786/72; June 30, 1972, 30805/72; Dec. 6, 1972, 56285/72

Int. Cl. B31f 1/14; D21g 3/00

U.S. Cl. 15—301

13 Claims

A doctor for doctoring a roll of a paper making or other machine comprising a support for a doctor blade, a suction duct extending for substantially the whole length of the doctor



blade, and an elongated slot-like suction nozzle, which extends substantially for the whole length of the doctor blade, communicates with the suction duct and is effective to transfer to the suction duct dust or dirt removed from the roll

by the doctor blade, one wall of the suction nozzle being constituted by the doctor blade and its support and the other and facing wall of the suction nozzle extending substantially to the tip of the doctor blade.

3,829,928

DRAPERY HOOK

Rina M. Pizzurro, 3009 Arlmont, Bel-Nor, Mo. 63121

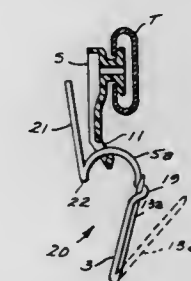
Division of Ser. No. 861,621, Sept. 29, 1969, Pat. No.

3,689,957. This application Mar. 10, 1972, Ser. No. 233,597

Int. Cl. A47h 13/04

U.S. Cl. 16—87.2

3 Claims



Drapery hooks having safety means for hooking them on drapery rods or sliders of traverse rods in such manner as to preclude accidental disengagement of the hooks therefrom. In one form this is accomplished by a double loop arrangement; in another form by a finger and loop arrangement; and in still another form by a snap fastener which in some cases also comprises a double loop. In all forms the drapery hooks include one or more prongs for insertion or engagement into drapes or curtains near the upper margin thereof.

3,829,929

FOLDING DOOR HANGER WITH EMERGENCY RELEASE

Robert E. Foltz; Clarence B. Riser, and Kurt H. Granzow, all of Sterling, Ill., assignors to Lawrence Brothers, Inc., Sterling, Ill.

Continuation of Ser. No. 141,248, May 7, 1971, abandoned.

Filed June 11, 1973, Ser. No. 369,110

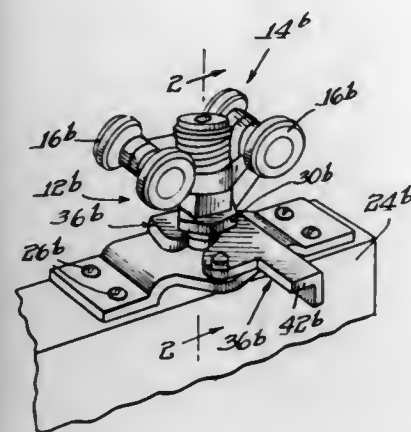
Int. Cl. E05d 13/02

U.S. Cl. 16—97

3 Claims

This invention relates generally to hanger devices for suspending door panels and the like, and more particularly to the combination with a hanger structure of a manually shiftable latch device to facilitate attachment and detachment of a top-hung door panel. The present application discloses a

hanger device of the type which includes a carriage movable within an upper track and having means in the form of a depending pin for accommodating a complementary fitting attached to the upper margin of the door panel. The fitting attached to the upper edge of the panel includes an open-ended slot for receiving the lower extremity of the above-mentioned carriage pin. A pivotally supported latch member, when in one



shifted position permits lateral insertion of the carriage pin within the open-ended slot, and when in another shifted position prevents lateral movement or dislodgement of the pin from the slot. This latch device includes a handle member projecting beyond a bounding plane of the door which may be manually manipulated to move the latch member between the two above-mentioned positions.

3,829,930

SLIDABLE DOOR HANGER DEVICE

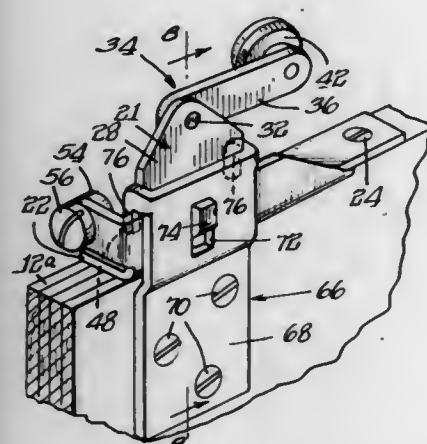
Delmar D. McNinch, Rock Falls, Ill., assignor to Lawrence Brothers, Inc., Sterling, Ill.

Filed Feb. 12, 1973, Ser. No. 331,777

Int. Cl. A47h 15/00

U.S. Cl. 16-105

6 Claims

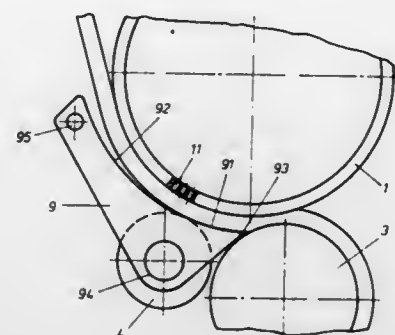


The present invention relates generally to improvements in hanger devices for horizontally slidable doors, of the type known as pocket doors which are slidable into a wall portion to occupy an open position and more particularly to novel hanger structures for vertically adjusting the leading edge of such doors in order to plumb the door against the jamb. The embodiment of the invention disclosed herein comprises a first section or base adapted for attachment to the upper margin of a slidable door in the vicinity of the leading edge thereof, and a second section pivotally supported by the first section. Said second section is in the form of a pair of angularly disposed arms, the extremity of one arm supporting a guide roller, and the extremity of the other arm supporting an internally threaded member which accommodates a rotatable adjusting screw. By rotating this screw, the supported guide roller may be lowered or elevated for vertically adjusting the leading edge of the door, said door member being suspended in a given position by a hanger device in the vicinity of the trailing margin thereof.

3,829,931
MACHINE FOR RECOVERING MEAT
Eberhard Suerbaum, Rhine, Germany, assignor to Nordischer Maschinenbau Rud. Baader, Lubeck, Germany
Filed May 15, 1972, Ser. No. 253,018
Int. Cl. A22b

U.S. Cl. 17-1 G

5 Claims



In a machine for recovering meat attached to parts like bones, skin, sinews, etc., severed from animals by press separating the meat from these parts including a rotatably journaled perforated drum, a flexible endless pressure belt passing around part of the circumference of the drum with the material to be processed received between the belt and the drum, a pressure roll driving and biasing the belt against the drum, and a detaining and backing roll for the belt disposed upstream of the pressure roll and serving to evenly distribute the material over the width of the belt the invention resides in that pressure belt biasing means are provided disposed in both marginal zones of the pressure belt upstream of the pressure roll serving to prevent bulging and to retain the marginal zones of the belt immediately upstream of the pressure roll in contacting engagement with the drum, thereby preventing lateral escape of the processed material.

3,829,932

APPARATUS FOR SPLITTING CARCASSES OF SLAUGHTERED ANIMALS

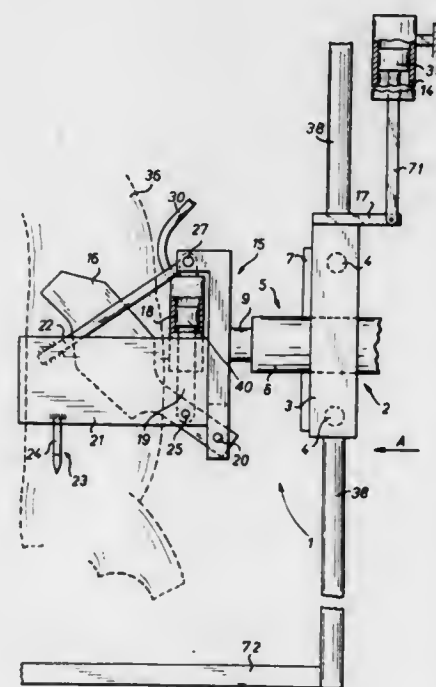
Giuseppe Griss, Rosstruti, Switzerland, assignor to Micarna AG, Fleischwarenfabrik, Bazenheid, Switzerland

Filed Mar. 12, 1973, Ser. No. 340,164

Int. Cl. A22b 5/20

U.S. Cl. 17-23

14 Claims



A cutter is mounted on a displaceable frame with a powered lift. A pointed guide pin affixed to sheet metal guide vanes,

between which the cutter operates, is inserted into one end of the central opening of the spinal column of a carcass which is suspended by the hind legs in front of the apparatus. The cutter is then activated and the movable frame gradually moved downward to split the carcass. A cleaver blade with a diagonal offset at the portion of its edge, which enters into a slot in the guide pin, is subjected to a reciprocating movement providing a cutting stroke.

3,829,933

METHOD AND APPARATUS FOR EVISCERATING SCALLOPS

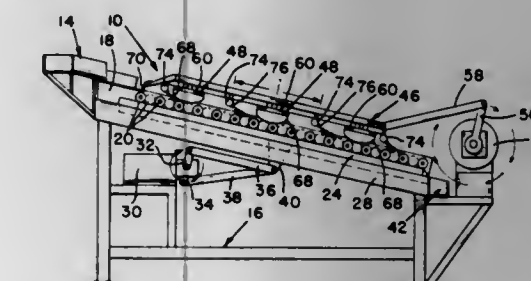
William R. Lambert, P.O. Box 5403, Greensboro, N.C. 27401

Filed Aug. 3, 1972, Ser. No. 277,600

Int. Cl. A22c 29/00

U.S. Cl. 17-53

10 Claims



A method and apparatus for processing shucked scallops by cleaning the viscera from the edible muscle. The muscles and attached viscera are placed upon the upper surfaces of a series of parallel rollers forming an inclined path. At least one scallop contact assembly is mounted above the upper surfaces of the parallel rollers for displacement longitudinally of the inclined path and serves to displace and level the scallops upon the rollers and to urge the scallops into the nips or valleys between adjacent rollers such that the driven rollers grip the viscera and remove it from the muscles. A fluid spray arrangement and the contact assembly controls the advancement of the scallops down the inclined path.

3,829,934

METHOD AND APPARATUS FOR HOMOGENIZING, TEASING OUT AND CLEANING MIXED FIBROUS MATERIALS

Henri Neu, Lille, France, assignor to Societe Anonyme des Etablissements Neu, Lille(Nord), France

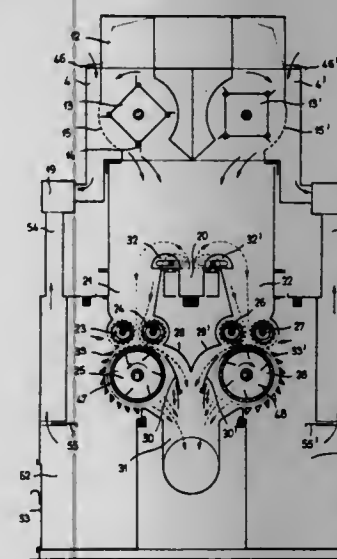
Filed Apr. 11, 1972, Ser. No. 242,930

Claims priority, application France, Apr. 14, 1971, 71.14041; France, Mar. 14, 1972, 72.08829

Int. Cl. D01g 9/00

U.S. Cl. 19-202

18 Claims



A method of homogenizing, teasing out and cleaning mixtures of fibre materials is carried out by using a device com-

prising means for introducing one or a plurality of flows of fibre materials in the downward direction against an air cushion for intimately homogenizing the fibre flocks in suspension before introducing them by combined pneumatic and mechanical means into the operative area of a pair of toothed drums partially surrounded by a cleaning grid opening into vacuumized waste boxes.

3,829,935

BUTTON COLLET

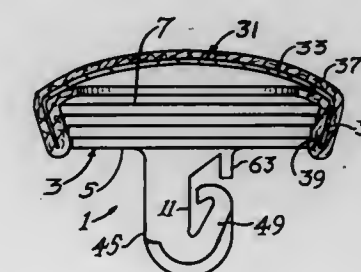
Jack G. Critchfield, Clarendon Hills, Ill., assignor to Handy Button Machine Company, Chicago, Ill.

Filed Feb. 17, 1972, Ser. No. 227,128

Int. Cl. A44b 1/18

U.S. Cl. 24-90 B

3 Claims



A collet for a tufting button comprises a one piece molded plastic body having a peripheral side formed with a series of annular steps. When a button shell is crimped onto the collet with button-covering material interposed between the sidewall of the shell and the side of the collet, the steps form slip-resistant regions that are engaged by the covering material to prevent separation of the shell and cover material from the collet. The base of the collet has a stem with a hook structure for receiving a pre-tied tufting loop. Dual snap locks are provided to prevent removal of the tufting loop.

3,829,936

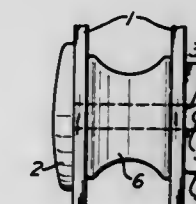
KEEPER FOR CUFF LINKS AND TIE TACKS
Frederick E. Schuchman, Gateway Towers, Pittsburgh, Pa. 15222

Filed May 23, 1973, Ser. No. 363,021

Int. Cl. A44b 1/18

U.S. Cl. 24-97

1 Claim



A keeper in the form of a resilient sleeve encircles the slotted stem that projects rearwardly from the head of a cuff link and pivotally supports a cross bar at its rear end. The keeper is long enough to maintain the cross bar substantially perpendicular to the stem when the cuff link is in use, but when desired the keeper can be compressed axially to permit the cross bar to be swung into alignment with the stem so that the keeper can be removed from the cuff link when desired. The keeper also is applicable to shirt front anchors for tie tacks.

3,829,937

APPLIANCE FOR LINEAR BODIES

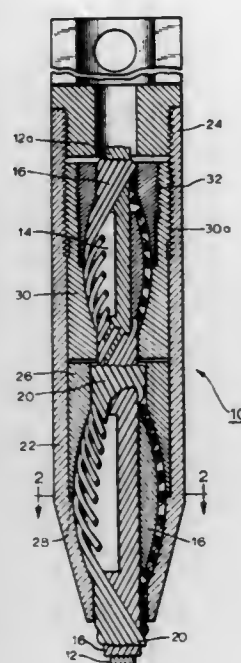
Allan R. Metzler, Aurora, Ohio, assignor to Preformed Line Products Company, Cleveland, Ohio

Filed Sept. 13, 1972, Ser. No. 288,754

Int. Cl. F16g 11/04

U.S. Cl. 24-122.6

10 Claims



A termination appliance for a load bearing cable is particularly suited for extraordinarily high load applications. The appliance is formed by a pair of tandem, partially overlapping protuberance sub-assemblies, each sub-assembly being formed by an ellipsoidal member that is secured relative to the cable by a set of helical rods wrapped in tightly encircling relation over the member and extending in opposite direction therefrom in gripping relation with the cable. The sub-assemblies are disposed in a common housing with the forward portion of each sub-assembly seating against a respective restraining structure so that loads applied to the cable are shared by the respective sub-assemblies. Other features are disclosed.

3,829,938

SEPARABLE INTERLOCKING FASTENERS AND METHOD OF MAKING THEM

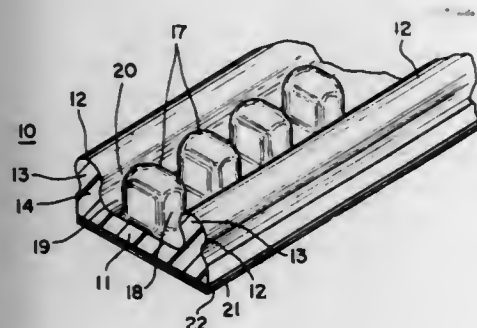
Gene Ballin, 159 Main St., Hempstead, N.Y.

Filed Mar. 24, 1972, Ser. No. 237,634

Int. Cl. A44b 17/00

U.S. Cl. 24-201 C

10 Claims



An elongated separable fastener includes two similar sections formed of a resilient resin, each section including a longitudinally extending socket with a restricted throat and an elongated plug with an enlarged head which releasably engages the socket of the other section. Mating transverse recesses and projections are provided in the fastener sections to restrict their relative longitudinal displacement. In one form, each section includes a base web and a pair of trans-

sely spaced longitudinal vertical plugs and longitudinally spaced projections projecting medially from the web, the space between one of the plugs and the projections defining a socket, and in another form, each section is U-shaped with enlarged heads on the side legs, longitudinally spaced transverse ribs being positioned at the base of the socket between the legs and the legs having longitudinally spaced transverse grooves. A plurality of side-by-side sections may be integrally formed as well as back-to-back sections and they may be longitudinally reinforced.

3,829,939

NEEDLE PUNCHING MACHINE

Richard Dilo, Friedrichsdorfer Landstrasse 7, D-6930 Eberbach/Neckar, Germany, assignor to Oskar Dilo KG Maschinenfabrik, Eberbach/Neckar, Germany

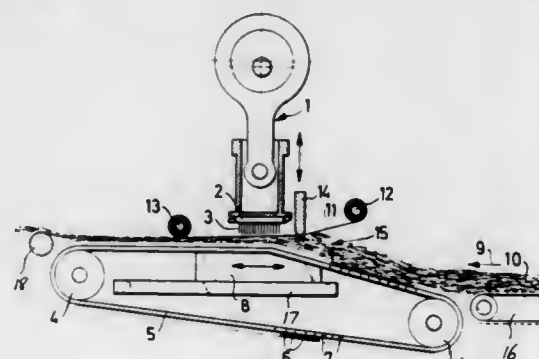
Filed May 14, 1973, Ser. No. 360,086

Claims priority, application Germany, Feb. 9, 1973, 2306416

Int. Cl. D04h 18/00

U.S. Cl. 28-4 R

10 Claims



In a needle punching machine, a fiber batt to be needled is confined in the needling zone between a fabric-reinforced plastic foil and an endless, moving belt carrying spaced carrier elements, such as pins. The barbed needles of the machine pass through the foil into the fiber batt until their points project into the spaces between the carrier elements. The feed zone of the machine tapers toward the needling zone between the belt and the foil, and the foil is prevented by an adjustable gate member from yielding under the pressure of the batt. A backing member whose contact face has two angularly offset portions is arranged behind the belt and may be shifted in the direction of batt movement through the needling zone.

3,829,940

SHELL WITH SPHERICAL-SHAPED PROJECTILES, METHOD FOR THE FABRICATION THEREOF, AND APPARATUS FOR THE PERFORMANCE

Pierre Fischer, Geneva, Switzerland, assignor to Werkzevmaschinenfabrik Oerlikon-Buhrle AG, Zurich, Switzerland

Filed June 29, 1972, Ser. No. 267,528

Claims priority, application Switzerland, July 8, 1971, 10021/71

Int. Cl. B21k 21/06

U.S. Cl. 29-1.21

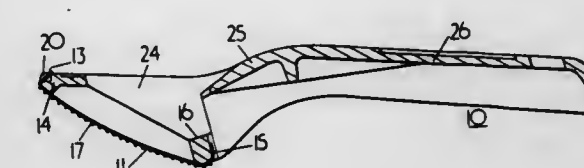
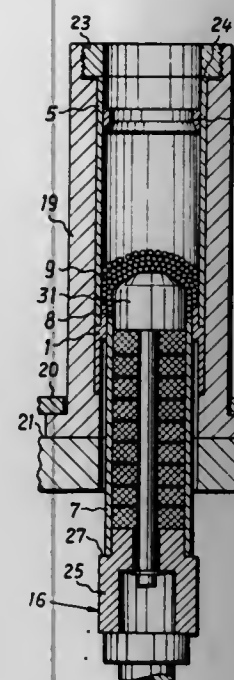
3 Claims

Shell with spherical-shaped projectiles, embodying a thin-walled cylindrical sleeve and a cylindrical explosive charge container arranged coaxially therein, and between which there are arranged equal size projectiles. The projectiles bear both against the sleeve as well as also against the explosive charge container. Radial extending bulging portions of the explosive charge container penetrate between the projectiles and by means of which the projectiles are secured against any type of displacement.

The method for producing such shell contemplates generating internally of the explosive charge container a pressure, by means of which there are formed the bulging portions which penetrate between the projectiles and which secure the projectiles against displacement.

The apparatus for carrying out the method embodies a tool for the explosive charge container and a holder for receiving

head of the handle has grooves for the hooked ends of the blade, to provide lateral location, and parts which the hooked blade ends hook around to clip the blade to the handle. The



blade has to be less curved than it naturally is to clip itself to the handle, this stressing of the blade contributing to security of attachment of the blade to the handle.

3,829,943

THREADING TOOL

Joseph G. Bartoszevicz; George H. Murphy, Jr., and Frederick W. Schmidt, all of Plantsville, Conn., assignors to Fansteel Inc., North Chicago, Ill.

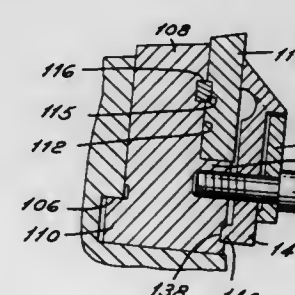
Division of Ser. No. 116,912, Feb. 19, 1971, Pat. No.

3,780,409. This application Dec. 21, 1973, Ser. No. 427,139

Int. Cl. B26d 1/12

U.S. Cl. 29-97

6 Claims



A threading tool for providing a simultaneous cut in a plurality of adjacent grooves of a thread to enable a progressive cut to be taken with the light cut in each groove permitting a full thread depth to be cut with one pass along a turning cylindrical workpiece. The invention includes a means for presenting an array of cutting inserts at the proper angle to provide for the proper cut, at the same time setting up a proper plunge clearance for the cutting teeth with an independent pressure locator on each tooth in the form of an interdigital clamp designed to exclude the collection of chips and dust.

3,829,944

ROTOR FOR ROTARY COMBUSTION ENGINE AND METHOD OF MAKING THE SAME

Gottlieb Wilmers, Neckarsulm, Germany, assignor to Rudi Nsu Auto Union Aktiengesellschaft, Neckarsulm and Wankel G.m.b.H., Bodensee, both of Germany

Filed Oct. 30, 1972, Ser. No. 302,048

Claims priority, application Germany, Nov. 16, 1971, 2156814

Int. Cl. B23p 13/00

U.S. Cl. 29-156.4 R

2 Claims

A partially fabricated ring gear of limited radial width is metallurgically attached to one side of the hub of a rotor for a rotary combustion engine, coaxial with the bore through the hub, and the gear teeth are then finish-machined to produce precise phasing of the rotor. A bearing bushing is then positioned in the hub bore from the opposite side of the rotor.

3,829,941

MACHINE FOR WINDING AN ELECTRICAL CAPACITOR

John Lapp, Franklin, and Norbert R. Weiler, Greendale, both of Wis., assignors to McGraw-Edison Company, Elgin, Ill.

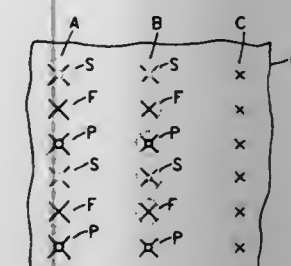
Division of Ser. No. 255,156, May 10, 1972, Pat. No.

3,746,953. This application Apr. 9, 1973, Ser. No. 349,247

Int. Cl. H01g 13/00

U.S. Cl. 29-25.42

9 Claims



A power factor correction capacitor is constructed of several capacitor packs, each having convolutely wound layers of aluminum foil and polypropylene film with two layers of polypropylene film between the layers of foil. The several capacitor packs are assembled into a case and impregnated with trichlorodiphenyl with a bis (3, 4-epoxy-6-methyl-cyclohexylmethyl) adipate as an additive. During the winding process the foil is deformed by a deforming roller rolled against the roll of foil as it is wound into the capacitor pack.

3,829,942

CUTTING AND/OR ABRADING TOOL

David Bradshaw Scott, Sheffield, England, assignor to Stanley Tools Limited, Sheffield, England

Filed Apr. 11, 1973, Ser. No. 350,083

Int. Cl. B23d 71/00

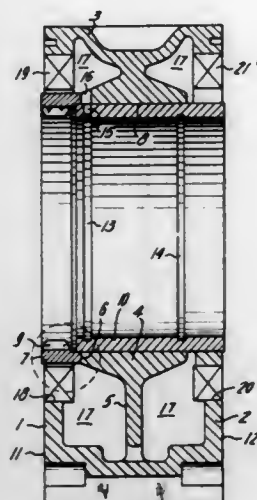
U.S. Cl. 29-78

4 Claims

A cutting and abrading tool or "shaver" comprises a handle and a multi-apertured and multi-toothed blade. The blade has a pronounced natural curvature and narrow hooked ends. The

Protrusions of the gear and the bushing on opposite sides of the rotor provide running surfaces for the axial guidance of

from the supply roll and creased to produce brick-separating liners. Such liners are then conducted through a transfer sta-



the rotor. Rotor weight is diminished and interior accessibility improved.

3,829,945

METHOD OF PRODUCING A HEAT EXCHANGER

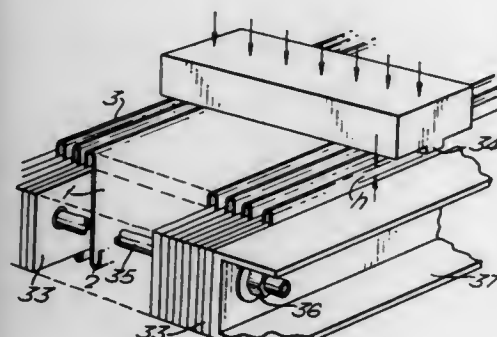
Hans Joachim Kanzler, Viernheim, and Hans Aupor, Mannheim, both of Germany, assignors to Motoren-Werke Mannheim AG Vorn, Benz ABT. Stationärer Motorenbau, Mannheim, Germany

Filed July 11, 1973, Ser. No. 378,328

Int. Cl. B21d 53/02; B23p 15/26

U.S. Cl. 29—157.3 D

1 Claim



A heat exchanger includes a rectangular housing consisting of four lateral walls and closely receiving a heat-transfer corrugated sheet. Two heat-exchange gases flow at the respective opposite surfaces of the sheet in the furrows defined by the sheet and are supplied to and discharged from the furrows via apertures through two opposite walls of the housing. Plate-form sealing elements of refractory material are caused to press firmly against respective opposite corrugated edges of the sheet by plate-like end members closing the ends of the housing and a spring disposed between one end member and the nearer sealing element.

3,829,946

PAPER FEED MECHANISM FOR BRICK STACKING MACHINES

Stanley R. Norbutas, Glenview, and John R. Diemart, Wheeling, both of Ill., assignors to Signode Corporation, Glenview, Ill.

Filed July 26, 1972, Ser. No. 275,225

Int. Cl. B23p 19/00; B23q 7/10

U.S. Cl. 29—200 A

9 Claims

A cyclicly operable paper feed mechanism by means of which fixed lengths of paper sheet stock material are successively withdrawn from a supply roll at a paper feed station and fed to a liner forming station where the lengths are severed

tion to a stacking station where they are inverted and deposited on successive rows of bricks undergoing stacking.

3,829,947

MEANS FOR OPENING THE COVER OF A CASSETTE

Takeshi Nakamura; Yasuhiko Satoyoshi, and Noboru Shimoda, all of Minami Ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

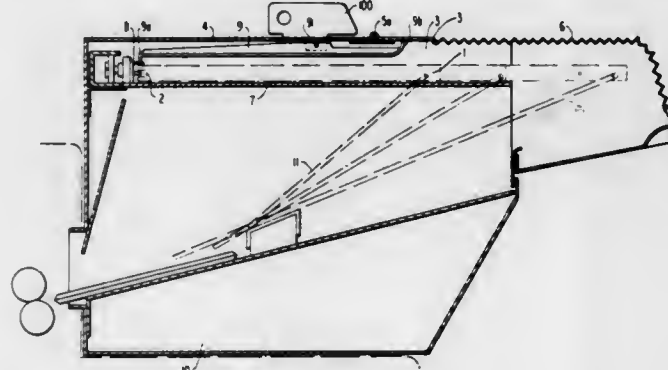
Filed June 25, 1973, Ser. No. 373,338

Claims priority, application Japan, June 23, 1972, 47-63053

Int. Cl. B23p 19/04

U.S. Cl. 29—200 D

5 Claims



This invention relates to means for opening the cover of a film cassette when it is inserted into, for example, a film loading device attached to an automatic film processor. The film loading device is provided with a light shielding cover to protect the cassette from ambient light. The light shielding cover is movable from a closed position to an open position. In the open position, the cassette is inserted into the film loading device. The cassette has, at its forward end, locking means which is unlocked when the cassette is fully pushed into the film loading device. A control member is pivotally mounted between the light shielding cover and the means in the film loading device which unlocks the cassette cover. When the light shielding cover is in the opened position to receive the cassette, the projection means prevents the engagement of the cassette cover unlocking means with the cassette cover locking device. When the light shielding cover is closed, the projection means is disengaged so that the cassette cover can be unlocked. Thus, the cassette can be opened only after the light shielding cover is closed.

3,829,948

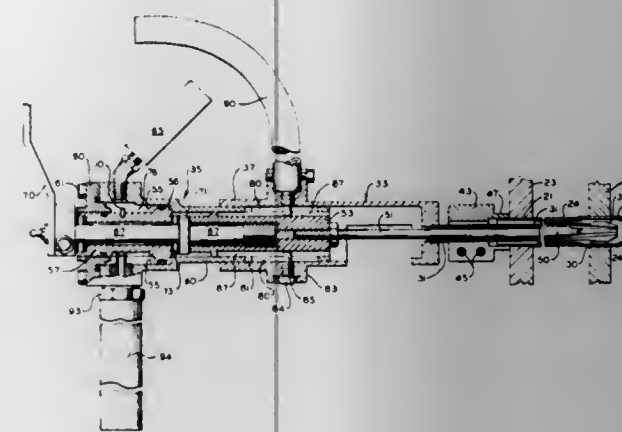
APPARATUS FOR EXPANDING HEAT EXCHANGER TUBES IN TUBE SUPPORT SHEETS

Charles D. Miller, Manlius, and Edson H. Byrns, Fayetteville, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Mar. 22, 1973, Ser. No. 344,018

Int. Cl. B23p 15/26

U.S. Cl. 29—202 D



A circular series of expandable collet sections is fixed to the inner end of a collet tube positioned in the heat exchanger tube, the collet sections in registration with the tube support sheet. The outer end of the collet tube is fixed to a housing portion connected to a cylinder structure. A rod extends through the tube and has fixed to its outer end a tapered mandrel arranged in juxtaposition to the collet sections. A shaft is journaled in the cylinder structure and is connected to the outer end of the mandrel rod by motion transmitting means operable upon rotation of the shaft to move the rod and the mandrel inwardly to effect expansion of the collet sections in engagement with the heat exchanger tube for expansion of the same in the tube support sheet. The force exerted by the shaft on the mandrel rod is applied directly to a piston arranged in a closed prepressurized air-free hydraulic system. The hydraulic system is further pressurized by movement of the piston, effecting operation of a pressure indicating gauge in the system. Accordingly, the operator can readily expand all tubes in the heat exchanger to precisely the same extent.

3,829,949

PIN FORMING AND INSERTING MACHINE

Davis Spencer, c/o Eyelet Tool Co.; Roger St., Weston, Mass.

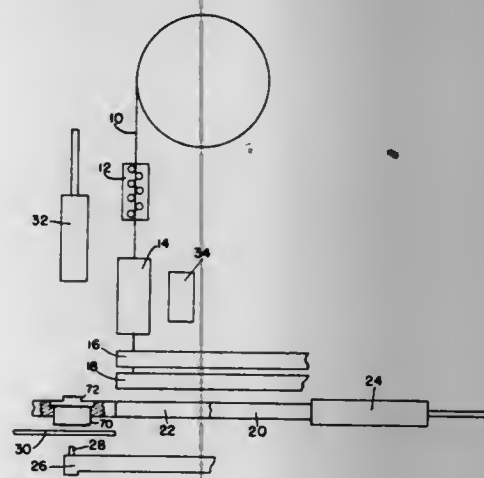
02142

Filed Feb. 20, 1973, Ser. No. 333,773

Int. Cl. H01r 19/04

U.S. Cl. 29—203 B

12 Claims



Terminal pins are formed one after another from a wire source (coil) by step-by-step hitch feeding, clamping, and

pulling the wire apart to sever pins having tapered ends. A pin so formed is then positioned over a supporting die, the workpiece is placed between the pin and the die, and a plunger ejects the pin and forces it into the workpiece.

3,829,950
DEICER

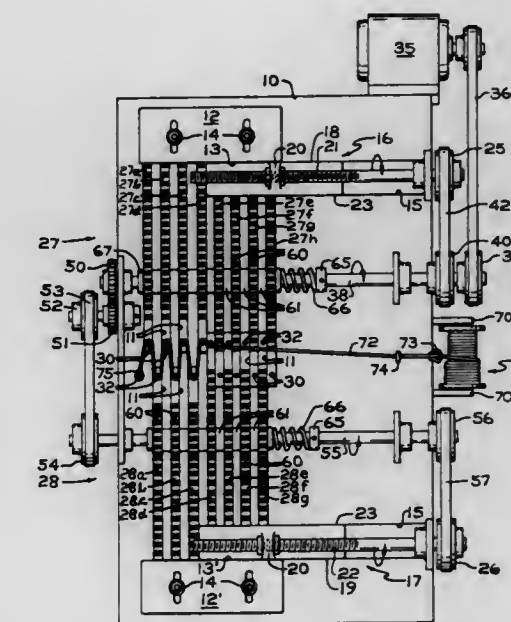
Mathew Kuts, Akron, Ohio, assignor to The B.F. Goodrich Company, New York, N.Y.

Filed Apr. 4, 1973, Ser. No. 347,832

Int. Cl. H05k 13/06

U.S. Cl. 29—203 D

11 Claims



An apparatus for the fabricating of deicers wherein a plurality of alternating slides are selectively moved by cams so that a wire extending longitudinally therethrough is wound back and forth in an alternating pattern as the slides move off the cams. Slip clutches are employed to move the respective slides in sequential order.

3,829,951
WIRE STRIPPER

Kazuo Nagayama, Yokohama, Japan, assignor to Seiken Kogyo Kabushiki-Kaisha, Kawasaki, Japan

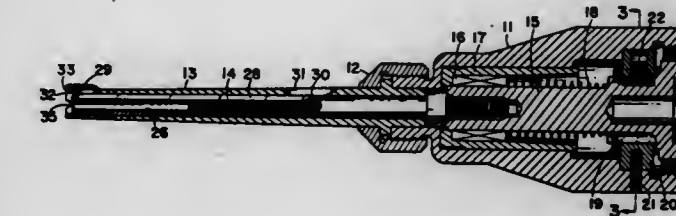
Filed Aug. 2, 1973, Ser. No. 385,574

Claims priority, application Japan, Nov. 13, 1972, 47-112946

Int. Cl. H01r 43/04

U.S. Cl. 29—203 DT

3 Claims



A device for stripping a covered wire and wrapping the uncovered wire on a terminal. The device includes a spindle rotatably mounted in a sleeve which is adapted to attach at an end thereof to a suitable power tool. The spindle is driven by the output shaft of the power tool and has a bore for receiving the terminal and an axially extending groove for receiving an end portion of the covered wire. The spindle also has a knife edge at the open end of the groove. When the spindle is driven to rotate about the terminal, the wire is stripped of its cover and is wound on the terminal.

3,829,952

APPARATUS FOR FORMING A CYLINDER AND INSERTING IT INTO A BATTERY CAN

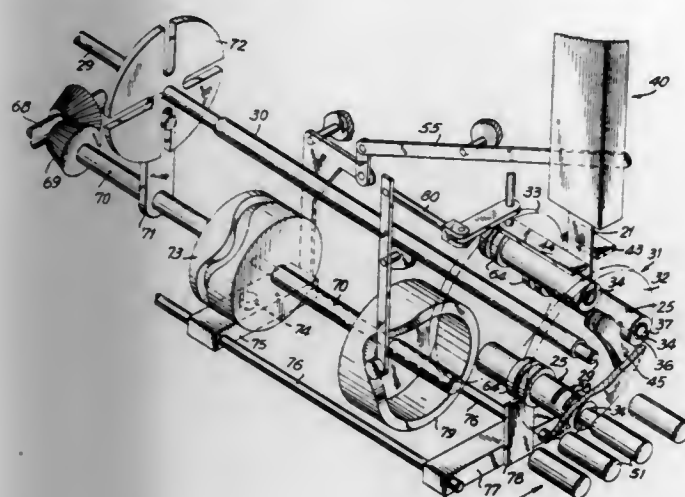
Donald R. Trask, Bay Village, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Division of Ser. No. 164,557, July 21, 1971. This application Mar. 7, 1973, Ser. No. 338,852

Int. Cl. H01m 1/02; B31c 1/100

U.S. Cl. 29-204

10 Claims



An apparatus for forming a cylinder is disclosed. It is useful, for example, for forming cylindrical battery can separator liners from a continuous strip of paper liner stock. The apparatus includes a forming tube having a receiving chamber that is defined by the inner surface of an outer tubular member and the outer surface of a central cylindrical member. The apparatus also includes means for sequentially positioning said forming tube at receiving and eject stations, and means for feeding the leading edge of a predetermined length of liner into said receiving chamber through a longitudinal slot in said outer tubular member. The outer tubular member has at least one transverse opening that is constructed to permit the extension therethrough of a friction element to engage the liner in the receiving chamber as said forming tube is moved from said receiving station toward the eject station to thereby wind the liner up into cylindrical configuration by catching the liner between the friction element and the central cylindrical member. After the liner has been wound up into a cylinder, ejection means ejects the liner from the forming tube, for instance, into a battery can.

3,829,953

APPARATUS AND METHOD FOR FORMING INSULATORS AND APPARATUS AND METHOD FOR INSERTING COIL TURN PORTIONS OR INSULATORS INTO THE SLOTS OF A MAGNETIC CORE

Richard E. Lauer, and Louis W. Pieper, both of Fort Wayne, Ind., assignors to General Electric Company, Fort Wayne, Ind.

Continuation-in-part of Ser. No. 126,077, March 19, 1971, abandoned. This application July 31, 1972, Ser. No. 276,789

Int. Cl. H02k 15/00; H01f 7/06

U.S. Cl. 29-205 E

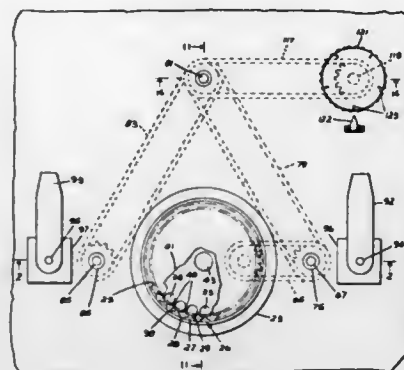
21 Claims

Apparatus inserts side portions of coils and insulators into selected slots of core having given stack height within predetermined range of stack heights. Connector and stop device have selectively variable effective length selected to conform relative travel of parts to given stack height. Effective length of hold-down device position determining mechanism is selectable.

Assembly for forming insulators of a selected length includes feed stop device, having a selectively variable effective length to permit conforming of advanced lengths of insulative material to the given core stack height.

Disclosed are methods of inserting winding portions into slots of a core of a given axial height within a preselected

range of axial heights includes selectively setting the length of an increment of relative travel of apparatus parts and a given core; concurrently setting a first position of core securement means; placing portions of at least one coil and then a core in desired relationships relative to coil turn feeder members; moving the core securement means to the first position



thereof; and effecting the increment of relative travel of the apparatus parts and core. Also disclosed are methods of forming shaped insulators that include advancing a mechanism and strip of insulative material an amount conforming to a selected length; disengaging the material, and continuing to advance the mechanism without advancing the strip of material.

3,829,954

AUTOMATIC CLIP DISPENSER

Noboru Takamizawa, and Teizo Miura, both of Tokyo, Japan, assignors to Adac Company Limited, Tokyo, Japan

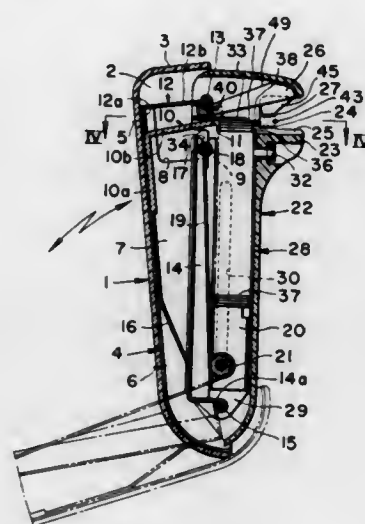
Filed Feb. 28, 1973, Ser. No. 336,790

Claims priority, application Japan, Apr. 17, 1972, 47-38446; June 14, 1972, 47-69386; Oct. 17, 1972, 47-119260

Int. Cl. B23q 7/10

U.S. Cl. 29-212 P

8 Claims



An automatic clip dispenser wherein clips are automatically sent one by one to materials to be clipped, such as papers or the like, from the dispenser and thereby is capable of positively clipping the materials at the desired position.

3,829,955

ONE PIECE FREE STANDING TERMINAL

Vincent James Palecek, Cicero, Ill., assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Division of Ser. No. 223,472, Feb. 4, 1972, Pat. No. 3,768,068. This application Feb. 23, 1973, Ser. No. 335,230

Int. Cl. B23p 7/00

U.S. Cl. 29-401

3 Claims

The invention relates to a one-piece free standing terminal adapted for use with a circuit board having a terminal receiving opening formed therein. The terminal consists of a contact portion having a single pair of bows bent to form a lead recep-

ing funnel terminating in a contact throat, a seating flange, a resilient neck connecting the contact portion to the seating flange, a terminal retention area and a tail extending from the terminal retention area and adapted to have a conductor connected thereto. The terminal retention area is shaped to coast with the terminal receiving opening in the board to frictionally retain the terminal in the board. In order to permit the ter-

Each of the rings may be independently rotated about the axis of the support to position its gap in accordance with predetermined information to be stored.

3,829,957

METHOD OF ASSEMBLING A SELF-FASTENING NUT AND A PANEL

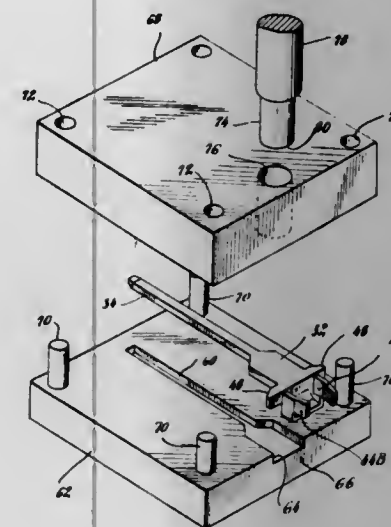
Thomas M. Pouch, Farmington, and Harold A. Ladouceur, Livonia, both of Mich., assignors to Multifastener Corporation, Detroit, Mich.

Filed Oct. 30, 1972, Ser. No. 302,312

Int. Cl. B23p 9/00

U.S. Cl. 29-445

12 Claims



terminal to be withdrawn and reinserted in the board the terminal retention area may have a non-symmetric cross-section or a fixture may be provided to permit at least one dimension of the terminal retention area to be expanded in the field. The terminal may be constructed from two like blanks bent into an overlaying relationship with each other or it may be formed from dual thickness material.

The disclosed self-fastening nut includes a rectangular flat end face which is received against the panel, a smooth cylindrical central bore perpendicular to the end face and a pair of linear grooves equally spaced from the bore and dividing the end face into a central pilot and a pair of flanges. The nut is assembled on a cylindrical punch which extends through the nut bore, beyond the end face and punches a hole in the panel in registry with the nut bore. The panel is supported on a die having two upstanding clinching lips which deform the panel into the nut grooves and the panel is simultaneously urged against the nut to lie flat against the end face.

The panel opening and nut bore are then tapped by a self-tapping bolt, or the like, which is inserted through the panel opening and forms a continuous female thread in the panel metal edge defining the panel opening and the cylindrical wall of the nut bore. In a disclosed embodiment, the die also includes a pair of spanning lips, perpendicular to the clinching lips, which deform the panel on opposite sides of the nut to provide increased torque resistance during threading and increased resistance to shear or sliding.

3,829,956

METHOD OF MAKING MECHANICAL INFORMATION STORAGE DEVICE

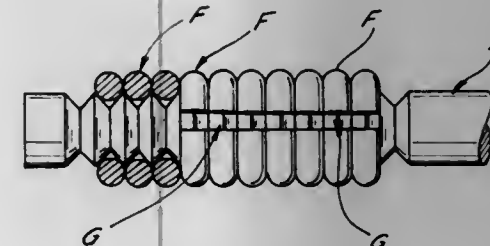
Carroll R. Miner, Wilbraham, Mass., assignor to General Instrument Corporation, Newark, N.J.

Filed Apr. 30, 1973, Ser. No. 355,977

Int. Cl. B23p 17/00

U.S. Cl. 29-412

9 Claims



A mechanical information storage device manufactured by winding a wire under tension to form a spiral. During the winding operation the wire is twisted sufficiently and in such direction as to create an internal stress therein such that after the spiral is cut to sever each turn thereof from the adjacent turns, the ends of each turn of the spiral tend to align in order to form a plurality of substantially planar rings. Each of the rings is then placed in a different one of a plurality of substantially planar circumferential grooves on a cylindrical support. The circumference of the grooves in the support is related to the size of the rings such that a gap is present between the ends of each of the rings when the rings are situated in the grooves.

3,829,958

METHOD OF MAKING GEAR SHIFT LEVER

Maurice Roseby, Ann Arbor, Mich., assignor to Tamco Limited, Ontario, Canada

Division of Ser. No. 182,632, Sept. 22, 1971, Pat. No. 3,760,651, which is a continuation-in-part of Ser. No. 877,790, Nov. 18, 1960, abandoned. This application May 11, 1973, Ser. No. 359,359

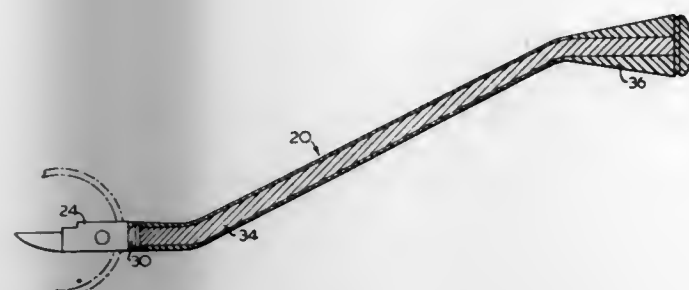
Int. Cl. B23p 3/00, 19/04

U.S. Cl. 29-460

3 Claims

A gear shift lever for mounting on the steering column of an automobile which will bend under a severe impact while having adequate strength for all normal operations. The lever is made by using a length of round steel bar stock to provide a round stem and subsequently inertia welding it to an enlarged end portion which is square in cross-section. The end portion is then machined as is necessary to provide a conventional shape for mounting in the steering column. Thereafter, a plastic sheath of organic plastic material is injection molded

onto the stem and over the weld joint to provide a sheath with an enlarged head on the remote end of the stem. The sheath



diminishes in wall thickness from the enlarged end position to the remote end of the stem.

3,829,959

METHOD FOR PRODUCING TUBULAR BODIES FROM TWO SHELLS

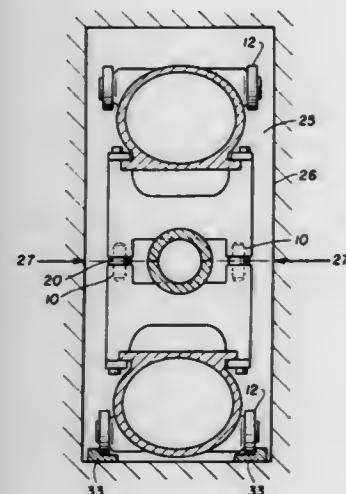
Otto Oeckl, P.O. Box 50 06 20, Munich 50, Germany (8000)
Filed May 14, 1973, Ser. No. 359,688

Claims priority, application Germany, May 20, 1972, 2224722

Int. Cl. B23k 31/02

U.S. Cl. 29—471.1

5 Claims



The present method secures two shell members to respective holding means so that welding edges of the shells are exposed for a milling operation, preferably a simultaneous milling operation. The holding means are then placed back to back and secured against displacement relative to each other so that the milled welding edges contact each other precisely whereupon the edges are welded to each other by means of electron beams. The present apparatus is constructed for accomplishing said back to back locating of two holding means while simultaneously preventing the displacement of the shell members as well as the displacement of the holding means relative to each other. For this purpose, the present apparatus is provided with a base preferably formed as a carriage and with holding means for holding the shell member along its length to the base as well as with claws for clamping the ends of the shell member to the base.

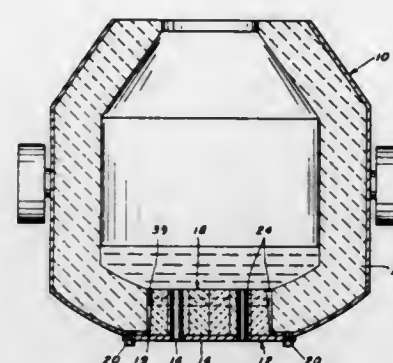
3,829,960 METHOD OF MAKING A REMOVABLE BOTTOM FOR A STEELMAKING FURNACE FROM PREFORMED REFRACTORY SHAPES

David H. Hubble, and John A. Lamont, both of Westmoreland, Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Division of Ser. No. 256,689, May 25, 1972, Pat. No. 3,799,526. This application June 22, 1973, Ser. No. 372,733
Int. Cl. B23p 17/04

U.S. Cl. 29—527.1

8 Claims



A method of making a removable bottom for a steelmaking furnace from preformed basic refractory shapes, said bottom having tuyeres for injecting gas or other material into a bottom blown steelmaking vessel and the product of the method.

3,829,961

METHOD OF IMPROVING THE RADIATION RESISTANCE OF SILICON TRANSISTORS WITH A SILICON OXIDE COATING

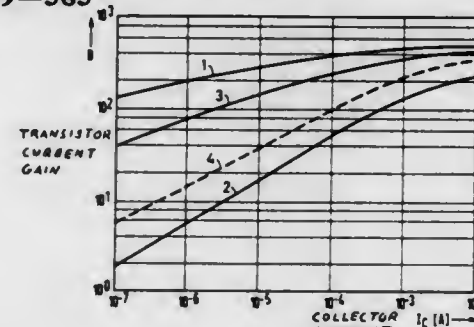
Rudolf Bauerlein, and Dieter Uhl, both of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany
Filed July 14, 1971, Ser. No. 162,439

Claims priority, application Germany, July 18, 1970, 2035703

Int. Cl. B01j 17/00

U.S. Cl. 29—585

4 Claims



The radiation resistance of silicon transistors with a silicon oxide coating is improved by irradiating the semiconductor device with electrons at an energy below 150 keV and a dose between 10^9 and 10^{12} rad at the boundary layer between the silicon and silicon oxide coating. The temperature of the semiconductor device is maintained at a temperature of between 150° and 450°C during irradiation thereof.

3,829,962

ACTIVE TRIMMING OF FILM DEPOSITED OSCILLATORS

Joseph J. Simonelic, Hinsdale, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 4, 1972, Ser. No. 312,016

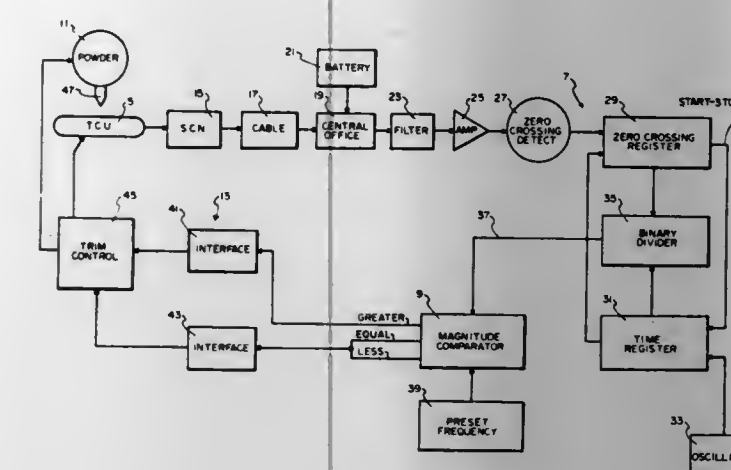
Int. Cl. G01r 29/02

U.S. Cl. 29—593

4 Claims

A system for calibrating oscillators by trimming film resistors includes a network for energizing a film oscillator

under simulated operating conditions, with a digital counter measuring the frequency of the active oscillator by counting with a zero axis register the number of times the oscillator signal waveform crosses the zero axis of a zero axis detector and thereafter converting to frequency by dividing the result-



ing count by the count of a simultaneously triggered time register, comparing this measured frequency to a predetermined frequency to be achieved, and physically modifying the film resistor in response to the frequency comparison to correct the frequency of the film oscillator.

3,829,963

METHOD OF FABRICATING A COMPOSITE SUPERCONDUCTOR INCLUDING A SUPERCONDUCTIVE INTERMETALLIC COMPOUND

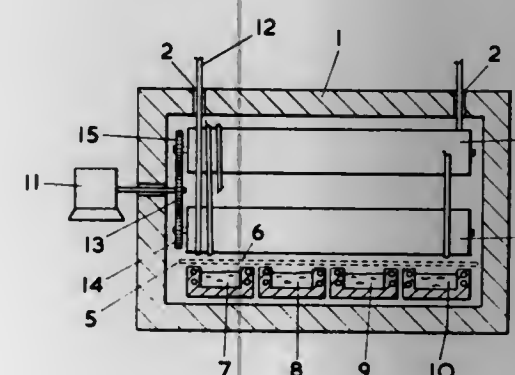
Ian Leitch McDougall, Aldridge, and Anthony Clifford Barber, Lichfield, both of England, assignors to Imperial Metal Industries (Kynoch) Limited, Birmingham, England
Filed Jan. 24, 1972, Ser. No. 220,057

Claims priority, application Great Britain, Feb. 4, 1971, 3936/71

Int. Cl. H01v 11/14

U.S. Cl. 29—599

14 Claims



A method of manufacturing a superconductor comprising a superconductive intermetallic compound of at least two elements, includes the steps of producing a composite precursor comprising at least one filament which comprises one of said elements and is embedded in and supported by a matrix material, converting at least part of the matrix material to a substance comprising the remainder of said elements, and reacting together said elements to produce said compound.

3,829,964

MULTI-FILAMENT COMPOSITE SUPERCONDUCTOR WITH TRANSPOSITION OF FILAMENTS AND METHOD OF MAKING SAME

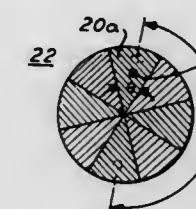
Philip R. Critchlow, St. Bruno, Quebec, Canada, and Bruce A. Zeitlin, North Plainfield, N.J., assignors to Airco, Inc., New York, N.Y.

Division of Ser. No. 286,625, Sept. 6, 1972. This application Sept. 11, 1973, Ser. No. 396,282

Int. Cl. H01v 11/14

U.S. Cl. 29—599

7 Claims



A multi-filament superconducting composite composed of a plurality of segments that is intrinsically stable. The individual segments are multi-filament composites that have been twisted after assembly and mechanical working and thereafter subsequently deformed. The deformed segments can be triangular or rectangular and are assembled into a second composite. After assembly the second composite is once again twisted. This second twisting transposes the filaments within the segments, thereby producing a superconductor that is resistant to flux jumps induced by self-field losses.

3,829,965

METHOD AND MACHINE FOR FORMING SELF LOCKING CORES

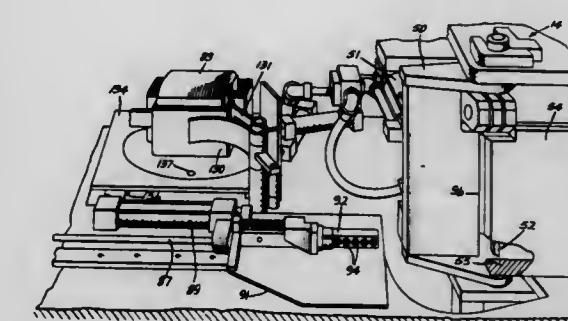
Robert D. Mees; Armin F. Mittermaier, both of Fort Wayne, and Albert F. Wilcox, Yoder, all of Ind., assignors to General Electric Company, Indianapolis, Ind.

Filed July 13, 1973, Ser. No. 378,999

Int. Cl. H01f 7/06

U.S. Cl. 29—606

11 Claims



A machine for forming a core of laminations from a strip of material includes a forming section for forming the strip into a generally rectangular configuration and severing the formed section from the strip. A first gripper advances the strip to the forming station for formation of a first pair of sides of the lamination and a second gripper advances the strip to the forming station for formation of a second pair of sides of the lamination. A first stop interrupts the strip advancing motion of the first gripper and a second stop interrupts the strip advancing motion of the second gripper. An auxiliary stop cooperates with the first gripper for providing strip advancing motion of the first gripper less than that allowed by the first stop so that one of the first pair of lamination sides is provided with two discontinuous portions. An extractor removes a formed lamination from the forming station and a separator opens the formed lamination at its discontinuity. An inserter thereafter inserts the formed lamination about a preformed coil of electrical conductor and recloser engages the lamination to reclose it after the insertion.

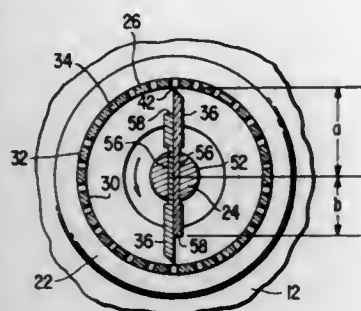
3,829,966

A ROTARY SHAVER WITH SLIDABLY MOUNTED BLADES

Neal Owens, 2100 St. Charles Ave., New Orleans, La. 70140
Filed Sept. 5, 1972, Ser. No. 286,279
Int. Cl. B26b 19/16

U.S. Cl. 30—43.6

6 Claims



A cutting blade which can be slidably mounted in a slot in the motor-driven shaft of an electric shaver. The cutting blade is weighted a precise amount to thereby control the magnitude of the pressure with which the cutting edge of the blade engages the comb of the razor.

3,829,967

FOLDING BLADE POCKET KNIVES

Richard Gilbert, Sheffield, England, assignor to Stanley Tools Limited, Sheffield, England

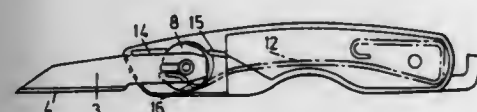
Filed Nov. 29, 1972, Ser. No. 310,365

Claims priority, application Great Britain, Dec. 9, 1971, 57297/71

Int. Cl. B26b 1/04

U.S. Cl. 30—157

7 Claims



Two models of folding blade pocket knife both have a blade which is replaceable by opening the two halves of the handle, the blade being mounted on and interlocked with a rotatable disc for rotation as one unit. In both models, there is a storage for a spare blade.

In one model, the handle parts have interlocking rear ends and are completely separable; the disc has a part annular peripheral spring tongue with an out-turned end engageable in a recess when the blade is extended, and there is a cantilever spring acting on the blade.

In the other model, the handle parts are pivoted on an axis parallel to the folding axis of the blade; a spring-biased sliding latch member wedges the blade when the blade is extended and the latch member has to be pulled back to unwedge the blade.

3,829,968

PRUNING TOOL

Emillen V. Houliere, 9025 St. Croix Trl. Rt. 4, Denmark Township, Washington County, Minn. 55033
Filed July 13, 1973, Ser. No. 378,923

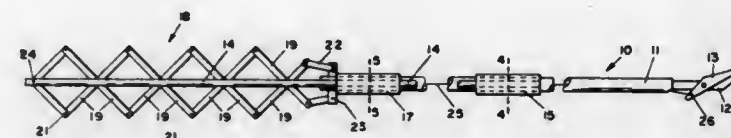
Int. Cl. B26b 17/02

U.S. Cl. 30—190

5 Claims

A pump action pruning tool is formed with a long tube having cutting jaws carried at its upper end which are adapted to be operated by a member shorter than the tube and slidably mounted on the tube for manual reciprocation thereon. A lazy

tong structure comprising a series of crossed pivotally connected pairs of levers is connected between the respective lower ends of the tube and member. Positioned within the tube is a rod having its upper end connected to a movable jaw and its lower end connected to the lazy tong structure at a



point which is close to the lower end of the tube whereby a relatively large downward movement of the member will produce a much shorter movement of the rod under increased force to effect cutting action. Movement of the member in the opposite direction will cause the jaws to open.

3,829,969

CUTTING TOOL WITH ALLOY COATED SHARPENED EDGE

Irwin W. Fischbein, Canton; Ben H. Alexander, Brookline, and Alyaswami S. Sastri, Malden, all of Mass., assignors to The Gillette Company, Boston, Mass.

Continuation-in-part of Ser. No. 47,664, June 19, 1970, abandoned, which is a continuation-in-part of Ser. No. 865,634, Oct. 13, 1969, abandoned, which is a continuation-in-part of Ser. No. 845,142, July 28, 1969, Pat. No. 3,682,795.

This application Nov. 5, 1970, Ser. No. 87,170

Int. Cl. B26b 21/54

U.S. Cl. 30—346.54

28 Claims

A protective layer of an alloy of platinum and chromium is formed on a substrate by sputtering, this metal alloy providing a hard, corrosion resistant, protective layer for the substrate.

3,829,970

COMPRESSION SPRING TENSIONER FOR THE BLADE OF PORTABLE ELECTRIC BAND SAW

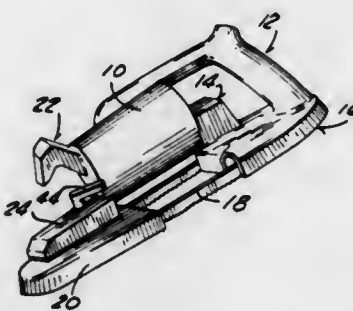
Martin P. Anderson, Milwaukee, Wis., assignor to Milwaukee Electric Tool Corporation, Brookfield, Wis.

Filed Sept. 20, 1973, Ser. No. 399,264

Int. Cl. B27b 13/08; B26b 25/00

U.S. Cl. 30—380

3 Claims



A compression spring tensioner for the blade of a portable electric band saw has a rotatable blade release lever which upon rotation causes a release shaft with an eccentric crank pin bearing to move a blade tension bar which acting through compression spring means and a spring anchor bar causes the front pulley guard and the front idler pulley to slide. As this unit is slid forward, the blade becomes fully tight and the guard and pulley cannot move further forward. However further rotation of the blade release shaft forces the blade tension bar to compress the compression spring means to apply an accurate predetermined tension to the band saw blade. Furthermore, the eccentric crank pin bearing operates in an overcenter relationship to the blade tension bar to provide a

3,829,973

DENTAL AND SURGICAL BONDING-FILLING MATERIAL

Eiichi Masuhara; Nirou Tarumi, both of Tokyo; Nobuo Nakabayashi, Chiba-ken; Masahiro Baba, Tokyo; Shinsuke Tanaka, Matsudo, and Ei Mochida, Tokyo, all of Japan, assignors to Mochida Sanyaku Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 23, 1973, Ser. No. 354,155

Claims priority, application Japan, Apr. 28, 1972, 47-43056

Int. Cl. A61k 5/02

8 Claims

Dental and surgical bonding and filling material characterized by the fact that it comprises at least one polymerizable acrylic acid or methacrylic acid derivative, a vinyl polymer in powder form, and a hardening agent which is a product of the reaction between a trialkylboron and 0.3–0.9 mol of oxygen.

3,829,974

ELECTRICAL DENTAL MALLET

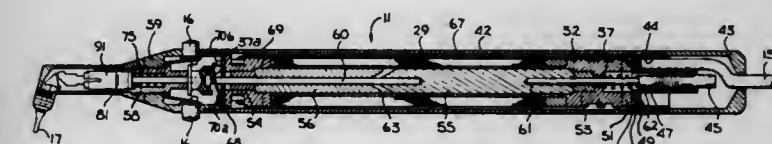
Robert C. McShirley, 6535 San Fernando Rd., Glendale, Calif. 91201

Filed Apr. 17, 1972, Ser. No. 244,487

Int. Cl. A61c 3/08

U.S. Cl. 32—53

4 Claims



A chain saw comprising a saw bar having apertures staggered on alternate sides and around the periphery of the saw bar to allow the ejection of wood particles from within the chain groove.

3,829,972

BLADE FOR ENDOSSEOUS IMPLANTS FOR SUPPORTING AND RETAINING DENTAL PROTHESES

Ugo Pasqualini, Via Borgonuovo, 26, Milan, Italy (20121); Tullio Pasqualini, Castello Tesino, Castello Tesino-Trento, Italy (38053), and Celestino Zambelli, Via Pinerolo, 66, Milan, Italy (20151)

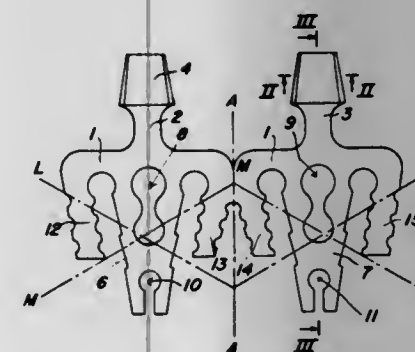
Filed Apr. 19, 1972, Ser. No. 245,345

Claims priority, application Italy, Apr. 21, 1971, 23460/71

Int. Cl. A61c 13/00

U.S. Cl. 32—10 A

6 Claims



Blade for endosseous implants for supporting dental protheses, having two pins for supporting dental protheses and six lengthened appendices, two of which being longer than the other ones, with shaped surfaces suitable to be fixed into an osseous groove for retaining the blade. The blade may be cut in order to assume a large number of different conformations which render it suitable for any implant in the jawbone or in the mandibular bone.

3,829,975

DENTAL MATRIX BAND AND CLAMP

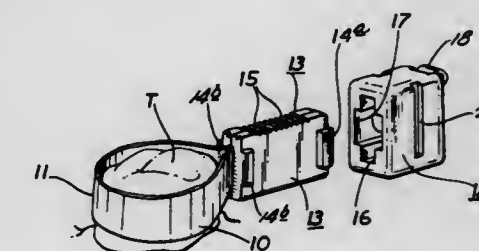
John E. Balson, Devon Professional Bldg., Devon, Pa. 19333

Filed Nov. 28, 1973, Ser. No. 419,709

Int. Cl. A61c 5/12

U.S. Cl. 32—63

10 Claims



A disposable dental matrix band and clamp assembly is provided which may be secured to a patient's tooth with a minimum of discomfort and annoyance to the patient. The clamp has a central opening extending through it which receives preformed end portions of a matrix band. Serrated edge surfaces are provided on the band end portions and an integral latch member formed as part of the clamp engages the serrated edges of the band to prevent the band from loosening about the tooth until the latch is manually disengaged from the band.

3,829,976

METERING DEVICE FOR INDICATING THE LENGTH OF FLAT FLEXIBLE MATERIAL

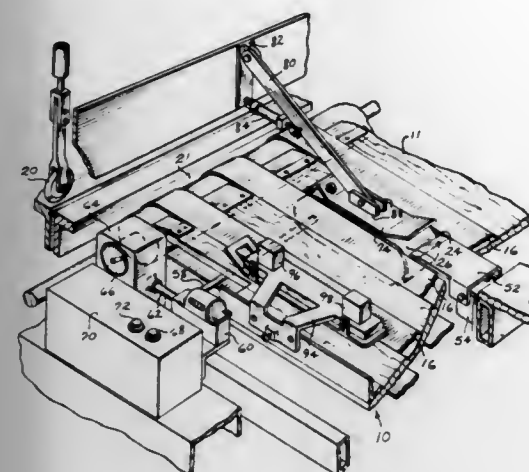
Arthur Ronald Moore, 3512 Hilly Ln., Elkhart, Ind. 46514

Filed Dec. 30, 1971, Ser. No. 213,983

Int. Cl. G01b 3/12, 5/04

U.S. Cl. 33-134 R

9 Claims



A metering device constituting a flat belt supported upon rollers. Flat flexible material is passed over the belt in frictional contact with the upper run of the belt, causing rotation of the belt. The belt is connected to an indicator or counter which is correlated to the rotation of the belt so as to indicate the length of the material passing over the belt.

3,829,977

BEARING CHECK GAGE

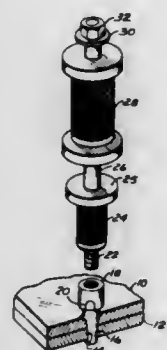
William O. Lambert, Long Beach, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed July 27, 1972, Ser. No. 275,711

Int. Cl. G01b 13/14, 13/18, 13/16

U.S. Cl. 33-174 E

3 Claims



A reverse hammer connected to a tapered bearing check pin having a dyed surface for making frictional contact of the pin with a tapered hole. Upon removal from the hole, the dyed surface of the pin provides a pattern indicating the condition of the tapered hole in the work piece.

3,829,978

WORKTABLE FOR POSITIONING WORKPIECES IN MEASURING DEVICES TO CHECK DIMENSIONS

Naum Genrikhovich Basin, ul. Borisa Galushkina, 12, kv. 90; Alexei Viktorovich Vysotsky, ul. Argunorskaya, 4, kv. 22; Anatoly Petrovich Kurochkin, ul. Kravchenko, 4 korpus 1, kv. 91, and Ura Julievna Okun, Leningradskoe Shosse 7/2, korpus 1, kv. 304, all of Moscow, U.S.S.R.

Filed Sept. 18, 1972, Ser. No. 290,143

Int. Cl. B23q 3/04; G01b 5/20

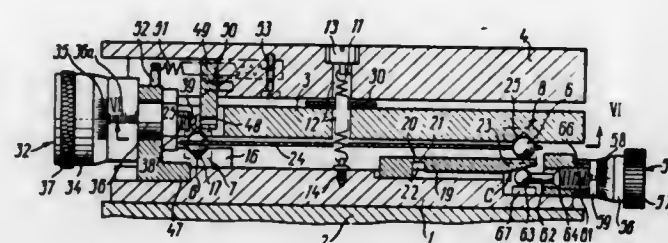
U.S. Cl. 33-174 TA

5 Claims

A worktable with means for inclining the worktable and for positioning workpieces in devices for controlling linear dimensions.

The worktable consists of three plates mounted one upon another. The upper plates are mounted on ball supports and equipped with the mechanisms for precise adjustment in the horizontal plane along two mutually perpendicular axes and for rotation in two mutually perpendicular vertical planes.

The ball supports of each plate serve as two rectilinear guides with balls confined between them, with one of the



guides of each plate having provision for adjustment in the vertical plane to rotate the upper plate about the balls of the other guide of the same plate.

This worktable is of simple design and can be used in devices for controlling the configuration and the mutual position of the surfaces of the workpieces to be controlled.

3,829,979

VALVE CLEARANCE MEASURING APPARATUS

Douglas John Stewart, 57a Wharf St., Sowerby Bridge, England

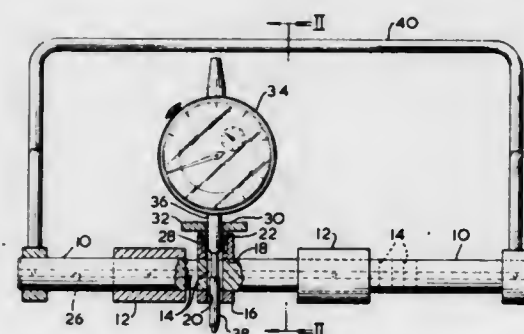
Filed June 7, 1973, Ser. No. 368,207

Claims priority, application Great Britain, June 9, 1972, 26924/72

Int. Cl. G01b 5/18, 3/52

U.S. Cl. 33-180 AT

11 Claims



Apparatus for measuring the valve clearance and thus the size of shim disc required in an overhead cam-shaft internal combustion engine prior to insertion of the cam-shaft thereon, in which an elongate cylindrical member is mounted in the cam-shaft bearings on the cylinder head of the engine. The elongate member has a diametrical hole formed therein which is aligned with one valve stem. A block having a bore in which a dial indicator is secured, is positioned on the cylindrical member with the bore aligned with the diametrical hole so that the dial indicator rod extends therethrough to contact the end face of the valve stem and the dial indicator measures the distance between said end face and a predetermined datum-line or datum surface corresponding to the heel portion of a cam on the cam-shaft.

3,829,980

SUN DIAL PLASTIC TOP OR CAP

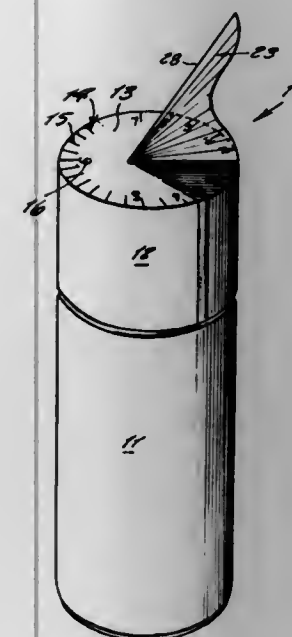
Edward Iversen, 768 57th St., Brooklyn, N.Y. 11220

Filed Aug. 9, 1972, Ser. No. 279,027

Int. Cl. G04b 49/02

U.S. Cl. 33-270

2 Claims



A spray can designed particularly for spraying sun tanning lotion or the like, and the can additionally having the feature of a sun dial on the can top, so that it may be utilized in timing the length of exposure of a person's body to the sun's rays.

3,829,981

CLINOMETER FOR DETERMINING THE ORIENTATION OF A BODY DRIVEN OR TO BE DRIVEN INTO THE EARTH

Adriaan Vlasblom, Oranjelaan, Netherlands, assignor to Stichting Waterbouwkundig Laboratorium, Delft, Netherlands

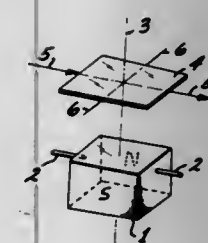
Filed Apr. 14, 1972, Ser. No. 243,967

Claims priority, application Netherlands, Apr. 29, 1971, 715964

Int. Cl. E21b 47/022; G01c 9/06, 9/16

U.S. Cl. 33-312

6 Claims



A clinometer for determining the orientation in respect of the vertical of a body driven into the earth or of a bore hole, comprising one pendulum or two pendulums with mutually perpendicular oscillation planes, each pendulum being provided with a magnet and co-operating with a Hall device generating a Hall voltage which is a function of the orientation of the pendulum in question.

3,829,982

INK CURING AND DRYING APPARATUS

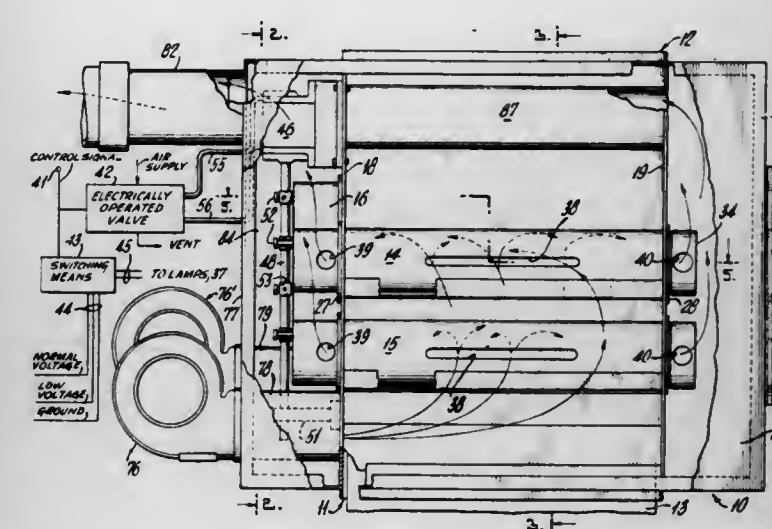
Robert W. Pray, East Northport, N.Y., and Ralph L. Foster, Darien, Conn., assignors to Thermogenics of New York Inc., Byram, Conn.

Filed June 15, 1972, Ser. No. 263,250

Int. Cl. F26b 3/30

U.S. Cl. 34-4

12 Claims



Curing and drying apparatus for printing inks which includes a housing having openings for passing a printed web therethrough and lamp assemblies each including a shell, a reflector, and an ultraviolet light lamp or radiator for focusing radiation onto said web. Blowers are coupled to said housing for feeding air about the back side of said reflectors and about the sockets for the lamps to remove excess heat and means are provided for protecting said lamps from said cooling air to prevent lowering the temperature and therefore the efficiency of the lamps. The lamp assemblies are rotatable to and from an operating position and when out of the operating position the radiation is directed into cooled radiation absorbing chambers which permit the lamps to remain energized without damaging the web should movement of the latter be temporarily stopped because of the need for stopping the associated printing press.

3,829,983

GRID PLATE

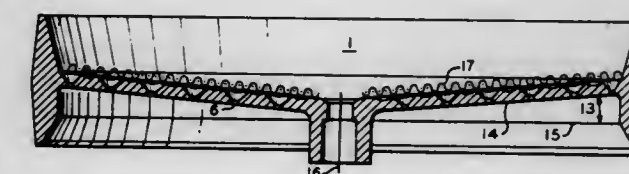
Newell J. White, Houston, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 27, 1971, Ser. No. 192,900

Int. Cl. F26b 17/14

U.S. Cl. 34-57 A

6 Claims



A grid plate having an inverted conical configuration, an axis, an axially aligned opening therethrough, a lower surface and an upper surface, there being formed in the upper surface a plurality of depressions with each of the depressions having an aperture penetrating the lower surface of the grid plate.

3,829,984

HAIR DRYER CAP

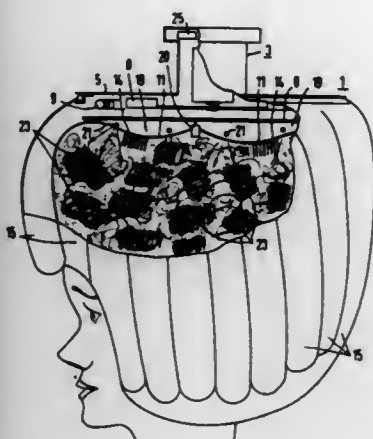
Otto Hubner, 199, Mauerkircherstrasse 199, 8 Munich 81, Germany

Filed Mar. 3, 1972, Ser. No. 231,503

Claims priority, application Germany, Mar. 30, 1971, 2115401

Int. Cl. A45d 20/24

U.S. Cl. 34—99



The new dryer cap is provided with a central head member accommodating the entire fan with its electric driving and connecting means. Suspending from the central head member and attached to it in coaxial relation is a double layer flexible manifold which is separated into individual compartments in a manner ensuring a stable and rigid form of the cap after inflation by the drying air stowed within the manifold. Thus, the central head member and the manifold can then be put on the head as a unit like a helmet.

3,829,985

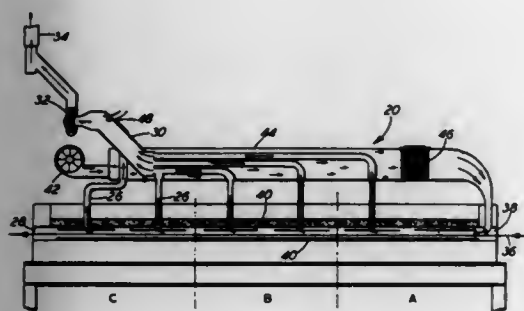
APPARATUS FOR DRYING PULP-INSULATED WIRE

Helmut E. Durr, Chatham, and Albert H. Haller, Clark, both of N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed June 23, 1972, Ser. No. 265,920

Int. Cl. F26b 13/00

U.S. Cl. 34—154



A plurality of pulp-insulated wires are continuously dried in a heated chamber of a drying oven having a system for continuously changing the drying atmosphere. Preheated air is continuously introduced to an input end of the chamber and moisture-laden gases are continuously exhausted from the chamber at positions spaced along its length. The input air is blown over ducts which carry the hot gases away from the chamber. Input air is thus preheated prior to entering the drying chamber. Use of a preheated air drying system permits an overall reduction in operating temperature of the drying chamber with a result that the pulp-insulation on the wire is provided with improved breaking strength and elongation properties.

3,829,986

FORAGE DRYER

Hendricus Cornelius Maria Ruigrok, Percival St., Clarendon, and Hendricus Maria Kuipers, Vineyard Via Riverstone, N. S. W., both of Australia, assignors to said Ruigrok, by said Kuipers

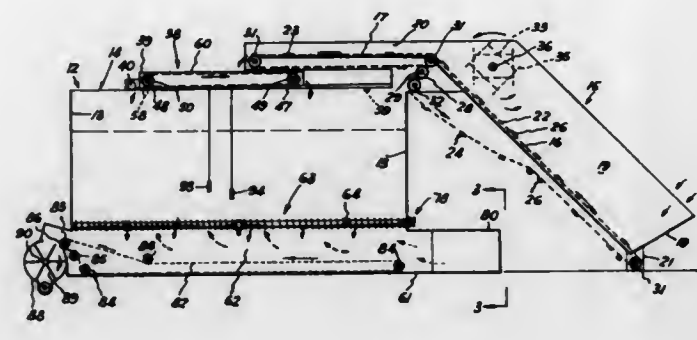
Filed Aug. 30, 1971, Ser. No. 176,216

Claims priority, application Australia, Aug. 31, 1970, 2358/70

Int. Cl. F26b 19/00

U.S. Cl. 34—216

10 Claims



The invention is a forage dryer apparatus including a drying chamber having means for feeding forage to be dried into the top of the chamber and distributing it throughout the chamber, a plenum box at the bottom of the chamber, a grille system defining the bottom of the chamber and the top of the plenum box for supporting forage when inoperative but for discharging forage into the plenum box when operative, as well as means for delivering drying gas into the plenum box for upward discharge through the grille system, and means for removing dried forage from the plenum box.

3,829,987

TEACHING MACHINE

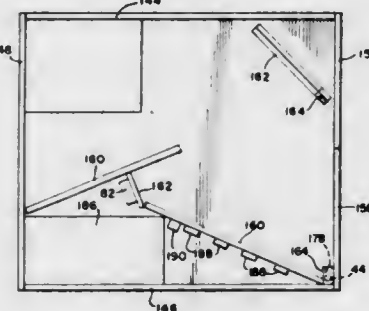
John J. Matysek, c/o Remote Controls Corporation, P.O. Box 5566, Charlottesville, Va. 22903

Filed Dec. 9, 1971, Ser. No. 206,460

Int. Cl. G09b 7/02

U.S. Cl. 35—9 A

22 Claims



Apparatus permitting the presentation of audio-visual material, including questions, to a student and capable of responding in an appropriate manner to an answer selected by the student. A video message or lesson segment is displayed to the student, and, after a preset time delay, an indication is provided that he should select an answer to a question included in the lesson segment. The student selects his answers, for example by positioning a magnetic stylus adjacent one of a plurality of magnetic reed switches. In a lesson mode of operation, if the student has selected the right answer, an appropriate indication is given and the video display advances to the next lesson segment to repeat the cycle, but if the student has selected a wrong answer, an audio message segment is provided to the

student emphasizing material from which the correct answer can be found. The student is then given another opportunity to answer the question. If he then selects the correct answer, the video display advances to the next lesson segment as before. If, however, he selects another wrong answer, no change is made, and after the preset time delay, he is instructed to select another answer. In a test mode of operation, there is no audio output, and the video display advances after every answer selected by the student. Variations on these features can be provided. A cabinet is included having a display screen onto the front of which the video display is projected so that it is visible to the student without having to pass through the screen.

3,829,988

COCKPIT ASSEMBLY FOR FLIGHT SIMULATOR

Gilbert Burny, Marcinelle, Belgium, assignor to Ateliers de Constructions Electriques de Charleroi, Charleroi, Belgium

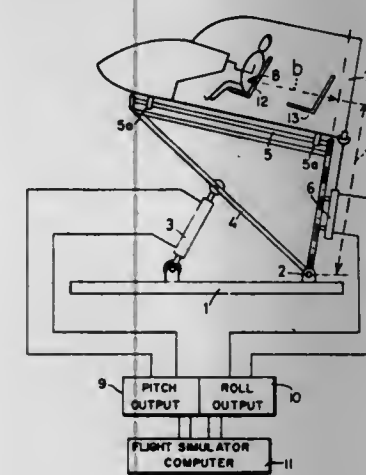
Filed May 25, 1972, Ser. No. 256,910

Claims priority, application Belgium, May 27, 1971, 767723

Int. Cl. G09b 9/08

U.S. Cl. 35—12 P

5 Claims



A simulated cockpit in a dive and pullout flight simulator having a pilot seating means supported for movements about a roll axis and a pitch axis only, the roll axis being located below the simulated cockpit and in a plane including the vertical plane of symmetry of the simulated cockpit, the pitch axis being located below the roll axis and located about one meter rearwardly and about two meters below the pilot seating means. The invention is characterized also in that the roll axis support means is in turn supported for movement with the simulated cockpit about the pitch axis during actuated movement of the cockpit during the dive and pullout flight simulation procedure.

3,829,989

EDUCATIONAL CLOCK TOY

Anthony Pecoraro, 1041 Pleasant St., Oak Park, Ill. 60302

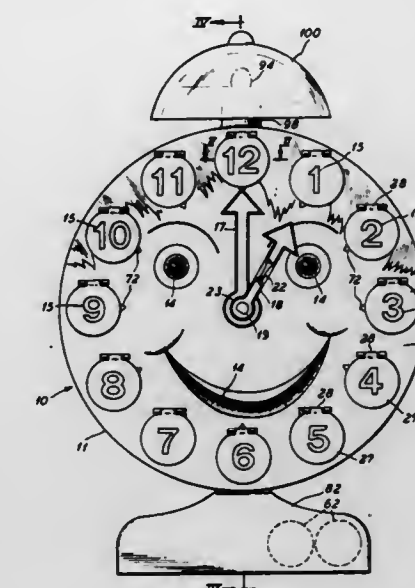
Filed Jan. 10, 1973, Ser. No. 322,367

Int. Cl. G09b 19/12

U.S. Cl. 35—39

19 Claims

An educational toy has a housing provided with a plurality of outwardly opening apertures each of which has associated therewith a prominent character. Reward means are positioned within the housing and dispensable through a predetermined one or more of the apertures, so that when selector means adapted for selectively identifying any one of the characters by orientation therewith are properly oriented with the character associated with the predetermined aperture or



apertures, means for dispensing the reward means will operate to dispense the reward. Teaching children to tell time is thus

facilitated on a simulated clock. Success annunciator means may also be provided.

3,829,990

HEIGHT EXTENDER

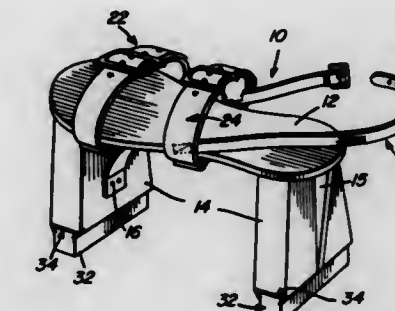
Minoru Sakamoto, 3911 Nioi Pl., Honolulu, Hawaii 96816

Filed July 20, 1973, Ser. No. 380,984

Int. Cl. A43b 3/10

U.S. Cl. 36—7.8

9 Claims



A height extender having a foot engaging member in the form of a plate provided with straps for retaining a foot thereon, and a spacing and supporting arrangement extending from the foot engaging member for spacing same a predetermined distance from a support surface. This arrangement may be a pair of spaced, parallel supports cantilever mounted on the foot engaging means. A resilient element is connected to the foot engaging member and the pair of supports to provide a cushion or yield effect for the height extender, which is essentially an article of footwear. When the supports are specially long, one or more bridge members are connected to the supports along the longitudinal extent of same as braces, with each bridge member having a resilient element associated therewith.

3,829,991

TRAIL GROOMING DEVICE

Stanley O. Cheney, West Springfield, N.H.

Filed July 5, 1972, Ser. No. 269,077

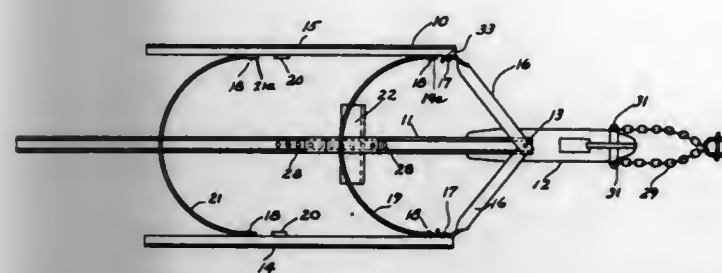
Int. Cl. E01h 5/00

U.S. Cl. 37—48

20 Claims

Snow density in snow-vehicle, toboggan, or ski trails is increased by hurling snow displaced by the left and right

quadrants of an arcuate snow shear toward each other to cause a violent collision and cause many of the snow particles to cohere. Apparatus to perform this action includes a long beam located along the axis of the groomer. Oppositely posi-



tioned side rails, held by struts extending from the beam, are joined by spring steel shears, preferably semi-circular, pivoted on each side rail. The device is effective when towed at speeds of from 3 - 25 miles an hour.

3,829,992

ALIGNMENT SYSTEM FOR THE OPERATING CONDUITS OF A GRAB

Nell George Reid, London, and Raymond Eric Stanley, Kent, both of England, assignors to Jarvis Geochemical Limited and Geochemical Services (Holdings) Limited, both of London, England

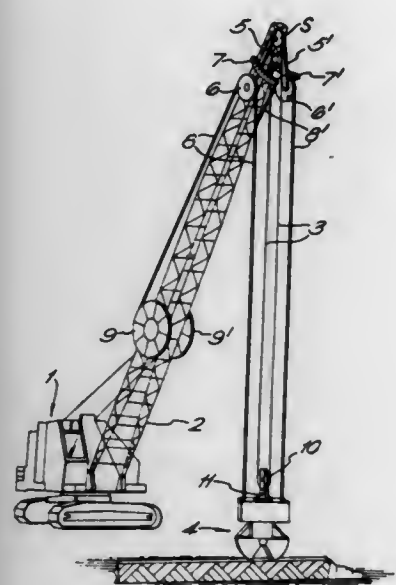
Filed Dec. 14, 1972, Ser. No. 314,932

Claims priority, application Great Britain, Dec. 22, 1971, 59631/71

Int. Cl. E02f 5/02, 9/14

U.S. Cl. 37-103

8 Claims



A crane assembly, especially for excavating, comprises a support structure from which a working device, especially a hydraulic grab, is suspended by a main cable. Operating conduits for the working device pass over sheaves mounted on the support structure adjacent the main cable. By horizontal adjustment of the sheaves the main cable and conduits are kept coplanar over a range of orientations of the grab, thereby controlling the orientation of the grab and facilitating lowering of the grab into a narrow trench without fouling of the conduits. In a preferred embodiment two sheaves are each mounted on an arm pivotally mounted on the jib of a crane adjacent the main cable and adjustment of the sheaves is achieved by swinging the arms into the appropriate position.

3,829,993

SPRAY IRON

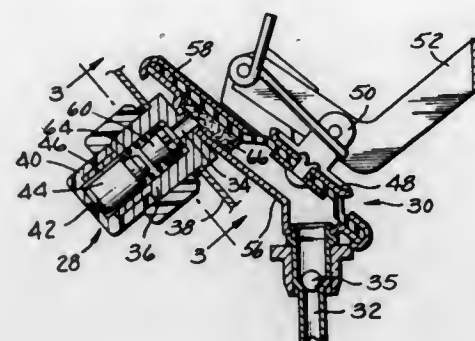
Harold W. Gowdy, and Arthur C. Downing, both of Ontario, Calif., assignors to General Electric Company, Bridgeport, Conn.

Filed May 7, 1973, Ser. No. 358,064

Int. Cl. D06f 75/06

U.S. Cl. 38-77.5

4 Claims



A manual spray iron that uses a diaphragm pump fluid-connected to the sprayer through a port in the iron and supplied from a water tank. The sprayer includes a tubular body connected to the iron and supplied through the port and topped off with cap means having an orifice and bearing against one end of the body. Within the body is a biased spreader means with grooves for fluid passage thereby out through the orifice. To this general conventional arrangement there is added the improvement comprising a spring-biased flat resilient seal member to close the port and containing means on the seal to permit fluid passage thereby when it is unseated. A common spring is used to bias the spreader and seal member in opposite directions and a filter means is provided upstream and directly over the port within the pump to cover the port entrance and intercept particles in the fluid from reaching the seal and orifice to provide an improved sprayer assembly.

3,829,994

CAR LOCATOR KEY HOLDER

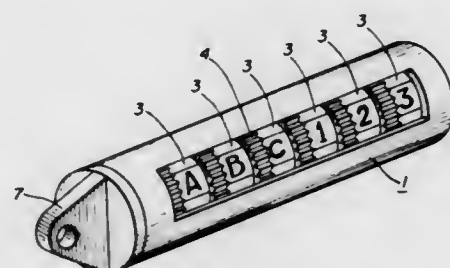
Bernice P. Dillon, 4815 S. Owasso, Tulsa, Okla. 74105

Filed June 8, 1973, Ser. No. 368,293

Int. Cl. A44c 3/00

U.S. Cl. 40-2 A

2 Claims



In a car locator key holder a plastic cylinder with means to attach a key; the said cylinder having at least one rotatable cylindrical disc mounted therein, the said cylindrical disc having means to rotate the said cylindrical disc and means to hold the said cylindrical disc in a set position.

3,829,995

LICENSE HOLDER

Richard Fakoury, Putnam Manor, Apt. 408, 335 Center St., Lock Haven, Pa. 17745

Filed Oct. 24, 1972, Ser. No. 300,322

Int. Cl. G09f 3/18

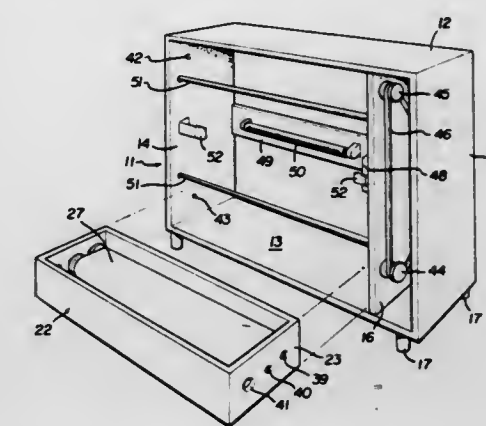
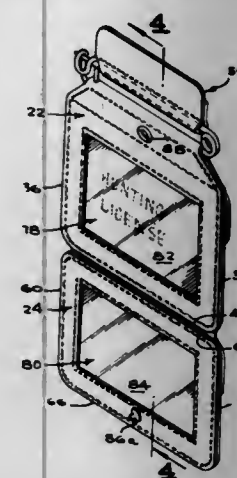
U.S. Cl. 40-16

10 Claims

A card holder adapted to be worn on the attire of a user generally consisting of a base ply, an upper front ply having a

window, secured to an upper front portion of the base ply to provide an upwardly opening, first card receiving pocket and a depending flap on the base ply, a lower front ply secured at an upper portion thereof to a front side of the base ply depending flap, a lower ply secured to the lower front ply to provide an upwardly opening, second card receiving pocket, means for

mounted within the bottom of the frame. A pair of elongated rollers around which the opposite ends of a long, scroll-like flexible sheet bearing messages are wound, are normally arranged side by side within the cassette for storage, handling and shipping the cassette, rollers and sheet as one unit separate from the remaining sign structure. When the cassette



detachably securing the lower front and back plies to a portion of the upper front ply when the lower and back plies are folded rearwardly and upwardly, along the rear side of the base ply, and means for detachably securing the holder to the attire of a user.

3,829,996

DIGITAL DISPLAY

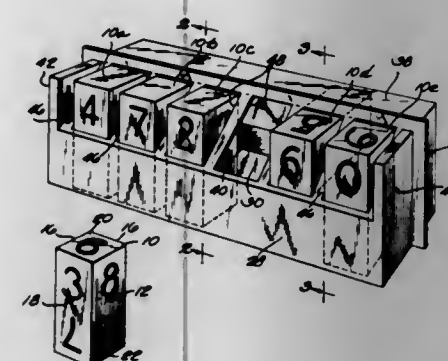
Edward M. Buschman, New York, N.Y., assignor to Display Corporation International, Milwaukee, Wis.

Filed Nov. 5, 1973, Ser. No. 412,737

Int. Cl. G09f 11/00

U.S. Cl. 40-28

6 Claims



A plurality of number carrying blocks, each in the form of a rectangular parallelepiped, are supported in a display housing. The housing has a plurality of adjacent windows positioned at, and open to, mutually perpendicular block receiving areas. The windows are defined, in part, by generally angular wall sections arranged so that the blocks positioned in either one of the block receiving areas project through the windows. Two numbers are provided on each of the side walls of each body and a single number at one of the body ends, that end number being the numeral six so that it can function both as a six and a nine. The opposite end of each body is left blank. One number is exposed for viewing at each window.

is mounted within the sign frame, one roller is removed from the cassette and mounted at the upper end of the sign frame to expose a portion of the sheet between the rollers. The rollers are rotated to wind the sheet from one to the other and vice-versa to thereby expose different portions of the sheet to view. The cassette, rollers and sheet unit may be removed from the sign frame and interchanged with other similar units.

3,829,998

THREE-DIMENSIONAL DECORATIVE ITEM

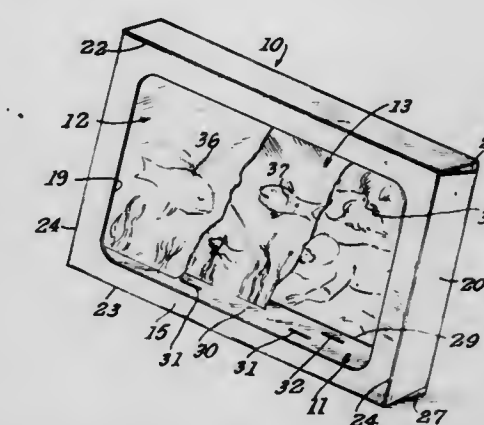
William E. Flax, 1633 W. 11th St., Los Angeles, Calif. 90015

Filed Aug. 21, 1972, Ser. No. 282,126

Int. Cl. G09f 1/00

U.S. Cl. 40-124.1

5 Claims



A three-dimensional item that is foldable to a flat condition to facilitate mailing, storing and shipping thereof and is adapted to be opened to its three-dimensional condition in which the housing or container of the item constitutes a frame for elements which are comprised of one or more decoration-bearing transparent panels that are retained in parallelism to and between the front and rear faces of said housing. When arranged in open viewing condition, said item is retained in said condition by end flaps extending between the front and rear sides of the item and is supported in said condition by a support bent rearwardly from the rear face.

3,829,997

CHANGEABLE MESSAGE SIGN REMOVABLE CASSETTE

Karl Singer, 1717 Stephanson Hwy., Troy, Mich. 48084

Filed Feb. 12, 1973, Ser. No. 331,927

Int. Cl. G09f 11/24; G03b 1/02

U.S. Cl. 40-86

1 Claim

A changeable message advertising sign formed of a vertically arranged frame having a removable box-like cassette

3,829,999

ILLUMINATED MODULAR TYPE SIGN

Lawrence A. Bernstein, Knoxville, Tenn., assignor to Dart Industries, Inc., Los Angeles, Calif.

Filed June 6, 1969, Ser. No. 831,005

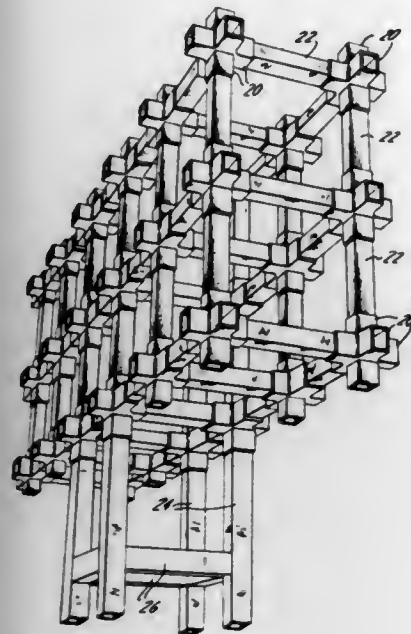
Int. Cl. G09f 7/00

U.S. Cl. 40-125 H

10 Claims

An illuminable sign, display or decorative assembly whose construction is based upon a modular concept. The structural

framework, reflectors, display panels and electrical components each incorporate this basic concept and so provide relatively small constructable units that can be cooperatively



connected to form varying sized assemblies. In addition, an underground mounting system includes dual floating supports that will securely maintain such assemblies in an upright orientation.

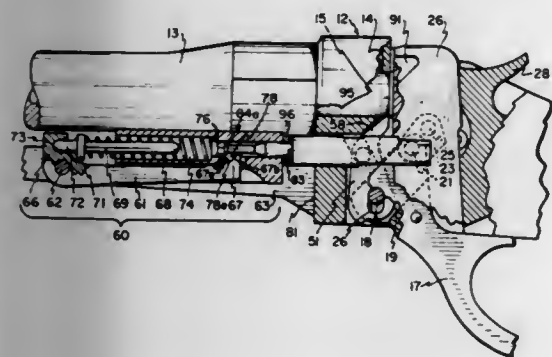
3,830,000

CARTRIDGE EXPELLING MECHANISM FOR FIREARMS
Bruce W. Browning, Ogden, Utah, assignor to Browning Arms Company, Morgan, Utah

Filed May 16, 1973, Ser. No. 360,619
Int. Cl. F41c 11/00, 15/08

U.S. Cl. 42-23

10 Claims



A lever-action firearm includes a breech block which is activated to open or close the firing chamber by working a lever. When closing the chamber, the breech block motion concurrently energizes a spring-loaded ejector mechanism. When opening the chamber, an extractor member provides an autonomous partial extraction of a cartridge from the firing chamber and, thereafter, releases the ejector mechanism. Thereupon, the ejector mechanism drives the extractor to completely expel the cartridge from the firing chamber. The cartridge is impelled over both the breech block and the hammer and, thereafter, is deflected by a selectively positionable member located towards the rear of the receiver.

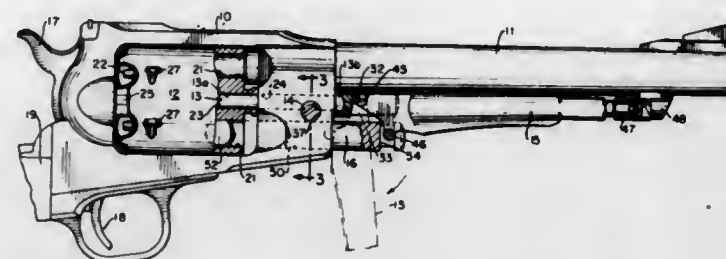
3,830,001
REVOLVER CYLINDER PIN AND RETAINING MEANS THEREFOR

Harry M. Sefried, II, New Haven, Conn., assignor to Sturm, Ruger & Co., Inc., Southport, Conn.

Division of Ser. No. 252,046, May 10, 1972, Pat. No. 3,783,545. This application July 26, 1973, Ser. No. 382,934
Int. Cl. F41c 1/00

U.S. Cl. 42-59

4 Claims



The improved loading lever arrangement for muzzle loading revolvers comprises a loading lever having an integrally formed transverse pivot pin located adjacent the rearward end of the lever and an integrally formed rammer engaging lug located below the pivot pin, a cylinder base pin having a transverse pivot pin receiving groove formed in the upper surface thereof and a transverse retaining pin receiving groove formed in the lower surface thereof, a base pin retaining pin releasably engaging the cylinder base pin, and a bullet rammer having a T-shaped vertical slot formed in the forward end portion of the rammer. The transverse pivot pin of the loading lever is received in the pivot pin receiving groove of the cylinder base pin, the bullet rammer engaging lug of the loading lever is received in the T-shaped vertical slot of the bullet rammer, and the base pin retaining pin is received in the retaining pin receiving groove of the cylinder base pin. As a result, the cylinder base pin is retained in the frame by the base pin retaining pin, the loading lever is pivotally secured to the cylinder base pin and the bullet rammer is connected to the loading lever.

3,830,002

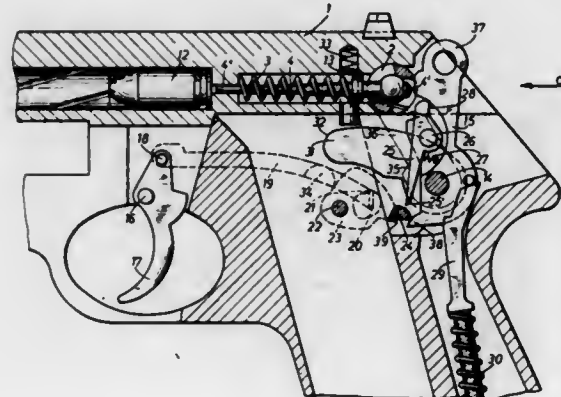
FIRING PIN SAFETY DEVICE FOR FIREARMS
Willi Volkmar, Ulm/Danube, Germany, assignor to Carl Walther Sportwaffenfabrik, Ulm/Danube, Germany

Filed Mar. 14, 1973, Ser. No. 340,945
Claims priority, application Germany, Mar. 14, 1972, 2212211

Int. Cl. F41c 17/04

U.S. Cl. 42-70 F

6 Claims



A hand firearm has a pivotable safety shaft positioned in the breech housing transversely with respect to the firing pin for locking and unlocking the firearm. In place of the usual catch for retaining the safety shaft in its locked position, a spring is provided urging the shaft to its release position so that the safety shaft will always be in the release or firing position except when a force is exerted to retain the safety shaft in the

locked position. A locking pin locks the firing pin and is released from this locking position during the last third of movement of the trigger so that the firearm is always ready for firing.

3,830,003

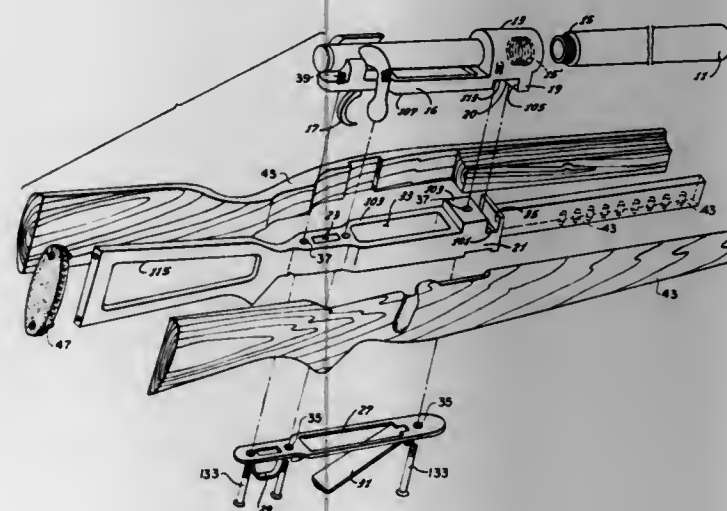
FLOATED BARREL RIFLE WITH METAL STOCK FOR IMPROVED BARREL ACTION BEDDING

John A. Clerke, 307 Montana Ave., Santa Monica, Calif. 90403

Continuation-in-part of Ser. No. 29,036, April 16, 1970, abandoned. This application Nov. 3, 1972, Ser. No. 303,611
Int. Cl. F41c 23/00

U.S. Cl. 42-75 C

23 Claims



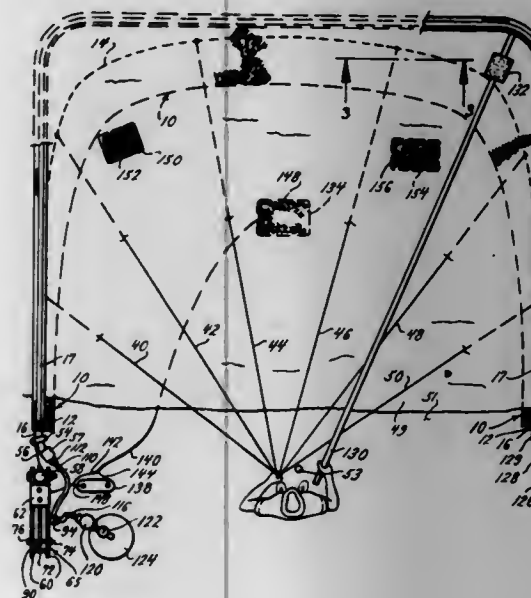
A lightweight metallic stock for a rifle onto which the barrelled action is firmly bedded so that it is permanently held in place, obviating the necessity of rebedding after continued use of the rifle. The action is firmly held to the stock through the cooperation of registration surfaces on the action and the stock which are placed in firm abutment by conventional screw-threaded fasteners.

3,830,004

FISHING NET
Eugene M. Poirot, Golden City, Mo. 64748
Filed Oct. 19, 1972, Ser. No. 299,087
Int. Cl. A01k 73/12

U.S. Cl. 43-4.5

20 Claims



A seine-type fishing net has an elongated, flexible, inflatable tube secured adjacent the upper edge thereof; and portions of that elongated, flexible, inflatable tube are selectively deflated

to permit the adjacent portions of that upper edge to sink below the surface of a body of water in which that seine-type fishing net is disposed. Containers of fish food are disposed within the area defined by the seine-type fishing net; and, after fish have been attracted by the food within those containers, the deflated portions of the elongated, flexible, inflatable tube are re-inflated to cause the adjacent portions of that seine-type fishing net to rise to the surface of the body of water and thereby trap the fish within the area defined by that seine-type fishing net. A number of elongated, flexible, tensile elements are secured to the lower portion of the seine-type fishing net; and those elongated flexible, tensile elements can be pulled toward the bank of the body of water to move that lower portion of that seine-type fishing net toward that bank. An upwardly and inwardly inclined barrier is provided on the upper surface of the elongated, flexible, inflatable tube to keep most of the fish from rising up and over that upper surface. An inwardly-opening door is provided adjacent a large opening in the seine-type fishing net; and that door will permit fish to enter, but not to leave, the space which is defined in the body of water by the seine-type fishing net.

3,830,005

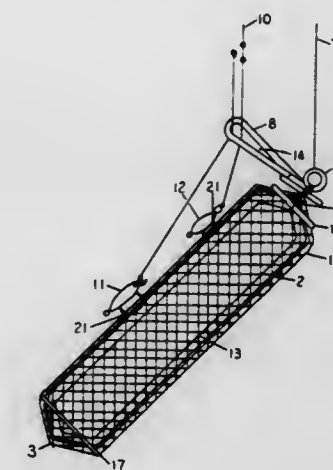
LURE REMOVER

Clyde H. Kimbrough, 449 Brookwood Dr., Auburn, Ala. 36830

Filed Apr. 12, 1973, Ser. No. 350,352
Int. Cl. A01k 97/00

U.S. Cl. 43-17.2

2 Claims



A lure remover having an elongated open, round metal bar, frame around which is wound an openwork mesh hook engaging sleeve. A guide is secured perpendicularly to the rear of the frame for slidably engaging a line having a caught lure. A lowering and retrieving line has its lower end secured to the guide to guide the frame in response to manipulations of the lowering and retrieving line exerted by one hand of the user, the other hand remaining available to hold on to a fishing rod. By having the guide at the rear of the device greater mobility of the device is obtained.

3,830,006

CLOSING FERRULES FOR HOLLOW RODS AND CANES, NOTABLY FOR FISHING RODS

Henri Garbolino, Route de Sepmes 37800, Sainte Maure De Touraine, France

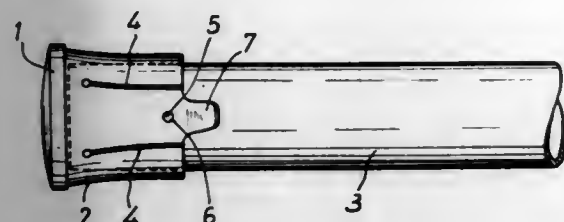
Filed May 21, 1973, Ser. No. 362,204
Int. Cl. A01k 87/00

U.S. Cl. 43-23

4 Claims

The ferrule or tip for closing the end of a hollow fishing rod consists of a one-piece body of moulded plastics having a bottom and a peripheral skirt, the latter for capping externally the end of the hollow rod. The skirt is provided with radially ex-

pansible longitudinal slots extending up to its free edge and has a locking means consisting of a hole or stud cooperating



with a stud or hole on the rod, thus preventing any untimely removal of said ferrule from said rod.

3,830,007 FISHING LINE SPOOL HOLDER

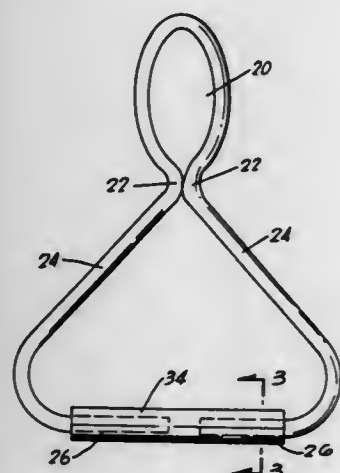
Frank D. Linke, Sr., 113 Lakeside Rd., Hewitt, N.J. 07421

Filed May 22, 1973, Ser. No. 362,929

Int. Cl. A01k 87/06

U.S. Cl. 43—25

2 Claims



A device adapted for use with a fishing pole having line guides varying in diameter and disposed axially along the pole. The pole has a reel adjacent the handle. The largest diameter guide is disposed adjacent the reel. The guides are disposed in order of gradually decreasing diameter with the minimum diameter disposed at the tip of the pole. A spool holder member is provided with first means adapted to detachably frictionally engage the rod exterior at a point intermediate the guides of largest and next largest diameter and second means adapted to extend at right angles to the pole. The second means has opposite ends which have tips pointing inwardly toward each other and disposed along a common axis. A hollow cylinder open at both ends has an axis aligned with the common axis, each tip detachably engaging a corresponding end of the cylinder.

3,830,008 FERRULE STRUCTURE UTILIZING INTEGRAL MALE AND FEMALE PORTIONS

Paul C. Johnson, Spirit Lake, Iowa, assignor to Berkley & Company, Inc., Spirit Lake, Iowa

Filed July 17, 1972, Ser. No. 272,379

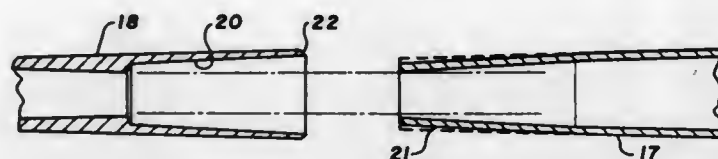
Int. Cl. A01k 87/00

U.S. Cl. 43—18 R

6 Claims

A fishing rod having a flexible shaft which tapers substantially continuously from the butt end to the tip end and comprises a plurality of individual segments coupled together by means of integrally formed coupling ferrules. The individual ferrules are arranged to releasably retain the individual segments together as a pair, with these ferrules including a male prong portion extending from the forward end of the rod segment, along with a matching female ferrule portion in the rear

portion of the next succeeding segment. The angular tapers of the male and female ferrule segments are matching, one to another, with the angular taper of each ferrule segment being greater than that of the surrounding outer shaft surface. In



order to avoid areas of stress concentration, the wall thickness of the male prong portion is substantially uniform along the axial extent thereof, and the female ferrule portion is provided with zones of greater cross-sectional thickness in the ferrule transition areas.

3,830,009 FISHING LINES

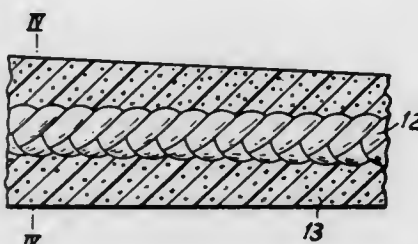
Terence David Collingbourne, Tewkesbury, England, assignor to Anglers Masterline Limited, Tewkesbury, Gloucestershire, England

Filed June 22, 1972, Ser. No. 265,310

Int. Cl. A01k 91/00

U.S. Cl. 43—44.98

10 Claims



A fishing line has a main component formed from a chosen plastics material whose specific gravity is reduced by the incorporation therein, while in the liquid state, of a preferably inert gas during an extrusion process.

3,830,010 TOY BOAT CONVERSION KIT FOR AN EXPENDED CONTAINER

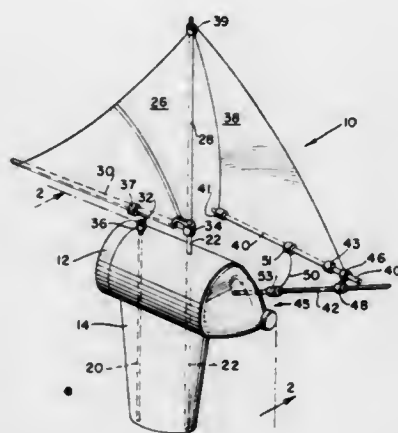
R. Lindsey Dowrick, c/o General Delivery, Needmore, Pa. 17238

Filed Nov. 29, 1972, Ser. No. 310,550

Int. Cl. A63h 23/02

U.S. Cl. 46—11

13 Claims



A conversion kit for converting an expended container into a functional toy sailboat. The kit comprising in combination with an expended product container, which is to function as the hull, a mainsail including a boom and a mast which is attached to said expended container, a jib sail attached to said mast and including a clubfoot which is adjustably secured to a bowsprit attached to said container. The said toy sailboat additionally including a keel member attached to the underside of said container.

3,830,011 DEFORMABLE TUBULAR RODS WITH DEFORMABLE SHEET MATERIAL CONNECTORS

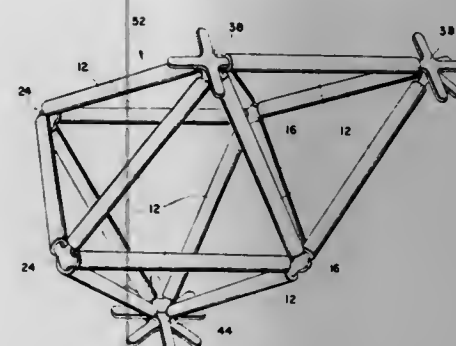
Steven Ochrymowich, 39 McCulla Ave., Brampton, Ontario, Canada

Filed Apr. 9, 1973, Ser. No. 348,906

Int. Cl. A63h 33/10

U.S. Cl. 46—29

6 Claims



A model kit of the type described for building a wide variety of different geometric structures in which the struts and hub connectors may be manufactured by relatively simple inexpensive tooling, the struts being hollow tubular members extruded by a plastic extrusion process, and cut to length by any suitable shearing means, and the hub connectors preferably being formed by stamping them out of sheet thermoplastic material, thereby avoiding the necessity for the design and building of expensive injection moulding dies, and at the same time providing a wide range of different parts having a great flexibility in use, and having a long working life and being to all intents and purposes indestructible.

3,830,012 DOLL WITH CHANGEABLE FACE AND BELLY PORTIONS

Gunter Franke, Veilodterstrasse 18, D-85, Nurnberg, Germany

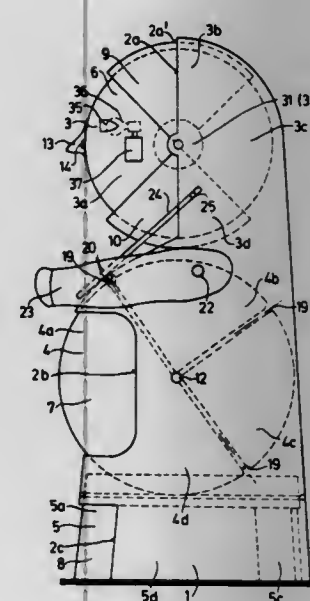
Filed Feb. 3, 1972, Ser. No. 223,219

Claims priority, application Germany, Feb. 3, 1971, 2104899

Int. Cl. A63h 11/02

U.S. Cl. 46—135 R

15 Claims



This invention relates to a convertible doll, comprising of a supporting member adapted to receive and retain a plurality

of elements which represent body parts, in particular parts of the human body, the supporting member having at least one recess which may be occupied by the surface of at least one of the elements, which is constructed as a rotational member and the surface of which is provided with representations of body parts and is supported, so that different surface zones of the element may be optionally moved into the recess for the purpose of being observed. Pivoted shells are provided for varying the appearance at the upper and lower edges of the face. The rotatable changeable features may be held in various positions by detents. The doll may be of the rocking type, rocked by a motor-driven vibrator. A speaker and cassette recorder may be mounted in the doll. Detachable facial features may be provided and also electric lights, visible through translucent areas of the face.

3,830,013 AVOCADO GROWING APPARATUS

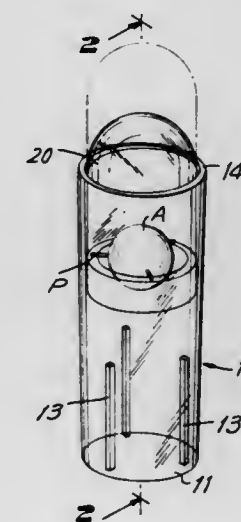
Thomas P. Lesley, 48 Compo Cove, Westport, Conn. 06880

Filed Apr. 23, 1973, Ser. No. 353,231

Int. Cl. A01g 31/00

U.S. Cl. 47—1.2

11 Claims



An avocado growing apparatus is disclosed comprising a container having a vertically directed body portion, preferably cylindrical in horizontal section, adapted to be partially filled with water. A float member matching the cross sectional configuration of the cylindrical container is provided with a vertical through-aperture wherein an avocado seed or pit is adapted to be supported, the float being subject to raising or lowering within the cylindrical container in accordance with the water level to assure that the pit or seed is partially immersed to a more or less constant degree, irrespective of the quantity of water in the container. Optionally, an anti-evaporation dome may be provided which rises and falls with the float.

3,830,014 TREE CANOPY HEATER

Alfred R. Baker, c/o Sun & Ski, 1105 Cypress Gardens Rd., Winter Haven, Fla. 33880

Filed Feb. 14, 1973, Ser. No. 332,335

Int. Cl. A01g 13/06, 15/00; B05b 1/24

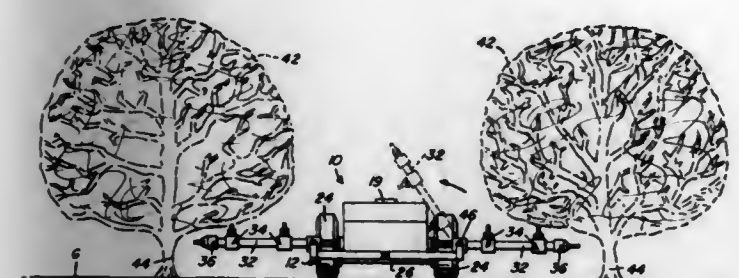
U.S. Cl. 47—1.7

3 Claims

A grove heater having a steam generator and steam ejecting device is mounted on a vehicle maneuverable among trees in a grove such as a citrus orchard. The steam is retentively in-

jected into canopies formed by leaves on the trees for preventing cold dehydration of the trees. The steam ejecting devices

held relatively stationary. The mechanism is adaptable to latch just one leaf of a hatchway, or may be made with two catches and associated members for two hatch leaves, with the fusible



have valves controlled by tree detecting elements associated with the valves.

3,830,015

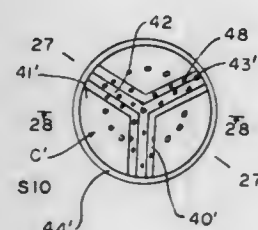
ROOT SEPARATING MEANS FOR PLANT CONTAINER
Carlo Belgiorno, 1165 Connetquot Ave., Central Islip, N.Y. 11722

Filed Mar. 10, 1972, Ser. No. 233,496

Int. Cl. A01c 11/00

U.S. Cl. 47-37

7 Claims



A device for promoting plant growth, comprises a root separator adapted for disposition inside a plant container having a peripheral wall. The root separator has outwardly extending walls terminating at the peripheral wall of the container and defining therewith a plurality of compartments into which the root system of the plant can grow to form a plurality of root clusters which can be spread apart radially after the plant is removed from the container for transplanting.

3,830,016

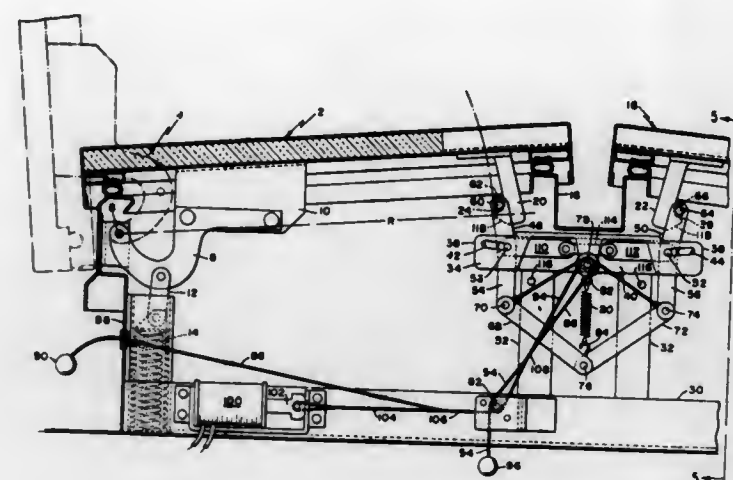
LATCH MECHANISM FOR HATCHWAY LEAF
Nathan Levine, Newton, Mass., assignor to Babcock-Davis Associates Inc., Boston, Mass.

Continuation-in-part of Ser. No. 238,453, March 27, 1972, abandoned. This application Sept. 13, 1973, Ser. No. 396,896
Int. Cl. E05f 15/20

U.S. Cl. 49-8

17 Claims

A safety latch mechanism for a hatchway in which a downwardly extending hook from the free edge of the hatch leaf is engaged by an upper catch end of a lever which is pivoted between its ends by a pin riding in a slot in a horizontal member. The pin is held by a fusible link, while the lower end of the lever is biased by spring actuated means in a direction to maintain the hook and catch end of the lever in releasable engagement. In one embodiment, the spring actuated means is a collapsible toggle linkage and spring. In a second embodiment, the spring means is applied directly to the lower end of the lever. Manual means are provided to actuate the lever to release the latch mechanism. When the fusible link melts, the pin moves outwardly in its slot to move the upper end of the lever to disengage the hook, the lower end of the lever being



link connecting the pins of each lever so that when the fusible link melts, the pin of each lever can move in its respective slot to release both catches.

3,830,017

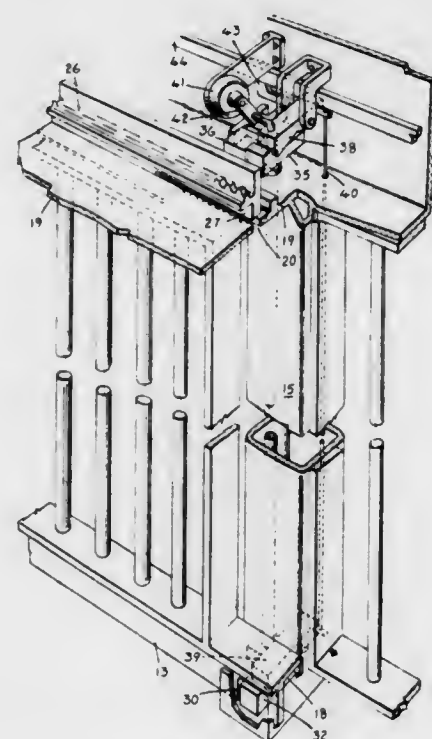
JAIL LOCKING MECHANISM

Michael H. Markham, Rexdale, Ontario, Canada, assignor to Chubb Industries Limited, Brampton, Ontario, Canada
Filed Oct. 3, 1973, Ser. No. 403,066

Int. Cl. E05b 47/06

U.S. Cl. 49-18

9 Claims



In a jail cell locking system, a cell door may be locked in its open position and in its closed position by latch members which are secured by locking members, the latch members being pivoted about vertical axes and the locking members being pivoted about longitudinal, horizontal axes. The locking members are released from the locking position by means of a rotary solenoid, the operation of which is conditioned by initiation of a door opening or a door closing operation. A gang bar is provided for deadlocking the locking members of a series of doors, and for releasing each of the doors in the case of an emergency.

3,830,018

SAFETY DEVICE FOR POWER WINDOW

Hiroshi Arai, Morio Yunuki, and Masahiro Nakamura, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

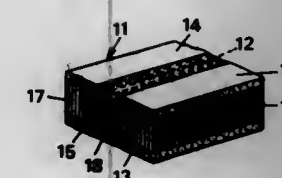
Continuation of Ser. No. 114,878, Feb. 12, 1971. This application Mar. 26, 1973, Ser. No. 344,723

Claims priority, application Japan, Feb. 17, 1970, 46-13693

Int. Cl. E05f 15/08

U.S. Cl. 49-28

13 Claims



A safety device for power windows comprising a pressure sensitive tape-like switch including a plurality of electrode plates each made of a tape-like flexible and resilient material and juxtaposed to and spaced apart from each other a distance of 1 or several millimeters, a flexible insulating protective case containing said electrode plates therein, and a window operation control circuit for stopping at least a closing motion of a window pane when external force is exerted on said pressure sensitive switch while the window pane is moving in closing motion. Said tape-like pressure sensitive switch is attached to a fixed part of a motor vehicle.

3,830,019

GRINDING MACHINE WITH A SAFETY HOUSING

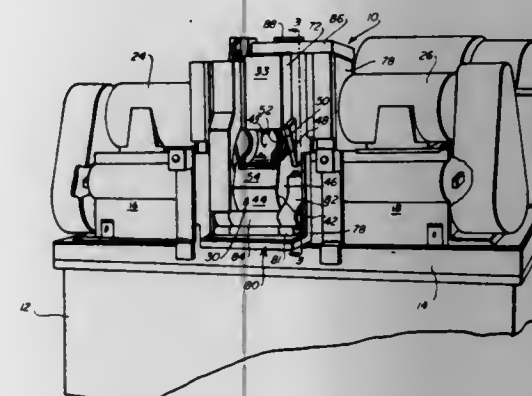
Freeman W. Mann, Hagerstown, Md., assignor to Landis Tool Company, Waynesboro, Pa.

Filed Dec. 29, 1972, Ser. No. 319,461

Int. Cl. B24b 5/04, 55/04

U.S. Cl. 51-103 C

5 Claims



A grinding machine comprising a grinding assembly including at least one grinding wheel and means for supporting the grinding wheel for rotation about the axis thereof, wall means for separating the operator of the grinding machine and the grinding wheel assembly whereby in the event that the grinding wheel explodes the operator will not be endangered, the wall means including an opening, a loader assembly selectively configured for placement within the opening, the loader assembly being displaceable from a first load position to a second grinding position and including means for receiving a workpiece when the loader assembly is at the first load position, means for retaining the workpiece in the receiving means

as the loader assembly is displaced between the first position and the second position, and means for blocking the wall means opening when the loader assembly is at the first and second positions and at all positions intermediate the first and second positions.

3,830,020

GRINDING DIAMOND WHEEL, AND METHOD OF MAKING SAME

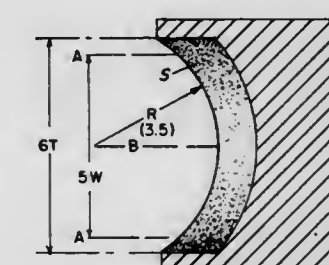
Shoshichiro Gomi, No. 820 Chitose, Kawasaki, Kanagawa Prefecture, Japan

Continuation-in-part of Ser. No. 868,518, Oct. 22, 1969, abandoned. This application Jan. 27, 1972, Ser. No. 221,206

Int. Cl. B24d 5/00, 7/00; C04b 31/16

U.S. Cl. 51-206 R

2 Claims



A diamond grinding wheel for forming the edges of glass plates into desired cross-sectional shapes wherein the diamond layer of the grinding wheel is a radial cross-section passing through the axis of said wheel and has continuously varying and uniform distribution of the diamond abrasive in accordance with grinding work required for shaping the edges of the plates to be ground and the method of manufacturing such a wheel.

It is an object of the invention to prevent the uneven deterioration of the grinding surface of a pencil-edged diamond grinding wheel resulting from the grinding surface of the diamond layer of the wheels being deformed excessively from a given curvature radius in the process of grinding the cut edges of glass plates.

3,830,021

SPHERICAL BEARING WORKPIECE HOLDER IN AN OPTICAL LENS GENERATING MACHINE

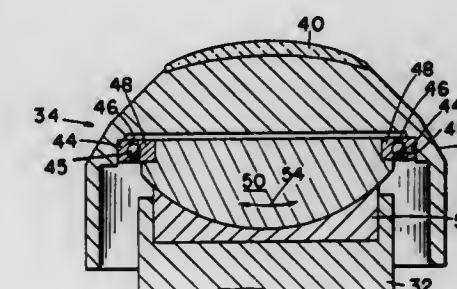
Raymond T. Blum, 15 Stuyvesant Rd., Pittsford, N.Y. 14534, and George J. Laughman, 1227 Masley Rd., Perinton, N.Y. 14564

Division of Ser. No. 296,486, Oct. 10, 1972. This application Dec. 17, 1973, Ser. No. 425,651

Int. Cl. B24b 13/00

U.S. Cl. 51-216 LP

3 Claims



An optical lens surfacing machine for separate operation upon each refractive side of an ophthalmic lens. The lens is carried by a pivotable workpiece holder. The holder permits total lens surface engagement by an operation tool, thereby providing a single machine for lapping and polishing a lens in a minimum number of steps.

3,830,022

CLAMPING MECHANISM

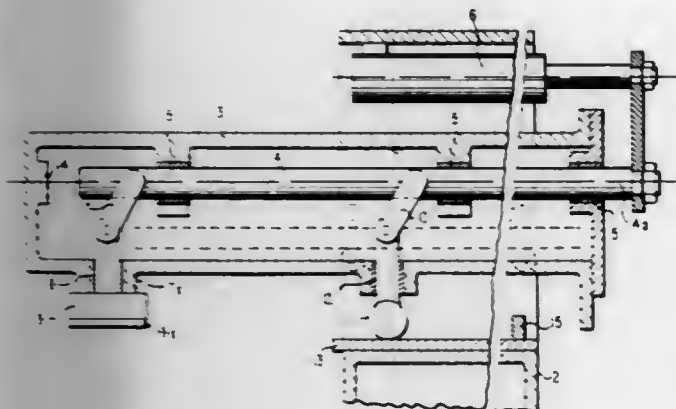
James Thomas Shaw; Colin Graham Fawcett, and Raymond Percy Arthur Lilley, all of Peterborough, England, assignors to Baker Perkins Limited, Peterborough, England
Filed Sept. 21, 1972, Ser. No. 290,799

Claims priority, application Great Britain, Oct. 6, 1971, 46540/71

Int. Cl. B24b 41/06

U.S. Cl. 51—217

3 Claims



A clamping mechanism particularly for applying downward clamping pressure on a workpiece on a snag grinding machine comprises a toggle mechanism terminating in a clamping member. The toggle mechanism is formed at the end of a rod carried in a horizontal arm which can extend and retract relative to a supporting housing. A piston and cylinder assembly is provided for extending and retracting the rod and arm relative to the housing and for moving the rod independently of the arm when the arm is extended to operate the toggle mechanism.

3,830,023

DRY DESCALING

Charles A. Turner, Flourtown, Pa., assignor to Sels Corporation of America, Dresher, Pa.

Filed Oct. 30, 1972, Ser. No. 302,067

Int. Cl. B24b 1/00

U.S. Cl. 51—322

3 Claims

Dry descaling of hot-rolled, steel strip wherein the strip, having a layer of magnetite on its surface, is heated in a normal furnace atmosphere to at least 1,500°F such that conversion of the magnetite to wustite is effected. Thereafter, the strip is immediately quenched below 600°F by air jets at a rate rapid enough to prevent reconversion of the wustite to magnetite. The wustite scale is subsequently removed by abrasion.

3,830,024

STABILIZING AND ANCHORING DEVICE FOR MOBILE HOMES AND SIMILAR STRUCTURES

George E. Warnke, Niles, Mich., assignor to Warn-Key, Inc., Niles, Mich.

Filed Sept. 14, 1972, Ser. No. 288,930

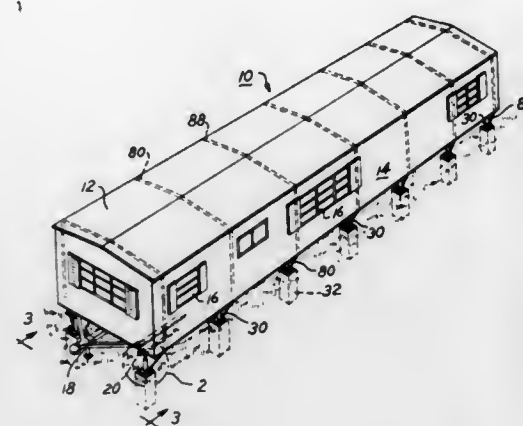
Int. Cl. E04h 9/14

U.S. Cl. 52—23

5 Claims

A stabilizing and anchoring device for mobile and modular homes and similar structures in which a base is secured to a supporting member and supports an upstanding member having an extensible and retractable member, such as a threaded shaft, in the upper end with a fixture for connection to a structural member in the home or similar structure. The fixture firmly clamps the structural member so that when the device has been installed, the stabilizing portion thereof holds the

mobile home or similar structure firmly in place. An anchoring means is connected to the base and is adapted to receive the end of a tie-down strap or cable which passes over and



around the top of the structure, thus providing a firm support beneath the structure and an anchored tie-down system so that the structure will withstand high winds and gales.

3,830,025

BUILDING MODULES

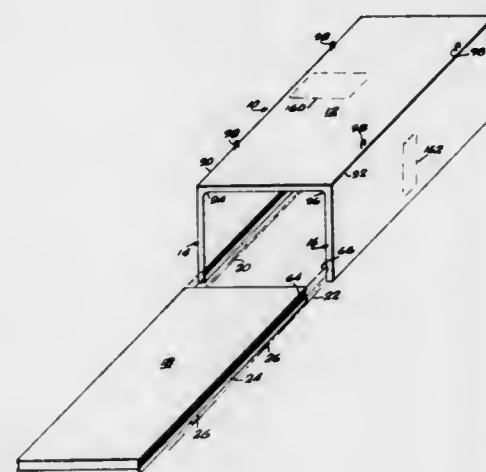
Harouzi Wainshal, 1210 Alfonso Ave., Coral Gables, Fla. 33134

Filed June 26, 1972, Ser. No. 265,957

Int. Cl. E04b 1/348

U.S. Cl. 52—79

15 Claims



Prefabricated building modules of a generally elongated tunnel configuration, each module generally being comprised of a unitarily formed, steel reinforced, poured concrete roof portion and side walls extending the length of the roof, the opposed ends thereof being open. A steel reinforced concrete floor slab is formed in a position relative to the roof and side walls whereby it is in direct alignment with and at the proper elevation to be moved between the side walls to its permanent position, means being provided to securely fix the floor slab in place. End closures are then put in place and the interior is finished and equipped for the purpose for which it is to be used. One module may be used individually or two or more modules may be arranged in various stacked and/or side-by-side and spaced-apart arrangements.

3,830,026
STAIRCASE

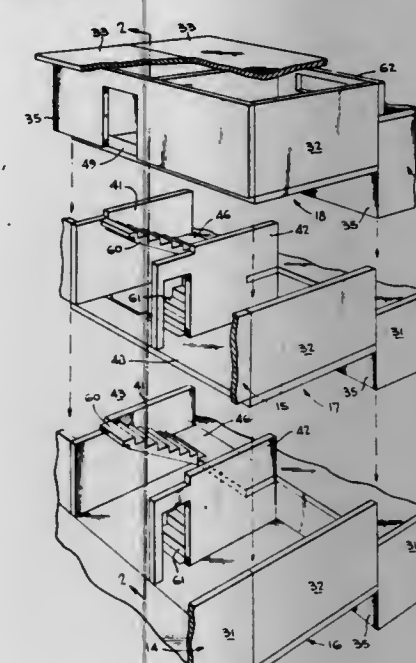
Adolfo Tylus, Washington, D.C., assignor to Alvic Development Corporation, Washington, D.C.

Continuation-in-part of Ser. No. 35,484, May 7, 1970, Pat. No. 3,656,266. This application Jan. 25, 1972, Ser. No. 220,616

Int. Cl. E04f 11/14

U.S. Cl. 52—185

2 Claims



A staircase includes a plurality of stacked, substantially identical sections, each including a pair of parallel walls having a vertical extent of approximately one story. Corresponding edges of the parallel walls are aligned. Each wall includes a rectangular recess that extends from one vertical edge along a horizontal edge. A rectangular slot is located approximately midway between the horizontal edges of each wall. The slot extends from the vertical edge of the wall opposite from the edge including the recess. Preformed landings supported by the slots and recesses extend between the parallel walls. Preformed stairway sections having a vertical extent of one-half a story extend upwardly and downwardly from the landing located in the slot to landings in the recesses. The stairways are supported by abutments in rectangular indentations of the landings.

3,830,027

PANEL CONSTRUCTION

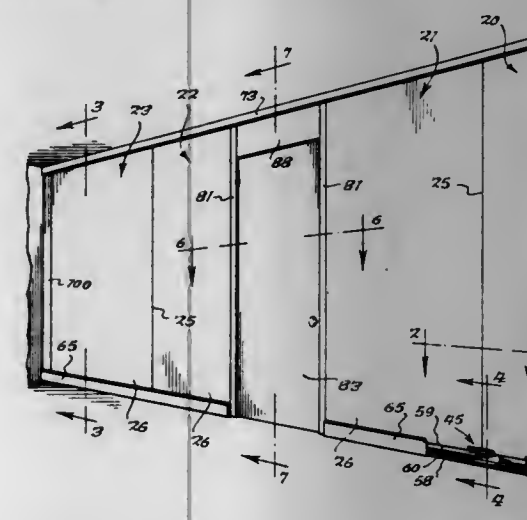
John C. Paisley, Orange, and Maynard Guy Miller, Jr., Unionville, both of Va., assignors to Gray Manufacturing Company, Orange, Va.

Filed Mar. 12, 1973, Ser. No. 340,479

Int. Cl. E04b 2/82

U.S. Cl. 52—204

16 Claims



A metal panel construction having a series of upright panel units which abut one another to form single line joints with a

saddle-shaped stilt member beneath each joint. The base members and cooperating structure are arranged such that no part of the assembly need be affixed to the floor. Each panel is formed from a pair of spaced facing sheets which are interconnected along their adjacent vertical edges by a crimped spline which extends substantially the full height of the panel. At door locations two one-piece vertical posts respectively extend along the adjacent edges of the panel units for substantially their full height. A header is interposed between the vertical posts and is detachably held in place to permit its removal without disassembling the posts.

3,830,028

BUILDING STRUCTURES

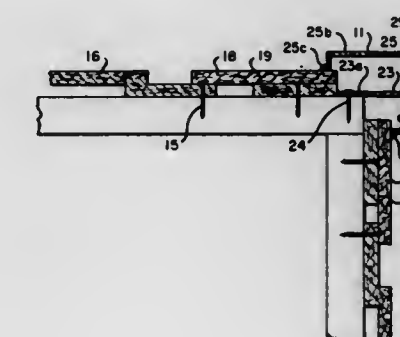
Douglas Franzese, St. Petersburg, Fla., assignor to Morgan Yacht Corporation, St. Petersburg, Fla.

Filed Mar. 20, 1972, Ser. No. 236,411

Int. Cl. E04b 1/00, 2/28

U.S. Cl. 52—279

5 Claims



A building and wall structure is provided which is made up of a frame, a plurality of side by side vertical panels of fiber reinforced resin fixed to said frame, each panel having spaced vertical base strips and overlying slats, said vertical base strips of adjacent panels abutting each other on said frame, an overlay sealing slat fixed to said base strips over said adjacent and abutting edges with an adhesive mastic, overlay finish strips on the frame at top and bottom overlaying the ends of said vertical panels and having a returned position abutting the face of said panels adjacent said ends, and a pair of L shaped corner members overlaying the edges of base strips at each corner of said structure, one overlaying the other and fixed thereto with adhesive mastic.

3,830,029

SKYLIGHT CONSTRUCTION

Lawrence T. Vance, 305 Edgewood Rd., Pittsburgh, Pa. 15221

Filed Oct. 18, 1972, Ser. No. 298,660

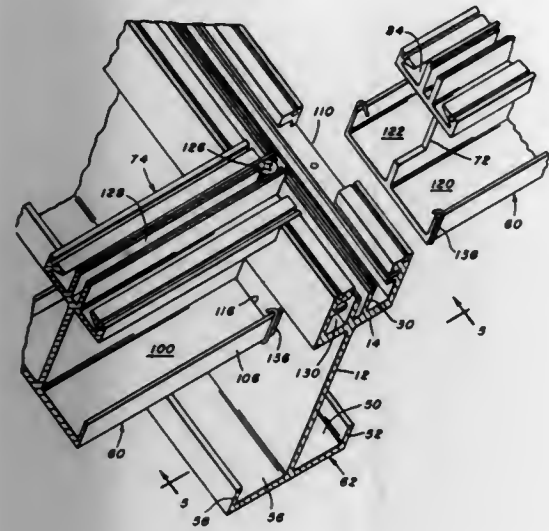
Int. Cl. E04c 1/24

U.S. Cl. 52—395

8 Claims

A skylight having a plurality of interconnected elongated primary structural members and secondary structural members defining panel receiving openings. Panels having marginal portions secured to the primary and secondary structural members. The primary and secondary structural members having first drainage channel means. The primary and secondary structural members having second drainage channel means extending transversely outwardly beyond the first drainage channel means. Second drainage channel means of either the primary or the secondary structural members having a discharge outlet in overlying communicating relationship with respect to the second drainage channel means of the other of the primary and secondary structural members. The first drainage channel means may have at least one upwardly open channel member and the second drainage channel means may have at least two upwardly open channel members.

Drip resisting means disposed on an overlying second drainage channel for resisting flow of water along the exterior of the second drainage channel in a direction away from the discharge outlet. The drip resisting means have a portion in overlying relationship with respect to the underlying second



drainage channel. The second drainage channels are so proportioned and positioned as to permit freedom of thermally induced expansion and contraction without loss of communication between the overlying and underlying second channel members.

3,830,030

DEVICE FOR DETACHABLY COUPLING FURNITURE OR BUILDING MATERIALS

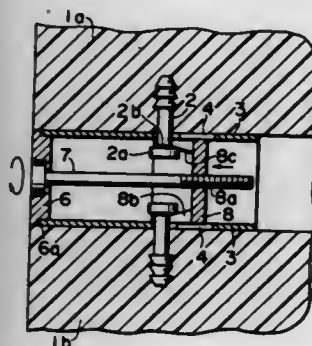
Tsukasa Yoshida, 15-202, Nikko Danchi 1-3, Nikkocho, Fuchushi, Tokyo, Japan

Filed Mar. 7, 1972, Ser. No. 232,540

Int. Cl. F16b 5/06

U.S. Cl. 52-584

6 Claims



A device for detachably coupling furniture or building materials including basically two or more anchor bolts, a connection pipe, a base plate, a clamping bolt and a clamping stator. The anchor bolts are inserted and fixed into the respective connected materials and have neck and head portions projecting from the end face of the materials. The connection pipe is provided with at least one aperture on each of the sides thereof to receive the neck portion of the anchor bolts therethrough, and is interposed between at least two opposed materials. The base plate holds the head of the clamping bolt and is fitted near in the interior of the pipe at one end thereof. The clamping stator is closely placed within the interior of the pipe and is provided with a threaded portion on a central portion thereof to receive the clamping bolt, slats on side portions thereof to strongly clamp the neck portions of the bolts.

3,830,031 THREE-DIMENSIONAL DEPOLYABLE AND COLLAPSIBLE STRUCTURES

Gerard Charles Jean Soisson, 40 rue du Bac 75, Paris, France

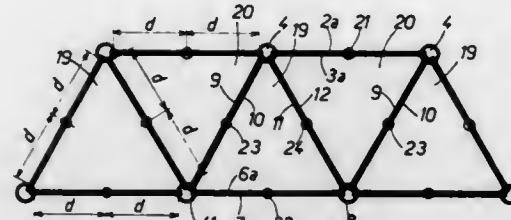
Filed May 17, 1972, Ser. No. 254,209

Claims priority, application France, May 19, 1971, 71.18308

Int. Cl. E04h 12/18; E04b 1/343

U.S. Cl. 52-645

10 Claims



Three-dimensional collapsible structure having the form of a system of bars articulated to one another, which comprises a two-dimensional lattice made of parallelograms of hinged bars, acting as a first carrier element, a second carrier element which has preferably the same construction as the first one and a number of pivoting rods connecting together some of the joints of the two carrier elements, said rods being inclined with respect to the planes of the carrier elements when the structure is deployed.

3,830,032

MESH CHAIR FOR CONCRETE REINFORCEMENT

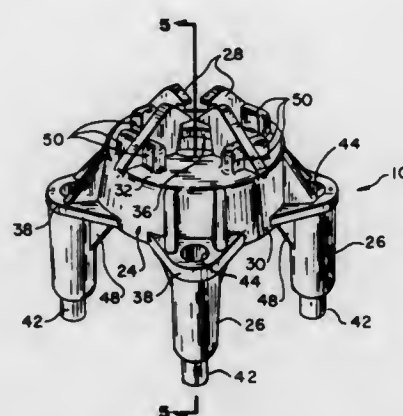
Wayne F. Robb, Aurora, Colo., assignor to T-Products Corp., Denver, Colo.

Filed Sept. 21, 1972, Ser. No. 290,838

Int. Cl. E04c 5/16

U.S. Cl. 52-687

10 Claims



A device for maintaining a predetermined space between reinforcement and concrete forms comprises a modular element with support means adapted to receive and retain different sized reinforcing members, such as, wire mesh and includes spaced supporting legs having complementary male and female portions so that elements can be stacked or nested together to vary the spacing between the reinforcement and the concrete forms as well as to support multiple layer reinforcements in spaced predetermined relation to one another.

3,830,033

PLASTIC COVERED BUILDING STRUCTURES

Charles C. Gahler, West Long Branch, N.J., assignor to X. S. Smith, Inc., Red Bank, N.J.

Division of Ser. No. 212,069, Dec. 27, 1971, Pat. No.

3,791,076. This application July 2, 1973, Ser. No. 376,001

Int. Cl. E04b 1/345

U.S. Cl. 52-720

6 Claims

A plastic covered building structure comprised of a metal frame supporting superimposed layers of plastic sheets having

an inflated area between the sheets providing insulation to the interior of the structure. The super-imposed plastic sheets are secured to the frame by means of longitudinally extending rails having longitudinally extending upwardly concave portions and complementary clamping rods adapted to secure the

the main body envelope or shell and on the other side of its fold to the inner face of the closure flap, the tear zone for the



seal being formed by the interconnecting unsecured web or sheet fold portion of the seal.

3,830,036

GROCERY PACKAGING MACHINE

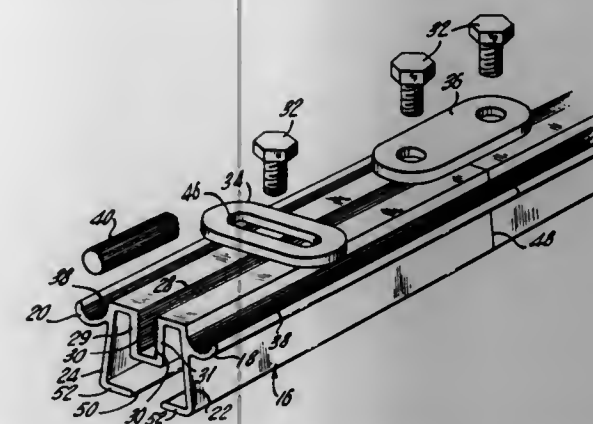
Kenneth A. Harkness; D. Mark Kettunen, and Paul E. Schirtzinger, all of Columbus, Ohio, assignors to Kenneth A. Harkness d/b/a IDEANamics, Columbus, Ohio

Filed Feb. 20, 1973, Ser. No. 333,561

Int. Cl. B65b 53/02, 57/10, 9/02

U.S. Cl. 53-76

13 Claims



edges of the super-imposed plastic sheets between the rods and the upwardly concave portions of the rail. The rails are adapted to receive clamping members at any point along the length of the rails to clamp the rods into the upwardly concave portions.

3,830,034

WIRE CLIP MEANS FOR CLEATED COLLAPSIBLE CONTAINERS

Julius B. Kupersmit, 145-80 229th St., New York, N.Y. 11413

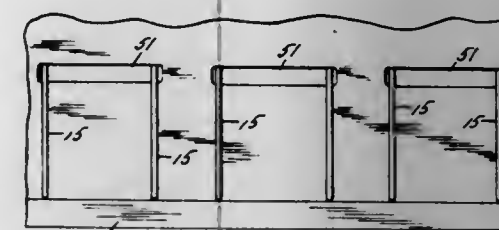
Continuation-in-part of Ser. No. 159,213, July 2, 1971,

abandoned. This application Nov. 27, 1972, Ser. No. 309,768

Int. Cl. F16b 7/00

U.S. Cl. 52-754

3 Claims



Clip means for use in interconnecting a wall to a base of a collapsible container by engaging a cleat on said base. The entire clip is formed of tempered steel wire and possesses a high degree of resiliency. It is engaged with said wall by extending a part thereof to penetrate an opening in the wall adjacent a lower edge of the wall. Provision is made for using a single size clip with any of a range of widths of wall. In a second embodiment, prior art construction is modified to produce a somewhat similar result.

3,830,035

METHOD OF FORMING A SEALED CONTAINER ARRANGEMENT

Robert B. Hoover, Massillon, Ohio, assignor to Affiliated Hospital Products, Inc., St. Louis, Mo.

Division of Ser. No. 888,265, Dec. 29, 1969, Pat. No.

3,680,772. This application Apr. 21, 1972, Ser. No. 246,486

Int. Cl. B65b 11/48

U.S. Cl. 53-31

6 Claims

Method of forming a sealed container having a shell or envelope for removably containing in sealed relation an article, such as sterile, surgical gloves, and which incorporates a flexible closure flap, with a rupturable seal formed by a strip or slip of easily frangible sheet or web material, such as paper, which is folded and secured on one side of its fold to the outer face of

A machine for automatically packaging heterogeneous grocery store articles in heat shrinkable, thermoplastic film. The machine has a loading station at one end and an endless conveyor having a series of loading zones which is advanceable in discrete loading zone increments along a treatment passageway. Upper and lower film feed rolls feed film ribbons above and below the articles when the film ends are anchored to the conveyor by grocery articles and the conveyor is advanced. When the conveyor is stopped, a welding and severing means at a downstream weld station descends to bond the film ribbons together and sever the covering film from the feeding ribbons. A carriage, on which infrared radiators are mounted at a further downstream shrink station, descends to shrink the film tightly around the articles during the next machine cycle. A subsequent cooling station permits sufficient heat loss for safe handling of the packages.

3,830,037

PACKAGING MACHINE

Clyde H. Purdom, Memphis, Tenn.; Kenneth W. Allum, South Haven, Miss., and Harold D. Shackelford, Memphis, Tenn., assignors to Cleo Wrap Corporation, Memphis, Tenn.

Division of Ser. No. 290,845, Sept. 21, 1972, Pat. No.

3,798,871. This application Nov. 2, 1973, Ser. No. 412,344

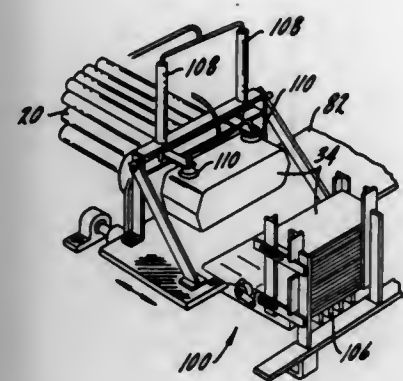
Int. Cl. B65b 63/02, 43/30

U.S. Cl. 53-124 D

4 Claims

There is disclosed a machine for assembling, end capping, and packaging together in a preselected manner, a plurality of rolls wherein each of the rolls includes a material having a preselected color and/or pattern wound thereon and wherein the axial edge of the outer convolution of material on each of the rolls is oriented in a preselected position within the finished package. In the preferred embodiment of the invention, the disclosed machine is used to assemble and end cap

rolls of paper, such as Christmas gift wrap paper. The machine comprises a plurality of feed elements wherein each of the feed elements includes a receptacle for storing a plurality of rolls wherein the material on each of the rolls in any one feed element contains the same color and/or pattern of material wrapped thereon. The feed elements individually feed the rolls contained therein onto a conveyor means. The conveyor means transports these rolls which are now arranged in a preselected color and/or pattern orientation to a grouping



means which divides the rolls into a plurality of groups of rolls wherein each of the groups contain a preselected number of rolls having a preselected pattern and/or color distribution. This grouping means then feeds the group of rolls to an orienting means which acts upon the rolls in the group and orients the axial edge of the material wound on each of the rolls such that the axial edge is hidden from view within the package. Lastly, the group of rolls is then transported to a capping station wherein caps are placed over the end portion of the rolls to form a single package of rolls.

3,830,038

AUTOMATIC BAG PICKUP, OPENING AND PLACEMENT MACHINE

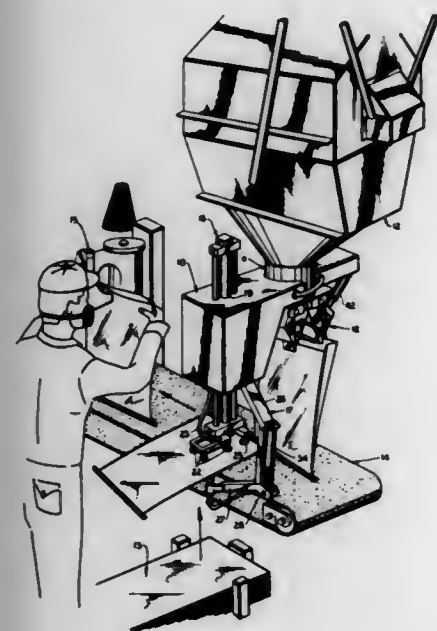
James P. Propst, Treasure Island, Tex., assignor to Ventura Manufacturing Company, San Antonio, Tex.

Filed Nov. 2, 1972, Ser. No. 303,259

Int. Cl. B65b 43/30, 43/44, 43/54

U.S. Cl. 53—190

9 Claims



The invention presents a portable machine for attachment to a weighing and pouring machine whereby the machine will automatically pick-up, open and place the opened bag on the material dispensing spout of the weighing and pouring machine. The machine of this invention is operated exclusively by a pneumatic-suction control system whereby electrical

motors, switches and other electrical components capable of creating explosions in an explosion producing atmosphere due to dust particles of the material being bagged are eliminated, as well as use of complicated cams, chains and other mechanical components are avoided.

The pneumatic-suction control system of this invention is further arranged whereby each step or operational movement in the sequence from picking up a folded bag to the placement of a loaded bag onto a conveyor is interrelated so that the improper placement of a bag on the pouring spout or the lack of a bag being picked up from the bag supply will not permit the load of material being loaded to be dumped.

3,830,039

PROCESS AND APPARATUS FOR CONTINUOUS WORK-UP OF PHOSPHORUS-CONTAINING RESIDUES

Hans Ebert, Hurth-Effern; Ursus Thummler, Erftstadt Liblar, and Hugo Werner, Hurth-Hermulhelm, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack bei Koln, Germany

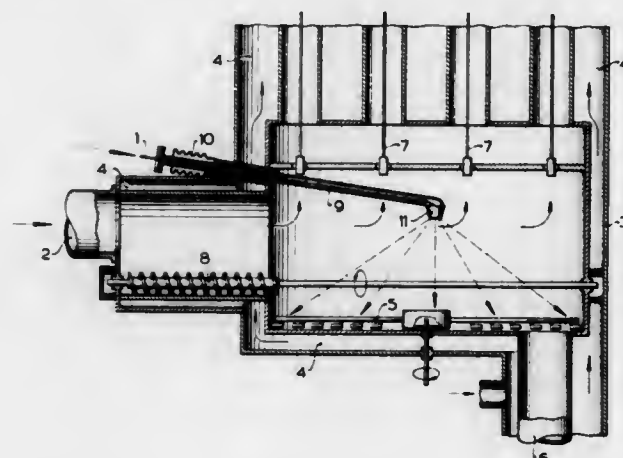
Filed June 8, 1973, Ser. No. 368,055

Claims priority, application Germany, June 13, 1972, 2228636

Int. Cl. B03c 3/01

U.S. Cl. 55—5

15 Claims



Continuous work-up of moist, phosphorus-containing residues, particularly of residues which originate from the filtration of yellow phosphorus or phosphorus-containing effluent water. To this end, intimate contact is produced, in an electrical precipitation zone adapted to free phosphorus furnace gas from dust, between the moist phosphorus-containing residue and hot dust originating from phosphorus furnace gas and covering the bottom portion of said electrical precipitation zone. Residue and dust are contacted in a quantitative ratio between 1 and 2. Resulting, substantially phosphorus-free residue is mechanically removed from the electrical precipitation zone together with dust precipitated from the phosphorus furnace gas, in the electrical precipitation zone. A phosphorus/water-mixture produced by vaporization of the moist residue is passed through the electrical precipitation zone and the mixture is introduced jointly with dust-free phosphorus furnace gas coming from the precipitation zone into a condensation zone placed downstream of the precipitation zone, wherein the mixture and dust-free phosphorus furnace gas are precipitated.

3,830,040

VAPOR RECOVERY SYSTEM

Lloyd T. Hendrix, Santa Ana, Calif., assignor to Vaporex, Anaheim, Calif.

Filed Feb. 25, 1972, Ser. No. 229,306

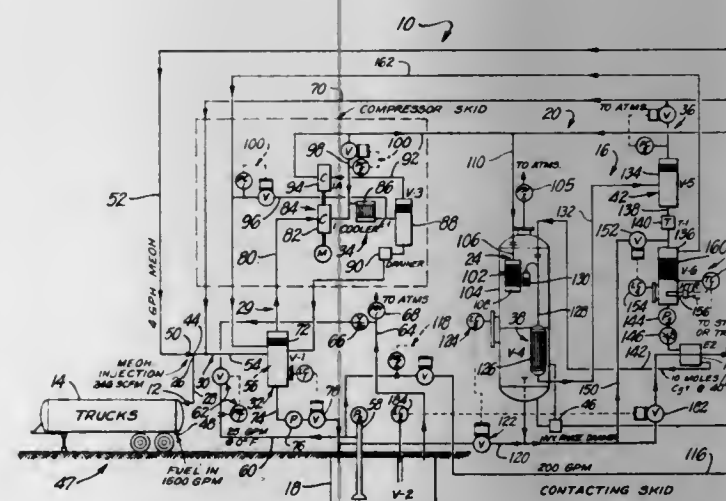
Int. Cl. B01d 53/14; F17c 13/00

U.S. Cl. 55—32

18 Claims

The vapor of a volatile liquid entrained in a gas is recovered by providing an insulated relatively large volume body of the

liquid, continuously recirculating liquid from the body along a closed flow path through a refrigeration zone and a following primary condensation zone back to the body, and introducing the gas into the condensation zone for direct contact with the recirculating refrigerated liquid within the zone after presaturation of the gas by the liquid from the body, stripping of the free liquid from the presaturated gas and compression of the gas, whereby the entrained vapor is condensed and admixes with the recirculating liquid. Freezing of any water vapor condensed from the gas is prevented by introducing into the gas prior to its contact with the refrigerated liquid a vaporized freezing point depressant which condenses with the water vapor to provide an anti-freeze and is then recovered by fractionation and recycled back to the incoming gas to be processed to repeat the cycle. The primary application of the invention involves processing the hydrocarbon vapor-laden air



expelled from a transport tanker for a volatile hydrocarbon liquid, such as gasoline to prevent atmospheric pollution and reclaim the hydrocarbon content of the air. In this application, hydrocarbon liquid from the primary condensation zone is subjected to fractionation to recover a heavy hydrocarbon liquid fraction which is recycled through a secondary condensation zone in direct contact with the air from the primary condensation zone and in indirect contact with the cold primary liquid to effect condensation of any remaining hydrocarbon vapor in the air and a light hydrocarbon fraction which is recycled back to the incoming vapor-laden air to be processed. The vapor recovery apparatus is preferably mounted on skids or other ground support means to permit its fabrication in a factory and subsequent transportation to a point of use.

3,830,041

FOAM BREAKER

Glen P. Huppke, Land O'Lakes, Fla., assignor to Environeering, Inc., Skokie, Ill.

Division of Ser. No. 251,440, May 8, 1972. This application

Sept. 18, 1973, Ser. No. 398,395

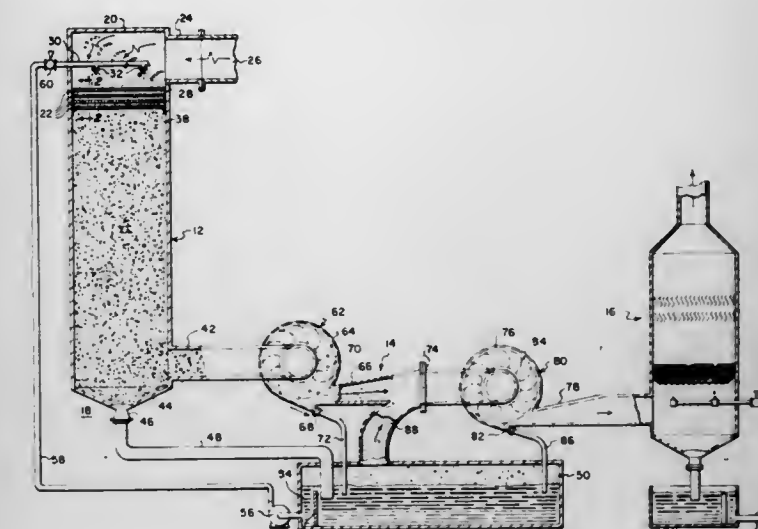
Int. Cl. B01d 19/02

U.S. Cl. 55—178

11 Claims

A wet foam type gas scrubber for cleaning industrial gases and the like comprising foam generating means including a chamber having an inlet for gas and an outlet for foam. Grid means is provided in said chamber between said inlet and outlet and extending transverse to the gas flow therebetween for dividing the gas flow into a plurality of separate streams. Said grid means comprises a plurality of elongated strips interconnected to form a plurality of discrete flow passages and the strips have thin, knife-like edges facing into the direction of gas flow for dividing the same into separate streams. Means is

included for wetting said grid means with liquid foaming agent to generate a mass of moving, liquid film, foam bubbles enveloping small discrete volumes of said gas therein. Foam breaker means using gravity and centrifugal force is provided



to collapse and break down the foam bubbles into liquid and release the cleansed gas therefrom.

3,830,042

RECTANGULAR FILTER BAG

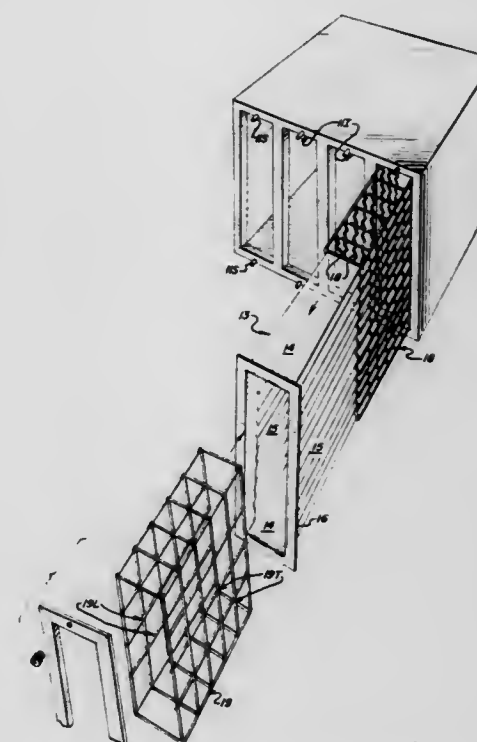
Robert W. MacDonnell, Crete, Ill., assignor to Allied Filter Engineering, Inc., Chicago, Ill.

Filed Sept. 13, 1972, Ser. No. 288,528

Int. Cl. B01d 46/02

U.S. Cl. 55—341

7 Claims



A disposable filter bag for the intake air housing of a locomotive has a generally rectangular box-shaped extended configuration and is of pliable sheet stock of full flow depth filter material to be collapsible for folding into compact form. The bag is mounted between external and internal cage-like frames that stabilize the extended configuration of the bag.

3,830,043

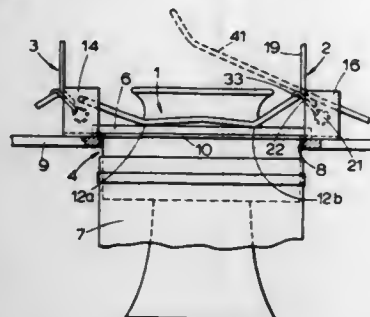
CLAMP DEVICE FOR DETACHABLE FASTENING OF A SUPPORTING UNIT, FOR EXAMPLE A VENTURI TUBE UNIT, FOR A BAG IN A BAG FILTER

Kjell Nielsen, Hovik, and Finn H. Dethloff, Oslo, both of Norway, assignors to A/S Ardal og Sunndal Verk, Oslo, Norway
Filed July 5, 1972, Ser. No. 269,087

Int. Cl. B01d 46/02

U.S. Cl. 55—378

7 Claims



A clamp device for detachable fastening of a supporting unit, for example a venturi tube unit, for a bag in bag filters with removable bags adapted, when removed, to be pulled upwardly through a hole for the supporting unit in a bag plate between the clean gas and the raw gas side of the bag filter. The supporting unit is provided with a flange adapted to press a gasket onto a marginal area around the hole in the bag plate. The clamp device is provided with a substantially U-shaped resilient clamp member having legs of such shape that they can engage the flange in four points. The ends of the legs are pivotably anchored in mountings attached to the bag plate on one side of the hole. A transverse portion of the clamp member is adapted to be releasably retained in the actuated condition of the clamp member by a locking member on the other side of the hole.

3,830,044

DEVICE FOR SEPARATING DROPS OF LIQUID FROM A FLOWING GASEOUS MEDIUM

Wilhelm Wetteborn, Troisdorf, Germany, assignor to Klockner-Humboldt-Deutz Aktiengesellschaft, Köln, Germany

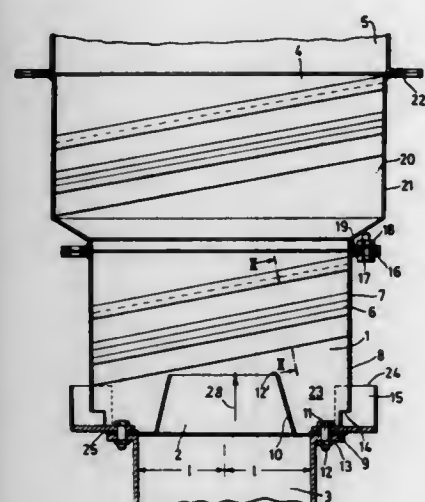
Filed Dec. 22, 1972, Ser. No. 317,759

Claims priority, application Germany, Dec. 22, 1971, 2163735

Int. Cl. B01d 45/08

U.S. Cl. 55—440

8 Claims



Device for separating drops of liquid from a flowing gaseous medium, includes a flow housing defining a substantially vertical flow path for gaseous medium, at least one row of parallel separation baffles extending transversely to the flow path, the separation baffles mutually overlapping louver-like and, respectively, having an impact surface and formed with a collecting trough, the separation baffles being disposed in the flow housing so that the collecting troughs are inclined with

respect to the horizontal, and means defining a receiving channel for liquid collected in the collecting troughs of the separating baffles, the receiving channel being located within the flow housing adjacent the wall of the housing below and spaced from the separation baffles, the channel-defining means being of at least partially annular shape and formed with at least one liquid outlet opening.

3,830,045

COMPACT AIR FILTER

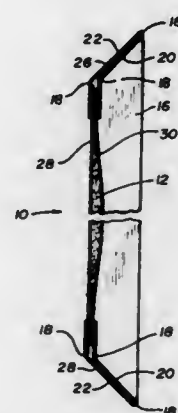
John E. Copenhefer, Louisville, Ky., assignor to United States Gypsum Company, Chicago, Ill.

Filed Oct. 30, 1972, Ser. No. 302,151

Int. Cl. B01d 39/14

U.S. Cl. 55—501

4 Claims



A compact fibrous glass air filter unit is provided having a rectangular frame holding an air filter; the frame having an edge flange portion having a top and a bottom half folded over the filter, said flange flaring outwardly from the filter; tab portions on the top or bottom flange portions to form tongue-and-groove interlocking at the intersection of the flange portions; a scrim covering above the filter; and a bottom covering of closely perforated sheet; the scrim, filter and perforated sheet all being adhesively or mechanically adhered between the top half and bottom half portions of the flange.

3,830,046

CANE HARVESTERS

George A. Rollitt, Queensland, Australia, assignor to Massey-Ferguson (Australia) Limited, Sunshine, Australia

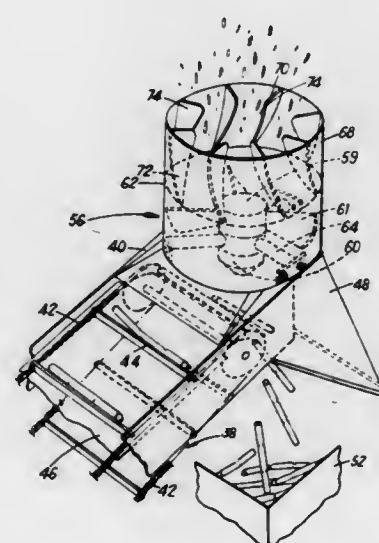
Filed Oct. 5, 1972, Ser. No. 295,334

Claims priority, application Great Britain, Oct. 29, 1971, 50406/71

Int. Cl. A01d 45/10

U.S. Cl. 56—16.5

3 Claims



A trash removal system for a chopper-type cane harvester comprising a vertical axis fan to suck trash from a cascade of

3,830,049

BOBBIN EJECTING MECHANISM FOR DOFFING MACHINE

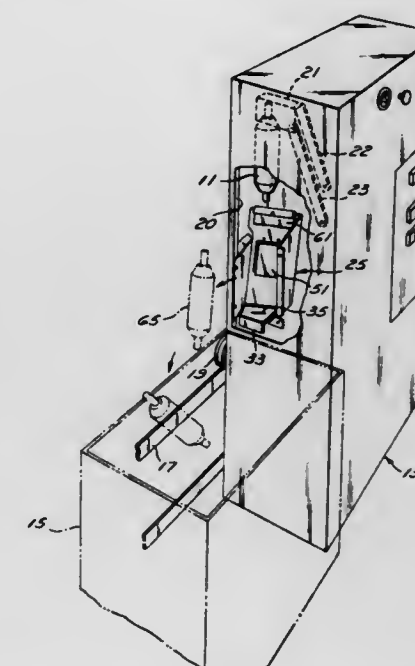
John P. Kieronski, Charlotte, and Francis N. Williams, Gastonia, both of N.C., assignors to Whitin Machine Works, Inc., Charlotte, N.C.

Filed Oct. 29, 1973, Ser. No. 410,469

Int. Cl. D01h 9/00

U.S. Cl. 57—53

12 Claims



A doffing unit for a textile machine such as a spinning frame removes bobbins from spindles with an arm and gripping chuck which releases the bobbins into an ejecting unit inside the doffing machine from which the bobbins are ejected horizontally and in vertical axial alignment into a receiving box. The ejecting unit has a chute and a pusher mechanism in the side of the chute operated by an air cylinder controlled by an air valve operated by a movable base member of the chute so that the pusher is operated in response to the impact of a falling bobbin in the chute striking against and depressing the base plate.

3,830,050

WIRE STRANDING MACHINE

Iwao Ueda, Osaka, Japan, assignor to Hamana Iron Works Co., Ltd., Osaka, Japan

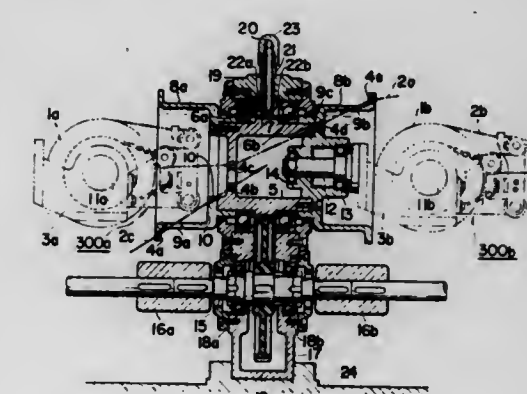
Filed June 23, 1972, Ser. No. 265,897

Claims priority, application Japan, June 25, 1971, 46-46129; Oct. 19, 1971, 46-82119

Int. Cl. D07b 3/02, 3/04

U.S. Cl. 57—58.34

9 Claims



A wire stranding machine provides a number of bobbin units mounted on a single base for rotating a number of spools of wires. Wire guides draw the wire under even tension

3,830,047

RATOONING DEVICE

Vicente Asumendi, P.O. Box 620, Ayr, Jarvisfield, North Queensland, Australia

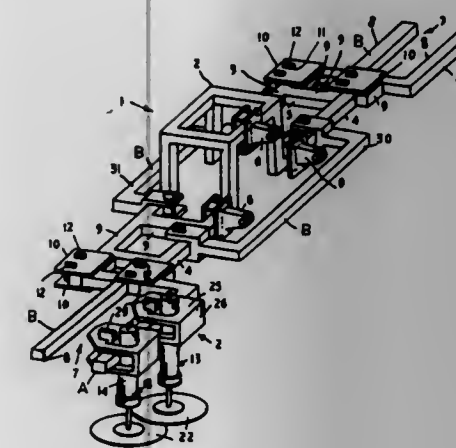
Filed Nov. 15, 1972, Ser. No. 306,588

Claims priority, application Australia, Nov. 13, 1972, 7158/72

Int. Cl. A01d 45/02

U.S. Cl. 56—53

4 Claims



A ratooning implement comprising a tool bar adapted for mounting on a tractor hitch on which there is mounted at least one pair of cutters having over-lapping rotary circular cutting discs.

3,830,048

ROTARY CUTTER UNIT FOR GRAPE HARVESTERS

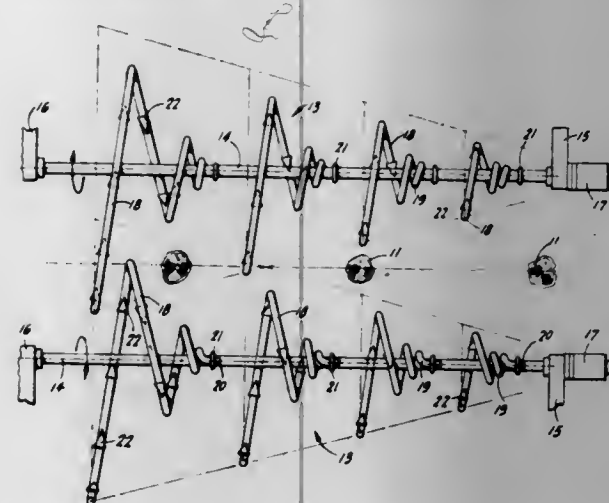
Jimmie D. Ervin, 3724 Stansland St., Riverbank, Calif. 95367

Filed Aug. 31, 1973, Ser. No. 393,562

Int. Cl. A01g 19/00

U.S. Cl. 56—331

7 Claims



A rotary cutter unit, for a self-propelled grape harvester of vine row-straddling type, operative upon advance of the harvester to sever the grape bunches from the canes of the grape vines in a row thereof; the cutter unit comprising a plurality of driven, conical, forwardly facing, vine-combing reels of open construction, and each such reel including a plurality of separate, axially spaced, forwardly tapering, helical sweep rods each having cutters on the inner side thereof whereby, as the reels comb through the vines and the canes are engaged by the helical sweep rods, the grape bunches drape over such rods and are severed by the cutters thereon.

through a sinusoidal path to a wire stranding member. A conductive ring surrounds the wire members and generates an electrical signal if any of the wire members snap or become non-uniform in tension. The particular wire path and uniform tensioning permits a maximum velocity of rotation to be developed with the wires.

3,830,051

YARN GUIDING FLYER MECHANISM FOR A TEXTILE YARN PROCESSING MACHINE

Helmut Veltges, Krefeld, Germany, assignor to Palitex Project Company GmbH, Krefeld, Germany

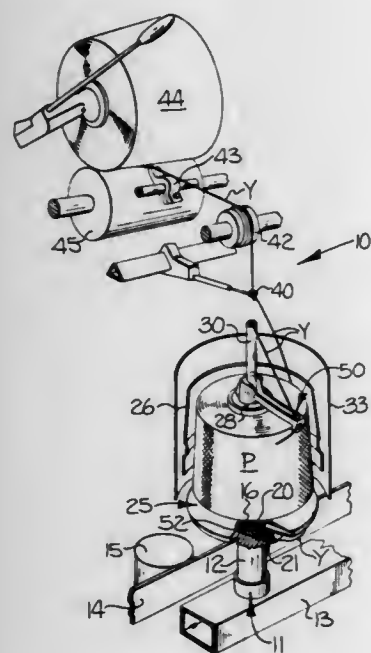
Filed Oct. 24, 1973, Ser. No. 409,033

Claims priority, application Germany, Apr. 2, 1973, 2316331

Int. Cl. D01h 7/86

U.S. Cl. 57—58.83

9 Claims



An improved yarn guiding flyer mechanism in a textile processing machine having a spindle assembly which includes a carrier mechanism having a hollow carrier member for supporting thereon a hollow supply package of yarn to be processed and a hollow yarn entry tube carried within the carrier member and extending axially outwardly therefrom for receiving the yarn from the supply package and providing an axially extending passageway for the yarn therethrough. The improved yarn guiding flyer mechanism is characterized by being constructed for ease in threading of the yarn therethrough when threading of the yarn through the spindle assembly is necessary. The flyer mechanism includes an elongate medial body portion, an eye member connected with one end of the body portion for receiving and passing the yarn therethrough, and a mounting portion connected to the other end of the body portion for mounting the flyer mechanism on the yarn entry tube for rotation relative thereto and for pivotal movement between a yarn processing position in which the flyer mechanism extends generally radially outwardly from the yarn entry tube and a yarn threading position in which the flyer mechanism extends generally axially of the yarn entry tube and the eye member is axially aligned with the passageway of the yarn entry tube for threading of the yarn easily through the eye member when yarn is threaded through the yarn entry tube passageway. The length of the yarn entry tube above the supply package and the length of the flyer mechanism are matched so that no substantial gap is presented between the outer end of the yarn entry tube and the eye member when the flyer mechanism is in its yarn threading position for ease in threading.

3,830,052 DIGITAL POWER CONTROL CIRCUIT FOR AN ELECTRIC WRIST WATCH

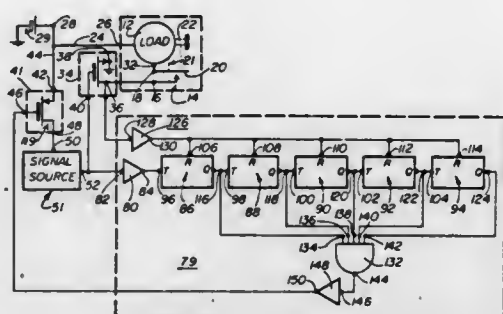
R. Gary Daniels, Tempe, and James Walter Foltz, Scottsdale, both of Ariz., assignors to Motorola, Inc., Franklin Park, Ill. Division of Ser. No. 270,130, July 10, 1972. This application

Nov. 8, 1973, Ser. No. 414,057

Int. Cl. G04c 3/04

U.S. Cl. 58—23 R

10 Claims



The control circuit selectively connects and disconnects power flowing to a signal source which drives a load. Included in the control circuit is a counter having a toggle terminal connected to the signal source output, a reset terminal connected to the load output, and an output terminal connected to the control terminal of a switch. The input and output terminals of the switch are connected in the power line for the signal source. If the duration between first control signals developed by the load exceeds a predetermined time, the driving signal from the signal source causes the counter to generate a second control signal which turns off the switch. A subsequent first control signal resets the counter which turns the switch back on.

3,830,053

ADJUSTING MECHANISM FOR TURNING OPERATIONS OF HOUR-AND MINUTE-INDICATING LEAVES IN LEAF-TYPE CLOCK

Hideo Koide, Urawa; Koichi Kuroda, and Takeshi Ito, both of Saitama, all of Japan, assignors to Rhythm Watch Company, Limited, Tokyo, Japan

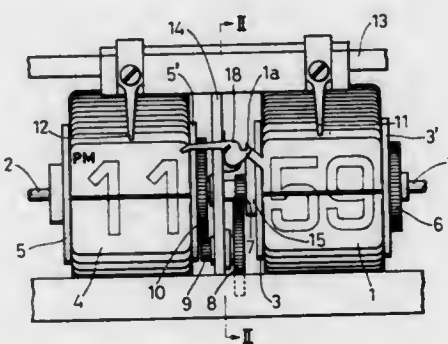
Filed Nov. 12, 1973, Ser. No. 414,629

Claims priority, application Japan, Nov. 20, 1972, 47-132668

Int. Cl. G04b 19/02, 45/00

U.S. Cl. 58—125 C

4 Claims



An adjusting mechanism of a leaf-type digital clock comprises a volute cam secured concentrically to the minute-drum frame, an adjusting pawl coming in pressed contact with the peripheral surface of said cam and an adjusting lever which is secured to said adjusting pawl through an adjusting shaft and to which lever is imparted a rotatable bias. When the adjusting lever rotates against said rotatable bias through the pressed contact of the adjusting pawl with the peripheral surface of the volute cam with the lapse of time, one end of the lever catches

a pawl protruded on the inner side of the 59th minute-indicating leaf and the other catches the inner side of the hour-indicating leaf, respectively. However, at the moment when the 59th minute passes away, both ends of the lever rapidly release the hour- and minute-indicating leaves to be thereby turned over simultaneously.

3,830,054

LINK CHAINS FOR MOTOR BLOCKS

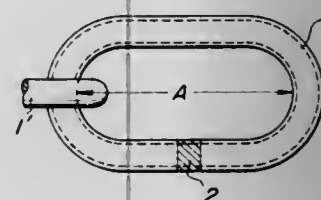
Takeo Tamamura, Hitachi-shi; Saburo Nemoto, Mito-shi; Takeshi Tokunaga, Hitachi-shi, and Tadashi Nemoto, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sept. 21, 1971, Ser. No. 182,329

Int. Cl. F16g 13/06; C23c 11/12

U.S. Cl. 59—84

6 Claims



A link chain for use in motor blocks which is made up unit links each made of steel consisting of 0.10-0.26 percent by weight of C, 0.10-0.35 percent by weight of Si, 0.50-1.40 percent by weight of Mn, 0.2-0.7 percent by weight of Ni, up to 0.9 percent by weight of Cr, up to 0.5 percent by weight of Mo, up to 0.01 percent by weight of B, up to 0.35 percent by weight of P, up to 0.03 percent by weight of S and the remainder of Fe, and having the carburized surface layer of a depth of 1/80-1/25 of the diameter of a rod constituting the unit link wherein the C concentration in said layer is from 0.6 to 0.8 percent by weight.

3,830,055

FLAME-OUT CONTROL IN GAS TURBINE ENGINE

Mark Nicholas Erlund, Bristol, England, assignor to Rolls-Royce (1971) Limited, London, England

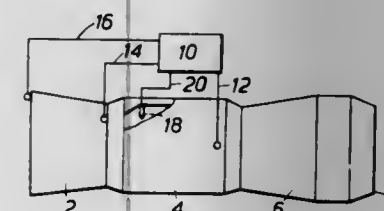
Filed June 13, 1973, Ser. No. 369,509

Claims priority, application Great Britain, June 24, 1972, 29711/72

Int. Cl. F02c 7/00

U.S. Cl. 60—39.09 R

11 Claims



An automatic re-light control system for a gas turbine engine comprises means for producing a signal corresponding to the quotient of the rate of change of speed of an engine shaft and an engine pressure and comparing this signal with a scheduled value.

An igniter is operated if the signal exceeds the scheduled value.

3,830,056

CONVERSION MEANS FOR A GAS TURBINE ENGINE

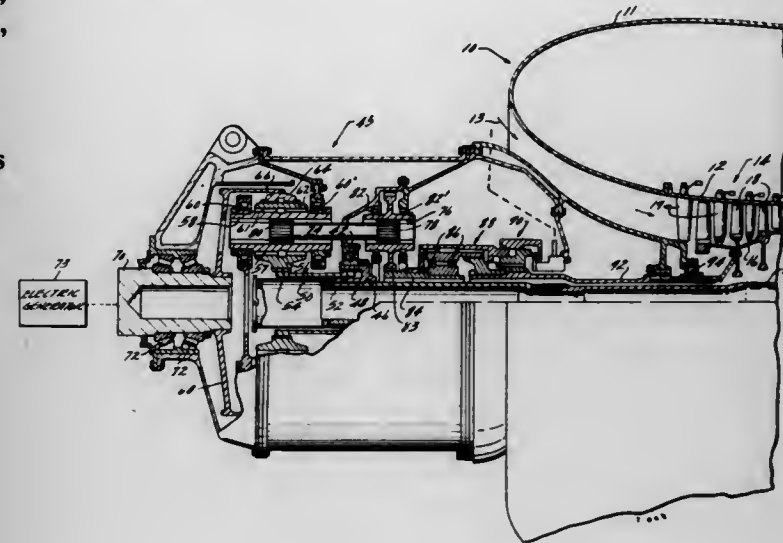
Robert John Willis, Jr., Nahant; Irving Kalkow, Swampscott; Harold John Jordan, Lynnfield, and John William Jacobson, Melrose, all of Mass., assignors to General Electric Company, Lynn, Mass.

Filed Dec. 4, 1972, Ser. No. 311,871

Int. Cl. F02c 3/10, 7/02

U.S. Cl. 60—39.16 S

6 Claims



A gas turbine engine of the free power turbine type, in which the power turbine rotates independently of the compressor driving turbine, is provided with conversion means for coupling and decoupling the power turbine from the compressor driving turbine. In the uncoupled mode of operation, the powerplant and its associated load may be quickly accelerated to operating speed with a minimum of externally applied starting torque and energy. Once operating speed is attained, the power turbine may be coupled to the compressor driving turbine in order that transient speed changes of the gas turbine engine in response to changes in the load requirement be maintained at a minimum.

3,830,057

PROPULSION METHOD USING HYPERGOLIC SOLIDS

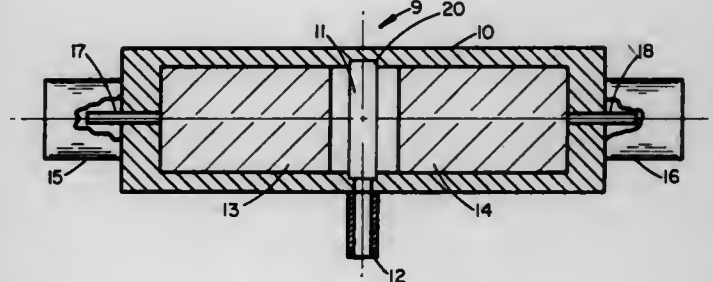
Bernard L. Iwanciw, and Richard O. MacLaren, both of Sunnyvale, Calif., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 29, 1963, Ser. No. 328,156

Int. Cl. C06d 5/06

U.S. Cl. 60—219

5 Claims



A method for controllably producing high temperature effluent comprising controllably contacting a solid fuel grain comprised of active alkali metal hydrides and their derivatives and a solid oxidizer grain comprised substantially of interhalogen alkali metal fluoride complexes, whereby said fuel and said oxidizer react hypergolically to produce heat, light and gas.

3,830,058

FAN ENGINE MOUNTING

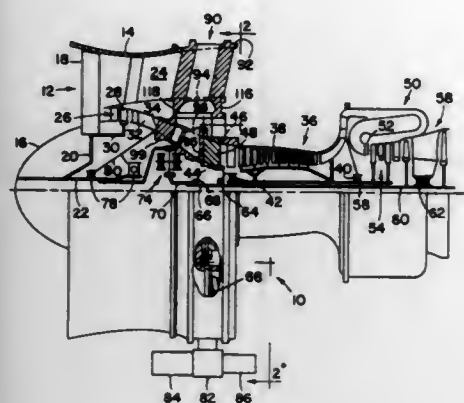
Richard Alnsworth, Huntington, Conn., assignor to Avco Corporation, Stratford, Conn.

Filed Feb. 26, 1973, Ser. No. 335,750

Int. Cl. F02c 3/06, 7/20

U.S. Cl. 60-226 R

20 Claims



A cast structural fan frame assembly has a core gas turbine engine secured to its aft end and a fan assembly secured to its forward end. The structural frame has a series of four mounting pads equally spaced around its outer ring to provide a high degree of flexibility in mounting the engine in an airframe. Loads are transmitted to the mounting pads through a series of streamlined struts that are canted to minimize the bending load on the outer ring. The struts interconnect with inner ribs that help distribute the load evenly over an inner ring to which the core engine is secured. The struts are hollow to provide access to and from the core engine without disturbing the fan flow path for accessory components, such as electrical, air and oil lines.

3,830,059

HEAT ENGINE

James O. Spriggs, Kensington, Md. 20795

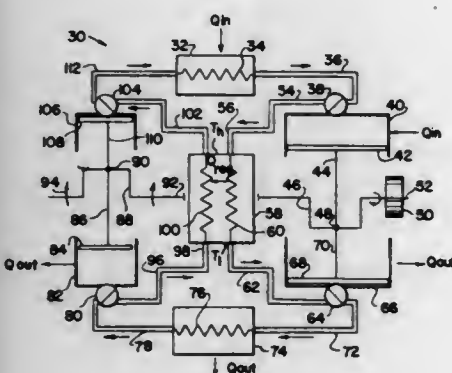
Continuation of Ser. No. 166,769, July 28, 1971. This

application June 7, 1973, Ser. No. 368,006

Int. Cl. F02g 1/04

U.S. Cl. 60-520

24 Claims



A closed cycle engine has a large volume power chamber, a large volume displacement chamber and two small equal volume displacement chambers all mechanically interconnected out of phase to successively pass separate bodies of working fluid through the system with heat flow either to or from the fluid on movement of fluid from one chamber to another.

3,830,060

SOLID MEDIUM THERMAL ENGINE

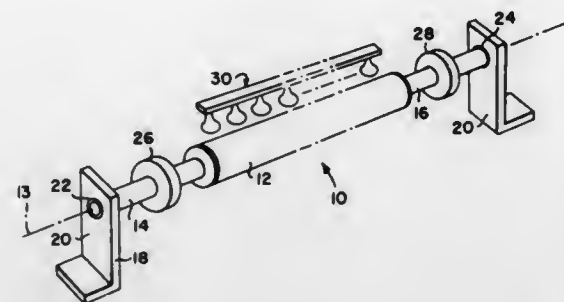
James R. Jedlicka, Saratoga; Le Roy R. Guist, Campbell, and Richard M. Beam, Santa Clara, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 27, 1973, Ser. No. 336,319

Int. Cl. F03g 7/06

U.S. Cl. 60-527

12 Claims



A thermal engine apparatus including an elongated cylindrical tube of metal providing a single phase working substance supported to rotate freely about its longitudinal axis while being subjected to continuous bending moment producing stress loads applied intermediate its ends wherein the bending moment causes portions of the tube to alternately pass through states of compression and tension as the tube rotates about its axis. The apparatus further includes structure for positioning the cylindrical tube relative to a source of radiant energy such that the radiant energy strikes that portion of the tube surface which is under compression, transfers thermal energy thereto, and the consequent expansion creates an unbalance of internal forces which causes the body to rotate about its axis.

3,830,061

FORCE-TRANSMITTING DEVICE

Lars Mattis Severinsson, Malmo, Sweden, assignor to Svenska Aktienbolaget Bromsregulator, Malmo, Sweden

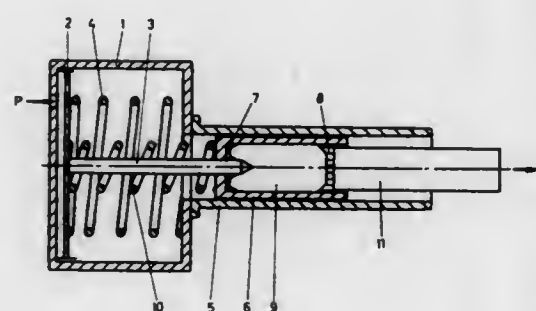
Filed Sept. 14, 1973, Ser. No. 397,435

Claims priority, application Great Britain, Sept. 21, 1972, 43716/72

U.S. Cl. 60-533

Int. Cl. F15b 7/00

4 Claims



A force-transmitting device moves a rod into a compressible medium in an expandable cylindrical casing moving axially within a tube to deliver a force upon movement into contact with a load so that when the casing encounters a load the medium expands the casing and frictionally clamps it within the tube.

3,830,062

RANKINE CYCLE BOTTOMING PLANT

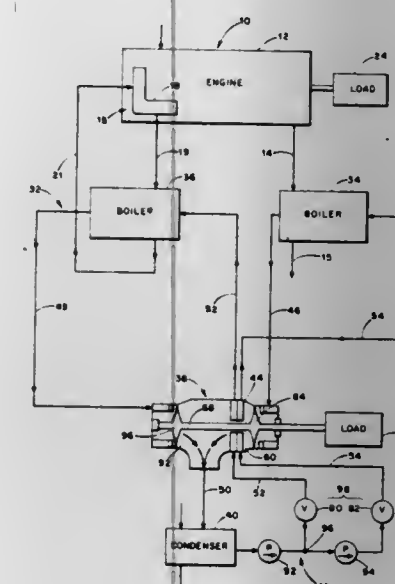
Dean T. Morgan, Sudbury, and Jerry P. Davis, Concord, both of Mass., assignors to Thermo Electron Corporation, Waltham, Mass.

Filed Oct. 9, 1973, Ser. No. 404,451

Int. Cl. F01k 25/00

U.S. Cl. 60-618

10 Claims U.S. Cl. 60-667



A primary power source rejects heat by means of its exhaust and its cooling system. A Rankine cycle engine includes a dual vapor generator system for simultaneously utilizing heat rejected by both the exhaust and the cooling system to vaporize a working fluid in a bottoming cycle. Subsequently, the vaporized working fluid is expanded to produce work.

3,830,063

ENERGY STORAGE AND REMOVAL METHODS FOR RANKINE CYCLE SYSTEMS

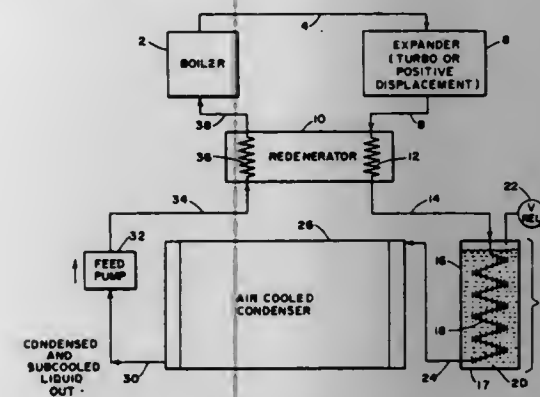
Dean Thomas Morgan, Sudbury, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.

Filed Mar. 30, 1973, Ser. No. 346,397

Int. Cl. F01k 25/00

U.S. Cl. 60-645

16 Claims



A system and method for handling excess energy encountered under load conditions substantially higher than those attendant upon ordinary running conditions in a variable power vapor cycle engine. Secondary cooling is employed only as needed during periods of high load. The secondary cooling may be in the form of a heat exchanger immersed in a liquid contained in an air-cooled thermal storage chamber or, in the alternative, may be obtained by spraying a conventional primary condenser with coolant from a pressurized storage tank during high load periods.

In the first-mentioned secondary cooling arrangement, the vapor or working fluid of the engine may be subjected to secondary cooling before or after the vapor passes through the primary condenser.

3,830,064

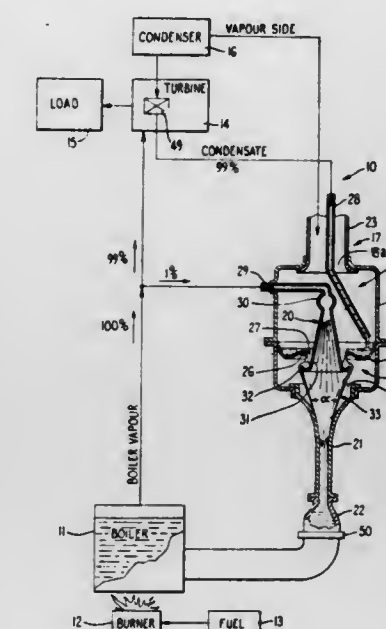
INJECTOR FOR FURNISHING LIQUID AT A LOW PRESSURE TO A VESSEL AT A HIGHER PRESSURE

Lucien Yehuda Bronicki, Rehovoth, Israel, assignor to Ormat Turbines (1965) Ltd., Yavne, Israel

Filed Aug. 23, 1973, Ser. No. 390,982

Int. Cl. F01k 13/02; F01c 17/00

5 Claims



An injector for furnishing liquid at a low pressure to a vessel at a higher pressure comprising: an enclosed chamber having, at the bottom end, a centrally located downwardly converging combining tube, and in the middle, an annular trough whose circumferential lip defines a central opening connecting the upper end of the chamber to the lower end, means for conducting low pressure liquid into the trough from which it overflows, a nozzle centrally supported in the chamber having a downwardly and outwardly directed tube extending through the central opening and terminating in the lower chamber in an outwardly directed circumferential flange positioned below the lip of the trough for catching the liquid overflowing from the trough and causing it to pour over the flange in a continuous, circumferential concavely shaped curtain of liquid so that high pressure vapor furnished to the nozzle expands therein into the interior of the curtain of liquid condensing thereon to form a converging stream of liquid that enters the combining tube in a manner that maintains the velocity of the stream, and a diverging diffuser tube connected to the outlet of the combining tube for slowing the stream and converting its velocity head to a pressure head.

3,830,065

VAPOR PRESSURIZED HYDROSTATIC DRIVE

Roy E. McAlister, 52 85 N. Red Rock Dr., Phoenix, Ariz. 85018

Division of Ser. No. 58,934, July 28, 1970. This application

Feb. 28, 1972, Ser. No. 229,764

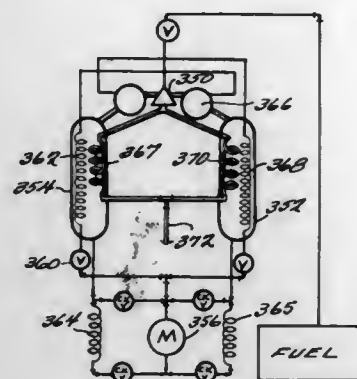
Int. Cl. F01k 25/00, 27/00

U.S. Cl. 60-670

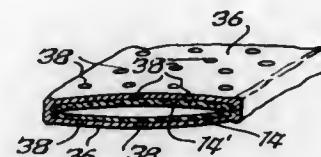
36 Claims

A hydrostatic drive system generally of the type wherein vapor is alternately directed into one of two reservoir tanks so that working fluid in that tank is forced out of the tank by pressure of the vapor and through a fluidic motor to generate a mechanical output before it returns to refill the other tank. When the first tank is substantially depleted, the vapor pressure is directed into the refilled tank so that fluid from that tank now flows through the motor to refill the first, now depleted, tank. In one embodiment, cyclic pressure generated by a vapor generator forces fluid cyclically through an AC fluid motor. In another embodiment, heat from the working fluid is employed to generate the vapor pressure and reduce

thereof composed of a permeable, fibrous material through which water may pass at a slow, controlled rate with a negligible pressure drop in the system. The flexible tubing is



preferably formed from two superposed strips or webs of thermoplastic material, at least one of which is permeable, heat sealed along their edges.

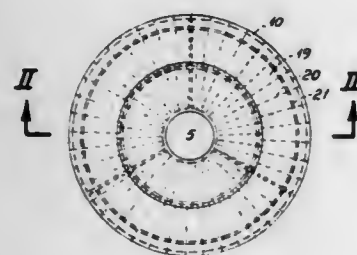


Phillip W. Peter, 123 San Diego, San Clemente, Calif. 92672
Continuation of Ser. No. 19,012, March 12, 1970, abandoned.
This application Mar. 8, 1972, Ser. No. 232,957
Int. Cl. E02b 1/00, 17/00

9 Claims

Continuation of Ser. No. 667,954, Sept. 15, 1967, abandoned.
This application Apr. 13, 1971, Ser. No. 133,720

1 Claim



The system enables underwater mining or other earth penetration to be conducted at atmospheric pressure in deep water through a hollow cylindrical entry column formed of concentric, radially spaced, cylindrical tubes extending from above water into the bottom and containing in the spaces therebetween water columns of progressively decreasing depth toward the center for offsetting the static pressure of the surrounding water. Constructible in situ, the column serves as a monopod adapted to support above water a platform on which any suitable structure can be mounted. The column is stabilized against dynamic lateral forces by jets, anchors or other counteracting devices and is removable for salvage or reuse elsewhere on completion of a particular operation.

Ping-Wha Lin, 506 S. Darling, Angola, Ind. 46703
Filed July 30, 1973, Ser. No. 384,141
Int. Cl. E02d 37/00, 31/00

10 Claims

Filed Aug. 6, 1970, Ser. No. 61,661
Int. Cl. E02b 13/00

U.S. Cl. 61—12 **14 Claims**

An irrigation system, particularly for subsurface irrigation comprises flexible tubing having a portion of the surface

Robert O. Osborn, Chesterfield Co., Va., and Donn G. Boyle, Lockport, N.Y., assignors to Boyle and Osborn, Lockport, N.Y.

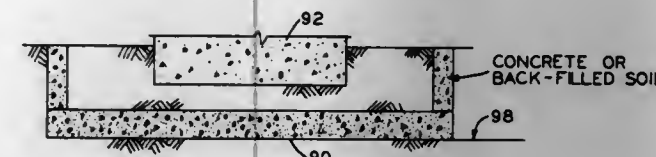
Filed Aug. 6, 1970, Ser. No. 61,661
Int. Cl. E02b 13/00

14 Claims

An irrigation system, particularly for subsurface irrigation comprises flexible tubing having a portion of the surface

789

from the hull during transport. The drilling derrick or other upstanding structure is movable on the surface of the hull to adjust the center of gravity of the platform to accommodate environmental conditions. Also, such derrick or structure is

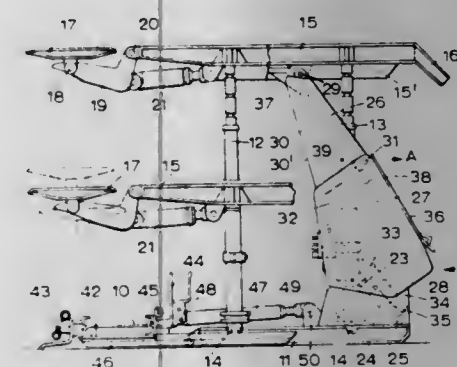


A detailed perspective view of a mobile offshore platform. The platform consists of a base structure (A) with a central vertical column (1) and several vertical support legs (2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100). A crane (1) is mounted on the platform, with its boom (2) and counterweight (3) visible. The platform is shown on a base (A) with a curved edge (B). Various components are labeled with numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

Harry E. Rosenberg, Ludinghausen; Egon Wojaczek, Bockum-Hovel; Lubomir Plevak, Aschenberg, and Kunibert Becker, Werl, all of Germany, assignors to Gewerkschaft Eisenhutte Westfalen, Westfalen, Germany

Filed Oct. 2, 1972, Ser. No. 293,895
Claims priority, application Germany, Oct. 2, 1971,
2149380; Apr. 13, 1972, 2217830

24 Claims



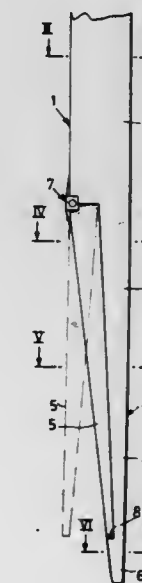
used to lift and transport separated upper leg sections to and from stowage positions on the hull.

Bruno Visconti, Corso Indipendenza 12, Milan, Italy
Filed Mar. 1, 1973. Ser. No. 337,206

Claims priority, application Italy, Mar. 2, 1972, 21337/72;
Germany, Apr. 12, 1972, 2217677

U.S. Cl. 61—53,6

3 Claims



U.S. Cl. 61—46.5 **Int. Cl. E02b 17/00** **19 Claims**
A jack-up type of marine drilling platform has a buoyant hull for use in transporting the platform to the drilling site, with longitudinally separable legs which project upwardly

A casting form for foundation piles is disclosed, which consists of a tubular body having a solid pointed end, a swingable shell-valve mating the outer surface of the tubular body being hinged to said body. When the shell-valve is closed, it exactly mates the outer surface of the tubular form due to a rebate formed on the tubular body to house the shell valve, whereas the thrust of the filler material (e.g. fluidized concrete) opens the shell valve and the filler material is allowed to pour nearly axially downward, undisturbed.

3,830,073

DISSOLVING A VOLATILE FRACTION IN A LIQUEFIED GAS

Pierre Cappelletto, Paris, France, assignor to L'Air Liquide, Societe Anonyme Pour L'Etude Et L'Exploitation de Procédes Georges Claude, Paris, France

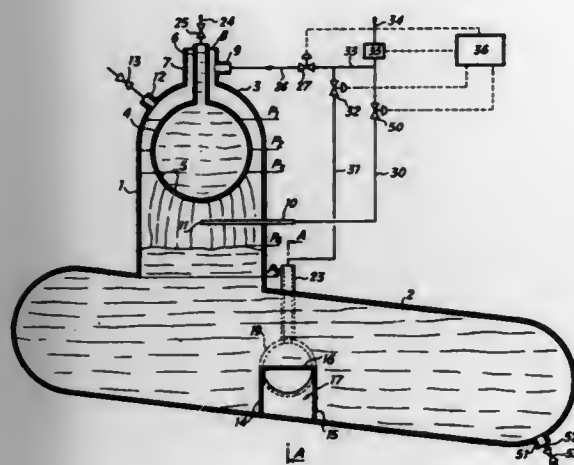
Filed July 12, 1971, Ser. No. 161,461

Claims priority, application France, July 15, 1970, 70.25958

Int. Cl. E02b 9/04

U.S. Cl. 62—17

1 Claim



A volatile gas such as nitrogen is dissolved in a liquefied gas such as natural gas, by providing a relatively small interface between the vapor and the liquid at a low flow rate of the vapor toward the liquid, and a relatively large interface at a relatively high flow rate of the vapor. This is done by introducing the vapor and the liquid into an upright conduit in which is disposed a spherical container for the liquid. The spherical container has a perforated bottom. A low vapor flow rate, the liquid immerses the container and the interface is small; but at a high vapor flow rate, the liquid level in the conduit is forced down below the perforations of the container, and these exposed perforations establish jets of liquid through the vapor, thereby increasing the interface.

3,830,074

VAPOR RECOVERY SYSTEM

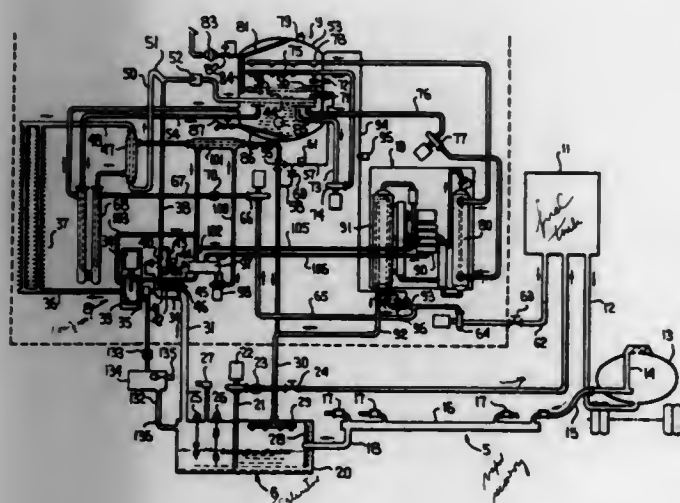
Richard A. Nichols, Santa Ana, Calif., assignor to Parker Hannifin Corporation, Cleveland, Ohio

Filed Dec. 6, 1971, Ser. No. 205,054

Int. Cl. F17c 13/12

U.S. Cl. 62—54

39 Claims



Vapor recovery system for recovering fuel vapors normally lost during the filling of tanks and including basically an ab-

sorber having associated therewith components to condition the vapor and liquid entering the absorber, to improve absorber efficiency, to reduce thermal losses and to improve system safety.

3,830,075

SEPARATION OF FRESH WATER FROM AQUEOUS SOLUTIONS BY DIRECT CONTACT HEAT EXCHANGE

Sing-Wang Cheng, and Chen-Yen Cheng, both of 2443 S. Krameria St., c/o Chen Yen Cheng, Manhattan, Kans. 80222

Continuation of Ser. No. 346,112, Feb. 20, 1964, Pat. No. 3,354,083. This application Nov. 17, 1967, Ser. No. 683,800

The portion of the term of this patent subsequent to Nov. 21, 1984, has been disclaimed.

Int. Cl. B01d 9/04

U.S. Cl. 62—58

16 Claims

In the process of effecting rectification of an aqueous solution into relatively rich and lean portions by a first step of partially freezing the aqueous solution by removal of heat energy therefrom to form ice, a second step of separating the ice from the mother liquor, and a third step of melting the separated ice by the addition of heat energy so that the mother liquor and the melted ice respectively constitute the relatively rich and lean portions; wherein the first step is conducted by maintaining a heat exchange relation between the aqueous solution and an at least partially frozen material while also maintaining such material under a pressure such that the prevailing liquid-solid transition temperature thereof is less than the currently prevailing freezing temperature of the aqueous solution to thereby melt at least a portion of said material and freeze ice from the aqueous solution, and/or the third step is conducted by maintaining a heat exchange relation between the separated ice and an at least partly melted material while also maintaining the latter under a pressure such that the prevailing liquid-solid transition temperature thereof is higher than the currently prevailing liquid-solid transition temperature of the separated ice to thereby freeze at least a portion of the material and melt at least a portion of the ice.

3,830,076

DISPENSING PROCESS

David C. Williams, Royal Oak, Mich., assignor to Parke, David & Company, Detroit, Mich.

Filed June 21, 1973, Ser. No. 372,045

Int. Cl. B65b 63/08

U.S. Cl. 62—60

7 Claims

A method is provided for dispensing an aqueous product packaged in frozen condition in a plastic container or envelope which comprises holding the frozen packaged product at substantially lower temperatures (e.g., at "cryogenic" temperatures) at which the package material is brittle or structurally weak for a time sufficient to weaken the container, breaking the weakened container to expose the frozen contents and isolating the latter.

3,830,077

HEAT EXCHANGER FOR CONNECTION IN EVAPORATOR-TO-COMPRESSOR LINE OF AIR CONDITIONER

Harold A. Willen, 1399 Holly Ln. N.W., Atlanta, Ga. 30329, and James L. Little, Atlanta, Ga., assignors to said Willen by said Little

Filed July 20, 1972, Ser. No. 273,630

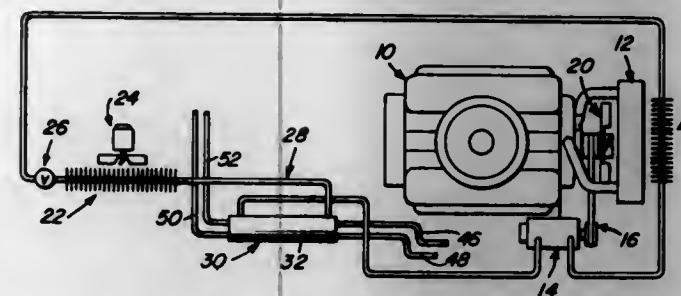
Int. Cl. F25b 7/02

U.S. Cl. 62—238

1 Claim

A heat exchanger connected into the refrigerant return line from the evaporator to the compressor in an air conditioning

system of a vehicle to enable the cooling of various working fluids in a vehicle such as transmission fluid, gasoline, power being thereafter induced or allowed to solidify and the frozen



steering fluid or the like to render operation of the vehicle more efficient and dependable.

3,830,078

ANTI-FROST APPARATUS

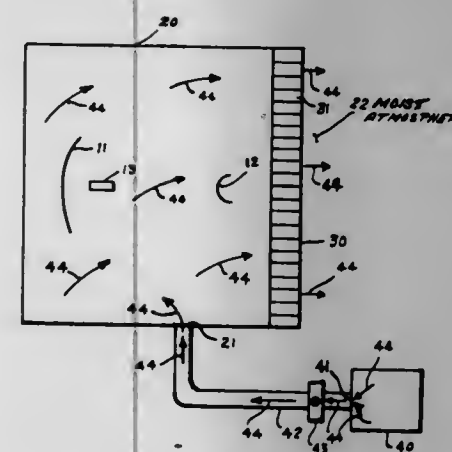
Wendell S. Read, Redondo Beach, Calif., assignor to The United States of America as represented by the Secretary of the United States Air Force, Washington, D.C.

Continuation-in-part of Ser. No. 24,893, March 24, 1970. This application July 13, 1973, Ser. No. 379,028

Int. Cl. F25d 21/10

U.S. Cl. 62—282

1 Claim



Apparatus for preventing frost from forming on cold components in a moist atmosphere. The apparatus includes: a housing to enclose the cold components on which frost is to be prevented from forming, with the housing having an inlet and an outlet; a honeycomb mesh fixedly positioned across the entire outlet; a source of cold dry nitrogen connected to the housing inlet; and valving means, between the source of nitrogen and the housing inlet, to control the flow of the cold dry nitrogen from the nitrogen source to the housing.

3,830,079

PACKAGING OF LIQUIDS

Henry George Horseywell, Totton, and Arthur John Terry, Southampton, both of England, assignors to Brown & Williamson Tobacco Corporation, St. Louisville, Ky.

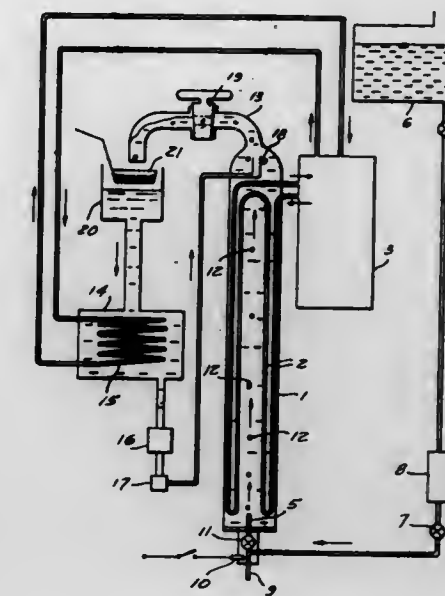
Continuation of Ser. No. 249,737, May 2, 1972, abandoned, which is a division of Ser. No. 22,354, March 31, 1970, Pat. No. 3,693,369. This application Aug. 27, 1973, Ser. No. 391,688

Int. Cl. F25c 1/00

U.S. Cl. 62—322

4 Claims

The invention concerns a method and apparatus for packaging a liquid. The liquid is fed portion-wise through cooling means to produce frozen solid entities which are transferred to apparatus which applies a substantially even layer of coating



3,830,080

NECKLACE SNAP COMBINATION

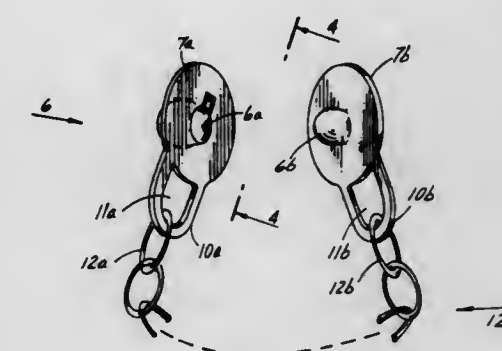
Rudolph Friedlander, 680 Fort Washington Ave., New York, N.Y. 10040

Filed May 3, 1973, Ser. No. 356,730

Int. Cl. A44b 17/00

U.S. Cl. 63—2

2 Claims



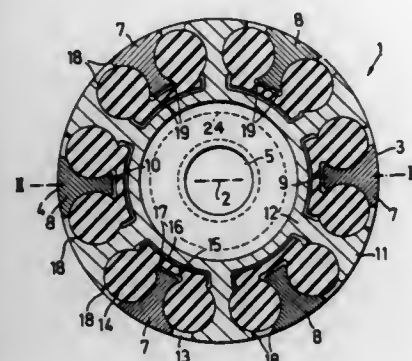
This invention relates to a novel necklace snap device and the necklace or bracelet utilizing such device, including male and female snaps having link structure attached along a lateral edge of the flat structure in a manner such that the male-female snaps when fastened matedly to one-another will lie flat against the body or surface of the skin of the person wearing the necklace around the neck or the bracelet around the wrist and which provides by the snap arrangement a secure means for avoiding the necklace device from opening and accidentally losing the necklace or bracelet during the course of wearing the same, but concurrently provides for easy mechanism for taking-off the necklace or bracelet by merely prising open conventional type snaps which have been combined with the necklace or bracelet structure in substitution for the old prior fastening devices which required intricate maneuvering of the fingers and that the fingers be agile in order to remove the locks or otherwise unfasten one ring from another at the opposing ends of the necklace or bracelet.

3,830,081
CLUTCH

Bernhard Weber, Hirzweiler, and Alfred Pfaff, Schiffweiller, both of Germany, assignors to Harold Barth, Saar, Germany
 Filed Oct. 25, 1972, Ser. No. 300,612
 Claims priority, application Germany, Oct. 27, 1971, 2153411

Int. Cl. F16d 3/64

U.S. Cl. 64—14



A pair of clutch plates are provided on their respective juxtaposed surfaces with two annuli of circumferentially spaced claws, with the claws of each annulus interengaging between adjacent claws of the other annulus. Intermediate second claws are also provided, each being located between two circumferentially adjacent ones of the first-mentioned claws and defining with them circumferentially offset compartments. Pressure bodies are accommodated in these compartments and are of a material having a degree of elasticity which is substantially greater than that of the material of the second claws which latter have limited freedom of movement relative to the first claws in circumferential direction.

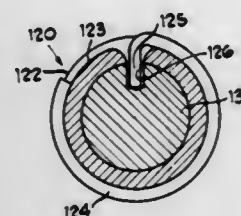
3,830,082
TRANSMISSION

Julius A. Clauss, Jr., Birmingham; Jack S. Conley, Milford, and Robert W. Lemon, Farmington, all of Mich., assignors to Berg-Warner Corporation, Chicago, Ill.
 Division of Ser. No. 67,326, Aug. 27, 1970, Pat. No. 3,724,626.
 This application Dec. 4, 1972, Ser. No. 311,605

Int. Cl. F16d 3/52

U.S. Cl. 64—15 C

2 Claims



An automatic transmission providing variable speed ratio and reverse drives between drive and driven shafts and including friction-engaging devices, in the form of friction clutches and brakes, for establishing the drives. The devices are operable by hydraulic servomotors, certain servomotors each having first and second pistons arranged in tandem, with the first piston being movable by hydraulic fluid to engage the associated friction device, the second piston being movable by hydraulic fluid to also move the first piston during the application of hydraulic fluid to the first piston to thereby substantially double the effective area of the pistons of the servomotor to provide additional increased pressure to the engaged friction device. The transmission also includes an hydraulic governor fixed to the driven shaft by a locking spring clamp connector positively holding and keying the governor to the shaft in a simple assembly operation and in a manner to insure sealing between fluid-passage ports in the shaft and in the governor body for transfer of activating hydraulic fluid.

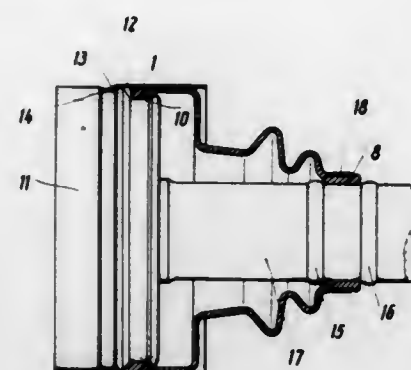
3,830,083
FLEXIBLE PROTECTIVE HOUSING FOR A UNIVERSAL JOINT AND SHAFT

Theodor Hadick, Lohmar, and Karl-Heinz Muller, Wissen, both of Germany, assignors to Uni-Cardan AG, Lohmar/Rheinl., Germany
 Filed Sept. 13, 1973, Ser. No. 396,689

Int. Cl. F16d 3/84

32 Claims U.S. Cl. 64—32 F

9 Claims



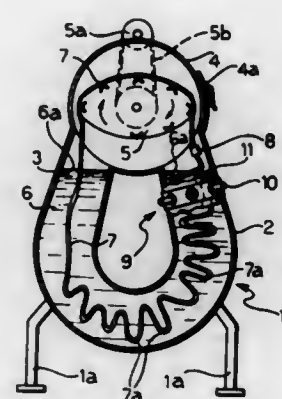
A flexible protective housing or sealing boot for universal joint and a shaft has a cylindrical or tapering portion extending from its attachment to a component of a universal joint and this portion merges into a radial portion which in turn merges into a cylindrical or tapered portion having a smaller diameter than the first mentioned axial portion of the boot. One or more corrugations or folds of progressively decreasing diameter are connected to the second axially extending portion and the last corrugation merges into a mounting portion for mounting upon the shaft.

3,830,084
APPARATUS FOR CONTROLLING THE MOVEMENT OF PIECE GOODS IN DYEING AND FINISHING MACHINES

Renzo Caputi, Via Caligaris 4, Strona (Vercelli), Italy
 Filed Apr. 27, 1973, Ser. No. 355,098
 Claims priority, application Italy, Apr. 27, 1972, 23617/72
 Int. Cl. B05c 3/134, 11/00; G08b 21/00

U.S. Cl. 68—178

8 Claims



This invention provides a control apparatus for use with a dyeing and/or finishing machine of the kind in which a skein or rope of material is passed through a closed circuit including tubular conduits. A magnet or metal element moves with the skein or rope and in one zone of the closed circuit an electromagnetic detector is arranged to provide pulses in response to the passage of the said element through the zone. If the pulses fail to appear within a given interval of the time taken for one complete circuit of the dyeing machine in normal operation of the latter the detecting circuit operates an alarm device signalling stoppage of the skein or rope in the machine.

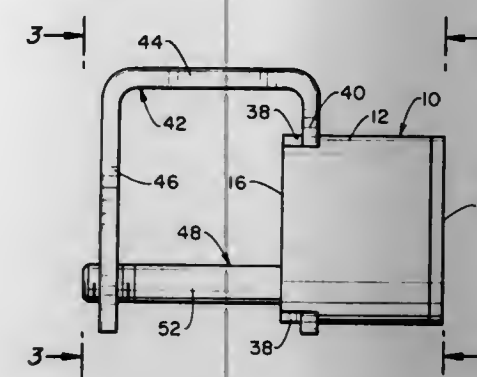
3,830,085
LOCK DEVICE INCLUDING STUD LOCKING U-SHAPED KEEPER

John R. Gerlach, Monterey Park, Calif., assignor to Emkart Corporation, Bloomfield, Conn.
 Filed Mar. 19, 1973, Ser. No. 342,733

Int. Cl. E05b 67/00

U.S. Cl. 70—35

6 Claims



A lock case has a transverse slot formed therein receiving one leg portion of a U-shaped keeper, the remainder of the keeper extending away from the lock case with the other leg portion spaced therefrom. A stud passes through the lock case and end parts of the keeper leg portions being threadably engaged with one of the keeper leg portions. An engagement cam is pivoted by the lock into locked position received in a radial slot of the stud retaining the stud against rotation and thereby locking the parts in assembly. Lock movement of the engagement cam to an unlocked position releases the stud for rotation permitting stud and keeper disassembly.

3,830,086
IMPACT HYDRAULIC PRESSURE GENERATOR

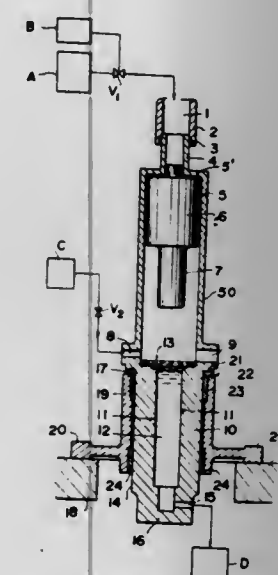
Hiroshi Tominaga, Yokohama, Japan, assignor to Tokyo Sharya Sieso Kabushiki Kaisha, Kanazawa, Japan
 Filed Sept. 26, 1973, Ser. No. 400,762

Claims priority, application Japan, Sept. 28, 1972, 47-97446

Int. Cl. B21d 26/02

U.S. Cl. 72—54

9 Claims



In an impact hydraulic pressure generator wherein high-pressure surges are generated virtually instantaneously by accelerating a hammer in a cylinder using high-pressure gas, where the hammer carries a plunger which is driven into a chamber containing liquid, shock and vibration are minimized by mounting the casing containing the hammer, plunger and chamber in a support in such fashion that said casing can move in the direction opposite to that in which said plunger and hammer move during the generation of a pressure surge.

The momentum given the casing is equal to that given the hammer and plunger, but the kinetic energy given the casing is much smaller. This kinetic energy is absorbed at the end of a pressure surge by a compressible material located between an end face of the support and a shoulder on the outer surface of the casing. Means are provided for restoring the casing to a holding position, in which condition the generator is in condition for producing another pressure surge.

3,830,087
METHOD OF MAKING A CROSS-RIFLED VAPOR GENERATING TUBE

Hisashi Nakamura, Ibaragi, and Masatoshi Tanaka, Nishinomiya, both of Japan, assignors to Sumitomo Metal Industries Limited, Osaka, Japan

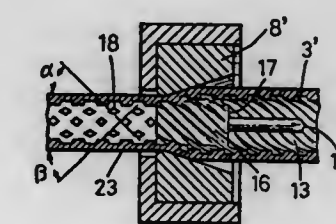
Division of Ser. No. 51,434, July 1, 1970, Pat. No. 3,734,140.

This application July 29, 1971, Ser. No. 167,442

Int. Cl. B21b 13/20

U.S. Cl. 72—77

4 Claims



A cross-rifled vapor generating tube is formed by rotating a smooth tube within a die at a first spiral lead angle to form a number of spiral grooves on the inside surface thereof and subsequently cold-drawing a number of grooves having a second spiral lead angle to thereby form a number of regularly spaced projections on the inside surface of the tube. The lead angles of the first and second spirally formed grooves are reversed with respect to one another and the sum of their angles equals 20°-80°. An improved generating tube is formed when the first and second spiral lead angles do not exceed 43°. In a modified embodiment the second spiral lead angle is zero.

3,830,088
CORRUGATION-FORMING MACHINES

Neale Sansome Couper, Coventry, and Norman Philip Deane, Rugby, both of England, assignors to Covrad Limited, Warwickshire, England

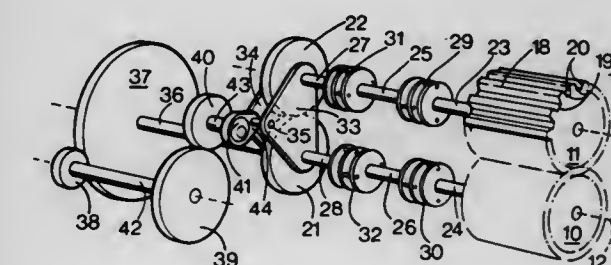
Filed Apr. 23, 1973, Ser. No. 353,510

Claims priority, application Great Britain, May 16, 1972, 22853/72

Int. Cl. B21d 13/04

U.S. Cl. 72—196

13 Claims



A corrugation-forming machine includes two rotatable die rolls formed with intermeshing teeth between which material to be corrugated is passed. The teeth have sharp corners to produce corresponding sharp corners on the corrugated material. During operation the die rolls are oscillated so that their relative angular velocity varies to accommodate the different velocities that would otherwise arise between the tips and the roots of the teeth.

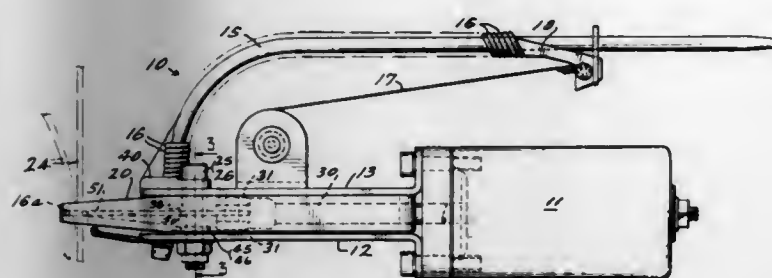
3,830,089 RING CLINCHING TOOL

H. Edward Boyd, Euclid, and George R. Curtiss, Chardon, both of Ohio, assignors to Cooper Industries, Inc., Houston, Tex.

Filed Oct. 1, 1973, Ser. No. 402,586
Int. Cl. B21d 7/06

U.S. Cl. 72-407

11 Claims



The invention is an improved power hog ring or C-ring clinching tool which is capable of maintaining complete control of the individual rings as they are fed from the magazine into the jaws and then into the clinching grooves of the tool. To provide the controlled release of a single ring from the end of the magazine, the tool employs laterally movable, spring biased jaws which yield enough to admit a ring when it is forced by the feeder blade between the magazine tip and the jaws. This allows the magazine to be firmly attached to the body of the tool with no moving parts, and tends to prevent jamming of rings in the jaws or the unintended escape of rings therefrom.

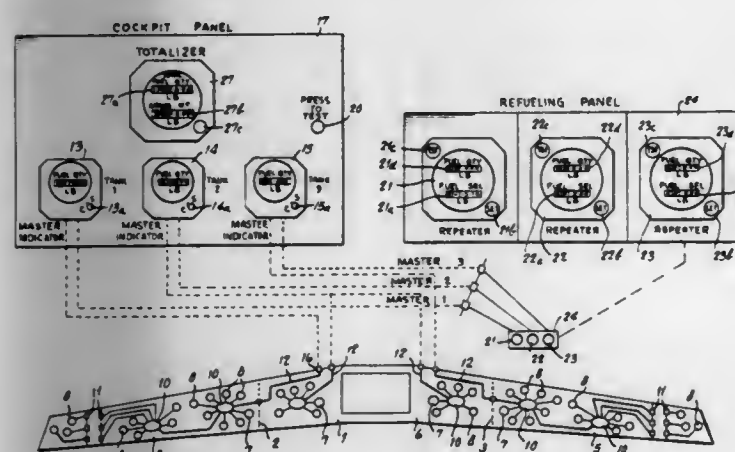
3,830,090 ELECTRICAL MEASURING APPARATUS EMPLOYING ANALOG CONDITION RESPONSIVE MEANS TO OPERATE REMOTE DIGITAL INDICATORS

Walter Hersch, Woodbury, and Ira A. Rubel, Smithtown, both of N.Y., assignors to Gull Airborne Instruments, Inc., Smithtown, N.Y.

Filed July 27, 1972, Ser. No. 275,765
Int. Cl. G01f 23/26, 25/00

U.S. Cl. 73-1 R

14 Claims



This apparatus measures the weight of fuel in a plurality of tanks on an aircraft. In each tank, there are provided a plurality of capacitors connected so that their impedance varies linearly as an analog function of the volume of the fuel in the tank. A compensating capacitor, totally submerged in the fuel, provides another analog indication that varies with the density of the fuel. These analog indications are transmitted to a master indicator, where they serve as inputs to an analog-to-digital converter. The converter's digital output is the weight of fuel in the tank.

The master indicators for the several tanks are connected to a totalizer indicator which sums the readings of the master indicators and provides an indication of the total fuel in all the

tanks. The totalizer also has a gross weight indicator in which a tare weight reading may be manually set. The tare weight is combined with the total fuel weight reading to give a reading of the total weight of the aircraft.

Each master indicator is connected through a digital transmission system to a repeater indicator located in a fuel loading panel on the aircraft wing. This digital transmission system is similar to that connecting each master indicator to the totalizer and comprises two control lines and a data line. The two control lines respectively carry synchronizing pulses and numerical order identification pulses. The data line carries trains of pulses representing the full weight being displayed by the master indicator.

3,830,091 ACCELEROMETER COMPARATOR

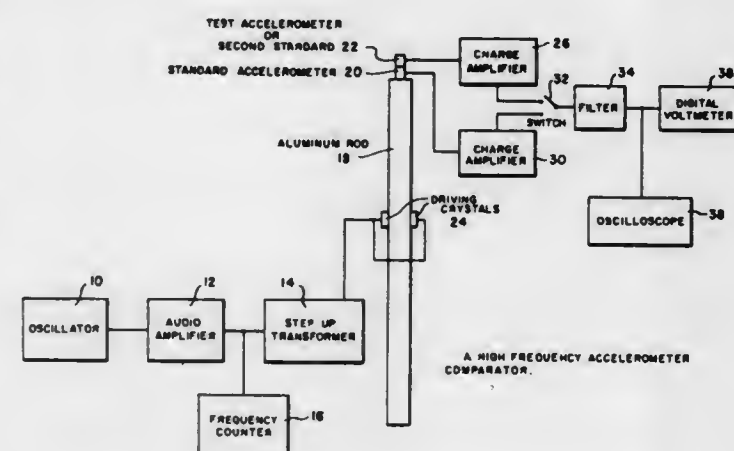
Joel A. Sinsky, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 5, 1973, Ser. No. 348,344

Int. Cl. G01p 21/00

U.S. Cl. 73-1 D

4 Claims



An accelerometer test system using an aluminum rod as a shaker or vibrator for comparing the performance of a test accelerometer with a standard accelerometer. The rod is driven by piezoelectric crystals affixed to its sides. The outputs of both accelerometers at ten different frequencies are amplified, filtered and displayed on a digital voltmeter and on an oscilloscope.

3,830,092 METER PROVING APPARATUS

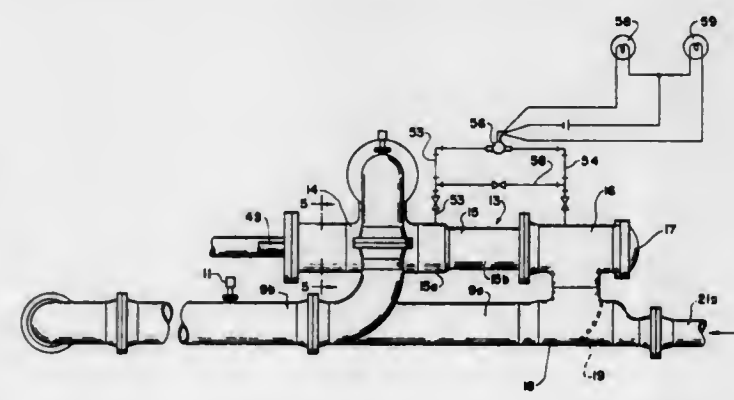
Marvin H. Grove, and Ronald G. Dunegan, both of Houston, Tex., assignors to M & J Valve Company, Houston, Tex.

Filed Aug. 10, 1972, Ser. No. 279,622

Int. Cl. G01f 25/00

U.S. Cl. 73-3

3 Claims



A meter prover apparatus and method making use of a metering pipe together with an interchange connecting the ends

of the pipe through which spheres are transferred in connection with making meter proving runs. The interchange includes a sleeve made in two sections, one of which has a diameter slightly less than the diameter of the spheres, and the other of which is substantially larger in diameter. A piston-like plunger has a sealed fit within the larger sleeve section and power means serves to reciprocate the plunger between retracted and projected positions. When the plunger is moved to projected position it causes a sphere to be inserted into the inlet end of the smaller sleeve section, and also by displacement of liquid in the larger sleeve it causes the inserted sphere to move part way through the sleeve and a previously inserted sphere to be discharged from the sleeve. Also improved means to prevent incoming spheres from interfering with movement of the plunger to retracted position.

3,830,093

APPARATUS FOR ASSESSING THE DAMPING PERFORMANCE OF VEHICLE SUSPENSION SYSTEMS

Reginald Stanley Emerson, Buckingham, England, assignor to Leslie Hatridge Limited, Buckinghamshire, England

Division of Ser. No. 161,020, July 9, 1971, Pat. No. 3,774,439.

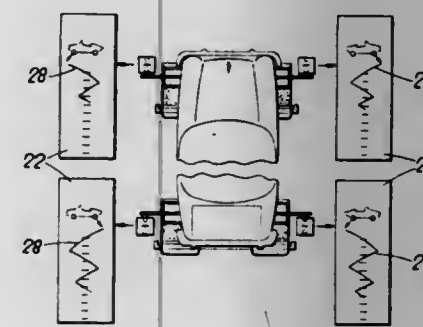
This application June 29, 1973, Ser. No. 375,152

Claims priority, application Great Britain, July 10, 1970, 33706/70

Int. Cl. G01m 17/04

U.S. Cl. 73-11

7 Claims



Indicating means for assessing and indicating the damping performance of a vehicle suspension system by detecting and recording the reciprocating movements of part of the vehicle body following an initial disturbing displacement of at least part of the vehicle suspension system, the said indicating means comprising a pivoted lever adapted to be releasably attached to a part of the body of a vehicle to be tested, sheet material feed mechanism connected to the lever and arranged to move record sheet material along one axis in one and the same direction both when the lever swings in one direction and when it swings in the opposite direction about its pivot point, and a stylus arranged to move back and forth on the record sheet material transversely of the said axis as the lever swings about its pivot point, the record sheet material thereby being moved along one axis by the reciprocating movements of the said part of the vehicle body through an amount proportional to the sum total of those movements in both directions.

3,830,094

METHOD AND DEVICE FOR DETECTION OF SURFACE DISCONTINUITIES OR DEFECTS

Lubert J. Leger, Friendswood, Tex., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 24, 1973, Ser. No. 326,326

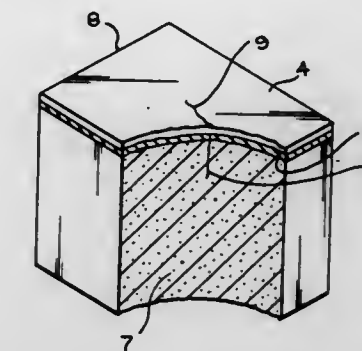
Int. Cl. G01n 19/08

U.S. Cl. 73-15.4

16 Claims

Surface discontinuities or defects such as cracks and orifices are detected by applying a penetrating fluid, preferably a liquid, to a test surface so as to cause the liquid to penetrate any minute cracks or opening in the surface, removing the ex-

cess liquid from the surface, and leaving a residual in the discontinuities, cavities, or in the subsurface materials. A sheet of porous material impregnated with a sensitizing medium which will react with vapors of the residual liquid to form a visible pattern is applied to the test surface. The residual liquid



trapped in the discontinuities, cavities, or subsurface material is vaporized, and, as the vapors contact the sensitizing medium on the sheet, a pattern corresponding to the discontinuity is formed on the sheet material and the penetrant completely removed from the sample.

3,830,095

GAS VOID DETECTOR FOR LIQUID METAL

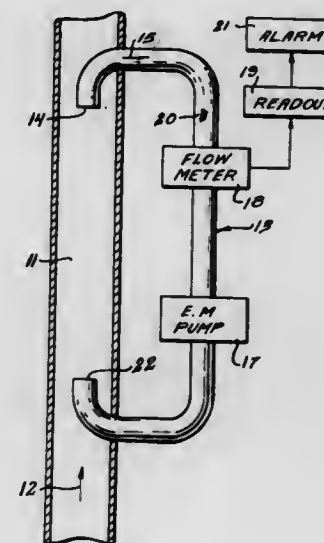
Robert A. Jaross, Sandwich, Ill., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed June 26, 1973, Ser. No. 373,713

Int. Cl. G01n 7/00

U.S. Cl. 73-19

7 Claims



Detection of gas voids in a liquid metal is accomplished by pumping the liquid metal through a flowmeter with an electromagnetic pump. The flowmeter measures the rate of flow of the liquid metal which decreases with the presence of gas voids in the liquid metal. When the flow rate is reduced because of the presence of such gas voids an alarm signal is generated.

3,830,096

A LOAD INSENSITIVE TYPE FLUID RESTRICTOR

Toshiro Hirao, Yokohama, and Eiichi Ando, Tokyo, both of Japan, assignors to Meidensha Electric Mfg., Co., Ltd., Tokyo, Japan

Filed July 18, 1972, Ser. No. 272,869

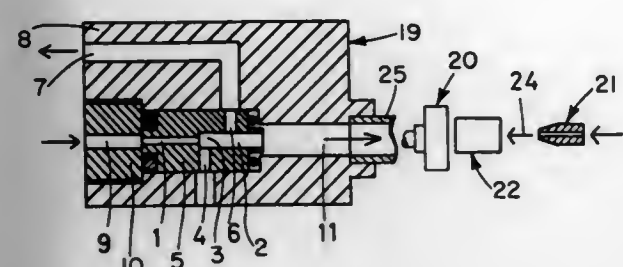
Int. Cl. F15c 1/16; G01b 13/12

U.S. Cl. 73-37.5

2 Claims

A load insensitive type fluid restrictor for providing a substantially constant output under varying load diameters. The restrictor includes a body having a fluid inlet passage of small

diameter, a fluid outlet passage in communication therewith and having a relatively large diameter and one or more fluid discharge—suction passages of the same diameter as the fluid



outlet passage. The fluid discharge—suction passages are disposed at a right angle to the axis of the fluid inlet and outlet passages and communicate the junction of the inlet and outlet passages with the atmosphere.

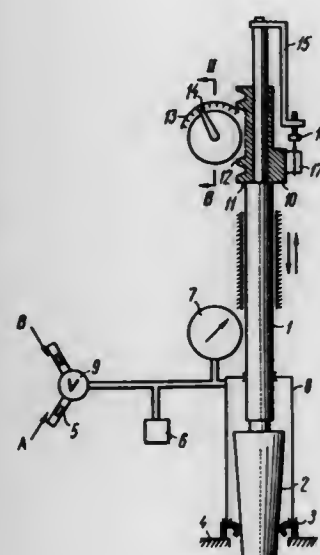
3,830,097 METHOD FOR MEASURING DIAMETER AND FLEXIBILITY OF RUBBER SHAFT SEALS

Evgeny Adolfovich Acharkan, Novopeshanaya ul., 3, kv. 38; Ilya Naumovich Khaskin, ul. Akademika Koroleva, 5, kv. 167; Isaak Meerovich Tsurinikov, ul. B. Galushkina, 12, kv. 70; Emil Lvovich Povolotsky, Matveevskaya ul., 10, korpus 4, kv. 63, and Vladimir Solomonovich Jurovsky, ul. Udaltsova, 10, kv. 68, all of Moscow, U.S.S.R.

Filed Aug. 18, 1972, Ser. No. 281,773
Int. Cl. G01b 13/08, 13/12

U.S. Cl. 73—37.5

1 Claim



A method relating to measuring and sorting out sealing components formed of resilient materials of rubber type. The test mandrel of a tapered shape is located in a chamber joined with a low-pressure pneumatic measuring system. While moving the mandrel in the seal being tested through the chamber window and supplying successively low and high-pressure air into the chamber, measurements are taken, first of the seal diameter, and then of the seal flexibility.

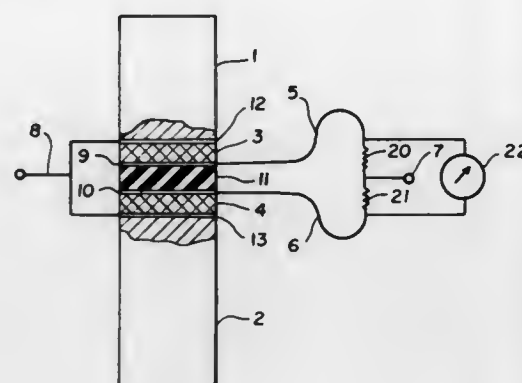
3,830,098 OUTPUT MONITORED ELECTROMECHANICAL DEVICES

John N. Antonevich, Jamestown, N.Y., assignor to Blackstone Corporation, Jamestown, N.Y.

Filed Mar. 22, 1973, Ser. No. 343,847
Int. Cl. G01n 29/00

U.S. Cl. 73—67.2

10 Claims



An electromechanical device comprises a pair of like transducer units affixed to a bar having with the transducers natural frequencies of vibration so that one unit is nearer a node than the other. An impedance is connected in series with each transducer unit, and the two series circuits are paralleled. The difference current through the two impedances is directly proportioned to the displacement of the vibrating bar, both at its mechanical resonance frequency and at its mechanical plus electrical anti-resonance frequency.

3,830,099 ELECTROMAGNETIC VIBRATOR HAVING MEANS FOR CHANGING DIRECTION OF VIBRATIONS

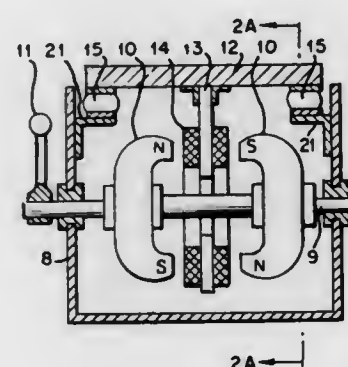
Akihisa Ichikawa, Itami, Japan, assignor to International Mechanical Vibration Laboratory, Inc., Osaka, Japan

Filed Feb. 8, 1973, Ser. No. 330,680

Claims priority, application Japan, Mar. 2, 1972, 47-25121
Int. Cl. H04r 9/04

U.S. Cl. 73—71.6

9 Claims



An electromagnetic vibrator having spaced apart magnets mounted on an axis, and a drive coil interposed between the magnets, the drive coil being vibrated by energization thereof by an A-C current. The magnets are rotatable about an axis so as to change the direction of vibration of the drive coil. A set of rollers engaging respective generally L-shaped guide plates, the guide plates being coupled to the coil via a plate member, is provided so as to additionally change the direction of vibration of the drive coil. To change the direction of vibration, the rollers are selectively engageable with perpendicular surfaces of the generally L-shaped guide plates.

3,830,100 STRAIN GAUGE TRANSDUCER TRANSIENT VOLTAGE PROTECTION

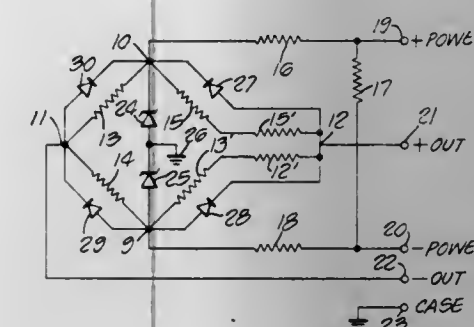
Donald Kamer, Oxnard, Calif., assignor to Statham Instruments, Inc., Oxnard, Calif.

Filed Feb. 22, 1973, Ser. No. 334,678

Int. Cl. G011 1/22

U.S. Cl. 73—88.5 SD

4 Claims



This invention relates to transient high voltage protection devices for bonded filament strain gauges.

3,830,101 DEVICE FOR MEASURING THE VERTICAL FORCE REQUIRED TO RELEASE A SKI BOOT FROM A SKI HEEL CLAMP

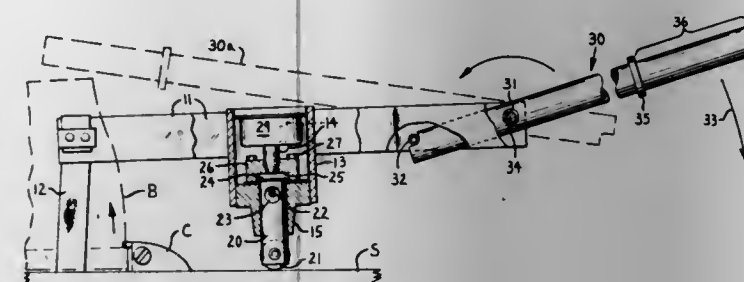
Max Frey, 3940 S.W. Altadena Ave., Portland, Oreg. 97201

Filed Mar. 13, 1973, Ser. No. 340,919

Int. Cl. G011 5/03

U.S. Cl. 73—133 A

7 Claims



A Y-shaped lever arm has a forked forward end adapted to straddle the heel of the boot. A heel lifting strap is connected at its ends to the forked end of the lever arm so that the mid portion of the strap may be inserted under the heel of a boot while the boot is secured to a ski by a conventional type of binding having a releasable heel clamp. At an intermediate position in the length of the lever arm a vertical cup member is mounted between the arms of the fork. In the bottom of the cup is a chamber for hydraulic fluid connected with a maximum reading pressure gauge in the upper part of the cup. The lower end of the cup contains a vertical plunger having fulcrum rollers on its lower end to bear against the top of the ski behind the heel binding. The upper end of the plunger bears against a diaphragm closing the lower side of the fluid chamber whereby a downward force applied to the rear end of the lever arm produces an indication in the pressure gauge of the uplift force applied to the boot heel. The rear end of the lever arm is equipped with a folding handle to provide a compact package when the device is not in use.

3,830,102 HIGH VELOCITY WATER RING APPARATUS

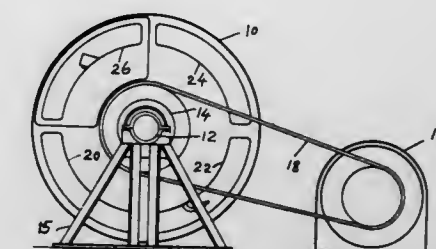
Edwin H. Rubin, Hazlet, N.J., and Joseph L. Cirrione, Bellmore, N.Y., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 13, 1973, Ser. No. 340,860

Int. Cl. G01m 10/00

U.S. Cl. 73—148

5 Claims



A mechanical simulator for testing materials to be evaluated for a high speed captured air bubble (CAB) vehicle. A rotating drum carrying water allows the water to move at high speeds past a stationary specimen immersed in the water to a predetermined variable depth.

3,830,103 RAIN IMPACT GAGE

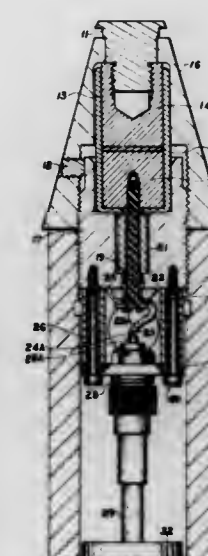
Richard S. Andrejkovics, Marlton, N.J., and John F. Sikra, Feasterville, Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 5, 1973, Ser. No. 376,663

Int. Cl. G01w 1/08

U.S. Cl. 73—170

5 Claims



A Projectile having a rain impact gage nose portion for use in determining the frequency and force of raindrops encountered by the projectile as it travels through a rain field. The gage has a forward impact table responsive to raindrop impacts and secured to a ground electrode housed with a hot electrode and an intermediate piezoelectric sensor in a cylindrical nylon insulator. The sensor receives the raindrop impact initiated shock waves from the ground electrode and transmits an electrical output charge through the hot electrode and its output lead to a coaxial cable after which the electric signal can be recorded on board or transmitted to a receiving station for recording.

3,830,104

VORTEX SWIRL FLOWMETER SENSOR PROBE

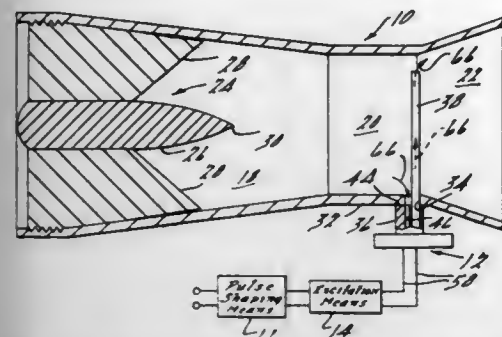
Leonard P. Gau, Birmingham, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Mar. 30, 1973, Ser. No. 346,514

Int. Cl. G01p 5/10, 5/14

U.S. Cl. 73—194 B

10 Claims



A vortex swirl flowmeter sensor probe having a thermal-electric sensor member is positioned outside of the fluid flowing through the meter. The probe is responsive to vortex swirls as they pass normal to the ends of a pair of tubular conduits extending normally into the fluid flow. Puffs of fluid flow along the conduit and impinge on the sensor thereby providing a heating and cooling cycle on the sensor.

3,830,105

TEMPERATURE MEASURING DEVICE FOR ENAMELLED APPARATUS

Rudi Horsch, Schwetzingen, Germany, assignor to Pfau-der-Werke AG, Schwetzingen, Germany

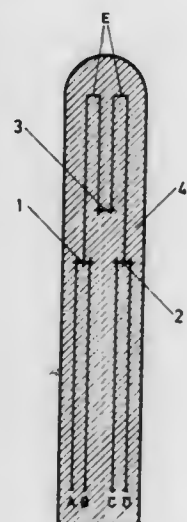
Filed May 4, 1972, Ser. No. 250,161

Claims priority, application Germany, May 11, 1971, 2123371

Int. Cl. G01k 7/16, 1/14; H01c 3/00

U.S. Cl. 73—362 AR

4 Claims



A temperature sensing probe having resistance wires embedded in enamel layers, connected by parallel located wires of a loop, which are interconnected to provide a predetermined resistance value.

3,830,106

SAMPLING DEVICE

William Gardiner, Ulverston, and Kenneth Briggs, Stainton, both of England, assignors to Glaxo Laboratories Limited, Middlesex, England

Filed Feb. 26, 1973, Ser. No. 335,937

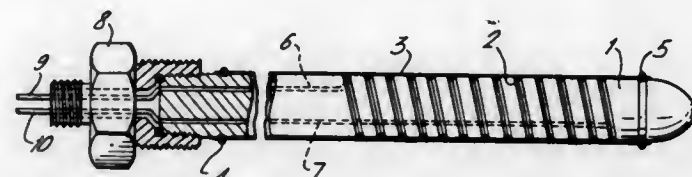
Int. Cl. G01n 1/10; B01d 13/00

U.S. Cl. 73—421 B

10 Claims

A sampling device is described for removing dialysable fluids from a liquid for analysis. The device comprises a tubu-

lar dialysis membrane fixed on an elongated support, a helical passage being provided between the membrane and the support. In use, a carrier fluid is passed through the helical



passage to remove for analysis fluids which pass through the membrane from a liquid in which the device is placed. The device is useful for monitoring chemical reactions, particularly fermentations.

3,830,107

MID-STREAM URINE SPECIMEN AND FRACTIONAL FLUID COLLECTORS

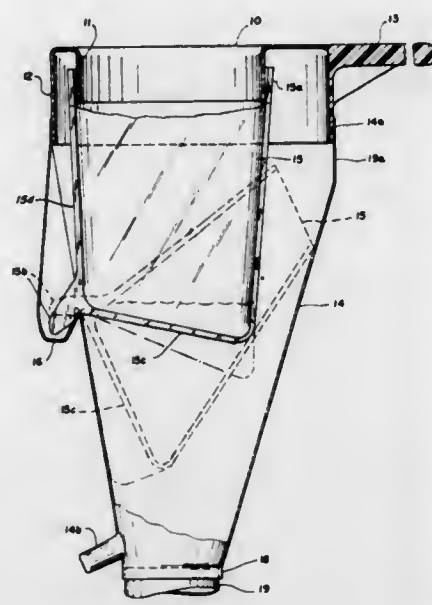
Frederick D. Linzer, 1373 Foxwood Dr., and Harold M. Price, 112 Moonlight Dr., both of Monroeville, Pa. 15146

Filed Apr. 9, 1973, Ser. No. 349,234

Int. Cl. G01n 1/18; A61b 10/00

U.S. Cl. 73—421

10 Claims



A disposable urine specimen and fractional liquid collector is provided having an inlet member with an inner connector and an outer connector, an outer enclosure having a neck portion connected to said outer connector, and a flexible inner bag contained in said outer enclosure, having a neck portion connected to said inner connector, pivot means connecting the bottom of said inner bag to the inner wall of said outer bag intermediate its length, said inner bag adapted to disconnect from said inner connector after said inner bag contains a given quantity of liquid and to pivot about said pivot means thereafter to trap said liquid in said inner bag, and to thereafter allow said outer enclosure to receive liquid through said inlet member. The outer enclosure and/or inner bag may be adapted so at least some liquid collected therein can be deposited in independent sterile containers.

3,830,108

PIPETTING DEVICE

Frederick W. Spong, 3449 Villanova Ave., San Diego, Calif. 92122

Filed Aug. 2, 1972, Ser. No. 277,346

Int. Cl. B011 3/02

U.S. Cl. 73—425.6

37 Claims

In a pipetting device having a barrel with a substantially closed end, a tubular member extends through the closed end longitudinally inwardly of the barrel. Evacuating means en-

3,830,110

ENGINE STARTING DEVICE

Keiji Suzuki, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

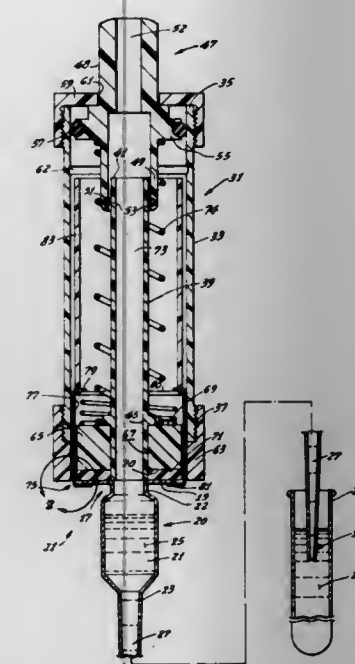
Filed Jan. 11, 1973, Ser. No. 322,874

Claims priority, application Japan, Jan. 13, 1972, 47-6070

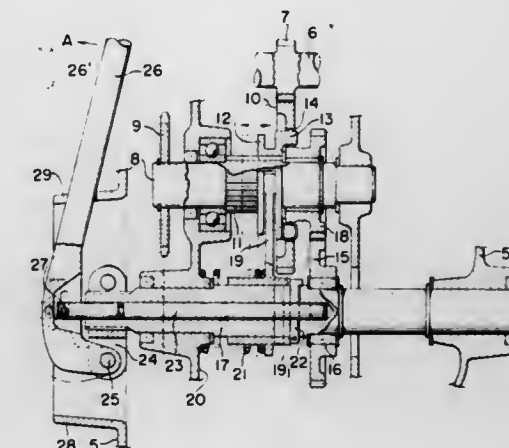
Int. Cl. F02n 1/00

U.S. Cl. 74—6

1 Claim



end of the barrel to form an axial seal so that the formation of the vacuum in the tubular member enables a column of fluid to be supported in the pipette. Releasing means cooperates with the evacuating means to displace the retaining means so that the pipette can be removed from the barrel.



A device for starting a small-sized engine mounted on a light vehicle, including a cranking lever associated with clutch means arranged in the power drive train and movable between a normal inoperative position locked against cranking motion and a position unlocked for cranking operation to serve also as a clutch operating lever. It enables any inexperienced rider to start the motored vehicle with ease practically in a single stroke.

3,830,109

DEVICE FOR DYNAMIC BALANCING OF ROTORS

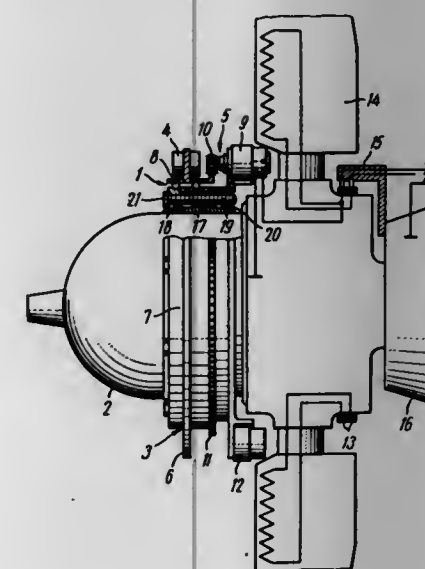
Georgy Mikhailovich Litvinovich, ulitsa Gorkogo, 43, kv. 50, Moscow; Leonid Andreevich Zhavoronkov, ulitsa Serova, 14, kv. 33, Zhukovsky Moskovskoi oblasti; Nikolai Alexandrovich Stebelev, ulitsa Pilota Nesterova, 9, kv. 29; Konstantin Borisovich Guzov, ulitsa Arbat, 2, kv. 6, both of Moscow, and Ivan Nikitovich Tyagaev, ulitsa Mikhalevicha, 1, kv. 51, Ramenskoe Moskovskoi oblasti, all of U.S.S.R.

Filed July 10, 1972, Ser. No. 270,566

Int. Cl. G01m 1/20, 1/28

U.S. Cl. 73—455

6 Claims



A device for dynamic balancing of rotors comprising a body in the form of a ring secured on the side surface of the rotor being balanced and a disc with a test weight installed on said body and rotated relative to the body by means of an independent drive.

3,830,111

GEARBOX HAVING A POWER TAKE-OFF SHAFT AND AUTOMATIC GEAR SELECTOR THEREFOR

Michele Travaglio, Turin, Italy, assignor to FIAT Societa per Azioni, Turin, Italy

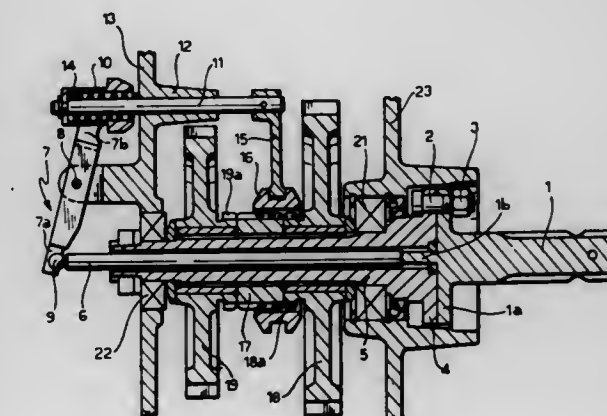
Filed May 24, 1973, Ser. No. 363,690

Claims priority, application Italy, June 6, 1972, 68784/72

Int. Cl. F16h 37/04

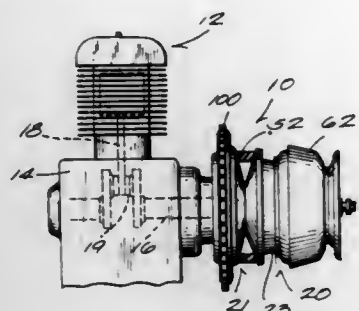
U.S. Cl. 74—15.4

2 Claims



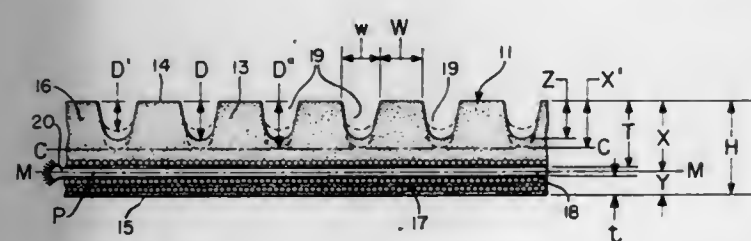
A gearbox having a power take-off shaft for driving auxiliary machinery, and a gear selector arrangement by means of which the speed of rotation of the take-off shaft can be controlled. The take-off shaft has a terminal flange for connection to selected different splined adaptor shafts by means of which coupling to input shafts of different auxiliary machines may be effected and the gear selector mechanism is controlled by a rod housed in a bore in the take-off shaft and moved automatically to different positions by an axial projection on the splined adaptor shaft as the adaptor shaft is fixed in position so that the appropriate gear ratio for each splined adaptor shaft is automatically selected when the adaptor shafts are interchanged.

3,830,112
COMBINED CRANKSHAFT AND FLYWHEEL ASSEMBLY
FOR VARIABLE SPEED POWER TRANSMISSION
 Harry M. Ward, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.
 Filed Dec. 11, 1972, Ser. No. 313,988
 Int. Cl. F16h 55/52
 U.S. Cl. 74-230.17 E **5 Claims**



Disclosed herein is a crankshaft for an internal combustion engine including, at one end, a unitary drive shaft portion which carries and drives the fixed and axially movable sheave members of a variable speed V-belt power transmission. Also disclosed herein is a flywheel assembly for an internal combustion engine having an inclined face and arranged on a drive shaft in a manner such that it also functions as the fixed sheave member of a variable speed V-belt power transmission.

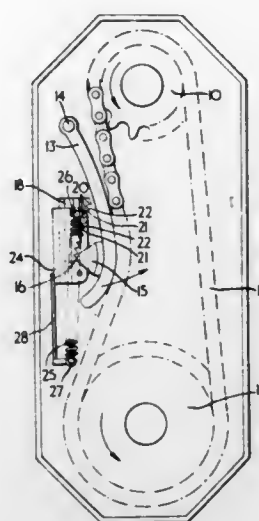
3,830,113
TRANSMISSION BELT STRUCTURE
 James A. Bruns, Eagle, Nebr., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Dec. 29, 1972, Ser. No. 319,253
 Int. Cl. F16g 1/00
 U.S. Cl. 74-231 **18 Claims**



A trapezoidal shaped power transmission belt of high longitudinal flexibility having a tension section, a compression section of less thickness than the tension section and a neutral axis section between the tension and compression sections. When the belt operates in grooved pulleys the greatest proportion of the driving contact is provided by the tension section rather than by the compression section. The pitch line of the belt is disposed below the transverse centerplane of the belt and the tension section includes a plurality of relatively deep transverse grooves or notches to increase the belt's flexibility. The belts are particularly useful in compact variable speed drives equipped with relatively small diameter pulleys.

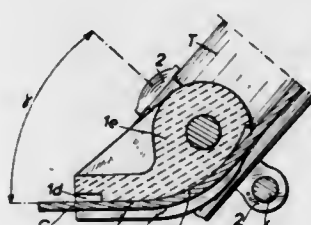
3,830,114
CHAIN TENSIONER
 Derrick Arthur Daines, Loudun, France, assignor to Rotary Hoes Limited, West Horndon, Essex, England
 Filed Jan. 2, 1973, Ser. No. 320,298
 Claims priority, application Great Britain, Jan. 8, 1972, 963/72
 Int. Cl. F16h 7/12
 U.S. Cl. 74-242.11 S **6 Claims**
 A chain tensioner for drive transmission chains has an arm which engages and tensions the chain. The arm is supported

on a movable support and the support is biased to move the arm upon decrease in tension in the chain. The arm is movable



through a series of positions, the position adopted depending on the inherent slackness of the chain.

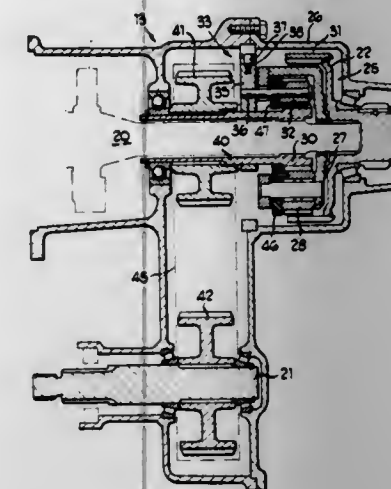
3,830,115
GUIDE SLEEVE FOR THE CONTROL CABLES OF CYCLES AND SIMILAR VEHICLES
 Lucien Charles Hippolyte Juy, 73 Rue General Fauconnet, Dijon-Cote d'Or, France
 Filed June 12, 1972, Ser. No. 261,805
 Claims priority, application France, June 11, 1971, 71.22125
 Int. Cl. F16c 1/10
 U.S. Cl. 74-501 R **10 Claims**



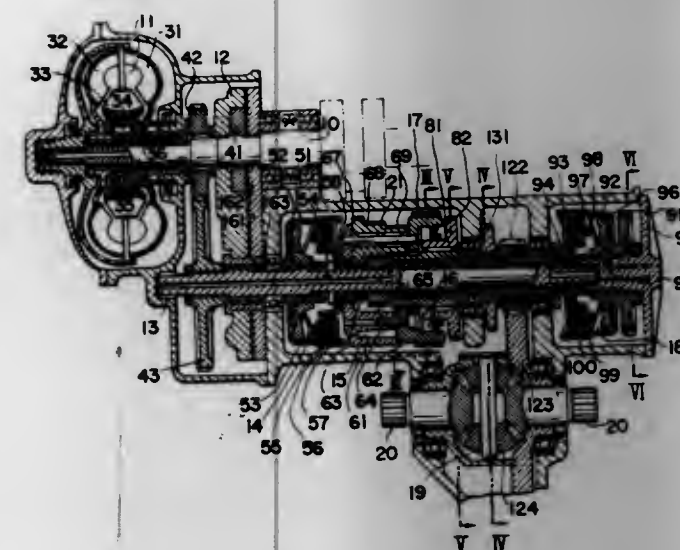
A guide sleeve for control cables of cycles or the like, formed of plastic material or light metal, including a profiled contour having a channel and downwardly opening slotted portion for receiving the cable. The sleeve is adapted to be profiled to conform to the tubular frame of the cycle so as to be readily fastened thereto, directly or through suitable fastening collars.

3,830,116
PLANETARY DIFFERENTIAL FOR FOUR WHEEL DRIVE WITH AUTOMATIC LOCKING GEAR
 Walter Fisher, Mt. Prospect, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.
 Filed July 18, 1973, Ser. No. 380,442
 Int. Cl. F16h 1/44, 57/10
 U.S. Cl. 74-711 **19 Claims**
 A planetary differential mechanism including planet gears and a pair of gear elements, suitable for use in a multiple path drive system in which a locking gear meshes with one of the gear elements. The differential is arranged such that during

normal operation one of the gear elements normally over-speeds the other, but when the normally underspeeding gear

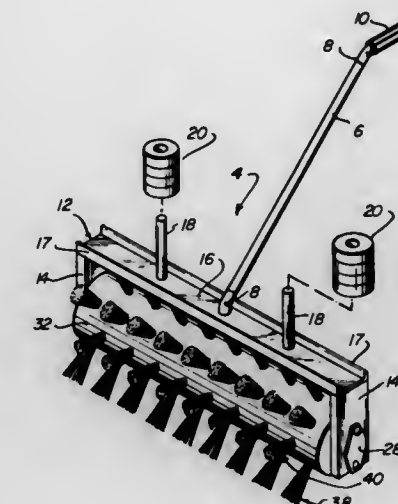


3,830,117
TRANSMISSION FOR AUTOMATICALLY CHANGING A GEAR RATIO
 Masayuki Kodama, and Nobuo Narumi, both of Tokyo, Japan, assignors to Fuji Heavy Industries, Ltd., Tokyo, Japan
 Filed Aug. 23, 1972, Ser. No. 283,007
 Int. Cl. F16h 57/10, 3/58
 U.S. Cl. 74-763 **4 Claims**



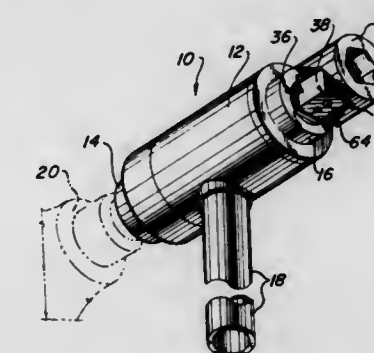
A transmission for automatically changing a gear ratio into three forward gear ratios and one reverse gear ratio which has three planetary sun gears mounted on an input shaft (main shaft), each having different numbers of teeth, planetary pinion groups mounted on said planetary pinion pins (sub shafts) and engaged with the planetary sun gears, respectively, so as to rotate around respective planetary pinion pins, planetary carriers supporting planetary pinion pins and enabling the planetary pinion groups to rotate around an axis of the planetary sun gears, and forward and reverse locking means, wherein the input shaft is connected to a planetary low sun gear while the planetary carriers are locked by the forward locking means to obtain a normal first reduction speed; in the same state as the planetary carriers remain locked, the input shaft is connected to a planetary second sun gear to obtain a normal second reduction speed; by allowing the planetary carriers to rotate, the input shaft is connected to a planetary output sun gear which is connected to an output shaft to obtain the final normal direct-coupling drive; and the input shaft is connected to the planetary low sun gear, at the same time, the planetary second sun gear is locked by the reverse locking means to obtain the reverse reduction speed.

3,830,118
CARPET ROLLER
 Frank J. Holub, III, Chicago, and Joseph F. Holub, Oak Lawn, both of Ill., assignors to Frank Holub Brush Manufacturers, Chicago, Ill.
 Filed Apr. 13, 1973, Ser. No. 351,033
 Int. Cl. B60b 19/12
 U.S. Cl. 81-3 R **10 Claims**



An apparatus having a plurality of pressure point bristles extending from a rotatable cylindrical member, so that said bristle pressure points can provide good floor contact of newly laid carpets. Said cylindrical member is rotatably mounted in a channel support which has weight holding means to receive a selected number of weights to desirably adjust the weight of the entire apparatus so that desired weight of pressure contact is attained when the apparatus is rolled across a carpeted area by a person pushing an elongated handle mounted to the top of the channel member.

3,830,119
SHEAR-OFF OUTPUT SHAFT FOR TORQUE MULTIPLIER
 Leo V. Travis, Aurora, Colo., assignor to B. K. Sweeney Manufacturing Co., Denver, Colo.
 Filed Aug. 8, 1973, Ser. No. 386,834
 Int. Cl. B25b
 U.S. Cl. 81-52.4 R **10 Claims**



An output shaft assembly for a torque multiplier is adapted to shear when a predetermined torque is applied thereto and includes a body portion having a defined shear location with a core rod rotatably received in the body portion but prevented from rotation by a removable pin so that when the body portion is sheared at the shear location into two axially aligned segments, the segments can be easily removed from the torque multiplier.

3,830,120

TIRE CUTTER APPARATUS

Harold Severin Peterson, Fargo, N. Dak., assignor to Applied Power Industries Inc., Milwaukee, Wis.

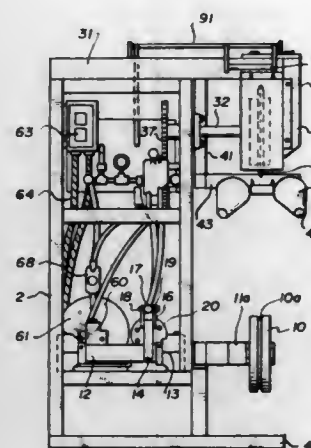
Continuation of Ser. No. 229,635, Feb. 28, 1972, abandoned.

This application Nov. 30, 1973, Ser. No. 420,441

Int. Cl. B23b 5/14; B29h 21/08

U.S. Cl. 82-54

14 Claims



A tire cutter apparatus for cutting a strip of a crown of a tire or splitting a tire circumferentially including a fixed rotating knife or knives in contact therewith during a cutting operation. Rotation of cutter as well as the power required to lift the tire into cutting contact therewith is provided by a hydraulic system having a flow divider which supplies power to an orbital motor to drive the blades and to a hydraulic cylinder which raises and lowers the tire supporting mandrel.

3,830,121

INSTALLATION FOR CUTTING ROLLED SHEETS

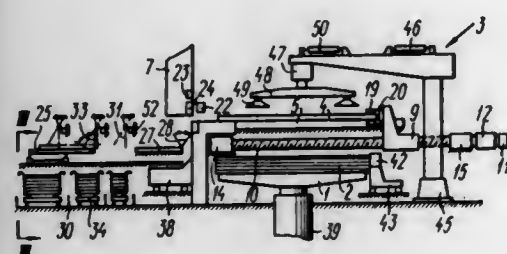
Boris Anatolievich Makeev, ulitsa Otakara Yarosha; Lev Mikhailovich Stepanov, ulitsa Chernoglazovskaya, 11a, kv. 9; Vadim Ivanovich Batzsky, ulitsa Vladimirovskaya, 41, kv. 5; Garri Moiseevich Korot, ulitsa Kosmonavtov, 1, kv. 120, all of Kharkov, and Anatoly Ivanovich Gladikh, ulitsa Krasnopolitovskaya, 10, kv. 33, Leningrad, all of U.S.S.R.

Filed May 8, 1973, Ser. No. 358,364

Int. Cl. B23d 15/08, 33/02

U.S. Cl. 83-81

6 Claims



An installation comprises a device to sort and pile the pieces of a sheet being cut while a sheet-feeding device comprises a slide-block on which a front limit stop for a sheet is mounted and a sheet gripper which is capable of moving in a longitudinal direction. The slide-block is also provided with a pick-up which signalling of a moment of the sheet entrance into the gripper and so produces a signal to make the gripper operative and movable to orient the sheet relative to the knives of guillotine shears in accordance with the limit stop. Installed in front of the knives is a pick-up for computing origin of the size of a sheet part to be cut which controls the passage of the front edge of the sheet and produces a signal to put a movable knife of the shears into operation to cut the sheet in accordance with the pre-set program.

3,830,122

APPARATUS FOR DISPENSING A LIQUID ONTO A TOOL

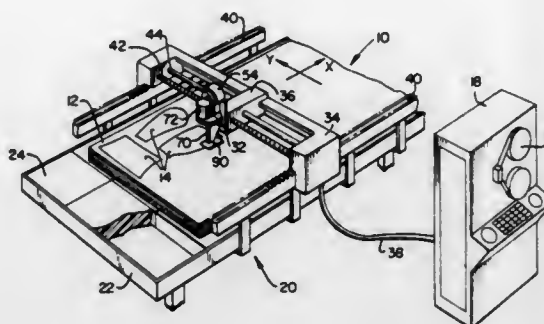
David R. Pearl, West Hartford, Conn., assignor to Gerber Garment Technology, Inc., East Hartford, Conn.

Filed Mar. 26, 1973, Ser. No. 344,895

Int. Cl. B26d 1/10, 7/08; A41h 43/00

U.S. Cl. 83-169

9 Claims



In an automatically controlled cutting machine for cutting thick layups of sheet material, apparatus is provided to dispense a liquid fluid onto the tool for cooling, lubricating or other ancillary functions. The apparatus includes a presser foot which rides on top of the sheet material during a cutting operation and the presser foot permits liquid to flow to the reciprocating blade whenever the blade is cutting through the sheet material. A liquid absorbing material in the presser foot insures that the cutting portion of the blade receives the liquid.

3,830,123

PLASTIC CUTTING ARRANGEMENT

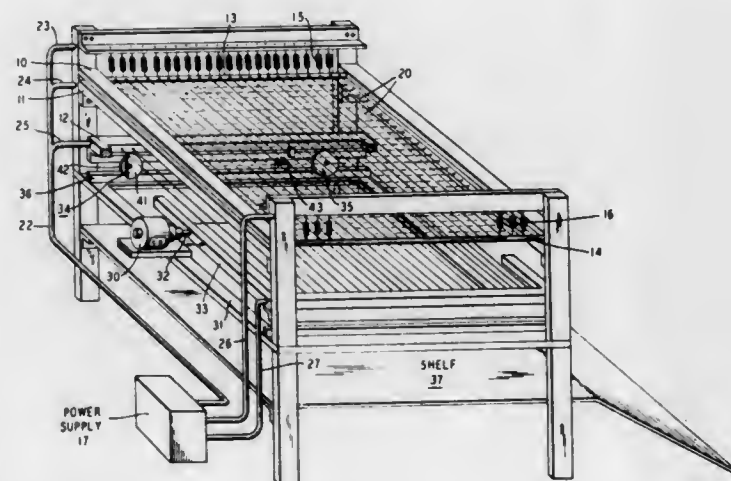
James L. Wilgus, Reliable Plastics, Inc., 35 Middaugh St., Somerville, N.J. 08876

Filed July 3, 1973, Ser. No. 376,144

Int. Cl. B26d 7/10

U.S. Cl. 83-171

9 Claims



An arrangement comprising essentially two stationary hot wire grids and a third lower moveable hot wire grid is disclosed for noiselessly cutting randomly sized plastic block or scraps into relatively smaller uniform cubically-shaped pieces. Details are also disclosed for mounting the hot wires on the various grids to generate different shapes in three separate dimensions during a continuous operation.

3,830,124

COPYING MACHINE PARTICULARLY OF THE DESK-TOPELECTROSTATIC TYPE

Giovanni Ravera, Torino, and Nicola Cosmo, Ivrea, both of Italy, assignors to Ing. C. Olivetti & Co., S.p.A., Ivrea (Torina), Italy

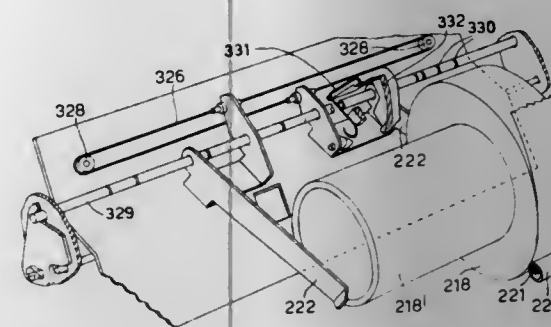
Filed May 10, 1972, Ser. No. 251,994

Claims priority, application Italy, May 5, 1971, 68539/71

Int. Cl. B65h 19/00

U.S. Cl. 83-205

2 Claims



A roll fed electrostatic copying machine having a bed including a pair of rollers for receiving a roll of copy paper and means attached to the machine for maintaining the roll in a predetermined axial position in the bed, and including a mechanical knife mechanism for cutting sheets from the roll, and means for insuring that the length of the copy paper cut by the knife mechanism falls between predetermined minimum and maximum lengths.

3,830,125

CUTTING ATTACHMENT FOR FIBERGLASS RODS

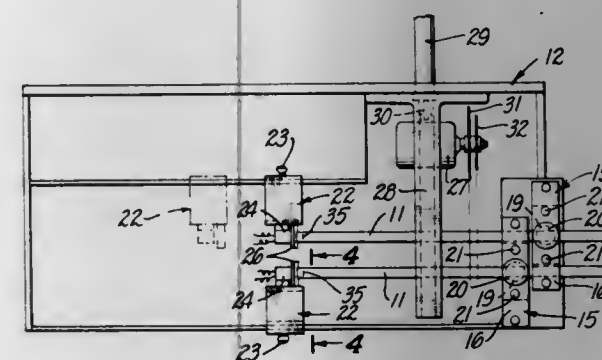
Joseph Allen Carmien, Sun Valley, Calif., assignor to Nupla Corporation, Sun Valley, Calif.

Filed Mar. 15, 1973, Ser. No. 341,590

Int. Cl. B26d 5/28

U.S. Cl. 83-212

4 Claims



A cutting attachment for cutting lengths of continuously formed fiberglass rods and other profiles. The cutting attachment has a stop member disposed in the path of each rod which is engaged by the end of the rod to operate a micro-switch. The micro-switch controls the operation of a clamping member which grips the rod and prevents further longitudinal movement. When the last micro-switch has been closed, a saw is moved transversely to cut all of the rods. The saw may simultaneously cut a notch in the end of each of the rods. Production continues while longitudinal movement is stopped with the rods flexing between the source of production and the clamping members. After the rods have been cut, the saw is retracted, the clamping members released and the rods straighten out automatically due to their own resilience.

3,830,126

APPARATUS FOR SEVERING WRAPPED TOBACCO FILLER RODS OR THE LIKE

Werner Ringe, Geesthacht, Germany, assignor to Hauni-Werke Korber & Co. K.G., Hamburg, Germany

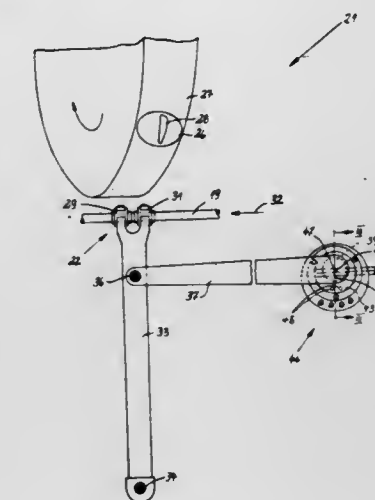
Filed June 28, 1973, Ser. No. 374,547

Claims priority, application Germany, July 6, 1972, 2233064

Int. Cl. B26d 3/22

U.S. Cl. 83-310

15 Claims



A cutoff for a continuously moving cigarette rod or the like has a rod guide which cooperates with the orbiting knife or knives and is reciprocated by an adjustable crank drive. The latter has a cylindrical input member which is driven by a shaft in synchronism with the knife or knives and has an eccentric socket for a cylindrical output member having an eccentric crank pin which can reciprocate the guide by way of a linkage consisting of a pivotable lever and a connecting rod. The eccentricity of the crank pin relative to the output member equals the eccentricity of the socket relative to the input member, and the output member is angularly adjustable in the socket to thus select the throw of the crank pin. The output member is balanced with respect to its axis prior to assembly of the crank drive, and the entire crank drive is balanced upon insertion of the output member into the socket. The mass of the crank drive exceeds the mass of the linkage.

3,830,127

WOOD CUTTING MITRE SAW

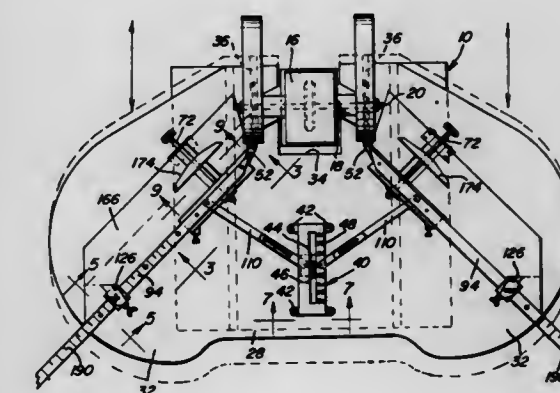
Urban E. James, P.O. Box 91, and Glen B. Barton, P.O. Box 127, both of Calhoun City, Miss. 38916

Filed Mar. 28, 1973, Ser. No. 345,697

Int. Cl. B27b 27/06

U.S. Cl. 83-435.1

7 Claims



A table saw including a top having a vertical powered rotary saw blade journaled from the table with its lower peripheral portion spaced slightly above the upper surface of the top thereof. A floating work support panel is provided and the tabletop and panel include coacting structure supporting the

panel from the top in overlying relation relative to the top for guided rectilinear horizontal shifting along a path normal to the axis of rotation of the blade. The lower periphery of the blade projects slightly below the upper surface of the panel and the panel has a shallow upwardly opening groove formed therein aligned with and in which the lower periphery of the blade is receivable when the work supporting panel is shifted toward the blade. Also, workpiece supporting structure is carried by the panel for supporting a workpiece in predetermined position thereon with a portion of the workpiece overlying the groove, whereby the panel, with the workpiece supported therefrom, may be shifted toward the blade in order to cut the workpiece along a vertical plane containing the groove formed in the panel in which the lower periphery of the blade is receivable. Also, the workpiece supporting structure carried by the panel is operative to adjustably displace the workpiece supported therefrom about a vertical axis contained in the plane in which the blade is disposed.

3,830,128 FILM CUTTER AND VIEWER FOR DYNAMIC TOMOGRAPHY

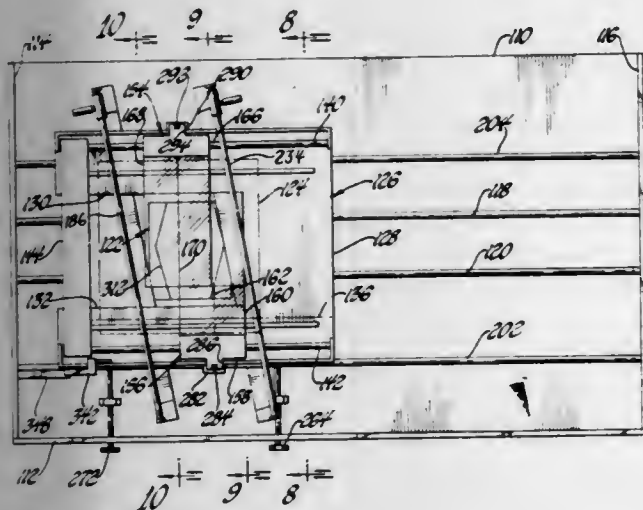
Gary D. Cochran; David A. Crosby; Peter A. Franken, and Lloyd O. Crabtree, all of Ann Arbor, Mich., assignors to CFC Products, Inc., Ann Arbor, Mich.

Filed Nov. 26, 1971, Ser. No. 202,331

Int. Cl. B26d 3/12

U.S. Cl. 83-451

16 Claims



Apparatus is disclosed for cutting and viewing a set of radiograph films for use in the practice of dynamic tomography. Each radiograph film includes recorded data thereon indicative of the direction of track motion during exposure of the film and indicative of the angle of exposure at which the particular film was made. The cutting apparatus is provided with means for holding the film in given position and adjustably positionable cutter guides. With the cutter guides positioned in accordance with the data on a given film, cutters are effective to cut the film with parallel reference sides at a given altitude and with parallel angle sides at a given width. The cutter mechanism includes movable carriers for a parallelogram linkage having a lost motion connection therein. The viewer for the film set is of the film shift type and holds a set of films in superimposed relationship so that operation of a film shift mechanism enables the selection of a desired plane for viewing. The film shift viewer is provided with a shift mechanism including a cam element which is properly correlated in design with the parallelogram pivot linkage of the cutting apparatus so that proper alignment of the films can be achieved.

3,830,129 MACHINE TOOL WITH SWINGABLE TOOL MOUNT

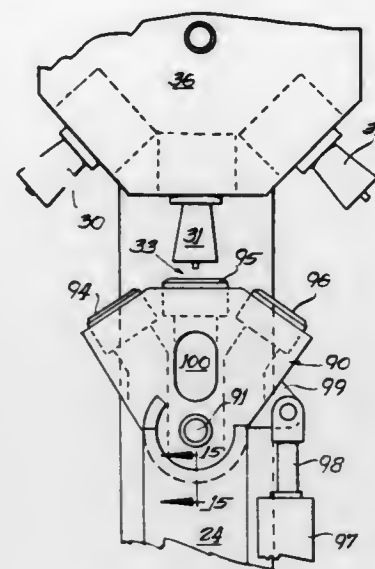
Raymond L. Valente, Kankakee, Ill., assignor to Manco Mfg. Co., Bradley, Ill.

Filed July 9, 1973, Ser. No. 377,400

Int. Cl. B26f 1/04

U.S. Cl. 83-552

15 Claims



A machine tool for performing any of several machining operations on a workpiece is provided. The machine tool—here, a punching machine—has several tool members mounted on a saddle which can be swung about the free end of a ram by a saddle shifting assembly. A locking and unlocking assembly moves the saddle into and out of contact with the ram free end. Cams on the ram free end position the saddle base in a precise tool-operating location. A multiple die unit has a multi-chambered hydraulic cylinder for positioning the corresponding punch die at the work station.

3,830,130 GUIDE FOR PORTABLE POWER SAWS

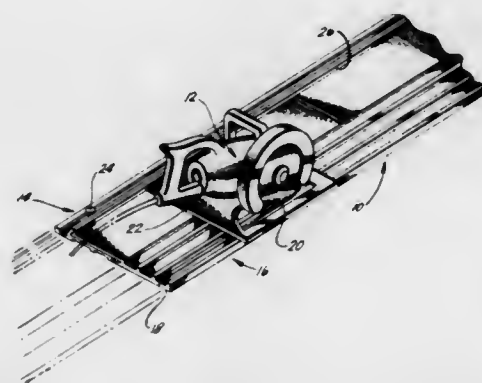
Harold E. Moore, 930-E. Candlewood Ave., Orange, Calif. 92667

Continuation-in-part of Ser. No. 108,346, Jan. 21, 1971, abandoned. This application Dec. 8, 1971, Ser. No. 205,995

Int. Cl. B27b 9/04, 27/02, 5/18

U.S. Cl. 83-745

16 Claims



A guide apparatus suitable for use as straight edge and a guide for portable power and hand saws. The guide includes a receiver or holder, preferably approximating in length the length of the piece to be worked. A replaceable guide member adapted to be snap-fitted into the holder, preferably fabricated of an expendable material such as plastic, is also provided. When first put into use the replaceable guide member is cut along its saw blade edge so as to precisely fit it to the blade-shoe configuration of the specific power saw with which the apparatus is to be used. In a preferred embodiment the saw shoe and guide apparatus are each modified to provide a guide track configuration at the side of the shoe remote

from the blade. Anchoring and clamping devices adapted to engage the holder along its length or at its ends for securing the apparatus in position on the piece to be worked are also included.

3,830,131 HORIZONTAL BAND SAW BLADE GUARD STRUCTURE

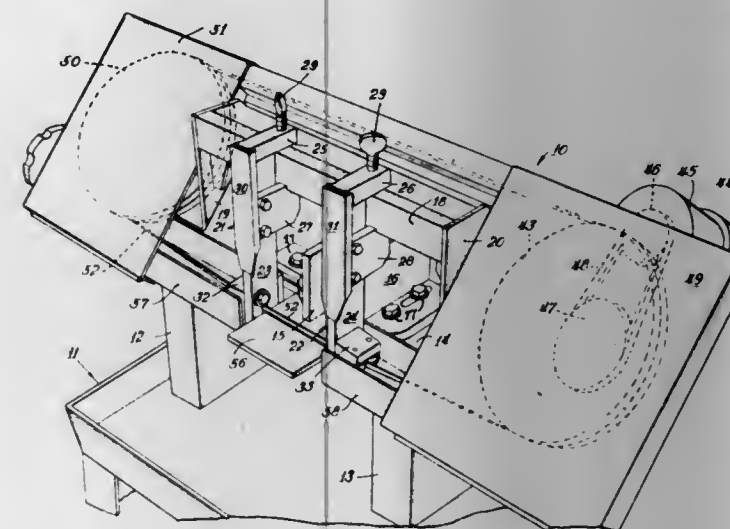
Lane T. Wells, Three Rivers, Mich., assignor to W. F. Wells and Sons, Inc., Three Rivers, Mich.

Filed June 25, 1973, Ser. No. 373,271

Int. Cl. B23d 53/02

U.S. Cl. 83-820

7 Claims



A horizontal-type band saw having a drive wheel and a support wheel mounted on a base, and a saw blade supported on the wheels, a work support member, and horizontally adjustable substantially vertically positioned guide means mounted one on each side of the work support member, each having a recess for receiving and guiding a portion of the saw blade in a vertical cutting position, and elongate channel-form blade guards each affixed at one end to one of said vertical blade guides and having the saw blade disposed within the channels of the blade guards, the other ends of the blade guards telescoping into protective housings covering the drive and support wheels. In an improved form, the walls and bottom of the channel-form blade guards are sufficiently spaced from the blade guides so that the blade may be removed from the guides and blade guards without disassembling the structure. In a further improved embodiment, a hinged cover is provided on the blade guard to cover the open channel during operation, and to be opened for removal of the saw blade.

3,830,132 TUNING PEG

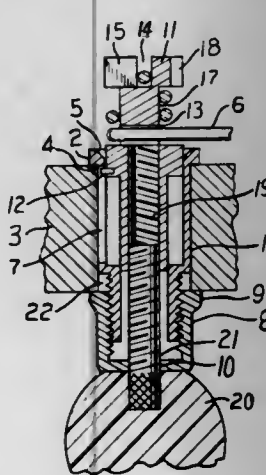
Charles Thomas Lowe, 5165 Torrey Rd., Flint, Mich. 48507

Filed Apr. 10, 1973, Ser. No. 349,831

Int. Cl. G10d 3/14

U.S. Cl. 84-304

10 Claims



A relatively small and light piston like tuning peg in which the string to be tuned or tensioned, is secured to the piston,

said piston being slidably keyed inside a cup-like cylindrical housing, said piston being lengthwise movable inside said housing by a fixed rotary screw, movement of said piston on said screw having zero backlash.

3,830,133 TIGHTENING NUT

Kurt Friedrich Jepsen, Siegen, and Wolfgang Janzen, Wilm-sdorf-Obersdorf, both of Germany, assignors to Amsted-Siemag Kette G.m.b.H., Betzdorf/Sieg, Germany

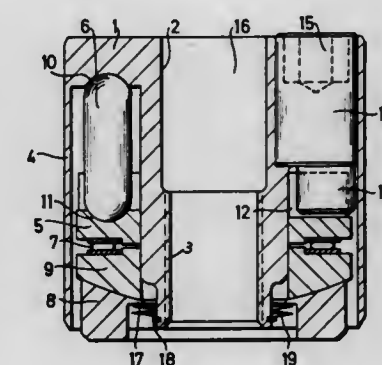
Filed Apr. 20, 1973, Ser. No. 353,203

Claims priority, application Germany, Apr. 25, 1972, 2220166

Int. Cl. F16b 33/00

U.S. Cl. 85-32 R

7 Claims



The invention relates to a tightening nut for a bolt which projects in relation to a mounting surface. The nut comprises at least two nut rings which are displaceable one inside the other in the axial direction. One nut ring bears against the mounting surface and the other nut ring surrounds and engages the bolt and bears through at least one thrust stud against the first nut ring. The thrust studs are tilted during the tightening from an inclined position in relation to the nut axis into a position parallel to the nut axis. Either the second nut ring or a drive ring mounted between the thrust studs and one of the nut rings is rotatable to produce the tilting of the thrust studs and a drive pin having an axis of rotation parallel to the nut axis is mounted for rotation in a non-rotatable one of the nut rings and is in geared connection with the second nut ring or the drive ring respectively.

3,830,134 SEALED EXPANSION ANCHOR

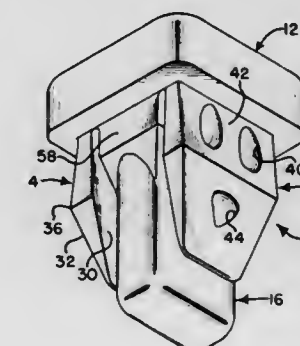
Lloyd Arthur Erickson, Park Ridge, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 26, 1972, Ser. No. 318,295

Int. Cl. F16b 13/06

U.S. Cl. 85-80

9 Claims



A one-piece plastic anchor for accommodating a cylindrical expander element such as a screw threaded fastener in fixed relation to an apertured workpiece. The anchor member includes an apertured clamping head and a shank section which has a pair of spaced leg members and an oval tubular member spaced from and located between said legs in communication

with the head aperture to accommodate the expander element for the purpose of distorting the oval tubular member into engagement with the medial surfaces of said legs to lock the anchor in the workpiece aperture.

3,830,135

MILLING MACHINE TOOL HOLDER

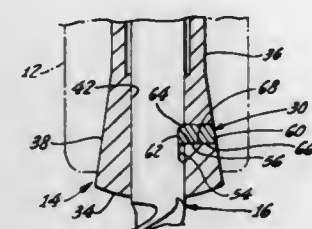
Francis Sullivan, 279 Venado, Thousand Oaks, Calif. 91366

Filed Jan. 31, 1972, Ser. No. 222,104

Int. Cl. B23c 5/26; B23b 31/04

U.S. Cl. 90-11 A

5 Claims



A tool holder for a rotary cutting apparatus including a collet with a lateral opening and an insert positioned within the opening. The insert has a flush top surface and a beveled bottom surface, the beveled bottom surface engaging a beveled surface in the shank of a tool.

3,830,136

CURVED SURFACE ENGRAVER

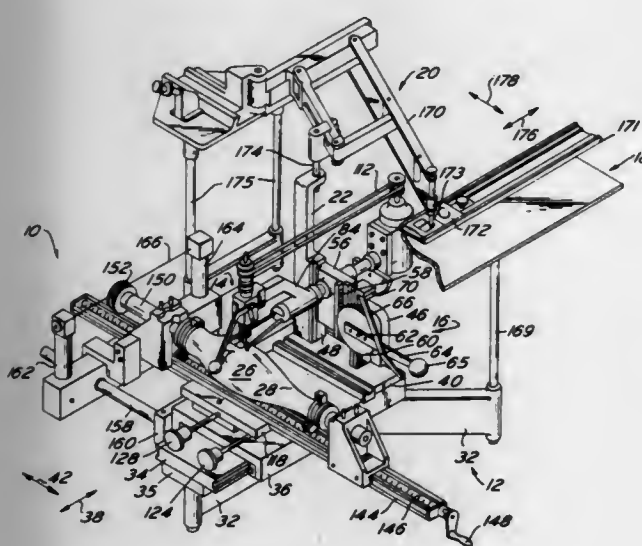
Edwin Sprenger, Ascona, Switzerland, assignor to New Hermes Company, New York, N.Y.

Filed July 23, 1973, Ser. No. 381,967

Int. Cl. B23c 1/18

U.S. Cl. 90-13.1

15 Claims



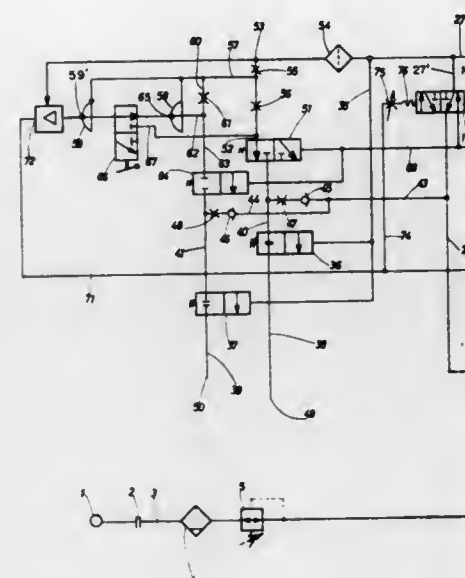
A machine for engraving surfaces which may be cylindrical, tapered or curved from a pattern which lies in a flat plane. The machine includes pattern following means and an engraving tool connected thereto by a mechanism which causes the movement of the pattern following means in the plane of the pattern to be reproduced by the engraving tool on the surface. Means are provided for always maintaining the engraving tool perpendicular to the surface which is being engraved.

3,830,137
SAFETY CONTROL SYSTEM FOR A PNEUMATIC OR HYDRAULIC CONTROL CIRCUIT
Hans-Jorg Wurth, and Georg Freund, both of Munich, Germany, assignors to Knorr-Bremse GmbH, Munich, Germany
Filed Jan. 31, 1973, Ser. No. 328,282
Claims priority, application Germany, Jan. 31, 1973, 2204478

Int. Cl. F01b 1/00

U.S. Cl. 91-1

10 Claims



A safety control system for a pneumatic or hydraulic control circuit has at least one control valve arrangement connected to at least one pickup for monitoring or sensing at least one specific operational condition and for releasing at least one measurement signal, as a function of the operational condition, to the control valve arrangement, which releases a control signal for the actuation of at least one pneumatic or hydraulic correcting element. An indicator circuit is connected to the control valve arrangement for releasing warning signals indicating a disorder, at least in the case of a defect in the control valve arrangement. A control valve is provided between the pickup and the control valve arrangement to simulate briefly the operational condition for the purpose of testing the operational capability of the control valve arrangement.

3,830,138

CONTROL ARRANGEMENT FOR A SUSPENSION SYSTEM USING A PRESSURE MEDIUM

Knut Joneleit, Iserlohn, Germany, assignor to Hoesch Aktiengesellschaft, Dortmund, Germany

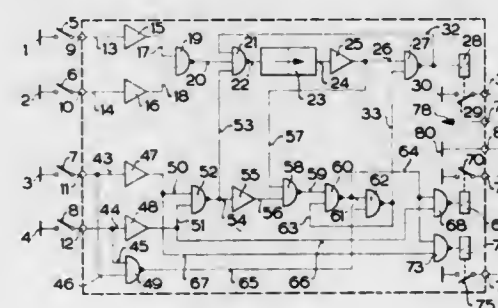
Filed May 17, 1972, Ser. No. 254,304

Claims priority, application Germany, May 18, 1971, 2124542

Int. Cl. F15d 21/02; B60g 9/00

U.S. Cl. 91-35

4 Claims



A constant distance is maintained between the body of a vehicle and a wheel axle by changing the quantity of pressure medium in the suspension system. First switches close auto-

matically when the body of the vehicle is too close to the wheel axle. The signal furnished by the closing of the switches is time delayed and then acts to activate a pump increasing the quantity of pressure medium in the suspension. The raising of the vehicle by this increase in pressure medium is continued until second switches are closed which indicate that the body of the vehicle is too high relative to the wheel axle. The closing of the second switches furnishes a signal which terminates the operation of the pump and initiates immediately the opening of a valve which decreases the quantity of pressure medium in the suspension. If the second switches are closed without prior closure of the first switches, the valve is opened only after the above-mentioned time delay. In both instances, the valve is again closed when the second switch reopens. In this manner the body of the vehicle is at the same distance from the wheel axle regardless of whether a lifting or a lowering of the vehicle body was initially required.

3,830,139

PNEUMATIC ACTUATOR

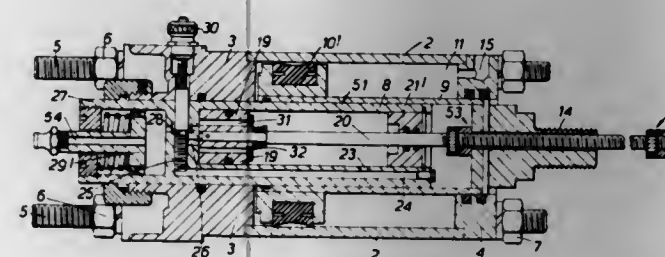
Mordechai Wachman, Tel Aviv, and Shlomo Kann, Ramat Gan, both of Israel, assignors to P.M.L. Precision Mechanisms Ltd., Industrial Zone, Yahud, Israel

Filed July 31, 1972, Ser. No. 276,367

Int. Cl. F15b 15/22

U.S. Cl. 92-9

3 Claims



A pneumatic actuator whose rate of displacement during a stroke changes in a controlled manner includes an annular pneumatic chamber defined by concentric tubular members, on the inner one of which is a slideable sleeve having an annular pneumatic piston on one axial end engaged with the inside of the outer tubular member. The inner tubular member defines a closed hydraulic cylinder within which is reciprocally mounted a hydraulic piston carried by a rod that extends axially into the hydraulic cylinder. Hydraulic fluid is conducted by an adjustably constricted conduit across the hydraulic piston during the advance movement of the latter from one end of the hydraulic chamber to the other. During retract movement in the opposite direction, hydraulic fluid is conducted, substantially unimpeded by a check valve, across the piston. Cooperable means on the rod and on the sleeve are engageable after a predetermined displacement of the pneumatic piston in both the advance and retract direction of movement for imparting movement to the hydraulic piston.

3,830,140

METHOD OF MAKING PACKAGING CONTAINERS

Gad Anders Rausing, Lund; Sven Olof Soren Stark, Rydsgard, and Sven Gosta Uno Sevrall, Lund, all of Sweden, assignors to Tetra Pak Developpement SA, Lausanne, Switzerland

Division of Ser. No. 266,721, June 27, 1972. This application

Apr. 27, 1973, Ser. No. 355,167

Claims priority, application Sweden, July 8, 1971, 8821/71

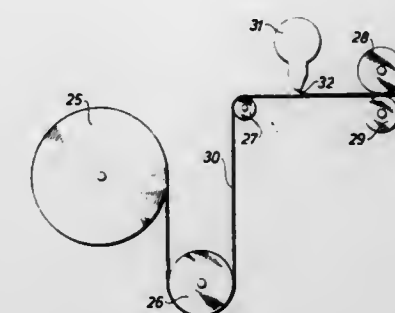
Int. Cl. B31b 15/00

U.S. Cl. 93-36.6

5 Claims

A method of making a packaging container in which the finished container has a sealing fin extending upwardly from the top of the container and transversely of the container, said

fin comprising two sections of the container blank which are heat sealed together by the use of a layer of thermoplastic



material on the sections, said layer being molecularly oriented in the longitudinal direction of the fin so that opening of the package may be facilitated.

3,830,141

METHOD OF PRODUCING A STUFFED SEALED ENVELOPE ASSEMBLY

Donald J. Steidinger, Barrington, Ill., assignor to Wallace Business Forms, Inc., Hillside, Ill.

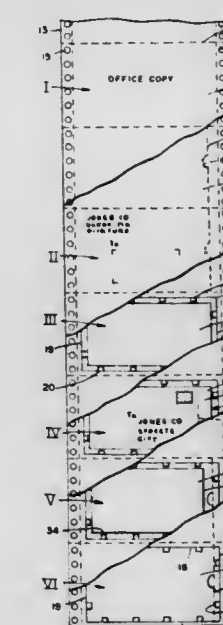
Division of Ser. No. 180,992, Sept. 16, 1971, Pat. No.

3,777,971. This application Aug. 6, 1973, Ser. No. 386,035

Int. Cl. B31b 49/04

U.S. Cl. 93-63 M

1 Claim



A method of producing a stuffed sealed envelope assembly including at least one insert sheet wherein the envelope back is embossed for substantially immobilizing the insert sheet while affording improved separability.

3,830,142

COIN WRAPPER FORMING APPARATUS

Victor G. Ristvedt, Rt. 2, Forest Wood Dr., and Roy B. Johnson, 603 Adams St., both of Manchester, Tenn. 37355

Filed Feb. 18, 1972, Ser. No. 227,452

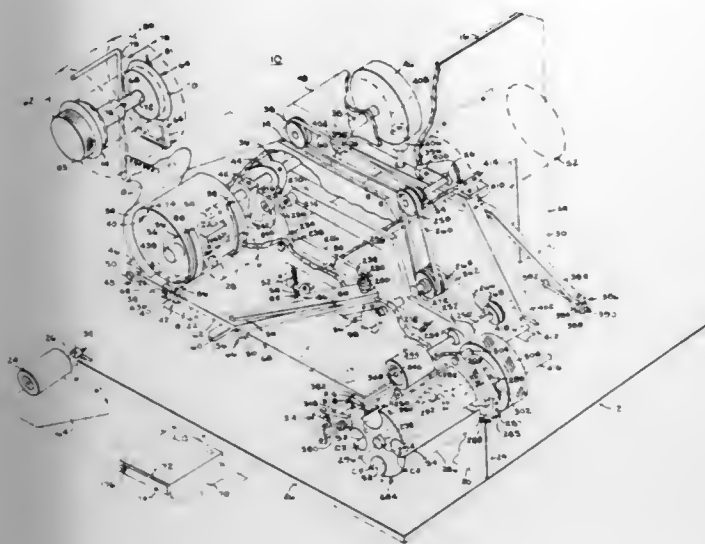
Int. Cl. B31c 3/00

U.S. Cl. 93-81 MT

6 Claims

A machine for forming coin wrappers in which paper from a roll is cut into prescribed lengths and formed into paper cylin-

ders within a selected cavity of a drum or turret having several cylindrical cavities, each with a diameter corresponding to a sensor is effective to actuate immediate lowering of the stacking conveyor to a lower limiting position and to start the



currently used coin. A paper cylinder is so formed, a crimping-ejection device engages one end of it, crimps that end and then ejects it as a completed coin wrapper.

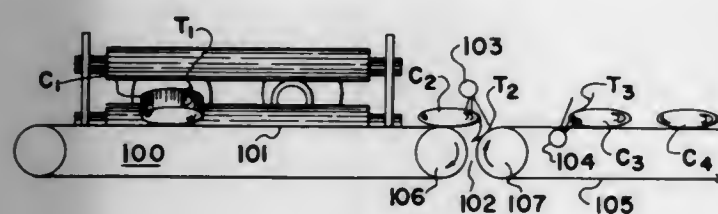
3,830,143

METHOD AND APPARATUS FOR REWINDING LOOSE END PORTIONS OF LOOSELY WOUND SPOOLS

Daniel J. Dowd, Jr., Clifton Forge, Va., assignor to Westvaco Corporation, New York, N.Y.
Division of Ser. No. 216,629, Jan. 10, 1972, Pat. No. 3,802,639. This application Dec. 12, 1973, Ser. No. 424,093
Int. Cl. B31c 1/08

U.S. Cl. 93—84 FF

5 Claims



Coreless spools, alternately wound on two spindle mounted mandrels from a continuous web supply of thin sheet material, are jet propulsively ejected from the mandrels by pressurized fluid conducted thereto. Loose end portions of the completed spools are rewrapped about the spool body by bridging a gap between two conveyors and two air curtains.

3,830,144

APPARATUS FOR FORMING AND CONVEYING STACKS OF FLAT WORKPIECES

Gustav Kuckhermann, and Rudolf Schulz, Lengerich, Germany, assignors to Windmoller & Holscher, Lengerich, Germany

Filed Feb. 12, 1973, Ser. No. 331,598

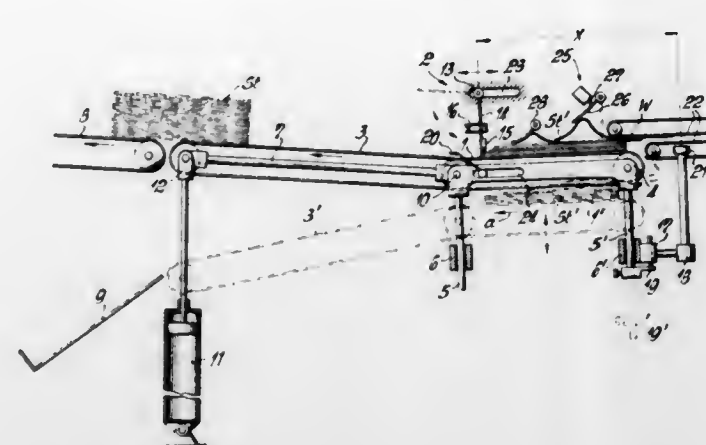
Claims priority, application Germany, Feb. 12, 1972, 2206682

Int. Cl. B31b 1/98

U.S. Cl. 93—93 DP

4 Claims

In an apparatus for forming and conveying stacks of flat workpieces on a vertically reciprocable stacking conveyor, a sensor is provided above the stacking conveyor at substantially the same height as the upstream end of a supply conveyor on which the individual workpieces arrive. Upon contact with an incorrectly deposited workpiece on the stack, the



stacking conveyor so as to remove the incomplete stack to a discharge conveyor of which the downstream end is lowerable together with the stacking conveyor.

3,830,145

VENTILATION SYSTEM

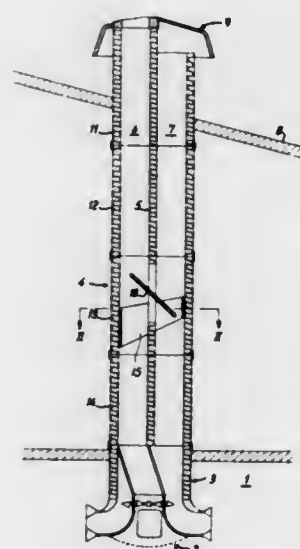
Jorgen Holt, Naestved; Christian Videmark, Haslev, and Palle Hein Christiansen, Naestved, all of Denmark, assignors to Nordisk Ventilator Co. A/S, Naestved, Denmark
Filed June 7, 1973, Ser. No. 367,939

Claims priority, application Denmark, June 9, 1972, 2921/72

Int. Cl. F24f 13/00

U.S. Cl. 98—33

7 Claims



A ventilation system comprising ducts for injecting air into and exhausting air from a room, said ducts extending side by side separated by a common partition which incorporates an opening between the ducts in which a damper member is arranged to be movable between two extreme positions, in one of which it closes the opening and in the other of which positions it blocks both ducts and opens for full recirculation of the return air from the ventilated room. A layer of heat conductive material is arranged on the inner side of the outer wall of the injection duct, said layer extending from the level at which the damper member contacts the outer wall of the injection duct in the extreme position, in which both ducts are blocked. The layer may have form of a liner member arranged on the inner side of the injection duct and extending also into the exhaust duct.

3,830,146

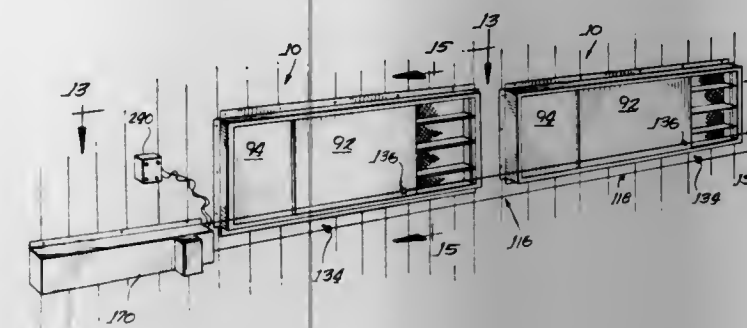
VENTILATOR CONTROL SYSTEM

Steven A. Kaiser, Milford, Ind., assignor to Chore-Time Equipment, Inc., Milford, Ind.

Continuation-in-part of Ser. No. 76,158, Sept. 28, 1970, Pat. No. 3,741,102. This application Dec. 8, 1972, Ser. No. 313,353
Int. Cl. F24f 3/02

U.S. Cl. 98—41 VS

7 Claims



A system for controlling the ventilation of an enclosure such as a poultry or livestock house is disclosed. The system includes a ventilator mounted in a wall of the enclosure. Pressure difference between the inside and outside of the enclosure created by suitable fans, causes a flow of air to pass through the ventilator. A sliding door assembly controls the amount of air which passes through the ventilator; the sliding door assembly is operated by a pressure-sensitive actuator switch. When the pressure difference exceeds a preset pressure range, the sliding door inlet assembly is opened slowly until the pressure difference drops within the preset pressure range at which point the sliding door inlet assembly is halted. When the pressure difference drops below the preset pressure range, the sliding door inlet assembly is closed slowly until the pressure difference rises into the preset pressure range at which point the sliding door inlet assembly is once again halted. Limit sensing switches are also provided to halt operation of the door-operating mechanism at the fully opened or fully closed positions.

3,830,147

VENTILATING UNIT

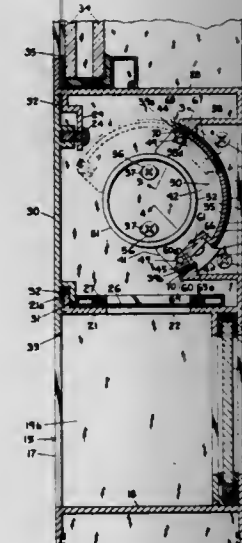
Ronald J. Weber, and Wesley J. Higgins, both of Wausau, Wis., assignors to Wausau Metals Corporation, Wausau, Wis.

Filed Mar. 30, 1973, Ser. No. 346,281

Int. Cl. F25f 17/02

U.S. Cl. 98—99 R

10 Claims



A ventilating unit within a window frame. The ventilating unit has a base panel and a top panel which extend transverse-

ly between the frame end jambs in spaced relation. A vertical exterior closure plate extends from the top panel downwardly to a level below the base panel and engages the two panels to close the exterior side of the unit. The base panel has a fresh air intake opening which communicates with an inner ventilating opening between the base panel and top panel to permit air exchange from one side of the frame to the other through the openings. An arcuate panel is slidably mounted in opposed arcuate raceways to selectively open and close the inner ventilating opening.

3,830,148

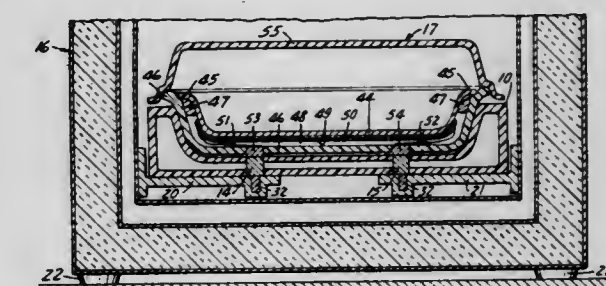
DEVICE AND METHOD FOR STORING AND COOKING FOOD

Thomas S. Shevlin, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Division of Ser. No. 344,830, March 26, 1973, which is a continuation-in-part of Ser. No. 173,414, Aug. 20, 1971, Pat. No. 3,736,981. This application Oct. 15, 1973, Ser. No. 406,327

Int. Cl. A23i 3/00

U.S. Cl. 99—359

1 Claim



A tray supporting individual thermally insulated casseroles of food portions for serving complete meals such as entree food to be cooked and frozen and chilled side dish food. The entree and individual side dish food portions are each placed in separate casseroles in chilled or frozen condition. Each casserole thermally encloses the separate food portions and the thermal insulation of the casserole and the initial low temperature levels of the chilled or frozen food retains the food in the casseroles without degradation or pathogenic effects for storage periods up through several hours and retains the side dish food without pathogenic degeneration during the time the entree food is cooked in separate casseroles.

3,830,149

SYSTEM FOR PASTEURIZATION

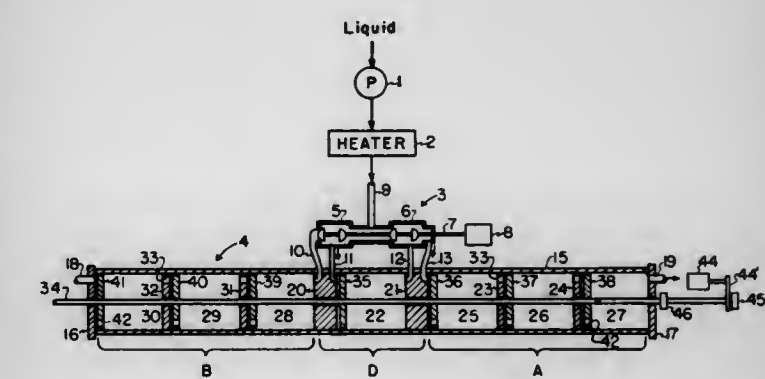
Vern F. Kaufman, Lafayette, Calif., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Oct. 31, 1972, Ser. No. 302,620

Int. Cl. A23c 19/00

U.S. Cl. 99—452

2 Claims



Device for pasteurizing liquids, e.g., egg whites, yolks, salt yolks, whole eggs, etc., which includes a unit wherein the

heated liquid is held for a predetermined time to ensure proper pasteurization. The holding unit is operated by liquid flow, and divides the liquid into slugs which are each held for a uniform time with minimum of inter-slug mixing.

3,830,150

FEATHER CRUSHER COMPACTOR

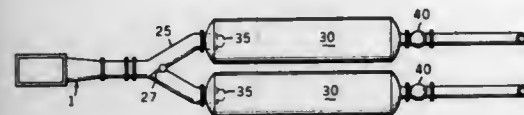
Rowland Retrum, St. Louis, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

Filed Dec. 18, 1972, Ser. No. 316,387

Int. Cl. A22c 21/00

U.S. Cl. 99—467

2 Claims



Apparatus for crushing materials selected from the group of feathers, poultry offal and combinations thereof is disclosed wherein a housing is provided having a plurality of splines about the outlet end thereof defining a plurality of openings through which a compression screw may force the material. A cutter is provided on the discharge end of the compression screw serving to uniformly crush or break up the material as it is forced through the openings defined by the splines and the compression screw. Additionally, the crusher apparatus may be incorporated into a semi-continuous hydrolyzing system. The crushed material as discharged from the continuous crusher is selectively fed to one of the batch type hydrolyzing units attached to the exit end of the crusher. The material is maintained in one of the hydrolyzer units for the hydrolysis process while a second hydrolyzer unit is being charged and discharged with the material.

3,830,151

SECTIONING DEVICE FOR ROUNDED FOOD ARTICLE

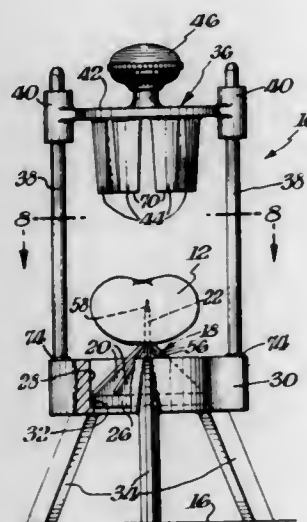
Samuel L. Gerson, P.O. Box 1887, Wilmington, Del. 19899

Filed June 27, 1972, Ser. No. 266,593

Int. Cl. A47j 17/00

U.S. Cl. 99—537

15 Claims



A rounded food article, such as a lemon, tomato or apple, is instantaneously divided into a number of radial sections by forcing it through a conical array of radial blades above which it is impaled on a central spike. The article is forced through the wedge-shaped spaces between the blades by an annular array of tapered wedge-shaped fingers depending from a head to which an operating handle is attached. The plunger assembly slides over a pair of vertical rods towards the blade assembly engaged within a recess in the base. The fingers extend completely through the blades when the plunger is fully en-

gaged within the blades. The substantial weight of the plunger facilitates its rapid downward movement toward the blade, and a set of three legs raise the base sufficiently from the table to allow the food sections to be freely discharged onto it.

3,830,152

ONION TOPPER AND SLICER

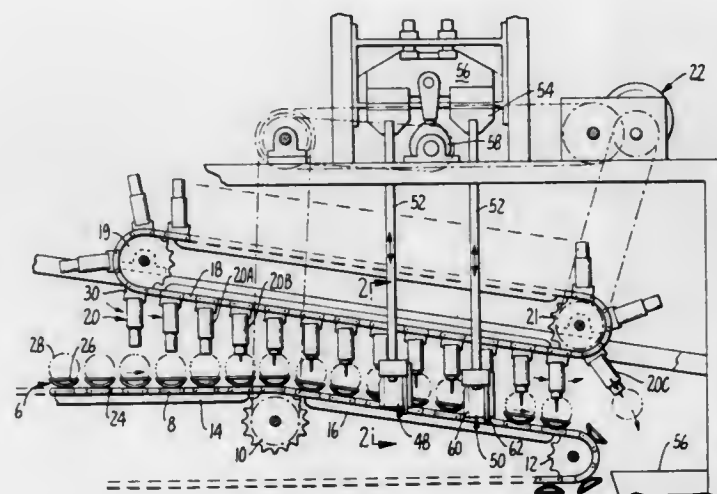
Frank E. Reed, Salt Lake City, Utah, assignor to Rogers Brothers Company, Idaho Falls, Idaho

Filed Aug. 16, 1972, Ser. No. 281,149

Int. Cl. B26d 4/02; A23n 15/02

U.S. Cl. 99—643

3 Claims



An onion topper and slicer of improved design is provided wherein the onions are impaled on a single blade normally protected by a telescoping sheath. The sheath steadies the onion prior to engagement of the impaling knife and serves to remove the onion after a topping and slicing operation have been completed.

3,830,153

APPARATUS FOR LIQUID EXTRACTION FROM LIQUID-CONTAINING MATERIAL WITH AN ADJUSTABLE DISCHARGE OPENING

Johannes Jacobus Smorenburg, Abcoude, Netherlands, assignor to Stork Amsterdam N.V., Amstelveen, Netherlands

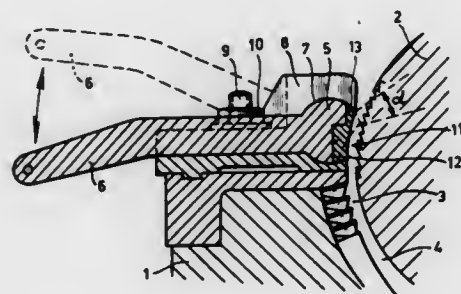
Filed Mar. 6, 1973, Ser. No. 338,428

Claims priority, application Netherlands, Mar. 8, 1972, 723099

Int. Cl. B30b 9/20, 3/02

U.S. Cl. 100—121

6 Claims



Apparatus for liquid extraction, comprising a frame with a rugged cylindrical concave surface, a driven roller or disc cooperating with said surface to form a tapering pressing chamber having an outlet with a throttle shaped as a bar which is cylindrical for the greater part, said throttle lying in a cylindrical pocket of the frame; the throttle is adjustable by means of a tilting movement.

3,830,154

HIGH-SPEED PRINTER

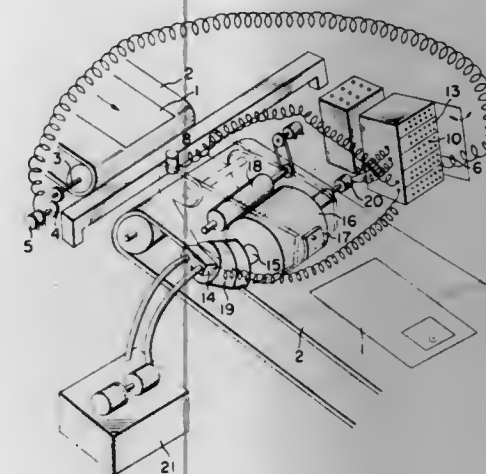
Nobumitsu Hagi, Kitakyushu, and Suet Matsubara, Tokyo, both of Japan, assignors to Nippon Steel Corporation and Kabushiki Kaisha Saginomiya Selsakusho, both of Tokyo, Japan

Filed June 7, 1972, Ser. No. 260,495

Int. Cl. B41f 13/24

U.S. Cl. 101—235

6 Claims



A high-speed printer for printing marks or indications on materials such as steel sheets and veneers, in which the printing drum is rotated and stopped by a hydraulic system such as a hydraulic motor actuated by signals from a speed signal operating means, and the supply speed of the material is synchronized with the rotation of the printing drum.

3,830,155

PORTABLE IMPRINTING DEVICE FOR EMBOSSED CARDS

Abraham Mejia Pinedo, Taine 229 - 60 piso Polanco, Mexico City, Mexico

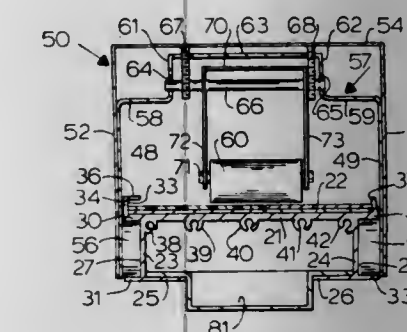
Filed Jan. 12, 1973, Ser. No. 323,290

Claims priority, application Mexico, Jan. 21, 1972, 132826; July 13, 1972, 136567

Int. Cl. B41f 3/04

U.S. Cl. 101—269

8 Claims



A printing machine for use with embossed cards and manifold forms. A one-piece base extrusion has a horizontal table portion and two vertical portions at each side thereof with horizontal flanges extending beyond the flanges to provide a roller guide and raceway. A movable carriage assembly has a cover member with a pair of side plates joined by a transverse plate of generally inverted U-shape, with a pair of transport rollers rotatably supported by each side plate and running in the guide and raceway. An inner frame is secured to the cover and from it hangs freely a yoke and having stop means thereon and rotatably supporting a printing roller for engaging the card to cause imprinting of the embossed portion. When the carriage assembly is moved forwardly, the yoke swings, and its stop means engaging a portion of said carriage assembly so as to hold the printing roller down in an imprinting

position, but the yoke is swung out of engagement with the carriage assembly during return movement, letting the roller lift so as to avoid a second imprinting. One embodiment swings open to enable use of large manifolds; another is for a set size of form.

3,830,156

EXPLOSIVE LINE CUTTING DEVICE

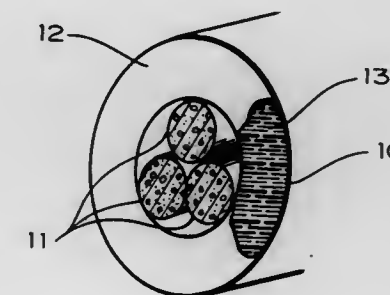
Robert G. S. Sewell, 703 Ticonderoga, China Lake, Calif. 93555, and Carl F. Austin, Star Rt. 1, Box 240, Inyokern, Calif. 93527

Filed Oct. 21, 1971, Ser. No. 191,283

Int. Cl. F42b 3/00; F42d 3/00

U.S. Cl. 102—22

3 Claims



An explosive line cutting device and method for clearing a fire trail. It comprises a deformable plastic explosive strand centrally disposed through a plastic tube which is substantially filled with fire-retardant solution. A booster initiator is suitably secured to one end of the explosive strand. Upon detonation of the explosive strand the solution enhances the intensity of the shock wave which clears a trail, reduces the incendiary action of the explosive charge, and at the same time provides a fire retardant effect along the fire line.

3,830,157

CARTRIDGE CASE

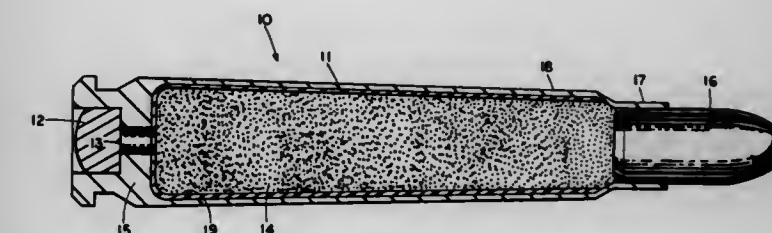
Reed E. Donnard, Huntingdon Valley; Marvin Rosenbaum, Philadelphia; Anthony Gallaccio, Havertown, and Fred Pealstein, Philadelphia, all of Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 31, 1972, Ser. No. 302,455

Int. Cl. F42b 5/26

U.S. Cl. 102—43

1 Claim



An aluminum alloy cartridge case having a thin coating lining a substantial portion of the case internal surface to minimize operative erosion damage to the case material by hot gases escaping, should the case develop a crack when the round is fired. The coating consists of synthetic and natural resins and an additive which serve to endothermically cool the high velocity hot gases escaping through the crack.

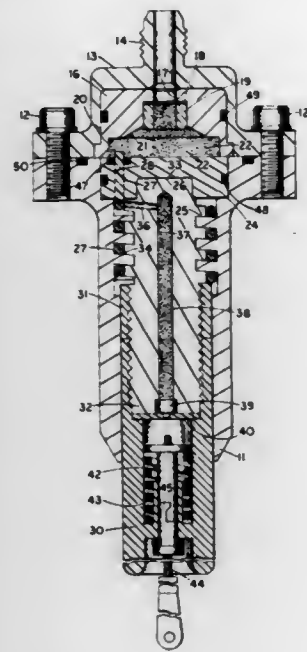
3,830,158 INITIATOR ASSEMBLY

Joseph M. Di Philippo, Philadelphia, Pa., and John E. Holvoet, Edgewood, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 1, 1973, Ser. No. 337,267
Int. Cl. F42c 9/00

U.S. Cl. 102—70 R

4 Claims



An initiator assembly having a pyrotechnic time delay which can be adjusted to any selected time delay setting within the adjustable range. A male adjustment screw, secured to a firing head assembly, has an internal cavity filled with booster propellant charges and is threadedly attached to the female threads of a flange nut. The adjustment screw has a lateral orifice fluidly communicating the cavity with the exterior surface or crest of a forwardmost male thread portion and a selected surface portion along a pyrotechnic fuze that lines the helically contoured root of the female threads and is embedded in the main propellant charge.

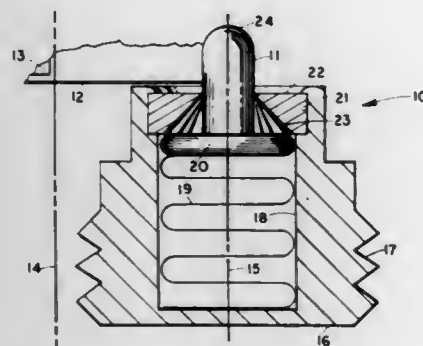
3,830,159 MECHANISM

Nicholas J. Ranalli, and James C. Mount, both of Cornwells Heights, Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 6, 1972, Ser. No. 303,898
Int. Cl. F42c 15/20

U.S. Cl. 102—78

2 Claims



A returnable setback safety mechanism for fuzes of spin stabilized artillery in which the safety pin is depressed upon setback or rearward force exerted upon the mechanism. The safety pin will return to its original safety position after setback unless the mechanism is then subjected to projectile spin forces as a result of the projectile being launched.

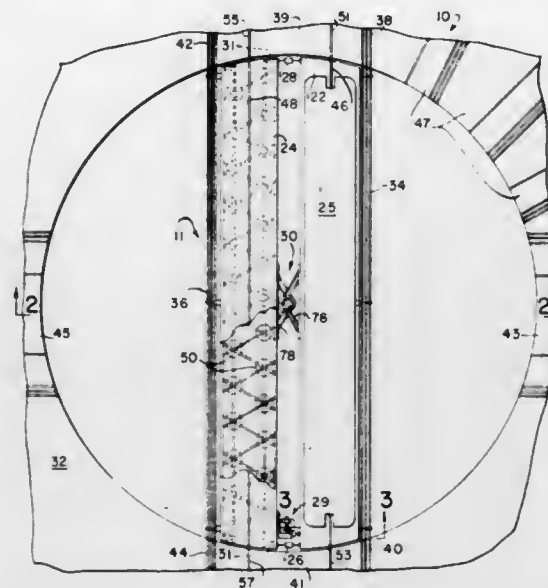
3,830,160 TURNTABLE FOR TRACKLESS AIR BEARING VEHICLES

Richard L. Maison, San Diego, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed May 8, 1972, Ser. No. 251,400
Int. Cl. B61j 1/00

U.S. Cl. 104—46

13 Claims



A turntable for vehicles provided with a pair of vehicle guideway sections. A hollow center post is positioned on a support surface intermediate the sections, and provided with two bearings, each of the bearings being connected to one of the sections, thus allowing each section to move along and around the post independently of the other. The sections are secured to each other by spring dampeners which limit such independent movement but allow the sections to move as a unit. Each of the sections is provided with a plurality of air bearings on its underside which allow the section to rise on a film of air when the bearings are supplied with air under pressure whereby one section, if loaded with a vehicle, will not transmit bending or twisting movements into the other unloaded section. A motor and wheel assembly is secured to one of the sections for rotating the turntable about the center post to selected positions opposite other guideway portions. Indexing toothed wedges are provided on the bottom sides of the sections which mate with similar toothed wedges positioned on the support surface when the sections are lowered to ensure perfect alignment of the sections with the other vehicle guideway portions so that vehicles can move on and off the turntable from and to the other portions as desired. Additionally provided is apparatus on the motor and wheel assembly which, when actuated, increases traction between the wheel and the support surface thus facilitating movement of the turntable.

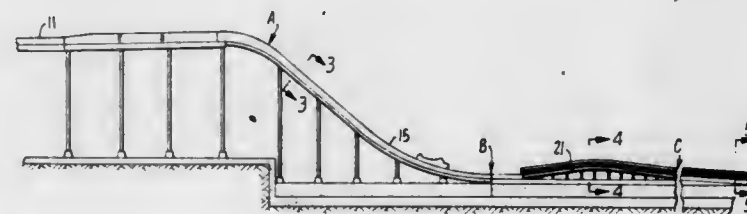
3,830,161

FLUME BOAT RIDE WITH A DOUBLE DOWNCHUTE
Karl W. Bacon, Mountain View, Calif., assignor to Arrow Development Company, Mountain View, Calif.

Filed July 6, 1973, Ser. No. 377,145
Int. Cl. A63g 1/00, 7/00, 21/00

U.S. Cl. 104—70

7 Claims



A flume amusement ride wherein passengers ride in boats that float on water flowing in water channels, the boats being

guided by the walls of the water channel. A steep downchute portion is provided as part of the ride as a means of providing a thrill to the passengers. The downchute portion includes two adjacent water channels into which boats are alternately directed by a gate that is constructed of two parallel wall members hinged to the walls of the single water channel upstream of the downchute. Hold point brakes are provided in the channel at various locations for blocking passage to boats in order to control the boat movement and spacing.

3,830,162

SWITCHING ARRANGEMENT FOR A CONVEYANCE
BOUND TO A GUIDE STRUCTURE SUCH AS A
SUSPENSION RAILWAY OR THE LIKE

Fritz Marten, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

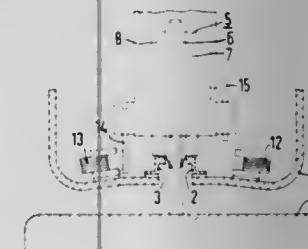
Filed Oct. 2, 1972, Ser. No. 294,211

Claims priority, application Germany, Mar. 30, 1972, 2215807

Int. Cl. E01b 25/12

U.S. Cl. 104—105

16 Claims



A switching arrangement for a conveyance bound to a guide structure such as a suspension railway or the like is disclosed. The conveyance can include a vehicle equipped with at least one track wheel having a central guide flange. The track wheel then travels along a track of the guide structure. The switching arrangement includes a switch in the guide structure for branching at least one additional track into a main track. Magnets are arranged at the track and act selectively on two armature plates which are arranged at the vehicle on both sides of the track wheel. Depending on whether the one or the other armature plate is placed into the area of the magnet flux, a directing force in the one or the other direction is produced.

3,830,163

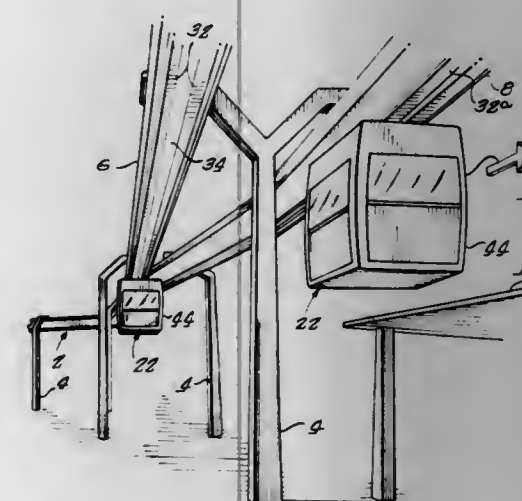
MONORAIL VEHICLE SWITCHING ARRANGEMENT
Raymond W. Wright, and Robert W. Corey, both of Dallas, Tex., assignors to Monocab Inc., Garland, Tex.

Filed Nov. 29, 1972, Ser. No. 310,430

Int. Cl. E01b 25/22

U.S. Cl. 104—105

10 Claims



A monorail vehicle switching arrangement comprises a guideway-mounted movable ramp for actuating a guidance

system on a vehicle to shift the guidance system from one operating mode to another operating mode to steer the vehicle from one section of the guideway through a switch and to a second section of the guideway. The guidance system includes guide wheels that engage upper and lower guide blades on the guideway for effecting the vehicle heading. The ramp is a bistable member which can be positioned up for effecting switching of the vehicle to the second section and positioned down to allow the vehicle to proceed on the first section. A switch machine is mounted on each side of the guideway for operating a ramp and locking it either up or down on each side of the guideway.

3,830,164

TOW TRUCK

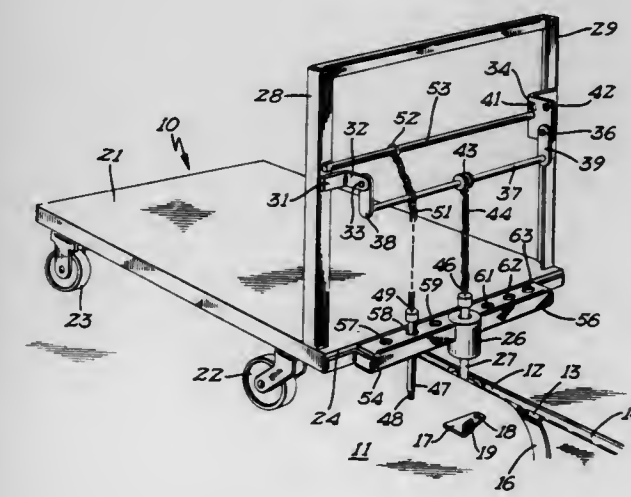
Richard M. Biessener, Faribault, Minn., assignor to Nutting Truck and Caster Company, Faribault, Mich.

Filed July 21, 1972, Ser. No. 273,937

Int. Cl. B61 1/3/02

U.S. Cl. 104—170

8 Claims



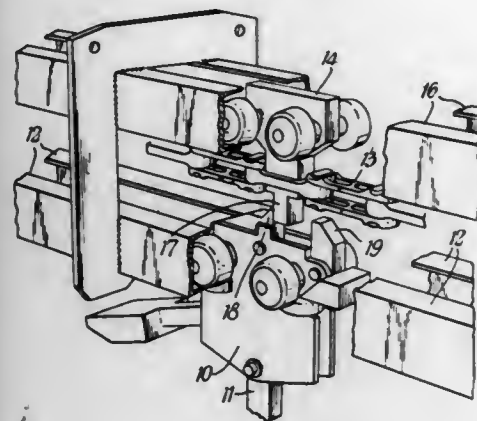
A tow truck is disclosed in which a tow pin is supported for relative movement between a conveyor-engaging position and a retracted position. The tow truck has a selector rod support for selectively and removably holding at least one selector rod in any one of at least two laterally spaced switching locations at either side of the path along which the truck is to be moved by engagement of the tow pin. A manually operable tow pin retracting member is movable between operating and retracting positions and is connected to the tow pin so that movement of the retracting member to retracting position moves the tow pin to retracted position. The selector rod support includes a fixed crossbar extending laterally across the truck above the selective switching locations for the selector rod, and the selector rod is connected by a flexible connecting member to a retaining member slidably supported on the crossbar, so that the selector rod and its associated members can be moved selectively across the truck to either side of the tow pin axis without removal of the retracting member from the fixed crossbar. The tow pin retracting member includes a movable crossbar portion which engages and displaces a portion of the flexible connecting member for the selector rod, regardless of the selected switching location of that rod, whenever the tow pin retracting member is manually operated to retract the tow pin. The displacement of the flexible connecting portion moves the selector rod from a switching position to a retracted position.

3,830,165 CONVEYOR SYSTEMS

John Turner, Stevenage, England, assignor to Geo. W. King Limited, Stevenage, England
Filed Jan. 4, 1973, Ser. No. 320,939
Claims priority, application Great Britain, Oct. 11, 1972, 46976/72

Int. Cl. B65g 17/42; B61b 3/00
U.S. Cl. 104—172 S

2 Claims



A power-and-free conveyor system has a load trolley track formed of two parallel, spaced channel-form parts opening towards each other. Load trolleys running in the track each include two vertical side plates readily releasably interconnected by horizontal nut-and-bolt or pin-and-circlip connections. Each plate carries two rollers rolling in the track about horizontal axes and one roller rolling in the track about a vertical axis, the latter roller extending into a recess in the other plate. To remove each trolley from the track, the connections are released, dogs and certain other members removed, the plates are moved in opposite directions along the track so that the one roller of each plate leaves the associated recess, and each plate and its rollers are removed as a unit from the track in generally a width direction of the two channels.

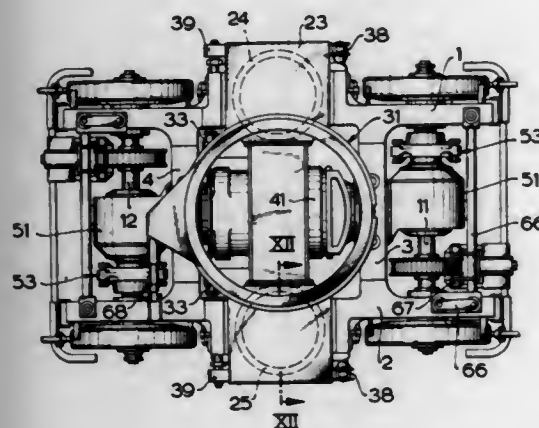
3,830,166 MOTORIZED SWIVEL TRUCK FOR RAIL VEHICLES, ESPECIALLY STREETCARS

Hans Dieling, Rhunda, and Manfred Schindehutte, Calden, Ortstell, both of Germany, assignors to Wegmann & Co., Kassel, Germany

Filed June 8, 1973, Ser. No. 368,379
Int. Cl. B61c 15/10

U.S. Cl. 105—77

11 Claims



A motorized swivel truck for rail vehicles, especially streetcars, having a truck frame on which a cradle frame lying transversely of the direction of travel is supported by an air spring bellows, and the car body rests upon the cradle frame through an annular ball bearing which permits wide swiveling of the swivel truck. The swivel truck frame consists of two longitudinal members having a generally underslung configuration

and whose middle, underslung portion has an open cross-sectional profile, and two transverse members which are disposed between the wheel axles and have a likewise open cross-sectional profile and which have a generally arched configuration, and whose ends are welded to the end portions of the longitudinal members. Owing to the underslung and arched configurations and the open cross-sectional profiles the swivel truck frame is flexible, so that the wheel bearings may be mounted with very stiff springing in the end portions of the longitudinal members. The motor is suspended on the cross members by resiliently yielding means such that its drive shaft lies parallel to the direction of travel, the driving of the wheel axles is performed through a bevel gear transmission and a flexible coupling, and the air spring bellows are located adjacent the ends of the cradle frame

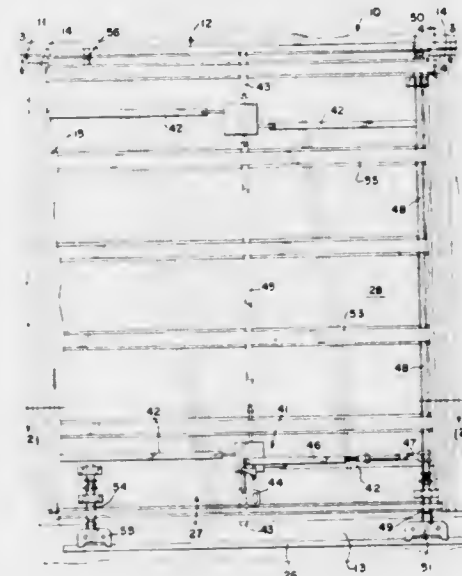
3,830,167 WATER DRAIN STRUCTURE FOR RAILWAY CAR DOOR ARRANGEMENT

Robert S. Tamborski, Griffith, and Phillip G. Przybylinski, Schererville, both of Ind., assignors to Pullman Incorporated, Chicago, Ill.

Filed Dec. 17, 1973, Ser. No. 425,365
Int. Cl. B61d 19/00

U.S. Cl. 105—378

7 Claims



A railway car door of the sliding plug type is positioned within the door frame arrangement in the side of a car. The door frame arrangement comprises horizontally spaced side posts, an upper horizontally extending side plate structure and a lower side sill. The door posts which define the sides of the opening are provided with flanges which cooperate with flanges on the door to substantially close the door openings. The flanges on the door and on the side posts are also provided with a water drain structure including vertically extending lips which project outwardly with respect to the door opening and cooperate with watertight seals supported on the post flanges to provide vertically extending drain troughs at the corners of the door posts.

3,830,168 TRIPOD SHELF

Richard C. Crete, 16 S. School St., Lodi, Calif. 95240
Filed Aug. 3, 1972, Ser. No. 277,515

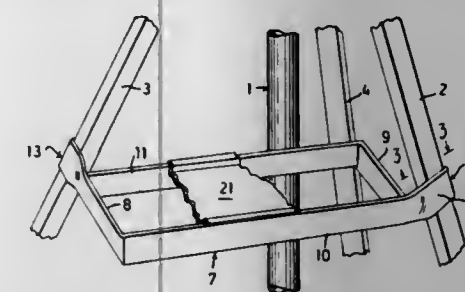
Int. Cl. A47b 35/00, 83/00

U.S. Cl. 108—50

4 Claims

A support for use on a studio tripod for studio and television cameras providing one or more shelves for holding articles used by the photographer including a video recorder, which support has leg-engaging elements movable from an elevated

position free from one or more adjacent pairs of legs to a lowered position firmly engageable with such legs and in hold-



ing relation with said legs under the influence of gravity free from the use of bolts or screws, and which support is quickly removable upon lifting the support to said elevated position.

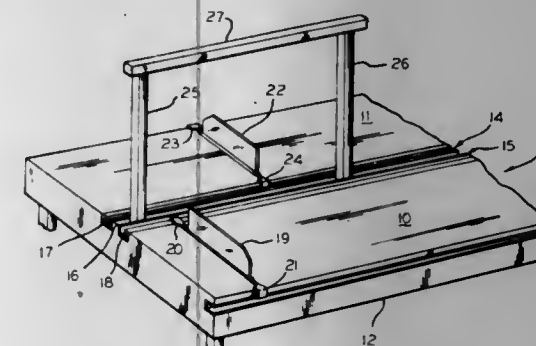
3,830,169 DISPLAY TABLE

Marion J. Madey, Park Ridge, Ill., assignor to Poster Products, Inc., Chicago, Ill.

Filed Aug. 21, 1972, Ser. No. 282,456
Int. Cl. A47b 57/00

U.S. Cl. 108—61

3 Claims



A display table is provided having a table top with a top surface to receive articles to be displayed and a front face of substantial vertical depth containing an elongated recess substantially parallel to the top surface and a rigid elongated generally U-shaped member inlaid in said recess and adapted to anchor one end of a top surface partition and to receive a ticket holder. In a preferred embodiment, the leg of said U-shaped member next to said top surface contains a section, the outer surface of which extends downwardly and inwardly and then upwardly to form a second recess within said member, which, in combination with a partition anchor or ticket holder, increases resistance to tampering. A novel type of ticket holder is adapted to be snapped into said front face of said table top. The top of the table can also contain a recessed channel member extending parallel to the front face of the table and having a lip whereby partition members having resilient clips thereon can be snapped into engagement on one side with said lip of said channel member and on the other side with said U-shaped member.

3,830,170 FREE STANDING SHELF SUPPORT UNITS AND SYSTEM

George L. Faulstich, Rt. 5, Box 749D, Golden, Colo.

Filed Jan. 31, 1973, Ser. No. 328,303

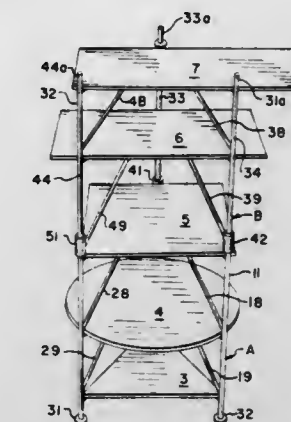
Int. Cl. A47b 3/00

U.S. Cl. 108—111

12 Claims

Highly versatile free standing shelf support units are usable singly or in combination to support shelves of different shapes and sizes for displaying merchandise and the like. These units are readily collapsible for movement to different points of use. An upper shelf support unit stacks on a base shelf support unit for added shelf capacity. Each shelf support unit is comprised

of two sections pivotally connected to one another for swinging movement between a shelf-supporting position in which the sections are disposed at a selected angle relative to one another and a collapsed position. Each section has a plurality



of horizontal shelf support members at different heights to support a plurality of shelves at different elevations. The sections preferably are made up of a minimum number of metal rods welded together to provide a durable, lightweight, low cost design.

3,830,171

ROTARY TUBULAR FURNACES

Hans Rolli, Zurich, Switzerland, assignor to Kebe Anstalt fur Vertrieb von Anlagen fur Kehrbesichtigung, Vaduz, Liechtenstein

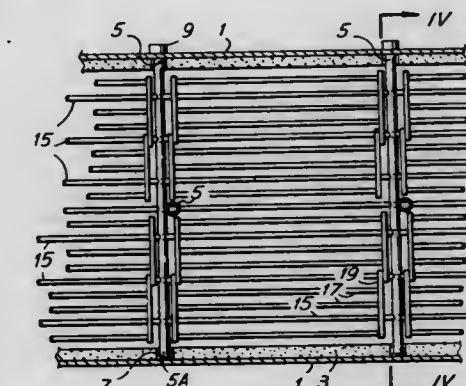
Filed May 29, 1973, Ser. No. 364,410

Claims priority, application Switzerland, June 6, 1972, 8351/72

Int. Cl. F23g 5/06

U.S. Cl. 110—14

6 Claims



A rotary tubular furnace, for example for incinerating refuse comprises an internal grid structure which divides the interior of the furnace into a plurality of longitudinally extending passages. The grid structure comprises a number of individual grid sections which are carried by diametrically extending rods. The diametrically extending rods are removable from the furnace from the outside of the furnace and directly support removable longitudinal rods which support the grid sections. By removing the longitudinal rods, the grid sections can be removed from the furnace.

3,830,172 INCINERATOR

Arthur W. Hindenlang, London, Ontario, Canada, assignor to North American Mechanical Limited, London, Ontario, Canada

Filed July 16, 1973, Ser. No. 379,684

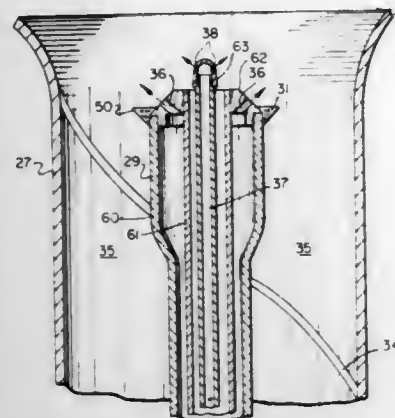
Int. Cl. F23g 5/12

U.S. Cl. 110—7 S

3 Claims

Comminuted waste fuel or material is injected into the incinerator at the bottom thereof through a conduit. Centrally arranged in this conduit, at the discharge end thereof is a

second auxiliary fuel conduit which is provided at its termination end within the first conduit with a plurality of fuel discharge orifices which are directed radially outwardly and upwardly towards the discharge end of the first conduit. The



incinerator also includes provision for a separator wherein the baffles and bottom disc are cooled by means of circulating air which is then discharged from the disc portion of the separator in a tangential direction complementing the direction of rotation of the cyclone within the incinerator.

3,830,173

TUYERE FORMED BY CEMENTING A CERAMIC LINER IN A METAL TUBE

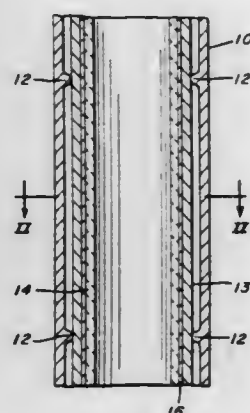
David Henry Hubble, Franklin, and Joseph George Yount, Jr., Plum Boros, both of Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Dec. 28, 1971, Ser. No. 213,140

Int. Cl. F231 5/00; F161 9/14; C21b 7/16

U.S. Cl. 110—182.5

14 Claims



A method of bonding a high density, low-porosity, abrasion-resistant, ceramic liner in a metal tube, such as a tuyere or an oxygen lance. The method comprises applying a sodium silicate-refractory aggregate cement to one of the surfaces to be joined, and inserting the liner in the tube. The cement need not be dried, as it does not run. Therefore, the tube can be used immediately, even in high-temperature applications.

3,830,174

TUFTING MACHINES

Leslie Mellor, Blackburn, England, assignor to Edgar Pickering (Blackburn) Limited, Blackburn, England

Filed Apr. 26, 1973, Ser. No. 354,870

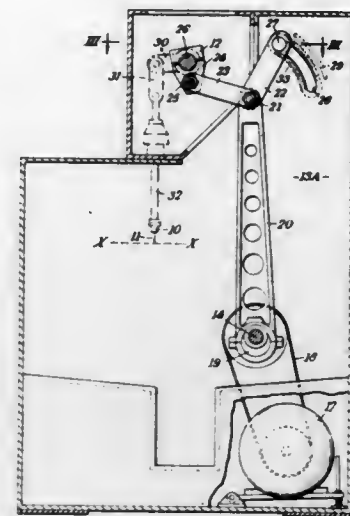
Int. Cl. D05c 15/20

U.S. Cl. 112—79 R

4 Claims

A tufting machine comprising a framework, a main driving shaft disposed near the bottom of the framework, a needle rocker shaft disposed near the top of the framework, eccentrics on the main driving shaft at opposite sides of the machine, connected rods coupled at their lower ends to the eccentrics and pivoted at their upper ends to arms connected

to the rocker shaft and adapted to oscillate the rocker shaft in response to rotation of the main driving shaft, a needle bar disposed below the rocker shaft and mounted for vertical reciprocating movement, means connecting the needle bar and the rocker shaft for imparting reciprocation to the needle



bar in response to rocking of the rocker shaft, a control arm pivoted at one end to the upper end of each connecting rod and having its other end adjustable in a quadrant slot in the framework, and means external to the framework for adjusting the control arms in their respective slots and thereby adjusting the stroke of the needle bar.

3,830,175

SEWING MACHINES

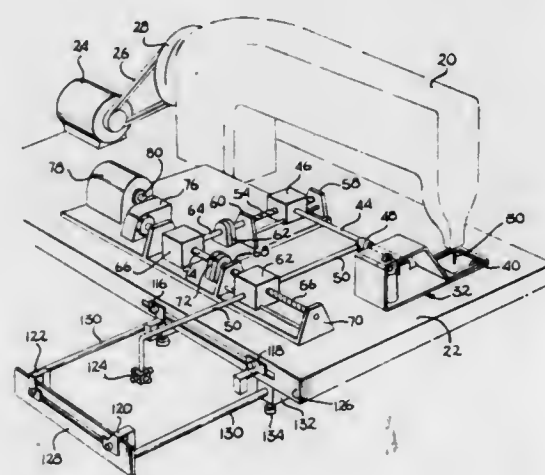
Henry Levor, 12947 Hisley St., Van Nuys, Calif. 91403

Filed Oct. 24, 1972, Ser. No. 300,182

Int. Cl. D05b 21/00

U.S. Cl. 112—121.12

14 Claims



An improvement for sewing machines, whereby conventional sewing machines may be converted to perform specialized operations heretofore only achievable on special machines referred to as tackers. A clamp system clamps the fabric, with a two dimensional drive system advancing the fabric through a predetermined pattern so as to automatically sew button holes, pockets and the like. A sensor on the sewing machine synchronizes the fabric advance system with the sewing machine operation and advances the fabric in the inactive portion of the sewing cycle, so that sewing occurs in stationary rather than moving fabric. Provision is made for adjusting the pattern as desired.

3,830,176

SEMI-SUBMERGED MARINE PLATFORM STRUCTURE

Yukio Arlta; Katsuya Ninomiya, both of Hiroshima, and Eilchi Miwa, Itsukaichi, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

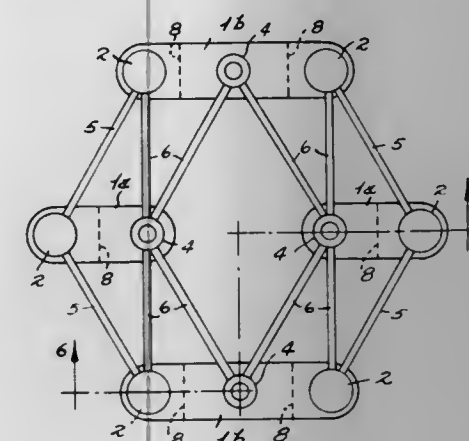
Filed June 6, 1973, Ser. No. 367,407

Claims priority, application Japan, June 26, 1972, 47-63191

Int. Cl. B63b 35/00, 35/44

U.S. Cl. 114—0.5 D

1 Claim



A semi-submerged platform structure to be used for workings at sea, comprising a pair of relatively short central lower hulls arranged in alignment with and spaced apart from each other, a pair of relatively long side lower hulls arranged each on each side of the row of said central lower hulls in parallel and in symmetrical relation with respect thereto, six upright columns respectively provided on said central and side lower hulls such that said columns occupy the vertices of a regular hexagonal shape respectively, a working platform supported by said columns and structural members interconnecting said lower hulls, columns and working platform.

3,830,177

BARGE WITH RELEASABLE SUPPORTS

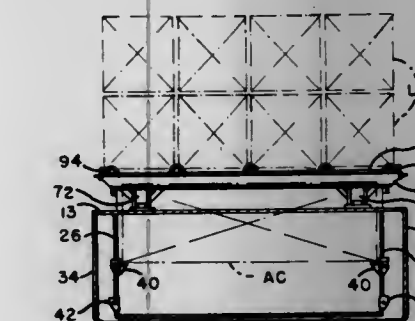
Frank A. Nemec; Stuart W. Thayer, both of New Orleans; William S. Eckert, Kenner; Marion F. Horn, Metairie, and Roland J. Dunn, Jr., Covington, all of La., assignors to Lykes Bros. Steamship Co., Inc., Orleans Parish, La.

Filed Mar. 15, 1972, Ser. No. 234,774

Int. Cl. B63b 35/28

U.S. Cl. 114—26

6 Claims



A container, barge adapted for use on an oceangoing barge carrier and for use in conjunction with existing river facilities. The barge having a relatively unobstructed hold, with the longitudinal strakes defining the hold being spaced apart approximately the length of a container, releasable pedestals for supporting containers within the hold, and releasable beams for supporting containers above deck of the barge.

3,830,178

SEMISUBMERGED SHIP WITH HULL EXTENSIONS

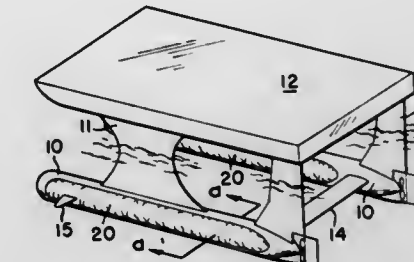
Thomas G. Lang, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 26, 1973, Ser. No. 354,555

Int. Cl. B63b 1/32

U.S. Cl. 114—61

3 Claims



An improvement for the semisubmerged ship provides hull extensions for additional buoyancy or increased cargo and fuel storage which do not appreciably create more drag. In one configuration sacks disposed below the level of surface wave action are inflated to permit shallow water operation. Preferably, however, the hull extensions have a meniscoidal cross-sectional configuration and are mounted on the submerged hulls. Particularly in the case of the meniscoidal-shaped extensions, the structural integrity of the semisubmerged ship is not compromised and the ship's capability for high-speed operation remains substantially unimpaired since the hull extensions do not appreciably create excessive drag. Whatever configuration is chosen, the hull extensions are either permanently or releasably coupled to the hulls to allow flexibility in range and payload.

3,830,179

GROUND EFFECT FLYING SURFACE

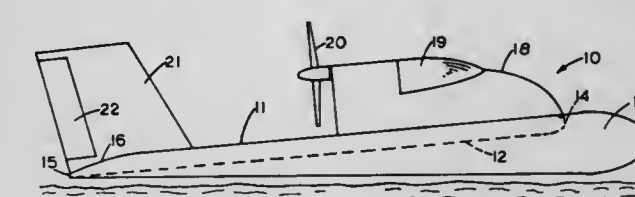
Alexander M. Lippisch, 3450 Cottage Grove Ave. S.E., Cedar Rapids, Iowa 52403

Filed June 20, 1972, Ser. No. 264,416

Int. Cl. B63b 1/38

U.S. Cl. 114—67 R

14 Claims



A combination air and water surface transport vehicle utilizing aerodynamic ground effect for support in flying in close proximity to water surface or over flat land with low drag and high efficiency.

3,830,180

CRYOGENIC SHIP CONTAINMENT SYSTEM HAVING A CONVECTION BARRIER

Harold B. Bolton, Marina Del Rey, Calif., assignor to Litton Systems Inc., Beverly Hills, Calif.

Filed July 3, 1972, Ser. No. 268,436

Int. Cl. B63b 25/08

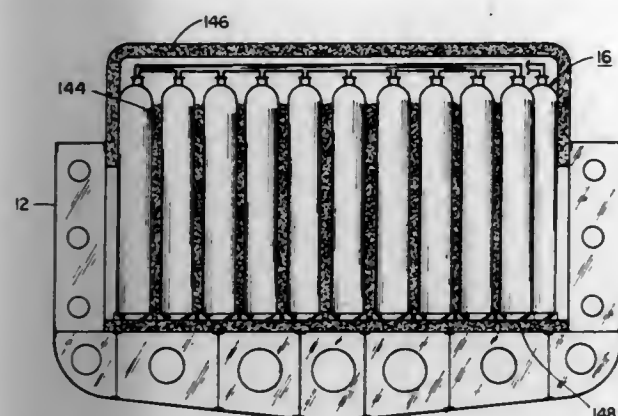
U.S. Cl. 114—74 A

1 Claim

A ship for the transportation of volatile liquids having holds which contain a number of elongated vessels for containing cargo fluids where each vessel has a primary barrier for isolating cargo fluids from the hull and has an insulating wall. The insulated cargo vessels prevent the absorption of heat by cargo fluids at cryogenic temperatures which could cause excessive loss of cargo by evaporation and prevent a thermal equilibri-

um temperature of cargo fluids at cryogenic temperatures from affecting the hull of the ship, e.g., by preventing embrittlement of the hull. A convection barrier connects at least

the headstay of a sailboat by contact between the underside thereof and the upper side of an identical jib hank in locking slidable engagement with the headstay. A method of changing



each pair of adjacent vessels positioned opposite the surfaces of the hold to decrease thermal conductivity between cargo fluids in the vessels and the hull structure of the ship.

3,830,181

STABILIZATION MEANS FOR TANK MOUNTING

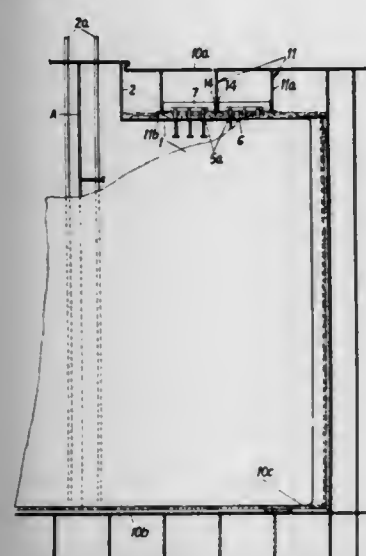
Edmund George Tornay, New York, N.Y., assignor to Conch International Methane Limited, Nassau, Bahamas
Filed May 29, 1973, Ser. No. 364,485

Claims priority, application Great Britain, June 5, 1972, 26129/72

Int. Cl. B63b 25/08

U.S. Cl. 114—74 A

10 Claims



A liquefied gas tanker of the kind having at least one storage tank is provided with a stabilizing device comprising a structural key beam extending for and aft above the tank, on which is located, via bearer blocks of insulation material, a first keyway carried by the top of the tank, each end of the key beam being a sliding fit in a second keyway provided on a transverse girder of the tanker. The arrangement thus permits relative movement between the tank and structural beam and between the beam and the hull of the tanker. A similar stabilizing arrangement can be provided transversely of the tanker for stabilizing against pitching movements.

3,830,182

AUTOMATICALLY RELEASABLE JIB HANK AND METHOD OF USE

John B. Pattison, III, 612 Mariposa Ave., Apt. 102, Oakland, Calif. 94610

Filed June 4, 1973, Ser. No. 366,693

Int. Cl. B63h 9/04

U.S. Cl. 114—114

11 Claims

A jib hank or shackle is disclosed which is designed to be automatically released from locking slidable engagement with

jib sails on a sailboat using a plurality of such hanks on each jib is disclosed in which the new jib is raised and the old jib removed substantially simultaneously.

3,830,183

SAILBOAT STEERING AID

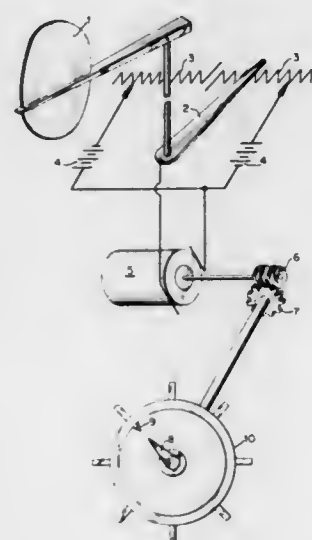
Robert L. Menegus, 62 Major St., Clifton, N.J. 07013

Filed July 13, 1971, Ser. No. 162,125

Int. Cl. B63h 25/04

U.S. Cl. 114—144 C

2 Claims



A wind vane or rotatable sail rig is adjustably set to define a desired course with respect to the yacht's relative wind, and the vertical shaft from said wind device is connected to an integrator. Said integrator is made fast to the hull proper. And, to take advantage of shifting winds in the optimum manner, the hull should continually deviate from its mean course, either by the helmsman's action or through the use of an automatic controller on the rudder. Hence the input to the integrator is the deviation of the relative wind minus the deviation of the hull. This angular difference is integrated, and the resulting integral is displayed to the helmsman who steers by referring to its magnitude. Or the output integral motion, suitably geared down, may operate the helm directly.

3,830,184

LATERAL THRUST RUDDER UNIT

Franz Krautkremer, Im Muhren, Germany, assignor to Schot-tel-Werft Josef Becker KG., Spay/Rhine, Germany

Continuation-in-part of Ser. No. 107,341, Jan. 18, 1971,

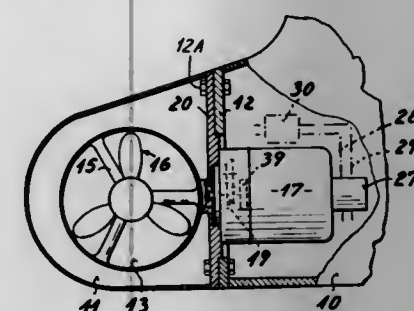
abandoned. This application Jan. 10, 1973, Ser. No. 322,364

Claims priority, application Germany, Feb. 24, 1970, 7006666

Int. Cl. B63h 25/46

U.S. Cl. 114—148

8 Claims



The invention contemplates an attachable or a detachable unit providing a lateral thrust rudder for ships. The invention contemplates a unitary mechanism constituting a tunnel, a propeller within such tunnel and driving means for same which can be bodily mounted into or detached from a ship. When same is in operating position, it is normally mounted at the bow of the ship and functions to apply a lateral thrust in one direction or the other as desired to such bow. Preferably, the unit is so mounted that the driving mechanism projects into the interior of the ship for easy access thereto. Suitable drive mechanism and control features, including pitch changing means for the propeller blades can be provided in a conventional manner as desired.

3,830,185

BAILER FOR BOATS

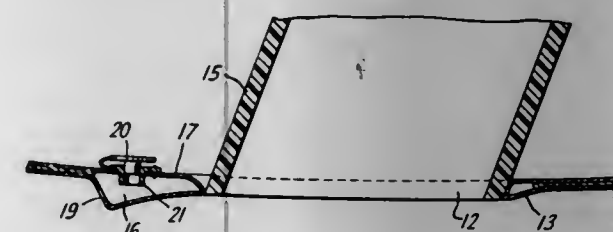
Frederick M. Scott, Sandy Hook, Conn., assignor to AMF Incorporated, White Plains, N.Y.

Filed Feb. 9, 1973, Ser. No. 331,062

Int. Cl. B63b 13/00

U.S. Cl. 114—183 R

1 Claim



An integral fish shaped fairing blister is formed on the outside bottom surface of the boat about the daggerboard opening. The tail fin is hollow and has a rear facing exit opening. Another exit opening is formed in the inside bottom surface of the boat above the hollow tail fin. Either one of these exit openings is provided with a manually or automatically operable closure to bail the boat when under way.

3,830,186

DEVICE FOR COUPLING ADJACENT ENDS OF TWO MARINE VESSELS

Hans Georg Janssen, and Gustav Welssensborn, both of Bremerhaven, Germany, assignors to Aktien-Gesellschaft "Weser", Bremen, Germany

Filed Apr. 5, 1973, Ser. No. 348,156

Claims priority, application Germany, Apr. 15, 1972, 7214289

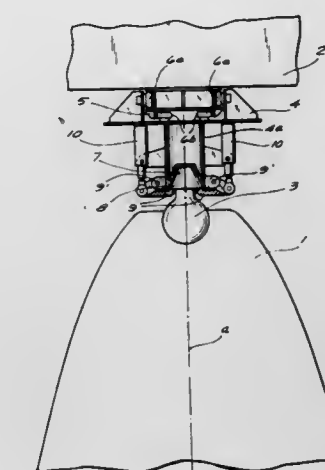
Int. Cl. B63b 21/56

U.S. Cl. 114—235 A

11 Claims

A device for coupling adjacent ends of a tug boat to a barge including a first coupling member mounted for universal

movement on the bow of the tug boat and having a shoulder normally extending transverse to the longitudinal axis of the tug and facing the bow of the latter, a second coupling member, preferably in the form of a carriage, guided for



movement in substantially vertical direction by guide means mounted on the stern of the barge, and having a pair of holding members movable between a coupling position engaging the shoulder of said first coupling member and an inactive position disengaged therefrom.

3,830,187

LINE-POST COUPLING AND MARINE MOORING-TOWING DEVICES

Welbourne D. McGahee, Melbourne, Fla., assignor to Look A. Line, Inc., Melbourne, Fla.

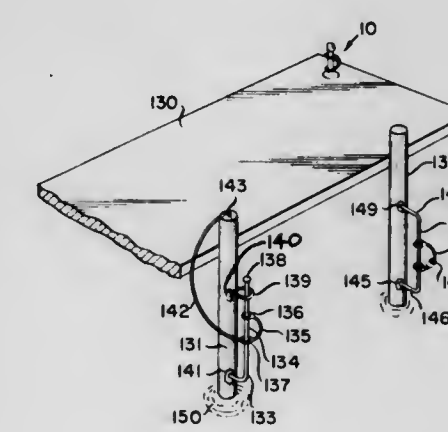
Division of Ser. No. 296,107, Oct. 10, 1972, Pat. No.

3,780,690. This application Sept. 4, 1973, Ser. No. 394,109

Int. Cl. B63b 21/00, 21/04

U.S. Cl. 114—235 A

17 Claims



Line-post couplings with marine mooring-towing and other applications having a post with an enlarged head and with mounting members including a fixed or movable clevis member whereby a line with a loop may be quickly attached and detached without the necessity of tying and untying knots. The enlarged head may be integral with the post or detachable. The clevis may include a pair of rings and be movable on the post or one ring may be omitted and the lower clevis end affixed to the post or post base. A line anti-fraying member may also be affixed to the clevis. The device may be mounted on a tow truck, dock, or a boat, and with slight modification the device may be mounted on dock pilings and bollards or lock walls with or without a float member.

3,830,188

ADJUSTABLE HANDLE STRUCTURE FOR WATER SKIING TOWLINE

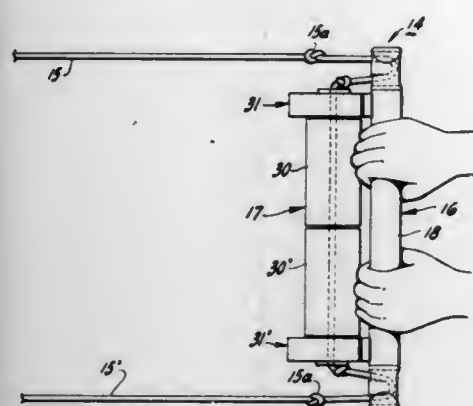
Jack M. Humbert, 1330 Broadway, Suite 1737, Opportunity, Wash. 94612

Filed July 9, 1973, Ser. No. 377,746

Int. Cl. A63c 11/10

U.S. Cl. 115-6.1

9 Claims



A handle structure attached to the free end of a towline or rope to enable the same to be releasably gripped and held conveniently. The handle structure is especially useful for water skiing, and it functions to augment or enhance the natural grip of the skier yet enables him to quickly release his grip when necessary. The extent to which the grip of the skier is enhanced by the handle structure is selectively variable to permit the structure to be adjusted to the requirements of any particular skier. The handle structure may be in the form of a single unit sufficiently large to be gripped by both hands, and in this form it includes a handhold component adapted to be gripped by each hand of the skier. A compression member movable with respect to the hand hold component and urged theretoward into compressive engagement with the fingers of a hand compressively grips the same whenever a tensile force is applied to the towline. Adjustable limit structure carried by the compression member and provided with a plurality of elements of differing dimensions that are selectively positionable intermediate the compression member and handhold component is effective to limit relative movement therebetween in directions toward each other so as to establish a predetermined spacing therebetween to tailor the grip-enhancing feature to the skier's requirements.

3,830,189

PROPELLING APPARATUS

Senya Yamanaka, No. 39-123, Marunouchi, Ueno, Japan

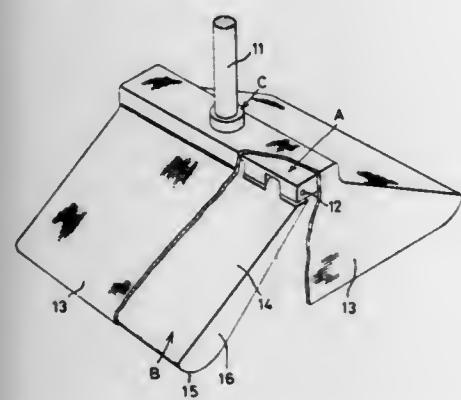
Filed Nov. 27, 1972, Ser. No. 309,939

Claims priority, application Japan, Feb. 2, 1972, 47-15682; Feb. 3, 1972, 47-15683; July 18, 1972, 47-86875; Aug. 25, 1972, 47-100787

Int. Cl. B63h 1/32

U.S. Cl. 115-31

1 Claim



An apparatus for propelling a body in or on the water. The apparatus comprises a holding member such as a pole or foot-

gear and one or more propelling devices attached to the holding member. The propelling device includes a support member and a pair of propelling blades pivoted at one end thereof on the support member. A body is propelled by repeatedly pushing and drawing the apparatus in the water.

3,830,190

VARIABLE GEOMETRY MARINE PROPULSOR

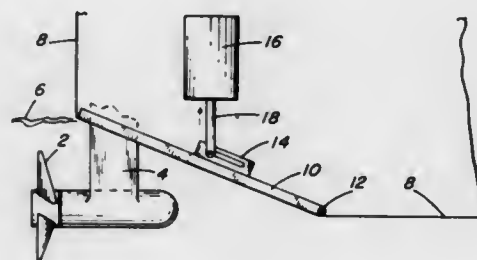
Peter J. Mantle, Tacoma, Wash., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 24, 1973, Ser. No. 363,447

Int. Cl. B63h 5/06

U.S. Cl. 115-34 R

7 Claims



A marine propulsive apparatus and a device and method for increasing the apparatus' efficiency by controlling the amount of wetting of the apparatus over a range of speeds. A housing, mounted in a cavity formed in the stern of a ship, encloses a drive shaft connected to a propeller. A control surface is pivotally connected to the hull of the ship ahead of the propeller and in a raised position contacts the stern portion of the hull to form the upper wall of the cavity. A hydraulic device is used to raise and lower the control surface, the latter directing the flow of water across the propulsive apparatus. As the speed of the ship increases wetting of the propulsive apparatus is decreased.

3,830,191

MEAT TIMER

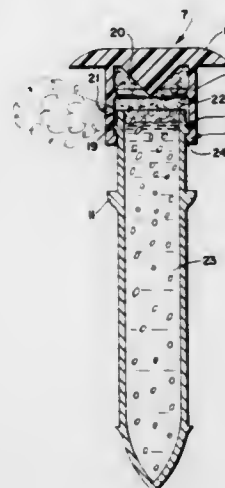
James P. Burke, 1510 Springwood Dr., Modesto, Calif. 95350

Filed Oct. 24, 1973, Ser. No. 409,050

Int. Cl. G08b 3/06

U.S. Cl. 116-67 R

9 Claims



A timer for various meats including poultry to audibly indicate when the meat has been cooked to a desired extent. The timer includes an elongated container filled or partially filled with a solution, and having a pointed end to be forced into the meat. The other end of the container is closed and sealed by a cap which is responsive to pressure generated in the container, by the liquid being converted to steam, to effect movement of the cap to a position to allow the steam to escape from an opening of the cap, which was initially sealed, to produce an audible signal indicating that the cooking of the meat has been completed.

3,830,192

AUTOMATIC TRANSMISSION RATIO INDICATOR FOR USE IN THE INSTRUMENT CLUSTER OF AN AUTOMOTIVE VEHICLE

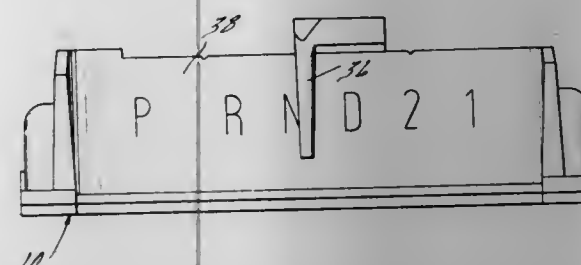
Donald J. Ronewicz, Dearborn Heights, and Joseph E. Uhl, Plymouth, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed May 17, 1972, Ser. No. 254,202

Int. Cl. G09f 9/00

U.S. Cl. 116-124 R

4 Claims



A transmission selector dial adapted to be mounted on a steering column shift lever assembly in an automotive vehicle whereby changes in the drive range selection by the vehicle operator are indicated by an indicator finger adapted to move across a drive range indicator scale on the dial, the indicator finger being connected to an actuator cable by means of a slip clutch whereby automatic calibration of the dial is achieved as the cable is adjusted to one extreme position.

3,830,193

AIR SHOCK WAVE GENERATOR FOR ANY FREQUENCY

Leonardo Pricoli Sobrinho, Sao Paulo City, Brazil

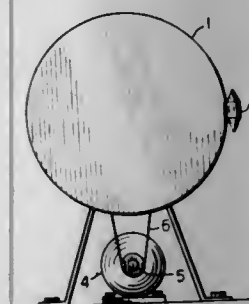
Filed Feb. 4, 1971, Ser. No. 112,563

Claims priority, application Brazil, Feb. 2, 1970, 216609

Int. Cl. B06b 3/00

U.S. Cl. 116-137 A

4 Claims



An air shock wave generator comprises a rotatable pulley which rotates at a tangential velocity at least equal to the speed of sound and which carries a part on its periphery which produces a sound frequency equal to $40,000 \times 2/d$ cycles per second where the diameter is in centimeters.

3,830,194

SUSCEPTOR SUPPORT STRUCTURE AND DOCKING ASSEMBLY

Walter C. Benzing, Saratoga, and James McDiarmid, San Jose, both of Calif., assignors to Applied Materials Technology, Inc., Santa Clara, Calif.

Filed Sept. 28, 1972, Ser. No. 292,992

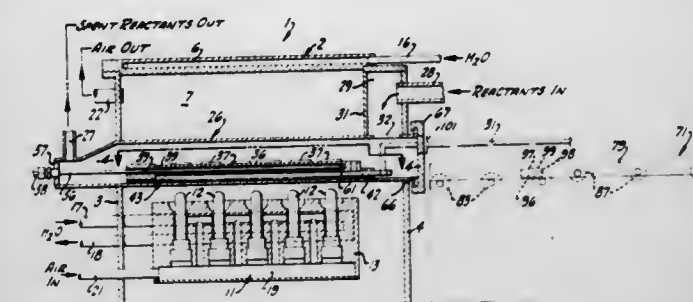
Int. Cl. C23c 13/08

U.S. Cl. 118-9

15 Claims

A chemical vapor deposition reactor or like apparatus including means for accurately sensing the temperature of a susceptor upon which substrates to be coated are positioned. Means for facilitating insertion and removal of the sensing means relative to the susceptor, and for facilitating movement of the susceptor from a reaction chamber to permit expedited loading or unloading of the susceptor, are included with the apparatus. A support structure is provided upon which the

susceptor is movable relative to the reaction chamber. Externally of the reaction chamber a docking assembly is provided to receive the susceptor supporting structure and the suscep-



tor during substrate loading and unloading. The temperature sensing means comprises a sheathed thermocouple, which is automatically and accurately positioned in the susceptor following each loading or unloading cycle.

3,830,195

FINGERPRINT REPRODUCTION MEANS

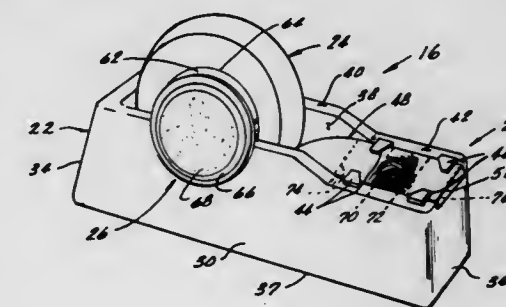
Louis J. Burleson, 1336 N. Ohio, Wichita, Kans. 67214

Filed Nov. 27, 1972, Ser. No. 309,671

Int. Cl. B41k 1/00

U.S. Cl. 118-31.5

5 Claims



A fingerprint reproducing device includes a roll of transparent adhesive tape mounted on a hollow spindle having a source of marking material supported therewithin and adapted for transfer to a finger member on contact therewith. The spindle is mounted on a base having a planar surface whereon a section of tape is retained to receive the treated finger to transfer the print thereof to the adhesive surface.

3,830,196

CLEANING PAINT HOOKS

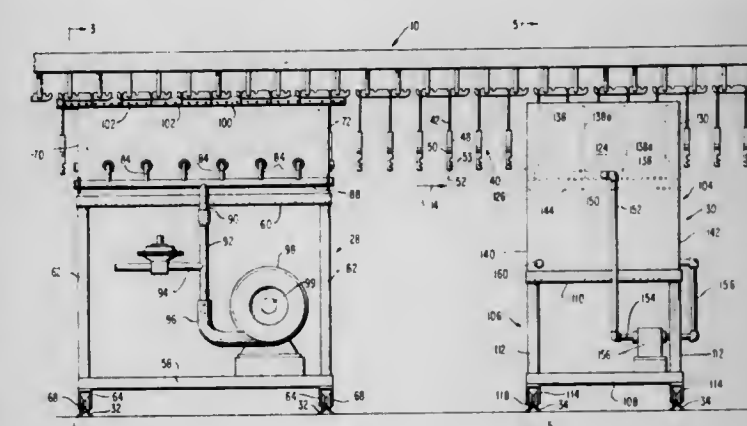
Earney C. Guttman, Pittsburgh; William J. Suchy, East Pittsburgh, and Vincent J. Berardinelli, Jeanette, all of Pa., assignors to National Steel Corporation, Pittsburgh, Pa.

Filed Aug. 31, 1971, Ser. No. 176,564

Int. Cl. B05c 11/16

U.S. Cl. 118-70

12 Claims



Hangers used to suspend articles (e.g., aluminum extrusions) from a conveyor for transport through a continuous

painting line are cleaned of accumulated paint without stopping the conveyor by burning the paint to ash in an oven and spray washing to remove the ash.

3,830,197

APPARATUS FOR SIMULTANEOUSLY APPLYING ALTERNATE FLUID COATINGS TO A TRAVELING SHEET MATERIAL

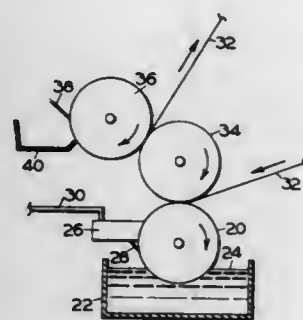
Douglas J. Romaine, Vancouver, Wash., assignor to Crown
Zellerbach Corporation, San Francisco, Calif.

Filed Oct. 20, 1972, Ser. No. 299,569

Int. Cl. B05c 1/08, 9/06

U.S. Cl. 118—104

13 Claims



An apparatus and method for applying alternate fluid coatings to a traveling sheet material simultaneously with the application of production coating along the remainder of the sheet surface. The alternate fluid coating is achieved by first applying a production coating to a furnish roll, doctoring the production coating from a strip of the furnish roll, applying an alternate fluid coating to this strip, and transferring the resulting coatings from the furnish roll to a traveling sheet. The apparatus comprises a furnish roll including coating means and an engageable doctor blade-coating pan in sequential contact with a portion or strip of the coated furnish roll surface.

3,830,198

DEVICE FOR PROVIDING TREATED SHEET-LIKE MATERIALS

Philip Boone, 15 Fenwick Rd., Winchester, Mass. 01890

Continuation-in-part of Ser. No. 257,745, May 30, 1972,
abandoned, and a continuation-in-part of Ser. Nos. 48,916,
June 18, 1970, Pat. No. 3,707,945, and Ser. No. ,

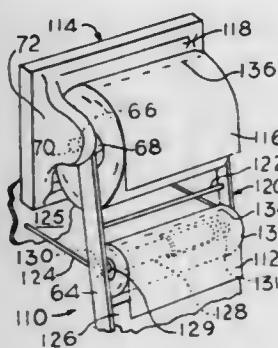
Continuation of Ser. No. 678,600, Oct. 27, 1967, abandoned,
Continuation-in-part of Ser. No. 238,578, March 27, 1972,
Pat. No. 3,744,448. This application Feb. 21, 1973, Ser. No.

334,309

Int. Cl. B05c 1/12

U.S. Cl. 118—506

17 Claims



A device comprising a mounting component and carried thereby a plurality of sheet-like components each having an associated treating substance such as an encapsulated liquid. The mounting component is particularly adapted to combination with a conventional toilet-tissue dispenser to provide supplemental sheet material for use therewith. The mounting component is configured to support the sheet-like components only at areas of non-encapsulation to inhibit development of forces to fracture the encapsulating structure.

3,830,199 DEVICE FOR DEVELOPING AN ELECTROSTATIC IMAGE WITH A DEVELOPING FLUID

Masatoshi Saito, Kawasaki; Ryoichi Namiki, Tokyo; Tadashi
Fujii, Yokohama, and Hiroyuki Akamatsu, Tokyo, all of
Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

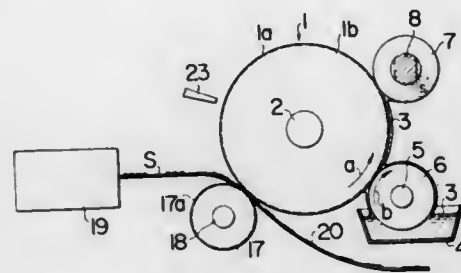
Filed Mar. 23, 1972, Ser. No. 237,450

Claims priority, application Japan, Mar. 24, 1971, 46-
20031[U]; Mar. 24, 1971, 46-20033[U]; Dec. 15, 1971, 46-
101654; Dec. 15, 1971, 46-101655; Dec. 15, 1971, 46-101656

Int. Cl. G03g 13/00

U.S. Cl. 118—637

10 Claims



A device provided with a developing roller formed on its periphery with a multitude of valleys and valley, with the crests serving as fluid containing sections which are supplied with a developing fluid. The device is also provided with a doctor member made of a resilient, fluid absorbing material and adapted to adjust the level of the fluid contained in each fluid containing section such that the fluid is maintained at a level below the crests, or the maximum diameter portions of the developing roller. A recording sheet on which an electrostatic image is formed is brought into contact with the developing roller so that the fluid contained in the fluid containing sections selectively adheres to the electrostatic image to render the image visible. The visible images produced by this method may vary in density depending on the quantities of electricity carried by the charged regions of the electrostatic images.

3,830,200

RESEARCH CAGE APPARATUS WITH IMPROVED FILTER CLAMPING MEANS

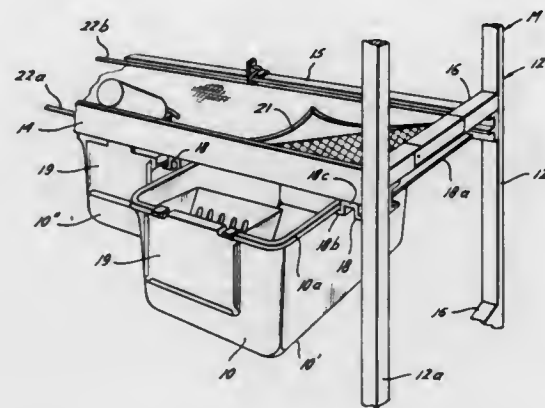
Carol M. Patterson, Bryan, Tex., assignor to Research Equip-
ment Company, Inc., Bryan, Tex.

Filed Jan. 19, 1973, Ser. No. 325,100

Int. Cl. A01k 01/00

U.S. Cl. 119—15

8 Claims



A multi-unit animal cage apparatus for housing small animals such as rodents under controlled environmental conditions, including a rack formed of vertical frame members interconnected by front, rear and opposing side frame members, suspensory rails being mounted under the front and rear frame members for slidably receiving cage-drawers; and, a support screen mounted onto the front and rear frame members and the suspensory flanges to receive and support a filter material that is held in place by releasable clamping means attached with the front, rear, and opposing side members.

3,830,201

MODULAR TEST CAGE FOR ANIMALS

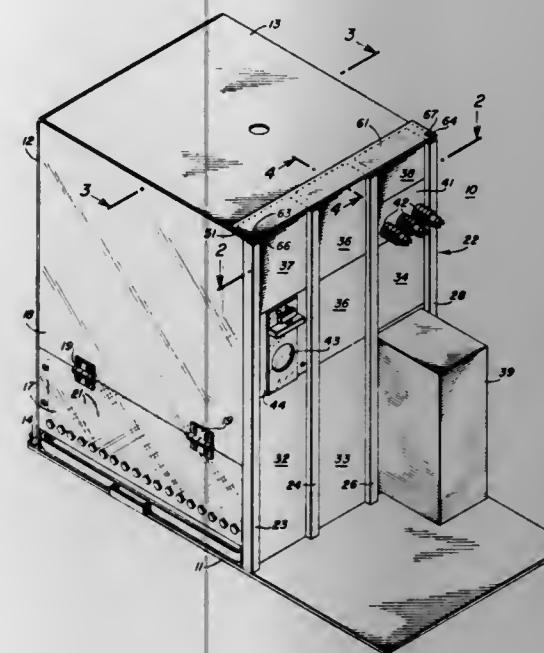
John Coulbourn, R.D. 2, New Tripoli, Pa. 18066

Filed June 4, 1973, Ser. No. 366,667

Int. Cl. A01k 1/00

U.S. Cl. 119—17

4 Claims



The test wall of an animal test cage is formed in a modular manner. Interchangeable modules, including blank modules and test modules, slide within vertical tracks of the wall. The modules are held in place by a plate which partially covers the top wall of the cage. The top wall is integrally affixed to the rear wall of the cage. Each of the modules has the identical width and thickness and each has heights ranging from 1/2 to 1/4 to 1/8 the distance between the base and the top wall of the cage. Thus, testing devices can be selectively positioned about a wide range of locations on the test wall to accommodate a wide range of animals and a wide range of testing conditions.

3,830,202

PET PULL TOY

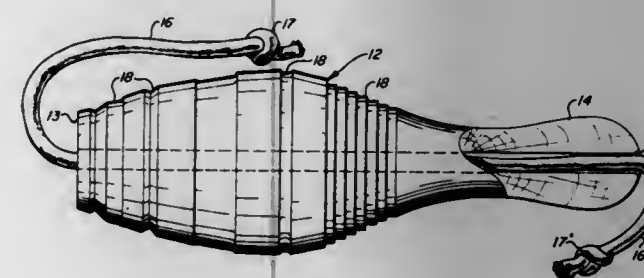
Elbert W. Garrison, P.O. Box 536, Cave Creek, Ariz. 85331

Filed May 10, 1973, Ser. No. 359,136

Int. Cl. A01k 15/00

U.S. Cl. 119—29

6 Claims



A pull toy for pets having a cord extending longitudinally through an axial bore in a cylindrical body which may be grasped by the teeth of a dog, cat or other animal at either end of the cylindrical body. The cord is arranged to slidably move a predetermined distance through the cylindrical body upon tugging of the pet before it is secured to the cylindrical body after which the pet must move the entire weight of the toy.

3,830,203

SUCKLING ANIMAL FEEDER

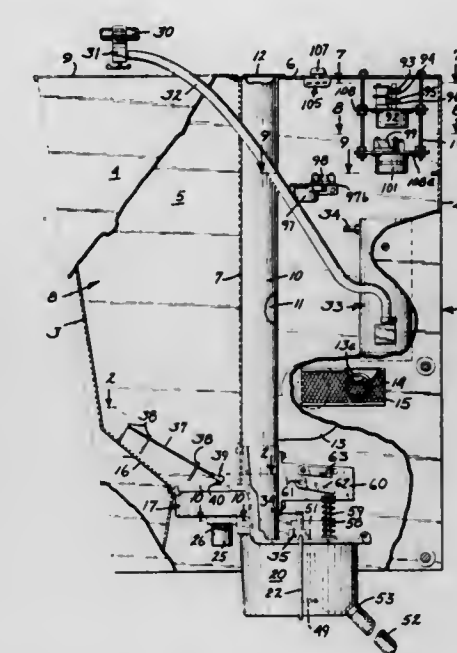
George W. Murphy, Minneapolis, Minn., assignor to K & K
Manufacturing, Inc., Rogers, Minn.

Filed Apr. 2, 1973, Ser. No. 346,727

Int. Cl. A01k 5/00

U.S. Cl. 119—51.11

2 Claims



A mixing chamber positioned to receive dry granular food from a reservoir, and liquid to produce a liquid food, the chamber having an outlet provided with a suckling nipple and a discharge valve. An electric control circuit for mechanism for feeding liquid and dry food to the mixing chamber, and for mechanism operating the discharge valve, includes a cycle timing mechanism for controlling the cycle of dry food and liquid delivery to the mixing chamber, and mixing of the dry food and liquid; and a time delay mechanism for varying the time interval between the delivery of material to the mixing chamber and rendering the mixed liquid food available at the nipple. A dry food agitator in the reservoir is driven by a connection to a rotary dry food transfer member.

3,830,204

FUEL INJECTION-SPARK IGNITION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

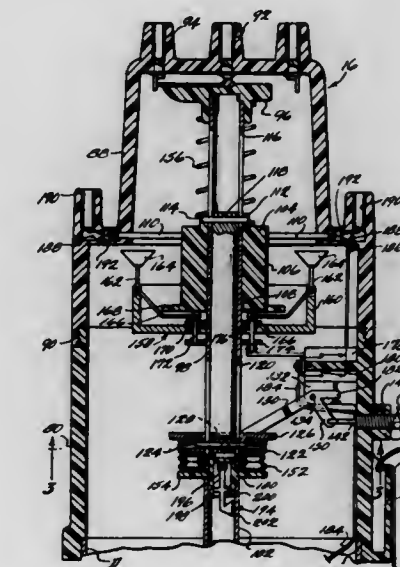
Roy E. McAllister, 5285 Red Rock N., Phoenix, Ariz. 85018

Filed Mar. 7, 1972, Ser. No. 232,575

Int. Cl. F02m 51/00

U.S. Cl. 123—32 AE

18 Claims



A system of converting a carbureted-spark ignited internal combustion engine to a fuel-injection-spark ignited mode of operation comprising a series of fuel injecting spark plugs for

replacing the conventional spark plugs, a fuel manifold for the spark plugs connected to the fuel line in lieu of its connection with the carburetor and a distributor assembly for replacing the distributor cap and rotor of the distributor having a shaft section fixedly connected to the rotor shaft of the distributor, the shaft section having a drum mounted thereon for rotation therewith and for axial movement therealong in response to the movement of the speed control mechanism of the engine (in lieu of the carburetor response thereof), the drum cooperating with a ganged structure in the form of a replacement distributor cap to generate electrical signals resulting from the rotational movement of the drum which are transmitted to the fuel injection plugs as a function of engine speed and are varied in time or other characteristic as a result of the axial movement of the drum as a function of speed control mechanism position. The system includes provision for the cut off of the fuel injection signals in response to the release of the speed control mechanism to its idle position until the engine speed reduces to a value just above idle speed and a start up of the fuel injection signals in response to a depression of the speed control mechanism before reaching the aforesaid speed which closely correspond to the actual engine speed, by retarding or damping the return axial movement of the drum.

3,830,205

AUXILIARY CHAMBER AND TORCH NOZZLE FOR INTERNAL COMBUSTION ENGINE

Tasuku Date, Tokyo, and Shizuo Yagi, Saitama-ken, both of Japan, assignors to Honda Giken Kogyo Kabushika Kaisha, Tokyo, Japan

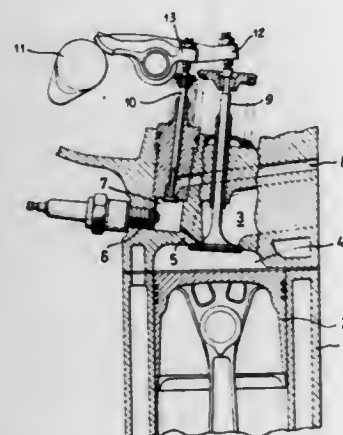
Filed Dec. 29, 1972, Ser. No. 319,887

Claims priority, application Japan, Jan. 11, 1972, 47-4973

Int. Cl. F02b 19/10, 19/16, 19/18

U.S. Cl. 123—32 ST

3 Claims



An internal combustion engine has a main combustion chamber bounded on one side by a piston and also has an auxiliary combustion chamber connected by a torch nozzle to the main combustion chamber. The volume of the auxiliary chamber is from 5 percent to 12 percent of the total combined volume of the main chamber and the auxiliary chamber. The cross sectional area of the torch nozzle is from 0.04 to 0.20 square centimeter for each cubic centimeter of volume of the auxiliary combustion chamber.

3,830,206

DUAL THROTTLE VALVE CONTROL FOR INTERNAL COMBUSTION ENGINE

Urataro Asaka, Kamifukuroka, and Yuji Tanaka, Tokyo, both of Japan, assignors to Honda Giken Kogyo Kabushika Kaisha, Tokyo, Japan

Filed May 29, 1973, Ser. No. 364,545

Claims priority, application Japan, May 31, 1972, 47-63278

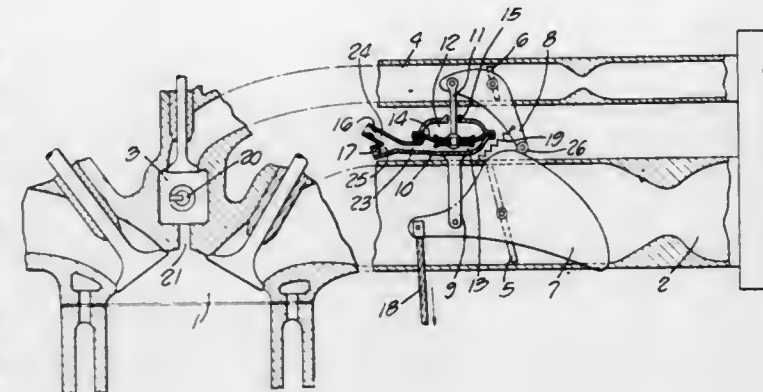
Int. Cl. F02b 3/00, 19/10, 19/16

U.S. Cl. 123—32 ST

7 Claims

A dual throttle valve control for an internal combustion engine of the type having a main combustion chamber supplied with a lean mixture and an auxiliary combustion chamber sup-

plied with a rich mixture. A spark plug ignites the rich mixture in the auxiliary chamber and the resulting blast of flame passes through a torch nozzle to ignite the lean mixture in the main chamber. Two carburetor throttle valves are interconnected for dependent action through a dashpot, cam and cam follower comprising the dual control to regulate the relative



amounts of air-fuel mixture admitted to each chamber as the engine load varies from idling to full throttle. Slow opening of the main throttle valve causes corresponding movement of the auxiliary valve, while abrupt opening of the main throttle valve causes the auxiliary throttle valve to open widely and then assume the opening determined by the cam and cam follower.

3,830,207

SYSTEM FOR CONTROLLING THE IGNITION AND INJECTION OF INTERNAL COMBUSTION ENGINES

Sauvignat Henri Joseph, Paris, France, assignor to Compteurs Schlumberger, Montrouge, France

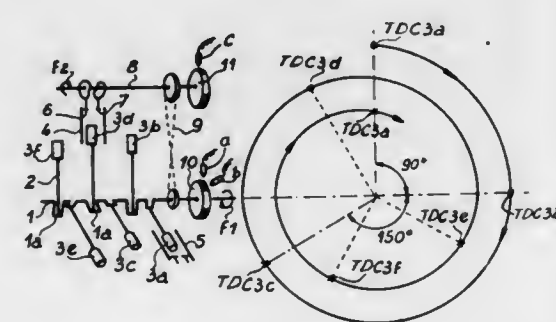
Filed Feb. 9, 1973, Ser. No. 330,922

Claims priority, application France, Sept. 2, 1972, 72.4371

Int. Cl. F02b 3/00; F02p 1/00

U.S. Cl. 123—32 EA

5 Claims



Apparatus for controlling ignition and injection in internal combustion engines. The apparatus includes a first wiper carried by the engine crankshaft and having a series of identical sectors, a proximity detector assembly mounted opposite this crankshaft wiper, and also a timing wiper carried by the engine camshaft and having sectors the number of which varies with the number of cylinders in the engine, a second proximity detector associated with the timing wiper, a logic-circuit-type comparison device connected to the proximity detector to deliver a signal which is a function of the position of the engine pistons, and a device for controlling the engine ignition, the input of this controlling device being connected to the output of the logic circuit.

3,830,208

VEE ENGINE

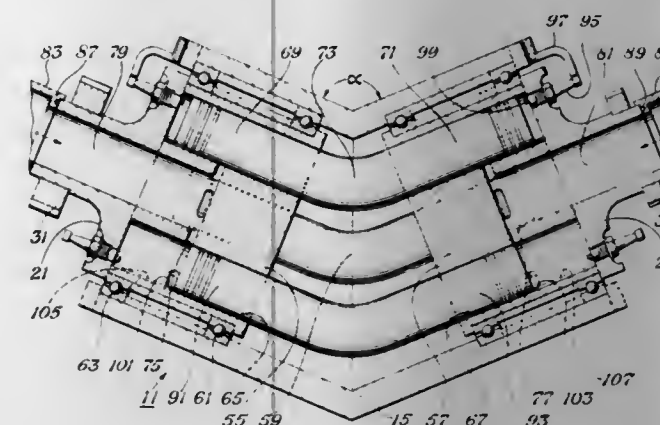
William F. Turner, Graham, Tex., assignor to Fred Boaz, Graham, Tex., a part interest

Filed May 8, 1972, Ser. No. 251,317

Int. Cl. F02b 57/06, 3/02

U.S. Cl. 123—43 A

19 Claims



An internal combustion engine characterized by first and second cylinder blocks mounted in opposition to each other and having their central longitudinal axis forming a vee angle of at least 90° and less than 180°, the cylinder blocks and their respective heads being rotatable and enclosing first and second sets of pistons; the respective pairs of pistons in the first and second sets being aligned and rigidly connected together in bucking relationship at the vee angle. Each respective pair of rigidly connected pistons traverse an elliptical path as they rotate with and reciprocate within their respective cylinders, maintaining their same relative position of top-on-top. The vee engine has a plurality of respective inlet ports and means for effecting a combustible mixture within respective cylinders; ignition means for igniting the combustible mixture at a predetermined position and a plurality of discharge ports for discharging the combustion products. Also disclosed are specific and preferred structure and embodiments.

3,830,209

CYLINDER HEAD AND METHOD OF RECONSTRUCTING SAME

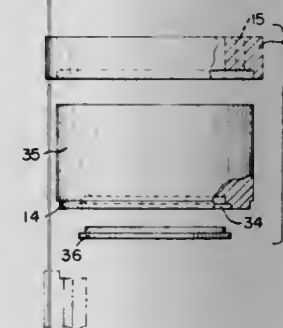
Robert H. Jones, Jr., and Richard B. Jones, both of R.R. No. 1 - Box 267, Hibbing, Minn. 55746

Filed Mar. 5, 1973, Ser. No. 338,068

Int. Cl. F02i 1/30

U.S. Cl. 123—41.82 A

14 Claims



A cylinder head has a cast iron body member, one end of which is recessed to accommodate a circular disk-like insert of an iron, chromium, nickel alloy. The insert forms one wall of the water jacket portion of the cylinder head, and its external surface provides the combustion surface of the cylinder head. The periphery of the insert is spaced inwardly of the bolt holes and water ports of the cylinder head. The insert also has boss portions which form the lower part of the valve port bosses and the injector boss. The insert is brazed to the body member

at its periphery and at the abutting boss portions. The flange at the opposite end of the cylinder head is cast steel. When fabricated as a new part, the body member may be of cast steel and integral with the flange.

3,830,210

AIR INTAKE SYSTEM WITH TEMPERATURE-CONTROLLED WARM AIR VALVE

Heinz Muller, Hochbert, and Paul Schonefeld, Ludwigsburg, both of Germany, assignors to Filterwerk Mann & Hummel GmbH, Ludwigsburg, Germany

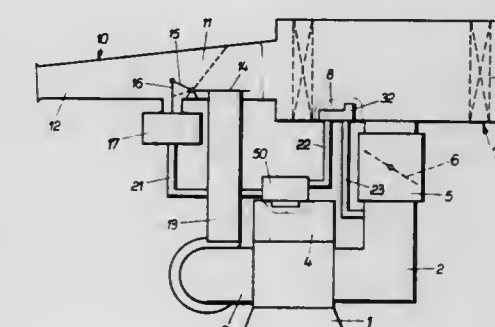
Filed Sept. 21, 1972, Ser. No. 290,899

Claims priority, application Germany, Sept. 21, 1971, 2147027

Int. Cl. F02m 31/00

U.S. Cl. 123—122 D

13 Claims



An air intake system for carburetion-type internal combustion engines in which a cold air duct and a warm air duct lead via a flap valve to the air filter, the flap valve controlling the relative mixture of a cold air and warm air. A spring-loaded membrane actuator connected to the negative pressure in the engine intake manifold controls the flap valve position. An air temperature responsive relief valve in the air connection reduces the negative air pressure on the membrane actuator when the air temperature reaches a certain value, thereby moving the flap valve to admit less warm air. However, a thermostat-controlled back pressure valve in the same air connection blocks this effect until the engine has reached its operating temperature.

3,830,211

CENTRIFUGAL GOVERNOR FOR CONTROLLING THE RPM OF INJECTION TYPE INTERNAL COMBUSTION ENGINES

Herbert Bechstein, Esslingen; Hans-Jurgen Jaenke, Ditzingen; Rolf Muller, Stuttgart-Freiberg; Ernst Ritter, Stuttgart, and Heinrich Staudt, Markgronigen-Talhausen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed May 21, 1973, Ser. No. 362,302

Claims priority, application Germany, May 20, 1972, 2224755

Int. Cl. F02d 1/04

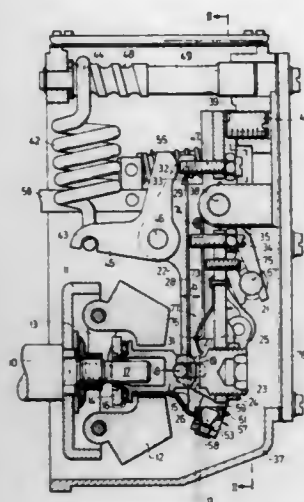
U.S. Cl. 123—140 R

18 Claims

A centrifugal governor for controlling the rpm of an injection type internal combustion engine having a fuel injection pump is described which governor has a housing and a regulator member being displaceable as a function of the rpm, and the regulating movements of which member are transmitted, by means of a two-armed cam lever having lever arms which are adjustable dependent upon the position given an externally turnable operating lever, to fuel delivery control means associated with the fuel injection pump, wherein the fuel delivery control means, upon completing a first part of its movement against the force of a first control spring, acts on a force-transmitting lever which is biased by at least one second control spring; the force-transmitting lever bears an adjusting screw for setting the first control spring to a low rpm, and is adapted for swivelling about an axis which is stationary in the governor housing, and wherein the neutral position of

the force-transmitting lever is determined by a stop fixed in the housing. This governor is improved by providing therein

(a) a bearing lever adjustable for setting a maximum rpm and bearing a spring seat for the aforesaid second control spring,



(b) a second adjusting screw for the bearing lever, and
(c) an adjusting element for limiting the first part of the movement of the regulator member, the bearing lever, second adjusting screw and adjusting element being in engagement with the force-transmitting lever.

3,830,212

CHAIN-SPROCKET TRANSMISSION MEANS IN PISTON-CRANK MECHANISM

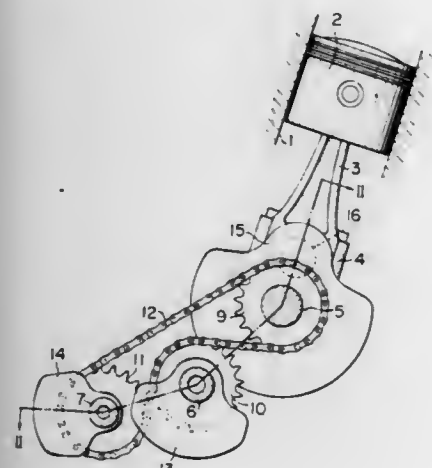
Tetsuya Seino, and Masashi Mizutani, both of Shizuoka, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Shizuoka, Japan

Filed July 24, 1973, Ser. No. 382,140

Claims priority, application Japan, July 31, 1972, 47-76617
Int. Cl. F02b 75/06

U.S. Cl. 123-192 B

6 Claims



Chain-sprocket transmission means comprising a crankshaft, at least two driven shafts, sprockets mounted, one for each, on those shafts, and a chain extended around and engaged with the sprockets for transmitting the rotation of the crankshaft to the driven shafts, at least two of the sprockets on the driving and driven sides having centers of rotation eccentric relative to their axes of rotation at predetermined eccentric angles.

3,830,213 THROTTLE RETURN SPRING REDUNDANCY SYSTEM

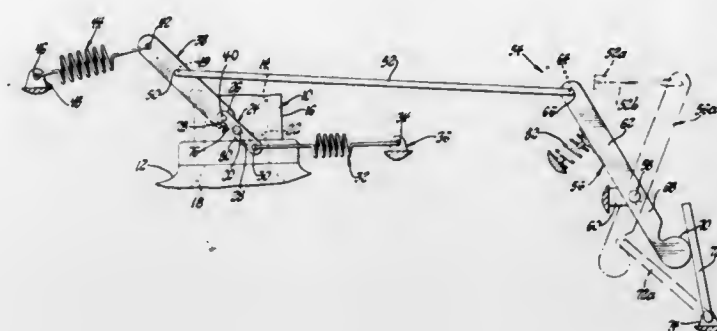
Ronald E. Herman, Warren, Mich., assignor to Colt Industries Operating Corp., New York, N.Y.

Filed Feb. 24, 1972, Ser. No. 228,991

Int. Cl. F02b 77/00

U.S. Cl. 123-198 DB

14 Claims



A throttle valve, situated within the induction passage bore of a fuel or air induction device, is carried by a throttle shaft for fixed rotation therewith; a lever arrangement fixedly connected to the throttle shaft is operatively connected to a remotely situated operator's foot-operated throttle control; a first throttle return spring is operatively connected to the first lever for returning the throttle valve to an idle position whenever the foot-operated throttle control is released; and a second safety spring is provided for, in one embodiment of the invention, assuring the movement of the throttle valve to the idle position and, in another embodiment of the invention, de-actuating the engine ignition system, in the event that, for example, either the first throttle return spring or the associated throttle control linkage should fail while the throttle valve is in either a partly or fully opened position.

3,830,214

GAS WEAPON INCLUDING CARTRIDGE CASE WITH PLURALITY OF GAS CONTAINERS THEREIN

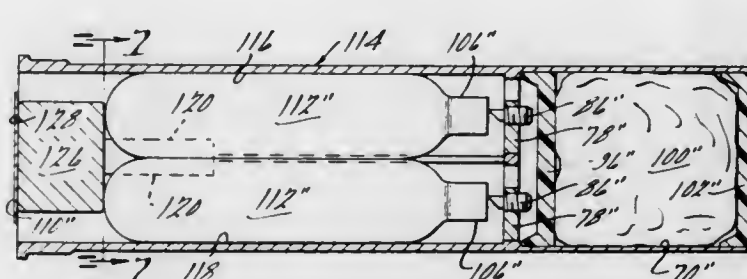
Herbert E. Curtis, Danville, Calif., assignor to MB Associates, San Ramon, Calif.

Filed Jan. 14, 1972, Ser. No. 217,903

Int. Cl. F41f 1/04

U.S. Cl. 124-11 R

2 Claims



A gas powered weapon system comprised of a cartridge assembly which includes a deformable projectile and a gas pressurized container located in opposite ends of a cartridge case, with the case supporting a sharp edged piercing element located proximate to an outer surface of the container and adapted to puncture the container in response to the release of a spring biased piston located in a projectile launcher. Alternatively, the assembly may contain two radially spaced pressurized gas containers adapted to be simultaneously punctured in response to release of the piston. The projectile launcher includes a handle member which defines an outer housing for the releasable piston, a receiver for slidably inserting the cartridge assembly, and a barrel for directing the projectile in a desired trajectory.

3,830,215

DEVICE FOR DRESSING GRINDING WHEELS

Milan Bartosek, Adliswil, Switzerland, assignor to Maag Gear Wheel & Machine Company Limited, Zurich, Switzerland

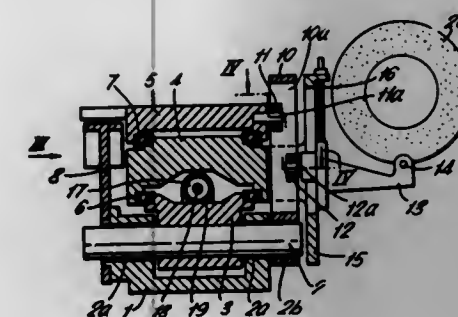
Filed Apr. 18, 1972, Ser. No. 245,140

Claims priority, application Germany, Apr. 21, 1971, 2119470

Int. Cl. B24b 53/08

U.S. Cl. 125-11 T

5 Claims



A device for dressing a grinding wheel with an involute profile has an involute motion produced by a straight-edge rolling on a curved guide. The dressing tool toolholder is attached to a plate sandwiched between and slidable relative to a lower plate pivoted on the curved guide axis and an upper further plate carrying the straight-edge. A radial arm pivoted on said guide axis engages first and second slider blocks connected to the further and toolholder plates respectively such that the tool also describes an involute, but whose base circle radius is variable by radial adjustment of the second block.

3,830,216

COUNTERTOP HEATING APPARATUS

Edwin D. Dodd, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

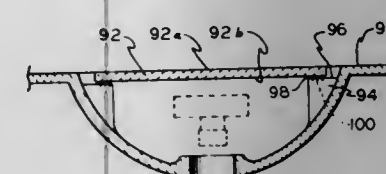
Division of Ser. No. 124,168, March 15, 1971, Pat. No.

3,773,027. This application May 29, 1973, Ser. No. 364,814

Int. Cl. F24c 3/04

U.S. Cl. 126-39 J

18 Claims



Disclosed in one embodiment is a domestic cooking unit which includes a drip pan, a planar countertop containing at least one opening, and a heating plate located in the opening and to be heated by a gas burner positioned below the heating plate. The drip pan, countertop, and heating plate are advantageously formed from an infrared transmitting, heat-resistant, nonporous, glass-ceramic material having a low thermal expansion coefficient and a low thermal conductivity. The periphery of the heating plate is spaced inwardly from the periphery of the opening to permit flow of combustion products from the gas burner out from the drip pan and to prevent heat conduction between the heating plate and the countertop. A plurality of spaced support means extend between the drip pan and the heating plate for supporting and positioning the heating plate. The drip pan and the countertop can be formed as an integral unit. The cooking surface of the heating plate is flat and preferably disposed in the same plane as the surface of the countertop thereby presenting a flat area for general use when the unit is not being used for cooking.

3,830,217

FIREPLACE CONSTRUCTION AND METHOD WITH FLAMING WATER HEARTH

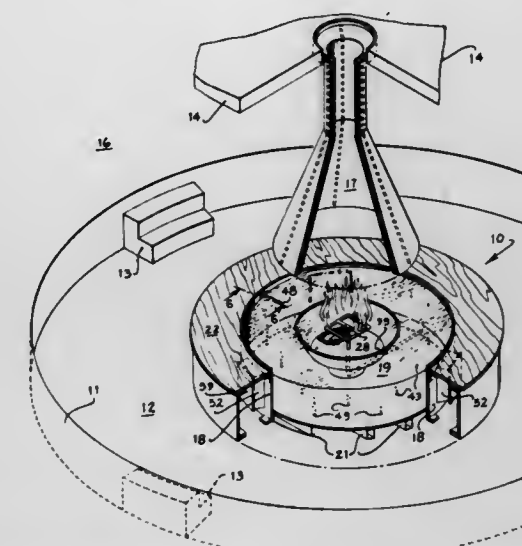
George S. Maness, Reno, and John R. Stanton, City of Sparks, both of Nev., assignors to Pepper Mill, Inc., Reno, Nev.

Filed June 14, 1972, Ser. No. 262,651

Int. Cl. F24b 1/18

U.S. Cl. 126-120

6 Claims



A fireplace construction of a type having a flue thereabove for discharging smoke and gases from a hearth therebelow includes a flaming water hearth construction comprising a reservoir for containing a pool of water to be disposed beneath the flue and a gas burner disposed beneath the surface of the water and having a number of gas discharge openings therein distributed over a relatively broad area. A pilot light is provided above the surface of the water but adjacent to it together with means for sensing the heat generated by the pilot light. The last named means is interconnected to the gas control valve for closing the valve in the event that the pilot light should fail. Means are further provided for passing bubbles of air into the pool of water at a number of discrete spaced positions sufficient to activate the water and providing a simulated boiling movement of the water while the gas is burned on the surface thereof. The gas discharge openings in the burner face downwardly in a common plane in order to prevent water from entering the burner to any substantial degree.

3,830,218

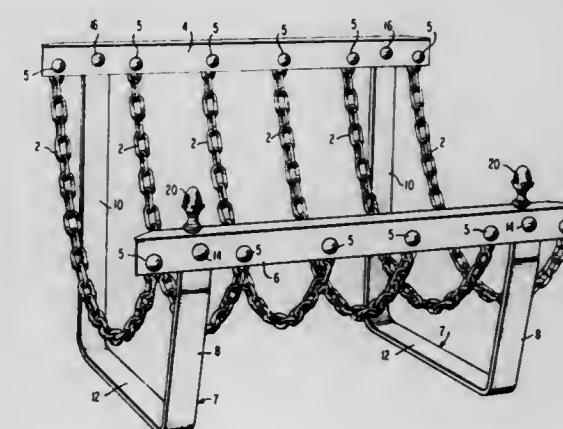
FIREPLACE GRATE

Russell S. Shelton, 9 Park Ave., Flanders, N.J. 07836
Filed Oct. 24, 1973, Ser. No. 410,064

Int. Cl. F23h 13/00

U.S. Cl. 126-164

8 Claims



A fireplace grate includes a plurality of slack chains which conform to combustible materials placed thereon, maintain the combustible materials in a relative forward position on the grate and move the combustible materials together as their sizes diminish during combustion.

3,830,219

PORTABLE FIREPLACE SCREEN

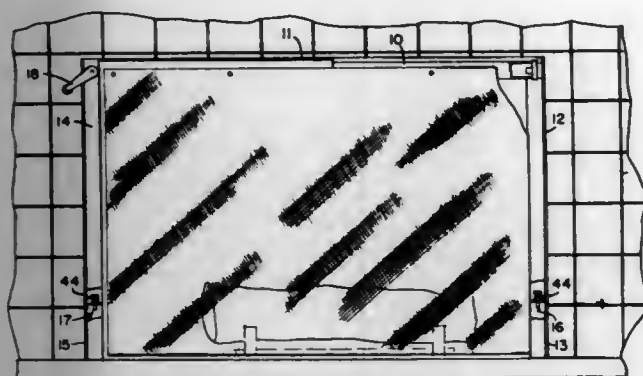
Fred E. Gibbs, Rock River, Wyo. 82083

Filed Oct. 2, 1972, Ser. No. 294,070

Int. Cl. F24c 15/36

U.S. Cl. 126—202

9 Claims



A portable fireplace screen arranged on a variable length pipe assembly which is mounted on a pair of angle irons which is variable in height. The angle irons are arranged at opposite ends of the pipe assembly and a ratchet and crank assembly is arranged at the top of one of the angle irons to enable the fireplace screen to be raised or lowered.

3,830,221

OIL HEATER PROTECTION SYSTEM

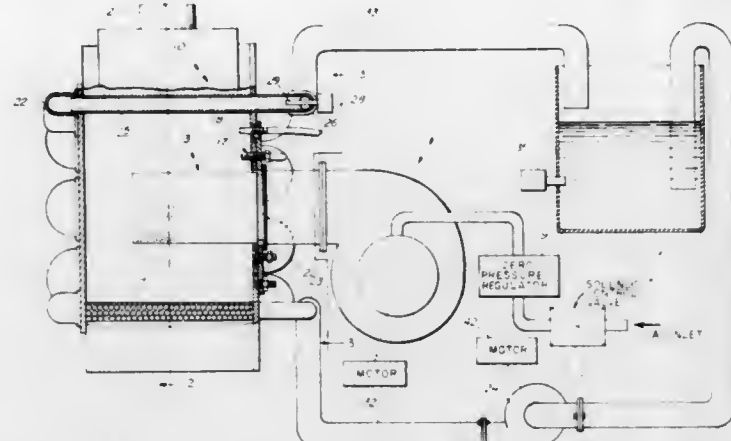
William H. Haggood, Brookline, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed May 31, 1972, Ser. No. 258,148

Int. Cl. A47J 27/00; F28f 27/02

U.S. Cl. 126—374

10 Claims



An oil heating system in which two separate sections of a heat exchanger are heated by sections of the same burner flame and have separate thermostats, either of which can shut down the system if one section clogs.

3,830,222

METHOD AND APPARATUS FOR OBSERVING RATES OF REACTION OF OXYGEN IN LIVING TISSUES

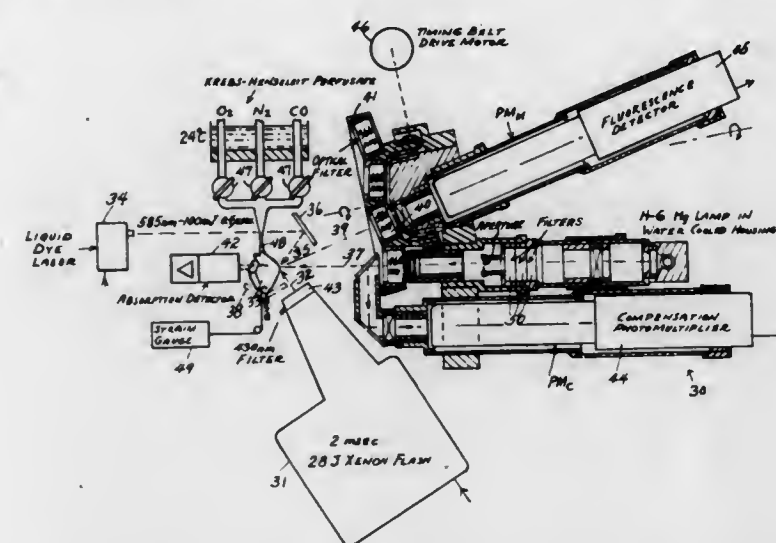
Britton Chance, c/o Johnson Research Foundation, Medical School, University of Pennsylvania, Philadelphia, Pa. 19104

Filed July 7, 1972, Ser. No. 269,580

Int. Cl. A61b 5/00

U.S. Cl. 128—2 A

14 Claims



A system for providing flash photolysis activation of CO-inhibited cytochrome oxidase in living tissue in the presence of oxygen. In a typical procedure employing cardiac tissue this initiates oxidation of reduced pyridine nucleotide (PN) and flavoprotein (Fp), with a high rate of response. The fractional extent of the photolysis response of PN and Fp indicates the fraction of the total mitochondrial population containing cytochrome a_3 CO to which oxygen has diffused at the time of the photolysis flash, thereby providing an indication of the effectiveness of oxygen diffusion in the tissue without destruction of the tissue. A double flash is used to evaluate the extent of photolysis, one flash occurring a few seconds after perfusing the tissue with oxygen, followed by another flash a few seconds later. The readout is obtained on a storage oscilloscope, using a double beam, time-shared photometer assembly with a compensating photomultiplier. The flash lamps are triggered by a pulse from the compensating photomultiplier, with a delay to fire the flash lamps at an appropriate phase angle.

3,830,220

OVEN RACK OPERATING MECHANISM

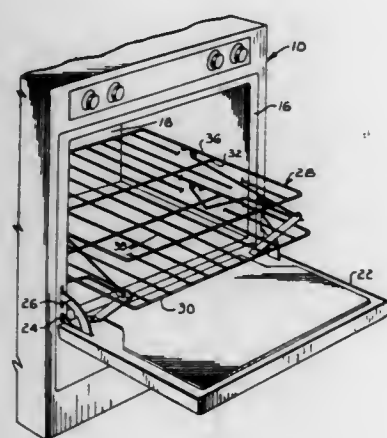
James Demetrean, 5704 Hillside Dr., Kansas City, Mo. 64151

Filed July 16, 1973, Ser. No. 379,404

Int. Cl. F24c 15/16

U.S. Cl. 126—340

12 Claims



A conventional oven with an opening for access to the interior thereof usually has at least two pairs of flanges extending rearwardly along opposite sides of the interior of the oven for supporting movable racks. A door is hinged at the lower edge of the oven opening on horizontal pivot axes for vertical swinging movement to open and close the oven opening. At least one rack is positionable within the oven and supported by one of the flange pairs, and movable along same. A pair of mounting brackets are disposed on the inner wall of the door and on opposite edges thereof, and in close proximity to the horizontal axes. An operating arm is pivotally combined with each mounting bracket and disconnectably, pivotally combined with each rack to permit withdrawal of the rack upon opening the door and returning the rack upon closing the door.

3,830,223

METHODOLOGY AND APPARATUS FOR NON-INVASIVE BIOPHYSICAL DIAGNOSIS

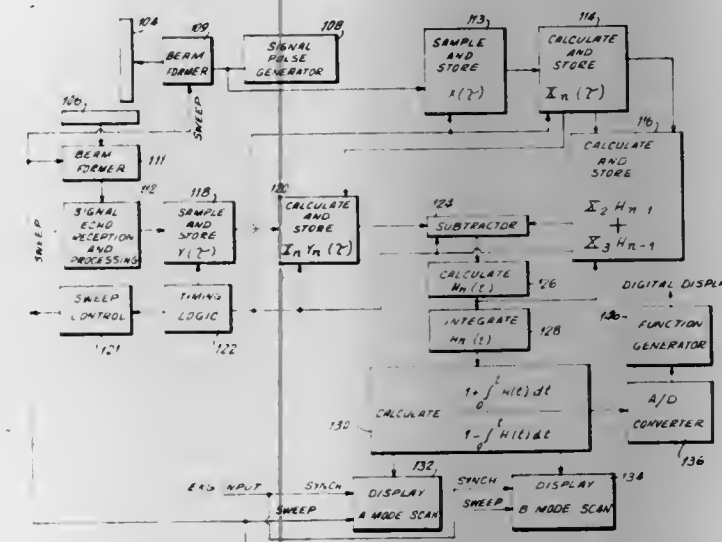
Irwin Beretsky, New York, and Bernard Lichtenstein, Yorktown Heights, both of N.Y., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Sept. 18, 1972, Ser. No. 290,183

Int. Cl. A61b 5/02, 10/00

U.S. Cl. 128—2 V

21 Claims



New and improved methodology and apparatus for non-invasive biophysical diagnosis are disclosed and comprise the ensouffication of body parts with multi-frequency energy pulses in predetermined timed sequence, the detection of the resultant echo pulses, the processing of the latter to provide signals indicative of the impedance of the body part, the referencing of said signals to the biophysical cycle of the body part, and the real time display of said signals in the form of an impedance profile of said body part.

3,830,224

MEANS FOR DETECTING CHANGES IN THE TEMPERATURE OF THE SKIN

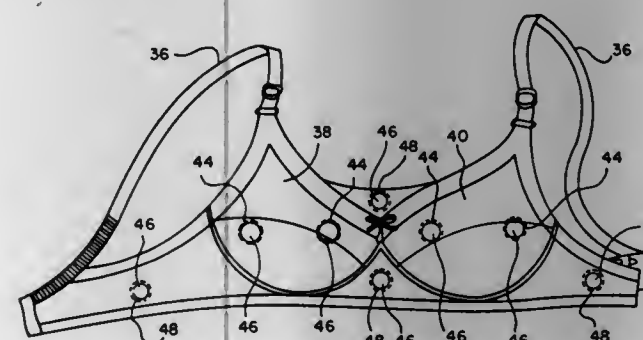
Riccardo Vanzetti, and Ashod S. Dostoomian, both of c/o Vanzetti Infrared & Computer Systems, Inc., 605 Neponset St., Canton, Mass. 02021

Filed Dec. 19, 1972, Ser. No. 316,641

Int. Cl. G01k 11/16; G01n 31/22; A61b 6/10

U.S. Cl. 128—2 H

12 Claims



Liquid crystals which have the property of changing color in response to temperature variations are contained in packages and are carried by an article of clothing. These packages sense the temperature of the skin at a control area and at an area that is related to the reproductive system. The gradient of the temperatures between these two areas is then used to determine the existence of a physiological change.

3,830,225

MULTIPLE PURPOSE STOPCOCK ARRANGEMENT FOR SUCTIONING, INJECTION, OXYGEN CESSORY EQUIPMENT

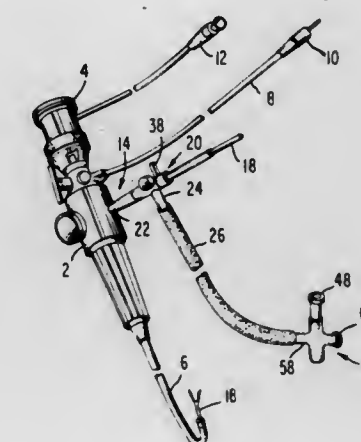
James P. Shinnick, D.O., Pickwick Village Apts., J-15, Maple Shade, N.J. 08050

Filed Jan. 31, 1973, Ser. No. 328,350

Int. Cl. A61b 1/26

U.S. Cl. 128—2 B

10 Claims



A bronchoscope is provided with means permitting the introduction or removal of fluids into or from a patient's lungs while at the same time performing a biopsy or obtaining specimens by means of a brush or otherwise. Moreover, the operations being performed may be continually observed by one or more persons who can manipulate the equipment readily and without interrupting the procedure to carry out the various different operative steps.

3,830,226

VARIABLE OUTPUT NERVE LOCATOR

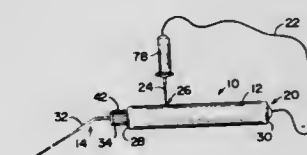
David E. Staub, Clearwater, and Carl L. Foltz, Holiday, both of Fla., assignors to Concept, Inc., Clearwater, Fla.

Filed June 15, 1973, Ser. No. 370,223

Int. Cl. A61f 5/00

U.S. Cl. 128—2.1 R

9 Claims



An electrically powered nerve locator designed to be used on animal or human bodies comprising an elongated, hollow casing having a conventional direct current power source mounted therein and electrically connected to current regulator means so as to vary the energy output of the locator. A nerve probe is rotatably mounted within the casing in circuit with the power source and the current regulator. A flexible conductor is disposed in electrical contact with the current source and a grounding needle is attached to the free end of the flexible conductor wherein the conductor is disposed and dimensioned to allow the needle to cooperatively engage a test aperture formed in the casing between the current source and the current regulator.

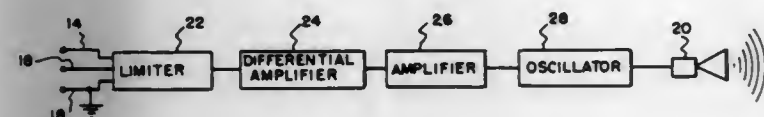
3,830,227

HAND-HELD CARDIAC SOUND TONE DIAGNOSTIC DEVICE AND METHOD

Henry L. Green, 17214 Jeanette St., Southfield, Mich. 48075
Continuation-in-part of Ser. No. 550,666, May 17, 1966,
abandoned. This application Sept. 15, 1969, Ser. No. 857,895
Int. Cl. A61b 5/04

U.S. Cl. 128—2.06 R

8 Claims



A compact self-contained and completely portable hand-held unit employs electrical signals generated by the heart to produce variations in a normally constant or even sound tone produced by the unit. Every type of heart arrhythmia generates a characteristic pitch variation or sound tone which can be readily recognized by the physician for cardiac diagnosis. The unit embodies plural spaced electrodes which are simply pressed against the patient's chest without the necessity for any external electrical connections.

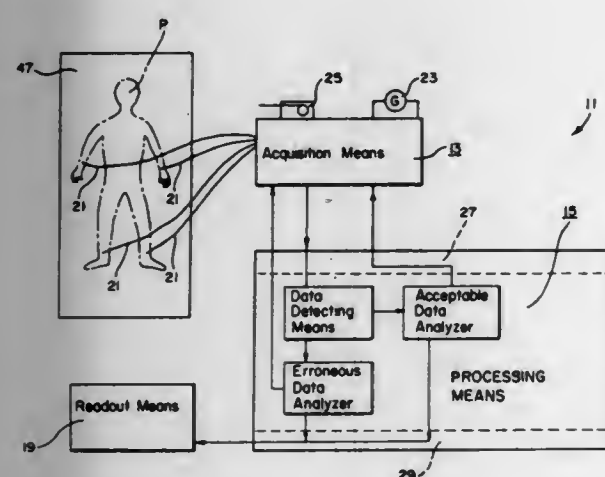
3,830,228

BIOPHYSIOLOGICAL INFORMATION PROCESSING DEVICE

Max Foner, 312 Stonewall, Memphis, Tenn. 38112
Filed June 12, 1972, Ser. No. 262,023
Int. Cl. A61b 5/04

U.S. Cl. 128—2.06 R

3 Claims



A portable biophysiological information processing device which may be used to make electrocardiograms, electroencephalograms, and/or pulmonary studies and the like. The device generally includes three interconnected major sub-assemblies, i.e., (1) biophysiological information acquisition equipment, as for example, an electrocardiogram (EKG) tele-sender; (2) a central processor (CPU), as for example, a computer of four registers; (3) a printer, as for example, a high speed printer which bombards the paper with electron charges that are suitably grouped in various patterns to resemble or depict characters and numbers. The computer is interfaced to readily accept data from the acquisition equipment and to feed diagnostic information, in the form of electrical impulses, to the printer. The entire device is mounted on a small cart to facilitate being moved to the bedside of a patient.

The device is extremely rapid in conveying a diagnosis or an intelligent interpretation of the biophysiological information being received, as for example, the total administering and processing time of an EKG is less than 2½ minutes.

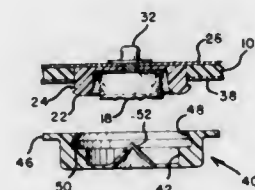
3,830,229

DISPOSABLE BODY ELECTRODES

Joseph H. Johnson, 3611 Terminal Ct., Seattle, Wash. 98144
Filed Aug. 9, 1972, Ser. No. 279,276
Int. Cl. A61b 5/04

U.S. Cl. 128—2.06 E

4 Claims



A single use cardiograph electrode has a self-contained electrolyte gel-impregnated pad therein set in a cup and sealed with a cap which forms an integral mechanical and frictional seal with the cup to prevent electrolyte dry-out.

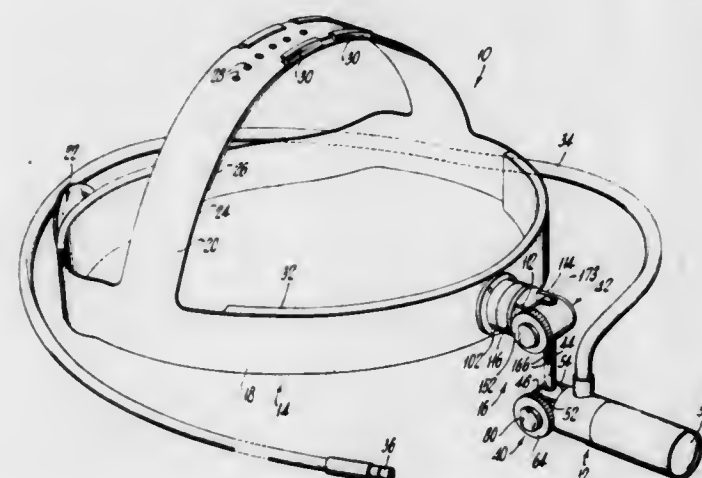
3,830,230

SURGICAL HEADLAMP

John E. Chester, Orange, Conn., assignor to Edward Weck & Company, Long Island City, N.Y.
Filed Sept. 22, 1972, Ser. No. 291,446
Int. Cl. A61b 1/06

U.S. Cl. 128—23

20 Claims



A surgical headlamp is provided which permits several degrees of freedom of movement of a high intensity headlight with respect to a headband worn by a user. The light is connected to the headband via two rotation joints which are connected by a pivot member which permits planar rotation of the headlight about the headband. The pivot member also permits the adjustment of the distance between the joint members to provide for the various types of instruments worn by surgeons about the eyes. A swivel member is connected to the headband and one of the joints to permit rotation of the headlight in a plane perpendicular to the plane of rotation permitted by the joint means.

3,830,231

ANTI-STRESS AND ANTI-TENSION SCALE LIKE APPARATUS

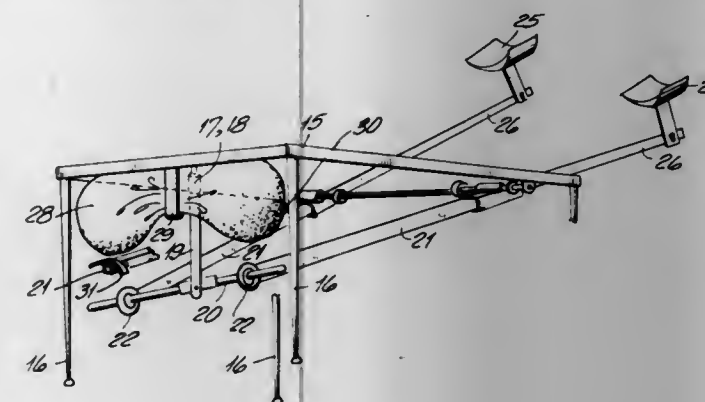
Georg Ludwig Klein, Laval, Quebec, Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed July 5, 1972, Ser. No. 269,276

Int. Cl. A61h 1/02

U.S. Cl. 128—25 R

1 Claim



Implementation for the relaxation and stimulation of blood and lymph circulation and the general well being of the human body through elevation, swinging, and a vertical and horizontal movement of the legs.

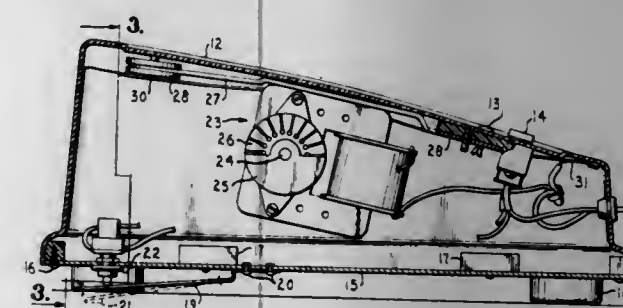
3,830,232

FOOT OPERATED FOOT MASSAGER

Samuel L. McNair, Overland Park, Kans., assignor to Dazey Products Company, Kansas City, Mo.
Filed Feb. 9, 1973, Ser. No. 331,243
Int. Cl. A61h 1/00

U.S. Cl. 128—33

3 Claims



A hollow housing has mounted to the inside top an electric vibrator motor. The base of the housing is supported by a resilient floor contacting member which permits downward movement of the housing when the top is pressed by a foot. An electric switch is positioned to start the vibrator motor when the housing is depressed by foot contact. Selective heating means for the top surface is included.

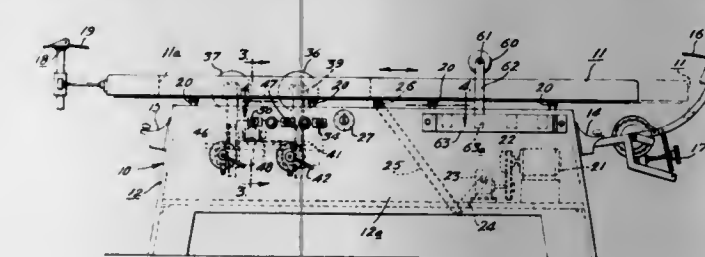
3,830,233

TREATMENT TABLE

Howard A. Hill, Malvern, Pa., assignor to Hill Laboratories Company, Malvern, Pa.
Filed Apr. 2, 1973, Ser. No. 346,897
Int. Cl. A61f 5/00

U.S. Cl. 128—71

15 Claims



A therapeutic table having a stationary support and a top mounted to the support for reciprocation longitudinally

between limit positions cooperates with traction apparatus mounted to the support for periodically applying traction to a patient lying on the table. The table is reciprocated by a motor which is powered through a timer switch capable of being preset to various time intervals. In one embodiment, a control circuit having a selector switch and a pair of limit switches cooperates with the timer to arrest motion of the table at one or the other of its limit positions at the completion of a time period so that the patient is not under traction at the completion of a period of treatment. In another embodiment, a pair of limit switches are connected to auxiliary timers which operate to arrest motion of the top for relatively short periods of time within a longer period as determined by a master timer so that the patient undergoes sustained traction and/or relaxation for short time intervals within the overall period of treatment. The table top has an elongated aperture through which a series of rollers protrude for engaging the patient to effect a therapeutic action as the table reciprocates. The therapeutic action is augmented by a heating element which is mounted below the rollers for applying heat through the aperture and to the patient. In addition, there is provided means to vibrate the top as it reciprocates. An elongated filler block is provided for insertion in the aperture to convert the top into a manipulating surface. A pair of brackets are mounted on opposite sides of the support, and each bracket has a series of sockets for receiving leg roller stanchions so that the position of the leg rollers may be adjusted longitudinally of the table.

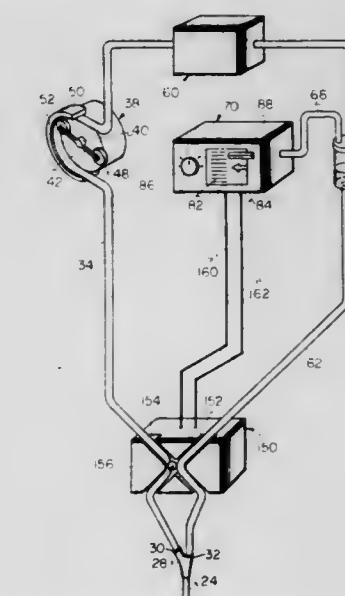
3,830,234

DIALYSIS CONTROL SYSTEM AND METHOD

Klaus F. Kopp, Kirchseon, Germany, assignor to Vital Assists, Inc., Salt Lake City, Utah
Continuation-in-part of Ser. No. 149,905, June 4, 1971, Pat. No. 3,756,234. This application Apr. 16, 1973, Ser. No. 351,720

Int. Cl. A61m 01/03
U.S. Cl. 128—214 R

4 Claims



Method and apparatus for extracorporeally dialyzing the blood of a patient with only a single venipuncture including withdrawing blood from the patient through the venipuncture and forcing the blood along an arterial path to a dialyzer. Blood emerging from the dialyzer is then conducted along a venous path again to the patient. The pressure is monitored in the extracorporeal system to trigger occluding devices which alternately open and close the arterial and venous paths, the closure time being asynchronous so that undialyzed blood is taken from the patient at a flow rate which differs measurably from the flow rate that dialyzed blood is injected into the patient.

3,830,235

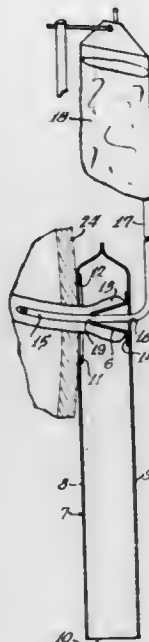
DISPOSABLE IRRIGATOR DRAIN WITH STOMA CONE FOR OSTOMY PATIENTS

Arthur E. Marsan, 6700 Escondido Dr., 4-B, El Paso, Tex. 79912

Filed Apr. 19, 1973, Ser. No. 352,562

Int. Cl. A61m 3/00

U.S. Cl. 128—227



This invention is for an irrigator drain for ostomy patients, particularly for irrigating into the stomas of colostomy patients. It is characterized by the provision of a stoma cone fixed to the outer or rear wall of a drain tube whereby to facilitate the application of the irrigator into the stoma; also to features of novelty and improvement which make the irrigator low in cost of manufacture and economical for disposal after a single use.

3,830,236

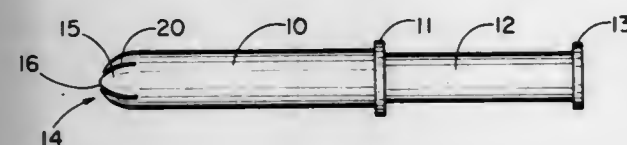
APPLICATOR TUBE FOR INSERTING HYGIENIC MEDIA

David E. Hanke, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Feb. 28, 1973, Ser. No. 336,768

Int. Cl. A61f 13/20

U.S. Cl. 128—263



A plastic applicator tube for inserting hygienic media into body cavities in which the forward end of the tube has a substantially closed dome-like or tapered structure comprised of juxtaposed triangular-shaped flexible segments adapted to open radially outward when the hygienic media is expelled therethrough. The tube is injection-molded or thermo-formed so that at least the outwardly facing edges of the juxtaposed sides of the segments have a rounded contour in cross-section. When the outwardly facing edges are formed by injection molding, the outer circumferential surface area of the segmented tube end is also free of the flash which sometimes forms during such molding.

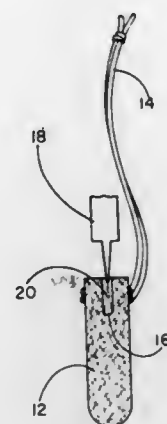
METHOD FOR SCENTING TAMPONS AND PRODUCT OBTAINED THEREBY

Leo J. Bernardin, and Michael D. Radl, both of Appleton, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Mar. 27, 1973, Ser. No. 345,357

Int. Cl. A61f 13/20

2 Claims U.S. Cl. 128—270



A method for incorporating small but effective amounts of a volatile odor-counteracting scent or fragrance into a compressed absorbent tampon of the type which has an inserter stick removably seated in a preformed axial cavity in the base of the tampon. The method consists of introducing a minute quantity of an alcohol solution of the selected scent into the preformed cavity, placing the inserter stick in position in the cavity, and sealing the tampon and stick combination in a vapor impermeable pouch. The scent may be introduced by micro-spraying the solution directly into the cavity, or by applying the solution onto the leading end of the inserter stick before positioning the stick in the cavity. A preferred product is also defined.

3,830,238

SURGICAL DRAINAGE SYSTEM WITH PRESSURE MEASURING DEVICE

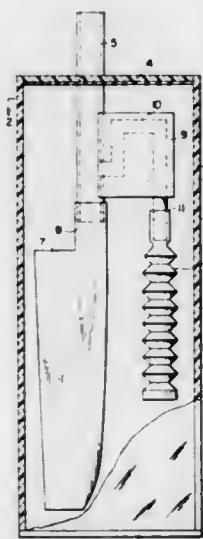
Leonard D. Kurtz, Woodmere, and Robert E. Bidwell, Melville, L. I., both of N.Y., assignors to Deknatel Inc., Queens Village, Long Island, N.Y.

Filed Nov. 7, 1972, Ser. No. 304,329

Int. Cl. A61f 5/44

U.S. Cl. 128—275

8 Claims



A surgical drainage system includes a container for the collection of fluids drained from a cavity such as a pleural cavity and a drainage tube for placing the collection chamber in fluid communication with the cavity to be drained. A check valve is provided on the drainage tube to permit the flow of fluids from the cavity to be drained into the collection chamber but prevents the passage of fluid from the container into the

drainage tube. A pressure measuring device is provided in the drainage tube which provides means for determining the pressure conditions existing within the pleural cavity.

3,830,239

CRYOSURGICAL DEVICE

Joseph G. Stumpf, Fairfield, and Joseph F. Andera, Trumbull, both of Conn., assignors to Frigtronics of Conn., Inc., Shelton, Conn.

Filed Sept. 12, 1972, Ser. No. 288,363

Int. Cl. A61b 17/36

U.S. Cl. 128—303.1

12 Claims



A cryosurgical instrument having a thermally insulating housing containing a cartridge partially filled with a low boiling temperature liquefied refrigerant, such as "Freon" (a mark of DuPont). The cartridge includes a heat conductive tip in contact with the refrigerant and extending from the housing. The housing carries means for selectively venting the unfilled portion of the cartridge to atmosphere. This permits the refrigerant to boil at a reduced temperature, thereby abstracting heat from, and cooling, the tip.

The foregoing abstract is not to be taken either as a complete exposition or as a limitation of the present invention. In order to understand the full nature and extent of the technical disclosure of this application, reference must be had to the following detailed description and the accompanying drawings as well as to the claims.

3,830,240

METHOD AND APPARATUS FOR DISINTEGRATION OF URINARY CALCULI

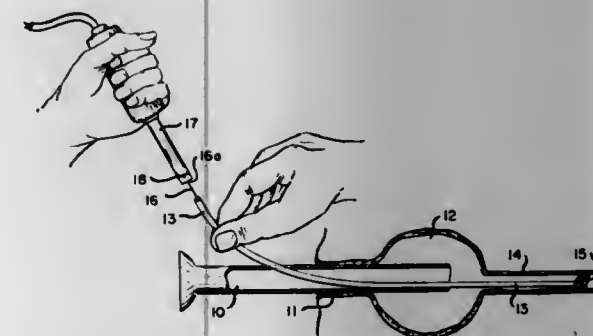
John N. Antonevich, Jamestown, N.Y., and Roger Goodfriend, Santa Clara, Calif., assignors to Blackstone Corporation, Jamestown, N.Y.

Filed July 21, 1972, Ser. No. 273,985

Int. Cl. A61b 17/22

U.S. Cl. 128—328

10 Claims



A method and apparatus are provided for disintegrating urinary calculi by subjecting the urinary calculi to ultrasonic forces transmitted transversely of a wave guide in a catheter.

3,830,241

VENTED ADAPTER

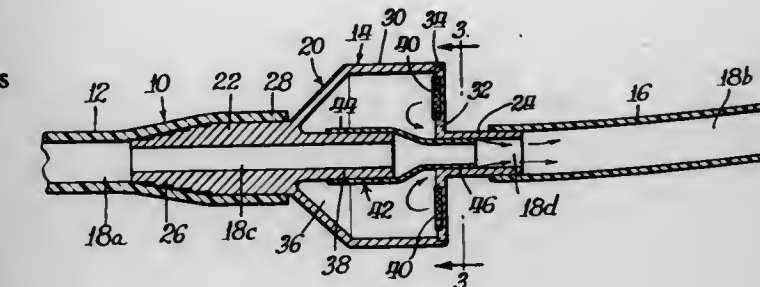
John F. Dye, and William J. Binard, both of Barrington, Ill., assignors to The Kendall Company, Walpole, Mass.

Filed Aug. 7, 1972, Ser. No. 278,318

Int. Cl. A61m 25/00

U.S. Cl. 128—349 R

6 Claims



A vented drainage system including a drainage tube having a lumen for passage of fluid and an opening in the wall of the tube, a vent for the tube communicating between the atmosphere and the tube opening, and an air permeable filter element positioned in the vent to filter air passing through the vent to the tube lumen. The drainage system has a section of flexible tubing positioned in the drainage tube with one end thereof on the upstream side of the opening in the wall of the drainage tube and the other end on the downstream side of the opening. The tubing has an outside diameter approximately equal to the inside diameter of the drainage tube to provide interfacial contact between the outside surface of the tubing and the inside surface of the tube to prevent passage of fluid between the interfacial surfaces thereof. The tubing is flexible to become disengaged from contact with the inner surface of the tube to provide a passageway for air to flow from the vent into the lumen when the pressure in the tube is less than atmospheric.

3,830,242

RATE CONTROLLER AND CHECKER FOR A CARDIAC PACER PULSE GENERATOR MEANS

Wilson Greatbatch, Clarence, N.Y., assignor to Medtronic, Inc., Minneapolis, Minn.

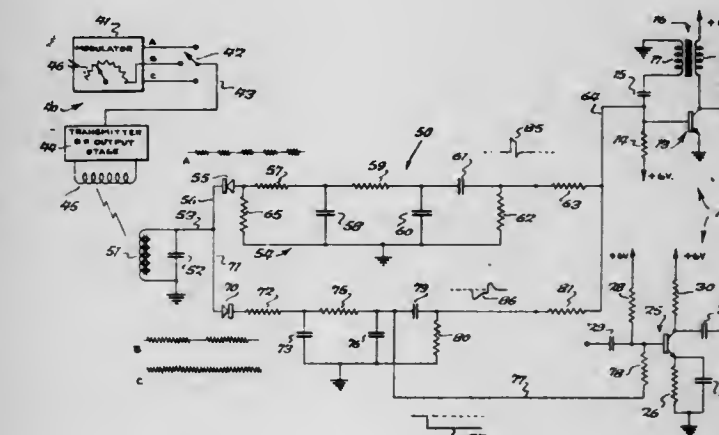
Division of Ser. No. 47,198, June 18, 1970, Pat. No. 3,718,909.

This application Dec. 11, 1972, Ser. No. 314,170

Int. Cl. A61n 1/36

U.S. Cl. 128—419 P

4 Claims



A remotely-operated control for an electrical pulse generating means, such as a cardiac pacer including timing means controlling the generation of pulses and signal responsive means for resetting the timing means in response to a ventricular electrical signal. A remote, portable transmitter selectively generates a plurality, preferably about three, radio frequency signals having different envelope durations, the signal of lon-

gest duration being a continuous or carrier wave signal. Coupled to the pulse generator or pacer is a circuit responsive to the radio frequency signals which rectifies, detects and filters them to produce corresponding command signals. Two of the command signals corresponding to the relatively shorter r.f. signals can be applied to the pacer oscillator in a manner increasing or decreasing the rate of pulse generation. The command corresponding to the continuous r.f. signal can be utilized to temporarily inhibit operation of the pacer signal responsive means to check the viability of this function. In addition, this command signal can be applied to a switching means to reduce the capacitance in the timing means to in turn reduce the width of the pacer output pulses for testing the patient's response to reduced energy pulses. In addition, this same command signal can be applied to a semi-conductor switching means for reducing the gain of the amplifier in the ventricular signal responsive means for testing the sensitivity thereof.

3,830,243

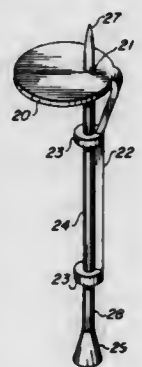
PIPE SMOKER'S TOOL

Bernard C. Bruget, 1669 E. Bishop Dr., Tempe, Ariz. 85282
Filed Aug. 13, 1973, Ser. No. 387,893

Int. Cl. A24f 9/04

U.S. Cl. 131-243

1 Claim



An elongate shaft carries a disk near a pointed end thereof for tamping and aerating tobacco within the bowl of a smoker's pipe. In an alternate embodiment the shaft is slidably supported by an arm extending from the disk whereby the depth of aeration is variable. The shaft may also be withdrawn from the support arm for use as a pick to clean the pipe bowl.

3,830,244

TOBACCO-SMOKE FILTERS

John A. Luke, Southampton, England, assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

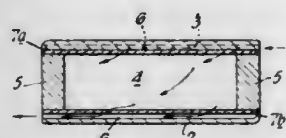
Filed Mar. 31, 1972, Ser. No. 240,174

Claims priority, application Great Britain, Apr. 16, 1971, 9632/71

Int. Cl. A24d 1/04; A24f 7/04, 13/06

U.S. Cl. 131-261 B

5 Claims



A tobacco-smoke filter comprises a tube of smoke-filtering sheet material, for example paper, extending longitudinally within and spaced radially from an outer tubular wrapper, for example an extruded smoke-imperious plastics material, the tube being blocked at both ends, while the space between the tube and the wrapper is blocked around complementary arcs at opposite ends and longitudinally in such manner that smoke entering at one end must pass through the wall of the tube twice before reaching the other end. Suitably the wrapper is formed or provided at intervals around its circumference with a number of longitudinal ribs for supporting the tube.

3,830,245

WIG WITH IMPROVED FRONT HAIRLINE CONSTRUCTION

Dominic C. Abbott, Pittsburgh, Pa., and Godfrey Chen, Hong Kong, Hong Kong, assignors to Abbott Tresses Inc., Pittsburgh, Pa., by said Abbott

Continuation of Ser. No. 155,868, June 23, 1971, abandoned.

This application July 18, 1972, Ser. No. 272,827

Int. Cl. A41g 3/00

U.S. Cl. 132-5

10 Claims



A wig with an improved front hairline construction which enables the wearer to style the wig alternatively in an "off-the-face" or in an "on-the-face" style is provided. The wig foundation has wefts of hair positioned generally perpendicularly of the front edge of the wig so as to intersect the front edge of the foundation at a generally right angle thereto. Preferably, at least a portion of the wefts which intersect the front edge of the foundation comprise a series of wefts attached to the wig foundation in a pattern of generally concentric arcs or arc-like configurations centered about a focal point adjacent the front edge of the wig.

3,830,246

FLUORIDE IMPREGNATED DENTAL FLOSS

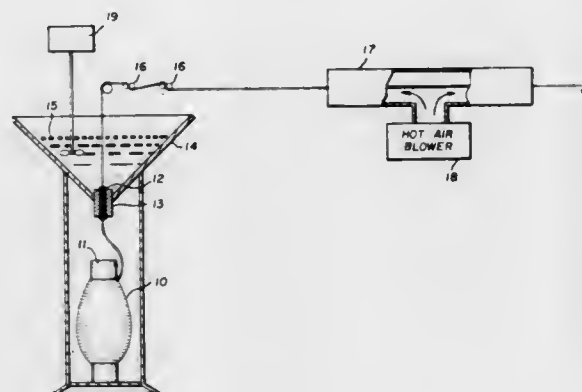
Barrie R. D. Gillings, 121 Bannockburn Rd., Turrumurra, New South Wales, Australia

Filed May 26, 1972, Ser. No. 257,391

Int. Cl. A61c 15/00

U.S. Cl. 132-89

9 Claims



A dental floss is impregnated with a dressing containing a fluoride in a form and quantity available to provide fluoride therapy as the floss is worked around and between the teeth. The dressing can also include flavoring materials and other dental therapy ingredients.

3,830,247

ANTISEPTIC DENTAL FLOSS

Peter Kaphalakos, 106 Carsbrooke, Etobicoke, Ontario, Canada

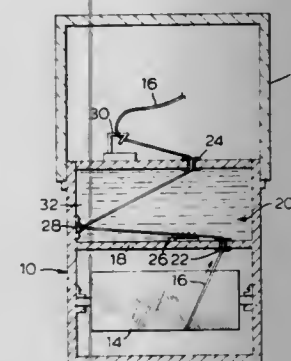
Filed May 25, 1973, Ser. No. 364,111

Claims priority, application Great Britain, July 31, 1972, 35677/72

Int. Cl. A61c 15/00

U.S. Cl. 132-90

3 Claims



Dental floss impregnated with antiseptic material. A dispenser for such dental floss comprises a housing with a freely rotatable spool and a liquid impervious chamber with self-sealing ingress and egress ports for passage of dental floss through the chamber from the spool.

3,830,248

FAUCET AND LINE CLEANING APPARATUS

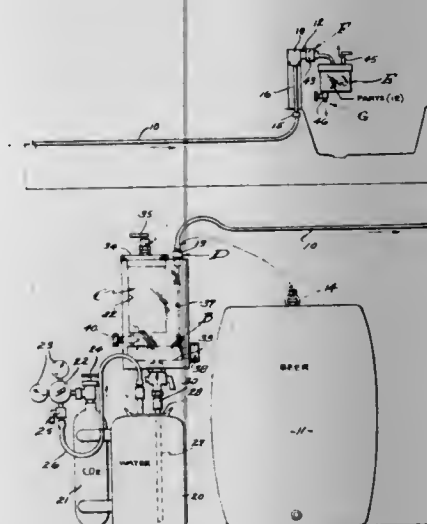
Jerome D. Brown, 3237 Par Dr., La Mesa, Calif. 92041

Filed Apr. 19, 1973, Ser. No. 352,533

Int. Cl. B08b 3/08, 9/06

U.S. Cl. 134-100

23 Claims



An apparatus for flushing and pressure soaking hydraulic fluid handling lines, with a determinably concentrated cleaning admixture; and for simultaneously cleaning the internal workings of the faucets involved therewith. Beer dispensing lines and faucets are adapted to be cleaned in order to eliminate the build-up therein which causes off-taste beer. The apparatus is portable and devoid of hydraulic complexities, and it involves a pressured water supply, an admixing means with a supply of cleaner measurably applied, and a canister to contain the internal workings of the faucet, and all of which is connected to a line to be cleaned, there being inlet and outlet valves for the sequential filling, soaking and rinsing operations that inherently follow in said order.

3,830,249

TIRE INFLATOR DEVICE

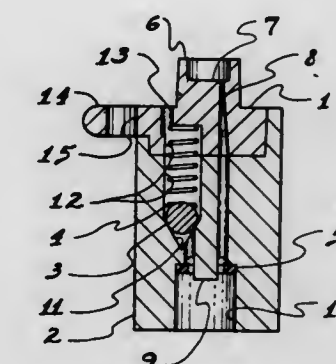
Richard P. Fleenor, 19008 Withey Rd., and Charles M. Dwyre, 134 Cambrian View Way, both of Los Gatos, Calif. 95030

Filed Aug. 7, 1972, Ser. No. 278,643

Int. Cl. F16k 15/20

U.S. Cl. 137-224

1 Claim



The invention is a simple inexpensive device comprised of a minimum number of parts which permit inflation of a pneumatic tire at a controlled rate; and, discharges surplus air from the tire after a predetermined pressure has been reached; and, makes an audible sound while the surplus air is being discharged.

3,830,250

VALVE PROVING SYSTEM

William Arthur Smith, London, England, assignor to Babcock & Wilcox Limited, London, England

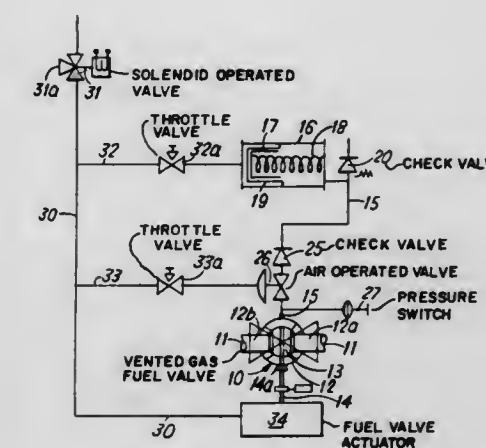
Filed May 12, 1972, Ser. No. 252,563

Claims priority, application Great Britain, May 14, 1971, 15070/71

Int. Cl. F16k 51/00

U.S. Cl. 137-312

6 Claims



The invention relates to a valve proving system. A duct is connected to the valve casing, between the inlet and outlet to collect leakage. Means is provided to ensure that when the valve is closed the pressure in the duct is initially low and means is also provided to produce a response when the pressure in the duct exceeds a predetermined value.

3,830,251

HOT BLAST VALVE

Johannes Uerlichs, Woffelsbach; Rudolf Muller, Merzenich, and Willi Kuckertz, Konzendorf, all of Germany, assignors to Hermann Rappold & Co., GmbH, Birkesdorf, Germany

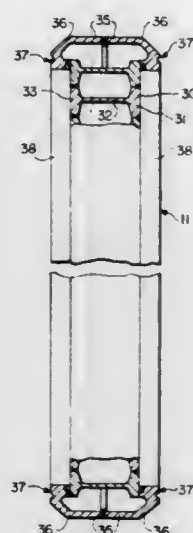
Filed Sept. 8, 1972, Ser. No. 287,544

Claims priority, application Germany, Sept. 8, 1971, 2,44893

Int. Cl. F16k 49/00

U.S. Cl. 137—340

3 Claims



A hot-blast valve has a valve casing of welded steel elements and having sealing surfaces to engage a slide valve. The casing also has therein cooling ducts to cool in particular the sealing surfaces. The slide valve is formed of trough-shaped steel elements spirally coiled to form a disc.

3,830,252

EXCESS FLOW RESPONSIVE SHUT-OFF VALVE

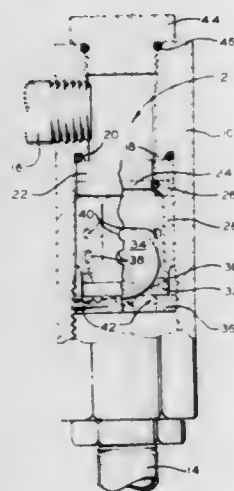
John L. Follett, 14554 Richmond Ave., Fair Haven, N.Y. 13064

Filed Jan. 11, 1973, Ser. No. 322,759

Int. Cl. F16k 15/04

U.S. Cl. 137—519.5

9 Claims



A shut-off valve having a fixed seat and spherical closure element which are magnetically attracted to effect valve closure when the rate of flow therethrough exceeds a predetermined limit. The ball which moves to close the valve is carried on an annular support within a length of tubing which is spaced from the sides of a central opening in the valve body. Gas passing through the valve flows under the ball and outwardly to the space between the tubing and valve body, thence inwardly through a series of openings in the tubing adjacent the sides and top of the ball. The size and relative positioning of the holes in the tubing and the ball provide close control and repeatability of valve actuation.

3,830,253

COMPRESSOR VALVE APPARATUS

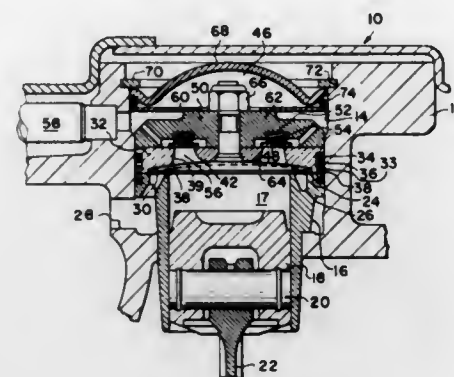
Carl F. Speich, La Crescent, Minn., and Jerome C. Roach, La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis.

Filed Feb. 12, 1973, Ser. No. 332,050

Int. Cl. F16k 15/14

U.S. Cl. 137—525

10 Claims



A refrigeration compressor is shown having a thin annular resilient intake valve which has no support ears and which is restrained within a valve cage having a valve stop surface conforming to a cylinder to limit maximum stress and thereby enhance reliability.

3,830,254

NON-RETURN VALVE

Arend Harrewijne, and Jacobus Hubertus Abrahams, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

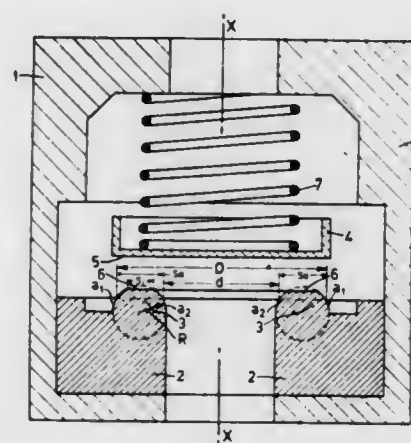
Filed Feb. 21, 1973, Ser. No. 334,468

Claims priority, application Netherlands, Feb. 25, 1972, 722535

Int. Cl. F16k 15/12

U.S. Cl. 137—540

5 Claims



A non-return valve of which the seating ring projecting above the seat and manufactured from a plastically deformable material and having a flat seating surface in the starting condition, has a thickness measured normal to the axis which increases when moving in the axial direction from the seating surface toward the seat in such manner that simultaneously the inner diameter of the ring decreases and the outer diameter of the ring increases. The seating surface experiences a permanent increase in area as a result of plastic deformation of the ring by the flat side of the valve body of a harder material when the closing pressure of the valve exceeds a given minimum value.

3,830,255

VALVE ASSEMBLY

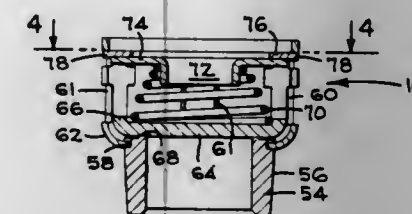
Frederick E. Freiheit, East Lansing, Mich., assignor to FMC Corporation, San Jose, Calif.

Filed Nov. 24, 1972, Ser. No. 309,553

Int. Cl. F16k 15/02

U.S. Cl. 137—543.19

3 Claims



A valve assembly having a machined valve seat with a stamped cage press fitted on the seat. In one embodiment a disc valve is urged against the valve seat by a variable rate conical spring having its large end engaging the valve disc and its small end encircling a flange on a spring retainer held in place by a snap ring engaging surfaces of the cage windows. The spring when compressed nests about the retaining flanges in less space than two wire diameters of the spring providing a short valve with high lift and high flow rate. In a second embodiment, flanges pressed inwardly to form the valve cage windows are used to guide a ball type valve.

3,830,256

FLUID MIXING

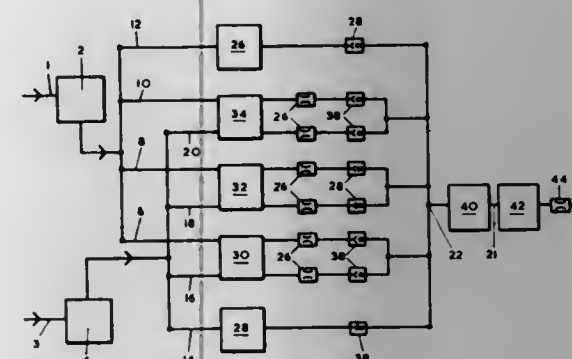
Lawrence Alfred Cox, London, England, assignor to The British Oxygen Company Limited, London, England

Filed Nov. 14, 1972, Ser. No. 306,184

Int. Cl. F16k 19/00

U.S. Cl. 137—599

8 Claims



An apparatus for mixing two or more fluids including a series of passages into each of which each fluid to be mixed can be passed at a chosen rate so that each passage can supply a chosen mixture, and valve means operable to select which of the passages is used to supply the mixture.

3,830,257

AIR-GAS MIXTURE METERING DEVICE, NOTABLY FOR RESPIRATORY MASK

Robert Metivier, Paris, France, assignor to Societe Minerve S.A., Courbevoie, France

Filed June 19, 1972, Ser. No. 263,772

Claims priority, application France, June 22, 1971, 71.22657

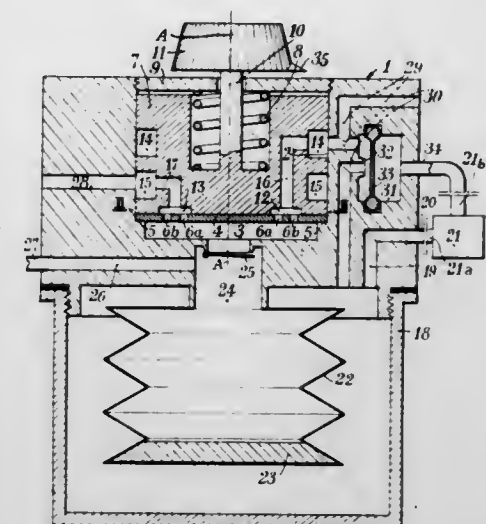
Int. Cl. F16k 11/00; G05d 11/02

U.S. Cl. 137—625.41

6 Claims

A device providing a predetermined mixture of atmospheric air and oxygen to a respiratory mask includes a first chamber responsive to pulses of oxygen and a second chamber, which

provides the output to the mask, which is responsive to the first chamber. A mixing chamber is provided and is con-



structured such that although the ratio of atmospheric air and oxygen provided to the mask may vary, the total amount of mixture remains at a predetermined value.

3,830,258

TRANSMISSION CONTROL MECHANISM

Michael Ernest Humphrey Leach, Hinxworth, England, assignor to Borg-Warner Limited, Letchworth, Hertfordshire, England

Division of Ser. No. 31,546, April 24, 1970, Pat. No.

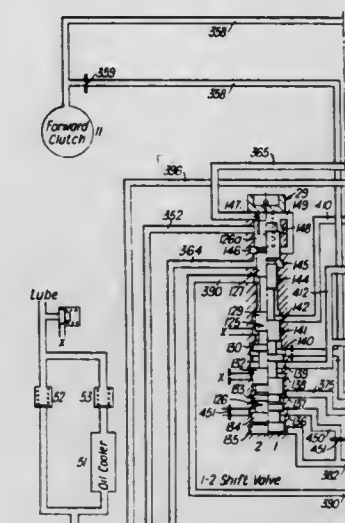
3,688,608. This application Aug. 21, 1972, Ser. No. 282,504

Claims priority, application Great Britain, Apr. 25, 1969, 21353/69

Int. Cl. F16k 11/07, 11/10

U.S. Cl. 137—625.48

3 Claims



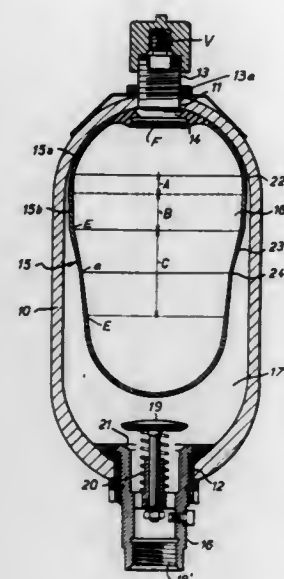
A hydraulic control system for an automatic transmission providing four forward drive ratios by selective engagement of friction-engaging devices and including a shift valve for each of the shifts between drive ratios, valve means producing a first pressure responsive to vehicle speed and valve means producing a second pressure responsive to engine load and throttle position, said pressures each influencing said shift valves to determine the shift points of the transmission, and further including an exhaust valve means for each of two friction elements, said exhaust valve means being responsive to said pressures to control exhaust of pressure from said friction elements when the transmission is upshifted. The control system further includes timing valve means responsive to said first pressure to control the rate of engagement of said friction devices when the transmission is downshifting between ratios and accumulator means responsive to each of said pressures to further control the rate of engagement of said friction devices.

3,830,259 PRESSURE VESSEL

Jacques H. Mercier, 49 Rue de Naples, Paris, France
Filed Feb. 9, 1972, Ser. No. 224,801
Claims priority, application France, Mar. 4, 1971, 71.7427
Int. Cl. F16I 55/04

U.S. Cl. 138—30

5 Claims



This invention relates to a pressure vessel and more particularly to a pressure accumulator of the type including a rigid container having a pair of ports at its respective ends with a deformable partition or bladder therein having a mouth at one end affixed to one of said ports, said bladder separating two fluids such as gas or liquid under pressure in said container.

The bladder is of the type formed from two separate sections, each substantially cup-shaped, so that when the rims of the sections are joined, a closed container will be formed.

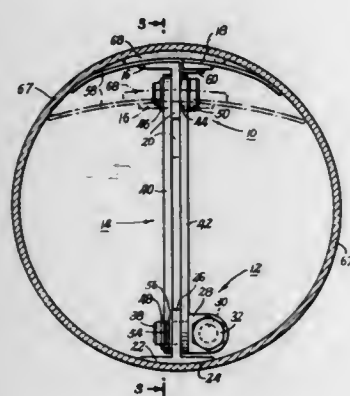
As the bladder expands to force liquid from the other port of the container, stress will be imparted to the wall of the bladder as a result of the stretching thereof, and such bladder wall is conformed to minimize the stress that would otherwise be imparted to the junction between the two sections of the bladder.

3,830,260 CONDUIT LEAK SEALING DEVICE

Michael A. Baviello, Sr., 100 Dearborn Ave., Rye, N.Y. 10580
Filed Sept. 12, 1972, Ser. No. 288,432
Int. Cl. F16I 55/18

U.S. Cl. 138—97

10 Claims



A leak sealing device for sealing leaks in pipes, tubes and the like comprising a pair of spaced, elongated, generally parallel shoes having convex outer surfaces, linkage means pivotally interconnecting said shoes and actuating means mounted on one of the shoes for actuating the linkage means to move the shoes toward or away from each other. One of the shoes has a resilient plate rockably mounted thereon and car-

rying a gasket and layer of sealant adapted to be pressed against the inner surface of the pipe in the vicinity of the leak. The resilient plate tends to stabilize and guide the device as it is moved through the interior of the pipe.

3,830,261 SELF-SEALING HOLLOW BODY FOR CONTAINING FLUIDS

Marvin S. Hochberg, Creve Coeur; Erwin K. Welhart, Florissant, and James H. Pousson, St. Charles City, all of Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.
Filed June 22, 1972, Ser. No. 265,214
Int. Cl. F16I 9/14

U.S. Cl. 138—127

5 Claims



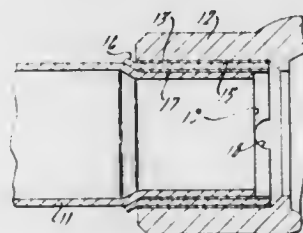
A hollow body, such as a metal fuel line, has a hollow imperforate core through which fuel flows or is contained. This core when penetrated by a projectile will tend to flare outwardly or "petal" at the exit hole left by the projectile. To retard or accommodate this petalling the core is surrounded by a layer of a material which may be either a braided fibrous overwrap or a foam material of very low density, or a combination of the two. Surrounding the inner layer is a resilient sealant layer, and the sealant of that layer reacts with the exiting fuel such that it expands and seals the hole left by the penetrating projectile. The sealant is encased in a protective outer overwrap of braided fiber strands applied around the sealant and embedded in a suitable matrix. The protective overwrap is quite rigid and contains the sealant. The overwraps are applied by braiding, and enhance the survivability of the hollow body in the event it is penetrated by a projectile.

3,830,262 ARTICLE FOR SOLDERING ALUMINUM TO COPPER

Ernest T. Lago, Jackson, Mich., assignor to Aeroquip Corporation, Jackson County, Mich.
Filed Apr. 20, 1972, Ser. No. 246,068
Int. Cl. F16I 13/08

U.S. Cl. 138—143

3 Claims



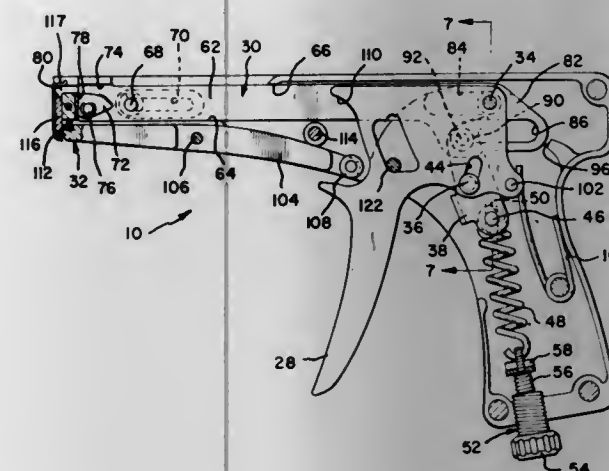
A copper sleeve on its inside is placed in one end of a slidable barrel on a hand tool. The end of an aluminum tube is clamped in alignment with the barrel so that it contacts a flared end of the sleeve. Heat and axial hand pressure are applied to the barrel until the sleeve is forced over the aluminum tube. The tube may then be soft soldered to a brass, copper or steel fitting.

3,830,263 STRAP APPLYING TOOL

David Van Dike Benfer, Marysville, Pa., assignor to AMP Incorporated, Harrisburgh, Pa.
Filed June 7, 1973, Ser. No. 367,921
Int. Cl. B21I 9/02

U.S. Cl. 140—93.2

7 Claims



A tool is disclosed for applying and tightening a strap around a bundle of articles such as electrical wires or cables. When the strap has been tensioned to a predetermined value, the tool is operative to either release or sever the strap at the discretion of the operator.

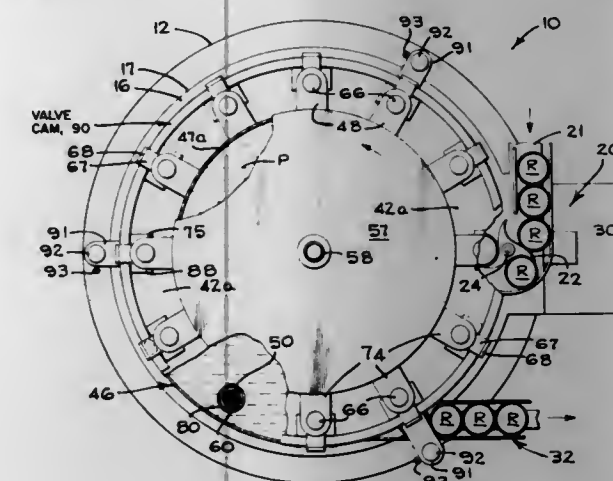
3,830,264 POSITIVE DISPLACEMENT FILLING MACHINE

Ronald J. Billett, Sunnyvale, and Gary O. Niemann, Mt. View, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed Mar. 27, 1972, Ser. No. 238,321
Int. Cl. B65B 3/12, 43/60

U.S. Cl. 141—1

19 Claims



A multi-cylinder, positive displacement, turret type filler for containers includes cam lifted, gravity descending valve, plug and piston elements in each cylinder, in one embodiment the height to which the plug is lifted meters the charge and the plug supports the piston during descent. In another embodiment these functions are interchanged.

3,830,265 METHOD AND APPARATUS FOR FILLING A CONTAINER

John Michael Matejek, Plainfield, N.J., assignor to American Can Company, Greenwich, Conn.

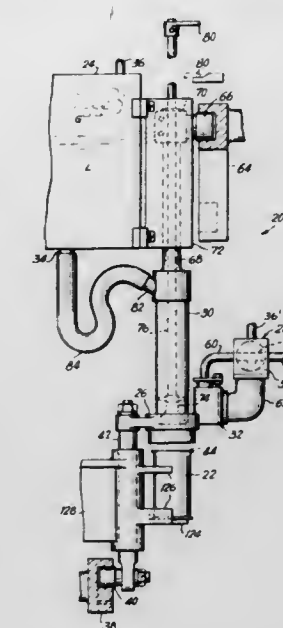
Filed Aug. 14, 1972, Ser. No. 280,225
Int. Cl. B65B 3/18

U.S. Cl. 141—6

17 Claims

A method and apparatus for filling a container with liquid whereby the container to be filled is purged of air, sealed and

then pressurized with a counterpressure gas. A plunger containing filling liquid is introduced into the container and the



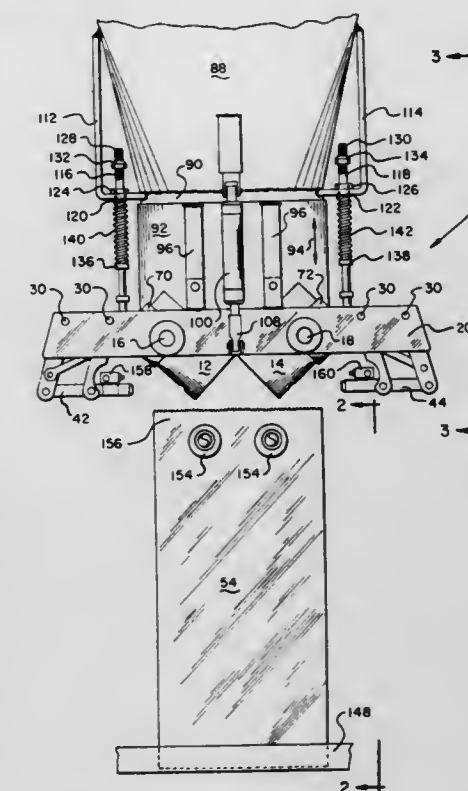
3,830,266 DROP-DOWN FILL SPOUT FOR BAG FILLING MACHINE

Doyle R. Hudson, West Monroe, La., assignor to Okinkraft Inc., West Monroe, La.

Filed Mar. 23, 1973, Ser. No. 344,120
Int. Cl. B65B 1/04, 3/04

U.S. Cl. 141—10

13 Claims



An improved filling spout for a bag filling machine of the type wherein a plurality of articles are filled in a rapid sequence in a bag which is subsequently closed. The novel filling spout is dropped down into the pre-opened bag and is pivoted outwardly against the inner walls of the bag while an external gripper means is pivoted inwardly against the external walls of the bag thereby firmly grasping the bag between the gripper means and the filling spout. The linkage which relates to the filling spout and the gripper means is designed so that the weight of the product increases in the bag, the effective result is an increase in the pressure between the filling spout and the gripper means. The novel configuration of the filling

spout, in the shape of a pair of pivotable overlapping clamshells, minimizes spillage and reduces unpleasant dust that occurs during the filling operation especially when filling the bags with charcoal or the like.

3,830,267

FILLER NOZZLE VAPOR SEAL AND COLLECTOR

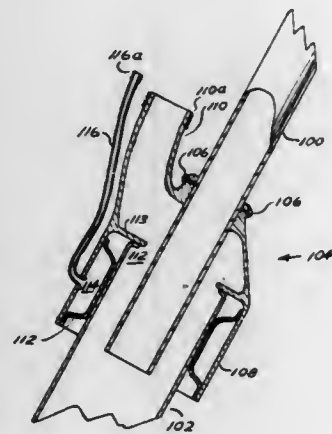
William F. Cass, 117 Columbus, Salem, Mass. 01970

Filed May 25, 1972, Ser. No. 256,654

Int. Cl. B65b 1/04, 3/04; B67c 3/00

U.S. Cl. 141—287

2 Claims



A filler nozzle vapor seal and collector for use in filling gasoline tanks forms a positive seal with the tank to thereby prevent vapor escape and hold the nozzle firmly in position while filling.

3,830,268

LOADING MULTIPLE DUPLICATING MACHINES

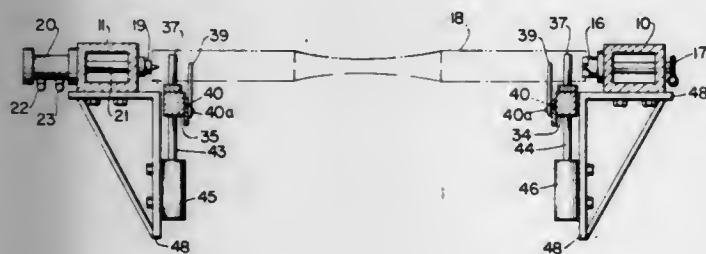
Jack R. Ellison, Hickory, N.C., assignor to Jack R. Ellison and Vanda Ray Williams

Filed July 30, 1973, Ser. No. 384,050

Int. Cl. B27c 9/00

U.S. Cl. 142—4

9 Claims



According to this invention a multiple carving machine in which a large number of work pieces are to be carved at one time is provided with a horizontally spaced series of chucks and work piece supporting tables coextensive with the chuck series having fluid operated means to raise and lower the table, with adjustable stop switches in a fluid supply circuit to correctly position vertically, unmarked work pieces disposed at chucking points along the tables, also restraining pins along said tables adjustable to contact opposite sides of the ends of work pieces to correctly position horizontally said work pieces with respect to chuck centers so that by simultaneously operating the chucks by fluid actuated means all of the positioned unmarked work pieces may be simultaneously and accurately chucked at one time.

3,830,269 CUTTING ROTOR ASSEMBLY

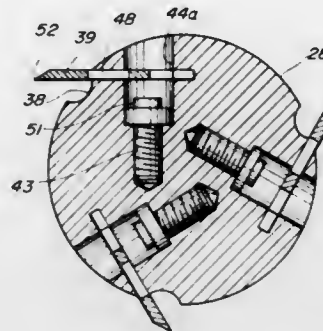
Glenn B. Morse, 321 Fountain St. N.E. Apt. No. 1, Grand Rapids, Mich. 49502

Filed Aug. 29, 1973, Ser. No. 392,781

Int. Cl. B27g 13/04

U.S. Cl. 144—230

6 Claims



A cutting rotor of the general type commonly used in wood working planers and jointers has blades secured in slots in a hub by clamping screws that at least partially intersect the blades, and also generate a clamping pressure on the side of the blade nearest the axis of rotation of the rotor. The center of gravity of the screws is disposed with respect to the axis of rotation so that movement of the screws induced by running vibrations and centrifugal force will tend to increase the clamping pressure. The screws are accessible for adjustment on the exterior of the assembly via openings in the hub and blades.

3,830,270

LEATHER ENCASED FLASK

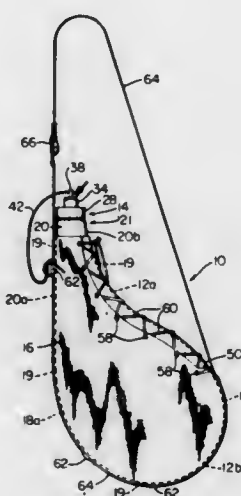
Robert D. Hagert, and James L. Sanderson, both of Boulder, Colo., assignors to Bota of Boulder, Boulder, Colo.

Filed Dec. 4, 1972, Ser. No. 312,116

Int. Cl. B65d 65/04

U.S. Cl. 150—52 E

4 Claims



A flask having good heat insulating characteristics includes a generally kidney-shaped vessel, commonly referred to as a bota, a cap assembly having a base cap with a relatively narrow passage therethrough and an auxiliary cap for selectively closing the narrow passage in the base cap whereby liquid in the vessel can be discharged through an opening in the vessel or through the relatively narrow passage in the base cap. A removable outer skin or casing of a flexible material fits tightly around the vessel and has a slotted neck portion covered by a flexible tongue through which the vessel can be removed from or inserted into the casing. The outer casing is secured to the vessel by a lace which is threaded across the tongue and releasably secures the vessel in the casing. An adjustable carrying strap is affixed to the casing to facilitate carrying the flask.

3,830,271

DEVICE FOR FIXING A SHAFT TO A MEMBER

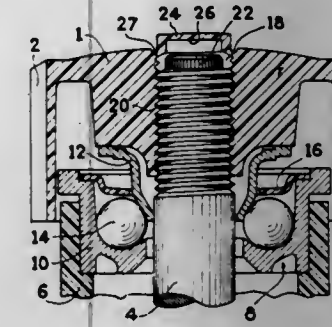
Pierre Soubitez, 3 Bis, Rue chanz, 94 Le Perreux, France

Filed July 24, 1972, Ser. No. 274,283

Int. Cl. F16b 39/02

U.S. Cl. 151—28

3 Claims



The device is adapted to fix a shaft to a member which is provided with a bore for the shaft and a tapped aperture which is engaged with a screwthreaded portion on the shaft. The device comprises a cap which is integral with the member at one end of the bore, longitudinal splines on the shaft engaged with the inner wall of the cap and teeth formed by an extension of the tapped aperture of the member engaged with the outer wall of the cap.

3,830,272

TIRE REINFORCING STRUCTURE

Renato Monzini, 16, Via Conte Verde, Milan, Italy

Filed Jan. 29, 1973, Ser. No. 327,461

Int. Cl. B60c 9/16

U.S. Cl. 152;201

8 Claims



A tire reinforcing structure in the form of a plurality of assemblies each formed by hinge or hook connected rigid elements at least partially embodied within the tire rubber.

3,830,273

DUAL TIRE

Jacques Boileau, Clermont-Ferrand, France, assignor to Compagnie Generale Des Etablissements Michelin, raisin sociale Michelin & Cie, Clermont-Ferrand (Puy-de-Dome), France

Filed June 1, 1973, Ser. No. 366,301

Claims priority, application France, June 5, 1972, 72.20393

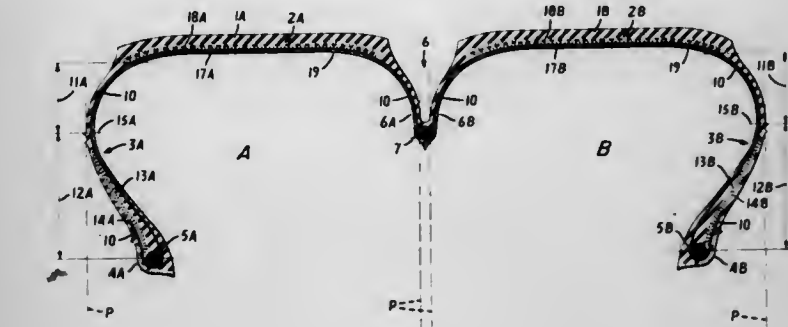
Int. Cl. B60c 11/00, 13/00

U.S. Cl. 152—352

7 Claims

A tire is formed with two treads spaced transversely from each other, two sidewalls terminating in beads reinforced with bead wires, and, between the treads, a connection comprising

in its center a wire rod forming a closed loop of diameter intermediate between that of the bead wires and that of the treads. Each tread has its own independent reinforcement, and each sidewall has a rigid zone close to the bead and a flexible zone



close to the tread. The connection has on opposite sides of the central wire rod substantially the same structure and the same equilibrium profile when the tire is inflated, and therefore the same radial flexibility, as the flexible zones of the two sidewalls.

3,830,274

ELASTOMER BLENDS AND TIRE SIDEWALLS PREPARED THEREFROM

Harold R. Waser, Jr., Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed May 11, 1972, Ser. No. 252,436

Int. Cl. B29h 21/02; B60c 13/00

U.S. Cl. 152—355

9 Claims

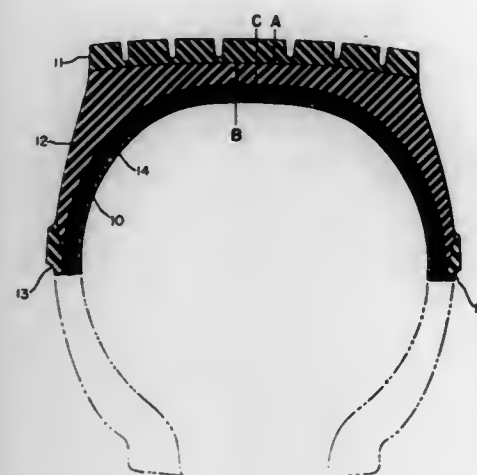


An elastomer blend and pneumatic tire sidewall prepared therefrom where said elastomeric blend comprises specific amounts of cis 1,4-isoprene selected from natural and synthetic rubber, an ethylene-propylene-conjugated diene terpolymer, bromobutyl rubber and a cis 1,4-polybutadiene having a gel content of less than 3 percent, a number average molecular weight in the range of about 80,000 to about 300,000 and a heterogeneity index of about 3.5 to about 4.2, wherein said elastomeric blend cured with sulfur has a 300 percent modulus in the range of about 3 to 4 meganewtons per square meter. The elastomeric blend has particular utility as an outer sidewall layer and a cover strip layer adhered to the rubber sidewall portion of a pneumatic rubber tire. The elastomeric blend exhibits a substantially improved break resistance to flexing at elevated temperatures and a substantially improved ability to adhere to a pneumatic rubber tire carcass.

3,830,275

TREADS, PNEUMATIC TIRES AND A PROCESS FOR IMPROVING TIRE PERFORMANCE
 Richard M. Russell, Danville, Va., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Continuation of Ser. No. 869,126, Oct. 24, 1969, abandoned.
 This application Oct. 14, 1971, Ser. No. 189,418
 Int. Cl. B60c 9/02, 11/06; B29h 17/36
 U.S. Cl. 152—357

12 Claims

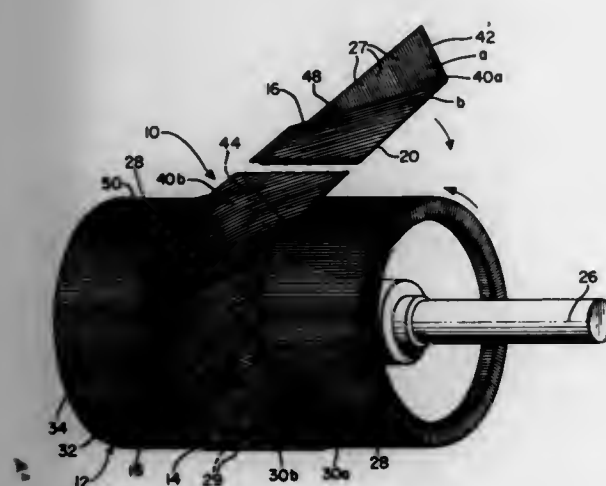


City bus tires having a cap-base construction, and their use first on the front axle of a city bus and subsequently on the rear axle of the bus.

3,830,276

TIRE WITH FOLDED BREAKER BELT SPLICING
 John C. Smithkey, Jr., North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
 Filed Aug. 20, 1973, Ser. No. 389,856
 Int. Cl. B60c 9/18
 U.S. Cl. 152—361 FP

3 Claims



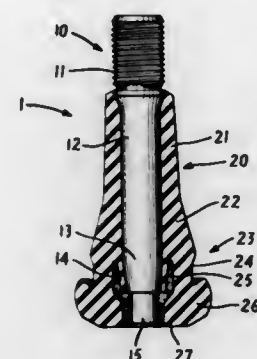
Technique of splicing a folded breaker belt in place on the building drum, which, contrary to prior teaching, is equally effective, less costly, and facilitates automated splicing of such folded belts in tire building. A single triangular end of an under folded ply is lapped over and upon a similar single triangular end of an over-folded ply to effect the splice, making the folded belt endless.

3,830,277
VALVE

Daniel Lejeune, Clermont-Ferrand, France, assignor to Compagnie Generale Des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand, France
 Filed Jan. 23, 1973, Ser. No. 326,044
 Claims priority, application France, Feb. 1, 1972, 72.3560
 Int. Cl. B60c 29/00

U.S. Cl. 152—427

2 Claims



A valve for a tubeless tire comprises a rigid inner tube and an outer bushing of rubber. The rubber bushing is formed with an annular groove whereby the valve can be fastened in an aperture in a tire rim and a head which when the valve and a tire are mounted on the rim is positioned within the tire air chamber. The tube and bushing are configured with respect to each other in such a manner as to be normally spaced apart from each other adjacent to the annular groove, and the tube is formed with an extension penetrating into the head. The bushing has an inside diameter which is smaller at the head than at the annular groove. This construction prevents flexing and eventual destruction of the valve due to centrifugal force during high-speed travel.

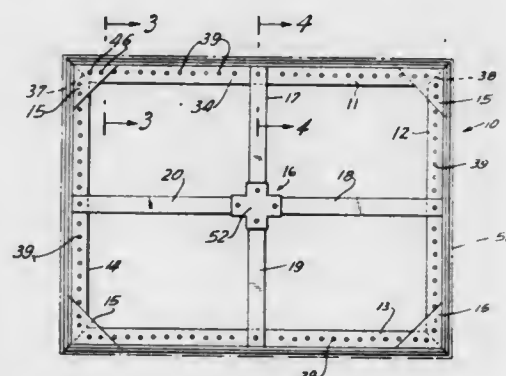
3,830,278

CANVAS STRETCHER

Lester Packer, 561 Fifth Ave., Brooklyn, N.Y. 11215
 Filed Oct. 1, 1973, Ser. No. 402,514
 Int. Cl. D06c 3/08

U.S. Cl. 160—378

10 Claims



A modular stretcher to which sheets of canvas may be secured with staples or like fasteners, includes elongated members having a substantially L-shaped cross section and brackets connecting the ends of the members. Each elongated member includes on its outer surface a longitudinally extending groove for supporting a fastener-receiving strip. The inner corner of each member includes a longitudinally extending channel for accommodating an edge of a bracket. The brackets are connected to the members by bolts passing through holes in the bracket and holes in the member. The stretcher may be further strengthened with a cross bracing arrangement connected to the elongated members.

3,830,279

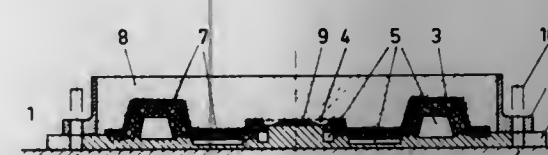
METHOD AND APPARATUS FOR FORMING SAND MOLDS

Heinz Arbenz, Andelfingen, and Werner Baumgartner, Glattbrugg, both of Switzerland, assignors to Schweizerische Aluminium AG, Chippis, Switzerland
 Filed May 26, 1970, Ser. No. 40,487
 Claims priority, application Switzerland, May 28, 1969, 8063/69

Int. Cl. B22c 9/02

U.S. Cl. 164—7

15 Claims



A device and method for manufacturing molds for sand casting metallic objects, such as large though thin objects. There is provided a casting pattern disposed between mold means and composed of an elastic and flexible material suction held against a pattern support member operable to shape the mold means in succession as each is cast; said pattern representing a prototype of the metallic object to be cast.

3,830,280

RARE EARTH FLOURIDE LUBRICANT FOR DIE CASTING COMPONENTS

Earl I. Larsen, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.
 Filed Jan. 25, 1971, Ser. No. 109,594
 Int. Cl. B22d 17/00; C10m 7/02

U.S. Cl. 164—72

3 Claims

A rare earth halide preferably a rare earth fluoride such as cerium tri-fluoride or lanthanum tri-fluoride is used as a lubricant for die casting components.

3,830,281

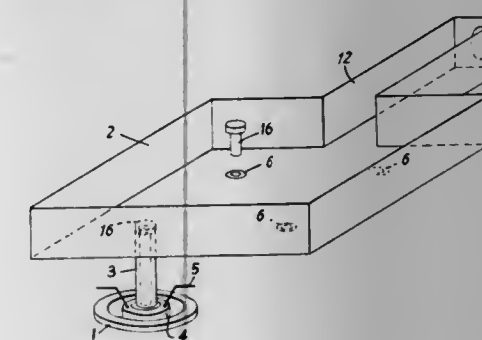
METHOD OF CONTINUOUSLY CASTING ALUMINUM FOR SIMULTANEOUS PRODUCTION OF PLURAL INGOTS

James Roy Snider, Kingston, Ontario, Canada, assignor to Alcan Research and Development Limited, Montreal, Quebec, Canada
 Filed Dec. 15, 1972, Ser. No. 315,500
 Claims priority, application Canada, Dec. 17, 1971, 58876
 Claims priority, application Great Britain, Dec. 17, 1971, 58876/71

Int. Cl. B22d 11/10

U.S. Cl. 164—82

5 Claims



In the continuous casting of aluminum a series of molds are supplied with molten metal through individual dip tubes from a common trough system. To approximately synchronise entry of metal to the moulds, the mouth of each dip tube is initially closed by means of a buoyant plug to prevent entry of metal to the dip tube, until a predetermined depth of metal has been established in the trough system.

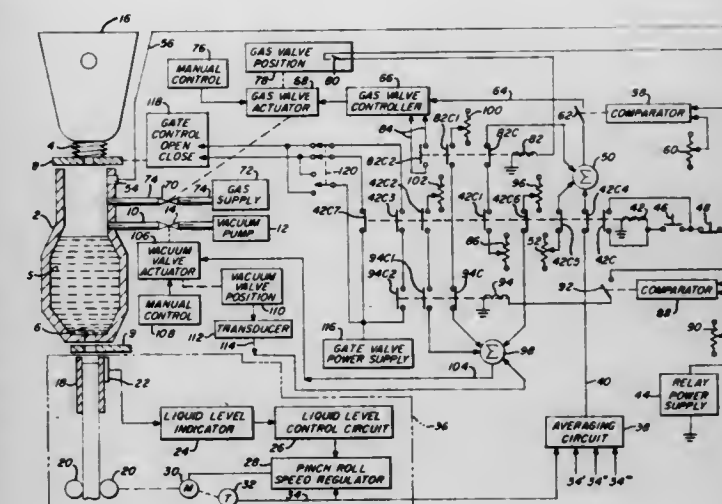
3,830,282

SYSTEM FOR FEEDBACK CONTROL OF CASTING SPEED

Ronald G. Schultz, Bay Village, Ohio, assignor to United States Steel Corporation, Pittsburgh, Pa.
 Filed Oct. 31, 1972, Ser. No. 302,466
 Int. Cl. B22d 11/10

U.S. Cl. 164—155

5 Claims



A string casting process with vacuum degassing uses vessel repressurization to provide uniform outflow of molten metal to a continuous-casting mold, a first operator initiated signal controls the pump-down of a degassing vessel, the admission of metal to the vessel at a desired pump-down pressure and the rate of degassing. When the degassing of each batch is complete, a second operator initiated signal controls the closing of a sliding gate valve to seal the vessel, the admission of repressurization gas into the vessel and the repressurization of the vessel to provide a uniform flow from the vessel by comparing the actual casting speed with a desired casting speed.

3,830,283

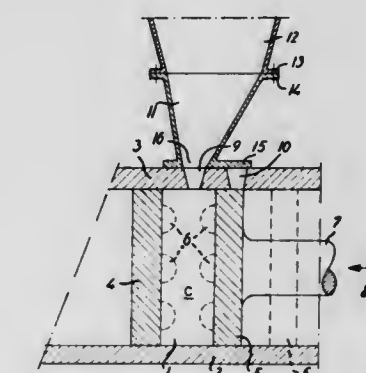
APPARATUS FOR AUTOMATICALLY PRODUCING MOLD PARTS

Marius Gunnergaard, Lyngby, Denmark, assignor to Dansk Industri Syndikat A/S, Herlev, Denmark
 Filed Sept. 19, 1972, Ser. No. 290,368
 Claims priority, application Denmark, Sept. 23, 1971, 4646/71

Int. Cl. B22c 15/24

U.S. Cl. 164—200

4 Claims



In an automatic mold part forming apparatus in which the mold parts are successively produced by pressure between a pair of opposed pattern plates or end walls in a mold chamber, the top wall of the chamber presents at least two material admitting apertures which selectively may be brought into and out of operation.

3,830,284

BLOW TUBE WITH REMOVABLE FLANGE

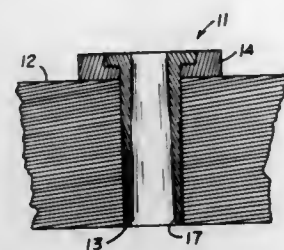
John R. Mindock, 2006 Terril Ln., Louisville, Ky. 40218

Filed Dec. 7, 1972, Ser. No. 312,872

Int. Cl. B22c 15/24

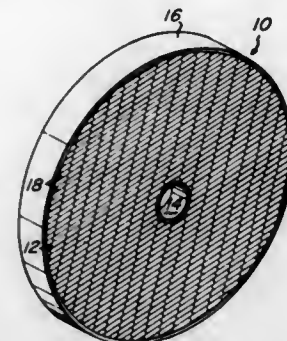
U.S. Cl. 164—200

3 Claims



For economy, a blow tube is separated into a portion that wears quite readily, and another portion that is reusable. The duct portion that wears readily has a small flange that fits into a counterbore of a larger flange.

concentric with the central opening and the outwardly projecting cut edges of the strips at the outer periphery of the stack are also bent over in overlapping relationship to each



other and an outer strip band secured thereto by brazing. This provides a core having a high aspect ratio without reduction in strength.

3,830,285

ADJUSTABLE CASTING PATTERN

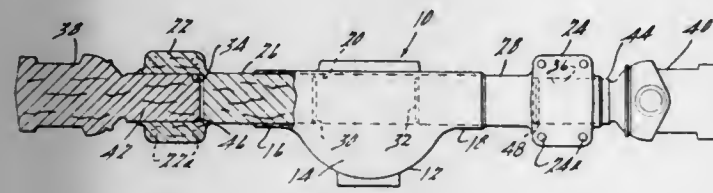
Carl N. Schrader, Jr., Newport, Mich., assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed Dec. 7, 1972, Ser. No. 313,014

Int. Cl. B22c 7/00

U.S. Cl. 164—249

3 Claims

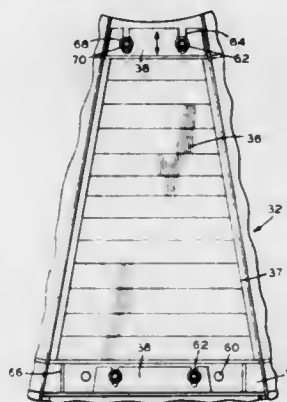


A pattern for use in forming molds for the casting of a family of products. Each of the products has a central portion of fixed dimensions and a pair of satellite portions of fixed dimensions spaced from the central portion. The distances between the central portion and the satellite portions and thus the structure therebetween are variable within the family of products. The casting pattern comprises a main body corresponding to the central portion and a pair of secondary portions corresponding to the satellite portions with each of the secondary portions having an elongate projection extending therefrom. The main body has openings formed therein on opposite sides thereof and each projection is telescopically received in one of the openings and slidable therein for adjustment of the distance between the main body and each of the secondary positions.

3,830,287
ROTOR STRUCTURE
Albert Eisenstein, Akron, Ohio, assignor to The Babcock & Wilcox Company, New York, N.Y.
Filed Apr. 10, 1972, Ser. No. 242,400
Int. Cl. F28d 19/04

U.S. Cl. 165—10

1 Claim

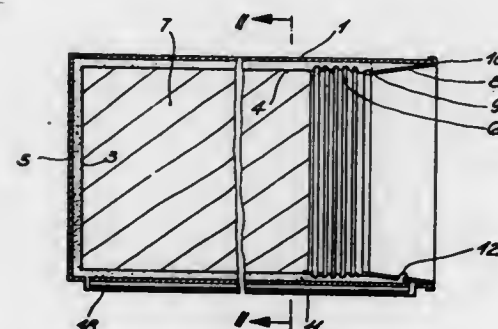


A regenerative heat exchanger comprising a rotor having a support structure disposed intermediate the heat exchange surface with the latter being supported therefrom in cantilever fashion and including means compensating for thermal expansion and contraction of the surface independent of the support structure.

3,830,288
INSULATING CASING FOR STORAGE HEATERS
Nikolaus Laing, Hofener Weg 35-37, 7141 Aldingen Stuttgart, Germany
Continuation of Ser. No. 793,524, Jan. 23, 1969, abandoned.
This application Jan. 12, 1971, Ser. No. 105,964
Int. Cl. G05d 23/00

U.S. Cl. 165—32

1 Claim



A heat storing device comprising a heatable core and a heat insulating casing enclosing the core. The casing comprises

3,830,286
HEAT EXCHANGER CORE AND METHOD OF FABRICATION THEREOF

Daniel J. Clarke, Bay City, Mich., assignor to The Stalker Corporation, Essexville, Mich.

Filed Mar. 29, 1973, Ser. No. 346,028

Int. Cl. F28d 19/00

U.S. Cl. 165—8

9 Claims

A heat exchanger core is constructed by assembling and joining by brazing a plurality of thin flat strips of stepped configuration into a stack with the steps thereof offset with respect to each other to provide a series of rectangular passages or cells through the stack. An opening is then cut through the center of the stack and the inwardly projecting, cut edges of the strips at the opening are bent over into contact with each other and attached to a hub by brazing. The outer periphery of the stack is cut to a circular configuration

major walls which are double and enclose gas-tight cavities. The cavities are filled with porous material and contain a gas at low pressure. The core is made of salt-like compositions with one or more polymorphic transitions at temperature levels at which no uncontrollable quantity of gas penetrates the casing walls and leaves said cavities.

3,830,289
OIL COOLER

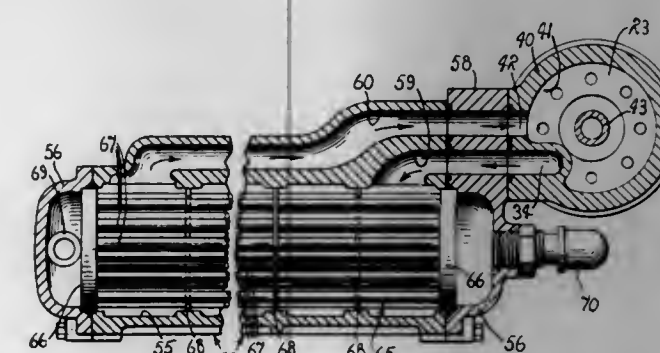
Dan L. Olson, 3943 E. Saginaw, Fresno, Calif. 93725

Filed May 19, 1972, Ser. No. 254,869

Int. Cl. F28f 13/12

U.S. Cl. 165—51

2 Claims



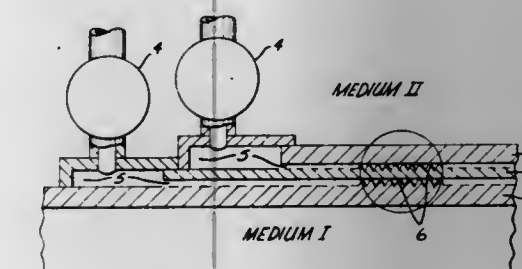
A cooler for lubricating oil of internal combustion engines adapted to convert conventional filter mounts to cool the oil during its transmission for filtering, the cooler having an adapter for mounting on such a filter mount, the adapter having an intake passage registrable with an oil supply port of the mount, a filter connection, and a return passage extending through the adapter for registration with an oil receiving port of the filter mount; a heat exchanger mounted on the adapter in operable connection with the intake passage so as to receive oil therefrom for passage through the exchanger; a return conduit connected to the heat exchanger and communicating with the return passage of the adapter; and a coolant duct extending through the exchanger in connection with a source of coolant and adapted to remove heat from oil passing through the exchanger.

3,830,290
HEAT TRANSFER PIPE WITH LEAKAGE INDICATOR
Eberhard Thamasett, Reutti/Neu-Ulm, and Ullrich Herzog, Vohringen, both of Germany, assignors to Wieland-Werke AG, Ulm, Germany
Filed Mar. 30, 1972, Ser. No. 239,715
Claims priority, application Germany, Mar. 30, 1971, 2115271

Int. Cl. F28f 11/00

U.S. Cl. 165—70

5 Claims



There are provided three concentric pipes two of which have arranged thereon a series of tapered projections which contact an adjacent pipe. Said projections thus provide means for heat transfer from one pipe to another while permitting leakage from either the innermost pipe or the outermost pipe to flow therethrough. Pressure sensitive means are provided in communication with the respective spaces thereby provided for providing a signal in the event of such leakage.

3,830,291

APPARATUS FOR THE SOLIDIFICATION OF MOLTEN SULPHUR

Ernest Ralph Ellithorpe, 276 - 43 Ave. N.W., Calgary 47, Alberta, and Ronald Bruce Fletcher, 24 - Rosary Pl., N.W., Calgary 41, Alberta, both of Canada

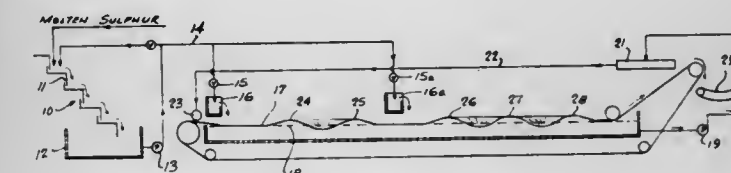
Division of Ser. No. 30,558, April 21, 1970, Pat. No.

3,684,005. This application June 29, 1971, Ser. No. 158,076

Int. Cl. F28f 5/00

U.S. Cl. 165—120

7 Claims

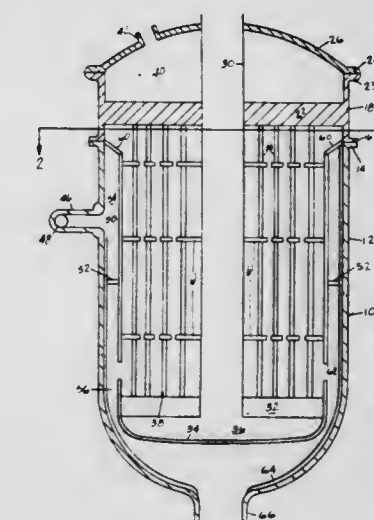


Apparatus for solidifying sulphur has a belt formed with undulations or alternately angled tilted sections which contact cooling liquid in a cooling bath and cause molten sulphur to flow relative to the belt surface and thereby increase the rate of cooling of the sulphur. The cooling liquid is circulated through a heat exchanger for cooling the liquid, and the belt has longitudinal edge surfaces preventing flow of the sulphur over the belt edges.

3,830,292
FLOW DISTRIBUTION FOR HEAT EXCHANGERS
Walter Wolowodiuk, New Providence; Bruce Edgar Dawson, Chatham, and John Anelli, Parsippany, all of N.J., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.
Filed May 1, 1972, Ser. No. 248,955
Int. Cl. F28f 9/22

U.S. Cl. 165—161

3 Claims



A heat exchanger where one fluid is flowed over tubes carrying another fluid to place said fluid in indirect heat exchange in which problems of erosion, temperature gradient, and vibrations at the area where the tubes are joined to a tube sheet are eliminated. A fluid inlet spaced from the tube sheet feeds fluid into an annular flow chamber which encircles the tubes and has an annular perforated plate closer to the tubes than the inlet and perforated so that the resistance to flow of fluid through the plate at different locations on it is a function of the distance from the inlet.

3,830,293

TUBE AND SHELL HEAT EXCHANGERS

Alan Bell, Foster Wheeler House, Chapel St., London N.W. 1, England

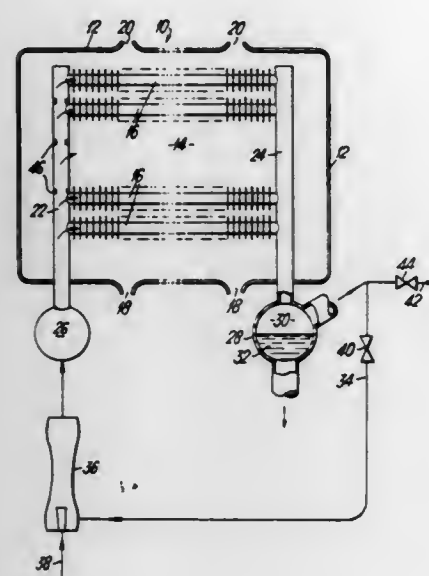
Filed Aug. 8, 1969, Ser. No. 848,504

Claims priority, application Great Britain, Aug. 8, 1968, 37989/68

Int. Cl. F28f 13/08

U.S. Cl. 165—174

8 Claims



This invention relates to tube and shell heat exchangers in which a vapour gives up its latent heat and in so doing condenses in the tubes while a fluid passing through the shell over the tubes is heated. Flow restricting devices are arranged in the flow path for the vapour to the tubes and the number and effectiveness of these devices is arranged so that there is about the same amount of excess vapour flowing out of the outlet of each tube irrespective of how much vapour has been condensed in that tube, the excess vapour from the tubes being recirculated.

3,830,294

PULSING GRAVEL PACK TOOL

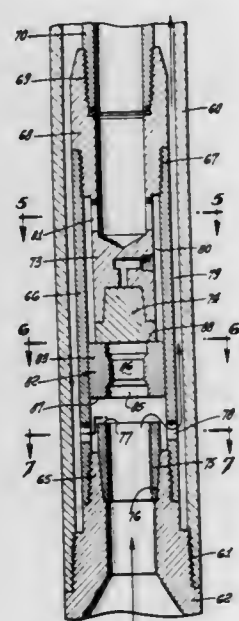
Roy E. Swanson, Jr., Houston, Tex., assignor to Baker Oil Tools, Inc., Los Angeles, Calif.

Filed Oct. 24, 1972, Ser. No. 299,782

Int. Cl. E21b 19/18

U.S. Cl. 166—51

17 Claims



Apparatus for use in gravel packing a well includes a pulse producing tool which causes the gravel to be continuously agitated as the gravel is being placed in the well.

3,830,295

TUBING HANGER APPARATUS

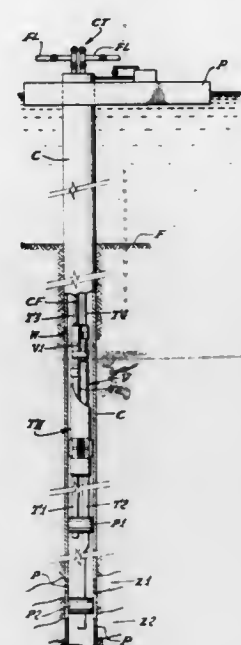
Talmadge L. Crowe, Houston, Tex., assignor to Baker Oil Tools, Inc., Los Angeles, Calif.

Division of Ser. No. 243,806, April 13, 1972, Pat. No. 3,771,603. This application July 28, 1972, Ser. No. 275,911

Int. Cl. E21b 23/00

U.S. Cl. 166—125

41 Claims



A tubing hanger is run into the well on a setting tool and supports a dual tubing string when the hanger is set in the well casing. The setting tool is removed and a dual, full opening shut-off valve assembly is run into the well and seats in the tubing hanger. Control fluid pressure supplied from the top of the well holds the shut-off valves open. The dual shut-off valve is retrievable, and the tubing hanger is then retrievable by a retrieving tool.

3,830,296

SAFETY VALVE FOR USE IN WELLS

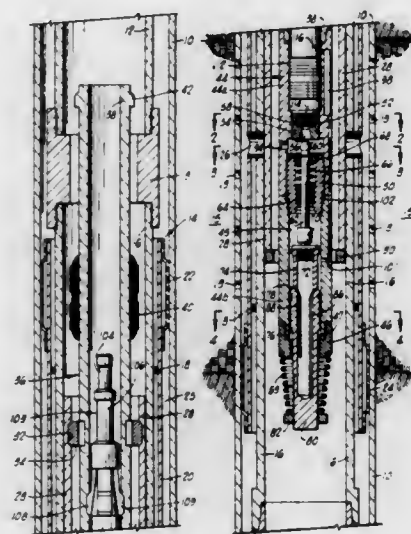
Billie J. Shirley, P.O. Box 20648, Oklahoma City, Okla. 73120

Filed Aug. 20, 1973, Ser. No. 389,495

Int. Cl. E21b 43/12

U.S. Cl. 166—191

19 Claims



A differential pressure safety valve for use in oil and gas wells and the like which comprises an elongated tubular element having upper and lower ends connected by a bore. An annular seat is positioned in the upper portion of the elongated tubular element, and a valve closure member is positioned below the seat. A valve stem is connected to the valve closure member and extends downwardly in the tubular element.

ment bore. A piston element is secured to the lower end of the valve stem, and is slidably positioned in the tubular element bore with a portion of the piston element projecting from the lower end of the tubular element. Plug means sealingly surrounds the valve stem within the bore of the tubular element between the piston element and the valve closure member. A radial port is formed through the wall of the tubular element in communication with the bore at a location between the seat and the plug means. An adjustable resilient control means is located externally of the tubular element, and cooperates with the projecting portion of the piston element to resiliently bias the piston element in a direction away from the annular seat with a predetermined force. A by-pass conduit is connected to by-pass fluid from a point in the bore of the tubular element between the plug means and the piston element, to a point in the bore of said tubular element located above said annular seat.

3,830,297

SUB-SURFACE SAFETY VALVE WITH IMPROVED BALANCING VALVE MEANS

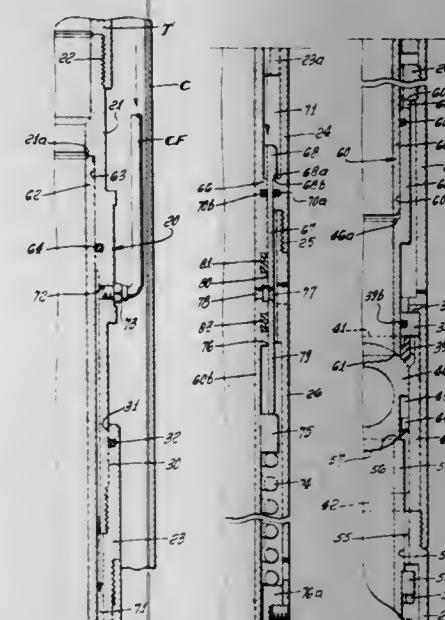
Darryl W. Cockrell, Houston, Tex., assignor to Baker Oil Tool, Inc., Los Angeles, Calif.

Filed Jan. 8, 1973, Ser. No. 322,075

Int. Cl. E21b 43/12

U.S. Cl. 166—224 S

20 Claims



A subsurface safety valve for wells, including a ball shut-off valve closed by well fluid pressure and opened by control fluid pressure supplied from the surface. The subsurface valve includes a control fluid pressure responsive bypass valve sleeve for equalizing pressure across the closed ball valve before the latter is opened to relieve the ball valve seating pressure. The ball valve is rotatable by support pins and is also slightly axially movable in its support. A spring acts upwardly on the bypass valve sleeve to overcome control fluid pressure when the ball valve is being closed.

3,830,298

USE OF RADIATION-INDUCED POLYMERS TO INHIBIT THE INTRUSION OF CONTAMINATING FLUIDS INTO RESERVOIRS

Bruce L. Knight; John S. Rhudy, and William B. Gogarty, all of Littleton, Colo., assignors to ACA America Inc., Wilmington, Del.

Filed Nov. 6, 1972, Ser. No. 303,738

Int. Cl. E21b 33/138

U.S. Cl. 166—247

19 Claims

Intrusion of contaminating fluids, e.g. salt water, into a fresh water aquifer is inhibited by injecting into the aquifer, preferably in advance of the intruding fluids, an aqueous solu-

tion containing a polymer obtained as a product of radiation-induced polymerization of acrylamide and/or methacrylamide and acrylic acid, methacrylic acid, and/or alkali metal salts thereof. The polymerization is preferably carried out in 10–60 percent aqueous monomer solution with gamma radiation. A mixture of monomers, before radiation, preferably contain 25–99 percent acrylamide and 75–1 percent sodium acrylate. The polymer can be positioned within the aquifer by withdrawing fluids therefrom. The properties of the polymer permit "plugging" of the reservoir rock to the advance of the contaminating fluids.

3,830,299

SHALLOW PLUGGING SELECTIVE RE-ENTRY WELL TREATMENT

Johannes H. Thomeer, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed May 21, 1973, Ser. No. 362,624

Int. Cl. E21b 33/138, 43/25

U.S. Cl. 166—250

12 Claims



The pattern of fluid flow between a well and one or more subterranean reservoirs having different characteristics and/or fluid content is adjusted by determining the flow pattern, plugging all of the reservoirs with plugging material deposited internally within a few inches from the well borehole, and then perforating some or all of the plugged portions with openings that are arranged in relation to the determined flow pattern to provide selected rates of flow at selected depths.

3,830,300

IN SITU COMBUSTION OIL RECOVERY METHOD

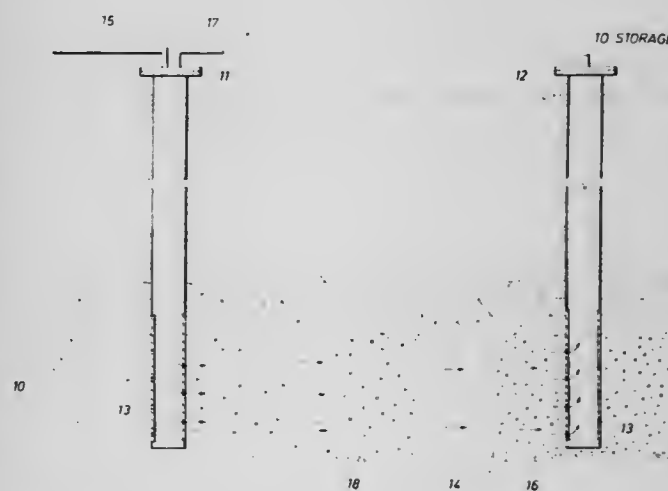
Joseph C. Allen, Bellaire, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Nov. 17, 1972, Ser. No. 307,742

Int. Cl. E21b 43/16

U.S. Cl. 166—261

7 Claims



Heavy petroleum may be recovered from an underground formation by in situ combustion followed by injection of a hydrocarbon, which may be produced petroleum which thermally decomposes into light, low viscosity liquids that readily

flow toward producing wells and petroleum coke which deposits on the reservoir formation, thereby providing fuel for another in situ combustion and repeating the cycle of operation until substantially all of the immobile, heavy petroleum is converted into a low viscosity liquid and/or gas.

3,830,301

MISCIBLE FLOODING PROCESS USING METHANE-ENRICHED SOLUBLE OIL

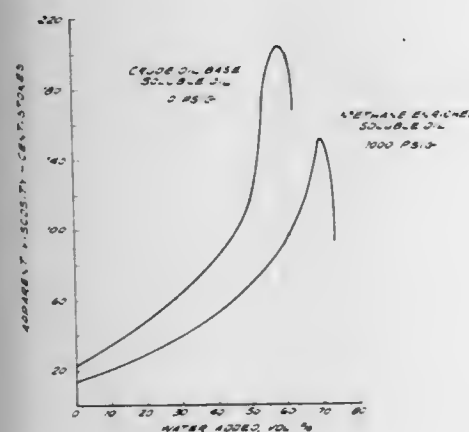
Leroy W. Holm, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Nov. 16, 1972, Ser. No. 307,128

Int. Cl. E21b 43/20

U.S. Cl. 166—274

13 Claims



A miscible flooding process for the recovery of oil from subterranean reservoirs in which a methane-enriched soluble oil is injected into the reservoir through one or more injection wells at a pressure above the bubble point pressure of the composition, and thereafter an aqueous flooding agent is injected to drive the soluble oil towards a spaced production well. The soluble oil comprises an admixture of a liquid hydrocarbon, surface active organic sulfonates, and a stabilizing agent; and is enriched by the addition of methane in an amount not exceeding the saturation composition at reservoir conditions of temperature and pressure. The soluble oil can be substantially anhydrous, or it can contain water present as a water-in-oil microemulsion.

3,830,302

METHOD FOR IMPROVING OIL-WATER RATIOS IN OIL PRODUCING WELLS

Karl D. Dreher, and Robert D. Sydansk, both of Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed June 25, 1973, Ser. No. 373,327

Int. Cl. E21b 33/138, 43/25

U.S. Cl. 166—294

10 Claims

Reduction in the water-oil-ratio of producing wells is obtained by treating the formation in the vicinity of the production well with a combination of an aqueous, organic polyelectrolyte, e.g., partially hydrolyzed, high molecular weight polyacrylamide solution, and a cationic surfactant, e.g., alkyl trimethylammonium halide, dialkyl dimethyl ammonium halide, sulfonium compound or pyridinium compound, or by first treating the well with the aqueous polyelectrolyte solution and then treating the formation with the cationic surfactant. This treatment increases relative permeability to the flow of hydrocarbon while decreasing or at least not increasing the permeability to the flow of water. About 0.01 to about 1 percent by weight of the cationic surfactant is useful for this process.

3,830,303

METHOD OF WELL COMPLETION IN PERMAFROST

Thomas K. Perkins, Dallas, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

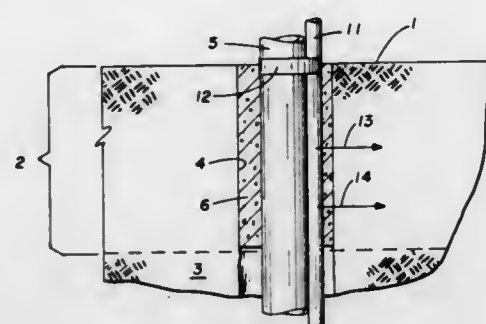
Division of Ser. No. 339,513, March 9, 1973. This application

Feb. 21, 1974, Ser. No. 444,377

Int. Cl. E21b 29/00, 43/119, 47/024

U.S. Cl. 166—297

2 Claims



A method and apparatus for drilling, completing, and/or producing a well through a permafrost zone wherein a liquid such as water is either introduced into a thawed region of the permafrost to prevent compaction of the permafrost or liquid is removed from a thawed region in the permafrost zone to prevent the generation of abnormal pressures on a wellbore and/or apparatus therein should the liquid freeze. A method for completing a well in a permafrost zone wherein a pipe is run into the wellbore adjacent to the casing and the pipe is perforated after placement in the wellbore to provide means for introducing liquid into and removing liquid from the permafrost zone.

3,830,304

WELLHEAD ISOLATION TOOL AND METHOD OF USE THEREOF

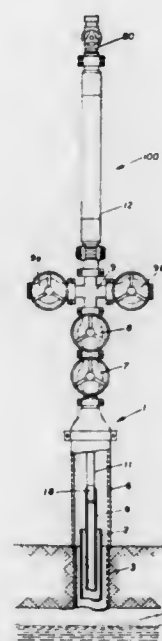
Alonzo E. Cummins, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed June 4, 1973, Ser. No. 366,895

Int. Cl. E21b 43/00, 43/25

U.S. Cl. 166—305 R

11 Claims



Apparatus for isolating a production tubing string in an oil well from the control head whereby pressures higher than the rated pressure of the control head may be applied to the producing formation, utilizes an outer housing with a telescoping inner mandrel and seals therebetween, with said outer housing being adapted for connection to the control head and the inner mandrel being capable of moving into the control head to make a fluidically sealed connection with the production tubing thereby isolating the control head from the higher pressures being applied through the tubing into the formation.

3,830,305

METHOD OF WELL PRODUCTION IN PERMAFROST

Thomas K. Perkins, Dallas, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

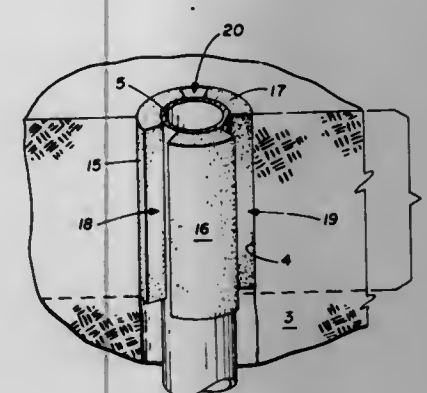
Division of Ser. No. 339,513, March 9, 1973. This application

Feb. 21, 1974, Ser. No. 444,467

Int. Cl. E21b 43/00

U.S. Cl. 166—314

7 Claims



A method and apparatus for drilling, completing, and/or producing a well through a permafrost zone wherein a liquid such as water is either introduced into a thawed region of the permafrost to prevent compaction of the permafrost or liquid is removed from a thawed region in the permafrost zone to prevent the generation of abnormal pressure on a wellbore and/or apparatus therein should the liquid freeze. A method for completing a well in a permafrost zone wherein a pipe is run into the wellbore adjacent to the casing and the pipe is perforated after placement in the wellbore to provide means for introducing liquid into and removing liquid from the permafrost zone.

3,830,306

WELL CONTROL MEANS

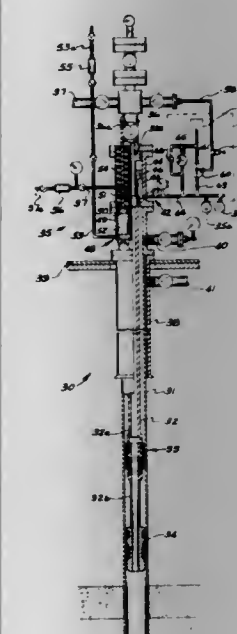
Cicero C. Brown, 8490 Katy Freeway, Houston, Tex. 77024

Filed Dec. 22, 1971, Ser. No. 210,738

Int. Cl. E21b 43/01, 33/035

U.S. Cl. 166—315

50 Claims



Opening and closing of a subsurface safety valve in a well conduit is regulated by predetermined movement of a well conduit supported from an offshore production platform. In one form of the invention, release of support means employed to suspend the conduit in the well permits the conduit to move longitudinally to close the valve and in another embodiment, release of support permits the conduit to rotate to close the valve. Slip joints and/or hydraulic or mechanical tensioning

means are employed for accommodating normal conduit movement to prevent such movement from operating the subsurface valve. Closing of the valves is regulated by heat sensitive, frangible sensors which release the conduit support upon the occurrence of fire, explosion, impact with a vessel, or other damaging occurrence. A master control system is employed for closing subsurface and/or surface valves in all of the wells supported by the platform in the event of closure of any one of the wells. Means may also be provided for closing or opening the subsurface and/or surface valves in one or all of the wells with equipment responsive to a remotely generated command signal.

The subsurface valves may be retrievable and in one embodiment of the invention, dual valves are employed with retrieval of one of the valves closing the remaining valve and replacement of the valve automatically reopening the closed valve. In another embodiment, closure of the subsurface valve also closes the annular area between the conduit and the well casing to provide a packer back-up valve.

3,830,307

FIRE PREVENTION AND/OR SUPPRESSION SYSTEM

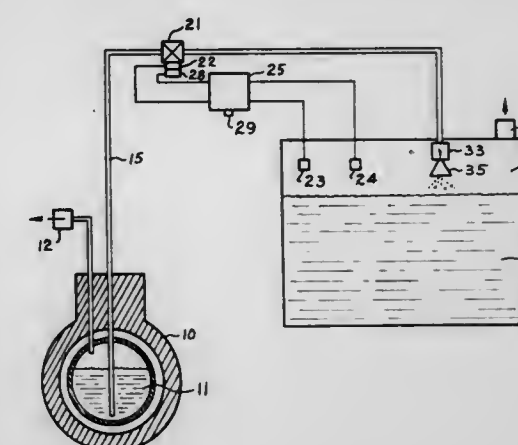
Kenneth R. Bragg, Redondo Beach, and Richard A. Nichols, Santa Monica, both of Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Continuation of Ser. No. 35,994, May 11, 1970, abandoned, which is a continuation-in-part of Ser. No. 711,020, March 6, 1968, Pat. No. 3,590,559. This application Jan. 22, 1973, Ser. No. 325,539

Int. Cl. A62c 1/24

U.S. Cl. 169—9

1 Claim



A fire prevention and/or suppression system in which liquid nitrogen is injected into a space to be protected against fire and/or explosion. The nitrogen vaporizes in the space and mixes with the combustible gases therein to extinguish flame that may be present and/or render the gases non-flammable to prevent their ignition, and also quickly cools the gases and/or other combustible material that may be present to protect against ignition or re-ignition.

3,830,308

FIRE PROTECTION SYSTEM HAVING A CONTINUOUS LOOP PIPING NETWORK

William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.

Filed July 2, 1973, Ser. No. 375,946

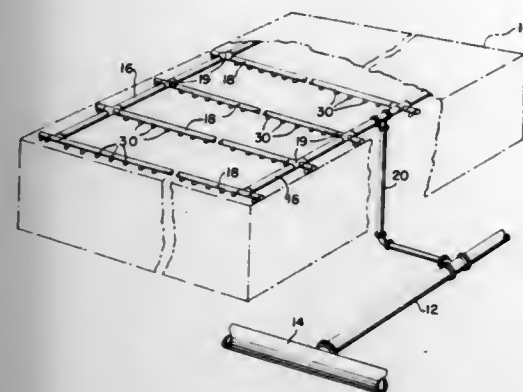
Int. Cl. A62c 35/00

U.S. Cl. 169—16

7 Claims

A fire protection system in which a plurality of spaced parallel branch conduits extend perpendicular to a plurality of spaced parallel cross-main conduits and are connected thereto to form a network adapted to be supported in an elevated position in a substantially horizontal plane in an area to be

protected by fire. A plurality of discharge heads are connected to the branch conduits and are spaced along the lengths



thereof with the heads being normally closed and being adapted to selectively open and discharge extinguishant supplied thereto from both of the cross-main conduits.

3,830,309

FIRE EXTINGUISHING APPARATUS

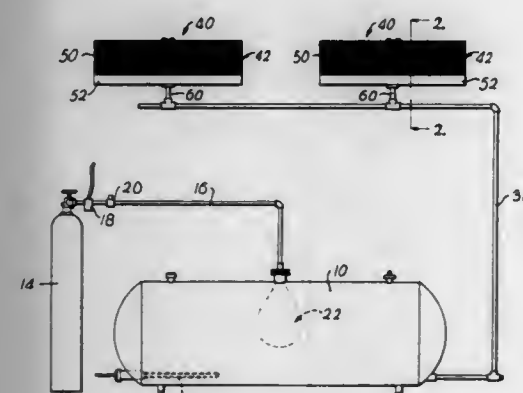
Charles A. Ray, Kansas City, Kans., assignor to Foamex Protection Corporation, Kansas City, Mo.

Filed Nov. 16, 1973, Ser. No. 416,622

Int. Cl. A62c 3/08

U.S. Cl. 169-65

12 Claims



A fire suppression system utilizing high expansion foam has the foam concentrate held in a rupturable container immersed within a water tank so that in response to a burst of pressure introduced into the system at the outbreak of a fire, the container ruptures to charge the water with foam concentrate and to rush the resulting solution to generating hoods from which the foam is discharged to extinguish the fire. Alternative embodiments disclose a flexible bag for the concentrate or a rigidly walled container having a breakable seal that guards the outlets for the concentrate. Special structural features of the generators, including air inlet and foam outlet relationships, the disposition of an air baffle within each generator with respect to its foam outlet, and nozzle positioning cooperate to produce a high foam expansion ratio.

3,830,310

AERATOR DEVICE

Richard R. Williams, Ithaca, Nebr. 68033

Filed May 11, 1973, Ser. No. 359,485

Int. Cl. A01b 45/02

U.S. Cl. 172-22

9 Claims

An aerator device for coring or punching holes in a turf surface having a guide tube with an open end and a plugged end, an inner tube slidably mounted in the guide tube, a rod having one end slidably mounted in the inner tube and having a coring tool secured to the other end, a weight disposed in the guide tube plugged end, and a spring interconnecting the rod

and inner tube for biasing the rod in a first position, wherein the application of a downward force on the guide tube will cause the rod to slide from a first position to a second position



in the inner tube to allow the tool to project outwardly of the inner tube and the spring, upon release of the downward force causes the rod to return to its first position.

3,830,311

UNIVERSAL TOOL CARRIER

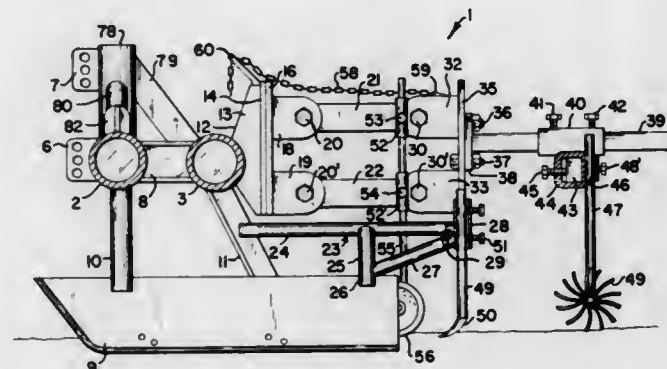
Frank J. Bryson, Rural Rt. 2, Littlefield, Tex. 79339

Filed Apr. 27, 1972, Ser. No. 248,054

Int. Cl. A01b 49/02, 5/00

U.S. Cl. 172-153

1 Claim



The invention includes a frame structure having ground wheels for supporting the same and adapted to be attached to a tractor and pulled across a field. The frame has a plurality of members or boxes spaced laterally of the frame and to which may be attached planting equipment for various types of seeds, fertilizing equipment, tillage tools, herbicides, cultivating equipment and the like merely by apparatus which is quickly and easily attached and detached from the carrier boxes. The apparatus also includes marking devices whereby the field may be marked before planting or it may be marked while planting so that the rows will be equally spaced apart to provide for cultivation and other equipment. Hydraulic power means is provided for raising the planting and cultivating equipment or other tools out of the ground and also for raising and lowering the marking attachments, the power means being operatorally connected to the tractor. Means is provided for limiting the depth of the implements with respect to the surface of the ground.

3,830,312

PLOW

Ernest B. Brandly, Rt. 3 Box 90, Liberty, Ind. 46011

Filed Mar. 7, 1973, Ser. No. 338,891

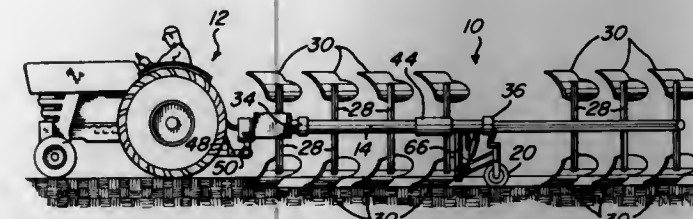
Int. Cl. A01b 3/28, 69/00

U.S. Cl. 172-225

6 Claims

A semi-mounted roll over plow which includes an auxiliary frame rotatably mounted on a main frame with pairs of plow bottoms mounted on opposite sides of the auxiliary frame. The auxiliary frame includes forward and rear branches extending angularly with respect to the main frame in parallel but offset

relationship to each other. A ground engaging wheel is mounted at approximately the center of the plow and can be actuated to both raise and lower the main frame to provide



clearance to roll the auxiliary frame about the main frame and pivoted in response to turning movement of the semi-mounting hitch to cause the wheel to pivot so that the plow tracks a tractor to which it is attached during turns.

3,830,313

FOLDING DISC HARROW

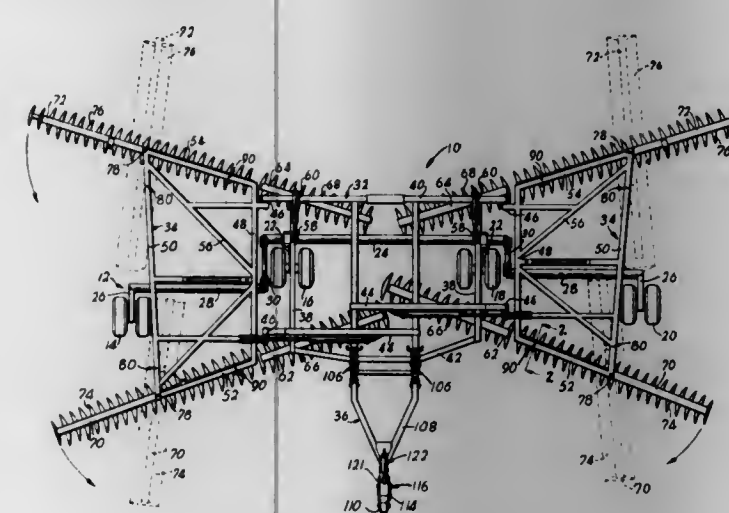
Glenn E. Frager, and Bill J. Pfenniger, both of Hutchinson, Kans., assignors to Krause Plow Corporation, Hutchinson, Kans.

Filed May 21, 1973, Ser. No. 361,985

Int. Cl. A01b 73/00, 51/00, 35/28

U.S. Cl. 172-581

3 Claims



A massive disc harrow, having wing sections which swing to upright positions for transport, has disc gangs which would normally extend substantially upwardly beyond the raised wing sections but for the ability of the gangs to be swung to substantially horizontal positions parallel to the path of travel of the harrow. When the wing sections are spread and the gangs are to be lowered, the rear of the harrow is swung toward the ground first until the rear gangs are grounded, whereupon the front of the harrow is swung downwardly about the fulcrum between the rear gangs and the ground in order to lower the front gangs. The process is reversed when the gangs are to be raised from the ground, with the front of the harrow lifting first, followed by the rear. A special articulated tongue facilitates such rocking action during raising and lowering.

3,830,314

FLEXIBLE HARROWS

William Aitkenhead, Hollin Hall, Greenfield near Oldham, England

Filed June 15, 1972, Ser. No. 263,181

Claims priority, application Great Britain, June 26, 1971, 30057/71

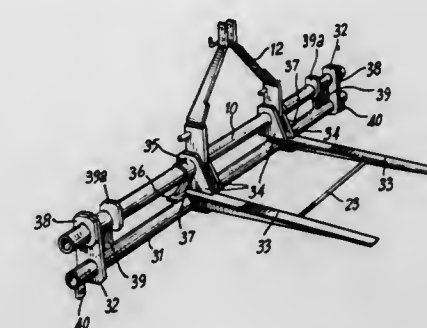
Int. Cl. A01b 15/14, 23/04

U.S. Cl. 172-776

6 Claims

A harrow drawing and transporting device attachable to a three point linkage at the rear of a tractor comprising a com-

pound beam of two parallel single beams and having rotatable brackets so that by pivoting at the brackets the beam can be compounded in the vertical plane for harrow transporting or the horizontal plane for harrow drawing. The brackets extend to form fork arms which are disposed vertically when the har-



rows are being drawn from the device and are disposed horizontally to permit the harrows to be transported by the fork arms. The fork arms can be manipulated in the horizontal plane to make them ground contacting or ground clearing by operation of the three-point linkage.

3,830,315

APPARATUS FOR IMPLACEMENT OF SUBTERRANEAN SCREW ANCHORS

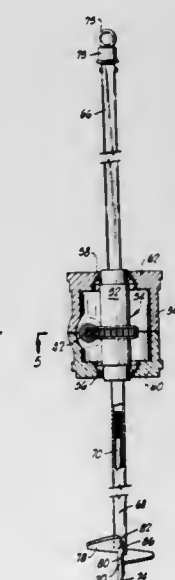
Charles E. Love, Del City, Okla., assignor to Sandra Lee Wiley and Nellie Kirk, both of Del City, Okla.

Filed Feb. 5, 1973, Ser. No. 329,360

Int. Cl. E02d 7/22

U.S. Cl. 173-26

7 Claims



Apparatus for locating a helical screw anchor in the earth comprising, a pointed helical screw anchor having an interrupted helical blade thereon terminating at a heel on the upper end of the blade, and further having an elongated shank extending upwardly from the blade; a sleeve extending over the shank and having a key at the lower end thereof laterally engageable with the heel of the blade to rotate the screw anchor when such sleeve is rotated; a polygonally cross sectioned rod secured coaxially to the upper end of the sleeve; a rotary kelly driving element engaging said polygonally cross sectioned rod for driving the rod in rotation; a derrick supporting the kelly driving element and the sleeve; pulley and winch means on the derrick for applying downward force on the sleeve and anchor during rotation of the kelly; and means mounted on the derrick for driving the kelly in rotation.

3,830,316

IMPACT ROTARY WRENCH

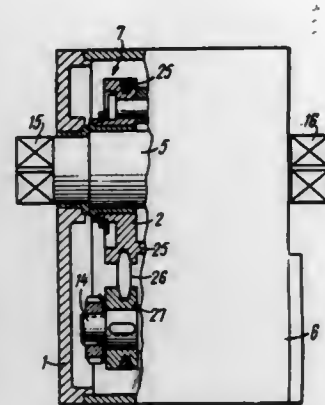
Vladimir Ruvimovich Volovich, Liteing prospekt 9 kv. 36; Anatoly Isaakovich Rabinov, Novoherkassky prospekt 68 kv. 50; Vladimir Vasilievich Rutsky, ulitsa Kosinova 7 kv. 10, and Valery Ivanovich Jutkevich, ulitsa 7 kv. 10, all of Leningrad, U.S.S.R.

Filed Mar. 10, 1972, Ser. No. 233,456

Int. Cl. B25d 15/00

U.S. Cl. 173-93

8 Claims



The tool is provided with a spindle-anvil rotating on supports in a housing, and a casing resting with its both end faces on said spindle-anvil. Mounted on the casing is a driving member used for imparting a motion to a hammer mounted in the housing and imparting an operating rotary motion to the spindle-anvil.

3,830,317

WELL DRILLING IN PERMAFROST

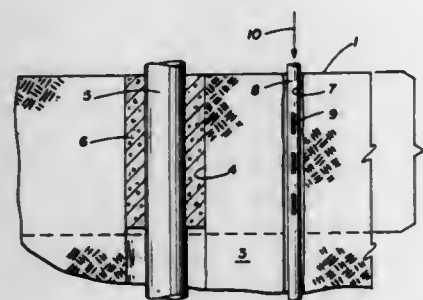
Thomas K. Perkins, Dallas, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Division of Ser. No. 339,513, March 9, 1973. This application Feb. 21, 1974, Ser. No. 444,266

Int. Cl. E21b 7/00

U.S. Cl. 175-72

5 Claims



A method and apparatus for in completing, and/or producing a well through a permafrost zone wherein a liquid such as water is either introduced into a thawed region of the permafrost to prevent compaction of the permafrost or liquid is removed from a thawed region in the permafrost zone to prevent the generation of abnormal pressures on a wellbore and/or apparatus therein should the liquid freeze. A method for completing a well in a permafrost zone wherein a pipe is run into the wellbore adjacent to the casing and the pipe is perforated after placement in the wellbore to provide means for introducing liquid into and removing liquid from the permafrost zone.

3,830,318

EXCAVATING MACHINE

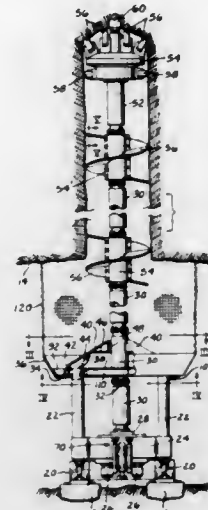
Donald Wayne Busby, Denver, and Joseph L. Busby, Jr., Aurora, both of Colo., assignors to Subterranean Tools Inc., Commerce City, Colo.

Filed Nov. 17, 1972, Ser. No. 307,649

Int. Cl. E21b 3/02, 19/08, 17/10

U.S. Cl. 175-122

17 Claims



An excavating machine, particularly for excavating raises in the upward direction from an underground location in which the machine has a base with a pivot frame and with guide columns upstanding therefrom and a gear box slidable on the columns and having an upwardly facing rotatable chuck therein which is driven by a gear train in the gear box. The chuck receives the lower end of a sectioned string of pipe, the upper end of which carries a drilling and reaming head. Fluid cylinders between the base and gear box drive the gear box in the upward direction to perform excavating operations. A hopper is provided on the upper end of the machine to receive the material dislodged by the drilling and reaming head. An arrangement is provided for supporting the drilling and reaming head and the pipe dependent therefrom while the gear box and chuck are retracted and a new length of pipe is put in place.

3,830,319

DRILLING APPARATUS

Franciscus Theodorus Maria van der Wijden, Haarlem, Netherlands, assignor to Conrad-Stork B.V., Haarlem, Netherlands

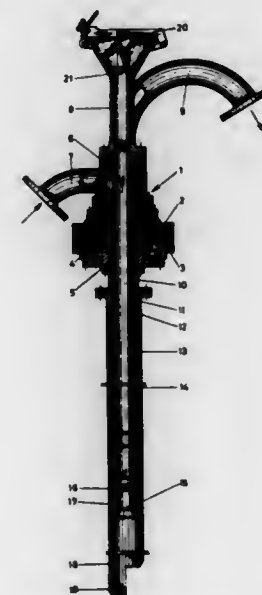
Filed Feb. 23, 1973, Ser. No. 335,105

Claims priority, application Netherlands, May 16, 1972, 7206595

Int. Cl. E21b 25/00, 9/20

U.S. Cl. 175-215

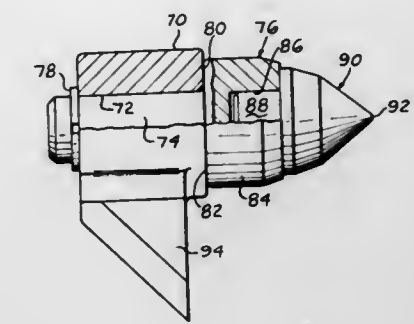
9 Claims



A rotary drilling apparatus in which drilled cores are continuously transported to the surface by means of a flushing

fluid. The apparatus comprises a rotatable inner pipe or pipe string provided near its bottom end with a cutting member. Spray openings are formed through the wall of the inner pipe near the cutting member and the pipe is connected at its top end with a stationary discharge tube for the flushing fluid carrying the cores. One or more extension pipes are adapted to be coupled to the inner pipe for forming the pipe string and an outer pipe or pipe string extends from the surface and surrounds the inner pipe (or extension pipes) with clearance. The outer pipe communicates with a supply of flushing fluid, and the outer pipe or pipe string extends over the full length of the inner pipe or pipe string and is drivingly connected with a driving means. The inner pipe is connected with the outer pipe, so that the inner pipe is carried into rotation by the outer pipe upon rotation thereof, a seal being provided between the two pipes near the lower end below the spray openings formed in the inner pipe.

the bit is rotatable and which block is configured in such a manner that it can be welded to various types of holders so



3,830,320

DEVICE FOR TAKING SOIL-SAMPLES OF A CORER

Franciscus Theodorus Maris Van Der Wijden, Haarlem, Netherlands, assignor to Conrad-Stork B.V., Haarlem, Netherlands

Filed Feb. 23, 1973, Ser. No. 335,106

Claims priority, application Netherlands, May 14, 1972, 7208120

Int. Cl. E21b 25/00, 49/02

U.S. Cl. 175-238

4 Claims



A device for taking samples of soil by means of a corer, comprising a pipe adapted to be driven in the soil, the corer being releasably locked in the pipe. The lower part of the pipe is provided with closing members adapted to be actuated from the surface, and in the open position, the closing members leave the lower part of the pipe free for passing the corer therethrough whereas in the closed position the closing members completely close the pipe. The corer is constructed as a stationary piston with a sleeve encompassing the piston and capable of being driven along the piston to a position in which the sleeve extends beyond the lower end of the pipe. In one embodiment, the closing members are formed as two plates with half circular positions pivoted to the pipe at diametrically opposed points near a corner between the straight diametral edge and the curved peripheral edge of the plates, such that in the closed position the plates abut with their straight edges and thus together form an abutment for the closed position.

that a plurality of blocks and bits mounted on a holder make an excavating tool of selected style and size.

3,830,322

POSTAL SCALE RULER

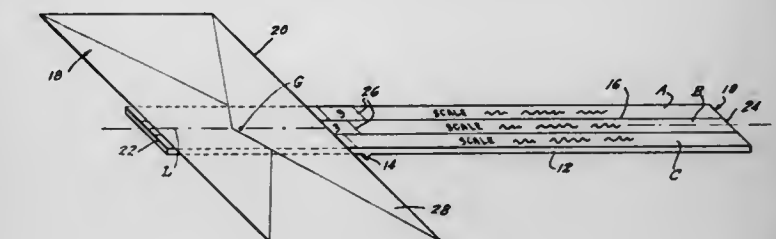
Archie W. Mills, 2941 S. Michigan Ave., Chicago, Ill. 60616

Continuation-in-part of Ser. No. 60,331, Aug. 3, 1970, abandoned. This application Sept. 29, 1971, Ser. No. 184,805

Int. Cl. G01g 1/18

U.S. Cl. 177-246

5 Claims



This invention provides a device for determining the postage for letters and the like. The device comprises an elongated flat beam, a transverse fulcrum positioned on one surface of the beam, the fulcrum being positioned at a distance less than one half the length of the beam from one end of the beam; and a weight indicating scale on the opposite surface of the beam, the scale being extended longitudinally from the end of the beam along the corresponding shorter portion of the beam, whereby when a letter with one of its longitudinal edges forward on the scale is slid flatwise along the surface of the beam with the center of gravity of the letter at least approximately on the longitudinal axis of the beam, the beam is balanced when the edge of the letter is positioned on an area of the scale corresponding to the weight of the letter.

3,830,323

MOTOR SLEIGH DRIVE TRACK ARRANGEMENT

Heikki Arvid Vuolevi, Oulu, Finland, assignor to Polar Metal Plast, Ravanlempi, Finland

Filed Aug. 1, 1972, Ser. No. 276,938

Claims priority, application Finland, Aug. 13, 1971, 2267/71

Int. Cl. B62m 27/02

U.S. Cl. 180-5 R

4 Claims

A motor sleigh has at its rear end an endless propulsion track which, in order to provide a greater area of contact with the terrain over which the sleigh travels, is extended further rearwardly than conventional propulsion tracks. The rearmost portion of the track is guided around rear guide rollers carried on the rear ends of leaf springs extending rearwardly from the

3,830,321

EXCAVATING TOOL AND A BIT FOR USE THEREWITH

Robert J. McKenry, Windber, and Michael A. College, Everett, both of Pa., assignors to Kennametal Inc., Latrobe, Pa.

Filed Feb. 20, 1973, Ser. No. 333,869

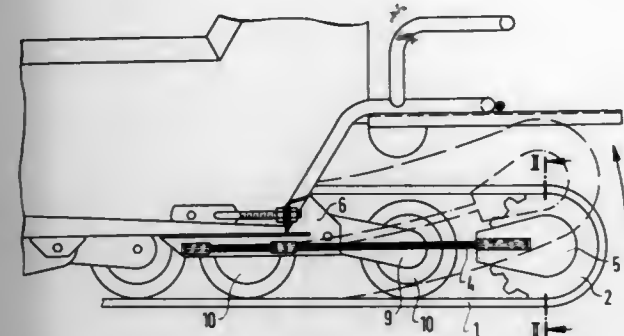
Int. Cl. E21b 9/12, 9/18

U.S. Cl. 175-332

5 Claims

An excavating tool and a bit for use therewith in which the bit is of small dimensions and is mounted in a block in which

sleigh body, and these springs can flex to allow upward deflection of the rearmost portion of the track as it travels over a rise



in the terrain. Further guide rollers located forwardly of the rear guide rollers are pivotably mounted and spring biased downwardly against the lower run of the track.

3,830,324

TRANSPORTER FOR HEAVY LOADS

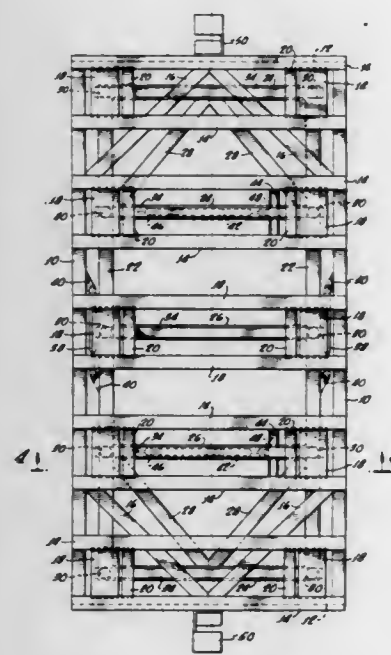
Henry B. Chambers, Santa Inez, Calif., assignor to Hydranautics, Goleta, Calif.

Filed Aug. 20, 1973, Ser. No. 389,874

Int. Cl. B62d 57/02

U.S. Cl. 180—8 C

7 Claims



A transporter for heavy loads has an upper pallet with peripheral supporting rails, and a sub-structure inside and spaced apart from the peripheral rails of the upper pallet. Vertical jacks between the substructure and the upper pallet raise or lower these sequentially, and means such as hydraulic cylinders are arranged to provide relative longitudinal or lateral movement between the upper pallet and the sub-structure when one of these is raised from the ground.

3,830,325

VEHICLE AND VEHICLE CONTROL SYSTEM

James H. Tarter, Royal Oak, Mich., assignor to Continental Oil Company, Ponca City, Okla.

Filed Jan. 2, 1973, Ser. No. 320,333

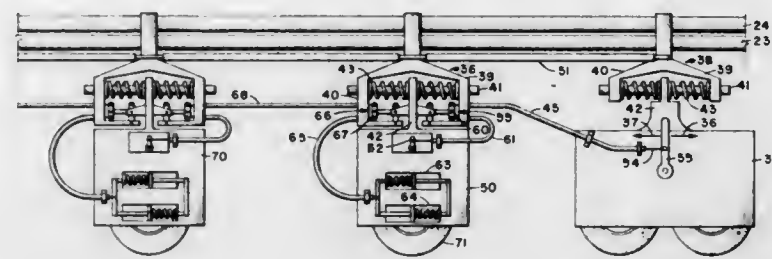
Int. Cl. B60d 5/00

U.S. Cl. 180—14 A

10 Claims

A speed and directional control system for a plurality of interconnected carts having a control vehicle and one or more powered vehicles and including a linkage means for interconnecting the control vehicle to the powered vehicles; yieldable means intercoupling the vehicles and the linkage means to

permit biased movement of the vehicles along the axis of the linkage means; load sensing means being interconnected at each of the vehicles between its yieldable means and the vehicle to provide an output proportional to the biased movement of the vehicle along the direction of movement of the vehicle with respect to a centered position. A command means on the control vehicle generates commands which indicate the



direction of movement of each of the vehicles and which indicate the rate of the movement. Means are provided for communicating the direction and the rate commands to each of the powered vehicles. Means for coupling the load sensing means output to the rate command generate a combined signal which is applied to each of the powered carts for controlling the speed or rate of movement of the carts.

3,830,326

GAS TURBINE AUTOMOTIVE MACHINE

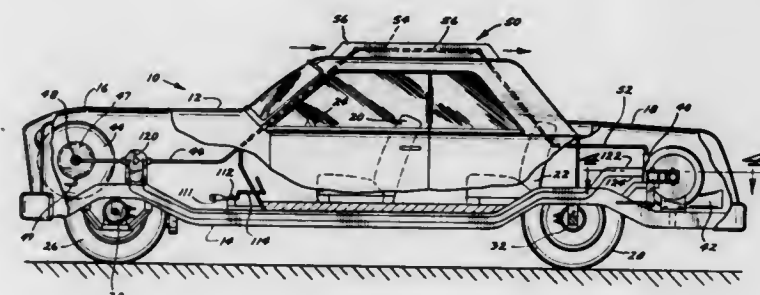
Raymond E. Hartung, 7381 Memory Ln., Fridley, Minn. 55432

Filed Dec. 13, 1972, Ser. No. 314,680

Int. Cl. B60k 17/02, 3/04

U.S. Cl. 180—66 B

8 Claims



A self-propelled machine includes a turbine engine driving fluid pumps which in turn can selectively either drive or impede the drive of traction wheels of the machine. Power to the turbine comes from the phase change and expansion of liquefied gas which serves as the energy transfer agent. The rapid expansion of the gas is accomplished by its circulation through a radiator-like heat exchange structure upon which the ambient air impinges as the machine moves through the atmosphere. The exhaust from the machine is only the gaseous form of the original liquid fuel which can be liquefied air, for example. A hydraulic clutch plate is driven by the turbine and is moved selectively toward first or second matching clutch plates to tend to drive one or the other of two fluid pumps to provide drive forces in either forward or reverse direction to the fluid traction wheel motors. Heat generated by action of the hydraulic clutch, and heat from other sources can be applied to the energy transfer agent to increase the rate of phase change and expansion of the liquefied gas.

3,830,327

HEADLIGHT CONTROL SYSTEM

Jesse R. Hollins, 40 Stoner Ave., Great Neck, N.Y. 11021

Filed Nov. 28, 1972, Ser. No. 309,992

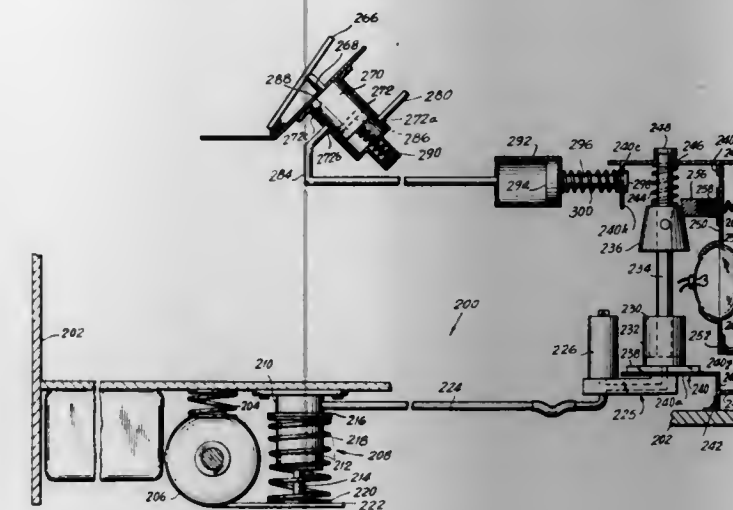
Int. Cl. B60q 1/10

U.S. Cl. 180—82 R

6 Claims

A system for controlling the tilting of the headlights on a vehicle. In one embodiment the tilting of the headlights is ad-

justed to compensate for sagging of the rear of the vehicle. In another embodiment means is provided for controlling the tilt-



ing of single filament headlights so that a "high tilt" or "low tilt" beam aim can be selectively achieved.

3,830,328

PARKING BRAKE APPLY MECHANISM

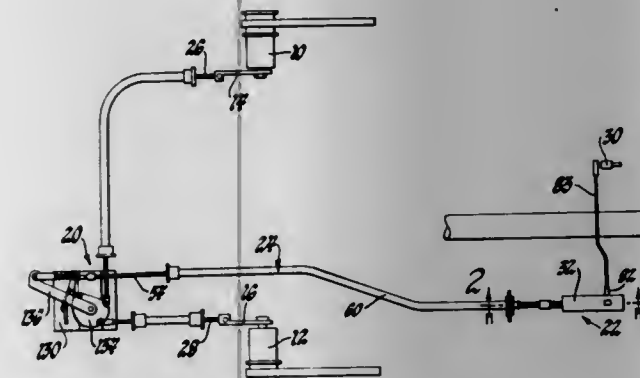
Ernest D. Schaefer, Xenia, and Thomas D. Naismith, Dayton, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed June 29, 1973, Ser. No. 375,110

Int. Cl. B60t 7/10

U.S. Cl. 180—82 B

4 Claims



The parking brake apply mechanism includes a handle assembly slidably mounted on the motor vehicle and attached to a parking brake actuator which applies the parking brake upon movement of the handle assembly in one direction from a normal retracted position and which releases the parking brake upon movement of the handle assembly in the other direction from the retracted position. A toggle link pivoted to the stationary member is engaged by a plunger operatively connected to the ignition lock to prevent movement of the ignition lock to locked position. Upon movement of the handle assembly in the brake applying direction, the toggle link is pivoted out of engagement of the plunger by a cam surface on the handle assembly to permit movement of the ignition lock to locked position. A shoulder on the handle assembly engages the plunger when in its position corresponding to the ignition lock being locked to prevent the handle assembly from being moved from the retracted position in a direction which releases the parking brake. Movement of the ignition lock to the unlocked position moves the plunger to then permit movement of the handle assembly in the direction to release the brake.

3,830,329

CRASH SENSOR

Sizuo Sumida, Hiroshima, Japan, assignor to Toyo Kogyo Company Limited, Hiroshima, Japan

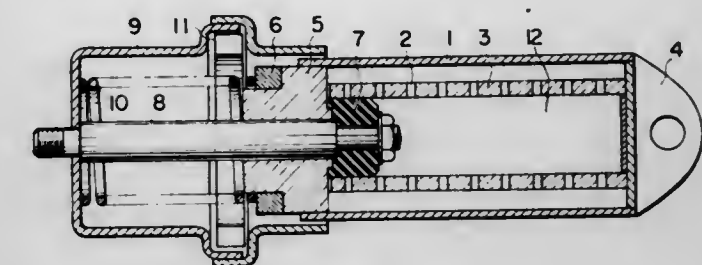
Filed May 8, 1972, Ser. No. 251,209

Claims priority, application Japan, May 10, 1971, 46-37234

Int. Cl. B60r 21/08

U.S. Cl. 180—91

7 Claims



The crash sensor has a damper mounted to the vehicle body or bumper for absorbing the energy upon collision. The damper has a cylinder and a piston, which sealingly enclose various gas or liquid for effecting damping. The means for sensing the collision has a coil and a magnet, which are connected to the cylinder and piston of said damper. When the vehicle collides, the crash, attenuated by the damper upon collision, is indicated by means of a voltage produced by the coil and magnet with the strength of the crash indicated by the value of the voltage which is proportional to the speed at which the coil crosses the magnetic flux of the magnet as either the coil or magnet moves. When the strength of the crash, that is the voltage exceeds a predetermined value, a safety device such as, for example, ON-OFF operation of an air bag ignition circuit is operated.

3,830,330

BRAKE SYSTEM FOR MOTOR VEHICLES

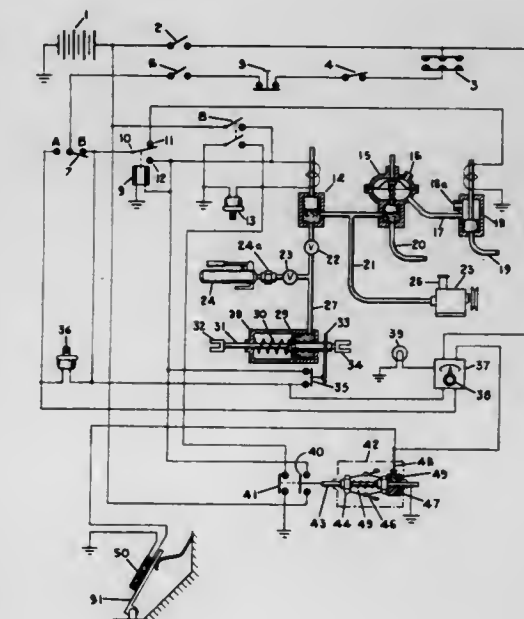
John G. Fontaine, Fort Lauderdale, Fla., assignor to Fail Safe Brake Corporation, Ft. Lauderdale, Fla.

Division of Ser. No. 135,193, April 19, 1971, abandoned. This application May 31, 1973, Ser. No. 365,539

Int. Cl. B60t 7/14; B60t 7/12

U.S. Cl. 180—101

3 Claims



An Automatic Parking or Emergency Brake system for motor vehicles comprising means by which the parking, or emergency brakes of a motor vehicle will become applied automatically when the engine of the vehicle is shut off or stalls, and by which the brakes will become released automatically and immediately when the engine is started, and then only when the driver's seat is occupied and pressure exerted on the accelerator pedal. The described means includes also an ar-

rangement by which, when the vehicle is halted at crossings and elsewhere on either level or hilly roadway, the parking or emergency brakes will be automatically applied within about three seconds after the vehicle comes to a complete stop and thus creeping of the vehicle is prevented, and this is particularly desirable when it is one of the automatic transmission type.

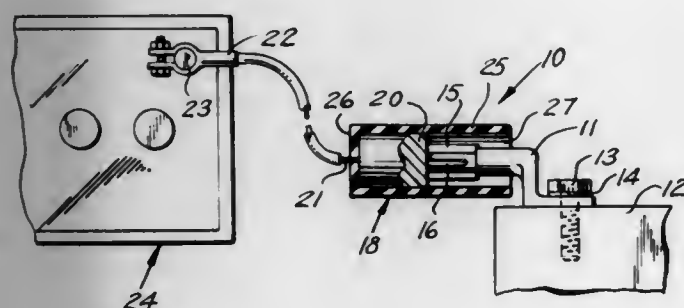
3,830,331

AUTOMOTIVE INERTIA BATTERY DISCONNECT DEVICE

James Thomas Piazza, 1377 Cain Rd., Angola, N.Y. 14046
Filed Mar. 8, 1973, Ser. No. 339,172
Int. Cl. B60r 21/00

U.S. Cl. 180-103

4 Claims



A collision actuated circuit breaking device for automobiles and the like. This device consists primarily of a slotted male plug which secured to the automobile engine block, the plug being received within a female sleeve extending from a lead cylinder carrying an electric cable, the combination serving to separate so as to break an electrical circuit when collision of the vehicle occurs.

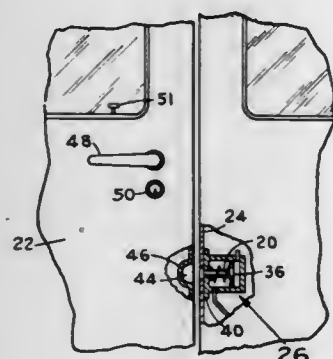
3,830,332

AUTOMATIC DOOR LOCK

John G. Fontaine, Fort Lauderdale, Fla., assignor to Fail Safe Brake Corporation, Ft. Lauderdale, Fla.
Filed Dec. 1, 1972, Ser. No. 311,305
Int. Cl. B60r 25/00

U.S. Cl. 180-113

6 Claims



An automatic door lock for use in an automotive vehicle in which an electrical control system operated by power supplied from the battery of the vehicle activates an actuator which is responsive to the control system, and the actuator in turn operates a locking device for locking and unlocking a door of the vehicle.

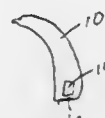
3,830,333

METAL ATTENUATOR GRILLE FOR MICROPHONE

William F. Knauert, Yonkers, N.Y., assignor to Gould Inc., Chicago, Ill.
Filed July 10, 1972, Ser. No. 270,080
Int. Cl. H04r 1/28, 25/00

U.S. Cl. 181-31 B

4 Claims



A metal attenuator grille for a microphone designed to obviate variations in the attenuation curve owing to environmental changes, comprising a solid metal member having a central opening and a plurality of spaced peripheral openings; the central opening, but not the peripheral openings, may be covered by a grille.

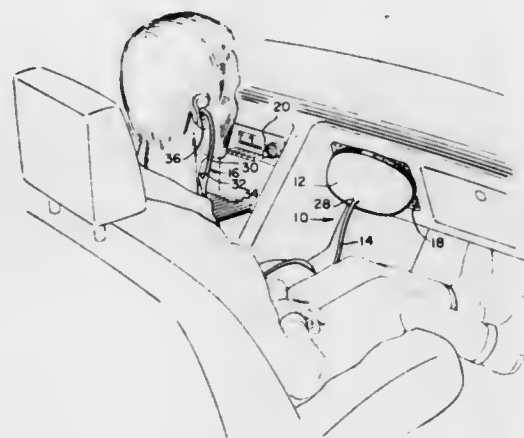
3,830,334

SPEAKER ATTACHMENT FOR AUTOMOBILE RADIOS AND THE LIKE

Pasquale V. Costa, 6/35 Baron Park Ln., Burlington, Mass. 01803
Filed Feb. 5, 1973, Ser. No. 329,403
Int. Cl. A61b 7/02; G10k 13/00; H04r 1/28

U.S. Cl. 181-31 B

4 Claims



An attachment is provided to form a vibrating air column coupling between the speaker of a radio or the like and the ear of a listener. The device is particularly useful for auto radios and comprises a pickup cup adapted to be attached to the face of the speaker and provided with an elongated flexible tube connected at one end to the cup and at the opposite end to one or a pair of ear pieces worn by the listener. Means are provided for detachably connecting the cup to the speaker grill.

3,830,335

NOISE SUPPRESSOR

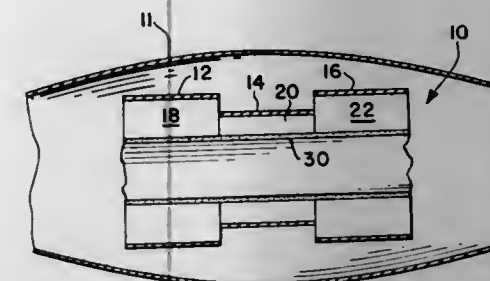
William E. Zorumski, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed May 14, 1973, Ser. No. 359,957
Int. Cl. F01n 1/06, 1/08

U.S. Cl. 181-33 F

11 Claims

A tuned noise suppressor apparatus to be incorporated in the inlet and exhaust ducts of turbofan engines and the like.

The apparatus utilizes sound wave absorption, reflection, and incompatibility for achieving high noise reduction in the short



distance available. In addition, the apparatus has a duct of uniform inner diameter such that the duct flow is neither interrupted nor blocked in any manner.

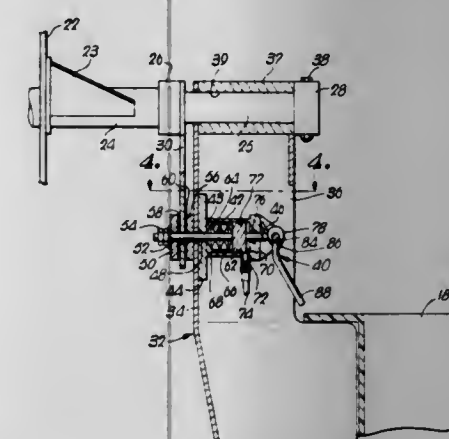
3,830,336

PERSONNEL BUCKET BRAKE FOR HYDRAULIC CRANES

James J. Reimbold, Jr., Overland Park, Kans., and Willard C. Kamberg, Pleasant Hill, Mo., assignors to A. B. Chance Company, Centralia, Mo.
Filed Aug. 22, 1973, Ser. No. 390,611
Int. Cl. B66f 11/04; F16d 59/02

U.S. Cl. 182-2

26 Claims



A fluid-pressure responsive brake and actuation system therefor is disclosed which is operable to selectively brake the movement of a pivotally mounted, gravity leveled personnel bucket positioned atop an extensible boom of a crane or aerial device. The brake comprises a closed housing mounted on the bucket with a reciprocable rod centrally disposed within the housing and extending through the bucket wall into registry with an arcuate slot provided in an adjacent, independent braking plate fixably secured to the bucket supporting, shiftable section of the boom. A piston is journaled on the rod within the housing and a brake pad is externally attached to the rod at a point proximal to the braking plate. A high-bias, low-deflection spring within the housing on one side of the piston serves to bias the pad connected thereto into a normal frictional locking position with the braking plate. The opposed face of the piston communicates with a fluid-pressure chamber which in turn is joined by duct means to a two-way pressure-responsive shuttle valve interposed within the overall hydraulic system for raising and lowering the boom. In this manner the biasing spring acts to preclude pivotal movement of the bucket when the boom is stationary and the hydraulic system is at relatively low pressure. However, when the boom pivoting controls are actuated to move the boom, increased pressure against the shuttle valve opens the latter to direct pressurized motive fluid to the brake chamber to thereby move the rod in opposition to the spring. This serves to release the pad from braking contact with the adjacent plate, thus allowing the bucket to pivot under the influence of gravity to maintain the latter in a level position during raising or lowering of the boom.

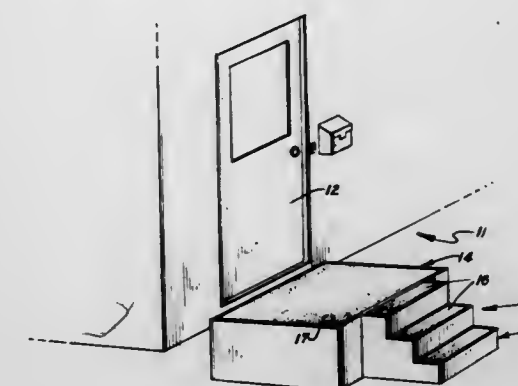
3,830,337

PORTABLE ENTRANCE UNIT FOR MOBILE HOMES

George Mack Todd, Rt. 3, Lake City, S.C. 29560
Filed Oct. 9, 1973, Ser. No. 404,202
Int. Cl. E06c 7/00

U.S. Cl. 182-46

6 Claims



A step and porch platform unit for mobile homes is molded from fiberglass reinforced plastics material in lightweight form and with durability of construction. The step treads and platform surface have inserts of non-slip material which is attractive in appearance. The entire unit, when upended, may be placed inside of a mobile home during transportation.

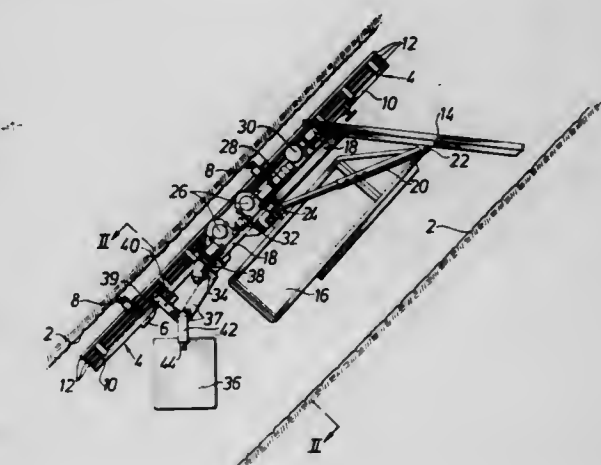
3,830,338

LIFT FOR RAISE DRIVING APPARATUS

Torbjorn Svensson, Skelleftea, Sweden, assignor to Linden-Alimak AB, Skelleftea, Sweden
Filed Aug. 22, 1972, Ser. No. 282,812
Claims priority, application Sweden, Sept. 7, 1971, 11343/71

Int. Cl. E04q 3/16; E21d 3/00; E21f 13/04
U.S. Cl. 182-82

5 Claims



The invention relates to a lift assembly carrying a drift mining equipment for driving raises and the like in rock. The equipment comprises a fluid motor unit for moving said equipment along a guide track composed of a plurality of separate sections which are adapted to be spliced on successively as the raise driving work proceeds, and to be secured, each in its turn, to the wall of the raise from a platform or the like forming part of the drift mining equipment.

A drive unit comprising an internal combustion engine assembly and fluid pumping means operated by said engine is suspended so as to be pivotable about a substantially horizontal axis extending transversely of said track, and is associated with the drift mining equipment to be moved together with the latter along the track in a position such that the internal combustion engine assembly will function independently of the inclination of the raise relative to the horizontal plane, said fluid pumping means being interconnected with the fluid motor unit by flexible fluid conduits.

The invention eliminates the need of power supply lines extending along the raise for propulsion of the drift mining equipment along the track.

3,830,339 ACCESS EQUIPMENT

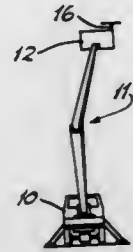
Denis Henry Ashworth, Dudley, England, assignor to Simon Engineering Dudley Limited, Stockport, Cheshire, England
Filed June 6, 1973, Ser. No. 367,492

Claims priority, application Great Britain, June 30, 1972, 30632/72

Int. Cl. B66f 11/04

U.S. Cl. 182—129

12 Claims



Access equipment of the kind comprising a boom assembly pivotally attached at one end to a supporting structure and having a cage or working platform at its other end, the boom assembly being movable relative to the supporting structure to raise the cage or platform to an elevated working position, and comprising at least one stretcher supporting member removably attached to a corner of the cage or platform and rotatable thereon thus to receive a stretcher from any direction without angular adjustment of the cage or platform. Two or more stretcher supporting members may be provided, each mounted at one corner of the cage or platform such that they may be aligned one with another whereby one or more stretchers may be maneuvered on to a first of said members and slidably transferred to another of said members so that a further stretcher or stretchers can then be received by said first member.

3,830,340 CLAMPING STAND

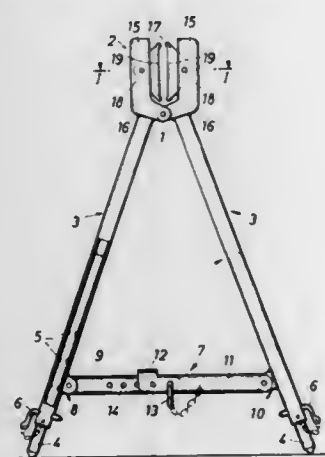
Walter Schaffel, Burgstallerstr. 7, 8150 Holzkirchen, Germany
Filed Apr. 13, 1973, Ser. No. 350,781

Claims priority, application Germany, Apr. 14, 1972, 2218233

Int. Cl. F16m 11/00

U.S. Cl. 182—226

9 Claims



A clamping stand, particularly for forming assembly stands or temporary platforms or the like, characterised by two levers connected in a pincer or scissor-like manner, the lower arm being in the form of a base and the other upper arm supporting a clamping jaw pivotable about a joint parallel to the joint, the two clamping jaws being clampable by a bending prop which connects the two bases and can be locked in an extended position.

3,830,341 LUBRICATION SYSTEM FOR A MOTOR COMPRESSOR UNIT

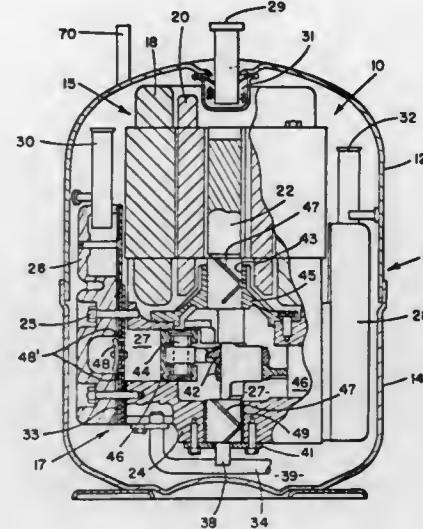
Stanton Davies, and Tadek M. Kropiwnicki, both of Syracuse, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Nov. 24, 1972, Ser. No. 309,393

Int. Cl. F01m 1/00; F04b 39/02

U.S. Cl. 184—6.16

3 Claims



A lubrication system for a motor-compressor unit, including a crankshaft suitably connected to the rotor of said compressor motor for rotation thereby. The crankshaft includes an eccentric bore provided therethrough for the passage of oil from a reservoir to the bearings journaling the crankshaft. A suitable opening is provided for communicating a first portion of the eccentric bore with a space remote from the bearings. Foreign particles entrained in the lubricating oil are collected in the first portion of the eccentric bore. The foreign particles pass from the first portion of the bore through the opening to the space remote from the bearings to prevent the foreign particles from being provided to the bearings.

3,830,342 MATERIAL HANDLING VEHICLES

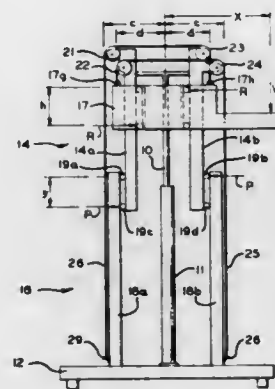
Ralph E. Allen, Greene, N.Y., assignor to The Raymond Corporation, Greene, N.Y.

Filed Jan. 2, 1973, Ser. No. 320,670

Int. Cl. B66b 7/06; B66f 9/06

U.S. Cl. 187—9

36 Claims



Lateral bending moments which lift truck mast sections must oppose when loads are shifted laterally are reduced by disclosed chain-sprocket arrangements wherein a load carriage or other upper mast section is suspended from chains which extend laterally across the truck via sprockets carried by an intermediate mast section and which are tied to a lower mast section. One embodiment is disclosed which also reduces the bending moment by selectively relieving one of a pair of spaced apart lift cylinders to shift the effective support point. Application of the chain arrangement to various exemplary types of mast structures is illustrated.

3,830,343 DISC BRAKE WITH ADJUSTABLE CAM OPERATOR AND THRUST DISTRIBUTER

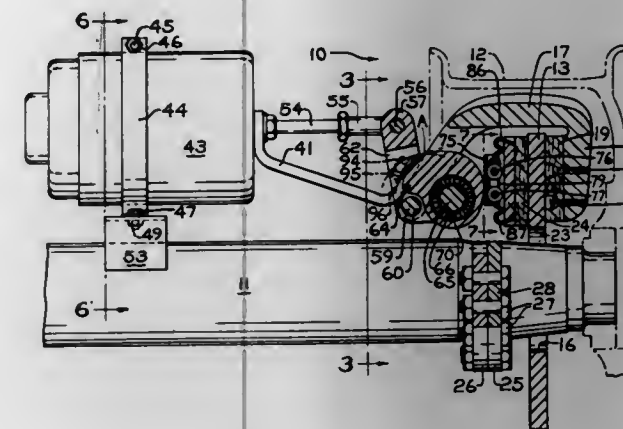
Richard H. Gardner, Pleasant Hill, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Dec. 12, 1972, Ser. No. 314,442

Int. Cl. F16d 65/52

U.S. Cl. 188—71.8

4 Claims



A disc brake having a friction lining pad for braking engagement with a rotatable disc. Moving of the friction lining pad is obtained by rotation of a cam engaging a force directing member fastened to the lining pad for transmitting an actuating force to the friction lining pad in a direction for bringing the lining pad into engagement with the disc. Adjustment for wear of the friction lining pad is obtained through the rotation of the cam in the other direction in an amount to maintain engagement with the force directing member in the disengaged condition of the brake to equalize the stroke required to actuate the brake.

3,830,344 BRAKE AND CONTROL THEREFOR

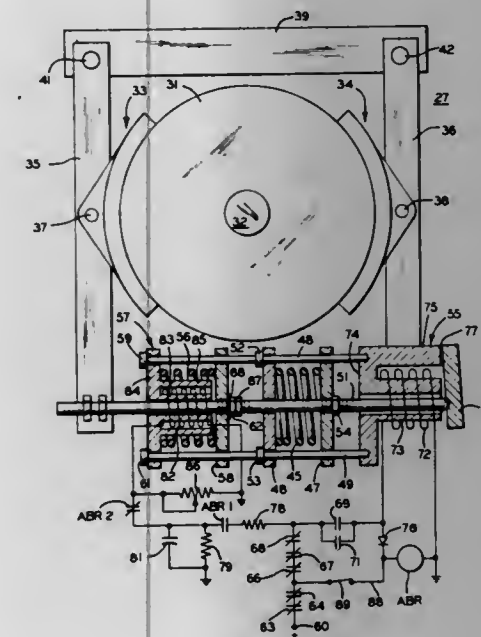
Stephen William Cervenc, Perrysburg; Albert Stanford Orr, Sylvania, and Richard N. Snyder, Toledo, all of Ohio, assignors to Reliance Electric Company, Euclid, Ohio

Filed Feb. 15, 1973, Ser. No. 332,704

Int. Cl. B60t 13/74

U.S. Cl. 188—171

14 Claims



A spring applied, electrically released brake illustrated as applied to escalators wherein the braking apparatus applies a first braking force sufficient to provide a predetermined deceleration under no load conditions. After a time delay, a second braking force is applied which when combined with the first braking force is sufficient to provide said predetermined deceleration.

mined deceleration under full load conditions. In emergency situations, when a safety circuit is interrupted, both braking forces are applied simultaneously to produce minimum stopping time.

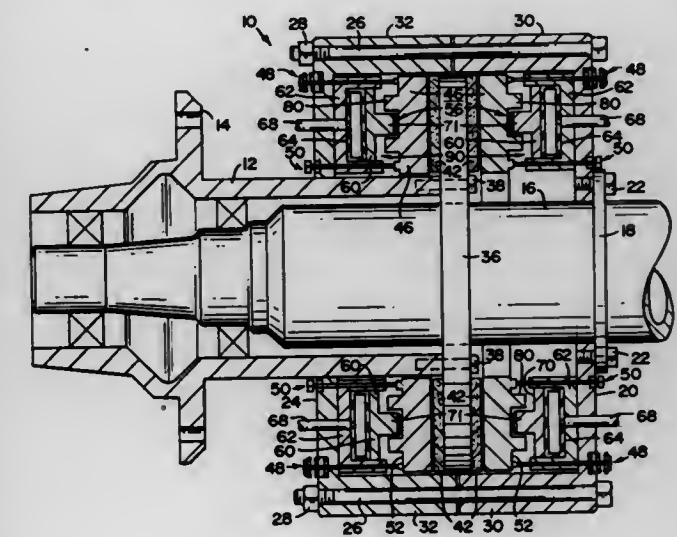
3,830,345 DISK BRAKES

Elmo N. Boyles, 540 E. Horatio Ave., Maitland, Fla. 32751
Filed Apr. 24, 1973, Ser. No. 354,083

Int. Cl. F16d 55/00

U.S. Cl. 188—71.6

8 Claims



A disk brake assembly comprising a disk fixedly connected to a wheel of a vehicle so as to rotate therewith wherein brake linings, brake shoes, and actuating assemblies are mounted on opposite sides of the disk so as to force frictional engagement between the disk, linings and shoes thereby providing braking action on the disk to stop the vehicle. Each actuating assembly includes an annularly configured disk and correspondingly configured expandable tube in movable engagement therewith wherein expansion of the tube due to fluid flow thereto causes forceable engagement of each piston with a correspondingly located shoe so as to bring it in frictional engagement with the disk. Cooling means are provided in the form of one or more annularly configured ribs on the outer surface of the shoe and similarly, arcuately shaped ribs on the outer surface of the actuating assembly so as to readily dissipate heat occurring from frictional engagement between the brake shoe, linings and disk.

3,830,346 SAFETY BRAKE

Robert H. Watts, 5760 Beech Grove Ln., Cincinnati, Ohio 45238

Filed Jan. 5, 1973, Ser. No. 321,291

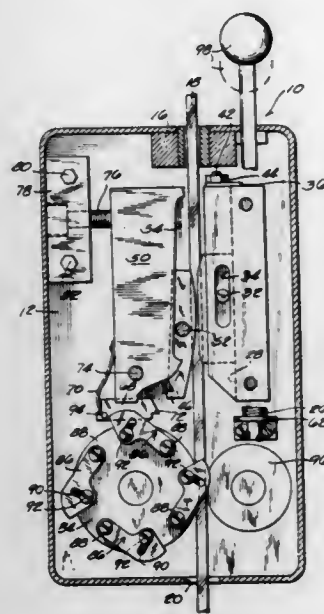
Int. Cl. F16d 59/02

U.S. Cl. 188—188

3 Claims

The safety brake is adapted for use in conjunction with scaffolding or other apparatus in position on the tensioned line between a traction device and the point to which the line is attached. The housing would be attached to the apparatus supported by the traction device. The tensioned line passes through the housing between the two gripping shoes, one of which is spring loaded in a direction parallel to the path of the line. The other shoe is normally latched in a position permitting clearance for the rope between the shoes but is spring biased along a path converging with that of the first shoe so that upon release it will move to engage the rope whereupon the other shoe starts moving with the first. At this point the rope is gripped and the gripping force increases due to the converging paths of the shoes. The spring loading the passive shoe is compressed to absorb the shock of grabbing the rope and prevent breaking the rope as could occur with an instantaneous stop.

The latch is spring loaded to engage the active shoe and is released when one of the centrifugal weights mounted on the roller swings out to strike the pin carried by the latch. The periphery of the roller moves at rope speed since the pinch roller adjacent the centrifugal weight roller squeezes the rope enough to force rotation of both rollers. After the brake has operated, it can be normally released (assuming the load is off the line) by pushing down on a knob to force the active shoe



back to its latched position. If, however, there has been a large load applied to the rope during the stopping action, no practical force on the knob will be adequate to reset the brake. Under these conditions it is necessary to remove the cover to gain access to the cap screw and back off the cap screw and permit the base plate carrying the active shoe to be rotated away from the passive shoe and thus release the rope. In use the presence of the cap screw is concealed and, hence, the user is not tempted to bypass the safety mechanism.

3,830,347

SHOCK ABSORBER AND DIRT SHIELD THEREFOR

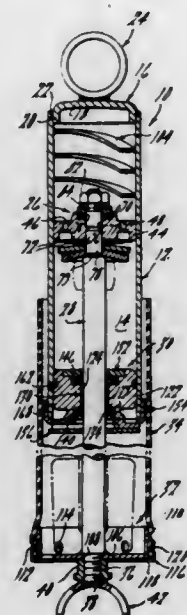
John H. Fader; Johan H. Keljzer, both of Hasselt; Marcel J. R. Graulus, and Roland H. C. Beets, both of St. Truiden, all of Belgium, assignors to Monroe Belgium N.V., St. Truiden, Belgium

Division of Ser. No. 45,867, June 12, 1970, abandoned. This application Mar. 30, 1972, Ser. No. 239,812

Int. Cl. F16f 9/38

U.S. Cl. 188—322

3 Claims



A shock absorber comprising an elongated cylindrical pressure cylinder having a piston reciprocally disposed therewithin

and connected to a piston rod extending outwardly from one end thereof, the piston rod carrying a dirt shield which extends coaxially of the pressure cylinder and in partial surrounding relationship therewith. The pressure cylinder is adapted to be filled with preselected quantities of a hydraulic damping fluid and a pressurized gas for damping reciprocal movement of the piston therewithin. The piston is provided with a novel valve arrangement which controls the compression and rebound characteristics of the shock absorber, and one end of the pressure cylinder is provided with a novel rod guide assembly which is designed so as to provide for convenient charging of the cylinder with the aforesaid pressurized gas. The interior of the pressure cylinder is provided with a generally helically shaped baffle arrangement which is compressible axially within the cylinder in response to reciprocal movement of the piston therein and functions to prevent undesirable foaming or aeration of the hydraulic fluid during operation of the shock absorber.

3,830,348

COLLAPSIBLE LUGGAGE

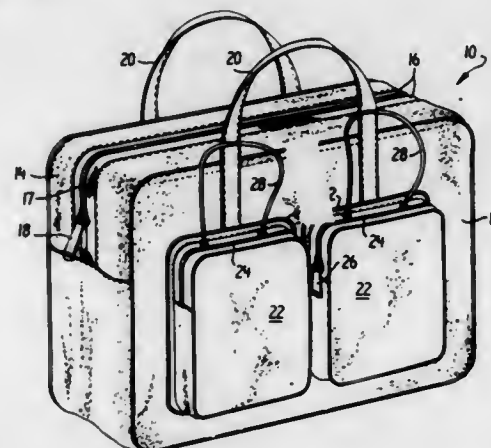
Matsusuke Ohyama, 1-25-24 OH - Imazato, Higashinari, Japan

Filed Oct. 13, 1972, Ser. No. 297,300

Int. Cl. A45c 7/00

U.S. Cl. 190—43

5 Claims



Collapsible luggage having storage capacity in each of two distinct configurations, consisting of flexible material configured to afford opposed portions defining walls of a major storage compartment, panels secured to one of the walls in adjacent relationship and defining additional compartments and closure elements joined to the one wall and extending about the periphery of the panels and having a sliding fastener. In the collapsed configuration, the panels are juxtaposed with the walls of the major compartment collapsed therebetween, and the closure elements are contiguous for engagement to one another by the sliding fastener.

3,830,349

METHOD AND APPARATUS FOR ENGAGING COASTING PROPULSION SYSTEMS

Charles H. Williams, Export, Pa., assignor to Koppers Company, Pittsburgh, Pa.

Filed May 1, 1973, Ser. No. 356,238

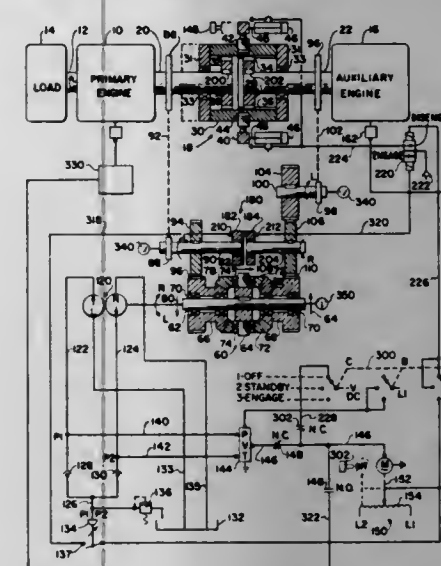
Int. Cl. F16d 23/10; F16h 37/06

U.S. Cl. 192—103 F

26 Claims

A method of controlling the engagement of an accelerating or decelerating auxiliary propulsion system with a running primary propulsion system upon the occurrence of synchronous speed and alignment of engaging elements in a connecting device by rotating the primary system at a substantially constant speed, accelerating or decelerating the speed of the auxiliary system toward that of the primary system, sensing the impending occurrence of synchronous speed of the two systems and the occurrence of alignment of the engaging elements and automatically engaging driving elements of the system in response to the occurrence of synchronous speed and

alignment. Apparatus suitable for performing the foregoing method comprises a primary and an auxiliary engine each connected to one half of a clutch or of a coupling which are engaged at the time synchronous speed and alignment of the clutch or coupling halves is achieved to thereby connect the engines for simultaneous operation. Sensing of impending synchronization is achieved by driving the first input of a planetary differential from the primary clutch or coupling half, driving the second input from the auxiliary clutch or



coupling half in the opposite direction of rotation as the first input, and monitoring the speed of the planetary output; as this output approaches zero speed, a control means is energized for initiating engagement of the clutch or coupling halves so that actual engagement occurs at synchronous speed and exact mechanical alignment of the engaging elements. The control means is preferably arranged to control the acceleration or deceleration of the auxiliary engine prior to engagement of the engaging elements so that the engines approach synchronization very slowly.

3,830,350

MARINE REVERSIBLE REDUCTION GEARING WITH BRAKE

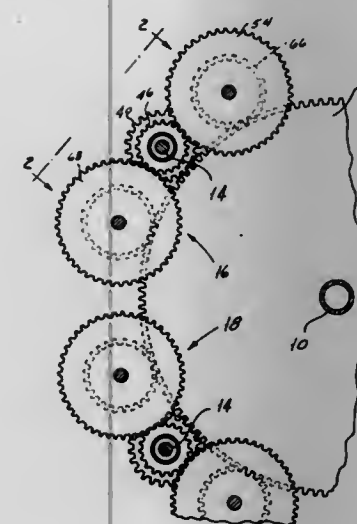
Eugene P. Worthen, deceased, late of Braintree, Mass., and New England Merchant National Bank, executor, Boston, Mass., assignors to Turbo-Power and Marine Systems, Inc., Farmington, Conn.

Filed Feb. 28, 1972, Ser. No. 229,871

Int. Cl. B60k 29/02; F16d 25/10

U.S. Cl. 192—4 C

6 Claims



A reversible reduction gear system for marine use in which each of one or more prime movers drive the bull gear through a split gear train and in which, when the direction of drive is to be changed, the entire main unit is stopped by brakes and then clutches shift from an ahead drive pinion to an astern drive pinion or vice versa.

3,830,351

TYPEWRITER RIBBON CARTRIDGE FOR ENDLESS LOOP RIBBON

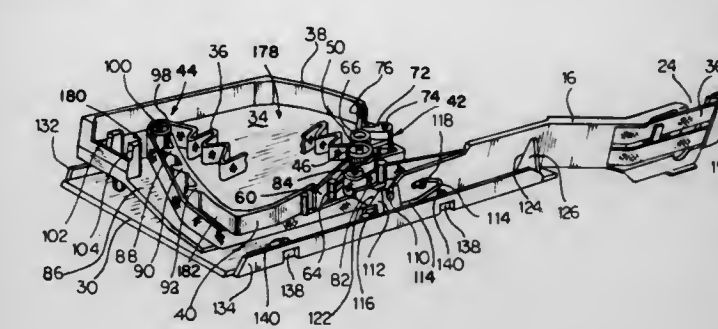
Samuel D. Cappotto, Syracuse, N.Y., assignor to SCM Corporation, New York, N.Y.

Filed Sept. 13, 1972, Ser. No. 288,830

Int. Cl. B41j 33/10

U.S. Cl. 197—168

2 Claims



A cartridge for housing an endless loop of ribbon for typewriters or like machines is disclosed. The cartridge includes a housing having a base plate, a storage compartment and a cover and an arm extending from the housing for guiding the ribbon from the housing to a print point and back to the housing. The arm is pivotally mounted on a fulcrum on the base plate and is normally spring biased to a rest position. The fulcrum has a surface forming an oblique angle with the base plate and an upstanding member is provided on the base plate also having a surface forming an oblique angle therewith for guiding the pivotal movement of the arm. A tapered plane adjusting roller is provided between the arm adjacent an input feed mechanism to the storage compartment having a pair of split friction rollers spring biased toward each other for engaging the ribbon and stuffing it into a storage area in random convolutions. Strippers extending from the split portions of the friction rollers prevent the stuffed ribbon from winding upon the rollers. A swivel free barrel shaped roller is provided adjacent an output gate comprised of a ramp and a plurality of alternating projections defining an exit path to prevent the flow of ribbon in convolutions from the storage compartment. The arm, storage compartment and cover are removably secured to the base plate by means enabling automatic assembly or hand assembly without the use of tools.

3,830,352

ARTICULATED TYPEWRITER FRAME

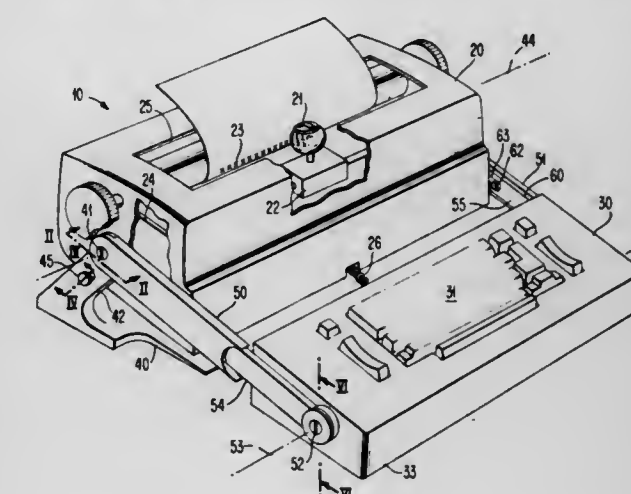
Robert A. Kolpek, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 2, 1972, Ser. No. 293,985

Int. Cl. B41j 29/02

U.S. Cl. 197—186 A

7 Claims



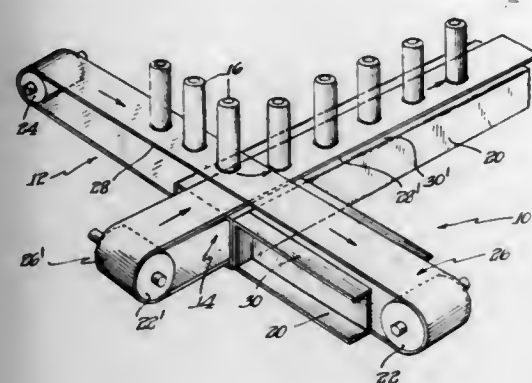
The printer and keyboard of a typewriter are supported on independent frames by articulated connections that enable a wide variety of different relationships between the keyboard position and the writing line presented to an operator.

3,830,353

METHOD AND APPARATUS FOR EFFECTING ARTICLE TRANSFER THROUGH THE USE OF MAGNETIC FIELDS
Wallace W. Mojdén, Hinsdale, Ill., assignor to Fleetwood Systems, Inc., Countryside, Ill.
Continuation of Ser. No. 119,506, March 1, 1971, abandoned.
This application Feb. 7, 1972, Ser. No. 220,968
Int. Cl. B65g 47/00

U.S. Cl. 198—20 R

8 Claims



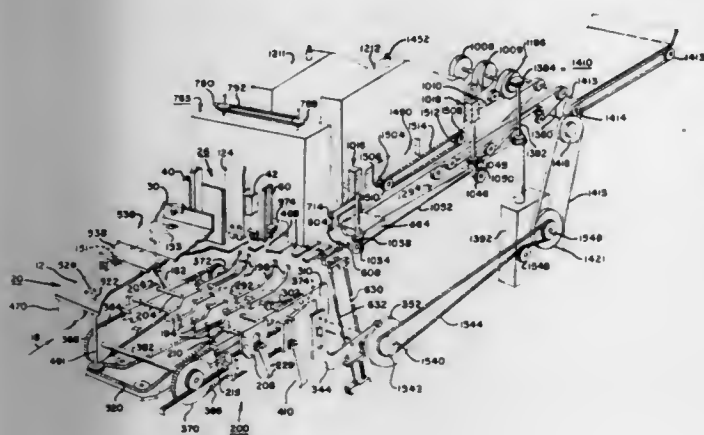
Method and apparatus for effecting the transfer of articles from one traveling belt to another belt disposed transversely thereto, without the employment of guide rails, or the like to produce said transfer. The transfer operation is effected by the controlled application of magnetic forces.

3,830,354

FEED, TRANSPORT AND DELIVERY MECHANISM FOR BOOK TRIMMERS AND THE LIKE
Ernest J. Sarring, Western Springs, Ill., assignor to Rockwell International Corporation, Pittsburgh, Pa.
Division of Ser. No. 114,225, Feb. 10, 1971, Pat. No. 3,722,336. This application Oct. 16, 1972, Ser. No. 298,182
Int. Cl. B65g 15/14

U.S. Cl. 198—165

9 Claims



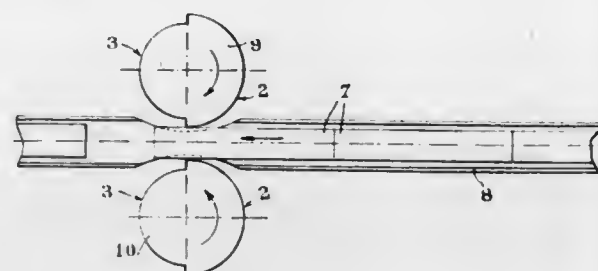
A transport mechanism preferably for use in combination with book trimmer apparatus includes a plurality of displaceable transport belts disposed in sets in opposition to each other which clamp a book therebetween. While clamping the book, the transport belts travel with it to a first station which may be a side knife cutting station, halt briefly, and then move on preferably through a second station to a delivery mechanism. The transport belts travel intermittently so as to be stationary when the book is delivered to the first station and to halt the book at the first and second stations. Displacement means in conjunction with one set of the belts separate the transport belt sets at the first station to permit the book to be fed between the belt sets. Return means bring the belts together again to clamp the book for travel preferably to a delivery mechanism which may include speeder belts for engaging the book from below and speeding it away from the transport belts.

3,830,355

METHOD AND DEVICE FOR SEPARATING CIGARETTES FROM A CONTINUOUS LINE
Jean Verjux, Pavillons sous Bois, France, assignor to Usines Decouffe, Paris, France
Filed July 29, 1971, Ser. No. 167,243
Claims priority, application France, Aug. 3, 1970, 70.28596
Int. Cl. B65g 13/02

U.S. Cl. 198—127 R

2 Claims



This device for longitudinally separating cigarettes in a continuous line of cigarettes pushing one another in end to end relationship is of the type wherein each cigarette is accelerated in succession in order to increase its linear speed and impart thereto a certain "lead" to the next cigarette in the line.

All the cigarettes of the line are engaged by turns by an accelerator member which, as it engages the cigarette, has a peripheral speed equal to the feed speed of the cigarette, this peripheral speed increasing gradually up to the maximum predetermined value, whereafter the action of said accelerator member on the cigarette ceases and is applied subsequently to the next cigarette in the line.

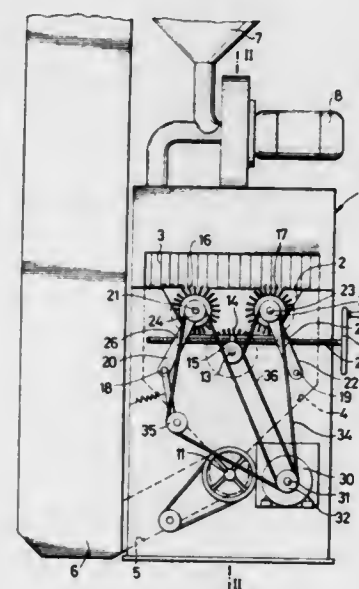
Thus, any shock is avoided during the successive acceleration of each cigarette, and the operation of the device is smoother while avoiding any undue wear and tear of the accelerator members.

3,830,356

CONVEYING APPARATUS FOR CONVEYING OF OBJECTS HAVING A GIVEN MINIMUM DIMENSION
Werner Hunziker, Staffelbachstrasse 195, Kirchleerau, Switzerland
Filed Apr. 5, 1972, Ser. No. 241,227
Claims priority, application Switzerland, Apr. 15, 1971, 5435/71; Feb. 23, 1972, 2617/72
Int. Cl. B65g 13/02

U.S. Cl. 198—127 R

26 Claims



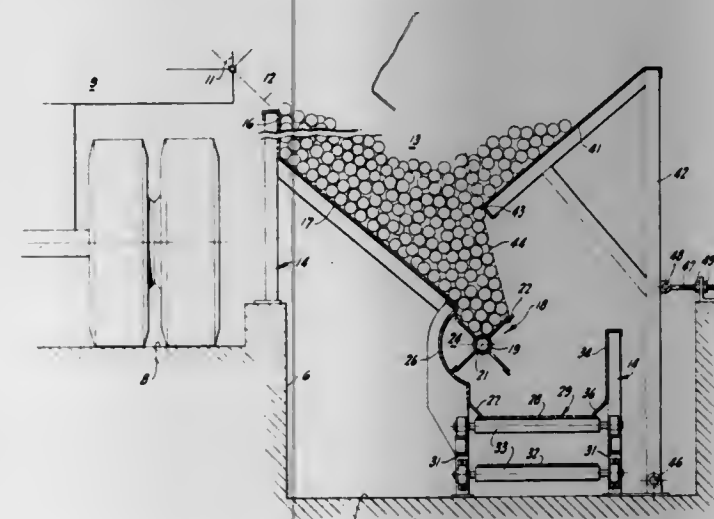
Two or more elongated axially parallel rollers are journaled for rotation in identical directions and have outer peripheries spaced from one another by a distance which is smaller than the minimum dimension of the objects to be conveyed. The

3,830,357

ARTICLE RECEIVING AND HANDLING SYSTEM
Clinton L. West, and Leon M. West, both of Yuba City, Calif., assignors to Yuba City Steel Products Co., Yuba City, Calif.
Filed July 2, 1973, Ser. No. 375,642
Int. Cl. B65g 29/00

U.S. Cl. 198—54

6 Claims



An article receiving and handling system includes a frame on which a conveyor belt is mounted to operate with the upper run of the conveyor belt disposed horizontally and traveling in one direction. Above the belt on the frame is a metering device including a rotor having spaced, radial vanes defining compartments and arranged to rotate about an axis parallel to the belt and extending in the same direction, the rotor being about as long as the upper run of the belt. On the belt are triggering devices spaced apart a predetermined distance and activating a responsive device on the frame to control the drive of the rotor. For each actuation, the rotor turns through a partial rotation to dump one compartment full of articles onto the belt. The articles, approximately of predetermined dimensions, are initially received in a hopper disposed above and converging downwardly toward the rotor. One of the hopper walls meets an arcuate housing concentric with the rotor and laterally enclosing but one of the compartments. The other hopper wall ends at a point approximately above the rotor axis and spaced above the rotor a distance equal to several times the predetermined article dimension. Articles resting on the rotor and extending up to the hopper have an unconfined side lying substantially at the natural angle of repose.

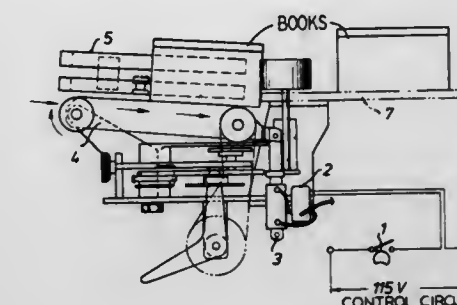
3,830,358

BOOK ESCAPEMENT MECHANISM
Francis J. Desantis, Waterbury, Conn., assignor to The Smyth Manufacturing Company, Bloomfield, Conn.
Filed Mar. 2, 1973, Ser. No. 337,525
Claims priority, application Germany, May 26, 1972, 2226458
Int. Cl. B65g 47/32

U.S. Cl. 198—34

4 Claims

A book separating and feeding device for feeding books in a vertically disposed spine-up condition wherein the spines of each book have recently been coated with adhesive tending to adhere to adjacent books. The device features a supply conveyor and a downstream escapement conveyor which is power-operated to effect continuous book feeding from the



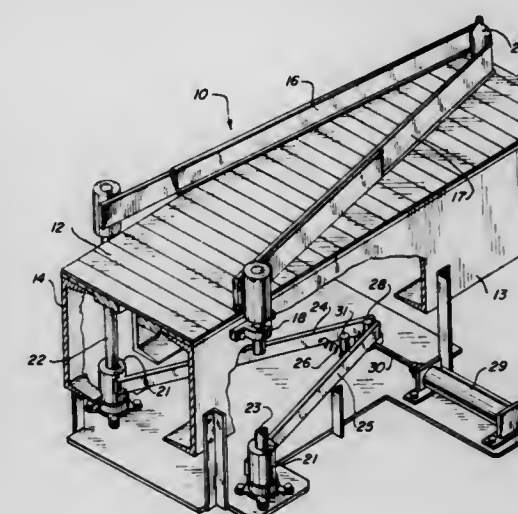
provided the books by the supply conveyor and the escapement conveyor serving to create a gap between adjacent books having adhering spines coated with adhesive, whereby the books are separated and may be fed individually by the escapement conveyor between the accelerating rollers for entry into the book casing-in machine.

3,830,359

METHOD AND APPARATUS FOR DIVIDING ARTICLES
Clement V. Fogelberg, Arvada, Colo., assignor to Columbine Glass Company, Inc., Wheat Ridge, Colo.
Filed Aug. 8, 1973, Ser. No. 386,670
Int. Cl. B65g 47/26

U.S. Cl. 198—30

6 Claims



A method and apparatus for dividing articles, such as containers, randomly supported on a conveyor belt into two distinct columns by intercepting the articles between two elongated arms extending from opposite sides of the conveyor belt and converging along the direction of travel of the conveyor belt until the ends of the arms are narrowly spaced apart a distance about the width of the articles, positioning the arms in one of two positions corresponding to the desired column with the more closely spaced ends thereof apart a distance sufficient to permit the articles to pass therebetween, and, while switching the arms to the other position, biasing the arms to converge slightly thereby precluding passage of articles therebetween while the arms are in the transitional mode.

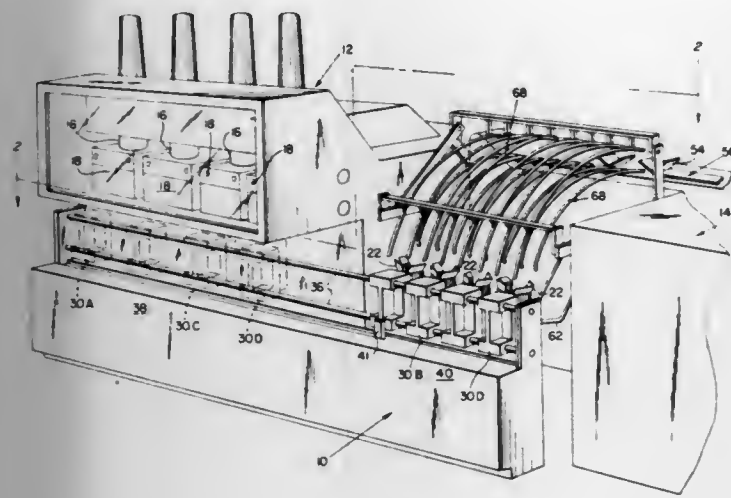
3,830,360

APPARATUS FOR TRANSFERRING MOLDED PRODUCTS TO A TRIMMING MACHINE

Lars U. Graff, Okemos, and William A. Scott, Chelsea, both of Mich., assignors to Haskon Incorporated, Wilmington, Del.
Filed Sept. 13, 1972, Ser. No. 288,727
Int. Cl. B65g 47/00

U.S. Cl. 198—20

10 Claims



Apparatus for automatically transferring a plurality of molded, handle-ware plastic products simultaneously discharged from a molding machine in an upright, spaced-apart position to a horizontal, closely-spaced position for feeding to a handle-ware trimming machine.

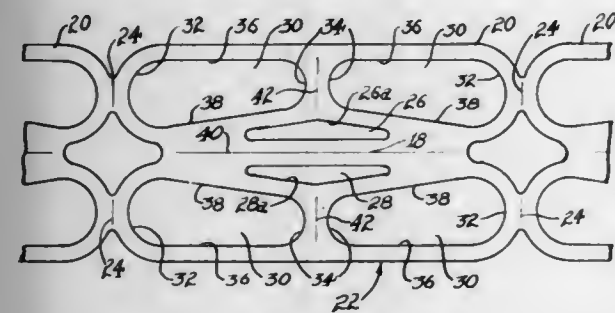
3,830,361

CARRIER AND PACKAGE FORMED THEREBY

Mindaugas Julius Klygis, Evergreen Park, Ill., assignor to Illinois Tool Works, Inc., Chicago, Ill.
Filed Nov. 13, 1972, Ser. No. 305,729
Int. Cl. B65d 75/00

U.S. Cl. 206—150

2 Claims



The embodiment of the invention disclosed herein is directed to a carrier package comprising a plurality of containers and a sheet of plastic material having at least a pair of oppositely arranged elongated sockets formed therein. The sheet plastic material is rectangular in configuration and has a major dimension and a minor dimension which are approximately one half the major dimension. The sockets formed therein are each formed by spaced apart circular portions joined together by straight line portions. Preferably the marginal portion of the sockets form parallel lines with the marginal portion of the rectangular sheet while angular lines are formed by the sockets at the anterior portion of the sheet. The sockets are formed by semi-circular portions of different diameters, preferably the larger diameter being positioned at the corner portions of the rectangular sheet. A handle is formed at the intersection of the longitudinal and transverse central axes of the sheet.

3,830,362

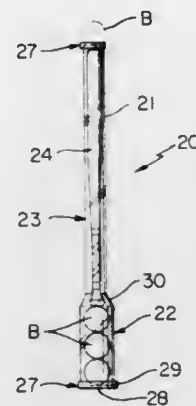
PACKAGE CONSTRUCTION FOR BASEBALL TEE, BAT AND BALL

Joseph V. Tassone, 2425 Rawnsdale Rd., Kettering, Ohio 45440, and James T. Candor, 5440 Cynthia Ln., Dayton, Ohio 45429
Filed Jan. 26, 1973, Ser. No. 326,805 The portion of the term of this patent subsequent to June 25, 1991, has been disclaimed.

Int. Cl. A63b 69/40; B65d 85/00

U.S. Cl. 206—223

5 Claims



A package construction composed of a baseball type tee, a baseball type bat being in telescopic relation with said tee, a base member for supporting the tee in an upright manner, and at least one ball being disposed in said base member.

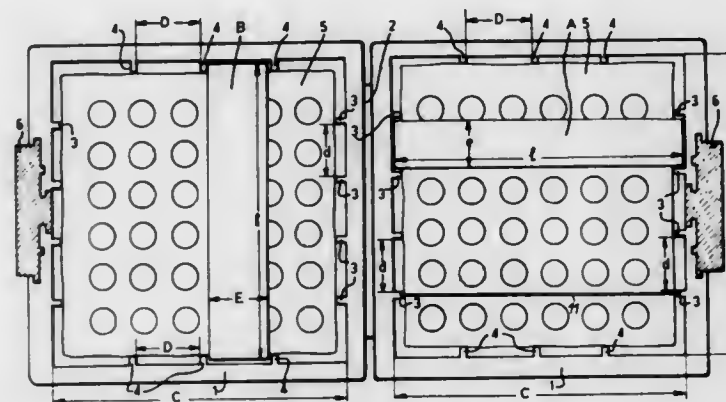
3,830,363

APPARATUS BOX, MORE PARTICULARLY INTENDED TO CONTAIN CASSETTES COMPRISING MAGNETIC TAPES

Michel Liber, Paris, France, assignor to Seilib, Seine, France
Filed June 27, 1972, Ser. No. 266,734
Int. Cl. B65d 85/30, 85/62, 85/67

U.S. Cl. 206—387

7 Claims



The box according to the invention is capable of receiving at the same time mini-cassettes and long period cassettes or either of these types alone.

It is constituted by two identical box elements mounted hinged together, separation ribs spaced apart by a distance slightly greater than the thickness of a mini-cassette being provided in the interior of each element on two of its opposite walls, and other separation ribs spaced apart by a distance slightly greater than the thickness of a long period cassette being provided in the interior of each element on the other two opposite walls, so that when the two box elements are closed against each other, the cassettes placed in one of the two box elements come into contact with the cassettes placed in the other element. An elastic mat is preferably placed in the bottom of each box element.

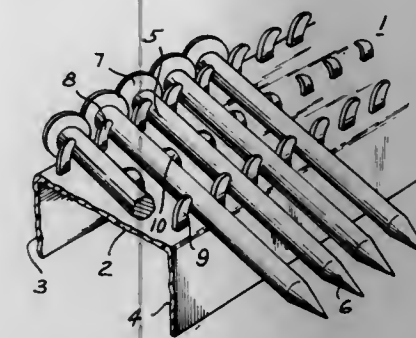
3,830,364

CARRIER FOR NAILS FOR NAIL DRIVING DEVICE

Per-Olof Hedlund, Gunnebobruk, Sweden, assignor to Gunnebo Bruks Aktiebolag, Gunnebobruk, Sweden
Filed July 11, 1972, Ser. No. 270,603
Claims priority, application Sweden, July 14, 1971, 9106/71
Int. Cl. B65d 21/00, 85/24

U.S. Cl. 206—443

5 Claims



There is disclosed a nail carrier for supporting and locating nails to be fed to a power-operated nail driving device. This carrier comprises a rigid bottom plate mounted in a slanted position. The plate has secured thereto on its top side a first group of rigid studs arranged in two parallel spaced-apart rows and a second group of yielding studs disposed in one row parallel to the two other rows. The studs in the three rows are so correlated that each two studs of the first group in conjunction with one stud of the second group provide a locating position for a nail in which two studs of the first group are on one side of such nail and one stud of the second group is located on the opposite side of the nail. Each of the three studs has a tip bent to overlie the nail placed therebetween. Removal of a nail can be effected by applying a pulling force thereto, such pulling force causing the stud of the second group to yield, thereby freeing the nail.

3,830,365

VACUUM SKIN PACKAGING AND PACKAGES

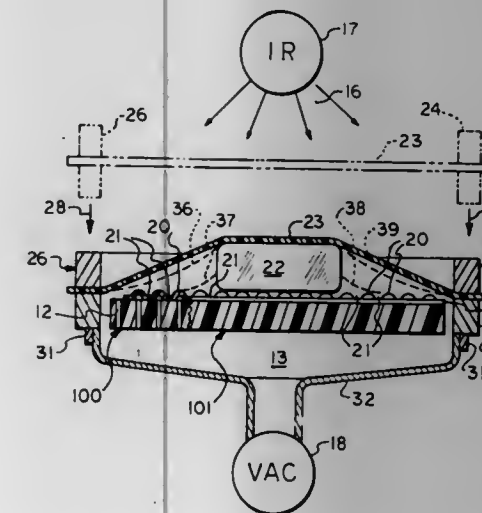
Leland Ray Krueger, Garden Grove, and Dana Rey Holt, Costa Mesa, both of Calif., assignors to Newport General Corporation, Costa Mesa, Calif.

Filed Oct. 19, 1972, Ser. No. 298,982

Int. Cl. B65d 75/30; B65b 31/02

U.S. Cl. 206—471

17 Claims



An object is packaged in a vacuum skin pack formed by evacuating space between a pair of heat-sealable sheets containing the object and by heat-sealing the sheets to each other about the object. The sheets are pore and cell-free; at least at the sealing surfaces. A multitude of convex protrusions is formed in one of the sheets for providing during the formation of the pack a multitude of collapsible and sealable evacuation

channels extending between the sheets. The other of the sheets is heated and the object is provided between the sheets. After the evacuation channels have been formed, the space between the pair of sheets is evacuated essentially only through the latter evacuation channels. The flow of heat from the mentioned one sheet in a direction away from the heated other sheet is inhibited, and peripheral portions of the mentioned one sheet about the object are heated while the flow of heat from said one sheet is being inhibited. The mentioned other sheet is moved tightly against the object being packaged by continued evacuation essentially only through the evacuation channels between the sheets.

3,830,366

MINERAL FLOTATION WITH SULFOSUCCINAMATE AND DEPRESSED

Arnold Day, Wilton, Conn., and Herman Hartjens, Ridgewood, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Mar. 24, 1972, Ser. No. 237,874

Int. Cl. B03d 1/02

U.S. Cl. 209—166

17 Claims

A process for beneficiating celestite, barite, scheelite, fluorite, calcite, magnetite, gypsum, anhydrite, and apatite is disclosed comprising froth floating a ground pulp conditioned with gangue depressant using tetrasodium N-(1,2-dicarboxyethyl)-N-octadecylsulfosuccinamate as collector.

3,830,367

HIGH INTENSITY WET MAGNETIC SEPARATORS

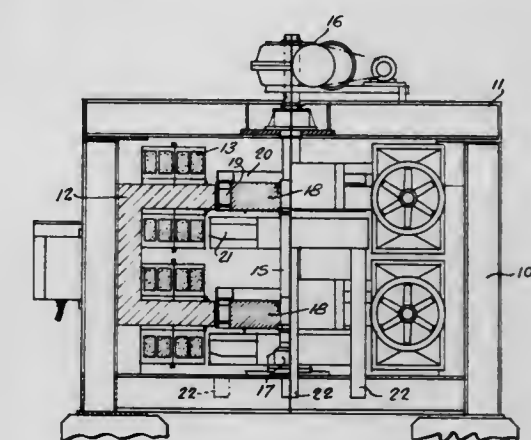
W. J. Dennis Stone, 253 Westcott Ave., Beaconsfield, Quebec, Canada

Filed June 26, 1972, Ser. No. 266,239

Int. Cl. B03c 1/02

U.S. Cl. 209—223

5 Claims



An improved high intensity wet magnetic separator is described having a horizontal rotor in the form of a heavy disc of highly magnetically permeable material surrounded by an annular member having a series of gaps extending vertically therethrough. Induced pole pieces are mounted in the gaps and a pair of diametrically opposed electromagnets are provided with pole pieces adjacent the rotor. A magnetic field is formed between the pole pieces and the rotor through the gaps where magnetic separation from a slurry takes place.

3,830,368

LIQUID FILTER

Kenneth L. Rogers, 404 Center St., Rt. 1, Box 35, Boacobel, Wis. 53805

Filed Jan. 10, 1973, Ser. No. 322,310

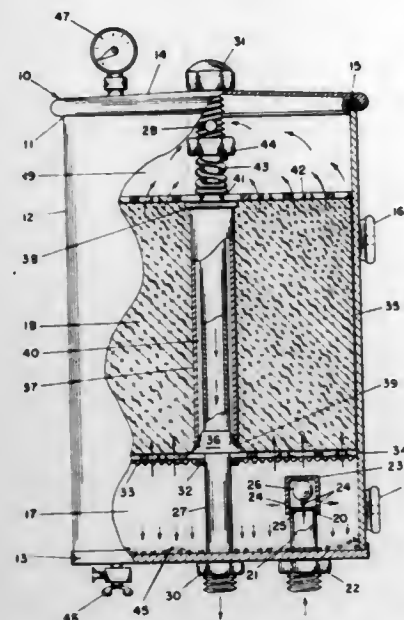
Int. Cl. B01d 35/00

U.S. Cl. 210—94

8 Claims

A liquid filter assembly having a filter element slidably mounted within a container for filtering impurities from liquids. The lower portion of the container below the filter ele-

ment is of sufficient volume to permit condensation and separation of heavier liquid and solid impurities from the liquid before filtration. A normally closed bypass tube is movable by said filter element in response to a predetermined



fluid pressure differential across said filter element resulting from the accumulation of impurities therein to a bypass position which permits liquid to bypass the clogged filter and be discharged from the filter assembly through the bypass tube and outlet pipe.

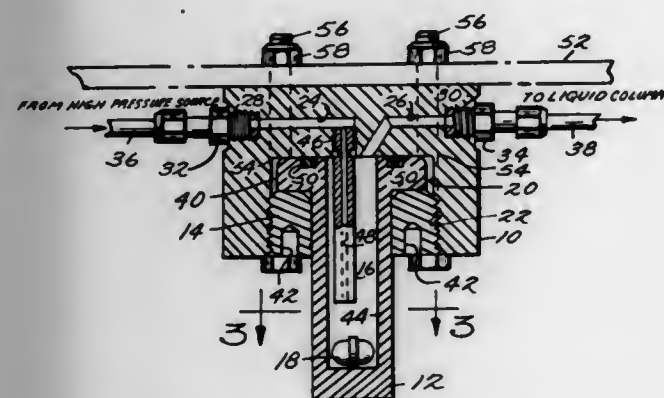
3,830,369

HIGH PRESSURE GRADIENT CHAMBER FOR LIQUID CHROMATOGRAPHY
Ernest H. Pfadenhauer, 2157 Miner St., Costa Mesa, Calif. 92627

Filed Dec. 11, 1973, Ser. No. 423,794
Int. Cl. B01d 15/08

U.S. Cl. 210-198 C

8 Claims



An element having a chamber therein is secured to a device which is provided with inlet and outlet passages communicating with the chamber. A stirrer is positioned in the chamber and serves to mix liquid within the chamber with a fluid introduced to the chamber under high pressure via the inlet passage, the resultant mix being forced out of the chamber through the outlet passage.

3,830,370

MOTION DECOUPLED SKIMMER FOR REMOVING OIL FROM THE SURFACE OF CALM OR DISTURBED WATER
John L. Glaeser; Wilson G. Welsert, Jr., and Gerald R. Cunningham, all of Santa Monica, Calif., assignors to Esso Production Research Company, Houston, Tex.

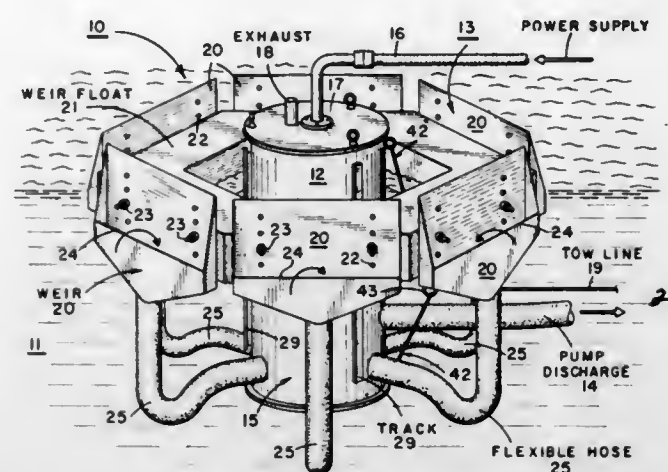
Filed Sept. 5, 1972, Ser. No. 286,526
Int. Cl. E02b 15/04

U.S. Cl. 210-242

4 Claims

A motion decoupled skimmer for removing oil from the surface of calm or disturbed water includes a floatable pumping

assembly which contains a sump, flotation unit, pump and motor surrounded by or positioned within a floatable oil collection assembly which contains a weir, flotation unit and a closed flow passageway for conveying oil from the weir to the sump. The weir and its flotation unit are connected together in



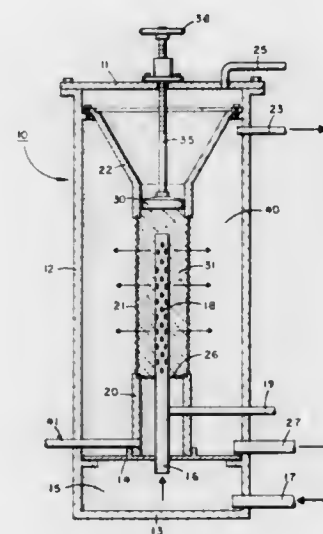
a fixed relationship (motion coupled). In order to maintain the oil collection assembly and pumping assembly properly spaced from each other, spacing means may be employed to connect the pumping assembly and the oil collection assembly. The oil collection assembly is light and responsive to wave motion.

3,830,371

LIQUID-LIQUID SEPARATION
Juan A. Garcia, Kingsville, Tex., assignor to Esso Production Research Company, Houston, Tex.
Filed Dec. 27, 1972, Ser. No. 319,105
Int. Cl. B01d 23/10

U.S. Cl. 210-265

1 Claim



An apparatus for separating a mixture of heavier and lighter liquids capable of separating into two separate phases is disclosed. The mixture is passed through confined particle material which, preferably, has an affinity for one of the liquids. The particles are confined in a cylindrically shaped space and the liquids move through the particles in a radial and horizontal direction. The particle material filters the liquids and aids in coalescing the liquid for which the particles have affinity. The liquids separate by gravity and are discharged separately. The particles are backwashed periodically to remove collected solids. During the backwash operation the particles are unconfined and are flushed by upward flow of backwash liquid into a space which is larger in cross-section than the cross-section in which the particles are confined during filtering-coalescing operations. Following backwashing the particles, which have a greater density than the backwash liquid, settle by gravity to their filtering-coalescing position and are again confined.

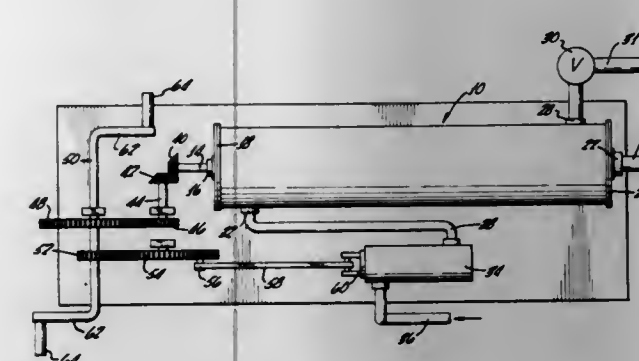
3,830,372

REVERSE OSMOSIS SYSTEM ADAPTABLE FOR MANUAL OPERATION

Serop Manjikian, P.O. Box 183, Del Mar, Calif. 92014
Continuation-in-part of Ser. No. 256,185, May 23, 1972. This application Sept. 14, 1973, Ser. No. 397,410
Int. Cl. B01d 31/00

U.S. Cl. 210-321

3 Claims U.S. Cl. 211-1



A reverse osmosis system comprising a pressure resistant container in which a rotatable membrane element-carrying assembly is mounted. Means for rotating the membrane element-carrying assembly and means for actuating a pump for pressurizing feed liquor introduced into the pressure resistant container are operated by human effort, and these means are preferably interconnected.

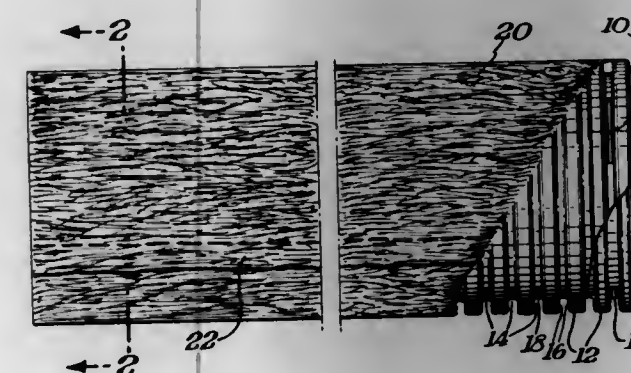
3,830,373

CORRUGATED DRAINAGE TUBE WITH RESTRAINING SCREEN

Marty E. Sixt, Iowa City, Iowa, assignor to Advanced Drainage Systems, Inc., Waterville, Ohio
Continuation-in-part of Ser. No. 56,098, June 30, 1970, Pat. No. 3,699,684, which is a continuation of Ser. No. 819,339, April 25, 1969, abandoned, which is a continuation of Ser. No. 663,051, Aug. 24, 1967, abandoned. This application Apr. 19, 1972, Ser. No. 245,362
Int. Cl. E02b 13/00

U.S. Cl. 210-489

6 Claims



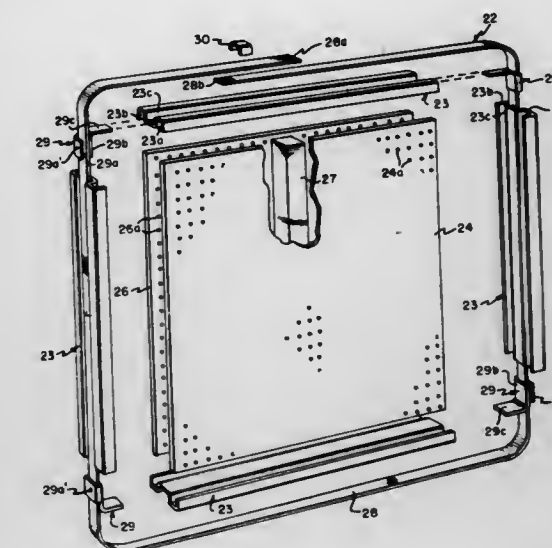
Flexible corrugated drainage tube comprises alternating annular peaks and annular valleys with walls interconnecting peaks and valleys. Plurality of openings in selected valleys of tube are arranged transversely to longitudinal axis of tube so that liquid water can drain into tube through openings. Water permeable restraining screen surrounds tube and engages peaks thereof for restraining waterborne particles above predetermined size range from entering tube when water drains into tube through screen and openings. Water permeable screen allows waterborne silt and clay to pass therethrough which prevents screen from becoming blinded with these particles.

3,830,374

STRAP PEG BOARD ASSEMBLY FOR MERCHANDISE GONDOLA

Seymour Kassimir, Oceanside, N.Y., assignor to Levin Fixture Corporation, Flushing, N.Y.
Filed Apr. 28, 1972, Ser. No. 247,442
Int. Cl. A47f 5/00

10 Claims



An assembly of at least one panel having two parallel panel sheets having characteristic uniformly arranged openings held in compression by peripheral channel members in combination with vertical end supports and a base rigidly connected to provide integral support.

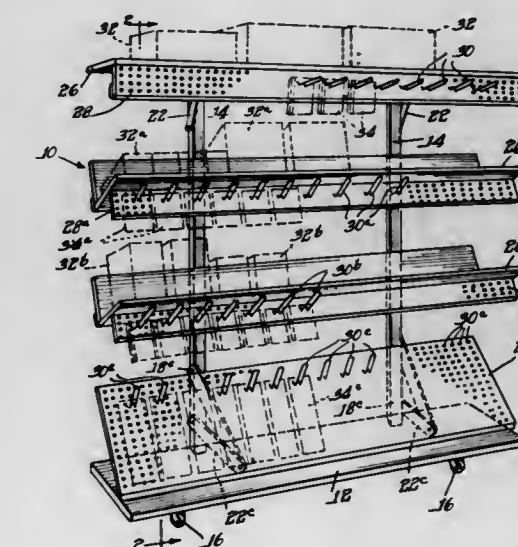
3,830,375

DISPLAY STAND

Charles O. Larson, Sterling, Ill., assignor to Chas. O. Larson Co., Sterling, Ill.
Continuation of Ser. No. 101,492, Dec. 28, 1970, abandoned. This application Jan. 30, 1973, Ser. No. 327,962
Int. Cl. A47f 5/00

U.S. Cl. 211-59

5 Claims



The present invention relates generally to article display stands, more particularly to improvements in article display stands of the type having a plurality of vertically spaced article display racks. The embodiment of the invention disclosed herein includes a base and a plurality of laterally spaced post members supported by and extending upwardly from said base. A novel and structurally simple arrangement of bracket and brace members distributed vertically along one or both sides of posts serve effectively to display articles for sale.

3,830,376

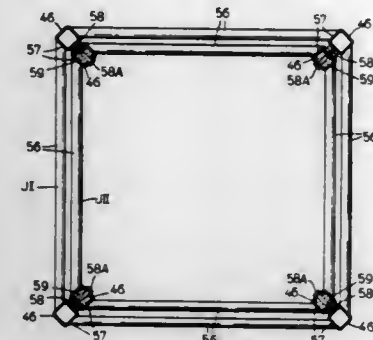
TELESCOPIC JIB AND BEARING MEANS THEREFOR
Robert A. Fritsch, Cedar Rapids, Iowa, assignor to Harnischfeger Corporation, Milwaukee, Wis.

Filed Feb. 16, 1973, Ser. No. 333,376

Int. Cl. B66c 23/62

U.S. Cl. 212-144

15 Claims



A mobile crane comprises a multisection telescopic boom and an optionally usable multisection telescopic lattice type jib (having a base section and axially movable intermediate and fly sections) which when not in use is telescoped and stored on a support in parallel reverse disposition alongside the boom. Each jib section comprises four hollow tubular longitudinal members (each of rectangular cross section) arranged in parallel spaced apart relationship with a plurality of angularly disposed tubular cross braces connected between each pair of members to define a jib section of rectangular cross section. Each longitudinal member is rotated on its axis to present opposite inwardly and outwardly facing flat bearing surfaces and also to present two other opposite flat surfaces to which the ends of the cross braces are welded. Bearing means are provided to facilitate relative sliding motion and to transmit thrust forces between adjacent jib sections. The bearing means comprises inwardly facing slide pads mounted at the lower front ends of the base and intermediate sections and outwardly facing slide pads mounted at the upper and lower rear ends of the intermediate and fly sections; each slide pad being mounted on a support secured within the hollow end of a tubular longitudinal member and engaged with an appropriate bearing surface on an adjacent jib section. To unstore the jib and set it up for use, the foot end of the jib is releasably connected by pivot pin means to the point end of the boom and the boom is partially extended to axially move the jib forward clear of its support. At this stage the unextended jib may be swung 180° about the pivot pin means into axial alignment with the boom and rigidly secured thereto by suitable attachment means. Or, the jib may be partially or fully extended prior to being swung 180° by connecting either the jib intermediate section or the jib fly section, respectively, by releasable rear pin means to the boom base section and by then further extending the boom, either partially or fully, respectively. In all cases, prior to swinging the jib, a guy wire jib mast pivotally attached to the boom point and folded back alongside the boom is swung into upright position. The jib is designed so that it can be rigidly connected at an angle to the boom axis and so that the jib fly section can be rigidly connected at an angle to the jib axis.

3,830,377

LOOM DOFF TRUCK

Carl P. Hunter, Red Springs, N.C., and Charles W. Kay, Anderson, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.

Division of Ser. No. 139,003, April 30, 1971. This application Aug. 18, 1972, Ser. No. 281,955

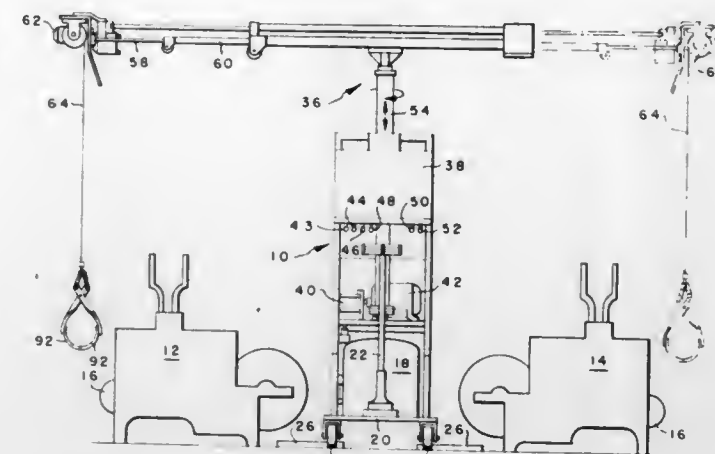
Int. Cl. B66c 23/62

U.S. Cl. 212-145

1 Claim

A loom doff truck to doff full rolls of fabric from a loom

which eliminates a great deal of manual labor. The truck has a hydraulic control system which allows the operator to auto-



matically move the lifting elements into position and to move the roll of fabric into the storage bin on the truck.

3,830,378

CONTAINER HANDLING APPARATUS

Ronald James Key, and Trevor Monk, both of Bilston, England, assignors to GKN Sankey Limited, Bilston, England

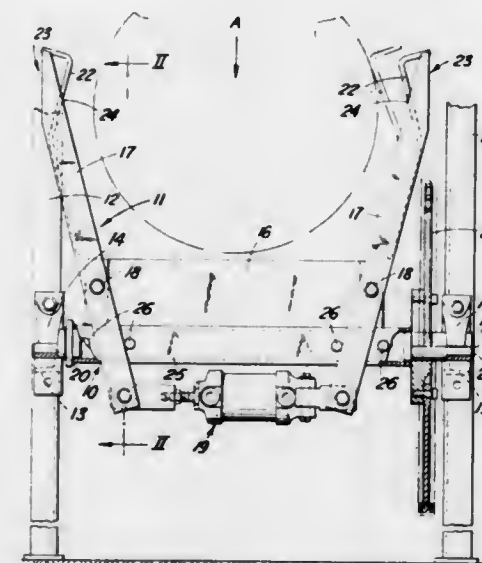
Filed Feb. 25, 1972, Ser. No. 229,434

Claims priority, application Great Britain, Feb. 25, 1971, 5447/71

Int. Cl. B65g 47/24

U.S. Cl. 214-1 Q

1 Claim



Apparatus for turning over containers comprises a gripping unit mounted for rotation about a horizontal axis, the unit comprising gripping means on one side of the axis to grip a container, and actuating means on the opposite side of the axis from the gripping means and arranged to actuate the gripping means.

3,830,379

AUTOMATIC WAREHOUSE CRANE

Max J. Dechantsreiter, and Frederic W. Rau, both of Milwaukee, Wis., assignors to Harnischfeger Corporation, West Milwaukee, Wis.

Filed Feb. 24, 1972, Ser. No. 229,070

Int. Cl. B65g 1/06

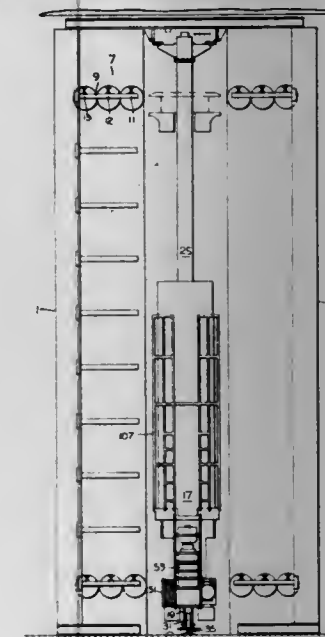
U.S. Cl. 214-16.4 A

5 Claims

An automatic warehouse system comprises stationary load storage racks, each rack having a plurality of storage stations arranged in horizontal rows and vertical columns, and a mov-

ble load carrier cooperable therewith. The load carrier comprises a horizontally movable base or bridge, a vertically movable carriage mounted on the bridge, and one or more laterally movable shifters mounted on the carriage. The bridge, carriage and shifter are driven by individual electric motors. Control means, selectively operable in the manual, semi-automatic or automatic mode, control movement of the load carrier between a pick-up and delivery (or home) station and any desired storage station.

The control means comprises means for sensing whether a load is properly disposed on the shifter and for preventing bridge and carriage movement if it is not.



The control means further comprises means for accurately positioning the bridge with the carriage thereon adjacent a particular vertical column of storage station.

The control means further comprises means for accurately positioning the carriage adjacent a particular horizontal row of storage stations.

The control means also comprises means for sensing whether a particular storage station is already occupied and unable to receive a load.

The control means finally comprises means for moving the shifter to any one of a plurality of positions at a particular storage station to store or retrieve loads thereat.

3,830,380

APPARATUS FOR CARRYING CONSTRUCTION MATERIALS

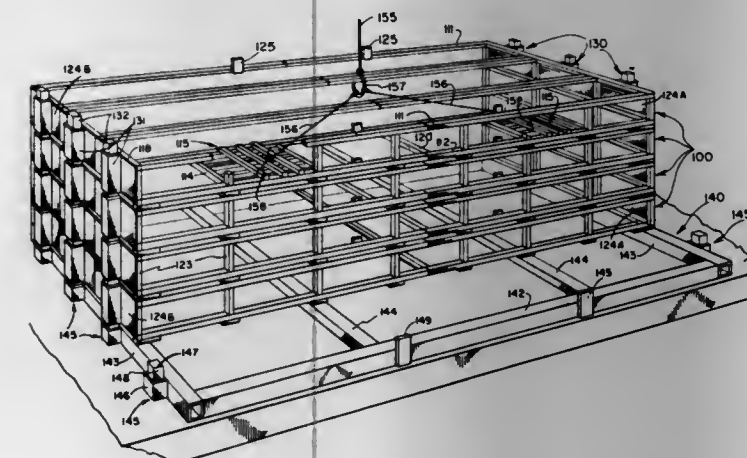
Owen C. Spencer, Blue Island, Ill., assignor to Metropolitan Chicago Baptist Association, S.B.C., Broadview, Ill.

Filed June 5, 1972, Ser. No. 259,995

Int. Cl. B65g 1/14

U.S. Cl. 214-10.5 R

5 Claims



A system for carrying construction materials for construction of a multi-level building includes an elongated stackable.

container having two identical separable sections spliced together in use, pairs of male and female coupling members adapted for engagement with complementary coupling members on adjacent like containers to facilitate stacking thereof, and retaining members for further limiting movement of the containers in a stack of containers with respect to one another. A support base having like coupling members and retaining members is also provided to accommodate several stacks of containers thereon for storage or transportation. Guide shoes having C-shaped guide bearing collars may be detachably mounted on the container for cooperation respectively with vertical guide rails spaced from the associated building, positively to guide the container during raising and lowering thereof by standard hoist means which is positioned to exert on the container a horizontal force component directed toward the building to urge the guide collars into engagement with the guide rails.

3,830,381

TRUCK AND OUTSIZE CARGO CONTAINER

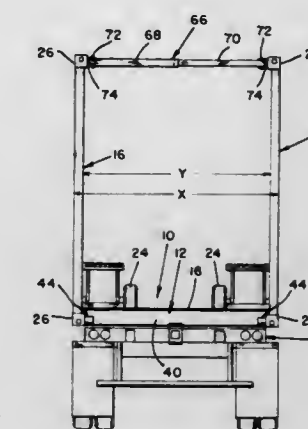
Bert A. Bodenheimer, Stamford, Conn., and Victor G. Parady, Trenton, N.J., assignors to Sea-Land Service, Inc., Elizabeth N.J.

Filed Apr. 27, 1972, Ser. No. 248,070

Int. Cl. B60p 3/06

U.S. Cl. 214-10.5 R

10 Claims



This invention provides a container for large motor vehicles and outsize cargo which includes a generally flat bed and corner posts for stacking the container in superposed relation with other containers and facilitating handling of the container. At least one of the rear corner posts is mounted upon the flat bed for displacement relative to the other corner post to increase the normal spacing therebetween to permit cargo wider than the normal spacing between the corner posts to be loaded upon the container.

3,830,382

ARTICLE HANDLING APPARATUS WITH SPRING-ASSISTED PANTAGRAPH RAISING MECHANISM

Yoshimasa Nagamori, Toyama, Japan, assignor to Kabushiki Kaisha Fujikoshi, Ishigane, Toyama-shi, Toyama-ken, Japan

Filed Nov. 2, 1972, Ser. No. 303,269

Claims priority, application Japan, Nov. 6, 1971, 46-103487

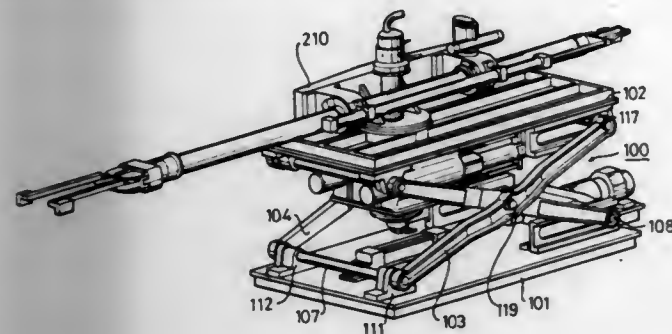
Int. Cl. B66c 1/44

U.S. Cl. 214-1 BB

14 Claims

An apparatus for handling articles comprises a platform, a mechanism mounted on the platform for handling the articles, a foldable pantagraph for supporting the platform and means to operate the pantagraph for moving the platform in the verti-

cal direction, said handling mechanism being supported preferably and rotatably by the platform. Further provided is a



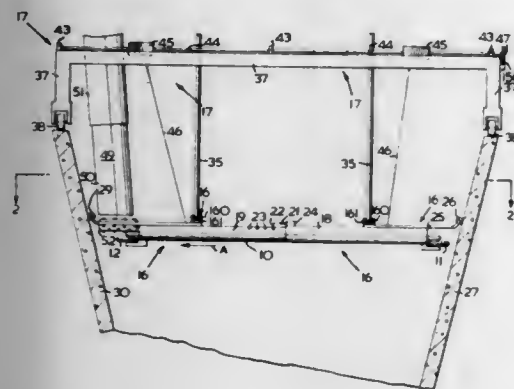
spring which is associated with the pantograph operating means to assist the same while the pantograph is being folded.

3,830,383 UNLOADER

Robert T. Skippon, R.R. No. 1, Guelph, Ontario; Charles M. Robinson, R.R. No. 1; David C. Tinney, c/o 166 Daniel St., both of Erin, Ontario, and Simon Q. M. Koopman, R.R. No. 1, Erin, Ontario, all of Canada
Filed Dec. 4, 1972, Ser. No. 311,946
Int. Cl. B65g 65/38

U.S. Cl. 214—17 DB

13 Claims



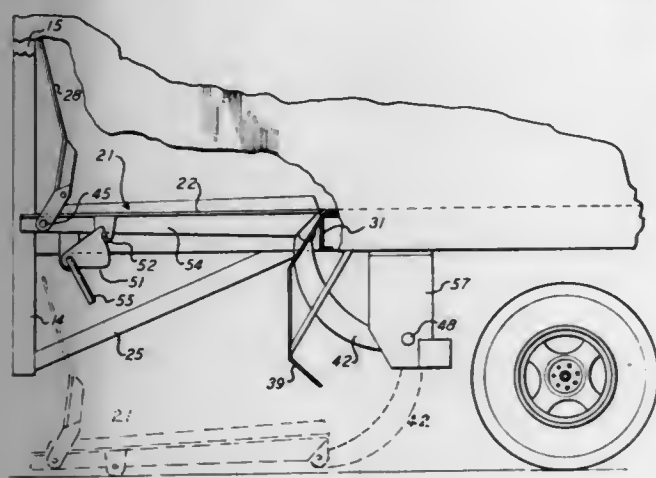
A bulk material unloader, such as a silo unloader, having a material gathering endless chain. The length of the material engaging portion of the chain can be changed, whereby the unloader is particularly suitable in unloading ensilage from trough-shaped horizontal silos.

3,830,384 LADING VEHICLE CARGO LIFT

John Chester Barber, 601 E. DeMar Blvd. Apt. 408, Pasadena, Calif. 91101
Filed Aug. 23, 1972, Ser. No. 283,169
Int. Cl. B60p 1/44

U.S. Cl. 214—77 P

5 Claims



A separate rear section of a truck or lading vehicle floor is supported by differently pivoted lift arm pairs actuated by a

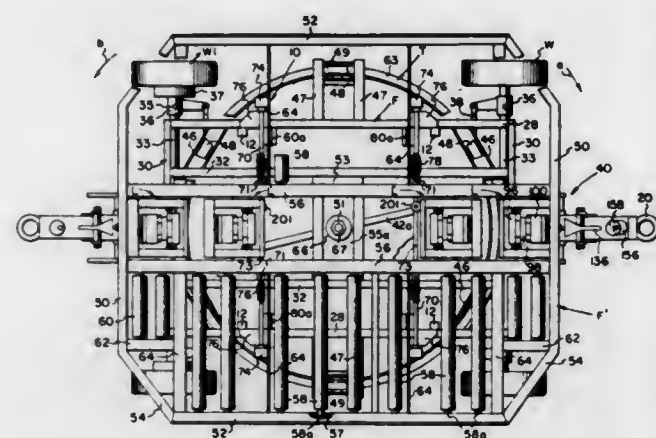
hydraulic cylinder such that the floor section may be selectively lowered from a position coplanar with the rest of the floor to a lower position in order to coincide with the varying elevations of loading docks, streets or other loading platforms. A hinged wheel ramp at the rear of the movable floor section acts as a partial tailgate when raised. Latch apparatus secures the moving floor section in its coplanar relationship to the lading vehicle floor for travel as a part of the loadbearing area.

3,830,385 BAGGAGE CART

Richard S. Young, Frankenmuth, Mich., assignor to Saginaw Products Corporation, Saginaw, Mich.
Division of Ser. No. 94,892, Dec. 3, 1970, Pat. No. 3,689,106.
This application Mar. 17, 1972, Ser. No. 235,664
Int. Cl. B60p 1/52

U.S. Cl. 214—84

8 Claims



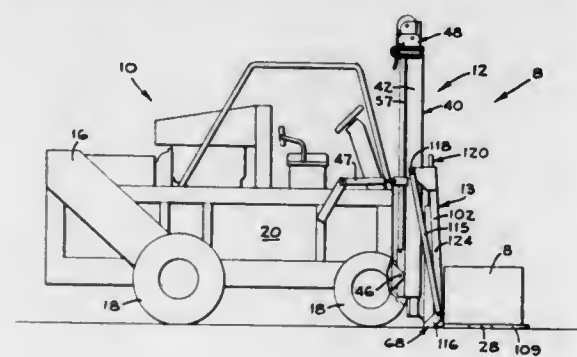
A cart for supporting baggage containers and the like, including a frame supported on surface engaging wheels, a conveying platform rotatably mounted on the frame, apparatus on the frame and the platform cooperating to selectively lock the platform in various predetermined positions relative to the frame, latch assemblies at opposite ends of the conveying platform for securing opposite ends of a baggage container supported thereon, a steering tongue connected to each of the front and rear sets of wheels and pivotally coupled to a tow bar provided at each end, a releasable lock for selectively preventing relative movement of the steering tongue and the tow bar at either end of the cart to provide for selective locking and steering at either end so that when in train, the carts may be readily conditioned to steer from either end, and apparatus for releasably coupling the tow bar of one vehicle to the tow bar of an adjacent vehicle.

3,830,386 BIN DUMPER

Leon R. McRobert, P.O. 760 San Jose, Ocoee, Fla. 95106
Division of Ser. No. 228,023, Feb. 22, 1972, Pat. No. 3,739,929. This application Mar. 30, 1973, Ser. No. 347,120
Int. Cl. B60p 1/46

U.S. Cl. 214—313

6 Claims



A bin dumper and bin clamp mounted on a vehicle includes a fork lift unit. When moved to the dumping position, the

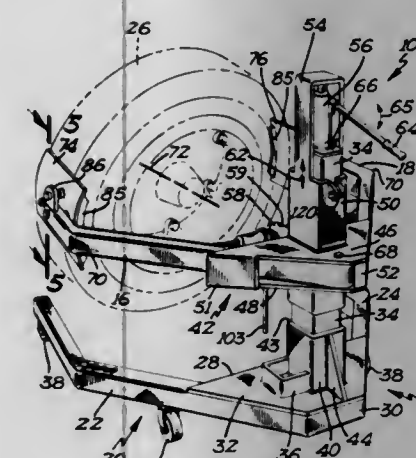
dumping mechanism of the bin dumper tilts the containers in excess of 90° about pivot points adjacent the ends of the tines of the fork lift unit and the clamp mechanism of the bin dumper is activated to positively lock the container to the dumping mechanism during this tilting operation. The empty containers may then be lowered directly onto the ground or the flat bed of a truck, or may be lowered upon a carriage which moves at least several containers into a storage tunnel of the vehicle.

3,830,387

VEHICLE WHEEL HANDLING APPARATUS
Sep Jacob Virnig, 620 N. 8th St., Medford, Wis. 54451
Filed Mar. 15, 1973, Ser. No. 341,697
Int. Cl. B60b 29/00

U.S. Cl. 214—331

10 Claims



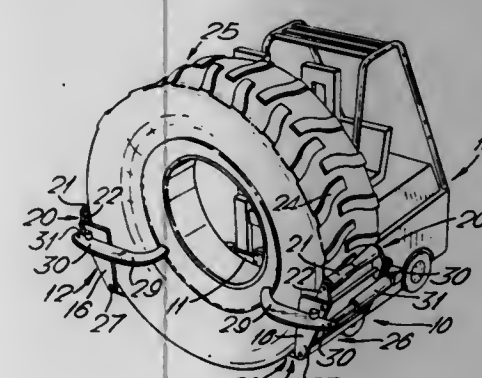
A vehicle wheel handling apparatus for holding and manipulating heavy vehicle wheels of single or tandem nature, comprises a frame including an upright post with a slidably mounted carriage thereon having wheel engaging means such as a pair of arms swingably mounted relative to one another, each arm having a pivotally mounted wheel engaging member adjacent the end thereof. Means are provided for tightening the wheel engaging means on single or tandem vehicle wheels to retain the wheels. A wheel removing mechanism is provided to urge hard to remove wheels from the vehicle. The apparatus permits single or tandem vehicle wheels to be lifted from the vehicle axle, moved about, retained during servicing, or pivoted about a horizontal axis by an operator.

3,830,388 WHEEL MANIPULATOR

Daniel Badelier Mott, 160 The Esplanade, Burleigh Heads, Australia
Filed July 27, 1972, Ser. No. 275,592
Claims priority, application Australia, July 30, 1971, 5736/71
Int. Cl. B60b 29/00

U.S. Cl. 214—333

6 Claims



A wheel manipulator for handling extremely large wheel assemblies such as those fitted to Euclid type trucks, having a

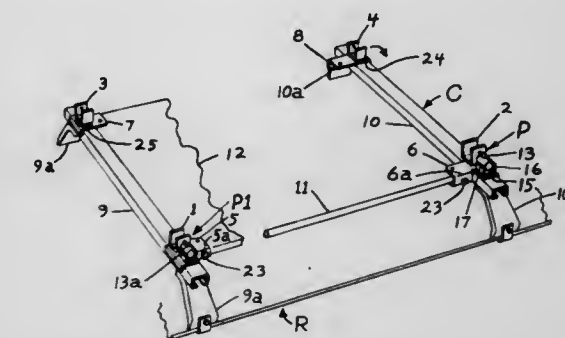
load carrying capacity of about one hundred tons and upwards, and usable for removing a wheel from and/or fitting a wheel onto a truck or the like. The wheel manipulator includes a main frame and a wheel supporting assembly connected thereto and provided with wheel engaging means which are operable to secure a wheel to the wheel supporting assembly. The wheel supporting assembly is selectively movable between a first position at which a wheel supported thereby has its normal axis of rotation horizontal and a second position at which a wheel supported thereby will have its normal axis of rotation vertical. In operation, a wheel may be removed from a truck by the wheel manipulator and transported thereby to a wheel press or the like. The wheel can then be selectively raised or lowered or tilted until its normal axis of rotation is vertical, for loading onto a wheel press.

3,830,389

AUTO TOP BOAT LOADER AND CARRIER
John J. Van Acker, 12910 Lynn Ave., Chesterland, Ohio 44026
Filed Aug. 16, 1973, Ser. No. 389,001
Int. Cl. B60r 9/00

U.S. Cl. 214—450

4 Claims



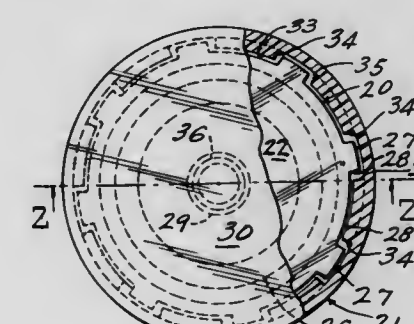
An attachment for use with conventional auto top utility carriers to facilitate one-man loading and unloading of a boat onto and from the top of an auto. The attachment includes universal pivotal support means mounted on the utility carrier for receiving the gunwales of the boat and clamping means for securely retaining the boat in a bottom-up loaded position on the auto top. Guide means are provided for steadying the boat during the loading or unloading operation and, optionally, the guide means may be in the form of a platform for storing articles thereon in a protected position under the boat loaded on the auto top. Pivot means are provided on one side of the carrier to permit lifting one side of the boat in loaded position to permit access to the platform.

3,830,390

SAFETY CLOSURE FOR MEDICINE BOTTLES OR THE LIKE
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.
Filed Mar. 22, 1972, Ser. No. 237,054
Int. Cl. B65d 55/02

U.S. Cl. 215—9

4 Claims



A safety closure for a container having a threaded neck. The closure consists of a relatively stiff, inner threaded cap

and a relatively resilient outer driver. The inner cap has a circular top and cylindrical skirt. There are a plurality of ribs on the outer side of the cap skirt at the periphery of the top. The driver has a cylindrical skirt and a top and is telescopically fitted over the cap. There is a series of inwardly and downwardly extending lugs at the inner side of the junction of the top and skirt of the driver. A spacer at the center top of the cap holds the driver in normal, vertically spaced position. The lugs have vertical front edges which extend downwardly a distance sufficient to extend between and engage the ribs for driving the cap onto the container neck. The lugs also have vertical back edges which do not extend downwardly such distance when the driver is in normal position. The cap is removed from the container by flexing the periphery of the driver downwardly to engage the back edges of the lugs with the ribs on the cap. In another embodiment, the spacer is annular and holds the rim of the driver up, the lugs and ribs are at inner annular areas, the overcap and driver, respectively, and the central portion of the top of the overcap is flexed downwardly to engage the back edges of the lugs with the ribs for unscrewing the cap.

3,830,391

SAFETY CLOSURE CONTAINER

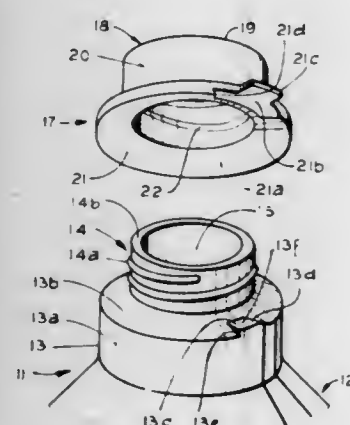
Gerhardt E. Uhlig, 1900 Alexis Rd., Apt. L-201, Toledo, Ohio 43613

Continuation of Ser. No. 16,427, March 4, 1970, abandoned.
This application Sept. 11, 1972, Ser. No. 288,129

Int. Cl. A61j 1/00

U.S. Cl. 215-9

14 Claims



A container and closure construction featuring locking arrangements in the form of registering dent(s) and projection(s) formed on said container and closure which engage easily and disengage only through purposeful mind-controlled manipulation thereof, coupled with flexing of one of said container or closure to accomplish said disengagement. A screw thread coupling of closure and container represents a preferred embodiment.

3,830,392

PLASTIC SELF-RECLOSED SAFETY CAP WITH ELASTIC SPRING

Gerald Kessler, 388 Cranberry Rd., Boardman, Ohio, and Max L. Libman, Reston, Va., assignors to said Kessler, by said Libman

Filed Oct. 2, 1972, Ser. No. 293,835

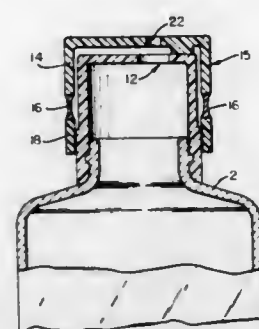
Int. Cl. B65d 55/02

U.S. Cl. 215-9

8 Claims

A plastic self-reclosing safety cap is described which is made of two molded pieces, one fixed to the bottle or container which it closes, and the other piece nested over the first so as to normally close an aperture, but which can be opened

by first pulling and then twisting the outer piece to align its aperture with the aperture in the first cap, against the



resilience of an integral elastic annular band which restores the normal closed condition when the opening force is released.

3,830,393

SNAP-ON SAFETY CLOSURE FOR FLEXIBLE CONTAINERS

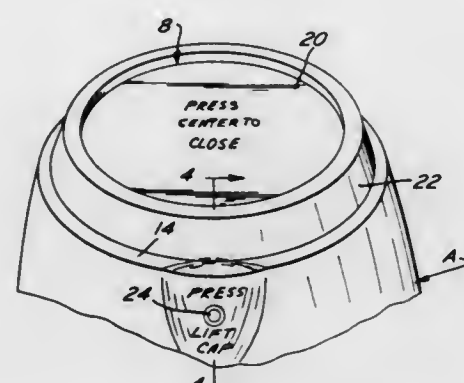
Robert Bey Schaefer, Willistown, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed July 28, 1972, Ser. No. 276,181

Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215-9

5 Claims



A snap-on closure for flexible containers is resistant to removal by small children. An enlarged shoulder on the container body is engaged by the smaller perimeter of the cap when the latter is snapped upon the container mouth. By making the cap difficult to grasp in closed disposition, entry is obtained only by distorting the shoulder sufficiently to permit insertion of a fingernail under the perimetrical edge of the cap thereby enabling lift off. Instructions for the removal of the cap as well as for the reclosure thereof are incorporated on the container to facilitate actuation by those of reading age.

3,830,394

LOCKING DEVICE FOR CONTAINERS

Pierre J. Lestaevel, 2727 29th St. NW, Washington, D.C. 20008

Continuation-in-part of Ser. No. 236,933, March 22, 1972, abandoned. This application Jan. 17, 1973, Ser. No. 324,258

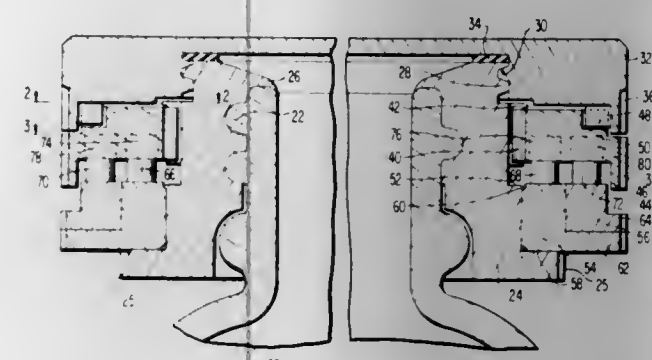
Int. Cl. B65d 55/14

U.S. Cl. 215-9

21 Claims

A cover for a container is provided with a fastener for engagement with a complementary fastener on a container or an intermediate adapter ring. A locking ring is slidably mounted on the ring or container for axial movement into and out of locking engagement with the cover. One or more combination type rings are rotatably mounted on the adapter ring or container below the locking ring. One or more coaxially extending projections are mounted on each combination type ring for engagement with an annular surface of the locking ring to hold the locking ring in engagement with the cover or for engage-

ment in complementary recesses formed in the annular surface of the locking ring to allow axial movement of the locking ring out of locking engagement with the cover. A spring is provided to bias the combination type rings in opposite directions



to frictionally hold the locking ring out of engagement with the cover and to scramble the combination type rings upon return of the locking ring into locking engagement with the cover.

3,830,395

CONTAINER AND COVER THEREFOR

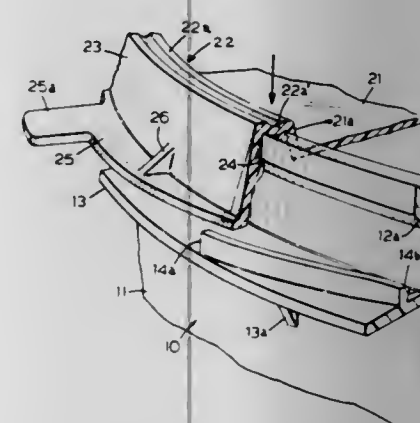
Victor Eugene Criscl, Wellsburg, W. Va., assignor to Mammoth Plastics Inc., Wellsburg, Va.

Filed Nov. 20, 1972, Ser. No. 307,422

Int. Cl. B65d 45/00

U.S. Cl. 215-321

9 Claims



The invention is concerned with drum-type containers, particularly plastic containers having flexible covers which form a fluid-tight seal by means of a locking action which holds the cover in positive engagement with the container.

ERRATUM

For Class 221-236 see:
Patent No. 3,830,409

3,830,396

CONTAINERS FOR LIQUEFIED GASES

Robert G. Jackson, Hornchurch, England, assignor to Conch International Methane Limited, Nassau, Bahamas

Filed Sept. 20, 1971, Ser. No. 181,711

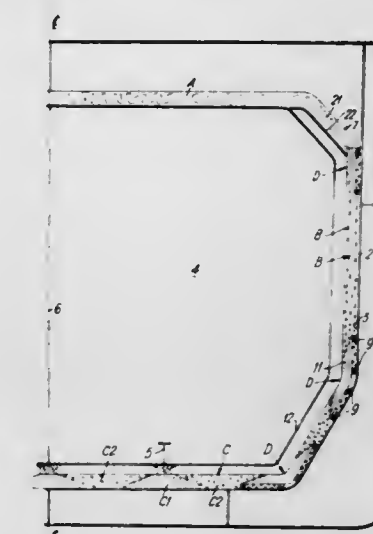
Int. Cl. B65d 25/18, 25/00

U.S. Cl. 220-9 LG

3 Claims

A large-scale self-supporting insulated metal tank for cryogenic fluids such as liquid natural gas, in which the insula-

tion lining the bottom of the tank has spaced sections of expensive load-bearing material capable of bearing the load of



3,830,397

CLOSURE ASSEMBLY FOR PRESSURE VESSELS

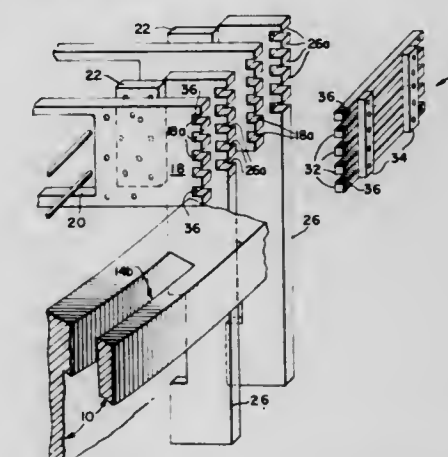
Svend M. Jorgensen, Tenaflly, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J.

Filed Sept. 22, 1971, Ser. No. 182,780

Int. Cl. B65d 39/00; E04b 1/32; A47j 27/08

U.S. Cl. 220-24 R

8 Claims



A closure assembly for a pressure vessel having at least one open end in which a plurality of girder assemblies extends across the open end, with each of the girder assemblies consisting of a plurality of girders which are connected together. Each girder assembly is individually releasably connected to the vessel.

3,830,398

PRESSURE RELIEF RADIATOR CAP

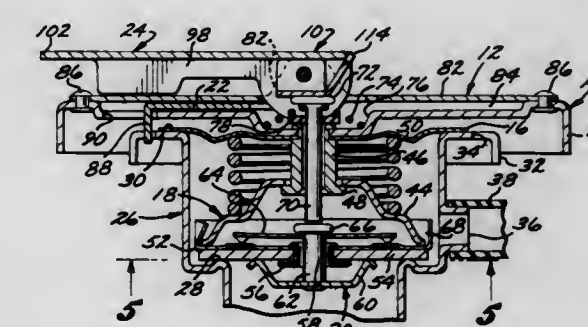
Donald J. Shanklin, Granada Hills, Calif., assignor to Orion Industries, Inc., Los Angeles, Calif.

Filed Nov. 29, 1972, Ser. No. 310,259

Int. Cl. B65d 41/06, 51/16

U.S. Cl. 220-40 S

9 Claims



A pressure relief radiator cap having a lever pivotable about a horizontal axis to a downward position to slide the depend-

ing toe of a sliding pawl into locking registry with one of the usual radiator filler neck flange recesses, and constrain the cap against removal. The lever is upwardly pivotable to slide the depending toe out of such registry to permit removal of the cap, but such upward movement contemporaneously operates valve means of the cap to vent radiator pressure, whereby dangerous pressures are automatically released before one can attempt to rotate the cap for removal.

3,830,399

CONTAINER CLOSURE

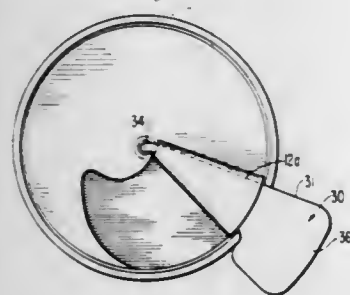
Frederick W. Hill, Rte. 3, Box 143, Palermo, W. Va. 25546

Filed July 11, 1973, Ser. No. 378,109

Int. Cl. B65d 17/26

U.S. Cl. 220—52 R

16 Claims



An easily removable closure plate for a container, the plate having a first annular line of weakness extending about its peripheral area, and second and third lines of weakness meeting at an initial tear area located between the center and peripheral area of the plate. The second line of weakness extends outwardly along an arc from the initial tear area to the first line of weakness while the third line of weakness extends inwardly along an arc to and around the center of the plate. To sever and remove the plate, an elongated generally triangular flat tab is rotatably mounted to the plate at the initial tear area. The tab is raised to initially sever the plate at the initial tear area, then the tab is rotated to extend outwardly beyond the periphery of the plate with the narrower end of the tab generally aligned with the center of the plate, and then the tab is rotated about its longitudinal axis while revolved about the periphery of the plate to progressively sever the plate along the lines of weakness with the severed portions being progressively wound about the tab. An annular reinforcing rib is provided about the center of the plate while a plurality of radially extending straight reinforcing ribs are also provided in the plate. Indicia is provided on the plate and the tab to indicate the proper rotated position of the tab prior to continued severance and winding of the severed plate portions on the tab. Additionally, the tab is provided with a recess along one side for guiding the severed wound portions thereon. Also, the opposite ends of the tab are bent upwardly away from the plate to facilitate rotation of the tab without obstruction.

3,830,400

WARNING DEVICE FOR HIGH PRESSURE VESSELS

Henry J. Plegza, Clarence, N.Y., assignor to WSF Industries, Inc., Tonawanda, N.Y.

Filed Dec. 4, 1972, Ser. No. 312,186

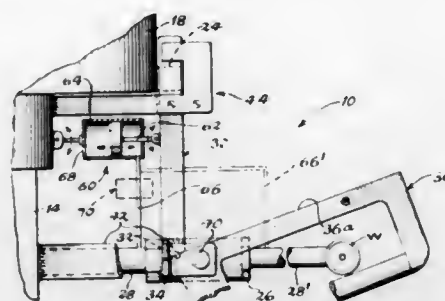
Int. Cl. A47j 27/08; F16k 45/00; E05c 19/00

U.S. Cl. 220—55.3

10 Claims

The warning device includes a stop movable between door latching and unlatching positions under the control of a manually manipulated handle operator after an initial period of handle operator movement, during which the latter serves

to open a vessel pressure exhaust valve. A modified construction features a fluid cylinder unit coupled between the vessel



and the stop in order to constrain movements of the stop until pressure within the vessel is reduced to a predetermined safe value.

3,830,401

TONER CONCENTRATION MONITORING APPARATUS

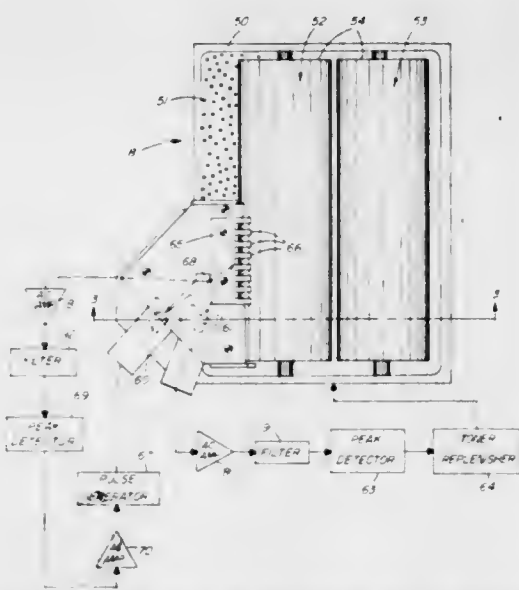
Bruce R. Benwood, Spencerport; Theodore H. Morse, and Howard D. Siebenrock, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 207,226, Dec. 13, 1971, abandoned. This application Aug. 1, 1973, Ser. No. 384,670

Int. Cl. B67d 5/08

U.S. Cl. 222—57

11 Claims



Apparatus for continuously monitoring the concentration of toner in an electrographic developer mixture carried on a development mechanism by sensing the reflectivity of the mixture. A source of radiant energy, periodically energized at a selected frequency, is directed at the developer mixture and the reflectance thereof is monitored by a photoelectric transducer which produces a first output signal representative of the intensity of such reflectance.

A second photoelectric transducer illuminated directly by the source produces a second output signal representative of the intensity of the radiation emanating from the source as modulated by the surrounding environment. The first and second output signals of the two transducers are coupled to high pass filters which eliminate signals generated by the transducers representative of ambient light and electrical noise. The a.c. output signals from the filters are converted to d.c. signals corresponding to the first and second output signals of the transducers, which d.c. signals are used to control the concentration of toner in the mixture in two alternative ways. In one embodiment, the d.c. signals are fed to a mechanism which produces a control signal proportional to the ratio of their amplitudes, which ratio is proportional to the proportion of the mixed materials. In a second embodiment, a toner replenisher is activated in response to a predetermined change in amplitude of the first d.c. signal. The second d.c. signal is used in a feedback loop for stabilizing the output of the radiation source.

3,830,402

CONTROL SYSTEM FOR LIQUID DISPENSERS

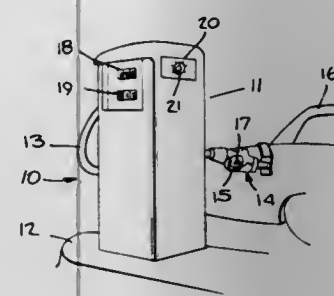
Munson H. Pardee, Clinton, N.Y., assignor to Hamilton Digital Controls, Inc., Utica, N.Y.

Filed Sept. 18, 1970, Ser. No. 73,384

Int. Cl. B67d 5/30

U.S. Cl. 222—20

7 Claims



A control system for a liquid dispenser, such as a gasoline pump, the system being adapted to dispense a pre-set volume or dollar amount of gasoline. The control system includes a bank of normally open selector switches which are selectively closed by means of a manually adjustable knob whose setting determines the amount to be dispensed, and a like bank of detector switches which are selectively closed by means of a counter wheel which indicates the volume or the dollar amount of gasoline dispensed by the pump. Each pair of correspondingly numbered switches in the two banks is connected in series between a power source and a relay, whereby the relay is actuated only when a matching pair of switches are simultaneously closed. The relay, when actuated, acts to de-energize and brake the motor for the pump, whereby the flow of gasoline is immediately arrested when the amount dispensed is in accordance with the knob setting.

3,830,403

DYNAMIC PROPORTIONAL METERING DEVICE FOR FLUIDS

Joseph Castan, and Claude Francis Fernand Yves Fremont, both of Levallois, France, assignors to HERFILCO, Levallois (Hauts de Seine), France

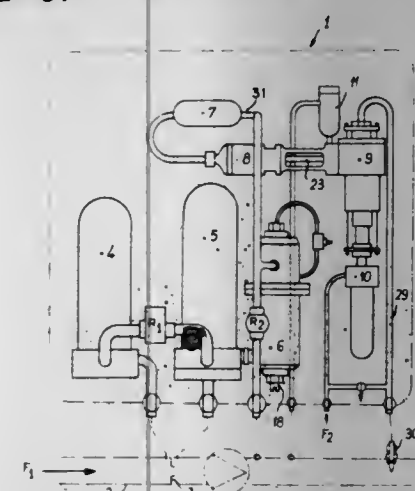
Filed Aug. 21, 1973, Ser. No. 390,259

Claims priority, application France, Sept. 26, 1972, 72.34059

Int. Cl. B67d 5/18

U.S. Cl. 222—57

4 Claims



This dynamic proportional metering device for fluids comprises a time-lag unit and a capacity of which the filling time is a linear function of the main fluid output, a pressure pulse generator delivering pulses at a frequency proportional to said filling time and a function of the main fluid output, a pulse regulator, a pulse pump for displacing a volume of intermediate fluid acting upon a compression chamber co-acting with a secondary-fluid injection unit; this metering device is particularly suited for injecting an odorous fluid into a stream of natural gas.

3,830,404

SIMULATED WRITING INSTRUMENT AEROSOL CONTAINER

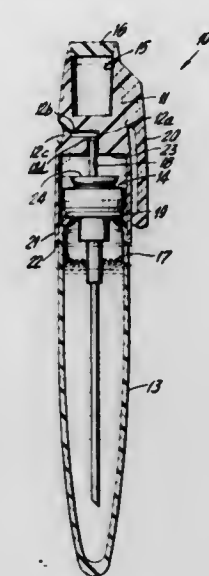
John S. Frazer, Pequannock, N.J., assignor to Consupak, Inc., Morristown, N.J.

Filed Feb. 26, 1973, Ser. No. 335,593

Int. Cl. B67d

U.S. Cl. 222—78

5 Claims



An aerosol container simulating a writing instrument is provided wherein an aerosol valve cover simulates a writing instrument cap, said cover when depressed slidably engages the container body surface and concomitantly actuates the aerosol valve so as to permit aerosol spray to pass upwardly through an outwardly from said cover. The aerosol valve elements are concealed from view, and the aerosol orifice is concealed from view when the valve cover is clipped to a pocket.

3,830,405

BEVERAGE DISPENSING APPARATUS FOR DISPENSING A PREDETERMINED QUANTITY OF FLUID

Wilbert J. Jaeger, Orange, Calif., assignor to Lincoln-Hall Research Company, Santa Ana, Calif.

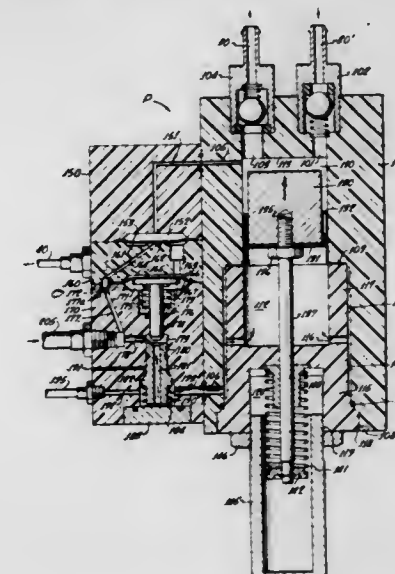
Continuation of Ser. No. 38,800, May 19, 1970, abandoned.

This application Dec. 7, 1972, Ser. No. 312,926

Int. Cl. B67d 5/56

U.S. Cl. 222—129.3

10 Claims



An automated beverage dispensing system for dispensing liquor, soft drinks, or mixed drinks from a single dispensing nozzle assembly.

Liquor is drawn by vacuum from a vertically upright bottle having a tube inserted therein in loose fitting relationship so that atmospheric air pressure may be received within the bot-

tle. Liquor is dispensed by a displacement pump having a liquid metering chamber whose volume may be adjusted. The displacement pump includes a reciprocating piston, and a gas expansion chamber at the rear of the piston to which pressurized gas is supplied for driving the piston forward.

The dispensing stroke of the liquor dispensing pump is initiated manually but is timed automatically. A push-button on the nozzle assembly is depressed for initiating the supply of energy to the dispensing pump, and the forward movement of the piston then generates liquid pressure which is detected in a control loop through a pressure-sensitive device and utilized for continuing the energization of the pump. When the piston strikes the forward end wall of the pump the operation of the control loop is interrupted.

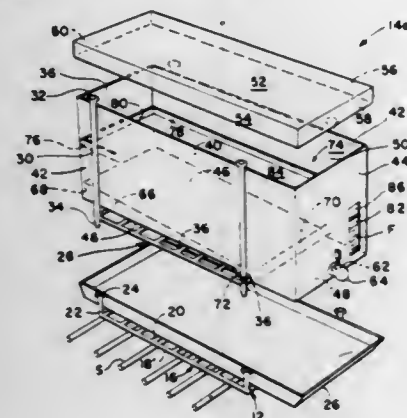
3,830,406

REFRIGERATOR DISPENSING CONTAINER ARRAY
Maurice R. Robb, 12240 Arrow Park Dr., Tantallon, Md. 20022

Filed Nov. 30, 1972, Ser. No. 310,676
Int. Cl. B67d 5/60

U.S. Cl. 222-143

2 Claims



A modular space-saver type array of dispensing liquid containers for household refrigerator use; parallel-racked rectangular containers have in an embodiment a wedge-section plastic floor draining to a forward valve-supplied sump and accessible for cleaning and refill through a removable hinged top, and have in a further embodiment downwardly sloped top and bottom with vertical front, back and sides; bottoms with rack-engaging detents and open work racks with drip trays are further features.

3,830,407

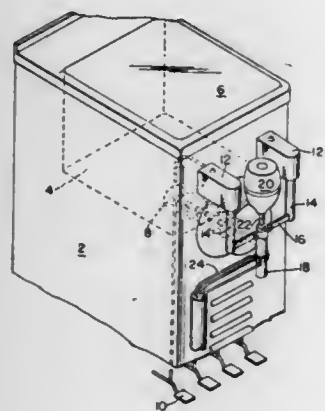
BLENDER FOR MULTI-FLAVORED MILKSHAKE MIXING

Edward Wierlo, Seattle, Wash., assignor to Sweden Freezer Manufacturing Company, Seattle, Wash.

Filed June 29, 1972, Ser. No. 267,454
Int. Cl. B67d 5/60

U.S. Cl. 222-145

4 Claims



A multi-flavor dispensing freezer which will selectively dispense a flavored food product in any one of a plurality of

flavors. An unflavored comestible, such as ice cream, frozen custard, or the like, is forced into a dispensing nozzle. As the comestible flows toward the exit of the nozzle it is intermixed with the desired flavor. A combination of agitator-mixer-scraper mounted within the dispenser nozzle and which rotates at a rapid speed, with a scraper cleaning the syrup from the wall of the mixing chamber. The syrup being heavier and with a lower freezing point than the bulk milk mixture, is thrown out of solution by centrifugal force but is then folded back into solution with the body of the mixture as it rapidly passes through the chamber. This action causes complete mixing of the unflavored comestible and desired flavor, such that the product dispensed is uniform in color and flavor and between the centrifugal force of the fast turning agitator and the scraper blades, leaves the surfaces of the equipment clean and relatively free of food product, avoiding dripping and carry-over between flavors without other cleaning, in rapidly serving product.

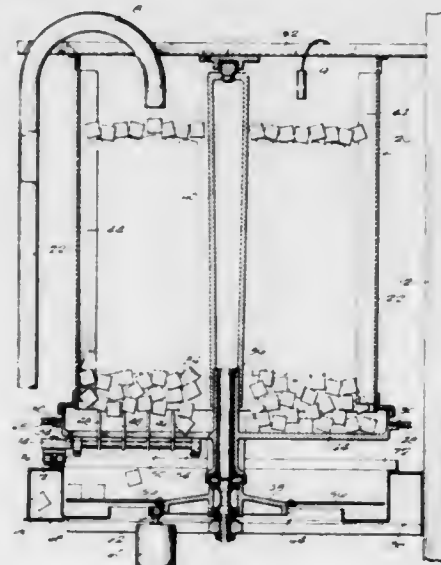
3,830,408

ICE CUBE STORAGE HOPPER AND DISPENSER
Richard B. Brindley, La Crosse, Wis., and Kenneth J. Schroeder, Caledonia, Minn., assignors to La Crosse Cooler Company, La Crosse, Wis.

Filed Nov. 10, 1972, Ser. No. 305,223
Int. Cl. F25c 5/16

U.S. Cl. 222-168

3 Claims



Ice cubes are made by an ice flake compactor and are conveyed to a storage hopper having a rotatable bottom with a radial slot therein for discharging the ice cubes therethrough. An agitator is mounted within the slot and is radially reciprocated when the bottom is rotated to agitate the ice cubes immediately above the slot so as to separate them from one another and allow them to pass through the slot. The agitator contains wire fingers which project through the slot and cam means for radially reciprocating the wire fingers when the bottom is rotated. A relatively rapidly rotating disc is positioned below the hopper bottom to catch the ice cubes which fall through the slot and move them radially outwardly by centrifugal force and circumferentially into a discharge spout.

3,830,409

CONTROLLING THE SUPPLY OF ARTICLES
Bruce Ian Jenkinson, Turramurra, New South Wales, Australia, assignor to S. I. Handling Systems, Incorporated, Easton, Pa.

Filed Nov. 28, 1972, Ser. No. 309,991
Claims priority, application Australia, Dec. 16, 1971, 7407/71

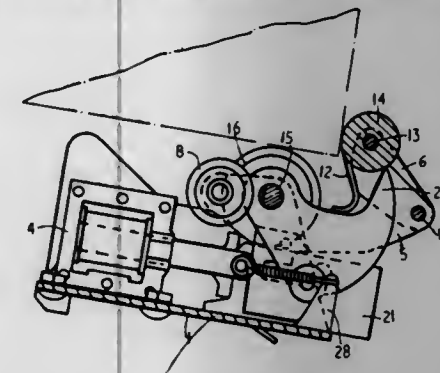
Int. Cl. B65h 5/06

U.S. Cl. 221-236

5 Claims

A release mechanism or gate is provided for a chute down which boxes are to be delivered in a stream, the gate having a

first arm for selectively holding the first box and releasing the box when a control solenoid retracts the arm. Furthermore, a second arm is provided to move upwardly from below the first box when it is released to displace upwardly the box thereby facilitating acceleration of the first box away from the second



box so that the gate can close after releasing one box. Preferably, the second arm is pivotal and has wheels for engaging the box, whilst a strip of high friction material is upwardly displaced by the second arm to engage from below and retard the second box.

3,830,410

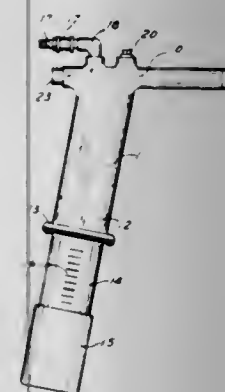
LIQUID DISPENSER OF THE METERING TYPE
Joseph M. Magrath, P.O. Box 148, McCook, Nebr. 69001, and William J. Martin, Watervliet, Mich., assignors to said Magrath, by said Martin

Continuation of Ser. No. 64,311, Aug. 17, 1970, abandoned.
This application Oct. 6, 1972, Ser. No. 295,480

Int. Cl. G01f 11/06

U.S. Cl. 222-309

3 Claims



A liquid dispenser particularly suited for the external spreading of insecticide liquids on the backs of cattle and other animals and for oral drenching of cattle, sheep and other animals comprises a rigid body and an elongated barrel or nozzle element formed in pistol-like configuration. The body is shaped to provide a grip of elongated cross section adjacent the barrel and a cylindrical chamber and spring biased piston below the grip. The piston compresses the spring when liquid is admitted to the chamber under pressure from a pressure connection on the barrel. The stroke of the piston is adjustable to set the quantity of liquid to be discharged and the adjustment device assures compression of the spring to the same degree regardless of the quantity of liquid to be discharged.

3,830,411

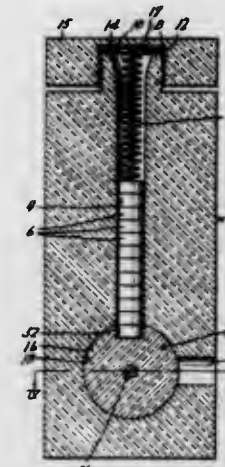
PILL CONTAINER-DISPENSER
Joseph Krechmar, 6001 W. 53 Pl., Mission, Kans. 66202
Filed June 12, 1972, Ser. No. 261,920
Int. Cl. B65g 59/06

U.S. Cl. 222-363

2 Claims

A container-dispenser for pills and the like having a filling opening with a sealing cap, and a dispensing device whereby pills may be discharged individually, both the cap and the

dispensing device being operable to maintain a water-tight, air-tight seal at all times. The container-dispenser is especially

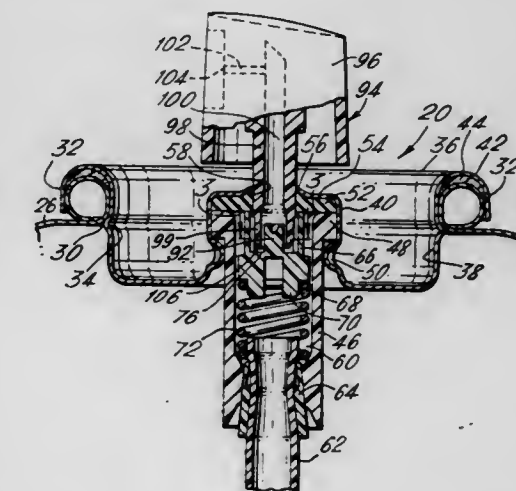


3,830,412

AEROSOL VALVE AND SPRAYHEAD
Edward H. Green, 11 Army Trail Rd., Addison, Ill. 60101
Filed Mar. 16, 1971, Ser. No. 124,809
Int. Cl. B65d 83/14

U.S. Cl. 222-402.24

5 Claims



An aerosol spray valve of the type which utilizes a reciprocable plunger moving within a valve housing that is in turn mounted to a cover member. The cover member is adapted to be crimped to a canister and has a dip tube extending from the interior of the valve housing to the bottom of the canister. Pressurized product is forced from the interior of the canister through the dip tube into the valve housing and out of the cover member through a central hole into a sprayhead that is mounted in the hole. An annular elastomeric gasket surrounds the hole and the upper end of the reciprocable plunger forms a valve seat that is spring-biased against the underside of the gasket to prevent pressurized product from emerging. The sprayhead has an associated stem that enters a socket formed in the plunger, the stem being slidably and sealingly engaged through the hole and the passageway in the elastomeric gasket. The stem is imperforate. The socket of the plunger has channel means formed in its interior wall along the vertical length thereof so that there are one or more passageways formed between the outer surface of the stem and the socket to transport the pressurized product. The pressurized product enters at the top of the plunger when the valve seat is unseated from the elastomeric gasket, passing through the passageways to the bottom of the plunger on the interior thereof, and then into the hollow bore of the stem from whence it is conveyed to the bottom of the sprayhead and out to the atmosphere when the button is depressed. The bottom end of the stem is spaced

above the bottom floor of the socket by reason of a shoulder formed on the stem where it enters the socket. The stem may be separable from the button of the sprayhead or may be integral therewith. If separable, the stem is substantially permanently engaged in the socket. The resulting structure provides accurate metering of the pressurized product.

3,830,413

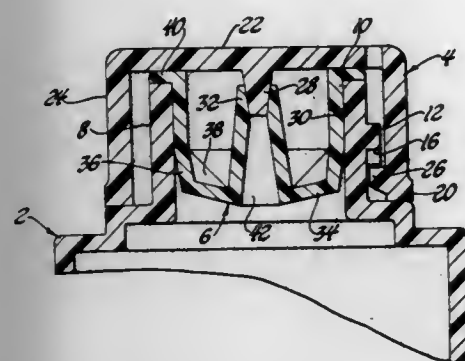
CHILD PROOF SAFETY PACKAGE AND FITMENT THEREFOR

Stewart H. Birrell, Clarkson, Ontario, Canada, assignor to Reflex Corporation of Canada Limited, Windsor, Ontario, Canada

Filed June 26, 1972, Ser. No. 266,198
Int. Cl. B65d

U.S. Cl. 222—563

14 Claims



A child proof safety package including a container having a cylindrical mouth portion with an annular rim and a plurality of container locking elements spaced peripherally from each other on the outer surface of the mouth portion; a cap having an end wall with a skirt projecting therefrom and a plurality of cap locking elements on said skirt, the cap locking elements being engageable with and disengageable from the container locking elements by an axial motion followed successively by a rotative motion of the cap relative to the container, and a fitment biasing the cap against axial movement from locked engagement with the container. The fitment includes a cylindrical sealing wall sealingly engaging the inner wall of the mouth of the container, a plunger coaxial with the cylindrical sealing wall, and support means for supporting the plunger for resiliently yieldable movement in an axial direction with respect to the sealing wall. The support means includes a substantially flat end wall extending radially outwardly from one end of the plunger and an axially and radially outwardly extending side wall having its inner periphery joined integrally to the outer periphery of the end wall and its outer periphery joined to the cylindrical wall whereby the plunger exerts a biasing force between the cap and container to resiliently resist axial disengagement of the cap locking elements from the container locking elements.

3,830,414

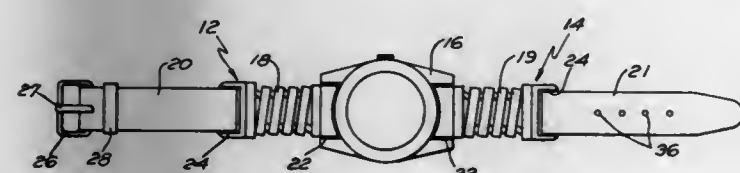
WRISTWATCH BAND

Leon Raymond Capriellian, 283 Camp St., Providence, R.I. 02906

Filed Dec. 26, 1972, Ser. No. 318,586
Int. Cl. A44c 5/00

U.S. Cl. 224—4 D

3 Claims



A wristwatch band having two major components, each having one of its ends attached respectively to the opposite

sides of a wristwatch case. The other ends of the major components are not normally attached to anything when the wristwatch is not being worn. The major components are each comprised of at least two distinct sections, one of said sections having expansible structure and said other section having non-expansible structure. The sections of non-expansible structure are located at the ends of said major components that normally aren't attached to anything. Buckle structure is attached to the free end of one of the non-expansible sections and the other non-expansible section has a plurality of apertures formed therein to receive the pin of the buckle for detachably securing together the free ends of the non-expansible sections when the wristwatch is being worn. The non-expansible sections are normally made of leather and the expansible sections are normally made of metal.

3,830,415

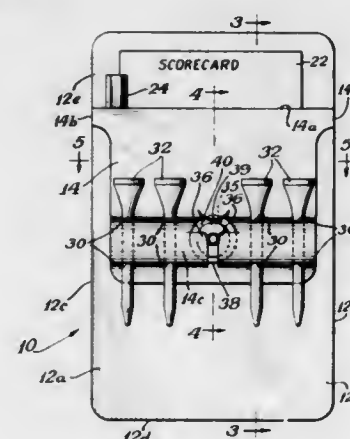
CARRYING CASE FOR GOLFERS

Sidney I. Jacobson; Harold D. Jacobson, both of Chicago, and Arthur F. Jacobson, Highland Park, all of Ill., assignors to S. I. Jacobson Mfg. Co., Chicago, Ill.

Filed Dec. 27, 1972, Ser. No. 318,823
Int. Cl. A45f 5/00; A45c 11/00

U.S. Cl. 224—5 C

2 Claims



An article adapted to be worn on a trouser or shirt pocket both as a protector for the pocket against wear and soiling, and as a convenient carrying case for golf accessories such as a scorecard, pencil, divot fork, tees, ball markers, and the like. The article comprises a body portion having a compartment for holding a scorecard and pencil, for example, and an accessory supporting portion for holding tees and ball markers. The body portion is adapted to be carried in a pocket of a wearer, while the accessory supporting portion lies on the outside of the pocket.

3,830,416

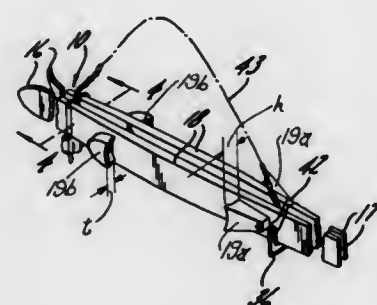
SKI LOCK AND CARRIER

Richard W. Smedley, 1008 Alann Dr., Joliet, Ill. 60435

Filed Mar. 6, 1972, Ser. No. 231,907
Int. Cl. B65d 71/00

U.S. Cl. 224—45 S

1 Claim



A lock and carrier device is provided for snow skis and like objects. The lock includes a lock body and a shackle for

retaining the skis. One end of a flexible link such as a chain or cable is attached to either the lock shackle or body, and the other end is attached to a carrier member. When the skis are placed within the lock and carrier, the flexible link functions as a handle for carrying the skis. In an alternate use, the carrier end of the flexible link may be looped around a fixture such as a ski rack, and the lock member attached to the link passed through an opening in the carrier so that the lock member, carrier and link are secured to the fixture in slip-knot fashion. When the lock body and shackle are thereafter attached together, the lock (with or without retained skis) becomes secured to the fixture.

3,830,417

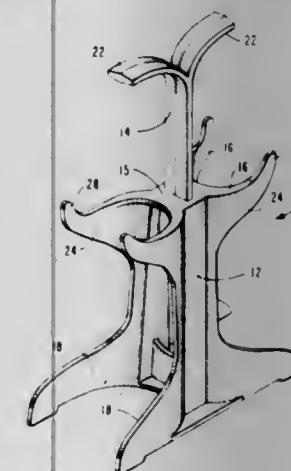
CONDIMENT RECEPTACLE CADDY

Edward N. Montesi, Woonsocket, R.I., assignor to Dart Industries Inc., Los Angeles, Calif.

Filed Jan. 15, 1973, Ser. No. 323,662
Int. Cl. A45c 11/00

U.S. Cl. 224—45 R

3 Claims



A condiment receptacle caddy adapted to releasably retain receptacles held thereby and furthermore to enable contact to exist between a supporting surface and the caddy base and each receptacle base when the unit is at rest thereon.

3,830,418

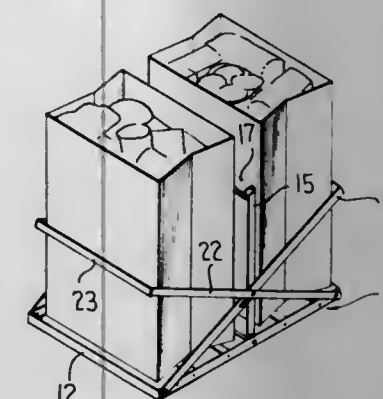
PACKAGE CARRIER

E. Strohm Newell, 2350 Sixth Ave., San Diego, Calif. 92101
Filed Apr. 20, 1972, Ser. No. 246,055

Int. Cl. A47g 23/06

U.S. Cl. 224—48 D

7 Claims



The package carrier comprises a base means for receiving more than one package and a handle means adapted to extend in a direction away from the base means. The base means extends in opposite directions from the handle means so that at least one package may be disposed on each side of the handle means. Additional package support means extend upwardly from the base means to support packages placed thereon. The upwardly extending support means provides support for the packages at a location laterally displaced from the handle means.

3,830,419

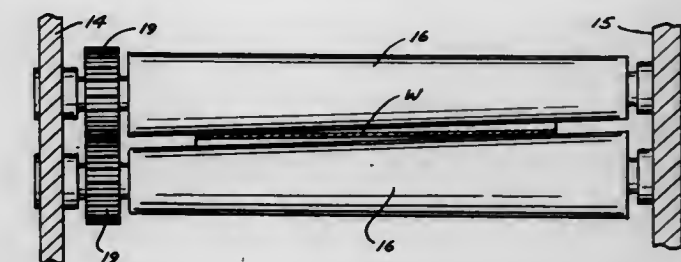
TAPERED ROLLER TRANSPORT MECHANISM FOR WEB OF PHOTOGRAPHIC MATERIALS AND THE LIKE

Conrad E. Lee, Mound, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Aug. 24, 1973, Ser. No. 391,334
Int. Cl. G03d 3/12

U.S. Cl. 226—184

6 Claims



The tapered rollers of this web transport mechanism are specifically constructed and arranged to apply driving force to only the marginal edge portions of the web being transported to minimize the possibility of scratching and pressure marking of the central image-bearing sensitized surface of the web and also maintain frictional driving contact without close fitting tolerance between each pair of rollers. The mechanism includes a plurality of pairs of oppositely tapered rollers having opposed surfaces spaced apart a distance slightly greater than the thickness of the web to be transported, the rollers of adjacent pairs being oppositely tapered and arranged to alternately offset the marginal edge portions of the web path defined thereby and produce a zigzag, twisting action on the web to cause the frictional driving pressure to be exerted only on the marginal edge portions of said web and also permit a spacing wider than the web thickness be maintained between each pair of rollers.

3,830,420

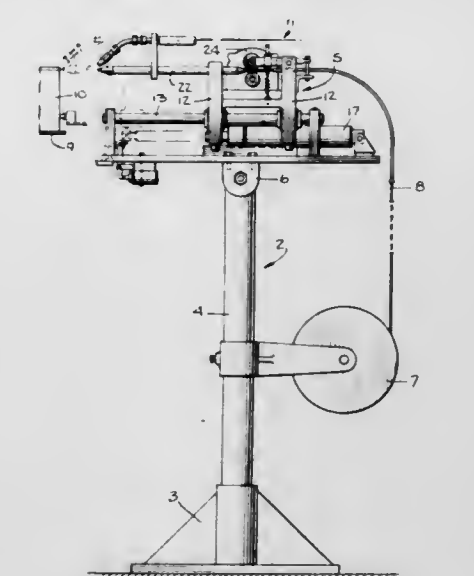
AUTOMATIC BRAZING WIRE FEEDER

Anthony A. Milana, Toms River, and Jaime Lehman, Irvington, both of N.J., assignors to Kahle Engineering Co., Union City, N.J.

Filed June 6, 1973, Ser. No. 367,371
Int. Cl. B23k 1/00, 5/00

U.S. Cl. 228—9

9 Claims



An improved automatic brazing wire feeder is disclosed for use in brazing, soldering or similar fastening operations. A movable carriage is provided on a support cabinet for feeding one or more lengths of brazing wire to the article being brazed as the article is advanced to the wire feeder on a conveyor. A detector on the wire feeder senses the arrival of the article to be brazed and initiates a controlled forward movement of the

carriage to move the wire into position adjacent to the article. An automatic control system then preheats the end of the brazing wire, advances the wire for the brazing operation, and next withdraws the end of the brazing wire from the heating flame and away from the fastened article at the termination of the brazing operation and before the carriage is moved away from the brazed article.

3,830,421

STRAND TREATMENT APPARATUS

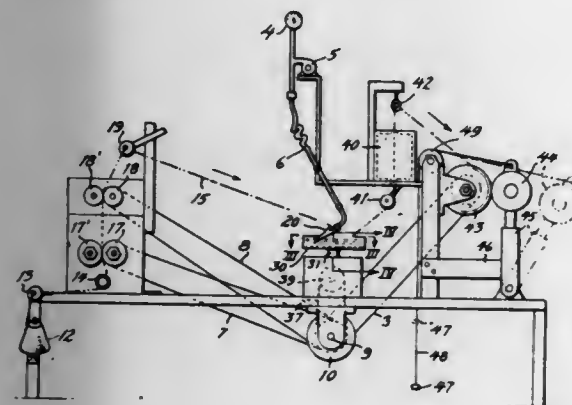
Robert K. Stanley, Media, Pa., assignor to Textured Yarn Co., Inc., Kenneth Square, Pa.

Division of Ser. No. 109,204, Jan. 25, 1971, which is a continuation-in-part of Ser. No. 58,917, July 28, 1970. This application May 25, 1972, Ser. No. 256,816

Int. Cl. B65h 17/32

U.S. Cl. 226—97

4 Claims



Textile strands are compressively crimped by propelling them lengthwise by a fluid jet into buckling contact with crimped strand accumulated in a shallow cylindrical chamber preferably having a foraminous cylindrical wall. The jet has an inlet and an outlet for the strand and a bore therebetween and has at least one opening thereinto for admitting fluid to propel the strand. Deviation from a straight-through bore configuration accommodates change in direction of the strand from the exterior to the interior of the chamber.

ERRATUM

For Class 228—9 see:
Patent No. 3,830,420

3,830,422

PACKAGE FOR SPECIAL POSTAL ISSUES AND METHOD OF MAKING SAME

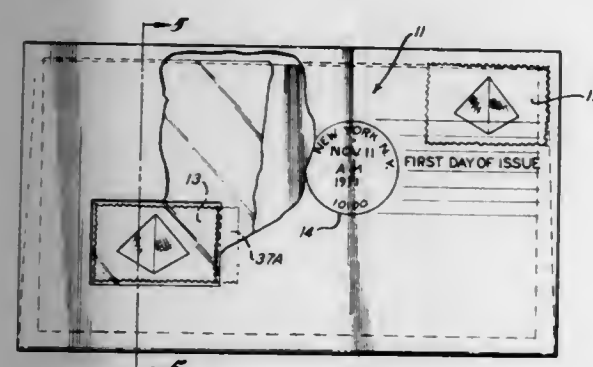
John Malcolm Dunn, San Clemente, Calif., assignor to Capistrano Cover Corporation, San Juan Capistrano, Calif.

Filed Apr. 5, 1972, Ser. No. 241,325

Int. Cl. B65d 27/04

U.S. Cl. 229—71

2 Claims



A package and a process for making the package wherein a first-day, first-issue postage stamp is enclosed within an en-

velope having outer panels with one or two apertures aligned with a recess in a stamp holder which secures the stamp. Transparent stamp shields preferably cover the stamp's obverse and reverse faces and close the envelope apertures. A like stamp is affixed to the envelope exterior and is processed through the mail such that date and place indicia are stamped on the envelope and cancel the exterior stamp. Preferably the inner stamp holder is an extension of the obverse and reverse walls of the envelope.

3,830,423

DISPOSABLE PET EXCRETA CONTAINER

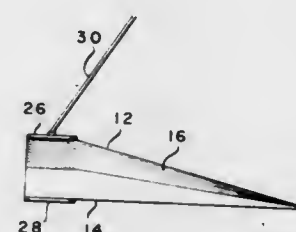
Beatrice M. Prescott, P.O. Box 182, Burke, Va. 22015

Filed May 9, 1972, Ser. No. 251,679

Int. Cl. B65d 31/10, 33/06, 33/16, 33/30

U.S. Cl. 229—53

5 Claims



This invention is a disposable pet excreta container of bag-like or box-like construction. Portions of one side of the container are extended to provide ears engaged by the feet of the user to hold the container in position on the ground. A flexible cord engages the opposite side of the container and upon upward force, holds the container open. A disposable member is provided for directing the excreta into the container.

3,830,424

MAILBOX WITH SIGHT SIGNAL

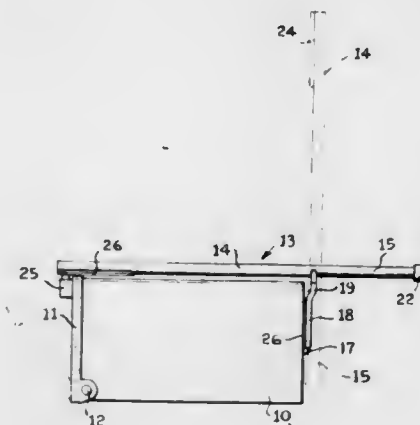
Charles D. Pittman, 2637 Gladiolus Ln., Dallas, Tex. 75233

Filed Aug. 22, 1973, Ser. No. 390,655

Int. Cl. A47g 29/12

U.S. Cl. 232—35

7 Claims



A mailbox construction includes a tubular flagstaff mounted on a pivot disposed rearwardly from the mailbox receptacle, the flagstaff having an unfilled portion overlying and coextensive with the receptacle and a weighted overbalancing portion projecting beyond the rear wall of the receptacle, the flagstaff being latched to the door of the mailbox and thereby held in a horizontal position when the door is closed, the flagstaff swinging to a vertical position under the bias of the weighted portion when the door is opened.

3,830,425

CENTRIFUGING HOLDER FOR DEFORMABLE BAGS, PARTICULARLY FOR BLOOD CONTAINERS

Hans Stallmann, Osterode, Germany, assignor to Heraeus-Christ GmbH, Osterode, Germany

Filed June 19, 1972, Ser. No. 264,272

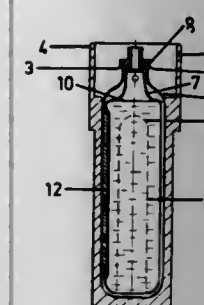
Claims priority, application Germany, Aug. 26, 1971, U.S. Cl. 238—14.14

2142737

Int. Cl. B04b 9/12

U.S. Cl. 233—26

9 Claims



A removable insert element of spring steel, in generally U-shaped configuration with the free ends of the legs of the U being drawn inwardly to secure the mouth of a blood bag, is insertable in a centrifuging holder, so that, upon centrifuging, a deformable bag such as a plastic bag will not be subjected to fold lines interfering with centrifuging; in one form, the mouth portions of the U-shaped insert include clamps to clamp the mouth of the bag therebetween, the clamp being operable by a slider cam.

3,830,426

MODEL VEHICLE RACE TRACK

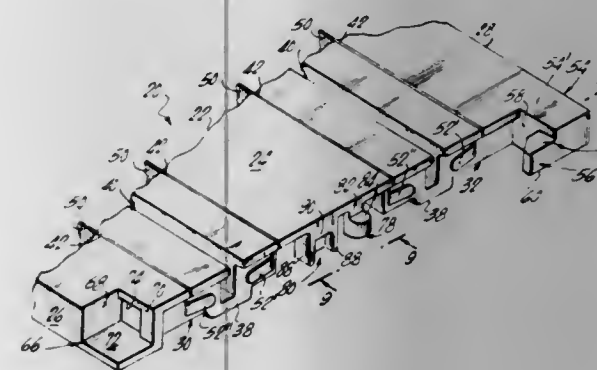
Donald E. Martin, Smithtown, N.Y., assignor to Aurora Products Corp., West Hempstead, N.Y.

Filed July 24, 1972, Ser. No. 274,402

Int. Cl. A63h 19/30

U.S. Cl. 238—10 F

6 Claims



A track section contains grooves and electrical contacts for model vehicles. The track section includes provision for rapid and positive mechanical and electrical aligned linear connection with adjacent track sections by registration of mating parts and simple relative lateral movement between the two sections. The connection is accomplished by the use of a single hook and a single corresponding opening on each end of the track section for engagement with mating elements of a like track section. There are corresponding detent means and corresponding tongue and mouth elements on each track section which serve to normally restrain lateral movement between adjacent track sections once they are connected. Electrical contact between adjacent track sections is maintained by conductor strip tabs which are arranged to permit positive electric assembly and snag-free disassembly of like adjacent track sections.

3,830,427

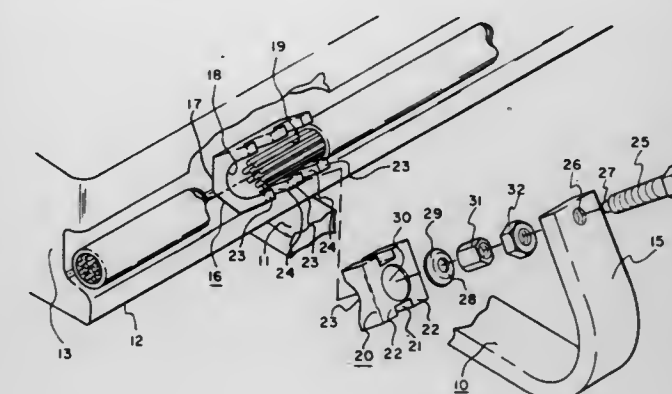
RAILWAY CONDUCTOR BONDING CLAMP

Thomas P. Polidori, Pennsauken, N.J., assignor to Contemporary Products Incorporated, Pennsauken, N.J.

Filed Feb. 12, 1973, Ser. No. 331,991

Int. Cl. H01r 5/00; B60m 5/00

5 Claims



A cable clamp for bonding an electrical conductor to the rail to provide electrical interconnection therebetween which includes a clamp base portion underlying the rail having a hook on one end to engage the base of the rail and the opposite end extending above the base in a resilient spring arm. A contoured contactor block engages the juncture of the base and web of the rail and includes a channel therein in which the conductor is received. A compression block including mating configurations with the contactor block overlies the conductor and a threaded compression member interacts between the spring arm and the compression block to provide a resilient spring bias maintaining the assembly in electrical contact with the rail.

3,830,428

PLASMA TORCHES

Gordon Thomas Dyos, Capenhurst, England, assignor to The Electricity Council, London, England

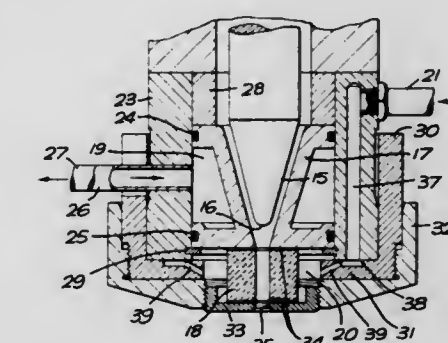
Filed Feb. 22, 1973, Ser. No. 334,555

Claims priority, application Great Britain, Feb. 23, 1972, 8302/72

Int. Cl. B23k 9/00

U.S. Cl. 239—11

9 Claims



A method of cooling the nozzle of a plasma torch by forcing water through the porous wall of the constrictor tube of the nozzle. This method results in a number of advantages over the use of a transpiring gas, including, no radiation shield being required to protect the constrictor tube; the energy density of the plasma arc is higher, the boundary of the plasma arc is better defined; and there is less acoustic and ultra-violet radiation from the plasma arc. A plasma torch is described having a porous constrictor tube and means for supplying water for transpiration-cooling.

3,830,429

METERING OR INJECTION ELEMENT

Armin Alexander Hlemer, Unterreitnau, and Ludwig Jakob Hlppel, Lindau, both of Germany, assignors to The Upjohn Company, Kalamazoo, Mich.

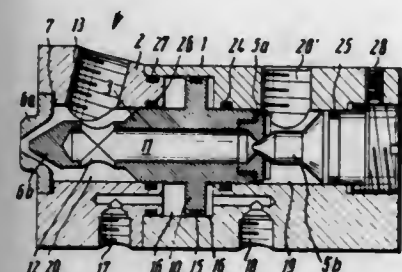
Filed May 31, 1973, Ser. No. 365,603

Claims priority, application Germany, Dec. 21, 1972, 2262730

Int. Cl. F02m 47/02; B05b 1/30

U.S. Cl. 239—88

8 Claims



The present invention relates to an injection or three-way metering element for plastic molding machines and the like, comprising an injection nozzle, which opens into a mixing chamber or the like, and comprising a return flow port which returns the supplied material flow in circulation in the case of an interruption of the injection process, and a control element for the switchover of the material flow from the injection step to the return step and vice versa, and a return valve and an injection valve each having identical or analogous characteristics of their flow and opening cross-sections at any degree of opening thereof, and each being adapted to be operated by said control element simultaneously and in opposite directions, wherein said control element and said return and injection valves, particularly the valve plungers thereof, are each of hollow construction and with the inner spaces or cavities defined thereby forming said return flow port through which the return of the material flow is effected.

3,830,430

CLEANING VEHICLE

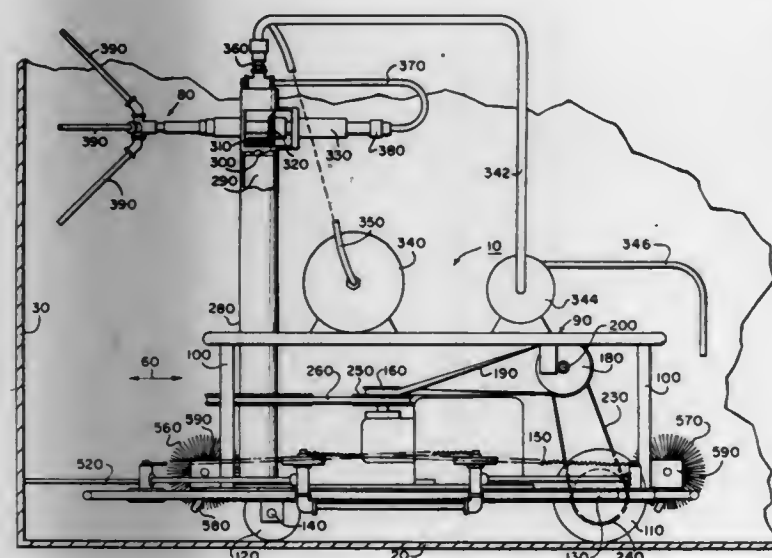
Calvin A. Hartunian, 216 Barker Ave., Sharon Hill, Pa. 19079

Filed Dec. 18, 1972, Ser. No. 316,128

Int. Cl. B05b 3/18

U.S. Cl. 239—186

28 Claims



A cleaning vehicle for cleansing the internal surfaces of a totally or partially enclosed chamber. The vehicle includes a base frame having a plurality of wheels driven by a reversible drive mechanism. The vehicle is adapted to be displaced reversibly in a longitudinal direction contiguous to a base sur-

face. A spray mechanism is mounted to the base frame for ejecting liquid to the internal surfaces of the enclosing chamber. The spray mechanism is rotatively moveable with respect to the base frame in at least two planes of motion. A pair of guide mechanisms are mounted on opposing sides of the base frame for aligning the vehicle with respect to opposing transverse walls of the enclosing chamber during the longitudinal displacement of the cleaning vehicle.

3,830,431

ABATING EXHAUST NOISES IN JET ENGINES

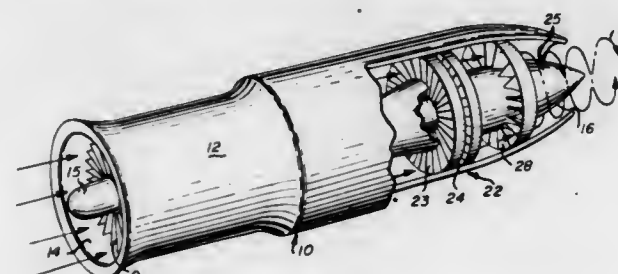
Ira R. Schwartz, Menlo Park, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 23, 1973, Ser. No. 344,410

Int. Cl. F01n 1/08

U.S. Cl. 239—265.11

25 Claims



A noise abating improvement for jet engines including the provision of apparatus in the primary flow stream of gas turbine engines such as turbojet, turbofan, turboprop, and other jet engines such as ram jets, scram jets and hybrid jet engines, or in either the primary and/or secondary flow streams of turbofan engines or the like, for imparting to the exhaust gases a component rotation or swirl about the engine's longitudinal axis. The rotary component in the exhaust gases has the effect of substantially suppressing the build up on sound energy normally produced by an axial flow exhaust system.

3,830,432

SHOWER CONSTRUCTION

Klaus Grohe, Schiltach/Black Forest, Germany, assignor to Hans Grohe KG, Schiltach/Schur, Germany

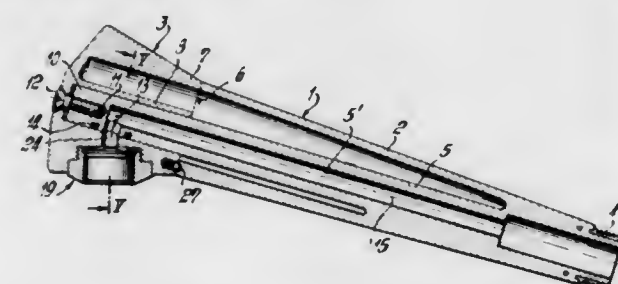
Filed Mar. 23, 1973, Ser. No. 344,225

Claims priority, application Germany, Mar. 29, 1972, 2215344

Int. Cl. B05b 1/16

U.S. Cl. 239—394

4 Claims



A shower construction, comprises a water supply pipe having a longitudinally extending water delivery bore which is closed at its outer end and which includes a transversely extending bore discharge passage connecting the delivery bore adjacent the closed end and a shower head which is provided with a receiving bore so as to receive the closed end of the water supply pipe and to cover the discharge passage. The shower head is rotatable in respect to the supply pipe, and it has a plurality of angularly spaced radially extending water discharge conduits which terminate in a distinctive discharge fitting at their outer ends. The water head is rotatable to align a selective discharge conduit and fitting with the water supply pipe water delivery bore.

3,830,433

FUEL INJECTION NOZZLE

Masataka Miyake, Inazawa; Hildeya Fujisawa; Oyuki Ogawa, both of Kariya, and Shigeichi Okada, Nagoya, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

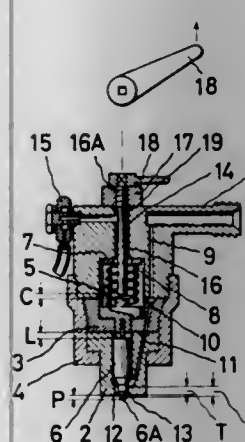
Filed Nov. 9, 1972, Ser. No. 305,094

Claims priority, application Japan, Nov. 17, 1971, 46-92070

Int. Cl. B05b 1/30

U.S. Cl. 239—533

6 Claims



A pintle type fuel injection nozzle comprises a nozzle body, a needle movable relative to the nozzle body, and means provided above the needle for controlling the extent of lift of the needle according to the engine speed and engine load.

3,830,434

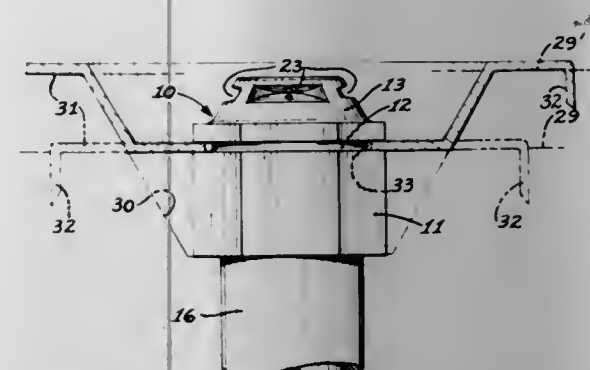
MULTIPLE OUTLET ADJUSTABLE SPRINKLER HEAD
William J. Green, and Cloyd Hepworth, both of Salt Lake City, Utah, assignors to Grant I. Morris, Salt Lake City, Utah, by said William J. Green

Filed Feb. 20, 1973, Ser. No. 333,891

Int. Cl. A62c 37/20

U.S. Cl. 239—562

3 Claims



A multiple outlet adjustable sprinkler head which may be utilized in conjunction with any type of underground or overhead sprinkler system to control the volume and the spray pattern direction of the water under pressure which is being dispensed therefrom.

3,830,435

PRODUCTION OF CERAMIC-METAL COMPOSITE POWDERS AND ARTICLES THEREOF

Brian Hill, Ramsey, N.J., assignor to The International Nickel Company, Inc., New York, N.Y.

Filed June 12, 1972, Ser. No. 261,799

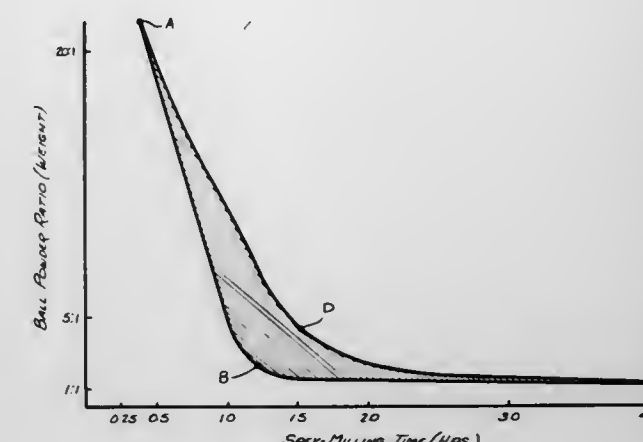
Int. Cl. B02c 19/12

U.S. Cl. 241—27

13 Claims

Ceramic-metal powder products are produced by subjecting a charge of ceramic powder particles and a small volume of metal powder to dry high transmissive energy milling, the weight ratio of impacting media to powder being greater than 1:1 with the milling being conducted for a period beyond the

threshold point of the powder constituents, whereby dense, composite ceramic-metal powder particles are obtained hav-



ing an interdispersion of initial constituent particles, a large internal interfacial surface within individual product powder particles, etc.

3,830,436

HAMMER MILL WITH INTEGRAL SUBSAMPLING PORTION

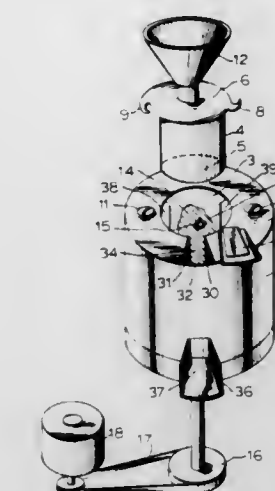
James W. Dickens, Raleigh, N.C., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Aug. 9, 1973, Ser. No. 386,922

Int. Cl. B02c 13/14

U.S. Cl. 241—73

1 Claim



The invention relates to a mill for comminuting agricultural products such as peanuts, corn, soybeans, cottonseed and the like. The mill is characterized by the incorporation of an integral subsampling device whereby a comminuted, blended subsample is delivered concomitant the comminution operation. The mill comprising a central, vertically disposed shaft component with radially extended comminuting elements, separate concentric screen component and concentric casing component spaced in sequence outward therefrom, employs a pair of radially disposed partitions between the screen component and the casing component which partitions form a compartment in the shape of a hollow cylinder sector. The sector shaped compartment catches the comminuted material immediately upon passage through the screen and delivers a comminuted subsample related to the original sample as that portion of the screen included in the sector shaped compartment relates to the total screen area (i.e., a 36° arc of screen included in the sector shaped compartment will deliver approximately 1/10 of the original samples as a comminuted subsample).

3,830,437

SAMPLE PULVERIZING APPARATUS

Peter Kenneth Everett, Cammeray, New South Wales, Australia, assignor to Mining Systems Limited, Hong Kong, Hong Kong

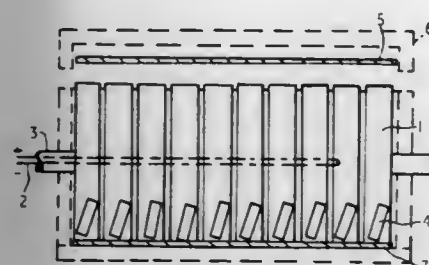
Filed Jan. 14, 1972, Ser. No. 217,888

Claims priority, application Australia, Jan. 19, 1971, 3748/71

Int. Cl. B02c 17/06

U.S. Cl. 241-137

3 Claims



An assembly apparatus for pulverizing solid samples, particularly samples of minerals, wherein is provided a plurality of elongated, hollow members joined together for simultaneous rotary movement. A sample is placed in each member along with at least one grinding element such that upon closing the hollow members with a unitary closure element and rotating the assembly, the grinding elements reciprocate from end to end of the hollow members to pulverize the samples. A stationary discharge element is positioned to receive pulverized material upon completion of the pulverizing operation.

3,830,438

MACHINE FOR FEEDING MATERIALS FROM A STACK

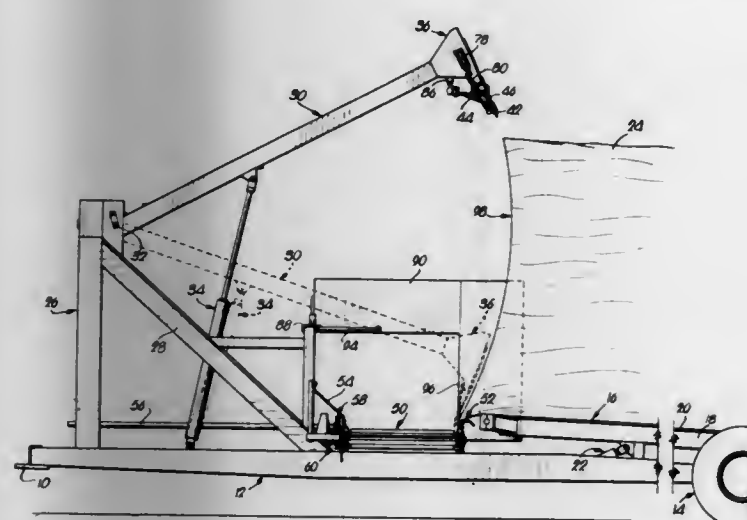
Harold Keith Garrison, Newton, and Dean P. Brooks, Hesston, both of Kans., assignors to Hesston Corporation, Hesston, Kans.

Filed Jan. 20, 1972, Ser. No. 219,270

Int. Cl. A01f 17/02

U.S. Cl. 241-283

12 Claims



Hay is fed from a stack to a point of further processing or livestock consumption by intermittent advancement of the stack to positions beneath a cutting mechanism that is carried by a vertically swingable boom. The boom is carried at one end thereof opposite to the cutting mechanism by a mast and is actuated by a fluid pressure piston and cylinder assembly. A lateral conveyor beneath the boom and adjacent the leading end of the stack receives the hay that is cutaway, and a flipper on the cutting mechanism deflects the cutaway hay toward the conveyor.

3,830,439

STRAND OR THREAD WINDING APPARATUS

William D. Porter, Asheville, N.C., assignor to Zinser-Textilmaschinen GmbH, Ebersbach, Germany

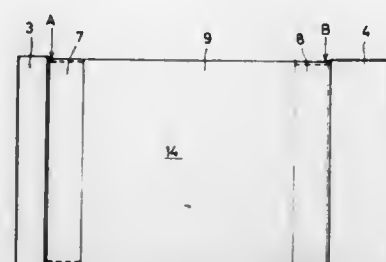
Filed Sept. 4, 1973, Ser. No. 394,131

Claims priority, application Germany, Sept. 5, 1972, 2243507

Int. Cl. B65h 54/46

U.S. Cl. 242-18 DD

12 Claims



A strand or thread winding apparatus includes a reciprocating traversing mechanism and a package wind-up mechanism. A cylindrical roller is disposed between the traversing mechanism and the package wind-up mechanism. The cylindrical roller is provided with grooves, which extend around its circumference, disposed in its end regions. Each groove has two side walls. The walls have differing slopes (steepnesses), the wall closer to the central surface region of the roller having the greater slope. The grooves may be in the form of respective screw threads, one disposed in each end region or in the form of respective pluralities of annular grooves disposed parallel to one another.

3,830,440

WINDING APPARATUS

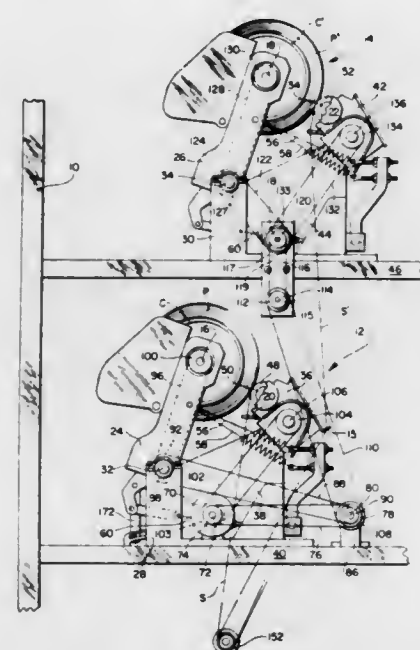
William Malcolm Bense, Barrington, R.I., assignor to Leeson Corporation, Warwick, R.I.

Continuation-in-part of Ser. No. 259,743, June 5, 1972, abandoned. This application Oct. 1, 1973, Ser. No. 402,112

Int. Cl. B65h 54/20, 59/38

U.S. Cl. 242-35.5 R

10 Claims



Winding apparatus for concurrently winding a plurality of strands of yarn into separate take-up packages while continually monitoring the tension in each strand and compensating for variations therein to wind the take-up packages to be of substantially equal diameter is disclosed. The apparatus includes a plurality of spaced winding units each adapted to wind an individual strand of yarn into a take-up package. All of the winding units are driven with one common variably con-

trolled motor. Further, each separate winding unit includes a rotatable package support and a separate package pressure roll for engagement with the periphery of an associated take-up package. Means are provided for applying a separate biasing force to each package support to control the pressure under which each said package support engages its associated pressure roll.

3,830,441

METHOD OF INSTALLATION OF THERMAL BUILDING INSULATION AND STRETCHERS THEREFOR

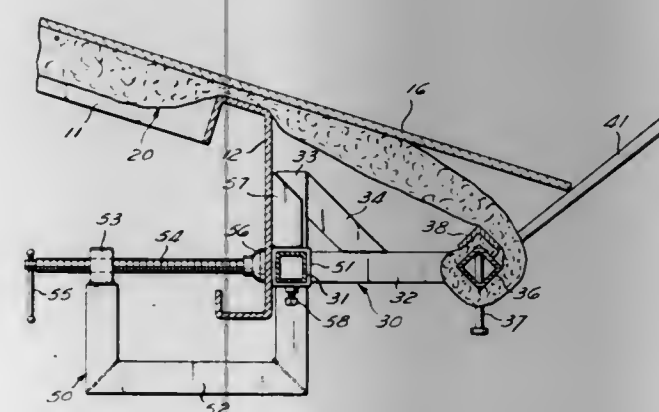
H. Robert McQuiston, R. D. 2, Sharpville, Pa. 16150

Filed Feb. 8, 1972, Ser. No. 224,445

Int. Cl. B65h 17/02

U.S. Cl. 242-67.1 R

8 Claims



Method and equipment for tensioning blankets of thermal insulation in building. Equipment comprises a stretcher having a self-securing windlass element supported adjustably in means for mounting the windlass member on structural members of a building; ratchet drive means for windlass element hold insulation under tension during its installation in a building.

3,830,442

WINDING MANDREL FOR STRIP PRODUCTS

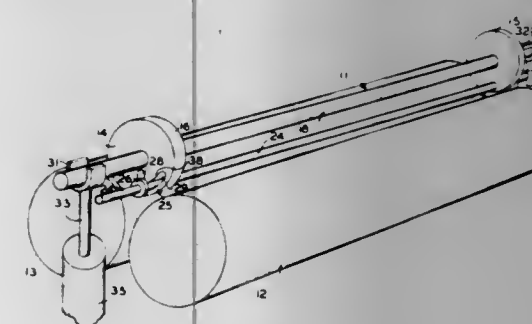
Frank S. Kubovich, Rossford, and Rupert Douglas Terry, Toledo, both of Ohio, assignors to Johns-Manville Corporation, New York, N.Y.

Filed June 27, 1972, Ser. No. 266,624

Int. Cl. B65h 17/02

U.S. Cl. 242-68

10 Claims



A winding mandrel for material such as felted mineral fiber blankets which have resilience in the major plane of the blanket and normal to that plane including two elongate members generally paralleling the winding axis for the blanket and adapted to support the initially wound portion of the blanket. Axial motion of the wound blanket on the elongate members incidental to the unloading of the mandrel is facilitated by arranging the members to be moved toward each other thereby relieving the pressure between the blanket and members and relieving the attendant frictional forces. Spool ends support the elongate members one of which is coaxial with the winding axis. One spool end is removable from the elongate members

3,830,443

LINEAR MEASURING INSTRUMENT WITH INCORPORATED BRAKING DEVICE

Michel Quenot, Desancon, France, assignor to Stanley Marbo, Besancon, France

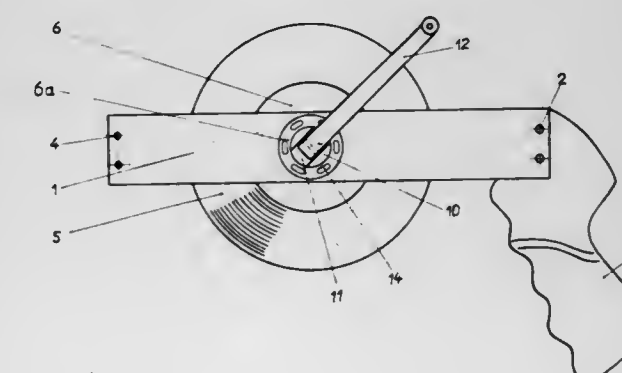
Filed Dec. 30, 1971, Ser. No. 214,251

Claims priority, application France, Jan. 14, 1971, 71.01870

Int. Cl. B65h 75/16, 75/40

U.S. Cl. 242-84.8

9 Claims



In a tape measure comprising a handle, two spaced-apart elongated side plates extending from the handle, and a tape winding mechanism mounted between the plates, the plates are in a stressed resilient material and tend to camber inwardly but bear against lateral surfaces of the tape winding mechanism to provide a frictional braking effect when said mechanism is rotated.

3,830,444

SAFETY SEAT BELT ASSEMBLIES

Archibald Sargeant, Felpham, England, assignor to Wingard Limited, Chichester, Sussex, England

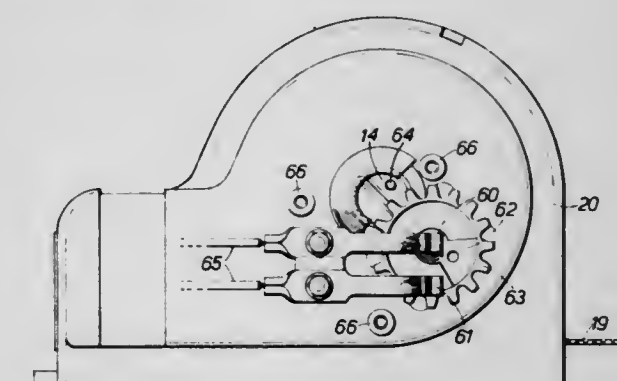
Filed Mar. 15, 1972, Ser. No. 234,938

Claims priority, application Great Britain, Apr. 15, 1971, 9464/71

Int. Cl. A62b 35/00; B65h 63/08

U.S. Cl. 242-107.4

5 Claims



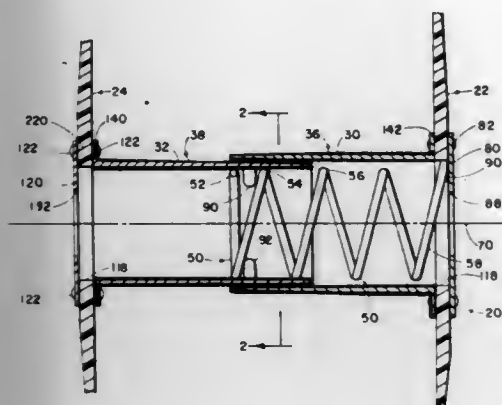
An automatic retractor for a vehicle seat belt incorporates means to lock the reel against belt withdrawal in the event of an accident and an electrical switch which is controlled by the length of belt withdrawn from the reel. The switch is adapted to be connected into a circuit which warns the driver that the belt is not in use.

3,830,445

REEL WITH SPRING THREAD

Joseph E. Moore, 1142 S. 16th St., Blair, Nebr. 68008
 Filed Aug. 28, 1972, Ser. No. 284,395
 Int. Cl. B65h 75/14, 49/00
 U.S. Cl. 242—118.4

5 Claims



A reel having inner and outer telescoping tubular-flanged hub portions pulled toward each other by a coiled spring attached to one side section of the reel and functioning like a threaded member by its engagement with spring-engaging means attached to the other half section of the reel.

3,830,446

TERMINAL FOR PNEUMATIC TUBE DISPATCH SYSTEM

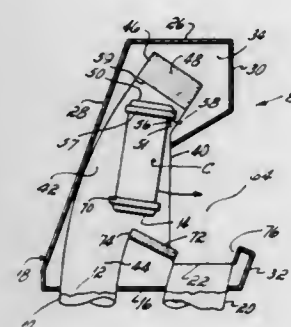
Joel Rudder, Rockaway, and Adam Weissmuller, Pompton Plains, both of N.J., assignors to The Mosler Safe Company, Hamilton, Ohio

Filed Oct. 17, 1973, Ser. No. 407,274

Int. Cl. B65g 51/32

U.S. Cl. 243—19

7 Claims



A terminal for a pneumatic tube system in which the system transmit and receive tubes have spaced ends terminating at the terminal in generally vertically disposed orientation, including a terminal tube section extending upwardly from the receive tube, an elastically compressible braking element mounted at the upper end of the terminal tube section for arresting the forward motion of the received carrier and thereafter forceably directing the carrier rearwardly in a reverse direction, a detent spaced from the compressible braking element to engage the forward end of a received carrier at the periphery thereof to cause it to pivot thereabout as it is reversely directed by compressed brake element, a carrier opening in the side of the terminal tube section through which a pivoting carrier reversely directed by the compressed brake element is adapted to exit, and a carrier guide means extending outwardly and downwardly from the lower extremity of the tube section side opening to the transmit tube for slideably engaging the rear end of a pivoting carrier as it passes through the opening to guide the carrier to a position outside the tube section.

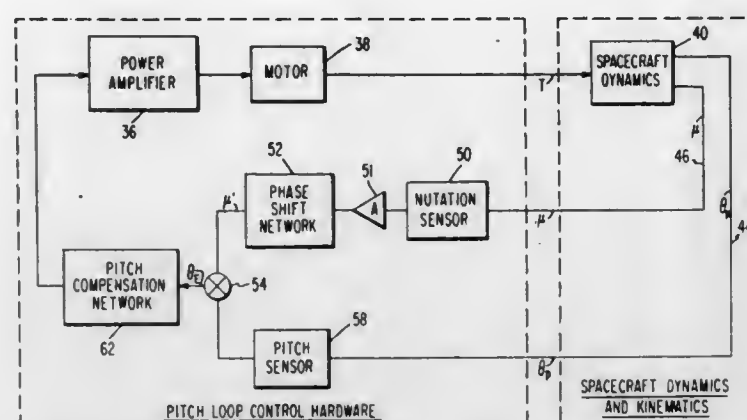
3,830,447

ACTIVE NUTATION DAMPING IN DUAL-SPIN SPACECRAFT

Kevin John Phillips, Hightstown, N.J., assignor to RCA Corporation, New York, N.Y.
 Filed Sept. 28, 1972, Ser. No. 292,956
 Int. Cl. B64g 1/10

U.S. Cl. 244—1 SA

6 Claims



A dual-spin spacecraft having a de-spun platform is arranged to vary or modulate the torque on the stabilizing member, such as a momentum wheel, by a motor whose speed is varied or modulated in accordance with a signal representing nutation motion to damp or attenuate the nutation motion substantially to zero very rapidly. The nutation motion is sensed by a suitable device such as a horizon sensor, a gyroscope, or an accelerometer. By arranging the mass distribution such that significant cross products of inertia exist, the effects of such products are utilized in a closed loop control system to effect the desired attenuation or damping. A phase shifting network is provided to shift the phase of the cyclic sensor output signal by a predetermined angle whereby optimum damping of the nutation motion is achieved.

3,830,448

AERO SKIMMER

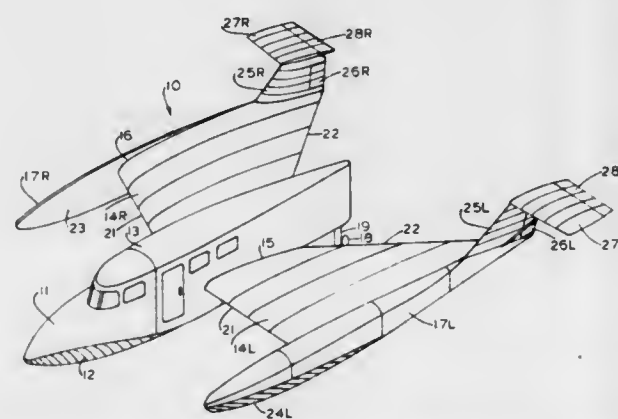
Alexander M. Lippisch, 3450 Cottage Grove Ave. S. E., Cedar Rapids, Iowa 22403

Filed June 19, 1972, Ser. No. 263,769

Int. Cl. B64c 37/00

U.S. Cl. 244—2

15 Claims



A combination air and water vehicle capable of operation as a boat at low speeds, as a "Ram Wing" ground effect operational craft at higher speeds, and as an aeroplane above the ground effect zone. The craft has two opposite truncated triangle wings with a dihedral angle and reverse taper having short cord ends attached to the fuselage and largest cord ends attached to wing end floats. These two opposite side wings form with the wing end floats two ram air chambers. Dual fins with rudders extend above the rear outer tips of the wings and mount outboard directed stabilizers, with combination elevators and ailerons, extending out well beyond the wing outer ends.

3,830,449

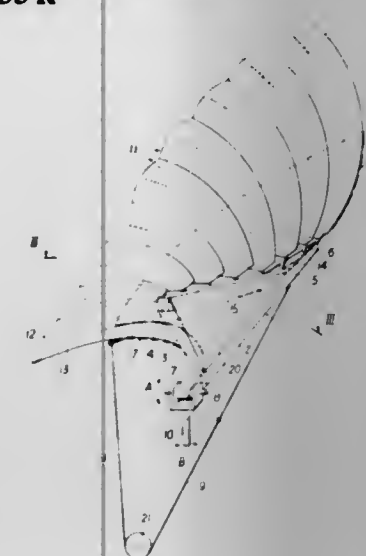
AIRFOIL WING FOR AIRCRAFT

Friedrich Schoffmann, 86 Vorgartenstrasse, A-1200 Vienna, Austria

Filed July 14, 1972, Ser. No. 271,645

Int. Cl. B64c 33/02

U.S. Cl. 244—35 R



An airfoil wing having a generally triangular support frame extending transversely from an aircraft fuselage and upon which are mounted a plurality of overlapping, curved, elongated blades extending rearwardly of the frame such that the blades together with the frame define an aerodynamic structure characterized by a flat, generally vertical leading edge contiguous with a convex upper surface and a concave lower surface, the forward portion of each of the upper and lower surfaces forming an acute angle with respect to the plane of the leading edge whereby flapping movement of the wing creates lift and forward propulsion by establishing reduced pressure above and in front of the wing and increased pressure below the same to generate lift and forward thrust with minimal energy.

3,830,450

DUAL PURPOSE CIRCULATION CONTROL AIRFOIL

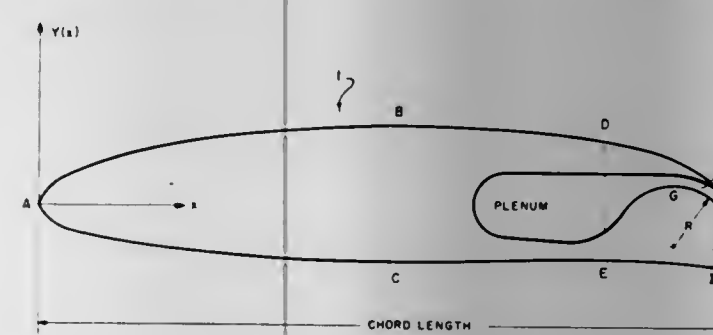
Robert M. Williams, Chantilly, Va., and Robert J. Englar, Gaithersburg, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 15, 1972, Ser. No. 315,722

Int. Cl. B64c 21/04

U.S. Cl. 244—42 CD

3 Claims



A dual purpose circulation control airfoil is designed for operation at high speeds in the vicinity of transonic speed and for low speed applications such as landing speeds. A blunt trailing edge possesses a varying radius of curvature to comprise a high speed and low speed coanda surface. For high speed operation, air is blown from a slot over the high speed surface, moving upper surface stagnation point further aft and increasing lift. At low speed operation air is blown over the low speed surface to produce high lift for low landing speeds. In addition, a surface forward of the blunt edge is provided for supersonic expansion in transonic flight.

3,830,451

AIRCRAFT CONTROL SYSTEM

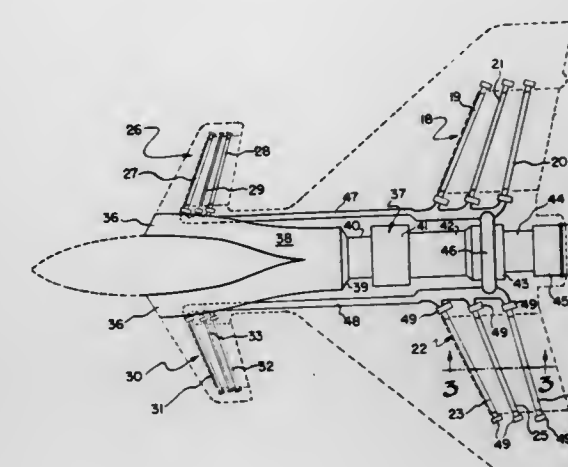
John P. Fosness, Upper Arlington, Ohio, assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed June 28, 1973, Ser. No. 374,744

Int. Cl. B64c 9/38, 15/06

5 Claims U.S. Cl. 244—42 CC

7 Claims



Apparatus is disclosed for advantageously developing longitudinal, lateral, and directional attitude control and also lift control in improved manners in aircraft systems of the type capable of vertical, hovering, transitional, and conventional modes of flight operation. The aircraft system, having both a principal power plant which produces high-energy primary flow fluid and a fuselage which has attached, fixed aerodynamic lift-producing airfoils, is provided with fluid-reaction lift-producing ejector assemblies in the airfoils at locations symmetrically positioned relative to and laterally distant from the aircraft longitudinal axis and alternatively additionally at a location or locations laterally distant from such longitudinal axis and longitudinally distant from the system center of gravity. Each included airfoil lift ejector assembly is comprised of an airfoil-shaped after injector flap member, a forward ejector flap member which is spaced apart from but operated in combination with the after injector flap member in modes of flight operation other than conventional flight, a core injector essentially centered between the injector flap members, and a conduit conducting high-energy primary flow fluid from the principal power plant to a nozzle in the core injector and to Coanda-blowing slot devices in each system injector flap member during non-conventional modes of system flight. A pilot-operated control device is provided in the system for varying the divergence angles of the lift ejector diffuser sections defined by the flap members in each ejector by coordinated actuation and rotation to thereby vary the system longitudinal, lateral, and directional attitudes and also the system lift control selectively during vertical, hovering and transitional flight while preferably operating the principal power plant at substantially constant power.

3,830,452

MONORAIL TRAVERSE SYSTEM

Samuel D. Seay, Windsor, Conn., assignor to Kaman Aerospace Corporation, Bloomfield, Conn.

Filed June 22, 1973, Ser. No. 372,670

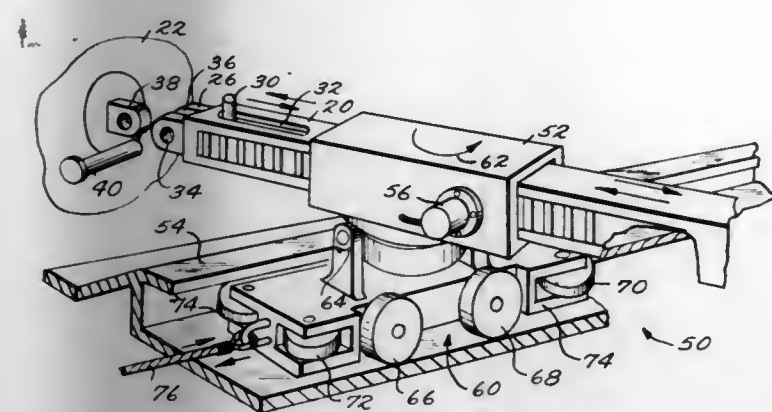
Int. Cl. B64f 1/22

U.S. Cl. 244—116

16 Claims

A system, apparatus and method for traversing a helicopter from a landing area to a hangar area and vice versa with a box beam which is secured between the front wheels of a helicopter, a track extending from the hangar area to the landing area so that a hauled down and secured helicopter straddles the track, a shuttle engaging the track for movement

along the track and engaging the box beam for pulling the helicopter along the track, a pawl on the shuttle for engaging a



number of the teeth extending along the front of the box beam, and side winches for providing cables for attachment to opposite sides of the rear helicopter wheel.

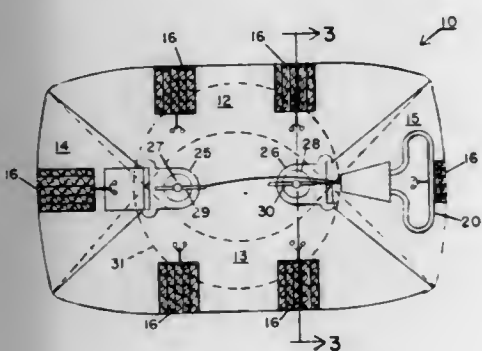
3,830,453 PARACHUTE PACK

Thomas Albert Cannarozzo, Route 4, Box 27, Coeur d'Alene, Idaho 83814

Filed Nov. 3, 1972, Ser. No. 303,489
Int. Cl. B64d 17/46

U.S. Cl. 244-148

9 Claims



The locking cones are improved on a parachute pack having cover flaps biased to open and a pilot chute biased to spring outward. All of the flaps and the crown of the pilot chute have cone receiving openings, and the only locking cones for the pack extend from inside the pilot chute through the crown openings and through the flap openings. Springs bias the locking cones to move inward clear of the flaps and the pilot chute crown when the ripcord is pulled.

3,830,454

DEVICE FOR FIXING AN OBJECT ON A WALL

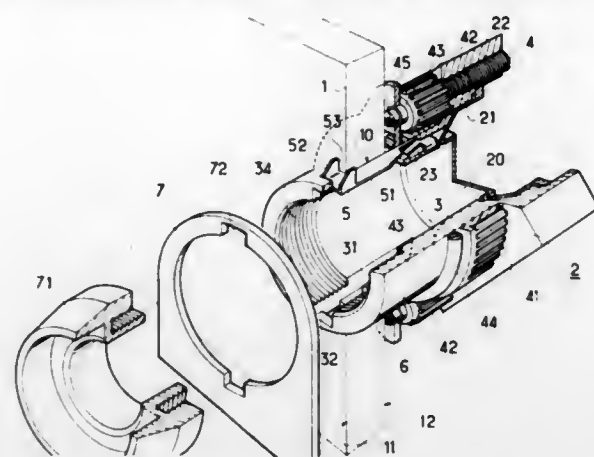
Jean Debaigt, Maisons Laffitte, France, assignor to CGEE ALSTHOM, Levallois Perret, France

Filed Mar. 8, 1973, Ser. No. 339,460
Claims priority, application France, Mar. 8, 1972, 72.8073; May 25, 1972, 72.18702; Sept. 27, 1972, 72.34190
Int. Cl. G12b 9/00; H02b 9/00; H01h 9/08

U.S. Cl. 248-27

16 Claims

Device comprising a body whose base is surmounted by a cylindrical head intended to be inserted and held in an opening provided in the wall, characterised in that it comprises clamping means comprising, on the one hand, screws provided with means for synchronising their movement, arranged in



towards the rear face of the wall and, on the other hand, clamps for reacting against clamping forces developed by the screws and pressure against the front face of the wall.

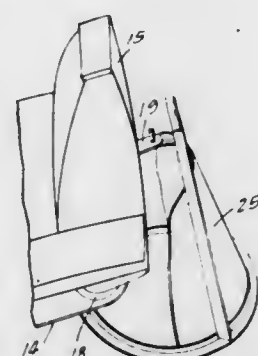
3,830,455 SNOWMOBILE STAND

Charles F. Brightly, 3330 S. Cicero Ave., Cicero, Ill. 60650

Filed May 15, 1972, Ser. No. 253,552
Int. Cl. F16m 11/00

U.S. Cl. 248-352

3 Claims



A support stand for snowmobiles having a base member with an upright support member attached thereto, the upright support member supporting an attachment hook above the base member and a shield positioned on the upright member behind the hook.

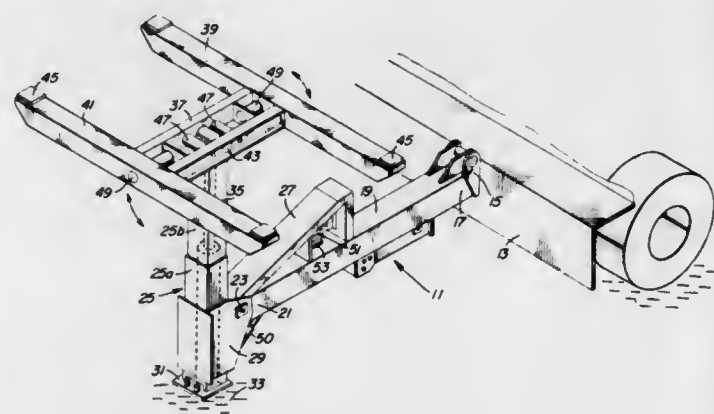
3,830,456 MINING APPARATUS

James Robert Fletcher, Huntington, W. Va., assignor to J. H. Fletcher & Co., Huntington, W. Va.

Filed Dec. 22, 1972, Ser. No. 317,769
Int. Cl. E21d 11/16

U.S. Cl. 248-354 H

7 Claims



A temporary roof support apparatus attachable to mining roof drilling and bolting machines advances a boom with a

pivottally moveable extendible column at the boom end into unsupported roof areas in a mine room, pivots the columns into vertical disposition, extends them into load bearing compression between the mine room roof and floor and temporarily supports the roof against cave-in while roof bolting proceeds.

3,830,457

ANCHORING APPARATUS

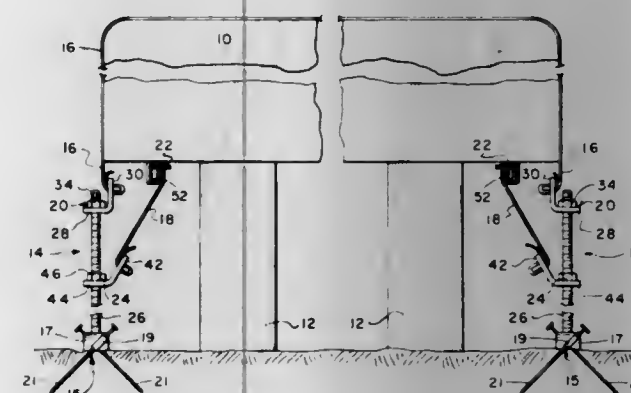
Ned L. Stewart, 2816 Blue Ridge, Mesquite, Tex. 75149

Filed Oct. 19, 1972, Ser. No. 298,861

Int. Cl. E06b 3/54; E04b 5/52

U.S. Cl. 248-361 A

2 Claims



Disclosed is an anchoring apparatus for use in anchoring structures to the ground by use of elongated flexible straps. The anchoring apparatus has a lower ground engaging portion for attaching the apparatus to the ground; a threaded shaft extending from the lower portion; and an upper portion attached to the threaded shaft for attaching the straps to the apparatus. In one embodiment, the upper portion is provided with one or more heads, each of which has first and second flanges which extend at an angle with respect to each other. One of these flanges is provided with a bore through which the head is attached to the shaft by means of a threaded fastener. The other of these flanges is provided with means for attaching a strap thereto. In this embodiment, the attachment means comprise an elongated slot in the other flange with a flat-sided bar attached to extend across the slot. In another embodiment, a round knurled pin is used in place of the flat-sided bar. In a third embodiment, two parallel elongated slots are provided in the second flange. In a fourth embodiment, the upper portion is U-shaped and is attached to the shaft at its base and is held in place by a threaded fastener. At least one pair of aligned bores is provided in the parallel legs of the U-shaped upper portion. A flat-sided pin is positioned in each of the bores. Each of the bores is provided with a protrusion which will prevent rotation of the pin in one direction. A clamp is provided on the pin for attaching the strap thereto.

3,830,458

MOLD FOR CASTING CONCRETE ARTICLES

Robert Paul John Hamblin, Grantham, England, assignor to Dow-Mac Concrete Limited, Tallington, Stamford, Lincolnshire, England

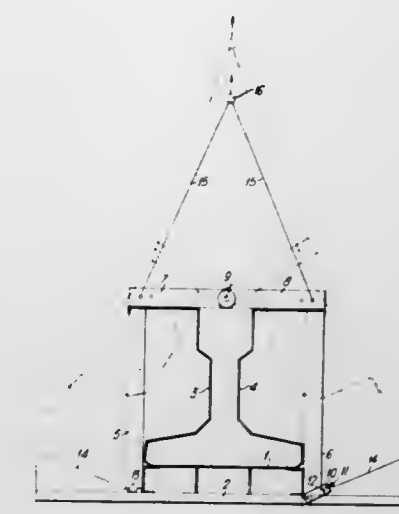
Filed Oct. 12, 1973, Ser. No. 406,176

Int. Cl. B28b 7/22

U.S. Cl. 249-50

6 Claims

A mould suitable for casting concrete articles includes a pair of sheet metal side wall members each of which has a number of vertical struts spaced apart along its length with a top strap attached to the top end of each strut. Each strap extends partway across the mould and is pivotally joined at its end remote from the strut to the end of a strap extending from an opposite strut. Anti-friction members on the bottoms of at least some of the struts rest on inclined guide surfaces to urge



clamps are provided to maintain the mould closed and lifting gear is provided to lift the straps and so cause the side wall members to pivot outwardly to open the mould.

3,830,459 RECORD PRESSES

Hermann Strausfeld, Cologne, Germany, assignor to EMI Electrola Gesellschaft Mit Beschränkter Haftung, Cologne-Braunsfeld, Germany

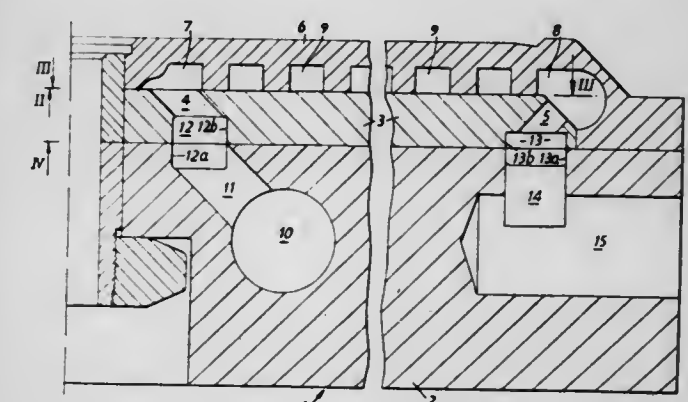
Filed June 26, 1973, Ser. No. 373,853

Claims priority, application Great Britain, June 28, 1972, 30209/72

Int. Cl. B24c 17/00; B29c 3/00; B29d 17/00

U.S. Cl. 249-79

9 Claims



A gramophone record press has mould blocks having a fluid circuit for heating and cooling fluids. The fluid circuit comprises an inner circular channel adjacent the centre of the mould block and an outer circular channel adjacent the periphery of the mould block, the two channels being connected by ducts arranged as a plurality of interlaced spirals. The channels are connected respectively to inlet and outlet manifolds by a plurality of passages angularly spaced around the respective channels. The two sets of passages have a circumferential component of inclination, so that fluid is fed into the inlet channel with substantially the same velocity and sense, and removed from the outlet channel in a similar manner.

3,830,460

POLYMERIC REPLICA MOLDS AND REPLICATION PROCESSES FOR PRODUCING PLASTIC OPTICAL COMPONENTS

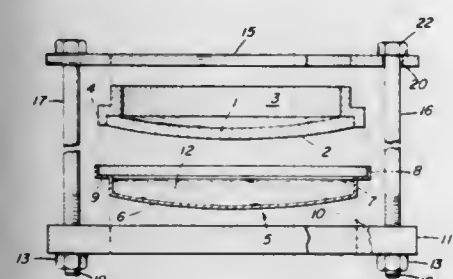
John O. Beattie, Riverside, Conn., assignor to Beattie Developments Company, Stamford, Conn.

Continuation-in-part of Ser. No. 841,758, July 15, 1969, abandoned. This application Dec. 21, 1971, Ser. No. 210,519

Int. Cl. B29c 7/00; B29d 11/00

U.S. Cl. 249—134

14 Claims



Polymeric replica molds formed from certain specific polymeric compositions are disclosed. The polymeric compositions impart properties to the replica molds which allow the casting of high-quality plastic optical components such as ophthalmic lenses.

Among the polymeric compositions which have been found useful are: (1) cross-linked polymethyl methacrylate; (2) a copolymer of 99-20 parts methyl methacrylate and 1-80 parts acrylonitrile, preferably but not necessarily cross-linked; (3) cross-linked polystyrene; (4) a cross-linked copolymer of 90-10 parts styrene and 10-90 parts acrylonitrile; and, (5) a cross-linked copolymer of 90-10 parts styrene and 10-90 parts methyl methacrylate.

Replication processes including the steps of forming the polymeric replica molds described herein and subsequently using them in the casting of plastic lenses from materials such as polymerized allyl diglycol carbonate are also disclosed.

3,830,461

INNER TIE ROD FOR SECURING WALL FORMS

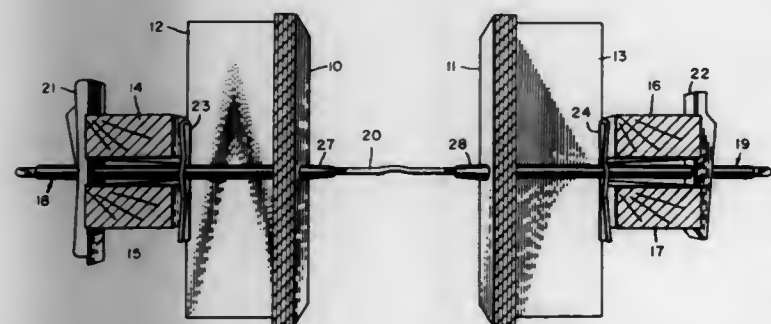
Chester I. Williams, 1501 Madison S.E., Grand Rapids, Mich. 49507

Filed Oct. 31, 1972, Ser. No. 302,490

Int. Cl. E04g 17/06, 17/08

U.S. Cl. 249—213

4 Claims



An inner tie rod has an anti-rotation offset of a configuration providing a minimum tendency to weaken the rod, while retaining all the necessary resistance to rotation.

3,830,462

VALVES

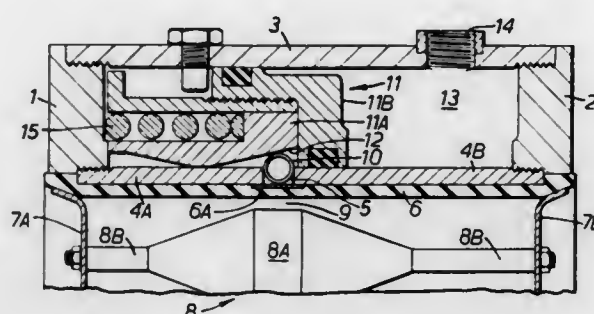
Gerard Peter Henfrey, Woking, England, assignor to Spiran Sarco Limited, Cheltenham, England

Continuation-in-part of Ser. No. 282,937, Aug. 23, 1972, abandoned. This application Dec. 28, 1973, Ser. No. 429,211

Int. Cl. F16k 7/06

U.S. Cl. 251—5

5 Claims



A valve including a passage for fluid to pass through having a flexible walled portion, an obstructor within this portion, and means for bringing this portion into engagement with the obstructor to seal the portion to the obstructor and hence close the passage to fluid flow, this means including a coil of filamentary material around the flexible walled portion, and a member for acting on the coils to cause them to act on the flexible walled portion to effect said engagement.

3,830,463

VENTURI BACK PRESSURE CONTROLS

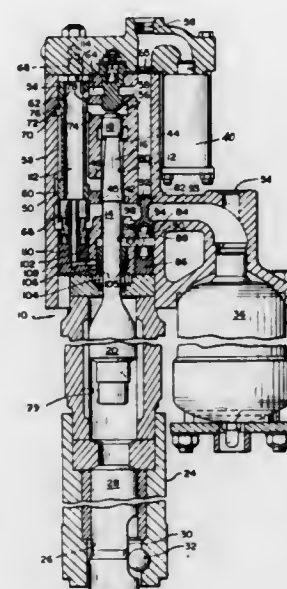
Ernest F. Klessig, Racine, Wis., assignor to Worthington-Cei, Incorporated, Holyoke, Mass.

Continuation-in-part of Ser. No. 87,966, Nov. 9, 1970, Pat. No. 3,695,366. This application Oct. 2, 1972, Ser. No. 293,761

Int. Cl. F16k 47/00

U.S. Cl. 251—124

9 Claims



Venturi back pressure control devices provided with a valve member having a tapered section to coact with a valve bore to define a throat and a tapered outlet to provide a gradually increasing area downstream of the throat of the venturi. The valve member may have a preset adjustable position relative to the valve bore to set the size of the venturi throat. Alternatively, the valve member may be subject to a force, such as a spring or hydraulic pressure urging the valve member to a position to close the throat to provide relief valve action. The valve member may also be subject to either exhaust fluid flow from a controlled hydraulic device or to system pressure applied to the hydraulic device.

3,830,464

TAPS AND VALVES

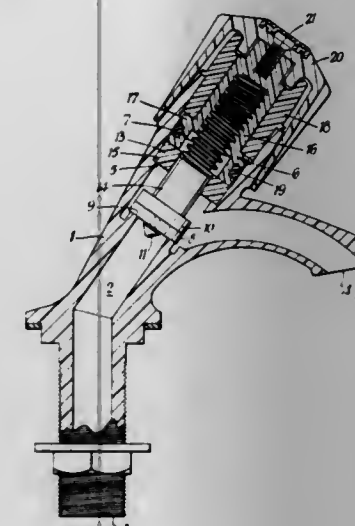
Robert W. Parker, Maidstone, England, assignor to Reed International Limited, London, England

Filed June 21, 1972, Ser. No. 265,040

Int. Cl. F16k 31/44

U.S. Cl. 251—269

4 Claims



A tap or valve having a valve housing in which is disposed a valve assembly comprising a longitudinally movable operating spindle carrying a valve member, a rotatable operating sleeve threadedly engaging the spindle and a closure sleeve threadedly engaging the valve housing to trap the operating sleeve in the housing, the spindle, the operating sleeve and the closure sleeve being concentrically disposed over part of their lengths within the valve housing.

3,830,465

BALL VALVE

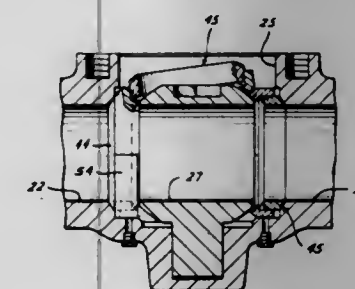
Herbert Allen, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.

Division of Ser. No. 181,354, Sept. 17, 1971, abandoned, which is a continuation-in-part of Ser. No. 148,699, June 1, 1971, abandoned. This application Sept. 14, 1972, Ser. No. 288,904

Int. Cl. F16k 5/20

U.S. Cl. 251—360

2 Claims



A ball valve having seats which have substantially spherical opposite ends which, when the seats are in seated position, engage a ball closure mounted within a chamber of the valve body and substantially spherical seating surfaces in the chamber surrounding the intersection of the inlet or outlet therewith. The ends of the seats and the seating surfaces are concentric with the ball closure to permit the seats to be slid within spaces between the closure and the wall of the chamber between seated position and a position generally aligned with an opening into the valve body through which both the ball closure and the seats may be passed.

3,830,466

CAMPER SUPPORT METHOD

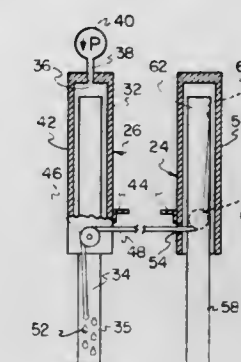
Reed Rasmussen, 1 W. Gentile, Layton, Utah 84041, and Carl M. Rasmussen, 583 E. 1st., South, Kaysville, Utah 84034

Division of Ser. No. 177,957, Sept. 7, 1971, Pat. No. 3,765,648. This application June 18, 1973, Ser. No. 371,000

Int. Cl. B66f 7/26

U.S. Cl. 254—1

4 Claims



Elevating and leveling method for campers and other transportable objects in one preferred embodiment including a plurality of telescoping legs, one of which is extended and retracted by power means. A cable is anchored to another telescoping leg and traverses stationary-axis pulleys so that the other leg extends and retracts concurrently with the one leg. In another presently preferred embodiment, a plurality of telescoping legs are mounted upon the transportable object and the extensible portion of each telescopic leg is provided with a pulley near the upper end the fixed portion of each leg is provided with a pulley near the lower end. A cable traverses each pulley and extends between the legs so that when the cable is shortened or displaced out of its normal path, each of the legs will simultaneously extend to uniformly lift the transportable object. Conversely, when the length of the cable is increased or when the cable is allowed to resume its normal path, the legs will simultaneously retract. The method includes jointly extending or retracting telescoping legs by displacing a cable connecting the legs. Alternatively, the method includes power displacing one leg and causing simultaneous displacement of another leg through a connecting cable.

3,830,467

TOOL FOR ADJUSTABLY REPOSITIONING A CAMBER/CASTER ADJUSTING BAR

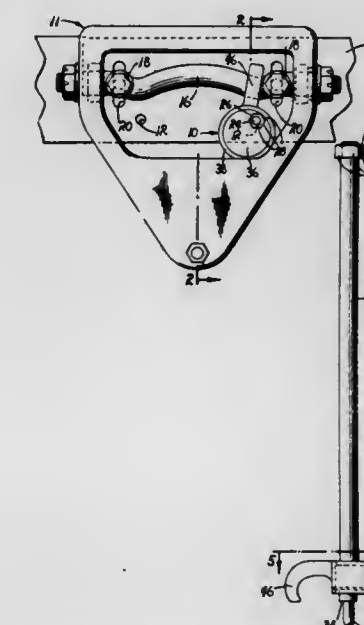
Hallie W. Sprague, P.O. Box 10364, Fort Worth, Tex. 76114, and James R. Sprague, 105 E. 6th, Weatherford, Tex. 76068

Filed Aug. 27, 1973, Ser. No. 391,641

Int. Cl. B66f 3/00; B27b 27/00

U.S. Cl. 254—1

5 Claims



A hand tool for adjustably repositioning a camber/caster adjusting bar for the steering section of selected automobiles, in-

cluding an elongated drive shaft characterized by an array of flats for receiving a wrench through which torque is applied to the shaft, a protuberance extended axially from the shaft to be received within a support opening provided adjacent to a camber/caster adjusting bar, an eccentric cam rigidly affixed to the drive shaft and circumscribed by a ring follower having a radially extended hook for receiving therein an adjusting bar. Rotation of the drive shaft imparts lateral motion to the follower, whereupon the hook responsively repositions the camber/caster adjusting bar.

3,830,468

TRAILER JACK

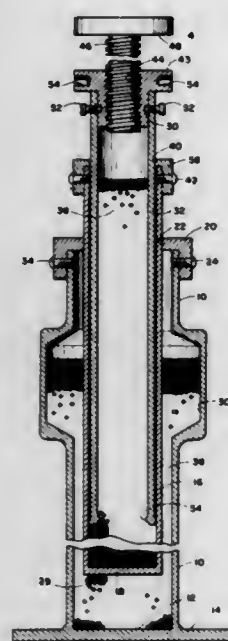
William H. Whitchurch, Rt. 3, Box 134A, and Ivra T. Willis, 1018 Meadow Dr., both of Bartlesville, Okla. 74003

Filed June 11, 1973, Ser. No. 368,882

Int. Cl. B66f 3/08

U.S. Cl. 254—98

4 Claims



A jack comprising a lower upright tubular member closed at the lower end, an intermediate upright tubular member telescopically received in the lower member, the intermediate member being closed at the bottom, granular material within the annular area between the lower and intermediate member, the granular member falling to the lower end of the lower member as the intermediate member is withdrawn to thereby support the intermediate member in withdrawn position, an upper tubular member telescopically received in the intermediate member and granular material within the upper member and the lower portion of the intermediate member, the granular material falling to a lower portion of the intermediate member as the upper member is withdrawn to thereby support the upper member in the withdrawn position.

3,830,469

TIRE SPREADER DEVICE

John P. Oaks, Jr., 9202 Indianapolis Blvd., Highland, Ind. 46322

Filed Sept. 17, 1973, Ser. No. 398,095

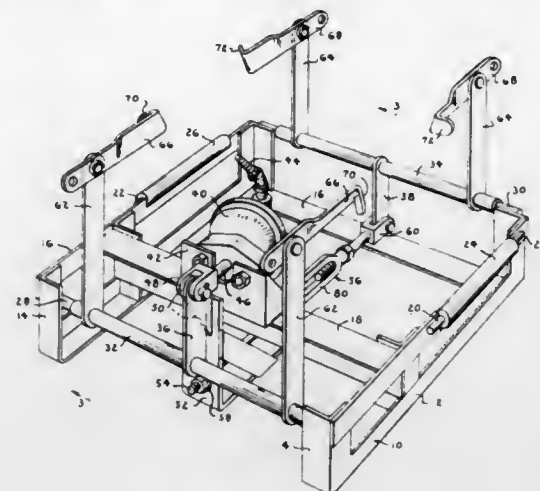
Int. Cl. B60c 25/14

U.S. Cl. 254—50.3

7 Claims

This invention comprises a generally rectangular frame having opposite sides thereof provided with roller means for rotatably supporting a tire positioned upright thereon. The other opposite sides of the frame are provided with spaced spreader arm means pivotally movable to engage and simultaneously spread the tire casing. This is accomplished by an air motor supported on the frame, activated to rectilinearly extend a drive rod which is distally connected to a lever bar fixed

upright to one set of spreader arm means for pivotal movement thereof. The drive rod is also connected to a depending lever member which is horizontally linked to a downwardly



extending lever bar connected to the other set of spreader arm means causing both spreader arm means to simultaneously pivot in opposite directions.

3,830,470

ATTACHMENT FOR JACK

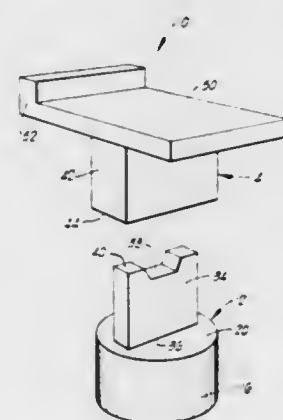
Esile B. Gibson, 5304 N.W. 45th St., Oklahoma City, Okla. 73122

Filed Aug. 28, 1972, Ser. No. 284,241

Int. Cl. B66f 11/00

U.S. Cl. 254—133

3 Claims



An attachment for use with a conventional jack which jack includes a base portion and a ram portion carried therein and adapted to move relative to the base portion along the longitudinal axis thereof. The jack attachment includes a socket member having a cavity formed therein for receiving the ram portion of the jack. An elongated member having opposite end portions is fixedly secured at one end portion to the socket member and extends therefrom in axial alignment with the longitudinal axis of the jack and includes a transverse notch formed in the opposite end thereof. A second elongated member having opposite end portions includes a cavity intersecting one end portion thereof sized and shaped to receive the first elongated member therein and includes a flat plate formed on the opposite end portion thereof lying in a plane substantially normal to the longitudinal axis of the jack. An L-shaped edge portion is formed along one edge of the flat plate. In another form, the present invention includes a socket member for receiving the ram portion of the jack and further includes a second socket member formed thereon extending away from the jack. The second socket member has a cavity formed therein sized and shaped to receive one end portion of a first elongated member with the opposite end portion of the first elongated member having a transverse notch formed therein. An alternate second elongated member has a substantially flat plate formed on the opposite end thereof lying in a plane substantially normal to the longitudinal axis of the jack and having an L-shaped edge portion formed along one edge thereof.

3,830,471

SLAB PILING SYSTEM

Michael Frank Field, Sydney, Nova Scotia, Canada, assignor to Dominion Engineering Works, Limited, Lachine, Quebec, Canada

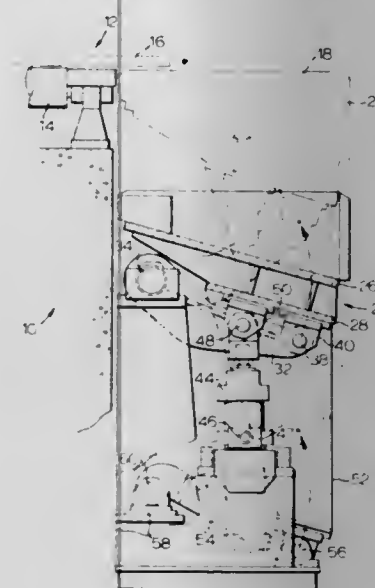
Filed June 25, 1973, Ser. No. 373,541

Claims priority, application Canada, Aug. 28, 1972, 150321

Int. Cl. B66f 3/00

U.S. Cl. 254—124

3 Claims



A platform for use with a steel mill on which to stack steel plate or billets is provided with hydraulic rams to raise and lower the platform, and has a pair of pivoting side links to stabilize the platform against side thrust when billets are slid thereon, the stability of the platform against canting being provided by a downwardly extending moment arm having a pivotal linkage attached to the bottom and thereof, and a synchronizing shaft connecting a pair of the stabilizing linkages to prevent relative twisting therebetween.

3,830,472

CONTAINER FOR TRANSPORTING, MIXING OR STORING A FLOWABLE POWDERY OR LIQUID SUBSTANCE

Jakobus Janhsen, Fuchseckstrasse 6, 7331 Faurndau, and Martin Storz, Pfingsthalde 32, 7341 Eybach, both of Germany

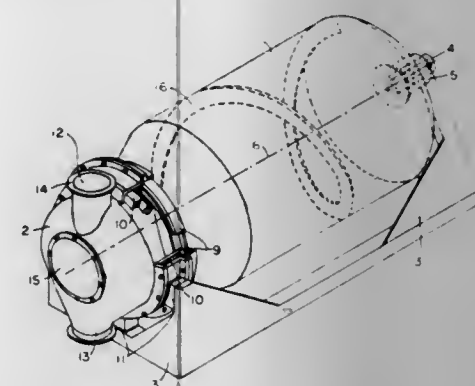
Filed Nov. 23, 1971, Ser. No. 201,423

Claims priority, application Germany, Nov. 25, 1970, 2057890

Int. Cl. B01f 9/02

U.S. Cl. 259—3

7 Claims



A container having a rotatable portion and a stationary portion which are joined together at an open end of the rotatable portion. The rotatable portion rotates around a shaft which is journaled in a bearing at a closed end and fixed to a frame. The rotatable portion is coupled to the stationary portion by a bearing radially spaced from the shaft with a sealing member arranged axially between the stationary and rotary portions.

3,830,473

STARCH PASTE APPARATUS

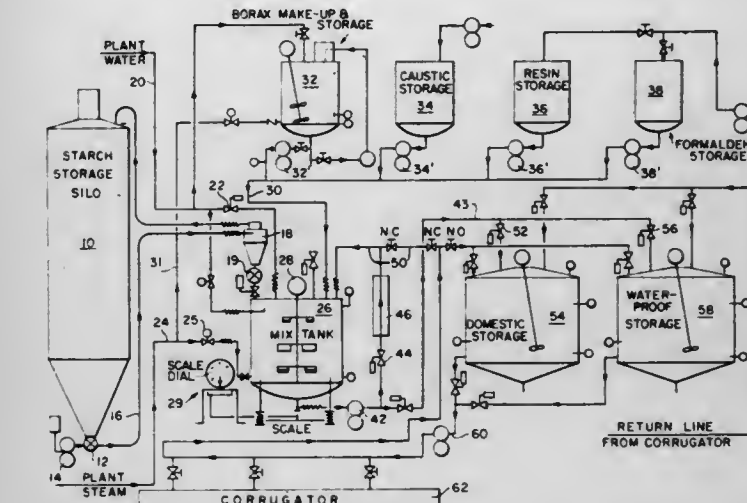
Harry A. Liefeman; Rufus E. Ryan, both of Clinton, Iowa, and James R. Piehler, Closter, N.J., assignors to Standard Brands Incorporated, New York, N.Y.

Filed Feb. 22, 1973, Ser. No. 334,624

Int. Cl. B01f 7/08

U.S. Cl. 259—8

6 Claims



An apparatus for continuously supplying a corrugator with a starch base adhesive. Starch, borax, caustic and other ingredients are mixed and subsequently fed through a baffle shear device to reduce viscosity of the mix. The mix is then fed to a storage tank for supply to a corrugator.

3,830,474

RECIPROCATORY SHAKER

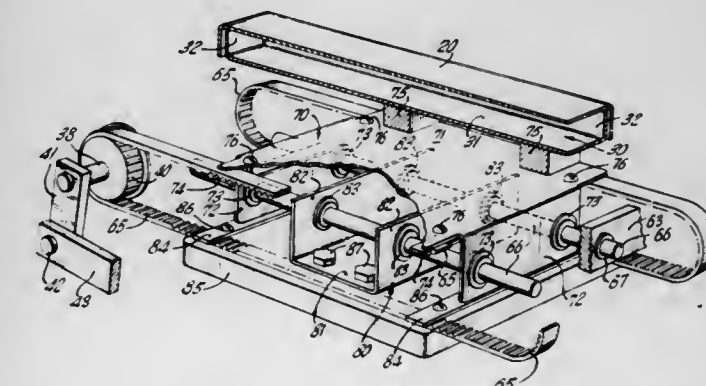
Myron Tannenbaum, East Brunswick, N.J., assignor to New Brunswick Scientific Co., Inc., New Brunswick, N.J.

Filed Jan. 31, 1973, Ser. No. 328,190

Int. Cl. B01f 11/00

U.S. Cl. 259—59

10 Claims



The shaker comprises a support frame having rods extending in spaced parallel relation longitudinally thereof. A shaker table and a separate bracket are supported, at respective longitudinally spaced points, on said rods for rectilinear reciprocation along the rods. The shaker table is arranged to have a carrier, for articles to be shaken, secured thereto, and a counterweight is secured to the bracket. A pair of timing belts extend around respective gears adjacent opposite ends of the support frame, and the shaker table is secured to the upper run of the belts, with the bracket and the counterweight being secured to the lower run of the timing belts. An adjustable stroke crank means, driven by a motor or the like, oscillates driving gears engaged with the timing belt so that the shaker table and the bracket with the counterweight are reciprocated longitudinally of the rods through equal amplitudes and in respective opposite directions. Thereby, during operation of the shaker, the counterweight substantially balances the shaker table.

3,830,475

APPARATUS FOR PREPARING A DENTAL FILLING
Kiyoshi Inoue, Tokyo, and Akihiko Shimizu, Sagami-hara, both of Japan, assignors to Inoue-Japax Research Incorporated, Yokohama-shi, Japan

Division of Ser. No. 88,738, Nov. 12, 1970, Pat. No. 3,722,833.

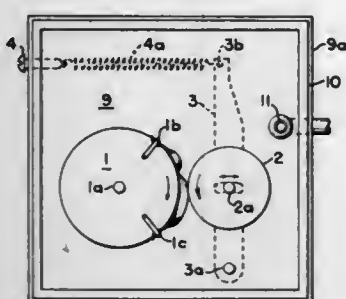
This application Dec. 15, 1972, Ser. No. 315,353

Claims priority, application Japan, Nov. 15, 1969, 44-92248; Nov. 15, 1969, 44-92249

Int. Cl. B01f 13/00

U.S. Cl. 259-72

6 Claims



Pre-packaged dental filling ingredients for use by dentists. The ingredients which are in part liquid and in part powder are encapsulated and sealed tightly in a flexible-membrane formed bag and therein separated one from the other, which separation is released by the compression of the bag to cause the ingredients to be successively brought into contact and mixed together. The mixture, confined within the bag, is spatulated to form a paste or semi-solid, ready for application to patient's tooth. The spatulation may be carried out advantageously with apparatus adapted to compressively roll over the flexible bag supported on a surface or squeeze on the bag against the surface.

3,830,476

COOLING TOWER STRUCTURE

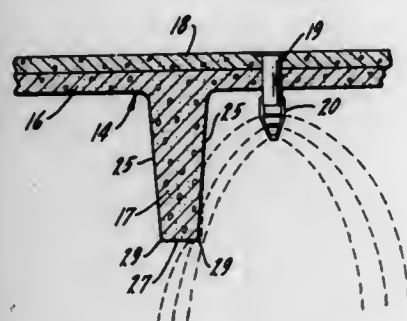
Donn B. Furlong, San Rafael; James F. Forchini, Healdsburg, both of Calif., and Robert Grotheer, Cincinnati, Ohio, assignors to Ecodyne Corporation, Chicago, Ill.

Filed Aug. 7, 1972, Ser. No. 278,332

Int. Cl. B01f 3/04

U.S. Cl. 261-111

6 Claims



A cooling tower structure including a plurality of precast concrete wall panels positioned above a concrete foundation so as to define cooling cells therebetween and a plurality of precast concrete T-beams longitudinally extending across the upper ends of the transverse wall sections so as to define a distribution basin thereabove and a fill area therebelow. The T-beams have horizontal web sections with apertures formed therein for receipt of spray nozzles therethrough and longitudinally extending rib sections extending downward from the web sections. The spray nozzles and rib sections are arranged in a manner such that the water spray pattern from the nozzles impinge against the side surfaces of the rib sections. The side surfaces of the rib sections include a pair of longitudinally extending surfaces tapered downwardly from the web section towards each other to intersect with a substantially horizontal

bottom surface. The intersections between the side surfaces and the bottom surface have rounded corners such that the outwardly spreading spray pattern of water from the nozzle continues below the rib sections to prevent "dead spots."

3,830,477

CLAMPING RING

Hans Buchsteiner, deceased, late of Gingen/Fils, Germany (by Renate Buchsteiner, nee Fetzer, executrix); Helga Bernhardt, nee Knobel, Reutlingen-Betzingen, and Hubert Kowalski, Alfdorf, both of Germany, assignors to Bruno Bernhardt

Filed June 2, 1971, Ser. No. 149,239

Claims priority, application Germany, June 2, 1970, 2026826

Int. Cl. F16c 1/34

U.S. Cl. 267-161

42 Claims



An elastic clamping ring as machine element in which the clamping ring is constructed as endless ring with annular cross section and has a supporting center section, from which extend radially inwardly and radially outwardly projecting extensions along the ring circumference, these extensions possess a smaller moment of resistance than the supporting center section so that the extensions move seesaw-like about the center section when one of the extensions is compressed or expanded.

3,830,478

CONTINUOUS METAL WIRE ANNEALING FURNACE

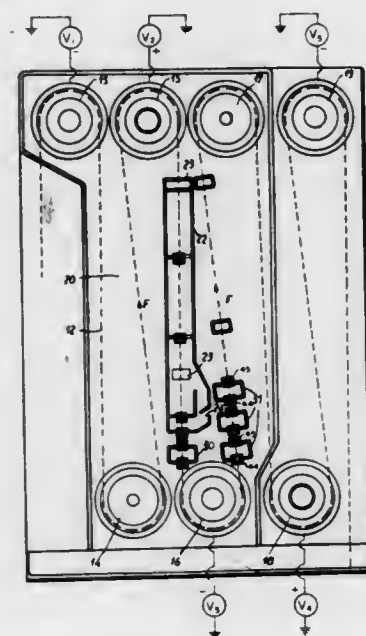
Piero Pietroni, Ascoli Piceno, Italy, assignor to Technofil S.p.A., Ascoli Piceno, Italy

Filed Jan. 10, 1973, Ser. No. 322,355

Int. Cl. C21d 9/62

U.S. Cl. 266-3 R

7 Claims



An annealing furnace for a wire-drawing machine having a preheating chamber through which a metallic drawn wire is continuously advanced by sets of pulleys applying different electrical currents along different runs of the wire for preheating it in a non-oxidizing atmosphere and for heating it to an annealing temperature in a tubular annealing chamber in a non-oxidizing atmosphere. After annealing the wire a series of independent cooling chambers cool the wire as it advances through them consecutively. The cooling chambers are provided independently with cooling liquid.

3,830,479

HEAT TREATMENT FURNACE

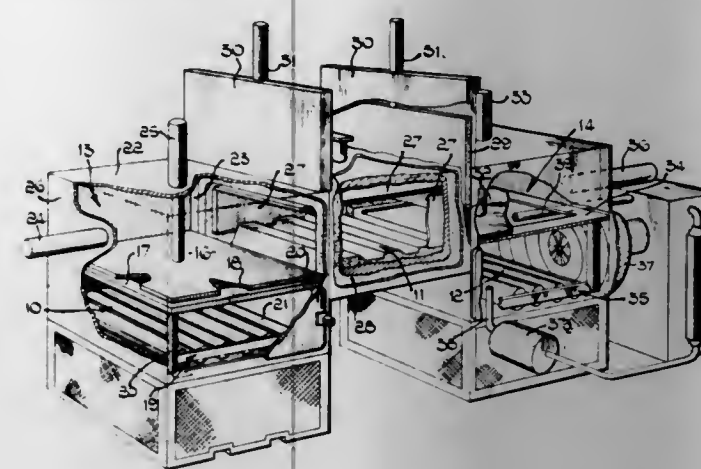
Malcolm Frederick William Knowles, 25 Porgeter St., Stourbridge, England

Filed Aug. 23, 1972, Ser. No. 283,176

Int. Cl. C21d 1/74

U.S. Cl. 266-5 R

6 Claims



A heat treatment furnace comprising an entry chamber, a vacuum heat treatment chamber and a quenching chamber through which a load to be heat treated can be passed sequentially. A first intermediate compartment is disposed between the entry chamber and the heat treatment chamber with those chambers located at respective adjacent sides of the first intermediate compartment. A second intermediate compartment is disposed between the heat treatment chamber and the quenching chamber which chambers are likewise located at respective adjacent sides of the second intermediate compartment. Means are provided for moving a load progressively from the entry chamber to the quenching chamber through the first intermediate compartment, heat treatment chamber and second intermediate compartment. The entry chamber and the quenching chamber are each capable of being sealed off from the respectively adjacent intermediate compartment by means of a respective plate valve which is disposed in the intermediate compartment concerned and movable towards and away from the dividing wall between the compartment and the chamber, the plate valve being movable in a direction perpendicular to the dividing wall. The plate valve carries means for conveying the load into or out of the compartment as appropriate.

3,830,480

PROBE ASSEMBLY

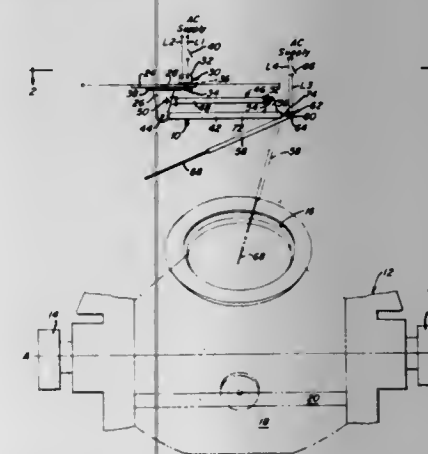
Louis A. Grant, Plum Borough, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed May 29, 1973, Ser. No. 364,790

Int. Cl. C21c 5/32

U.S. Cl. 266-34 LM

18 Claims



A probe assembly for a converter is disclosed and has a frame and a mounting head pivotable on the frame. Mounting head rotating means are connected to the mounting head for causing relative movement between the frame and the mount-

ing head. A boom is pivotable on the mounting head and boom rotating means are connected to the boom by causing relative rotative movement between the mounting head and the boom. A probe holder is pivotable on the free end of the boom, a probe holder rotating means is connected to the probe holder for causing relative rotative movement between the probe holder and the boom, and a probe is disposed on the probe holder. The probe holder rotating means are operable to rotate the probe holder and the probe on the boom from a probe park position adjacent the boom, away from the boom and toward the mouth to a probe mouth clearing position. The mounting head rotating means rotates the mounting head from a mounting head park position on the frame through an intermediate mounting head position to a mounting head sampling position where the mounting head is in the sampling position and where the probe can clear the mouth to move into the probe sampling position. The boom rotating means rotates the boom on the mounting head from the boom park position to the boom sampling position and the probe holder rotating means rotates the probe holder on the boom to a probe sampling position where the probe passes through the slag and into the molten metal.

3,830,481

REFRACTORY LINING IN A VERTICAL SHAFT FURNACE

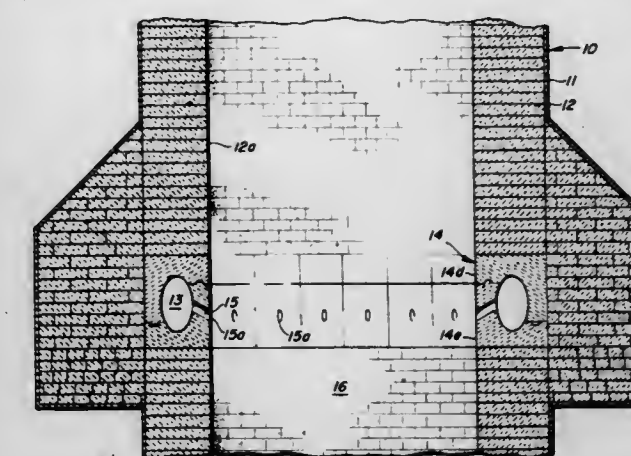
Ezekiel C. Dominguez, Bethlehem; John D. Lynn, Center Valley, and George J. Sundry, Bethlehem, all of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Feb. 7, 1973, Ser. No. 330,340

Int. Cl. C21b 7/06

U.S. Cl. 266-43

10 Claims



A multipart refractory assembly comprising a left hand section comprised of two mated parts and a right hand section comprised of two mated parts, which sections when laid-up contiguously form a portion of the bustle of a vertical shaft furnace and an inlet passage extending from the bustle to the interior of the vertical shaft furnace. The left hand section is made of two refractory shapes which are placed one atop the other and are locked in place by tongue and groove means. The upper part has six faces. Five of the faces are plane surfaces. The bottom face is provided with a tongue in the rear portion thereof, a groove in the forward portion thereof and a curvilinear portion connecting the rear portion and the forward portion. The lower part also has six faces. Five of the faces are plane surfaces. The upper face is provided with a tongue in the forward portion thereof, a groove in the rear portion thereof and a curvilinear surface connecting the forward portion and rear portion. A side face of the lower part is provided with a groove extending from the curvilinear surface to the forward face thereof. When the bottom face of the upper part and the top face of the lower part are placed together the tongue and groove in the upper part mate with the groove and tongue in the lower part to lock the parts together. The curvilinear surfaces in the parts form a continuous surface which is generally elliptical in shape.

The right hand section is a mirror image of the left hand section. When the left hand and right hand sections are laid-up

contiguously, the generally semi-circular grooves in the side faces form a generally circular inlet passage extending from the generally elliptical surface of the forward face of the assembly. A generally elliptical opening or port is formed in the front face of the assembly.

The upper parts of each section are identical. Therefore by mating two upper parts a section which does not contain an inlet passage or a port can be formed. Laying two sections of these parts contiguously forms a four-piece refractory assembly which does not have an inlet passage extending from the elliptical surface to a front face of the refractory assembly. The use of the two four-piece refractory assemblies described above in laying-up the refractory lining of a vertical shaft furnace makes it possible to assure uniform distribution of hot combustion gases into a pellet bed in the vertical shaft furnace to thereby distribute heat uniformly into the pellet bed.

3,830,482

ADJUSTABLE COIL SPRING LIFTER

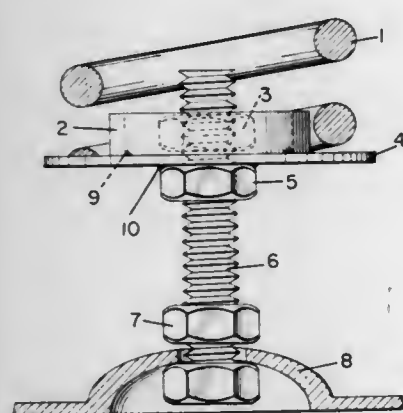
Kenneth Edward Norris, Somerset, Colo. 81434

Filed Oct. 17, 1972, Ser. No. 298,355

Int. Cl. B60g 11/14

U.S. Cl. 267—61 R

2 Claims



The coil spring seat of an automobile suspension is provided with an adjustment bolt extending upwardly therefrom, and a ring and washer are positioned on the bolt between nuts. The ring is welded on the washer and protrudes axially into the coil spring which rests on the washer. Axial adjustment of the washer assembly will increase or decrease the loaded length of the spring to permit restoration of the loaded spring height.

3,830,483

SPRINGS

Jan Gaydecki, Leicester, England, assignor to Dunlop Limited, London, England

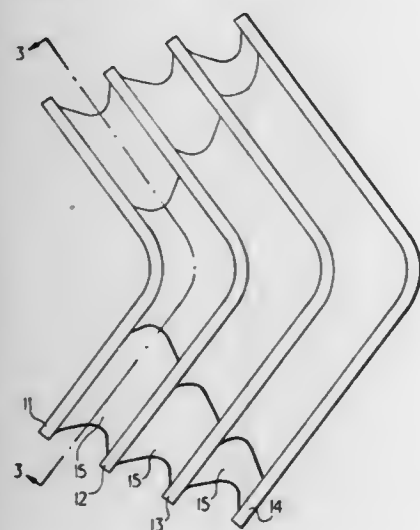
Filed Sept. 20, 1972, Ser. No. 290,505

Claims priority, application Great Britain, Sept. 22, 1971, 444144/71

Int. Cl. F16f 1/36

U.S. Cl. 267—63 A

13 Claims



A chevron spring comprising two angled metal plates of V-shaped cross-section and an intermediate elastomeric element

of substantially rectangular shape from which at least the corner portions are absent, of which the following is a specification.

3,830,484

ADJUSTABLE DEVICE FOR IMPROVED CLAMPING MEANS

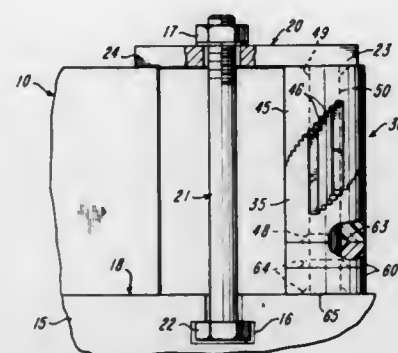
Stephen A. Bright, 97 Overla Dr., West Milton, Ohio 45383, and Robert E. Kress, 4588 S. Shiloh Rd., Laura, Ohio 45337

Filed Oct. 11, 1972, Ser. No. 296,608

Int. Cl. B23q 3/00

U.S. Cl. 269—10

6 Claims



A device used in conjunction with a clamping bar or strap to act as a support and leverage means for said clamping bar or strap to obtain maximum clamping force against a workpiece and thereby keep it from movement.

The device is finely adjustable in length and provides great physical stability by means of an interaction between two bodies; each body having a series of steps dropping sequentially to a specified depth in the form of a helix like angle. The steps of each body mesh with complementary steps of the other body so that rotation of one body about its longitudinal axis in one direction with respect to the other body will cause it to go "up the steps" of the other body, thereby increasing the overall length of the device; rotation in the opposite direction has a converse effect and decreases the length of the device.

3,830,485

WORK TABLE FOR MACHINE TOOLS

Sven-Mikael Mickelsson, Box 5770, Bollnas, and Sture Hall, Prastvagen 2, Alfta, both of Sweden

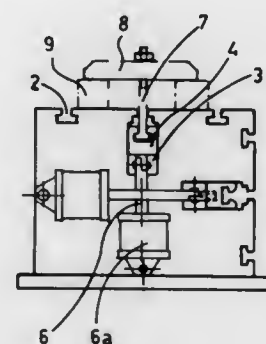
Filed Nov. 2, 1972, Ser. No. 303,144

Claims priority, application Sweden, Nov. 5, 1971, 14139/71

Int. Cl. B23q 3/06

U.S. Cl. 269—25

4 Claims



A work table for machine tools, such as radial drilling machines and the like, the table having grooved areas in its top and side surfaces, the groove or grooves extending for a distance below said surfaces and from one end of the table to its other end. A clamping bar is located in each groove, the groove or grooves having side walls mainly perpendicular to its surfaces, the clamping bar being guided by said walls. Said

bar is movable in the groove toward or away from the surface of the table, the clamping bar extending along the length of the groove and is provided in its surface facing the surface of the table with an undercut or T-groove for at least a substantial part of its length.

3,830,486

RAPID ACTION CLAMP

Kurt Friedrich Jepsen, Siegen; Bernard Stahl, Kirchen, and Wolfgang Janzen, Obersdorf-Rodgen, all of Germany, assignors to Amsted-Siemag Kette GmbH, Betzdorf (Sieg.), Germany

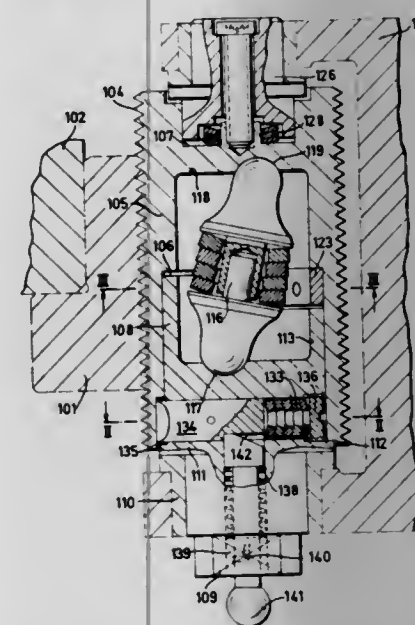
Filed Apr. 18, 1972, Ser. No. 245,209

Claims priority, application Germany, Apr. 21, 1971, 2119281; July 17, 1971, 2135810; Oct. 4, 1971, 2149415

Int. Cl. B25b 1/06, 1/16

U.S. Cl. 269—216

27 Claims



A rapid action clamp comprises a thrust assembly through which a thrust is applied to the part to be clamped, and a thrust pin pivotally connected at one end to the thrust assembly and at its other end to a rotary actuator which is arranged coaxially with the thrust assembly and so that they are axially movable relative to each other, the thrust pin connections being eccentric with respect to the axis of the actuator and thrust assembly so that rotation of the actuator about the axis relative to the thrust assembly moves the thrust pin between a position in which it is skew to the axis and a position in which it extends parallel to the axis and exerts a clamping thrust, the thrust pin or another part through which the clamping thrust is transmitted being compressible in the direction of thrust transmission against spring loading. The thrust assembly is first moved to bring a member into engagement with the part to be clamped and then the actuator is rotated to exert the final clamping action. Usually, the thrust assembly carries the thrust pin and actuator, and is arranged so that it is rotated to screw it into the preliminary clamping position. In this case the rotary actuator is coupled to the thrust assembly so that they rotate together until preliminary clamping is effected, at which time the coupling becomes disengaged to allow the actuator to rotate relative to the thrust assembly and exert the final clamping.

3,830,487

SUPPORT STAND FOR CLOCK MOVEMENTS AND THE LIKE

Miner E. Haywood, Aurora, Colo., assignor to Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed May 9, 1973, Ser. No. 358,674

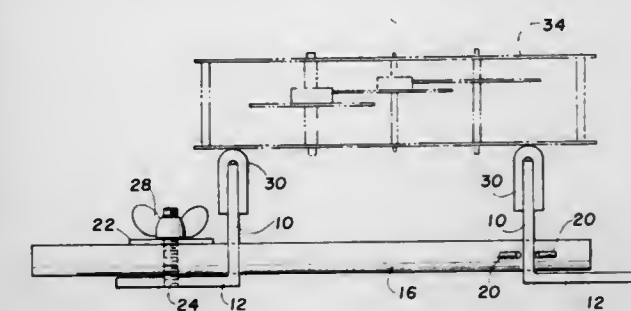
Int. Cl. B25b 11/00

U.S. Cl. 269—296

1 Claim

A supporting stand for holding clock movements and the like. First and second horizontally elongated angle members

each in cross section define the letter L. These members have parallel upwardly extending like vertical plates as well as horizontal plates disposed on the outside of the vertical plates. The vertical plates have aligned sets of holes through which parallel horizontal rods extend. Means at one end of these



rods secure same to the vertical plate of one member. Clamping means cooperating with the horizontal plate of the other member locks the other end of each of these rods in position. Resilient protective means is secured to the top horizontal edge of both vertical plates.

3,830,488

PROPELLER MANIPULATING AND WORK STAND

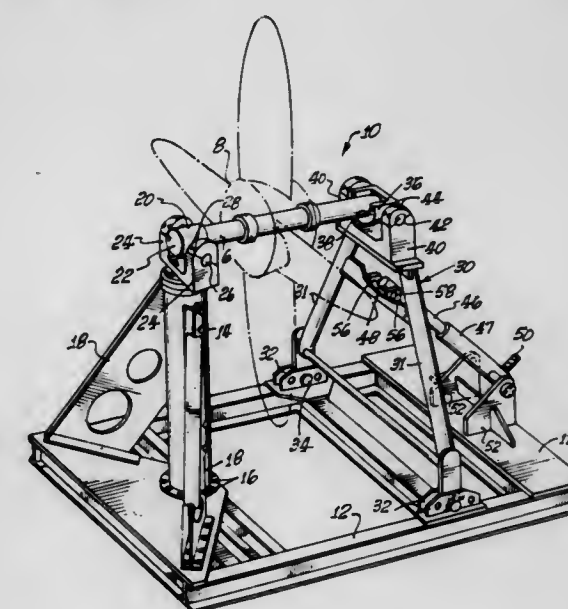
John F. Wilger; Clifford Y. C. Lal, both of Honolulu, and Gregory S. Nakano, Pearl City, all of Hawaii, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 12, 1973, Ser. No. 415,204

Int. Cl. B23q 7/00

U.S. Cl. 269—296

9 Claims



A manipulating and work stand, for handling a propeller with a mandrel shaft, which includes a base and a pair of spaced apart support members, one of the support members being upright and fixed at its bottom to the base and the other support member being pivotally connected to the base for rotation toward and away from the upright support member. Receptacles are mounted at the tops of both of the support members for receiving the ends of the mandrel shaft. The receptacle at the top of the fixed upright support member may be a tubular bearing which is closed at one end, and the receptacle mounted at the top of the pivotal support member may be a saddle which is open on one side and which is pivotally connected to the top of the pivotal support member. A drive means may be connected between the base and the pivotal support member for driving this support member upwardly so that the saddle will receive one end of the mandrel shaft. In this manner, the mandrel shaft through the propeller may be lowered vertically so that the closed receptacle receives one end of the shaft and then pivoted so that the saddle receives the other end of the shaft.

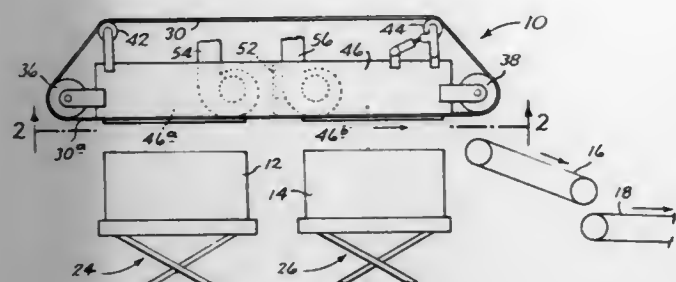
3,830,489

VENEER CONVEYING METHOD

John R. Adams, deceased, late of P.O. Box 718, Sutherland, Oreg. (by United States National Bank of Portland)
Filed Apr. 24, 1972, Ser. No. 246,674
Int. Cl. B65h 3/12

U.S. Cl. 271-9

1 Claim



A wide-belt overhead vacuum conveyor for carrying veneer sheets along a path with the sheets extending transversely of the path. The conveyor includes an endless, elongated, perforate conveyor belt having a width substantially spanning the length of the veneer sheets to be carried. The belt has a lower reach extending in the direction of the path and is driven under power along the path. A vacuum manifold having a width spanning the width of the belt overlies the lower reach of the belt. The underside of the chamber is formed of spaced-apart support rollers disposed with their undersides in a common, substantially horizontal plane. Evacuation of the vacuum chamber draws air through the perforate belt, with the support rollers preventing the belt from being drawn into the manifold. The belt also is trained over an adjustment roller which may be selectively canted to produce tracking of the belt toward either side of the path to keep it centered on the path.

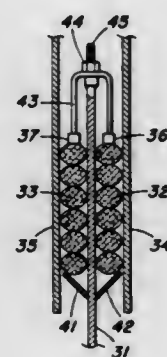
3,830,490

PACKED EXPANSION JOINT

George Friedman, Clark; Harold B. Kohn, Cedar Grove, and Philip A. Welner, Rockaway, all of N.J., assignors to The Lumsum Company, Bloomfield, N.J.
Filed Nov. 17, 1972, Ser. No. 307,454
Int. Cl. F16j 15/22

U.S. Cl. 277-102

9 Claims



In a system where temperature changes are great, the equipment parts in contact are protected by expansion joints. A simple and economical packing of rope can be used where a minute amount of fluid communication is tolerable and where pressure differential is low. It can be typically applied in shell and tube exchangers and in process equipment which integrates several steps such as a reactor-exchanger combination. The packed expansion joint can also be used for multiple walls in contact, with layers of rope between walls.

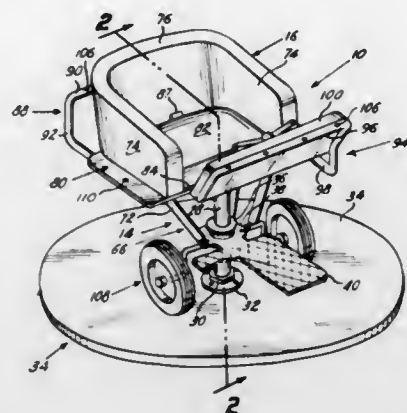
3,830,491

ROCKABLE CHAIR FOR AN AMUSEMENT TOY

Ray Christians, 105 Pleasant St., Ankeny, Iowa 50021
Filed July 18, 1973, Ser. No. 380,143
Int. Cl. A63g 1/20, 9/00

U.S. Cl. 272-33 R

8 Claims



A legless chair includes a seat axially and swivelly mounted to the top of a support post which is securely attached to a supporting base. Strong spring connections between the seat and post maintain a normal level plane of the seat but permit rocking, wobbling or rotating motions actuated by the gyrations of the occupant. A pair of axle mounted wheels are secured to the chair and are in slight contact with the base such that upon rotational movement of the seat, the wheels will rotate about their own axles as well. Additionally, the seat is hingedly connected to the remainder of the chair so that it can be manually elevated to provide access to the spring connections for purposes of adjustment and maintenance. The chair is designed to have a plurality of varied respective bodies of selected configurations attachable thereto to simulate a variety of vehicles and objects for the creation of fun and enjoyment. This toy is usable either indoors or out of doors and the chair assembly may be separated from its supporting structure for use as a swing seat.

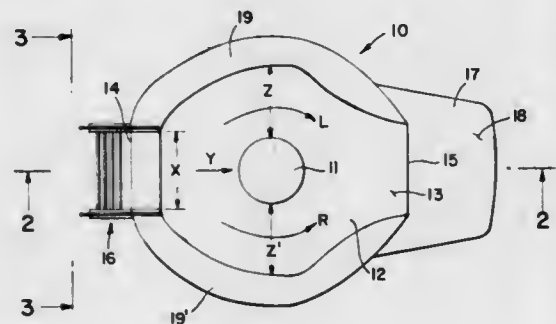
3,830,492

AMUSEMENT SLIDE ADAPTED TO BE USED SIMULTANEOUSLY BY TWO PERSONS

Robert Deveau, 14 Hopedale Ave., Toronto, and Joseph O'Brien, 83 Betty Ann Dr., Willowdale, Ontario, both of Canada
Filed Aug. 23, 1973, Ser. No. 391,006
Int. Cl. A63g 21/00

U.S. Cl. 272-56.5 R

2 Claims



An amusement slide adapted to rest on a substantially horizontal support surface and for use simultaneously by two persons, comprising an upright column, means supported by the column and defining an upwards facing inclined surface, the bottom of the column resting on the support surface and the column passing through the inclined surface, the means defining the inclined surface having an upper edge and a lower edge, the lower edge being in proximity to the support surface, a ladder extending between the support surface and the upper edge, the minimum width of the inclined surface in the

direction normal to the inclination of the inclined surface in all positions of the inclined surface which do not include the column being sufficiently great to permit two children to slide down the inclined surface simultaneously and the minimum width of the inclined surface in the direction normal to the inclination of the surface on either side of the column being sufficiently great to permit two children, one on each side of the column, to slide down simultaneously.

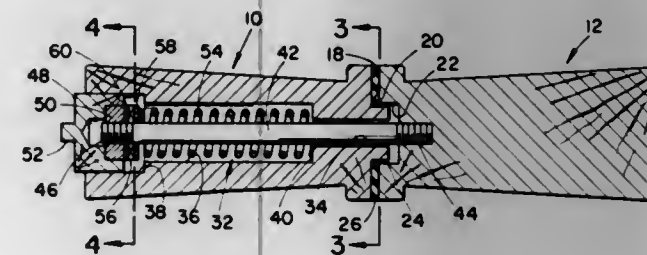
3,830,493

HAND EXERCISING DEVICE

Gerald C. Miller, 1821 21st St., Rock Island, Ill. 61201
Filed Apr. 2, 1973, Ser. No. 346,745
Int. Cl. A63b 21/22

U.S. Cl. 272-67

9 Claims



A hand and wrist exercising device includes a pair of generally cylindrical hand-grippable elements coaxially mounted for relative rotation and having opposite radial end faces with an annular rubber disk disposed between and engaging the opposite end faces to resist relative rotation between the elements. One of the elements has an axial bore and a shaft extends through the bore and has one end fixed to the other element and a cap threaded on the other end. A helical compression spring is mounted around the shaft within the bore and acts between a shoulder in the bore and the cap through a thrust bearing, so that the spring exerts a force biasing the hand-grippable elements toward one another against the rubber disk, the amount of friction being varied by turning the cap on the shaft to adjust the spring compression and thereby the biasing force.

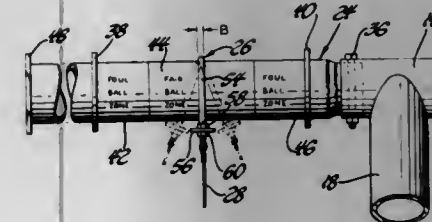
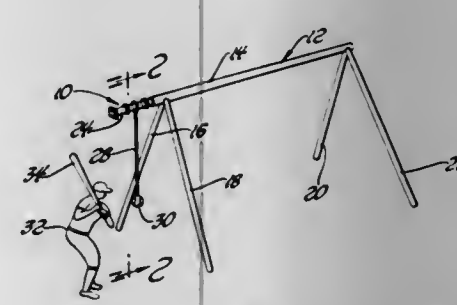
3,830,494

BALL HITTING PRACTICE DEVICE

Edward J. Biskup, 18210 Birwood Blvd., Birmingham, Mich. 48009
Filed Aug. 27, 1973, Ser. No. 391,567
Int. Cl. A63b 69/40

U.S. Cl. 273-26 E

8 Claims



A ball hitting practice device including a support portion adapted to be mounted in a horizontal position above the ground. A carrier member is rotatably mounted on the support portion and is connected to a cord which in turn has a ball

connected to the lower end thereof. The carrier member is formed with an opening larger than the cross-sectional size of the support portion and is of a relatively narrow width so when the ball is subjected to a horizontally directed force, the ball together with the carrier member rotates about the support portion with a limited area thereof in constant contact with the outer surface of the support portion and the carrier member is free to move laterally along the support portion to indicate the direction the ball would have traveled if it were unrestrained.

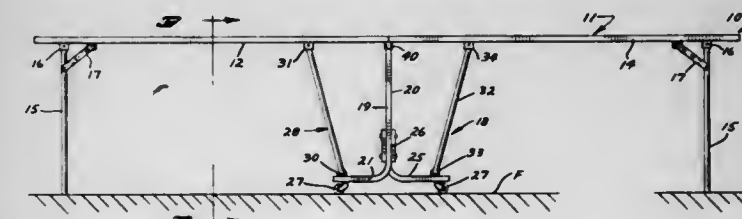
3,830,495

COLLAPSIBLE GAME TABLE

Max E. Hill, St. Paul, Minn., assignor to Frederick-Willys, Inc., Farmington, Minn.
Filed Aug. 31, 1973, Ser. No. 393,602
Int. Cl. A63b 61/00

U.S. Cl. 273-30

4 Claims



A collapsible game table or the like such as used for table tennis having mating halves arranged edge to edge on a horizontal plane so that each half forms an end portion of an elongated table top, a wheeled frame supporting a plurality of vertical posts which are spaced along and in vertical alignment with the meeting edges of the table halves, each of said halves having a sleeve hinged to its inner edge and encircling one of said posts for sliding movement therealong, and collapsible legs for supporting the outer ends of the table halves, and a rigid pivot leg connecting the longitudinally medial portion of each half to the lower portion of the frame.

3,830,496

BAT

Robert F. Reizer, Anaheim, Calif., assignor to AMF Corporation, White Plains, N.Y.
Continuation-in-part of Ser. No. 189,459, Oct. 14, 1971, abandoned. This application Sept. 6, 1973, Ser. No. 394,571
Int. Cl. A63b 59/06

U.S. Cl. 273-72 R

2 Claims



A baseball bat comprising a plastic hollow barrel, two end caps for closing the same, an insert in the barrel, and a tapered force fit of the insert in the barrel by virtue of a taper on the insert and a plurality of inwardly extending lengthwise directed ridges on the interior of the barrel which are tapered in height along the length of the barrel.

3,830,497

MINIATURE BASEBALL GAME

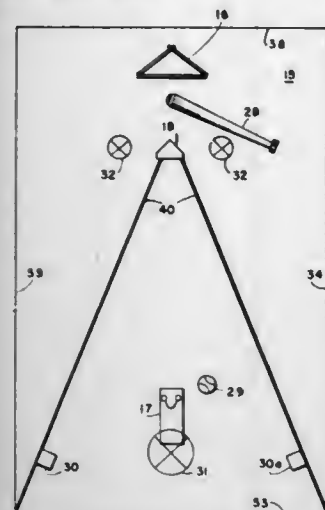
Richard Peterson, 425 Appollo Dr., Joliet, Ill. 60435
Filed Jan. 22, 1973, Ser. No. 325,841
Int. Cl. A63b 67/00

U.S. Cl. 273-89

1 Claim

A mini-baseball game, intended primarily for indoors such as in a den, family room or any household area with reasonably adequate space, comprises a backstop, an inpen-

sively simple pitching device, a small bat not more than one and one half feet in length. Also, a small ball, the coefficient of restitution and size less than a regular standard baseball and



which does not exceed 2 inches in diameter, first, third and home bases, with string for baselines. A set of rules, and requires a minimum of two players.

3,830,498

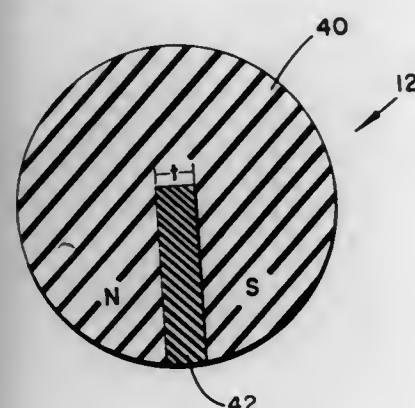
BIFURCATED MAGNETIC SPHERE WITH RESILIENT TETHER

Armand E. Lauzon, RFD No. 1, Rockledge Dr., Andover, Conn.

Filed Feb. 17, 1972, Ser. No. 227,125
Int. Cl. A63b 71/02

U.S. Cl. 273-95 A

6 Claims



An amusement device having particular appeal to young children includes a resilient, magnetic pickup ball attached to the end of a tether or string. In use the ball is thrown toward ferromagnetic characters or other objects which are retrieved with the ball provided that the ball strikes the objects or strikes in a region immediately adjacent the objects. The ball is preferably formed from a composite material which possesses both the resilient and magnetic properties throughout. One portion is formed of a resilient and magnetic material and another portion formed by a non-magnetic material having the same resilience. A semi-circular section of finite thickness is removed and a non-magnetic material is inserted thereby forming a bifurcated hemisphere to permit the north and south poles of the magnetic field within the ball to be located on the bifurcations at opposite sides.

3,830,499

APPARATUS FOR ENCLOSING A COIN-OPERATED PIN BALL MACHINE OR THE LIKE

Russell Herbert Alldredge, 171 Lighter Ct., Sacramento, Calif. 98515

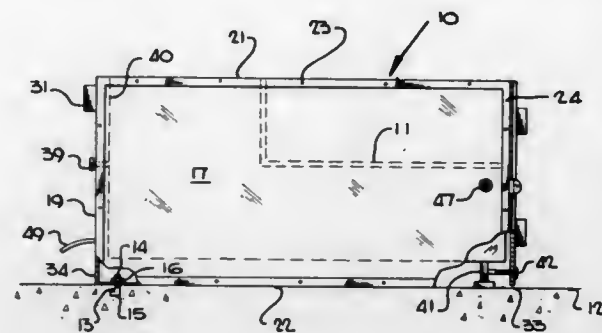
Filed June 11, 1973, Ser. No. 368,947
Int. Cl. A63d 5/00

U.S. Cl. 273-121 R

9 Claims

Apparatus for enclosing a coin-operated pin ball machine including a rear wall closing off the rear wall of the machine and side walls closing off the side walls thereof. The machine

is closed off at the front by a hinged top wall which overlaps a hinged bottom wall so that the top wall must be unlocked before access can be had to the bottom wall. The bottom wall includes suitable openings therein for providing access to the



various operating controls of the machine. In this manner, the machine is completely enclosed and the enclosure therefore may be bolted to a supporting surface with the machine kept out-of-doors, if desired, with access to the controls readily available and vandalism thereof prevented.

3,830,500

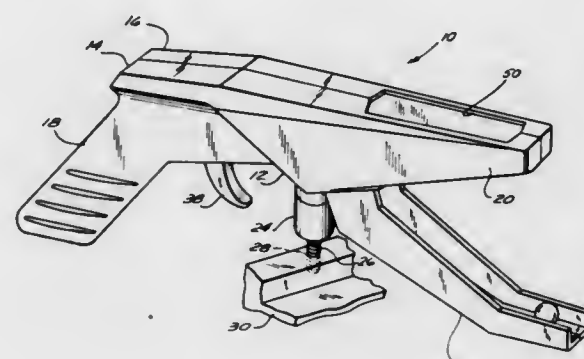
BALL-FIRING DEVICE

Frank D. Ventura, Commack, N.Y., assignor to Ideal Toy Corporation, Hollis, N.Y.

Filed Feb. 9, 1973, Ser. No. 331,149
Int. Cl. A63b 71/00

U.S. Cl. 273-129

10 Claims



A device for firing balls, for example onto the area of play of a game, including a pistol-shaped housing having a manually loadable ball magazine therein and a mechanism within the housing arranged to propel one ball at a time from a magazine upon rearward movement of a trigger mechanism. The trigger mechanism, when activated, ejects a single ball from the magazine through a retention spring clip and the ball accelerates down a curved discharge track or chute for delivery onto the play surface.

3,830,501

AIR IMPULSE BOARD GAME APPARATUS

Norman Fabricant, 94-19 64th Rd., Rego Park, N.Y. 11374

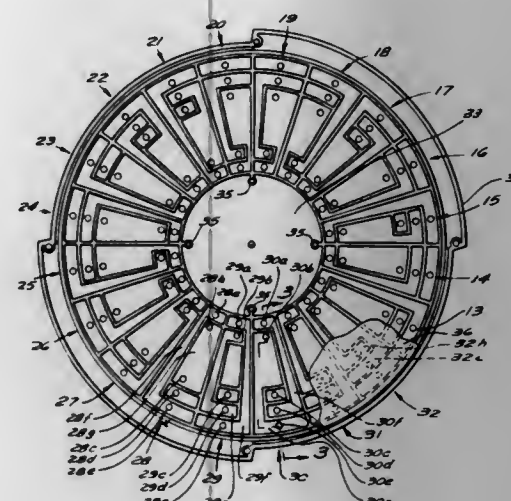
Filed Mar. 28, 1973, Ser. No. 345,629
Int. Cl. A63f 3/00

U.S. Cl. 273-134 E

9 Claims

A toy includes a circular support; a rotatable pointer centrally coupled to the support; and indicia, on the support, surrounding the pointer. The support includes a plurality of radial arrangements, each of the arrangements comprising first and second holes, a set of three holes, and first and second air channels coupling the first and second holes, respectively, to a different hole of the set. The air channels are created by forming the support from a board having grooves on one side and by fixing thereto a groove cover. The holes of the set are slidably engageable with extensions of playing pieces and the first and second holes are engageable with the nozzle of a bel-

lows. A stand is used to support the bellows over the circular support when its nozzle is engaged with a hole. According to one set of game rules, each player rotates the pointer and when the pointer comes to rest moves, according to the indicium towards which the pointer points, the playing piece or the



nozzle into engagement with a designated hole. If after such a move the nozzle and a playing piece are coupled by one of the channels, actuation of the bellows will cause an impulse of air to travel through the channel and the playing piece will be ejected from its hole.

3,830,502

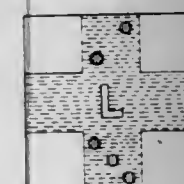
LOTTO TYPE GAME

Grover Rodgers, P.O. Box 4102, Compton, Calif. 90224

Filed Mar. 5, 1973, Ser. No. 338,233
Int. Cl. A63f 3/06

U.S. Cl. 273-135 B

1 Claim



La-Ke-No 100 is a domino type game played with a plurality of block members, each block having a cross design on its face with an alpha-numeric character in the centermost portion and two to four sets of dots each disposed on one of the projecting arms, each block member accompanied by a set of dominoes dimensioned to fit within a projecting arm of the cross design on block member, each domino having a set of dots matching in number and color of dots on block member.

3,830,503

GOLF CLUB FOR HAZARD SURFACES

Nicholas R. Consoli, 101 Oliver Dr., Elizabeth, Pa. 15037

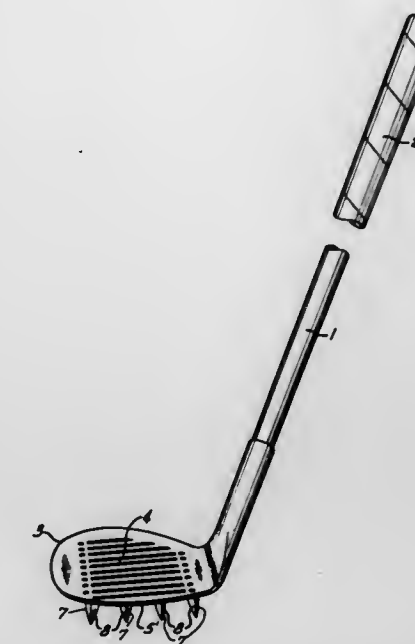
Continuation-in-part of Ser. No. 167,348, July 29, 1971, abandoned. This application Apr. 6, 1973, Ser. No. 348,769
Int. Cl. A63b 53/04

U.S. Cl. 273-167 A

3 Claims

A golf club for use on hazard surfaces such as sand, in the rough, or shallow water wherein fins positioned transverse to

the face of the club head are secured to the bottom of the club head for engagement with the hazard surface when the golf



club is swung to assist in consistently stabilizing the forward guiding of the club head in the direction swung once it has engaged the hazard surface.

3,830,504

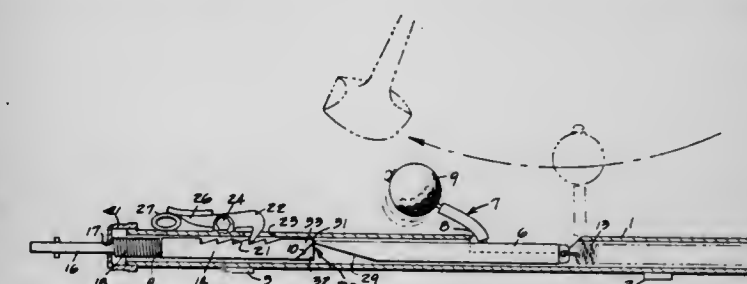
GOLF PRACTICE DEVICE

Bonny B. Koo, 1016 Austin Ave., Pacific Grove, Calif. 93950

Filed Jan. 21, 1974, Ser. No. 435,300
Int. Cl. A63b 69/36

U.S. Cl. 273-185 C

10 Claims



A tubular casing is held on a pad; through an elongated slot thereof extends a tee stem which supports a golf ball; a reciprocating tee bar inside the tubular member supports the tee stem on the bar so that when the ball is struck the bar is advanced against the action of a coil spring which latter returns the tee bar and the ball into an initial position; spaced from the tee bar is an indicator bar in the tubular member held in an initial position by a coil spring in the far end of the tubular casing and it has an extension projecting beyond the end of the tubular casing provided with indicia for indicating the distance corresponding to the force of striking the ball; a releasable pawl and ratchet device holds the indicator bar in extended position; the point of the tee bar is offset toward the slotted top of the casing so that when the ball is hit to one side or the other it turns the tee bar thereby reducing the force of impact on the indicator bar and also moving side flaps or plates for indicating the direction in which the tee bar was turned.

3,830,505

VERTICAL STABILIZER FOR PHONOGRAPH ARMS

Jacob Rabinow, 6920 Selkirk Dr., Bethesda, Md. 20034

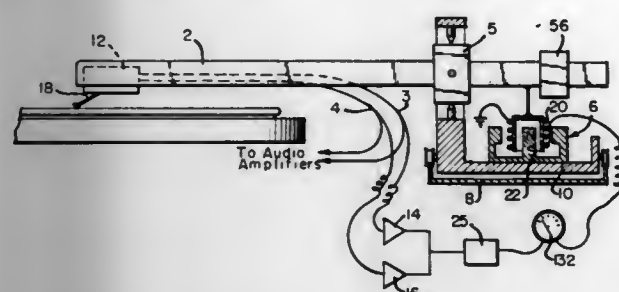
Filed Nov. 22, 1971, Ser. No. 200,758
Int. Cl. G11b 3/10

U.S. Cl. 274-1 R

2 Claims

The present conventional phonograph arm supporting a reproducing cartridge suffers, among other problems, from

the difficulty that a warped record or a violent vibration of the whole mechanism can easily throw the cartridge out of contact with the record. The present disclosure is concerned with



the addition of arm-position sensors and motor devices to produce the necessary vertical forces to counteract this tendency. Several embodiments of the device are described.

3,830,506

FOIL RECORD CARRIER

Manfred Ewert, and Klaus Roggenbuck, both of Berlin, Germany, assignors to TED Bildplatten Aktiengesellschaft, Zug, Switzerland

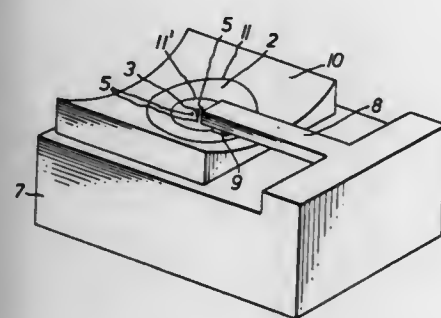
Filed Dec. 11, 1972, Ser. No. 313,668

Claims priority, application Germany, Dec. 11, 1971, 2162220; Dec. 11, 1971, 7147225

Int. Cl. G11b 3/60

U.S. Cl. 274—39 A

6 Claims



A recording and/or playback device for a foil record carrier including a stabilizing surface which is formed to be upwardly concave about an axis of curvature above which a similarly shaped foil record is rotated for recording and/or playback. The foil record rotates at a high relative speed of rotation on a cushion of air established between itself and the stabilizing surface. A transducer element is mounted near the lowest point of the concave stabilizing surface to be movable substantially in the direction of the axis of curvature of that surface.

3,830,507

LOG SKIDDING GRAPPLE

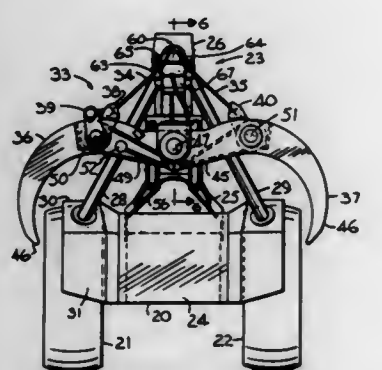
Norman Allen Johnson, 5325 Tenth Ave., South Delta, B.C., Canada

Filed Feb. 21, 1973, Ser. No. 334,239

Int. Cl. B66c 3/12

U.S. Cl. 294—112

8 Claims



This disclosure pertains to a novel mechanical grapple adapted for use with tracked and rubber-tired log skidders.

The grapple comprises a pair of jaws pivoted at their upper ends by a main pin for scissors-like relative motion. On the main pin there is mounted a main cable sheave and intermediate the upper and lower ends of each jaw there is mounted a jaw cable sheave. A cable anchor is pivotally mounted on one of the jaws intermediate the main pin and the jaw sheave. Pivotally mounted on the main pin for free swinging pivotal motion with respect to each jaw is a swivel guide means. An opening cable is connected to each grapple jaw intermediate its upper and lower ends. Mounted on one jaw, and associated with one of the jaw sheaves, is a cable holding means which is operated by the opening cable connected to that jaw. A closing cable passes through the swivel guide means and cable-holding means, is entrained around the main cable sheave and jaw sheaves, and ultimately connected to the cable anchor. The closing cable is connected to a primary winch and the opening cables are connected to a secondary winch whereby the opening, closing, and cable-holding effects on the grapple may be controlled at will.

ERRATUM

For Class 277—102 see:
Patent No. 3,830,490

3,830,508

SHAFT SEAL

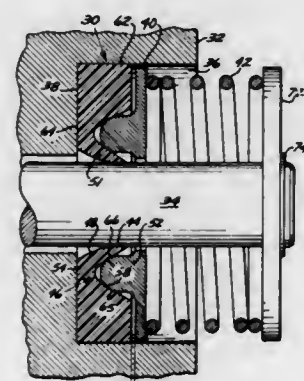
Donald L. Endicott, Garden Grove, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Nov. 27, 1972, Ser. No. 309,736

Int. Cl. F16j 15/32

U.S. Cl. 277—142

5 Claims



A shaft seal for providing a seal between a housing and a cylindrical shaft movable with respect to the housing. The seal includes an annular seal member having an inner diameter for sealing engagement with the shaft, an outer portion which rests in a recess in the housing and a V-shaped notch adjacent the inner diameter. A spacer member is located adjacent to the face of the seal member, the spacer member having a flat annular shape with a circular protrusion of semicircular cross-section which is urged into contact with the V-shaped notch by a spring located concentrically about the shaft to thereby cause the seal member to bear against the housing and the shaft and provide a seal between the two.

3,830,509

HYDRAULICALLY CONTROLLED HOLDING DEVICE

Jonathan T. Weber, Cincinnati, Ohio, assignor to Positrol, Inc., Cincinnati, Ohio

Filed July 14, 1972, Ser. No. 271,908

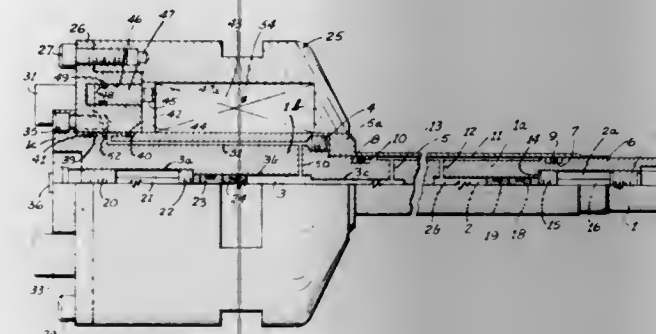
Int. Cl. B23b 31/40

U.S. Cl. 279—2

3 Claims

A hydraulically controlled holding device for accurately locating and securing locking tools or workpieces in position during the performance of various manufacturing and testing operations. The holding device may be in the form of an arbor

or a chuck and comprises a body having a closed hydraulic system therein and a thin-walled sleeve adapted to be pressurized into contact with the tool or workpiece by the application of hydraulic pressure thereon from the closed system. The holding device is characterized by the fact that the thin-walled



sleeve is constantly pressurized, in the presence or absence of a tool or workpiece, and requires the action of an outside agency or force to relieve the pressure on the thin-walled sleeve. The holding device may also be provided with indicator means to show whether or not the thin-walled sleeve is properly and adequately pressurized.

3,830,510

RELEASABLE HEEL HOLDDOWN MECHANISM FOR SKI BINDINGS

Rudolf Stauffer, Bottenwil, Switzerland, assignor to Samuel Wyss, 3801 Kleine Scheidegg, Switzerland

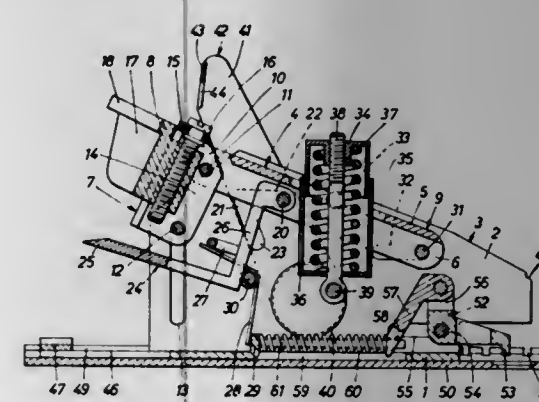
Filed Oct. 19, 1972, Ser. No. 299,023

Claims priority, application Switzerland, Oct. 27, 1971, 15671/71

Int. Cl. A63c 9/08

U.S. Cl. 280—11.35 T

2 Claims



A releasable heel hold-down mechanism for ski bindings embodying a spring-loaded holding element serving for holding down the heel of the ski boot and pivotally mounted within a frame which can be connected through the agency of an attachment plate with the ski. Means serve to guide the pivotal movement, said means imparting to the holding element an upward forwardly directed movement until reaching a release position.

3,830,511

RELEASABLE HEEL HOLD-DOWN DEVICE

Paul Unger, Bruckwiesenstrasse 113, 8501 Altenberg, Germany

Filed Mar. 6, 1973, Ser. No. 338,433

Claims priority, application Germany, Mar. 8, 1972, 2211069

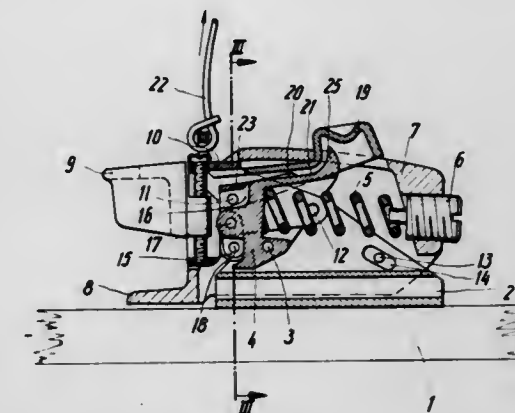
Int. Cl. A63c 9/08

U.S. Cl. 280—11.35 T

13 Claims

A releasable heel hold-down device for a ski binding includes a base part secured to a ski with a housing displaceably secured on the base part. A first rocker and a second rocker

are located within the housing. For holding the heel of a ski boot on the ski, a hold-down member is adjustably connected to the second rocker which is pivotally attached at spaced locations to the housing and to the base part. The first rocker is pivotally connected to the base part. A spring, positioned within the housing, biases the first rocker in the direction of the hold-down member. The two rockers are interconnected by a toggle assembly consisting of first toggle levers pivotally



attached to the first rocker and a second toggle lever pivotally joined to the first toggle lever and to the second rocker. The device is displaceable between a holding position securing a ski boot on the ski and a release position. The axes of pivotal attachment of the second toggle lever define a dead center line through which the axis of pivotal attachment of the first toggle levers to the first rocker passes in the displacement of the device between the holding and the release positions.

3,830,512

BRAKING SAIL FOR SKIERS

Bernt Spiegel, Mannheim, Germany, assignor to Vereinigte Baubeschlagfabriken Gretsch & Co. GmbH, Leonberg, Germany

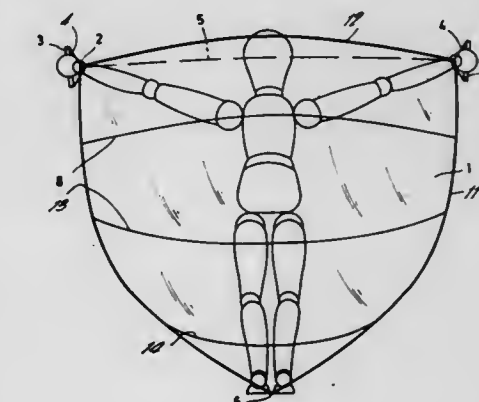
Filed Dec. 27, 1972, Ser. No. 318,852

Claims priority, application Germany, Dec. 28, 1971, 11160

Int. Cl. A63c 11/00

U.S. Cl. 280—11.37 S

3 Claims



A braking sail for skiers that is of a generally triangular shape having convex top and side edges and arranged so that the sail is arched substantially spherically by air flow with the greatest bulge in the lower portion. The sail is provided with handles at its upper corners and detachable latches at the lower corners for attachment to the skis or boots of a skier.

3,830,513

SLED LIKE UNIT FOR WINTER RECREATION

Jasper Hunt, Fort Ann, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Feb. 6, 1973, Ser. No. 329,977

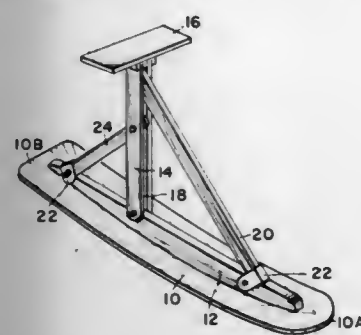
Int. Cl. B62b 13/16

U.S. Cl. 280—12 K

1 Claim

A sled like unit comprising: a generally elongated horizontal runner having an upwardly inclined rounded front end; a

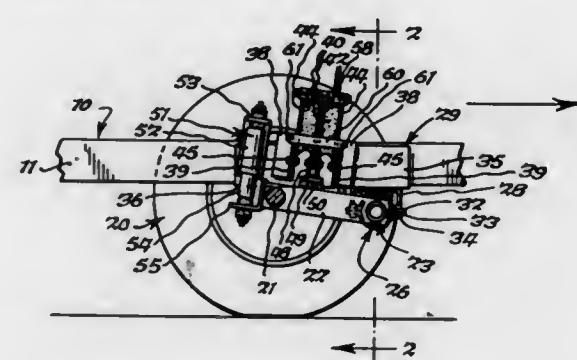
horizontally elongated support secured to the top surface of the runner and extending along the longitudinal center line, said support being spaced from both ends of the runner; a first



mounted, the cradles being in end-to-end relationship along the length of the vehicle, the forward end of the leading cradle and the rearward end of the trailing cradle being pivotally secured to the vehicle, and the adjacent ends of the cradles being pivotally secured to each other in such a manner that movement of one cradle about its pivot to the vehicle causes an equal and opposite movement of the adjacent cradle about its pivot to the vehicle.

3,830,516
INDEPENDENT WHEEL SHEAR RUBBER SPRING
SUSPENSION FOR VEHICLES
Albert F. Hickman, Eden, N.Y., assignor to Hickman Developments, Inc., New York, N.Y.
Filed Apr. 4, 1973, Ser. No. 347,793
Int. Cl. B60g 11/24

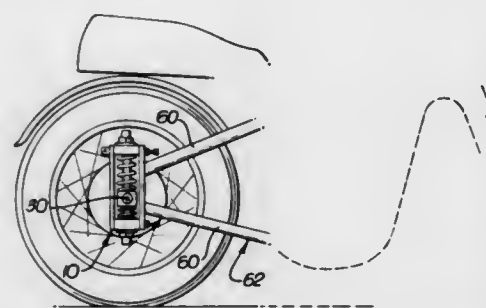
U.S. Cl. 280—124 A 3 Claims



The vehicle suspension is a so-called independent wheel suspension, each wheel being journaled on a stub axle fixed to the free end of a straight arm extending lengthwise of the line of travel and the other end of which is fixed to a transverse hub member journaled in spaced frame bearings. Substantially the entire resilient support for the frame on its arms is in the form of at least one rectilinear upright movement shear rubber body above each arm inwardly of the corresponding wheel and having opposite generally upright parallel exterior working faces. A plate bonded to one working face connects with the frame and a plate bonded to the other working face connects with the corresponding arm. Desirably the shear rubber bodies are arranged as low and close to the arms as possible to reduce stress thereon; their connection with each arm includes a flexible rubber pad which distorts horizontally to compensate for the changes in effective length of the arms; the shear rubber body working faces are crosswise of the line of vehicle travel; and telescopic shock absorbers are severally between the free ends of their arms and frame brackets which also connect the other parts of the suspension to the frame.

3,830,517
MOTORCYCLE REAR SPRING SUSPENSION DEVICE
Neill E. McNeill, 10900 Burbank Blvd., North Hollywood, Calif. 91601
Filed Nov. 16, 1973, Ser. No. 416,572
Int. Cl. B60g 15/02

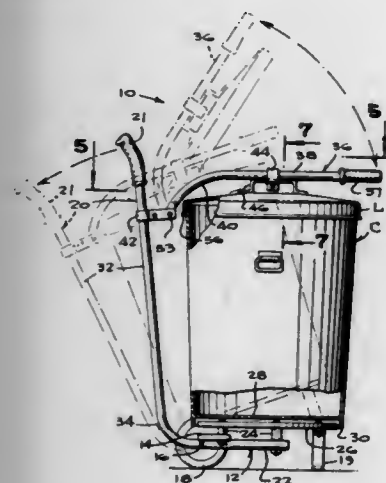
U.S. Cl. 280—124 R 4 Claims



A motorcycle rear spring suspension device having guide pin members rigidly attached to a bearing block at their inner

3,830,514
REFUSE CONTAINER CART WITH IMPROVED LID-ACTUATING HANDLE
Carl Donald Green, Vancouver, Wash., assignor to Harry D. Greer a part interest; Eastsound, Wash.
Filed Feb. 12, 1973, Ser. No. 331,353
Int. Cl. B62b 1/14

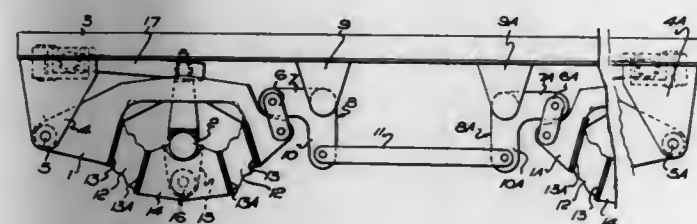
U.S. Cl. 280—47.24 10 Claims



A portable wheeled refuse or storage cart to accommodate large size refuse or storage containers and having a pivotal lid removal arm operative so as to assure repeated accurate and fully positive lid replacement responsive to manual return movement of the pivotal arm without need to touch the container and/or the container lid.

3,830,515
VEHICLE SUSPENSION SYSTEMS
Ronald Wragg, Sheffield, England, assignor to North Derbyshire Engineering Co., Ltd., Sheffield, England
Filed Mar. 12, 1973, Ser. No. 340,537
Int. Cl. B60g 5/06

U.S. Cl. 280—104.5 R 7 Claims

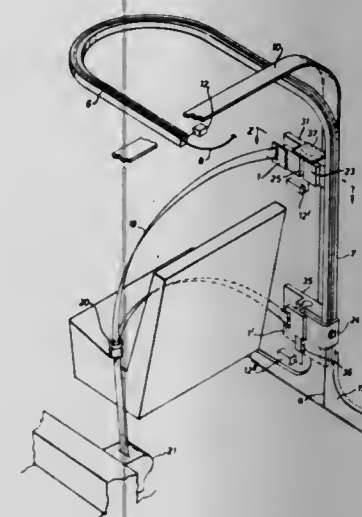


A suspension system for trailer vehicles comprises two cradles in each of which a wheel supporting axle is resiliently

ends as a safety factor and mounted at their outer ends in guide pin holders having a lip on two opposite sides with a square center portion to prevent loosening of the holder as a safety factor.

3,830,518
SEAT BELT ACTUATING MEANS
Terence Brian Silber, 31 Inderwick Rd., London, 8, England
Filed Dec. 12, 1972, Ser. No. 314,365
Claims priority, application Great Britain, Jan. 24, 1972, 3303/72

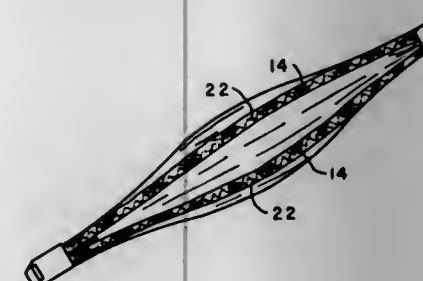
Int. Cl. B60r 21/00 4 Claims
U.S. Cl. 280—150 SB



A seat belt actuator which comprises a seat belt mounting slidably captive within guide means and connected to a reversibly drivable cable adapted to travel in the guide means, movement thereof causing the seat belt mounting to slide along the guide means constraining the attached part of the seat belt to travel therewith.

3,830,519
FIBER REINFORCED INFLATABLE RESTRAINING BAND FOR VEHICLES
Donald Joseph Lewis, Troy, Mich., assignor to Allied Chemical Corporation, Morristown, N.J.
Filed Jan. 10, 1973, Ser. No. 322,594
Int. Cl. B60n 21/08

U.S. Cl. 280—150 AB 5 Claims

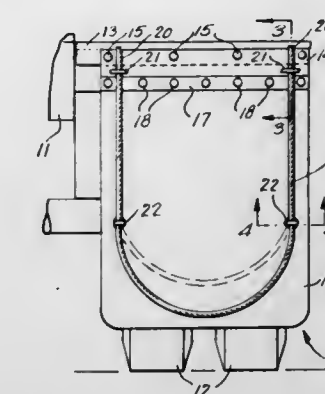


An inflatable restraining band for vehicle safety systems which is formed from an extruded seamless plastic tube having fiber reinforcement extending longitudinally thereof.

3,830,520
COMBINED MUD FLAP AND STABILIZER THEREFOR
John J. Kelly, 616 7th St., S.E., Sidney, Mont. 59270
Filed Feb. 2, 1973, Ser. No. 328,897
Int. Cl. B62d 25/16

U.S. Cl. 280—154.5 R 4 Claims

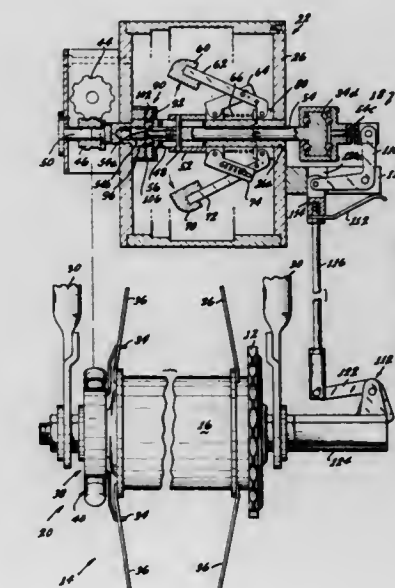
A combined mud flap and stabilizer therefor used to prevent mud and stones from being thrown from the tires of trucks into the path of other vehicles. The mud flap consists of



secured to the flap at its upper ends and intermediate its upper and lower ends. The steel cable can be vertically adjusted on the flap to suit the flap for varying road conditions.

3,830,521
AUTOMATIC SHIFTER ACCESSORY FOR BICYCLES
Robert Gardel, New York, N.Y., and Egon Gorsky, West Field, N.J., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Jan. 11, 1973, Ser. No. 322,833
Int. Cl. B62m 25/00

U.S. Cl. 280—236 10 Claims



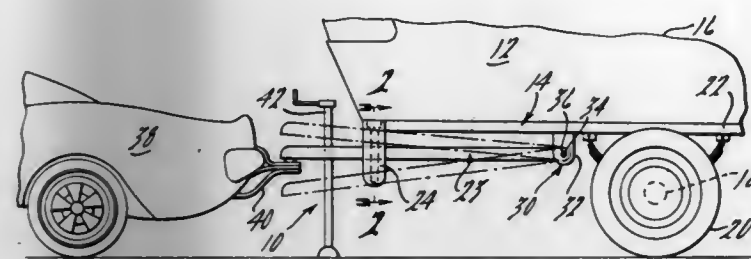
An accessory that can be mounted on bicycles of the type which have manually controllable variable speed transmissions, to permit automatic control of the gear ratio. The accessory includes a housing which can be mounted on a frame member of the bicycle, the housing including a governor shaft connected to the rear wheel by a speed sensor, a pair of weights pivotally mounted on the governor shaft, and an output shaft which is moved to position dependent upon the pivotal position of the governor weights. A control member connects the rear wheel in place of the usual manually controlled cable, so that the gear ratio is determined or selected by the automatic shifter from the bicycle speed.

3,830,522
ADJUSTABLE TRAILER TONGUE
Paul A. Boucher, 1957 Whipple, Carleton, Mich. 48117
Filed Jan. 17, 1973, Ser. No. 324,341
Int. Cl. B60p 3/10

U.S. Cl. 280—405 R 12 Claims

An apparatus for leveling a single axle trailer adapted to be detachably connected to a towing vehicle such as a tractor, automobile, truck or the like, the apparatus comprising a

drawbar or tongue having one end pivotally connected to the frame of the trailer, and an opposite end adapted to connectably receive a trailer hitch attached to the towing vehicle. The angle of inclination between the tongue and the longitudi-



dinal plane of the trailer frame is selectively adjusted via an actuating mechanism interposed between the trailer and the tongue whereby the imposed load of the trailer on the rear end of the towing vehicle can be selectively balanced.

3,830,523

SEMI-TRAILER COUPLING

Martin Morichetto, Vargon, Sweden, assignor to Slapvagskopplingar AB., Vanersborg, Sweden

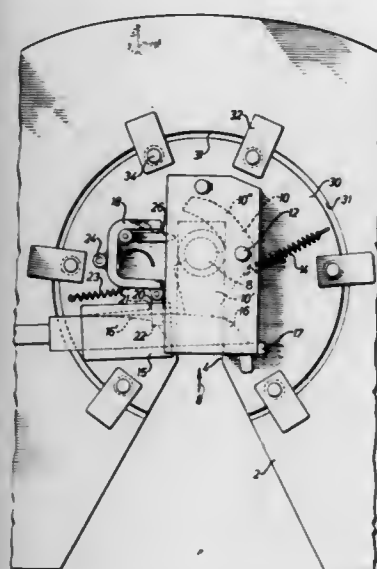
Filed Dec. 1, 1972, Ser. No. 311,126

Claims priority, application Switzerland, Dec. 3, 1971, 15573/71

Int. Cl. B62d 53/12

U.S. Cl. 280—434

10 Claims

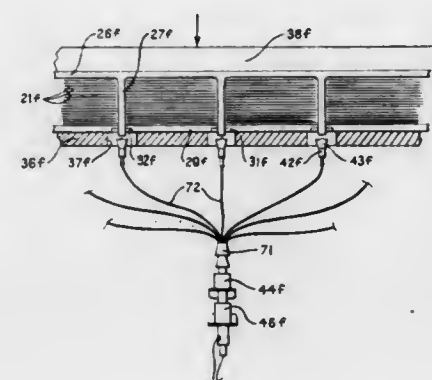


The invention relates to a coupling for a semi-trailer. The coupling comprises a coupling platform, adapted to be positioned on a tractor vehicle and comprising a substantially elongated aperture extending from the periphery of the platform in a direction towards the interior of the platform. The aperture at the inner end thereof being adapted to receive a king-pin of the semi-trailer. The coupling platform presents on one hand a coupling element, arranged adjacent said inner end, said coupling element being movable between a coupling position, adapted to secure the king-pin in the inner end of the aperture, and a position for releasing the king-pin, and on the other hand a locking element which is operable between a locking position, wherein the locking element prevents the coupling element from being removed from its coupling position, and a position, allowing such movement of the coupling element. The coupling platform furthermore comprises two parts, one of which comprises the members required for positioning and securing the coupling platform on the tractor vehicle and in a recess carries the second part, which is easily demountable by means of a connection, accessible substantially from the top side of the platform, said second part containing the inner end of the aperture and carrying the movable coupling element.

3,830,524
BOOK BOUND BY ULTRASONIC MEANS
William H. Abildgaard, Los Altos Hills, and Charles T. Grosz, III, Los Altos, both of Calif., assignors to Velo-Blind, Inc., Sunnyvale, Calif.
Division of Ser. No. 141,755, May 10, 1971, abandoned, Continuation-in-part of Ser. No. 799,045, Feb. 13, 1969, Pat. No. 3,596,929. This application May 7, 1973, Ser. No. 358,033. The portion of the term of this patent subsequent to Aug. 3, 1988, has been disclaimed.
Int. Cl. B42d 1/06

U.S. Cl. 281—21

5 Claims

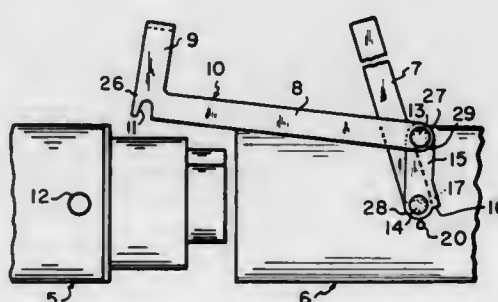


Plastic studs fit through apertures adjacent the spine margin of sheets and also either into holes in a binding member on at least one end of the book to be formed or into holes in both the binding members. Where the holes are formed in neither or in only one binding member, the studs are preferably integral with the other binding member. The binding members are preferably narrow plastic strips, but may be of metal and may be the covers of the books. The binding members are compressed toward each other, with the sheets therebetween, excess stud lengths are sheared off, and the studs at either or both ends are ultrasonically welded to the binding members.

3,830,525
TENSION LIMITING CLAMPING DEVICE
Herbert E. Ransford, III, Hunters' Lodge, Troy, Va. 22974
Filed Nov. 9, 1972, Ser. No. 304,945
Int. Cl. H01r 13/62

U.S. Cl. 285—2

10 Claims



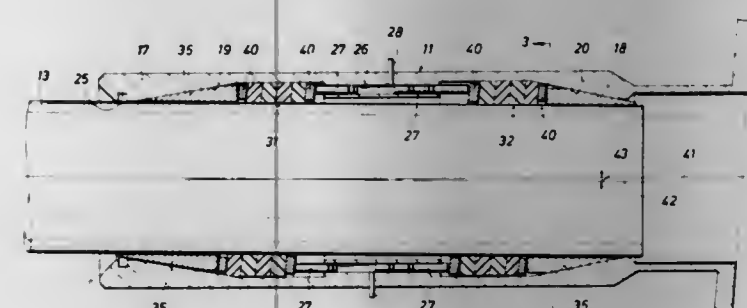
A tension limiting clamping device suitable for maintaining the connection between high voltage cable coupler housings wherein the clamping device transmits tensile forces applied to the cable through its linkage members to a pair of shear pin stops. The shear pins will shear and cause the linkage members to releasably engage the coupler housings at a predetermined stress level which is lower than the rupture strength of the cable. The clamping device comprises a pair of connector arms adapted to be positioned on opposite sides of the cable coupler housings, each of said arms having a notched portion at one end thereof. The notched portions are adapted to detachably connect to attachment means associated with the first coupler housing. A pair of link members are pivotally attached at their first ends to the unnotched end portions of the aforementioned pair of connector arms and are also adapted to be pivotally attached at their second ends to opposite sides of the second coupler housing. A pair of shear pin stops are

mounted on opposite sides of the second coupler housing, adjacent the pair of link members. Lever means are likewise provided, wherein movement of the lever means in a direction away from the first coupler causes the U-shaped handle to forcefully engage the pivotal connections between the link members and connector arms whereby the notched portions of the connector arms draw the first coupler housing into mated engagement with the second coupler housing. In the closed position, the pair of link members rest against the shear pin stops in a position wherein the rearward pivotal connections with the pair of connector arms are located below the longitudinal centerline of the forward pivotal connections. At a stress level, lower than the rupture strength of the cable, the link members will be driven through the shear pin stops, thus causing the clamping device to disengage the coupler housings.

3,830,526
APPARATUS AND METHOD FOR MAKING SUB-SEA CONNECTIONS
Harvey O. Mohr, Houston, Tex., assignor to Hydrotech International, Inc., Houston, Tex.
Filed Apr. 26, 1973, Ser. No. 354,525
Int. Cl. F16l 35/00

U.S. Cl. 285—18

7 Claims



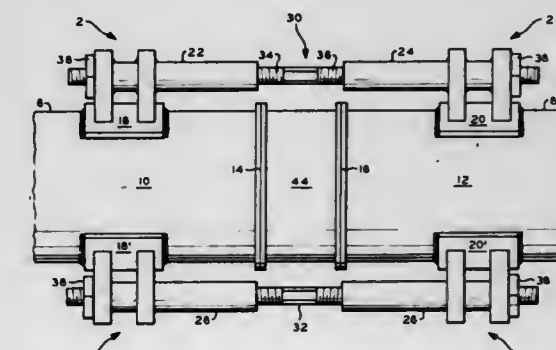
Method and apparatus for making a connection to the end of a pipe, such as the coupling of two ends of pipe in an underwater environment and wherein there is a possibility of misalignment between the axes of the coupling and the pipe or pipes. The method includes forming a generally tubular shaped coupling having two facing and axially spaced apart tapered bowls therein. The coupling is mounted over the end of the pipe to which a connection is to be made in an underwater location, with the bowls being spaced radially adjacent the outside surface of the pipe. A plurality of wedged shaped gripping slips are supported in the annular space between the coupling and the pipe at circumferentially spaced apart positions and adjacent each of the bowls, with each of the slips having a tapered outer surface matching the taper of the adjacent bowl whereby the slips are arranged for being cammed radially inward by the bowl when the slips are urged axially therealong. The slips are then urged varying axial and radial distances into gripping engagement with the pipe by applying an axial biasing force to each of the slips, whereby each of the slips of each of the pluralities of slips are all urged to gripping positions to substantially uniform gripping engagement regardless of any variation in size of the annular space between the coupling and the pipe, to thereby accommodate any misalignment between the aforesaid axes. The aforesaid axial force is preferably applied by mounting an annular elastomeric member proximate the butt end of the slips and axially compressing the elastomeric members, whereby each of the members applies an axial biasing force to the slips in one of the pluralities of slips. The method is preferably carried out by mounting a deformable thrust ring adjacent each axial end of each elastomeric member to facilitate the transmission of the aforesaid axial force. The axial force may be applied by supporting a plurality of axially movable pistons adjacent the axial ends of the two most adjacent thrust rings.

The apparatus of this invention is arranged for making a connection to a generally horizontally extending pipe in an underwater environment. It includes a tubular coupling arranged for mounting over the end of the pipe, with the coupling having two axially spaced apart and facing tapered bowls formed therein. The housing is provided with a plurality of longitudinally aligned cylinders circumferentially spaced about intermediate bowls. At least one axially slidable piston is mounted on each of the cylinders, with each of the pistons being arranged to move in an axial direction in response to hydraulically actuated force applied thereto. A plurality of wedged shaped slips are circumferentially spaced about and mounted adjacent each of the bowls, with each of the slips having a tapered outer surface arranged for mating with the taper of the adjacent bowl, and a gripping surface on the radially inward side thereof. The coupling includes a pair of elastomeric members mounted in the annular space between the coupling and the pipe, with each of the elastomeric members being axially proximate one of the pluralities of slips on one end thereof and with the other end thereof being proximate the ends of several of the pistons. A pair of deformable thrust rings is mounted in the annular space between the coupling and the pipe, with each of the rings being arranged for abutment against one of the elastomeric members on one side thereof and arranged for contact by several of the pistons on the other end thereof. Means are provided for applying hydraulically actuated force to the coupling to thereby urge several of the pistons in said pluralities of pistons in one axial direction against one of the thrust rings and several of the pistons in the opposite axial direction against the other of said thrust rings, thereby axially deforming the thrust rings and axially compressing the elastomeric members and thereby urging each of the slips in each of the pluralities of slips varying axial and radial distances into gripping engagement with the pipe, regardless of any variations in the size of the annular space between the coupling and the pipe.

3,830,527
ALIGNING APPARATUS
Sam C. Naifeh, and James C. Coates, both of Orange, Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Aug. 4, 1972, Ser. No. 277,869
Int. Cl. F16l 21/00

U.S. Cl. 285—31

4 Claims



An apparatus for maintaining adjacently positioned ends of first and second conduits axially aligned and for moving said conduits along their axis. At least a pair of threaded shafts each extend through supporting tubes that are fixedly attached to a respective conduit. The shafts are threaded in opposed directions at each end portion thereof with the threads of each end portion mating with respective thread means fixedly associated with respective supporting tubes.

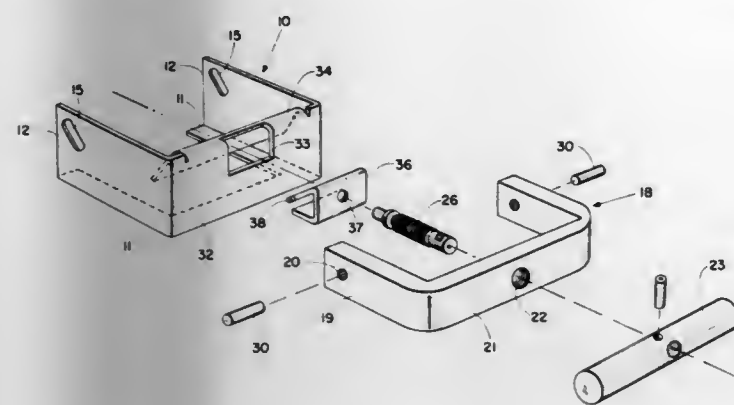
3,830,528

QUICK DISCONNECT CONDUIT CLAMP

Michael Leonard Purdy, Stittsville, Ontario, Canada, assignor to Bell-Northern Research Ltd., Ontario, Canada
Filed July 23, 1973, Ser. No. 381,977
Int. Cl. F161 23/00

U.S. Cl. 285—38

5 Claims



A flange member has a bearing surface for engaging a clamping surface of one flange of a pair of mating flanges. A pair of slots residing in opposite sides of the flange member are disposed above and at an angle oblique to the bearing surface. The flange member resides within a lock member and is slidably linked thereto by a pin projecting through each of the slots. A wedge resides in an opening in the flange member, above the bearing surface. An adjustable spacer means, bearing between the lock member and the wedge, urges the wedge and the pins into engagement with the other flange of the pair of mating flanges, providing three distinct areas of clamping.

3,830,529

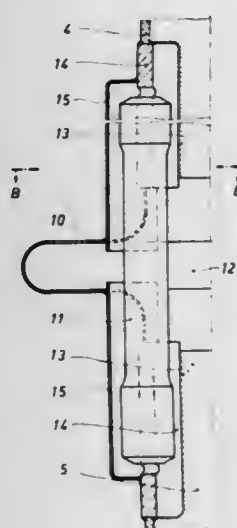
EXPANSION JOINT FOR PIPES

Wolfgang Dömer, Nussbaumen, Switzerland, assignor to BBC Brown, Boveri & Co., Baden, Switzerland
Filed Sept. 13, 1972, Ser. No. 288,546
Claims priority, application Switzerland, Oct. 13, 1971, 14845/71

Int. Cl. F161 11/12

U.S. Cl. 285—45

4 Claims



An expansion joint for pipe systems, such as steam pipe systems, including a leak-proof, pressure resistant, flexible bellows joined to the opposed spaced ends of adjacent substantially co-axial pipes, a tie-rod connected to the ends of the adjacent pipes by means of fixing plates affixed to recesses in the ends of the pipes, said tie rod extending substantially parallel to the axes of the pipes and a cover member affixed to the bellows and to the fixing plates so as to enclose said tie-rod where it extends axially beyond the bellows.

3,830,530

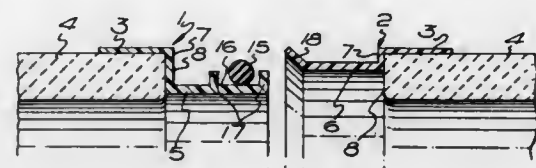
PIPE COUPLINGS

John Benjamin Glover, Sheffield, England, assignor to The Hepworth Iron Company Limited, Sheffield, England
Continuation-in-part of Ser. No. 218,326, Jan. 17, 1972. This application May 3, 1973, Ser. No. 356,894
Claims priority, application Great Britain, Jan. 21, 1971, 2835/71

U.S. Cl. 285—230

Int. Cl. F161 21/02, 49/00

8 Claims



A pipe coupling for plain-end pipes, e.g., of fired clayware, comprises a pair of sleeves of resilient plastics material with cylindrical portions for securing on the pipe-ends and generally cylindrical joint forming portions adapted to extend beyond the pipe-ends, the joint forming portion of each sleeve being connected to its securing portion by any annular portion for abutting a pipe-end, and a sealing ring for compression between the joint forming portions, whereby the securing portions can yield to the profiles and diameters of the respective pipe-ends to which they are applied, while the joint forming portions substantially retain their generally cylindrical shapes, so that little tolerance need be allowed for in the sealing ring.

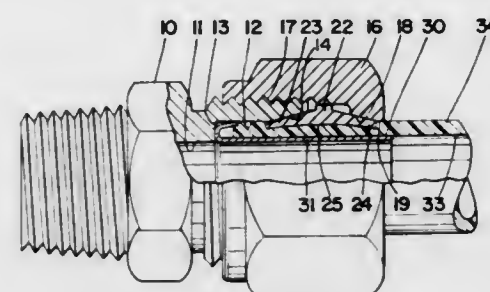
3,830,531

COUPLING FOR FLEXIBLE TUBES

Donald G. Burge, Plainwell, Mich., assignor to Parker-Hannifin Corporation, Cleveland, Ohio
Filed Apr. 9, 1973, Ser. No. 349,409
Int. Cl. F161 33/00

U.S. Cl. 285—239

7 Claims



A coupling for flexible tubes in which the coupling body has a bore to receive the tube and a tubular support that fits inside the tube. The tube is clamped against the support by a sleeve that is radially deformed between the body and a nut. The support at its inner end has a radial flange with circumferentially spaced fingers connected thereto that are doubled back over the support and are yieldably press fitted within the body bore so that the support is normally firmly held within the body but may be removed therefrom without damage to the support or body.

3,830,532

COMPRESSION TYPE TUBE END CONNECTION

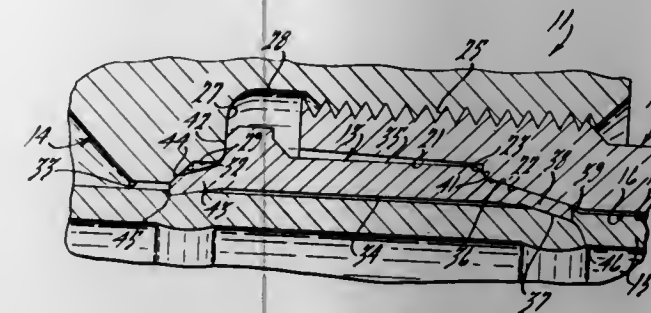
Arnold E. Roberts, Statesboro, Ga., assignor to Aeroquip Corporation, Jackson, Mich.
Filed July 7, 1972, Ser. No. 269,533
Int. Cl. F161 17/00

U.S. Cl. 285—341

3 Claims

A fluid-tight connection which enables an open tube end to be secured to a fitting in the field without soldering. The connection comprises a body having a bore for receiving the tube

end, the bore having wider and narrower portions with a tapered portion therebetween. A ferrule and a nut are slipped onto the tube which is inserted in the body bore against a shoulder. The ferrule has a thin-walled forward section which will be deflected inwardly by the tapered bore portion as the



nut is tightened, biting into the tube wall to form a primary seal between the ferrule and tube. A sharp edge on the body digs into a tapered surface on the ferrule to form a primary seal between these two parts. A backup seal between the ferrule and tube is formed by a weakened rearward ferrule section forced inwardly by a tapered surface on the nut.

3,830,533

PIPE COUPLING WITH ROTARY CLAMPS

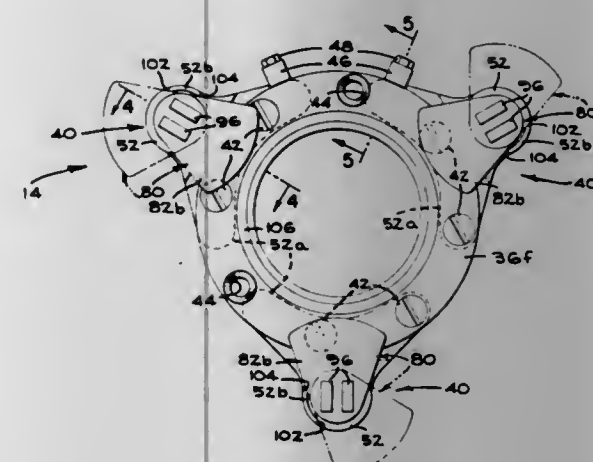
George A. Mezei, Costa Mesa, and Harold M. Gibbons, Long Beach, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed Nov. 6, 1972, Ser. No. 304,026

Int. Cl. F161 17/00

U.S. Cl. 285—364

18 Claims



A pipe coupling device for releasably securing together two abutting pipe flanges. The coupling device comprises a plurality of individual rotary clamps mounted on and spaced around a radial pipe flange, each clamp having an arm with a jaw for gripping an opposing pipe flange and a stem slip fitted into a housing so as to be rotatable and translatable relative thereto for effecting clamping and unclamping movements. A drawbolt is threaded into a bore in the clamp arm's stem to move the stem forward or backward with respect to the housing, and an anti-gravity spring keeps the clamp arm's jaw from rotating into an inconvenient position due to gravity action. A swing spring maintains frictional contact between the threads of the drawbolt and those of the clamp arm's stem to cause the clamp arm's jaw to rotate in either of two directions against a housing stop as the drawbolt is turned. The jaw has a pair of closely spaced, outwardly extending bosses between which a tool can be placed as an auxiliary means, for swinging the jaw into and out of clamping position.

3,830,534

LOCK FOR A SLIDING GLASS DOOR

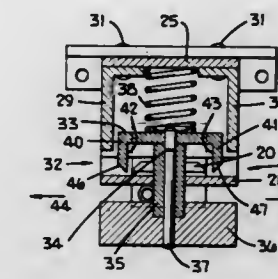
Harry L. Pettrie, 3911 Byram, Indianapolis, Ind. 46208, and Ralph W. Jackson, 4408 Brookline, Apt. C, Indianapolis, Ind. 46220

Filed Mar. 7, 1973, Ser. No. 338,713

Int. Cl. E05c 1/10

U.S. Cl. 292—162

10 Claims



A lock for preventing relative motion between a sliding glass door and the frame receiving the door. A projection fixedly mounted to the door is slidably and lockingly received by a keeper. The keeper main body has a slot through which the projection is movable. A wall is movably mounted within the main body and is urged by a spring to a first position closing the slot and preventing the projection from passing from the main body through the slot. A release cap is slidably mounted to the main body and is fixedly connected to the movably mounted wall. By forcing the cap toward the main body, the movably mounted wall is forced away from the slot thereby allowing the projection to pass from the main body through the slot.

3,830,535

CLOSURE

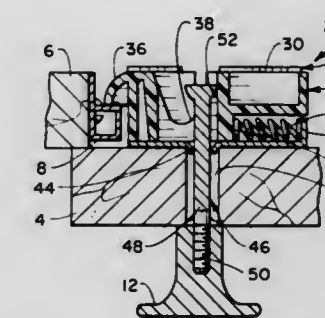
George D. Read, Glendora; F. Raymond Tintary, Covina, and Raymond N. Du Shane, Jr., Fullerton, all of Calif., assignors to Ajax Hardware Corporation, City of Industry, Calif.

Filed Mar. 29, 1973, Ser. No. 345,954

Int. Cl. E05c 1/14

U.S. Cl. 292—170

16 Claims



A closure for utilization with doors for vehicles or cabinets and the like wherein a positive latching function is obtained by unique design of the components making up the closure which is practically maintenance free, easily and economically produced and wherein a simple pulling movement unlatches the closure and permits opening of a door with which it is used in a single movement.

3,830,536

HEAD CLOSURE MECHANISM

Erling Frisch, Pittsburgh; Harry N. Andrews, Export, and Phillip B. Haga, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 13, 1971, Ser. No. 179,645

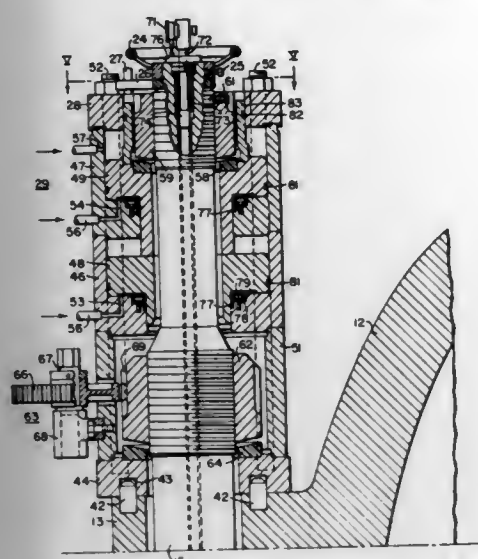
Int. Cl. E05c

U.S. Cl. 292—256.73

12 Claims

For the purpose of reducing the time required for removal and replacement of a reactor pressure vessel closure head,

each stud utilized for securing the head on the pressure vessel is provided with modified breechblock threads at its lower end. After being unloaded, the studs are rotated 60° for disengagement from corresponding threads in a flange at the top of



the pressure vessel and can be lifted out of the stud holes in the vessel flange along with the head when it is removed from the vessel. Each stud is provided with an individual hydraulic tensioning device, mounted on top of the head flange.

3,830,537

SECURING DEVICE FOR MOVABLE MEMBERS

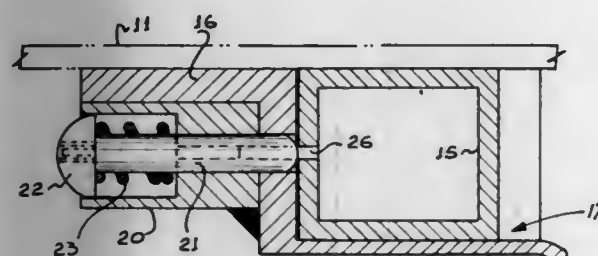
Dale L. Brindle, Chambersburg, Pa., assignor to Hennessy Products Incorporated, Chambersburg, Pa.

Filed Sept. 1, 1972, Ser. No. 285,606

Int. Cl. E05c 19/18

U.S. Cl. 292—259

4 Claims



A securing device for latching two relatively movable members together comprising an elongated sleeve for fixed attachment to one of said members, a latch pin, spring-actuated to slide in one direction in said sleeve, which may be key-actuated to rotate in said sleeve, and having a hook-like radial terminal fin rotatable by the key to engage and disengage the other member to hold them in predetermined position. More specifically, the invention includes the combination of such a device in a merchandise container having a frame including a sill, a keeper thereon, a door hinged to the side of the frame, and a locking bar pivoted on the door and rotatable to enter the keeper, the securing device being mounted on the sill to engage the locking bar when in the keeper.

3,830,538

SEAL

Sigurd M. Moberg, Orange, N.J., assignor to E. J. Brooks Company, Newark, N.J.

Filed June 1, 1972, Ser. No. 258,608

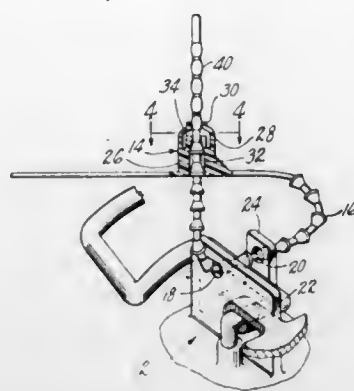
Int. Cl. G09f 3/00

U.S. Cl. 292—322

2 Claims

A seal formed of molded resilient plastic material, including a housing through which a shackle is passed, said housing having internal integral shackle engaging fingers. The shackle is provided with annular shoulders for engagement by the fingers

so that the shackle can be drawn through the housing in one direction, but is prevented from retrograde movement. The end portion of the shackle is provided with annular enlarged portions which may be drawn through the housing without excessive pulling force being required, yet provides a surface



providing for gripping by the fingers. A portion of the shackle between two adjacent annular shoulders is provided with a weakened portion to insure that when sufficient tension is applied, the shackle will fracture at that position, with said position being predetermined for the application in which the seal is to be used, so that the fracture occurs within the housing.

3,830,539

IMPACT ENERGY ABSORBING BUMPER FOR VEHICLE

Koichi Yoshie; Kunihiko Masaki, and Masaji Sakamoto, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-Ken, Japan

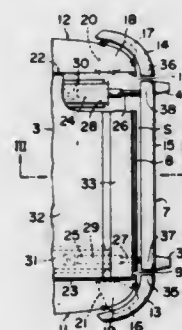
Filed Feb. 20, 1973, Ser. No. 333,657

Claims priority, application Japan, Mar. 21, 1972, 47-28385

U.S. Cl. 293—75

Int. Cl. B60r 19/06

1 Claim



An absorbing damper constructed of a plurality of absorbing members, a movable bumper and fixed bumpers, wherein the movable bumper retreats and absorbs collision energy of a vehicle. The movable bumper is so arranged that it can advance and retreat within a space defined by the floor plate of the body of the car.

ERRATUM

For Class 294—112 see:
Patent No. 3,830,507

3,830,540

TREATING GLASS SHEETS

Lowell L. Sperry, Lower Burrell, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 108,661, Jan. 21, 1971. This application Jan. 5, 1973, Ser. No. 321,192

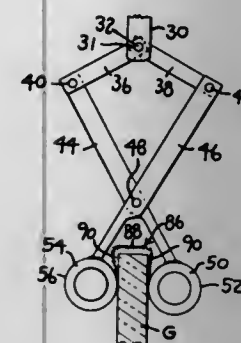
Int. Cl. B66c 1/48

U.S. Cl. 294—118

6 Claims

Thermal treatment of glass sheets, particularly to impart a controlled temper that is approximately unchanging from

sheet to sheet, on a high speed, mass production basis in such a manner that each glass sheet so treated has acceptable optical properties a so-called flood quenching, which comprises applying a plurality of continuous or approximately continuous flows of a liquid selected for its heat exchange properties across the entire surface of the sheet and removing the flows of liquid from contact with the sheet after the liquid has



moved across the surface of the sheet and has cooled the sheet sufficiently to impart a temper of the desired magnitude. A novel type of glass gripping tongs is provided to minimize any interference with free movement of the liquid flows that would be expected from using tongs. Means is provided to avoid top edge breakage and means is provided to minimize bubbles entrapped within the tempering liquid when the latter is applied to a glass surface.

3,830,541

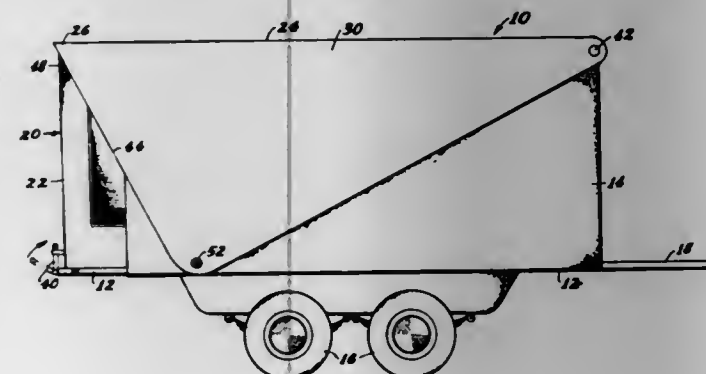
EXPANDABLE TRAVEL TRAILER

Jerry D. Bowman, and William V. Bowman, both of 1310 N. Dukane, Indianapolis, Ind. 46241

Filed Dec. 26, 1972, Ser. No. 318,495

Int. Cl. B60p 3/34

U.S. Cl. 296—27



A travel trailer convertible from a low-silhouette road-travel condition and an upraised and longitudinally-extended condition, by rotational raising movement of a frame section rearwardly and upwardly, with a corresponding raising of a movable roof section.

3,830,542

MOVABLE TAILGATE FOR A TRUCK

Jean Lablanche, Saint-Etienne, France, assignor to Bennes Marrel, Saint-Etienne (Loire), France

Filed Apr. 27, 1972, Ser. No. 248,267

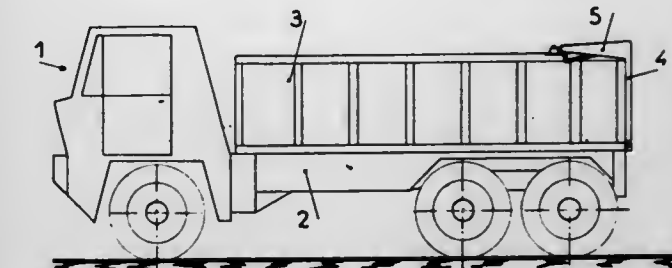
Int. Cl. B60j 5/10

U.S. Cl. 296—56

5 Claims

A lorry has a tipping container closed by a tailgate mounted on two arms extending forwardly over the container. A for-

ward end of each arm is mounted on a pin which pivots on a connecting arm pivotally mounted at one end on a second pin mounted on the side of the container. Pivotably mounted hydraulic jacks extend between the sides of the container and the regions at which the arms join the tailgate. Operation of



the jacks lifts the tailgate substantially vertically for the other ends of the connecting arm to engage undersides of the arms and then the tailgate pivots outwardly about the second pin. In an alternative embodiment the first pin may be located in an elongated slot in a flange on the container side, this slot being inclined upwardly and rearwardly to allow the initial vertical lift of the tailgate.

3,830,543

DUMP VEHICLE

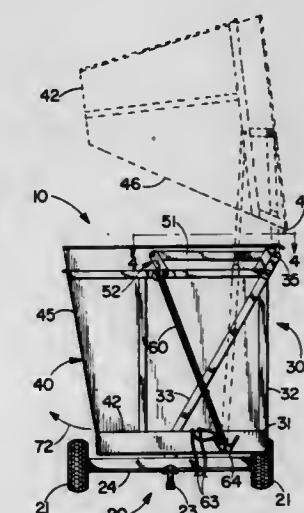
Wilmer A. Kostman, Rt. 1, Box 185, Barnsville, Minn. 56514

Filed Nov. 19, 1973, Ser. No. 416,850

Int. Cl. B60p 1/32; B62p 1/34

8 Claims U.S. Cl. 298—10

13 Claims



A wagon for transporting and dumping material having an improved dumping mechanism which provides a relatively low and stable transport position of the material container while providing a relatively high dumping position of the container, in which the pouring edge along the side of the container is significantly higher in the dumping position than in the transport position. A moveable guide member and a connecting link cooperate when actuated by a hydraulic ram to move the material container outward along a pivot arm, thereby providing the increase in dumping height as the hydraulic ram further rotates the pivot arm to dump the container.

3,830,544

**ANCHORAGE FOR CONVEYOR GUIDING LONGWALL
PLANER AND METHOD**

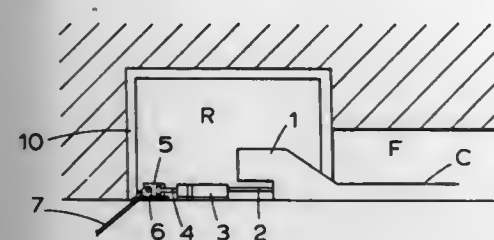
James Wilson, Sedgefield; James Nelson, Shiny Row, and Douglas Shield, Belmont, all of England, assignors to Underground Mining Machinery Limited, Darlington, England
Filed Dec. 19, 1972, Ser. No. 316,644

Claims priority, application Great Britain, Dec. 21, 1971, 59327/71

Int. Cl. E21c 29/08

U.S. Cl. 299—18

15 Claims



The sections of a segmented guide beam for mining machinery are removably secured to the floor of a mine working by bolts which are resin bonded in drilled holes in the floor.

3,830,545

**SHIELD TUNNELING MACHINE WITH ORBITING
CUTTERHEAD**

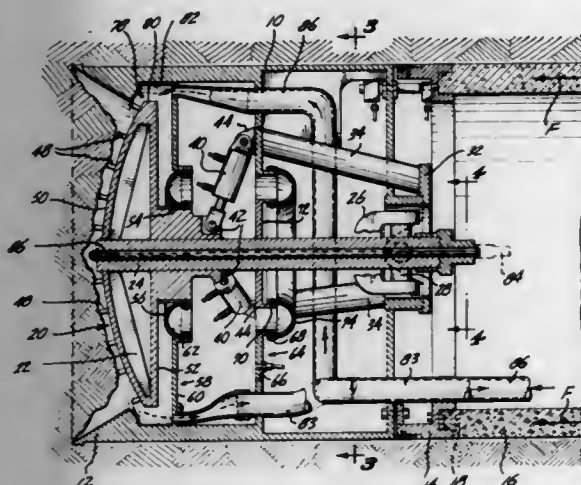
David B. Sugden, Kingston Beach, Tasmania, Australia, assignor to The Robbins Company, Seattle, Wash.

Filed Aug. 1, 1973, Ser. No. 384,462

Int. Cl. E01g 3/03

U.S. Cl. 299—33

12 Claims



The cutterhead and cutter elements thereon undergo an orbiting radial shifting movement as the shield is advanced. Water is delivered to the cutterhead region forwardly of a water tight bulkhead for admixture with the material being excavated from the tunnel face. The resulting mixture is pumped away from the tunnel face through a removal pipe which extends rearwardly through the bulkhead. The bulkhead includes a fixed outer portion and a flexible diaphragm type seal which closes the space between the cutterhead and said fixed outer portion.

3,830,546

MINING TOOL AND SUPPORT BLOCK THEREFOR

Thomas J. Kniff, Bedford, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Filed Mar. 1, 1973, Ser. No. 336,935

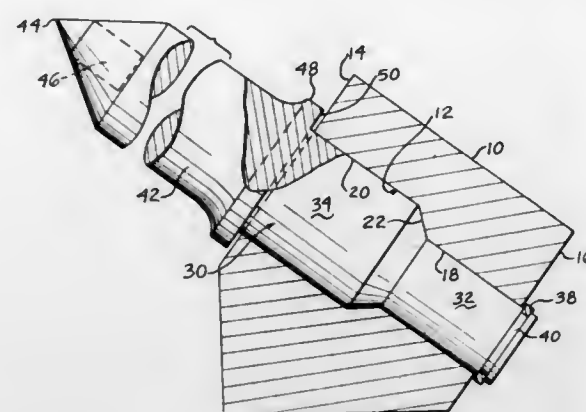
Int. Cl. E21c 35/18

U.S. Cl. 299—86

5 Claims

A mining tool of the pick type which is symmetrical about a longitudinal axis and which has a shank which is circular in

cross section that is rotatably received in a correspondingly shaped bore in a support block. The bore in the support block has a forwardly facing shoulder intermediate the ends and the shank of the bit has a rearwardly facing shoulder engaging the forwardly facing shoulder in the bore. The forward face of the support block is flat and perpendicular to the axis of the bore



therein and the bit comprises a radial flange which is spaced from the forward end of the block when the bit and block are new but which, upon one or the other of the shoulders on the bit shank and block becoming worn, will engage the front of the block and take at least part of the axial load imposed on the bit.

3,830,547

SYNTHETIC FIBER END TAPERING METHOD

Yoshiharu Awazi, and Norio Yamada, both of Tokyo, Japan, assignors to Pentel Kabushiki Kaisha, Tokyo, Japan

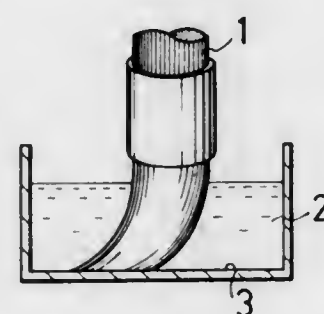
Filed Oct. 10, 1972, Ser. No. 296,345

Claims priority, application Japan, Oct. 15, 1971, 46-80982

Int. Cl. A46d 1/04

U.S. Cl. 300—21

9 Claims



A synthetic fiber end tapering method is provided which comprises the steps of binding the synthetic fiber filaments into a bundle; immersing the end portion of said bundle in a first liquid having ability to dissolve said synthetic fibers, so as to dissolve the surfaces of the filaments in said bundle in such a way that the degree of dissolving will be greater at the tip part of said end portion of the fiber bundle than at the upper part thereof; and then immersing the thus treated end portion of said fiber bundle in a second liquid whereby to elutriate the dissolved and/or swollen portions of the filaments remaining in the bundle.

3,830,548

**CONTAINER FOR TRANSPORT BY MEANS OF
COMPRESSED AIR OF GRANULAR OR SLUGGISHLY
FLOWING MATERIAL**

Bjarne Sem, Niels Juelsgt. 13, Oslo 2, Norway

Filed June 22, 1973, Ser. No. 372,614

Claims priority, application Norway, July 6, 1972, 2428/72

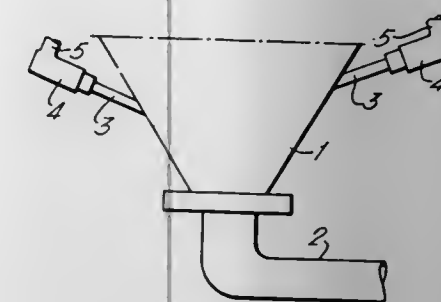
Int. Cl. B65g 53/16

U.S. Cl. 302—47

5 Claims

A container with at least one nozzle for introducing turbulent compressed air into the container for transport of granu-

lar or sluggishly flowing material out of the container, which nozzle forms the outlet from a housing into which the air is



pulsed by means of a rotor driven by the air entering the housing, which rotor may be eccentric balanced to produce vibrations of the housing in the container.

3,830,549

**FLUID PRESSURE CONTROL VALVE APPARATUS FOR
DUAL SYSTEM BRAKE**

Masahiro Kito, Nagoya, and Hiroshi Kawaguchi, Toyota, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Aichi-ken and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, both of Japan

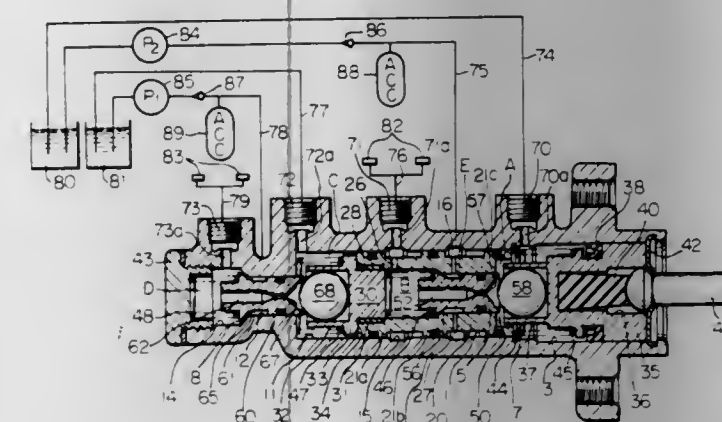
Filed Nov. 13, 1972, Ser. No. 305,828

Claims priority, application Japan, Nov. 18, 1971, 46-92614

Int. Cl. B60t 15/06

U.S. Cl. 303—6 R

11 Claims



The fluid pressure control valve apparatus for a dual system brake has a pair of valves disposed tandem within a valve body, said pair of valves having valve means for communicating or discommunicating between a source of fluid pressure and a wheel cylinder and valve means for communicating or discommunicating a reservoir tank and the wheel cylinder. One of the pair of valves is operable by fluid pressure of the source of fluid pressure when the other of the valves is operated to transmit the fluid pressure into the wheel cylinder related thereto.

3,830,550

ANTI-SKID BRAKE CONTROL SYSTEM FOR VEHICLES

Toshiyuki Kondo, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Aichi-ken, Japan

Filed Nov. 3, 1972, Ser. No. 303,475

Claims priority, application Japan, Nov. 9, 1971, 46-104467[U]; Nov. 9, 1971, 46-104466[U]

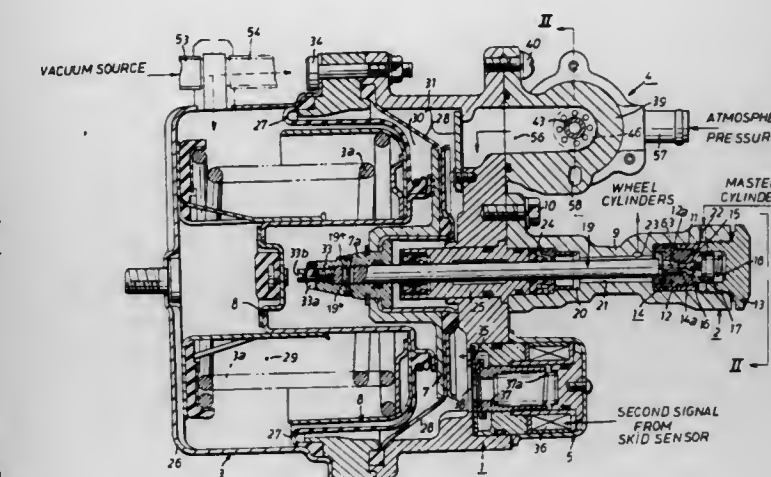
Int. Cl. B60t 8/12

U.S. Cl. 303—21 F

11 Claims

An improved anti-skid brake control system of the type comprising a cut-off valve and a hydraulic capacity controller

disposed within a hydraulic braking circuit connecting a master cylinder with wheel brake cylinders, wherein in an anti-skid operation, the cut-off valve first blocks passage of pressurized fluid from the master cylinder to the wheel brake cylinders, and then the capacity controller is conditioned for its pressure decreasing operation for effecting the anti-skid



operation. The cut-off valve and the capacity controller are integrally mounted within one housing to be compact in size. Furthermore, the correlative operation between the cut-off valve and the capacity controller can easily be adjusted to the most desirable condition by way of the axial adjustment of a plunger of the capacity controller.

3,830,551

**ENDLESS TRACK BELT FOR A SMALL TRACK-LAYING
VEHICLE**

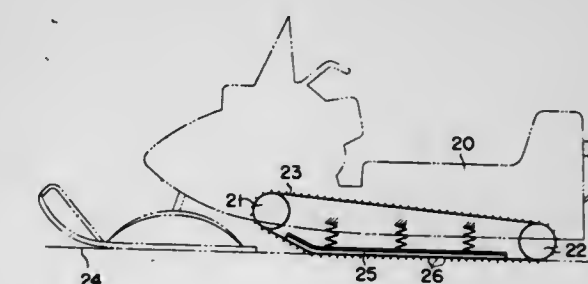
Yutaka Masaoka, Hamakita, and Masao Nakai, Shizuoka-ken, both of Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata-shi, Shizuoka-ken, Japan

Filed Aug. 29, 1973, Ser. No. 392,673

Int. Cl. B62d 55/26

U.S. Cl. 305—35 R

8 Claims



An endless track belt for a small track-laying vehicle having a plurality of primary transverse ribs, wherein said primary ribs have the backside so shaped as to prevent earth or snow from being scattered rearward when said ribs leave the surface of the ground or snow, and are further provided on said backside with a plurality of very small, narrow secondary ribs extending along the length of said backside.

3,830,552

JOURNAL BEARINGS

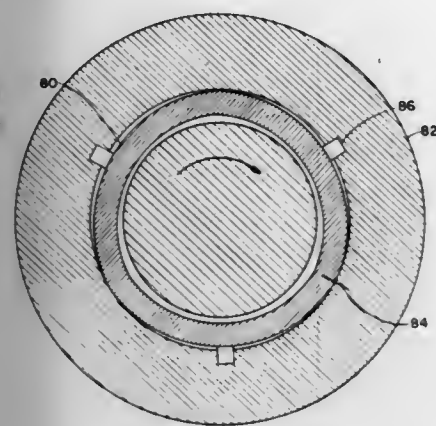
Fredrick T. Schuller, and Warren A. Moore, both of Cleveland, Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 238,264, March 27, 1972. This application Mar. 30, 1973, Ser. No. 346,483

Int. Cl. F16c 19/04

U.S. Cl. 308—121

1 Claim



A plurality of bearing sectors are mounted in a housing. Each sector functions as a lobed area in the bearing to obtain the required lubricant film geometry.

3,830,553

APPARATUS FOR MOUNTING ROTARY DRUMS

Rainer Schurger, Arnstein; Lothar Walter, Schweinfurt; Manfred Brandenstein, Aschfeld, and Gunter Neder, Schweinfurt, all of Germany, assignors to SKF Industrial Trading and Development Company B.V., Amsterdam, Netherlands

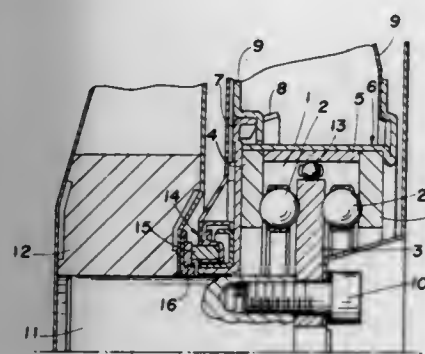
Filed Feb. 9, 1973, Ser. No. 331,112

Claims priority, application Germany, Feb. 17, 1972, 7205916

Int. Cl. F16c 17/06

U.S. Cl. 308—230

8 Claims



A journal for cantilevered mounting of a rotary drum comprising a double acting thrust rolling bearing located in a single housing.

3,830,554

LOCKING DEVICE FOR SEWING MACHINE CABINET SUPPORT PLATFORMS

Gregoire Moussaian, Freneuse, and Gilles Maillart, Cerise, both of France, assignors to The Singer Company, New York, N.Y.

Filed May 31, 1973, Ser. No. 365,805

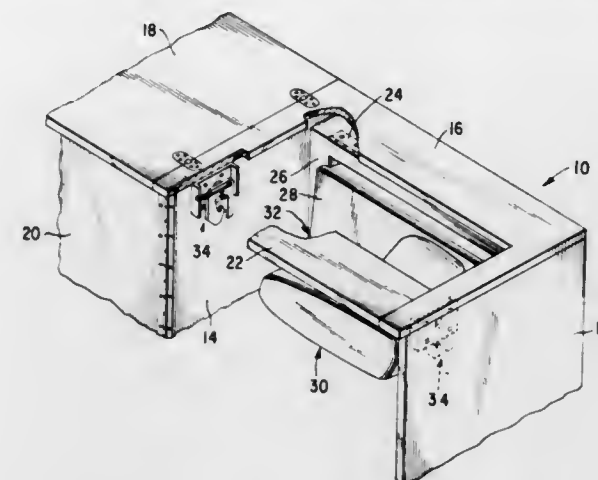
Int. Cl. A47b 81/00

U.S. Cl. 312—30

9 Claims

A sewing machine cabinet having a sewing machine support platform pivotable about a fixed axis from a stored position within the cabinet to a substantially horizontal operative position where it is locked in place by means of a pair of bolts mounted on opposite sides of the platform, and received

within sockets formed on corresponding keepers pivotably mounted on brackets secured on the cabinet side walls. Each keeper includes three cam surfaces, two of which are effective to rotate the keeper in a first direction when acted upon by respective bolts. A spring secured to each keeper to oppose the rotation of keeper in the first direction until the keeper rotates to a position where the spring swings over-center and thereafter aids turning the keeper in this direction. The third cam surface is effective to turn the keeper in the opposite direction to that of the first two cam surfaces. As the platform



is pivoted into the operative position the bolts engage the first cam surface and rotate the keeper against the bias of the springs. When the bolts are above the sockets the springs return the keepers to the normal positions and the platform may be lowered to position the bolts into the socket. To store, the platform is pivoted upwardly until the bolts engage the second surface rotating the keepers until the springs have moved over-center. The platform is then moved downwardly free of the sockets and engage the third surface to rotate the keepers into their original position.

3,830,555

NONRECIPROCAL WAVEGUIDE MODE CONVERTER

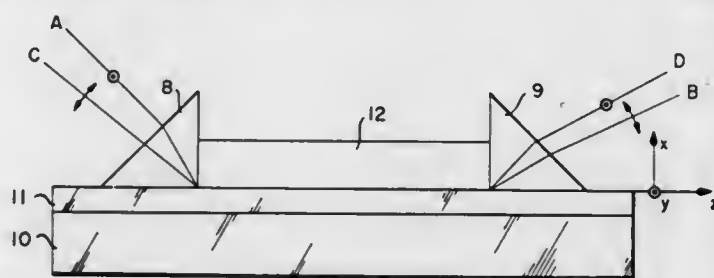
John Warner, 6429 Maplewood Dr., Falls Church, Va. 22041

Filed May 4, 1973, Ser. No. 357,157

Int. Cl. G02b 5/14

U.S. Cl. 350—96 WG

12 Claims



An optical waveguide which provides coupling between waveguide modes dependent upon the direction of propagation. The device comprises a sandwich of an anisotropic material, a neutral material and a magneto-optic material. Such a system may be used as an isolator or circulator in integrated optical circuits.

3,830,556

REAR PROJECTION SCREEN

Yaroslav Russell Bratkowski, 113 W. Kings Rd., North Vancouver, B.C., Canada

Filed Dec. 1, 1972, Ser. No. 311,129

Claims priority, application Great Britain, Dec. 15, 1971, 58243/71

Int. Cl. G03b 21/60

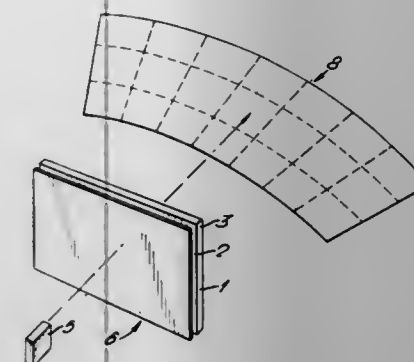
U.S. Cl. 350—128

19 Claims

A rear projection screen has an array of individual lenses for transmitting to a viewing field light projected onto the rear of

the screen. To provide a predetermined distribution pattern of the light intensity, each lens has a lens surface composed of surface portions which each have a shape individually deter-

mined in accordance with the pattern and which are combined to produce the pattern. The light may be distributed uniformly over the viewing area.



mined in accordance with the pattern and which are combined to produce the pattern. The light may be distributed uniformly over the viewing area.

3,830,557

LASER Q-SWITCHING

William R. Hook, Los Angeles, and Ronald P. Hilberg, Redondo Beach, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

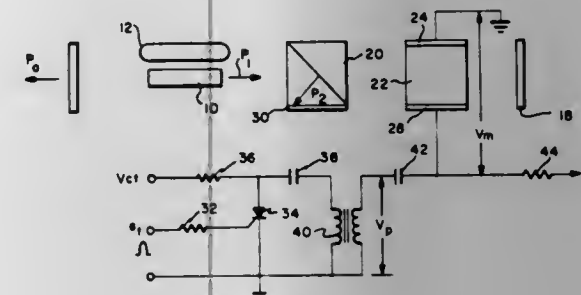
Division of Ser. No. 264,153, June 19, 1972, Pat. No.

3,783,406. This application Sept. 6, 1973, Ser. No. 394,895

Int. Cl. G021 1/26

U.S. Cl. 350—150

1 Claim



A transformer-driven electro-optic Q-switching arrangement reduces the high-voltage switching requirements with greatly simplified circuitry. Lasing efficiency is not significantly reduced even when the transformer rise time is twice as long as the laser pulse build-up time.

3,830,558

NON-LINEAR OPTICAL COMPONENT

Ulrich Deserno, Munich, and Siegfried Haussuehl, Cologne, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Continuation-in-part of Ser. No. 234,970, March 15, 1972,

abandoned. This application Feb. 14, 1973, Ser. No. 332,312

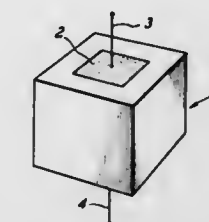
Claims priority, application Germany, Mar. 26, 1971, 2114823

Int. Cl. G02f 1/40

U.S. Cl. 350—160

5 Claims

A non-linear optical component for use in laser systems



barium nitrite hydrate, $[\text{Ba}(\text{NO}_2)_2 \cdot \text{H}_2\text{O}]$ and includes a pair of electrodes mounted on opposite surfaces of the component.

3,830,559

SUPER-WIDE-ANGLE LENS SYSTEMS FOR PHOTOGRAPHIC CAMERAS

Masaki Matsubara, Tokyo, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

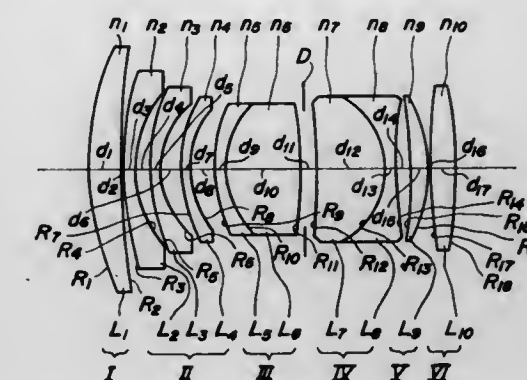
Filed Mar. 14, 1973, Ser. No. 341,175

Claims priority, application Japan, Mar. 29, 1972, 47-31302

Int. Cl. G02b 9/64

U.S. Cl. 350—214

11 Claims



A super-wide-angle lens system for photographic cameras, which comprises six components and ten lens elements and in which the first component is a positive meniscus lens element, the second component consists of two and three negative meniscus lens elements, the third component is a positive doublet lens element, the fourth component is a negative doublet lens element, the fifth component is a positive meniscus lens element and the sixth component is a positive lens element, and which fulfills the following four conditions, i.e.

$$1. 0.45f < |\Sigma f_i| < 0.75f$$

$$f_i < 0$$

$$2. 0.3f < d_6 + d_{10} < 0.8f$$

$$3. 0.33f < |R_{13}| < 0.85f$$

$$R_{13} < 0$$

$$4. 0.22f < d_{12} + d_{13} < 0.7f$$

wherein f represents the overall focal length of the system, Σf_i represents the sum of focal lengths of the lens elements constituting the second component of $i = 2, 3$ and $i = 2, 3, 4$ numbering from the object side, d_6, d_{10}, d_{12} , and d_{13} represent the axial thicknesses of the sixth, sixth, seventh and eighth lens elements constituting the third and fourth components, respectively, and R_{13} represents the radius of curvature of the cemented surface of the fourth component.

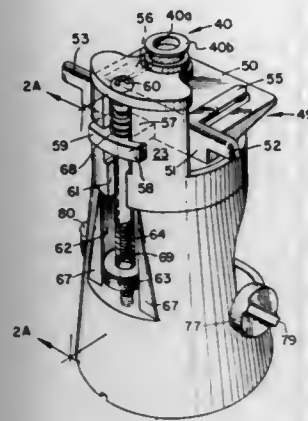
3,830,560

MICROSCOPE APPARATUS

Richard A. Onanian, 85 Irving St., Arlington, Mass. 02174
Division of Ser. No. 71,736, Sept. 14, 1970, abandoned. This
application June 27, 1973, Ser. No. 374,263
Int. Cl. G02b 27/02

U.S. Cl. 350—238

49 Claims



A microscope comprising an integral tubular frame mounting an eyepiece and a slide stage, and having means for adjusting the position of the stage relative to the eyepiece.

In a microscope frame, a hollow base through which the stage may be illuminated directly, and a side opening removably receiving a mirror through which the stage may be illuminated indirectly, by natural or artificial light source.

Means for both directly and reflectively illuminating the stage by artificial light source.

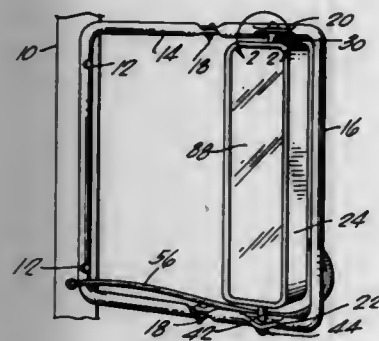
3,830,561

REMOTELY OPERABLE VEHICULAR MIRROR

Veryl L. La Fave, 4503 E. 14th St., Cheyenne, Wyo. 82001,
and Ronald D. Rivenes, 4103 "R" St., Omaha, Nebr. 68107
Filed Aug. 6, 1973, Ser. No. 386,155
Int. Cl. G02b 5/08

U.S. Cl. 350—289

3 Claims



A mirror apparatus for attachment to the exterior of a vehicle wherein the mirror is located upon a mirror housing, the mirror housing being rotatably secured to a frame which is fixedly secured to the vehicle, a speed reduction motor assembly being located within the mirror housing, the motor assembly being attached to the mirror housing adjacent one end thereof with the shaft of the motor being fixedly secured to the frame, a vibration damping means located at the end opposite the shaft connection intermediate the connection of the mirror housing to the frame.

3,830,562

SLIT LAMP HAVING COMBINATION SLIT AND LAMP INTENSITY CONTROL DEVICE

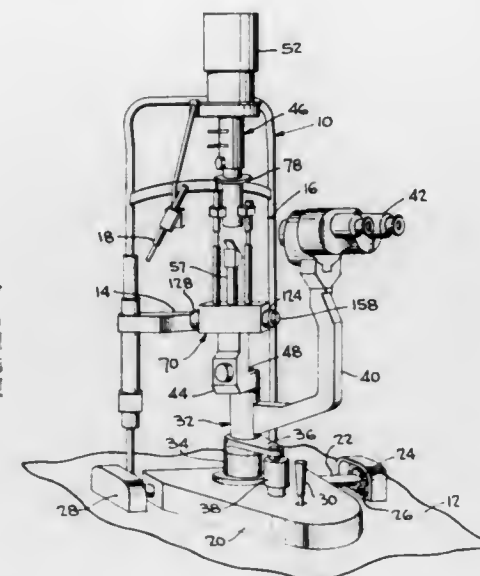
John V. McGrann, Duxbury, Mass., and William M. Nalley, Silver Spring, Md., assignors to Codman & Shurtleff, Inc., Randolph, Mass.

Filed June 25, 1973, Ser. No. 373,335

Int. Cl. A61b 3/10

U.S. Cl. 351—14

14 Claims



A slit lamp including a combination control device for simultaneously varying the width of a slit in an illumination column of the slit lamp and the intensity of a light beam from a lamp in the illumination column such that operation of the automatic control device automatically controls the intensity of the light beam in accordance with the width of the slit.

3,830,563

PROCESSING COMPOSITION RELEASE MECHANISM FOR FILM CASSETTE COMPRISING SELF-CONTAINED FILM PROCESSING SYSTEM

John F. Batter, Jr., Lincoln; Paul B. Mason, Magnolia; Joseph A. Stella, West Peabody; Paul W. Thomas, Jr., Duxbury, and Joseph H. Wright, Peabody, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

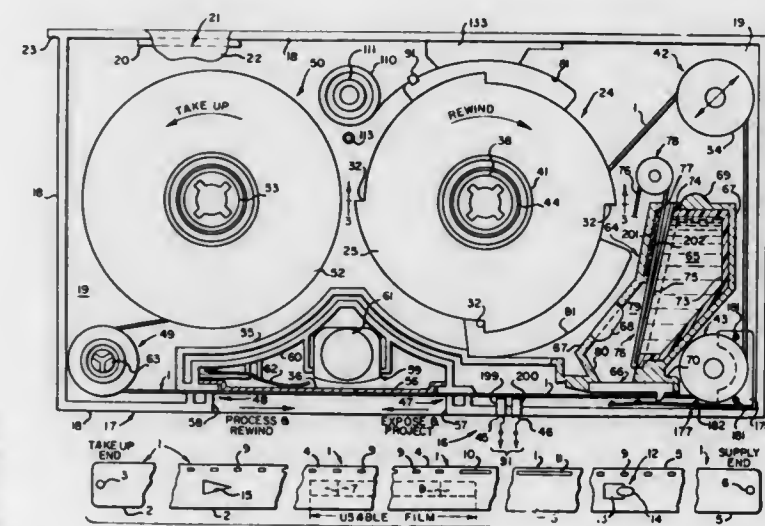
Division of Ser. No. 227,092, Feb. 17, 1972, Pat. No.

3,785,725. This application July 31, 1973, Ser. No. 384,213

Int. Cl. G03c 11/00

U.S. Cl. 352—130

1 Claim



Apparatus for controlling the release of processing composition in a film cassette comprising a roll of film and containing a film processing system. A container of film processing composition within the cassette is initially sealed

3,830,564

PHOTOGRAPHIC SYSTEM

John F. Batter, Jr., Lincoln, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

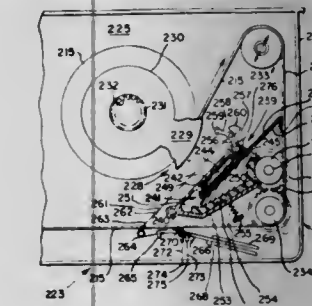
Continuation of Ser. No. 227,150, Feb. 17, 1972, abandoned.

This application Aug. 20, 1973, Ser. No. 389,997

Int. Cl. G03c 11/00

U.S. Cl. 352—130

99 Claims



A system for exposing, processing and projecting strip film comprising a cassette containing a roll of film connected at its ends to supply and takeup reels and passing therebetween through a film gate for cooperation with a camera and with a film drive and projection system. The cassette contains processing means, operating in a predetermined sequence determined by means within the cassette, and energized by drive energy supplied externally to sprocket holes on the film and to the takeup and supply reels by the film drive and projection system. An electrical signal generator within the cassette supplies an external signal to select the mode of operation of the film drive and projection system in dependence upon the processed or unprocessed state of the film.

3,830,565

APPARATUS FOR INTERMITTANT FEEDING OF STRIP MATERIAL

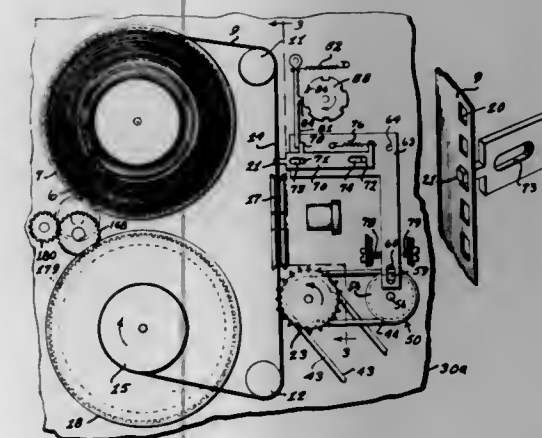
John O. Fundingsland, 1126 N. Sheridan Ave., Colorado Springs, Colo. 80909

Filed July 27, 1972, Ser. No. 275,692

Int. Cl. G03b 1/22

U.S. Cl. 352—191

8 Claims



Apparatus for winding, reeling and intermittant feeding of strip material, such as motion picture film, including reels and spindles for carrying a reach or run of film, a take up reel or separate sprocket applying tension to the film material to draw it past a point, a reciprocative pin to be received within the

3,830,566

SMALL SLIDE TRAY

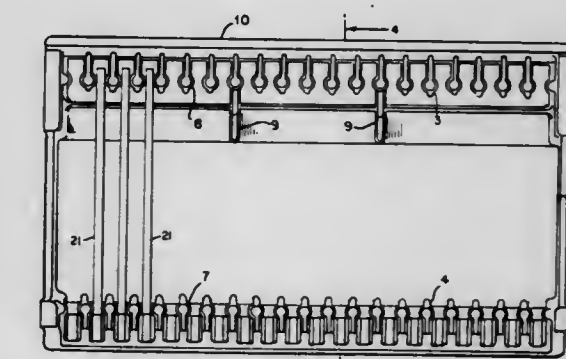
Frank P. Bennett, Northbrook, Ill., assignor to GAF Corporation, New York, N.Y.

Filed Aug. 25, 1972, Ser. No. 283,805

Int. Cl. B65d 1/34; G03b 23/04

U.S. Cl. 353—116

7 Claims



A miniaturized slide tray with discontinuous septa for permitting a slide projector pusher to pass in a transverse manner into the tray for sequential slide advancement is provided. The tray rack is constructed of a compliant material to minimize mechanical "Q" and jumping when such tray is advanced by the projector index gear.

ERRATA

For Classes 355—33, 355—14, 355—71
& 355—73 see: Patent Nos. 3,830,589
thru 3,830,592

3,830,567

METHOD AND APPARATUS FOR DISTANCE MEASUREMENT

Johannes Riegl, Vienna, Austria, assignor to Immatra AG, Zurich, Switzerland

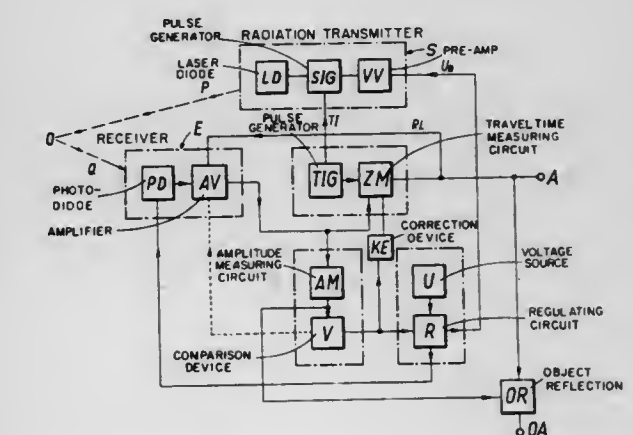
Filed Mar. 15, 1972, Ser. No. 234,924

Claims priority, application Austria, Apr. 28, 1971, 3678/71

Int. Cl. G01c 3/08; G01s 9/06

U.S. Cl. 356—5

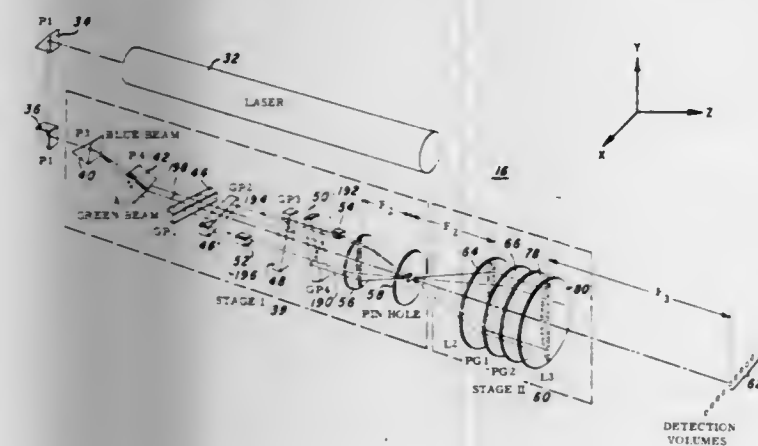
12 Claims



There is disclosed a range finder operating on the principle of finding the range of an object by measuring the time between transmission of a pulse towards an object and the

reception of the reflected pulse. Errors in the range measurement caused by the different half-rise times of reflected pulses of different amplitudes are avoided by using only a reflected pulse of a predetermined constant magnitude as a measuring pulse for range determination. The desired magnitude of the measuring pulse is obtained by altering the power of the transmitter and/or by changing the amplification of the receiver. The use of pulsed laser range finders operating in the infra-red region of the spectrum is referred to for generating pulses as well as other sources of pulsed energy.

3,830,568
MULTIPLE DETECTION VOLUME LASER DOPPLER VELOCIMETER
 John B. Allen, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
 Filed May 25, 1973, Ser. No. 363,916
 Int. Cl. G01p 3/36
 U.S. Cl. 356—28
 22 Claims

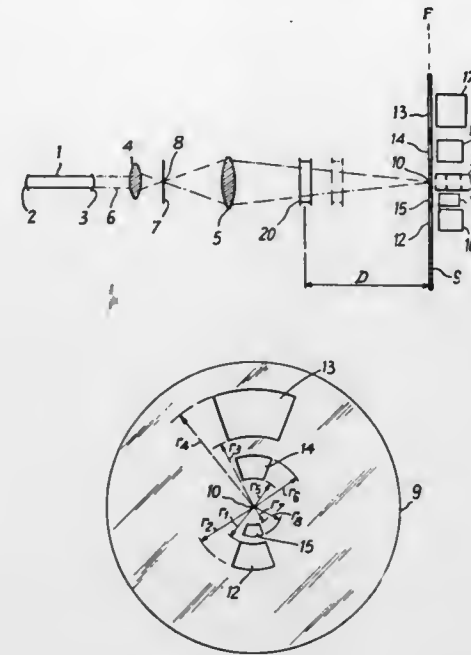


A multiple detection volume laser doppler velocimeter for continuously monitoring an aerosol for particle velocities and sizes is disclosed. A source of coherent light producing light beams at selected wavelengths is directed through: a beam separator separating the beams into a plurality of beams at selected wavelengths; beam splitters orienting and dividing at least two of the plurality of beams into two beams each at the selected wavelengths; and phase gratings for producing multiple beams of each beam received. The multiple beams are then converged to form at their intersections a plurality of detection volumes. Aerosols pass through the detection volumes and scatter light of the selected wavelengths. The scattered light is detected by transducers to produce electrical signals which are processed to produce signals representative of the horizontal and vertical components of particle velocity and size, and of the time it takes the particle to pass through the detection volume (duration signal). The duration signal is combined with a particle velocity signal to produce a signal indicative of particle size.

3,830,569
PROCESS AND APPARATUS FOR COUNTING BIOLOGICAL PARTICLES
 Jean-Paul Meric, 20, rue Saint Romain, Paris 75006, France
 Filed Aug. 7, 1973, Ser. No. 386,280
 Claims priority, application France, Aug. 10, 1972, 72.28850
 Int. Cl. G01n 33/16
 U.S. Cl. 356—39
 12 Claims

A method and apparatus for analyzing with a high degree of reliability the number of red cells, white cells and platelets in a sample of blood, as well as the hematocrit and average volume of the red blood cells. Two samples are successively placed in the trajectory of a laser light beam so as to obtain in the focal plane of the optical system the luminous flux diffracted by the various particles. In one sample the red blood cells have been

spherized and in the other sample the red blood cells have been hemolyzed. The focal plane contains photosensitive



areas which correspond to the directions which form, with the initial direction of the light beam, angles which fall between:

$$s_1 = (1.5 \text{ to } 2.5) \lambda / \pi(ad)$$

and

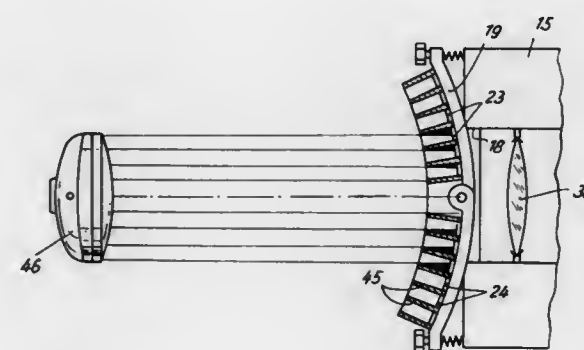
$$s_2 = (3 \text{ to } 5) s_1 \quad (1)$$

$$s_1' = 0.5 \lambda / \pi(ad) \text{ and}$$

$$s_2' = 3 s_1' \quad (2)$$

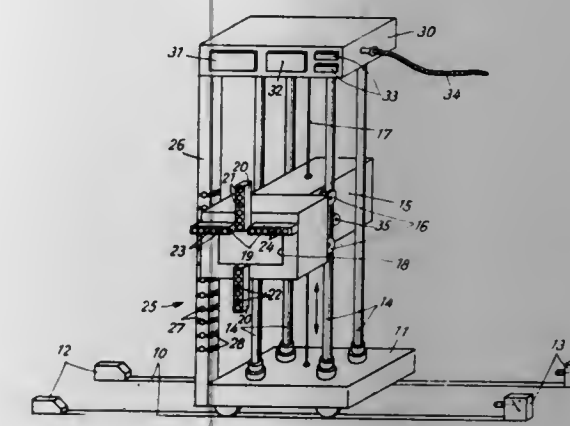
where λ is the wavelength of the light used, ad is the average diameter of the particles to be analyzed, and s_1 , s_2 , s_1' , and s_2' are expressed in radians. Known electronic means are connected to the photosensitive areas and permit the direct display of the analysis results.

3,830,570
VEHICLE HEADLIGHT TESTING METHOD AND APPARATUS
 Kurt Groetzner, Stuttgart; Rudolf Mayer, Bunzwangen, and Siegfried Mayer, Esslingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany
 Filed June 13, 1973, Ser. No. 369,737
 Claims priority, application Germany, June 26, 1972, 2231227
 Int. Cl. G01j 1/00
 U.S. Cl. 356—121
 26 Claims



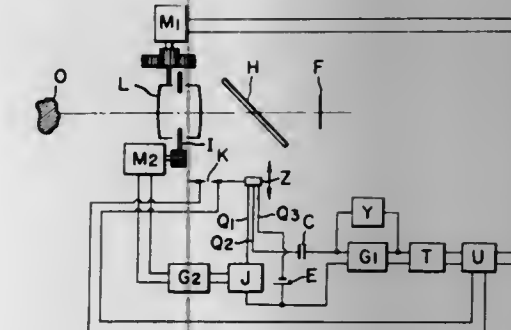
A test stand is rolled on rails across the front of a vehicle with lighted headlights, and the height at which illumination is detected is registered on indicator lamps. A vertically movable

test assembly then automatically moves down to the first level at which illumination was detected, extinguishing the corresponding register lamps, after which the test stand makes another pass, stopping at each headlight, first to locate the test assembly accurately opposite the headlight and then to deter-



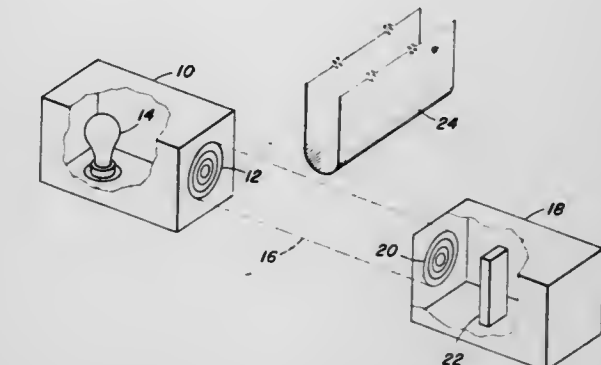
mine whether the upper boundary of the headlight beam is correct or, if not, by what amount it deviates from the norm. An additional pass is made before the entire apparatus is reset if any register lamps, not extinguished for a previous pass but lighted on the first pass, are still lit.

3,830,571
AUTOMATIC FOCUSING DEVICE ALSO CAPABLE OF PHOTOMETRY
 Toshifumi Imai, Yokohama, and Kenji Onogi, Chigasaki, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan
 Filed Dec. 19, 1972, Ser. No. 316,514
 Claims priority, application Japan, Dec. 29, 1971, 46-2699
 Int. Cl. G01j 1/00, 1/42
 U.S. Cl. 356—123
 12 Claims



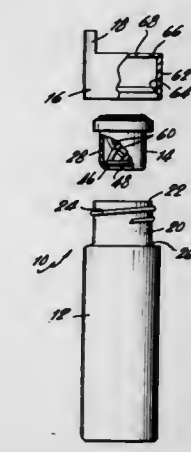
In an automatic focusing device of the type employing photoconductors which are scanned relative to an image to be focused, parallel slit-like photoconductors are arrayed in a plane upon which the image is focused. Light from an object is passed through a focusing lens along an optical axis perpendicular to the photoconductor plane, and the photoconductors are vibrated in their plane, perpendicular to the length of the photoconductors, to produce output signals which vary with the change in photoconductivity and which are added to provide increased sensitivity. The output signals control a servomotor for positioning the lens along the optical axis. The photoconductors are also reciprocated along the optical axis to provide a peak signal which is compared with a position reference to determine the proper direction of lens movement for focusing. Averaged output signals provide photometric measurements for automatic exposure control.

3,830,572
OPTICAL SENSOR SYSTEM
 Arthur M. Lueck, East Setauket, N.Y., assignor to Quantum Sensing, Incorporated, Bohemia, N.Y.
 Continuation-in-part of Ser. No. 139,501, May 3, 1971, abandoned. This application Apr. 11, 1973, Ser. No. 350,077
 Int. Cl. G01b 11/00
 U.S. Cl. 356—156
 2 Claims



A pair of large-area, short focal length lenses define an elongated viewing area; with a light source located at the focal point behind one lens and a sensor at the focal point behind the other. To achieve an analog output, one or both lenses are masked for uniform light intensity. The intrusion of an object (a web of solid material, particles in gases, etc.) into the viewing area decreases the electrical signal produced by the sensor in analog fashion. A control function, such as motor speed, a damper, etc. may be directly controlled by the sensor output. The system is low in cost and highly reliable.

3,830,573
STRIPING APPLICATOR
 Gilbert Schwartzman, 20 Wilmore Cir., Scarsdale, N.Y. 10583
 Filed Jan. 2, 1970, Ser. No. 189
 Int. Cl. B43k 5/06
 U.S. Cl. 401—193
 1 Claim



A striping applicator comprising a container having an applicator assembly disposed therein. The applicator assembly includes a fabric cover. A cap is threaded on the neck of the container and is provided with means for enabling the cap to be freely rotatable throughout 360° on the container. The cap includes an opening through which the cover extends and guide means spaced from the cover so that a line may be coated of a thickness substantially equivalent to the diameter of the cover and at predetermined locations dependent upon the spacing of the guide means from the cover.

3,830,574

TUBULAR NIB WRITING IMPLEMENT WITH AN INTERCHANGEABLE NIB

Klaus Glombitza, Nurnberg; Otto Mutschler, Heidelberg, and Claus Gottschalk, Nurnberg, all of Germany, assignors to J. S. Staedtler, Nurnberg, Germany

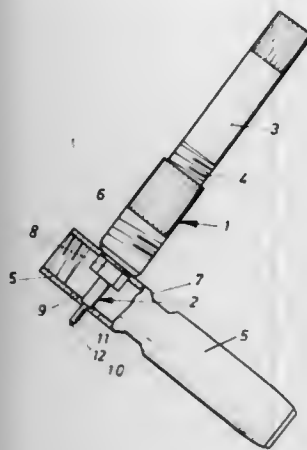
Filed Apr. 26, 1973, Ser. No. 354,686

Claims priority, application Germany, May 9, 1972, 2222593

Int. Cl. B43k 1/10, 29/00

U.S. Cl. 401—195

7 Claims



A tubular nib writing implement has a head piece, whose lower end is adapted for the screwing in of a nib provided with a collar with a nut profile and the upper end of the head piece can be inserted with its upper end, which serves for receiving an ink cartridge, into a holding shank. The shank is provided with a spanner recess corresponding to the nut profile of the nib. The spanner recess lies in the substantially cylindrical side wall of the holder shank.

3,830,575

TUBE WRITING PEN

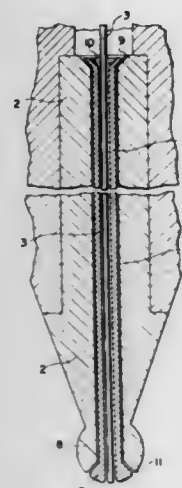
Ewald Lorenz, Uelzen, Germany, assignor to Koh-I-Noor Rapidograph, Inc., Bloomsburg, N.J.

Filed Dec. 1, 1972, Ser. No. 311,178

Claims priority, application Germany, Dec. 3, 1971, 2159942

Int. Cl. B43k 1/10

U.S. Cl. 401—259



A tube writing pen, including two writing tubes arranged coaxially one inside the other, the writing tubes communicating with an ink reservoir at their rear ends, and the inner writing tube being arranged for limited movement in and with respect to the outer writing tube, at least in the axial direction, a cleaning wire projects into the inner writing tube and a drop weight is attached to the cleaning wire at the end thereof ad-

jacent the ink reservoir, the interior of the outer writing tube is widened frustoconically at its writing end, and the outer wall of the inner writing tube has a complementary frustoconically widened writing zone with a rounded end face.

3,830,576

NIB FOR WRITING INSTRUMENT

Tadashi Kohno, Koshigaya, and Tsuguo Watanabe, Tokyo, both of Japan, assignors to Pentel Kahushiki Kaisha, Tokyo, Japan

Filed Aug. 8, 1972, Ser. No. 278,870

Claims priority, application Japan, Aug. 10, 1971, 46-71421

Int. Cl. B43k 8/00

U.S. Cl. 401—292

1 Claim



A nib for writing instrument is provided which comprises a core member having a plurality of radial legs longitudinally extending along the length of the nib, subcore elements each being substantially triangular in section and having a groove or grooves on each side thereof, and a tubular shroud having a thin wall to enclose outer peripheral surfaces of the legs of the core member and the subcore members. A plurality of ink feeding channels for capillary action are formed at least between the subcore elements and the legs, and between the subcore elements and the tubular shroud.

ERRATUM

For Class 402—14 see:
Patent No. 3,830,578

3,830,577

METHOD AND MEANS FOR CONNECTING AN APERTURED PART TO A SHAFT

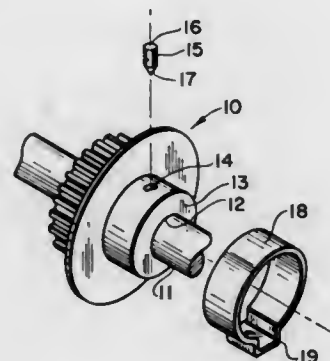
John W. Rampe, Mayfield Heights, and W. Charles Rampe, Mentor, both of Ohio, assignors to Rampe Research, Cleveland, Ohio

Filed June 5, 1972, Ser. No. 259,470

Int. Cl. F16d 1/06; B23p 19/02

U.S. Cl. 403—378

35 Claims



A method and means for drivingly coupling apertured parts such as pulleys, gears and wheels to a shaft. The hub of an apertured part is provided with a radially extending hole. A pointed hardened pin is positioned in the hole with its pointed end engaging the shaft and with its opposite end extending radially outwardly of the hub. A clamping band is crimped in place around the hub so as to force the pin radially inwardly thereby driving the pointed end of the pin into the shaft.

3,830,578

CONVERTIBLE FOLDER

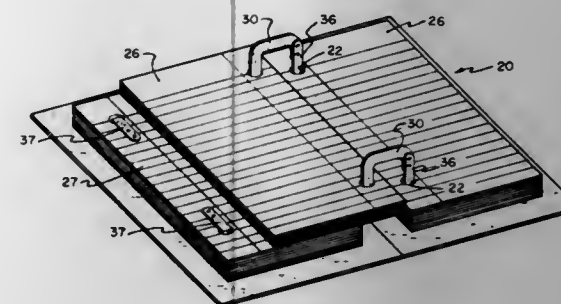
Kline D. Strong, 1726 Country Side Dr., Salt Lake City, Utah 84106

Filed Sept. 5, 1972, Ser. No. 286,363

Int. Cl. B42f 13/06

U.S. Cl. 402—14

10 Claims



An improved folder which is easily converted to a ring binder including a pliant fastener adapted to be threaded through perforations in pages to secure the pages to the folder. The fastener is anchored to the fabric of the folder and may be bent in a perpendicular position. The fastener is releasably connectable to a cantilever to form a ring binder. When used as a ring binder, the cantilever receives the pages in the folder and retains them on an enlarged foot. The weight of the retained pages applies a rotational force through the cantilever to bind connecting projections on the cantilever in tear-drop openings on the anchored fastener. The anchored fastener and the cantilever are selectively detachable to allow insertion or removal of pages without disturbing the relative positions of the other pages.

3,830,579

COUPLINGS

Donald Cyril Roe, London, England, assignor to The Amalgamated Dental Company Limited, London, England

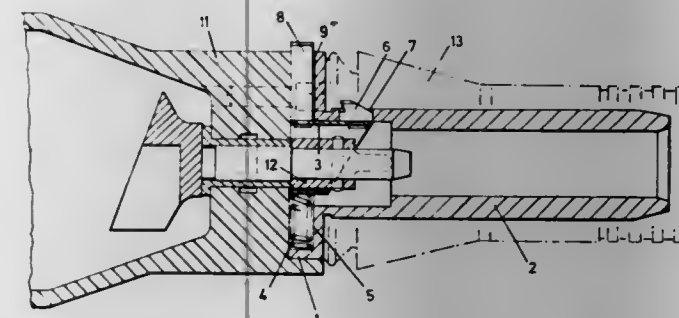
Filed Oct. 29, 1973, Ser. No. 410,387

Claims priority, application Great Britain, July 10, 1973, 32733/73

Int. Cl. F16b 7/00

U.S. Cl. 403—24

3 Claims



A slip-sleeve coupling for connecting a dental handpiece to an electric micro motor comprises a centrally apertured disc connected to a coaxially tubular sleeve provided with a radially movable latch means on the outer surface thereof for engagement with a dental handpiece, the said latch being mounted on a generally cylindrical member within said sleeve and said disc and projecting through an aperture in said sleeve, said cylindrical member being resiliently biased towards the position at which the latch means projects from the outer surface of the tubular sleeve and said tubular member being further provided with an operating member projecting radially outwardly beyond the periphery of the said disc and through a recess therein for moving the cylindrical

member against the action of said resiliently biasing means to depress said latch below the surface of said tubular sleeve, thereby to release any handpiece engaged therewith. The biasing means for the cylindrical member suitably comprises a helical spring mounted within a recess in said disc diametrically opposite said operating member. The invention also provides a dental assembly comprising a micro motor provided with a slip-sleeve coupling as defined above.

3,830,580

COUPLER

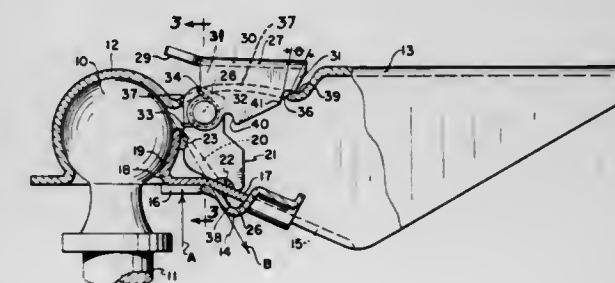
Robert E. Slatery, Rockford, and Ronald E. Braukhoff, Rockton, both of Ill., assignors to Atwood Vacuum Machine Co., Rockford, Ill.

Filed Feb. 2, 1973, Ser. No. 328,958

Int. Cl. B60d 1/06

U.S. Cl. 403—122

22 Claims



A coupler ballhead receiving socket has a longitudinally extending slot adjacent it in the mounting bracket that is long enough to accommodate a channel-shaped latch having an upwardly and forwardly extending handle portion for first tilting the latch with the ballhead retaining clamp, that is pivotally connected to the front end portion of the latch, rearwardly to an open position holding the clamp in retracted relationship to the socket. The clamp is pivotally connected to the socket at its one end and to the front end of the latch at its other end, where a grasshopper type spring is provided urging the clamp normally toward closed position and at the same time urging the latch downwardly toward locked position with its lower portion disposed inside the slot. At the rear end of the slot a ledge is defined and in the fully retracted position of the clamp, a shoulder on the front end of the lower portion of the latch rests on this ledge to retain it in the fully retracted position of the latch, but in the locked position of the latch a shoulder on the rear end of the lower portion bears against the rear end of the slot to prohibit any rearward movement of the latch, so that the clamp is accordingly held firmly in its closed position. It is a simple matter to change the configuration of the latch by removal of the front and rear shoulders. If the rear shoulders are removed the clamp can be opened by entry of the ball, the remaining shoulders holding the clamp in open position and requiring the latch to be closed manually. This is a convenience feature which does not reduce the security with which the ball is retained by the coupler. If the front shoulders are removed too, the clamp is urged open by the entering ball and then automatically closed, this being a safety feature because the clamp cannot lock in open position. With a ball in place in the coupler, the geometry of the clamp securely clamps the ball. The latch has security, also, with the locking shoulders. These shoulders require that the latch be manually opened before the coupler is placed on the ball and then manually closed once the coupler is on the ball. This is normal procedure. However, for the convenience of customers who use their trailer many times such as travel trailer owners, one or both of the locking shoulders can be removed and the latch will automatically open or automatically open and close.

3,830,581

GREEN WOOD JOINT

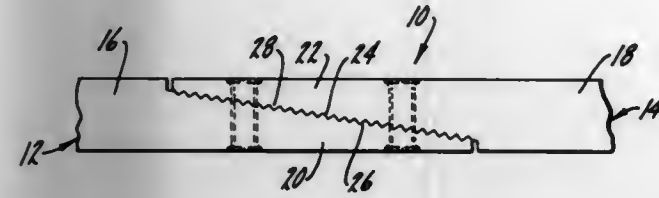
Donn B. Furlong, San Rafael, Calif., assignor to Ecodye Corporation, Chicago, Ill.

Filed May 26, 1972, Ser. No. 257,124

Int. Cl. F16b 7/00

U.S. Cl. 403—340

14 Claims



A method and apparatus for lengthening green wood structural members by joining the ends of at least two members in an end to end relationship in a manner which compensates for the shrinkage as the wood dries. The method includes the step of applying and retaining a compressive force of sufficient magnitude to the adjacent ends to compress the ends a distance greater than the joined members shrink during drying, the compressive force being of a magnitude less than the fiber stress at the proportional limit of the members at their initial moisture content. The apparatus includes a scarf joint having a plurality of transversely extending V-shaped teeth milled in the scarf surfaces and positioned in a meshing relationship. These V-shaped teeth in combination with the application of the compressive force results in a unique scarf joint which compensates for the shrinkage of the wood as it dries so as to substantially retain the axial and flexural strength of the joint. A plurality of tubular inserts pass through holes in the scarf surfaces and are flared at their respective ends to retain the compressive force applied to the scarf surfaces.

3,830,582

HINGED CURB FOR PROTECTING HIGHWAY EXIT ROADS AND THE LIKE

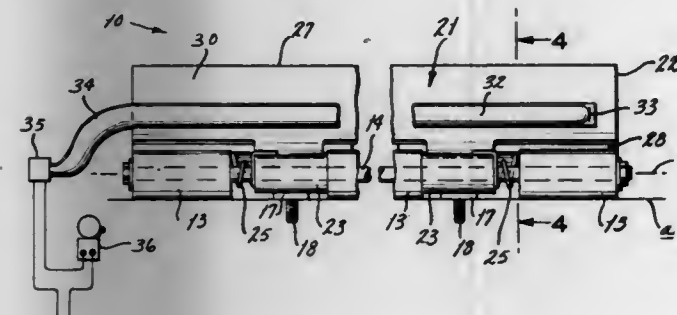
Harvey Rimell, 395 St. Edward Ln., Florissant, Mo. 63033

Filed Mar. 7, 1973, Ser. No. 339,385

Int. Cl. E01f 9/00

U.S. Cl. 404—11

4 Claims



A hinged curb, maintained in normally-erected position by springs, is readily folded downward by vehicular traffic moving in the intended direction, as on an exit road from a super-highway. However, if a vehicle inadvertently enters the exit road, it serves as a low barrier curb which visually warns the driver of such vehicle and if struck by the vehicle forcibly directs attention to the danger. The impact of the vehicle against such curb may be used to actuate a warning signal.

3,830,583

COMPOSITE EXPANSION JOINT ASSEMBLY

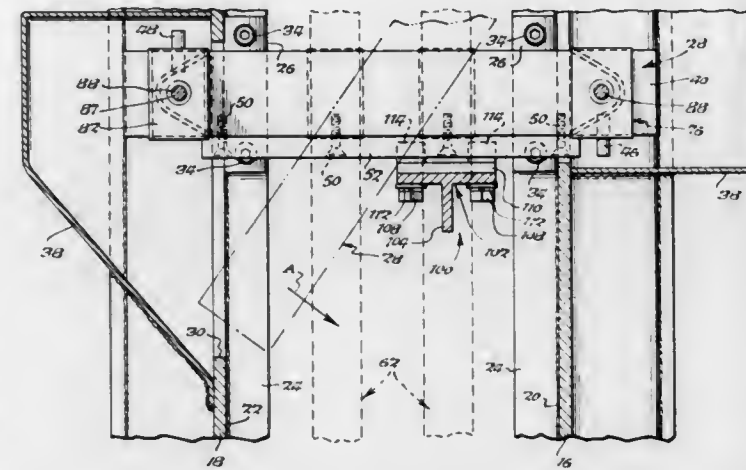
H. Allen Becht, Williamsville, N.Y.; James Campbell, Hamilton, Ontario, Canada; James J. Kerschner, Kenmore, and Edward J. Krollman, Boston, both of N.Y., assignors to Acme Highway Products Corporation, Buffalo, N.Y.

Filed Mar. 9, 1973, Ser. No. 339,572

Int. Cl. E01c 11/02

U.S. Cl. 404—69

15 Claims



A composite expansion joint assembly of alternating elastic sealing elements and rigid structural members slidably mounted on transversely extending support bars by tie-down assemblies restricting vertical and rotational displacement of the structural members. Retainer assemblies limit vertical displacement of the supporting bars relative to their supports. Means, including leaf springs, equalize lateral movement of the sealing elements during compression and expansion thereof.

3,830,584

TURRET SYSTEM FOR MACHINE TOOL

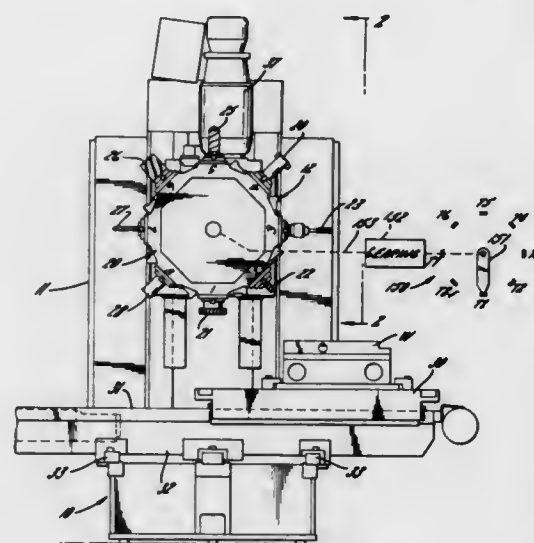
Karl P. Ohlig, Wauconda, and Francis E. Heiberger, Elmhurst, both of Ill., assignors to Onsrud Machine Works, Inc., Niles, Ill.

Filed Dec. 22, 1972, Ser. No. 317,367

Int. Cl. B23b 3/16, 7/04

U.S. Cl. 408—35

20 Claims



A turret system for a machine tool consisting of a positionable frame mounting a rotary turret having spindle assemblies in spaced stations and in which means are provided for driving the spindle in the active station. A reversible turret driving motor is provided with control means for causing any selected turret station to be rotated around into active machining position with continuous and uninterrupted motion and via the shortest path of movement thereby to minimize the time

which is normally wasted between successive machining steps. Means are provided for insuring accurate positioning with a novel arrangement of interlocks to achieve safe and rapid sequencing. Each spindle is of hollow construction having a chuck including an inwardly biased pull rod for seating a tool in working position. An actuator at a reference tool-changing position releases the chuck for substitution of a different tool.

3,830,585

DRILL JIG FOR ROTOR OF ROTARY MECHANISM

Hideo Nakada, and Masao Ishikawa, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima-ken, Japan

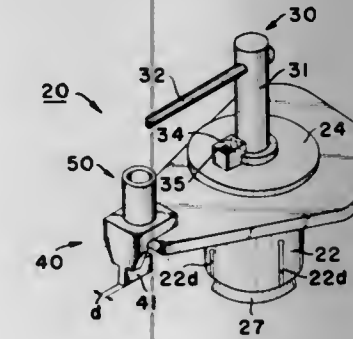
Filed May 17, 1972, Ser. No. 254,096

Claims priority, application Japan, May 18, 1971, 46-40445

Int. Cl. B23b 41/00

U.S. Cl. 408—79

10 Claims



A drill jig for use in holding a rotor of a rotary mechanism in position adjacent a cutter drill when it is intended to bore or widen again a corner seal bore which has been eccentrically worn after use. The body of the jig is secured to the inner peripheral wall of the rotor for chucking the same in a proper position with respect to the rotor axis, and the center line of an apex seal groove is located and employed to correctly index the center line of the corner seal bore to be widened. Thus, the guidance of the cutter drill is carried out with its center line being located to fall substantially in a common plane shared between the rotor axis and the located center line of the apex seal groove and being spaced at a proper distance from and in parallel with the rotor axis. By use of this jig the worn corner seal member can be reshaped into a new member of slightly increased cross section making it possible to reuse the rotor as a whole without disposal of the expensive rotor proper.

3,830,586

TOOL ADJUSTMENT CAPSULE

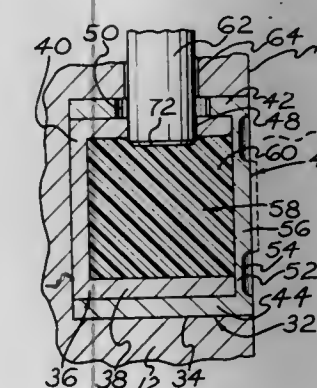
David J. Trevarrow, Horton, Mich., assignor to Shrader Machine & Tool, Inc., Jackson, Mich.

Filed Aug. 7, 1972, Ser. No. 278,209

Int. Cl. B23b 29/14

U.S. Cl. 408—153

13 Claims



A device for very accurately adjusting a cutting tool mounted upon a tool holder, such as a turning or boring tool,

wherein the adjustment device is in the form of a capsule mounted upon the tool holder. The capsule contains a relatively incompressible pressure transmitting medium such as an elastomer, and a wall of the capsule is deformable against the tool so as to deflect the tool for adjustment purposes upon the force transmitting medium being pressurized by an actuating pin mounted upon the tool holder. The actuating pin is operated by a screw received within a threaded bore. A plurality of actuating pins of different transverse cross-sectional area may be employed for rapid and fine adjustment purposes and the deformable wall is of a variable wall thickness to produce a generally uniform deformation of the deformable wall. An embodiment of capsule is disclosed having a threaded body for major adjustment purposes.

3,830,587

AXIAL FLOW FAN ASSEMBLY

Kelly V. Shipes, and Robert C. Monroe, both of Houston, Tex., assignors to Hudson Products Corporation, Houston, Tex.

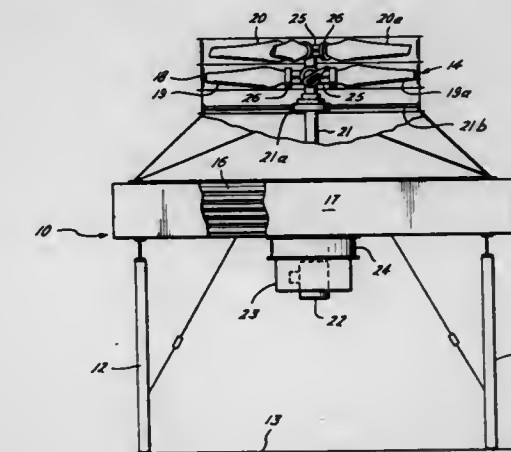
Continuation of Ser. No. 209,923, Dec. 20, 1971, abandoned.

This application Oct. 23, 1973, Ser. No. 408,394

Int. Cl. F04d 29/36, 29/18

U.S. Cl. 415—130

3 Claims



An axial flow fan assembly in which two or more fans in series provide successive fan stages which are close together and in which the average pitch angle of the blades of one stage differs appreciable from that of the blades of a previous stage.

3,830,588

HELICOPTER ROTOR PLENUM CHAMBER

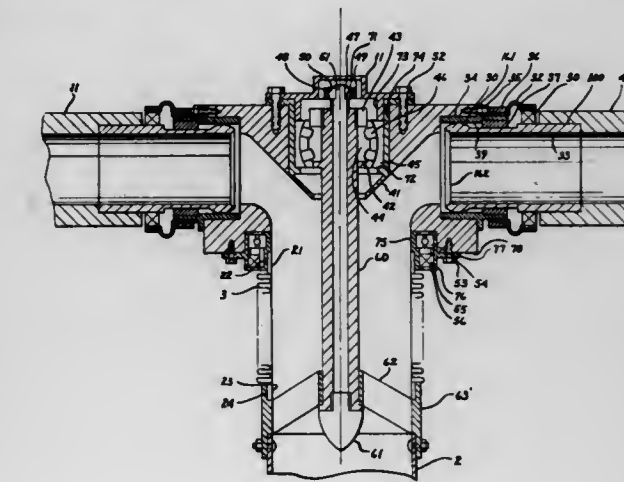
Bruno A. Nagler, Scottsdale, Ariz., assignor to Nagler Aircraft Corporation, Phoenix, Ariz.

Filed Mar. 27, 1972, Ser. No. 238,393

Int. Cl. B64c 27/18

U.S. Cl. 416—20

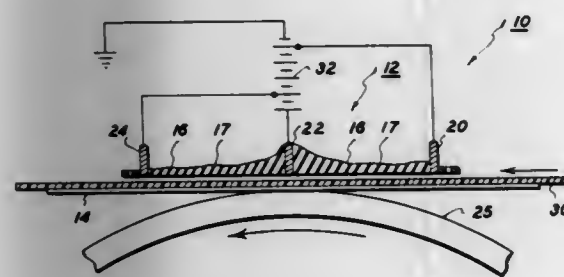
10 Claims



A helicopter rotor hub is disclosed for transporting a flow of air from within the rotor to hollow sections within each of the

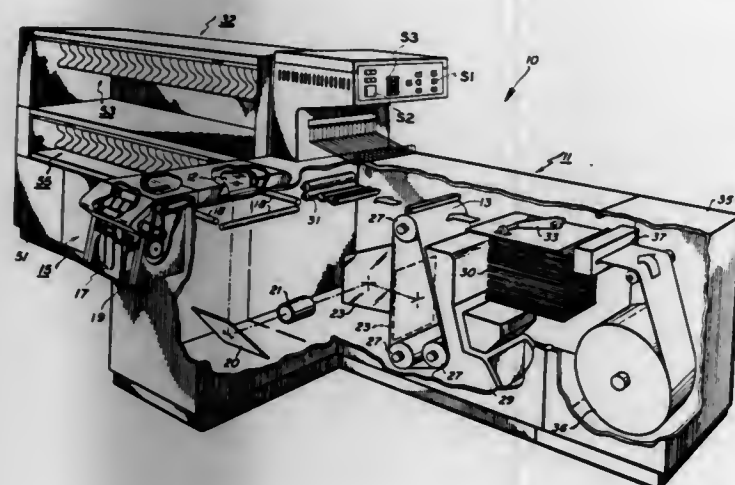
rotor blades. A hollow rotor shaft, connected to an air compressor within the helicopter, conveys a flow of air through the rotor shaft to the rotor hub. The flow of air is discharged through a nozzle disposed at the trailing edge on the tip of the blade. The reaction force exerted by the discharging flow of air causes the rotor blade to rotate about the hub.

3,830,589
CONDUCTIVE BLOCK TRANSFER SYSTEM
 Walter C. Allen, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.
 Filed Dec. 3, 1973, Ser. No. 421,178
 Int. Cl. G03g 15/00, 15/16
 U.S. Cl. 355—3 R 10 Claims



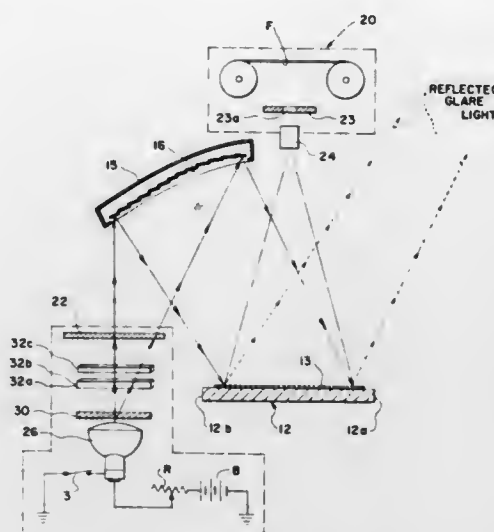
An electrostatographic copying system in which an image is formed on an imaging surface and transferred with electrical transfer fields at a transfer station to a copy sheet, where the copy sheet is preferably transported through the transfer station on a belt. The transfer fields are generated by a variable thickness, irregularly resistive block containing spaced electrode conductors. The conductors are variably biased to effect tailored transfer fields.

3,830,590
SORTER APPARATUS OF PRINTER SYSTEM
 Halbert M. Harris, Webster, and Bhogilal M. Modi, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.
 Continuation of Ser. No. 198,725, Nov. 15, 1971, abandoned.
 This application Dec. 4, 1972, Ser. No. 312,250
 Int. Cl. G03g 15/00
 U.S. Cl. 355—14 14 Claims



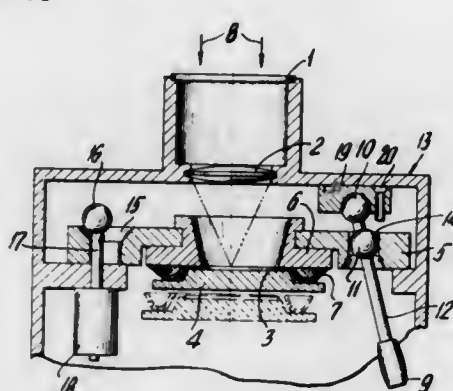
An improved copying system where documents are fed to the copier input station, copied a number of times equal to the number of bins in each section of the collator or the number of collated sets required, whichever is smaller, fed from the copier to one section of the collator and upon copying of all documents in the document tray repeating the copying of each document and switching the transporting of documents from the copier to a different section of the collator.

3,830,591
ILLUMINATION APPARATUS
 Richard Edmund Albrecht, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
 Filed May 4, 1973, Ser. No. 357,293
 Int. Cl. G03b 27/76
 U.S. Cl. 355—71 2 Claims



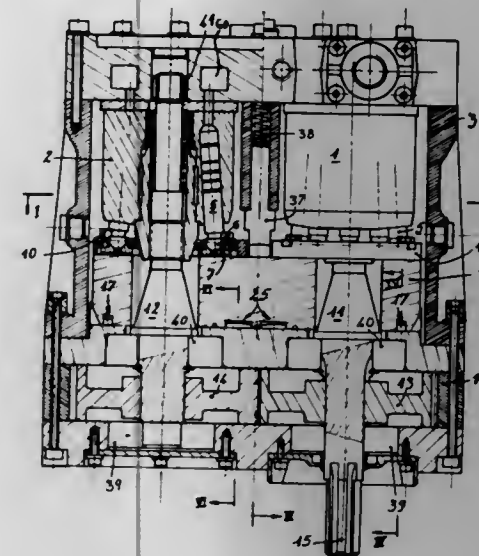
For use in a document reproducing apparatus such as a planetary microfilmer, apparatus is disclosed which compensates for $\cos^2\theta$ light intensity fall-off of an illuminated document as projected by an objective lens to thereby produce a uniform exposure of an image of the document to be photographed. The apparatus includes a source of illumination, a light reflecting surface for reflecting light from the source off a document to be photographed to vary the intensity of illumination of the document in a first direction along the document to compensate for $\cos^2\theta$ fall-off in such first direction, and a plurality of spaced light blocking bars disposed relative to the light source to vary the intensity of illumination of the document in a second direction along the document to compensate for $\cos^2\theta$ fall-off in such second direction.

3,830,592
SEMICONDUCTOR WAFER POSITIONING DEVICE
 Nori Kato, Tokyo, and Katsumi Momose, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed Nov. 6, 1972, Ser. No. 304,211
 Claims priority, application Japan, Nov. 8, 1971, 46-103255
 Int. Cl. G03b 27/60
 U.S. Cl. 355—73 9 Claims



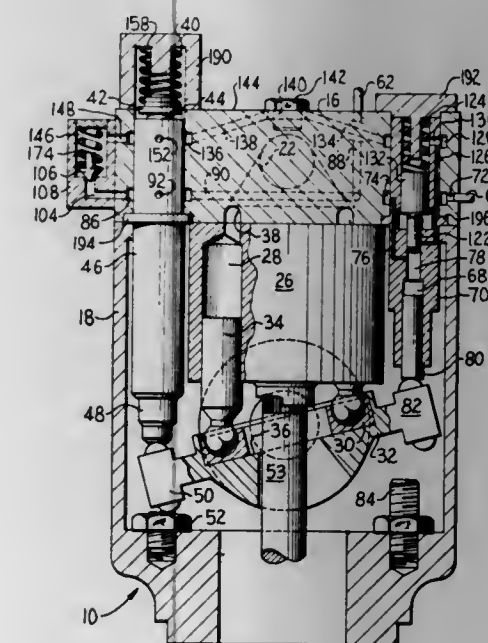
A printing device for printing a pattern on a semiconductor wafer comprising means for holding a photomask carrying the printing pattern, a printing light source, stage means for supporting the semiconductor wafer, and means for adjusting the relative position between said photomask-holding means and said stage means, said means having a self-centering means including reciprocating means which positions the photomask-holding means and stage means relative to each other in a predetermined position.

3,830,593
HYDRAULIC PUMPS WITH DOUBLE AXIAL PISTONS
 Roger Chanal, Saint-Etienne, France, assignor to Etablissements BENNES MARREL, Loire, France
 Filed Feb. 19, 1969, Ser. No. 800,588
 Claims priority, application France, July 8, 1968, 68.50192
 Int. Cl. F04b 23/64
 U.S. Cl. 417—203 5 Claims



Two swash plate pumps each of which are provided with axially directed piston chambers and pistons, are provided in a common housing in operative engagement with a single swash plate. The two pumps are driven synchronously by two meshing gears which in turn are driven from a single input power source. The two meshing gears cooperate with the housing to provide a low pressure feed pump for the two high pressure swash plate pumps. Each swash plate pump is arranged to supply an independent circuit and a common power regulator is operably connected to each pump output to control the position of the swash plate in response to the output pressure.

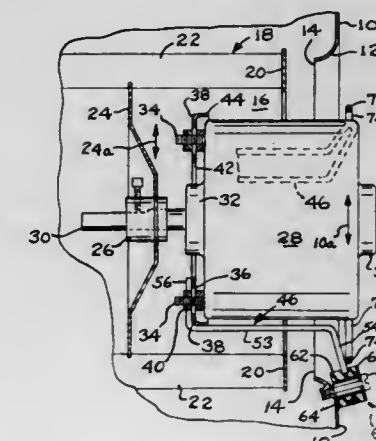
3,830,594
VARIABLE DISPLACEMENT PUMP HAVING PRESSURE COMPENSATOR CONTROL METHOD
 Allyn J. Hein, Joliet; William B. Norick, Dunlap; Walter Z. Ruseff, New Lenox, and Gilber Tribbley, Joliet, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
 Continuation of Ser. No. 157,535, June 28, 1971. This application June 25, 1973, Ser. No. 373,612
 Int. Cl. F04b 21/00
 U.S. Cl. 417—217 10 Claims



A variable displacement pump of the type having a plurality of rotatable, axially-aligned pistons guided by a pivotal swash

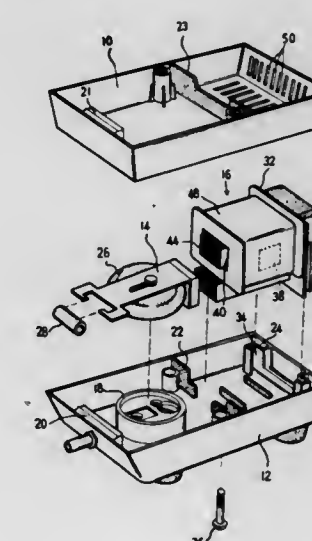
plate for enabling adjustment of displacement and also having a variable cutoff pressure compensator control means whereby the swash plate is variably shifted to its minimum displacement position so as to achieve a variable cutoff of pump flow. The pressure compensator control means also shifts the swash plate to its minimum displacement position when a predetermined maximum pressure is reached or when the pump load is in a neutral condition, thereby curtailing heat generation and horsepower loss.

3,830,595
MOTOR MOUNTING SUPPORT
 Charlie P. Carpenter, and Robert A. Zeller, both of Elyria, Ohio, assignors to The Tappan Company, Mansfield, Ohio
 Filed Aug. 16, 1972, Ser. No. 281,130
 Int. Cl. F16f 15/00; H02k 5/24
 U.S. Cl. 417—363 3 Claims



A centrifugal blower having a cantilever support structure for positioning the fan motor within the interior of the fan wheel. The support includes cantilever arms extending through the housing inlet opening to connections with a motor base plate located between the fan back plate and motor. Special tie rods are provided between the cantilever arms, whereby each arm cooperates with the others to resist tilt or wobble forces.

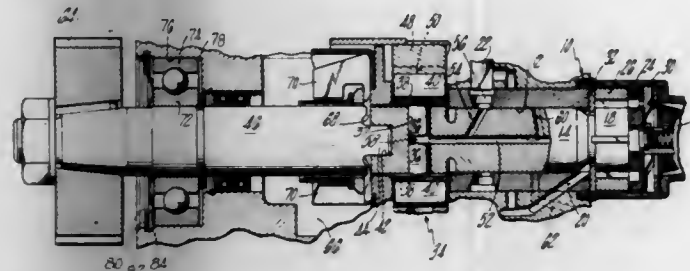
3,830,596
AIR PUMP
 Ryozi Kondo, 19-5 Ikegami 1-chome, Tokyo, Japan
 Filed Jan. 18, 1973, Ser. No. 324,649
 Claims priority, application Japan, Jan. 18, 1972, 47-7756
 U.S. Cl. 417—413 4 Claims



A vibrator air pump for blowing air bubbles into an aquarium by a pumping action of a bellows connected to a vibratory armature actuated by an A. C. electromagnet. The electromagnet and the vibratory armature are respectively

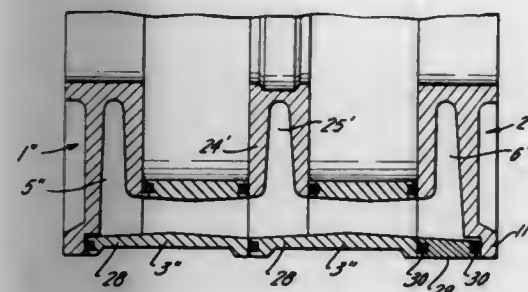
disposed in a separate chamber divided by partition walls, and the electromagnet has air passages and the chamber where the electromagnet is positioned can be ventilated to cool the electromagnet.

3,830,597
FUEL PUMP AND DRIVE THEREFOR
 Kenneth Joseph Donahue, Broad Brook, Conn., assignor to Stanadyne, Inc., Hartford, Conn.
 Filed Apr. 24, 1972, Ser. No. 246,755
 Int. Cl. F04b 19/02
 U.S. Cl. 417-462 1 Claim



An inlet metering fuel injection pump for pressurizing metered charge of fuel to high pressure is provided with an independent helical gear driven drive shaft having its drive connection with the distributor rotor disposed concentrically with the governor flyweights. The shaft is mounted by a ball bearing received within a deep bearing recess of the housing in which the bearing cannot bottom. The bearing is axially fixed to the shaft and is axially slidable in the bearing recess. A wave washer engages the outer race to bias the shaft toward the distributor rotor to prevent axial oscillations of the shaft and the resultant pumping and pressure pulsations in the fuel which fills the pump housing as torsional loading on the shaft suddenly changes. This eliminates any instability of operation due to to-and-fro flow of fuel past the governor weights and pulsations of pressure acting on the plungers of the charge pump.

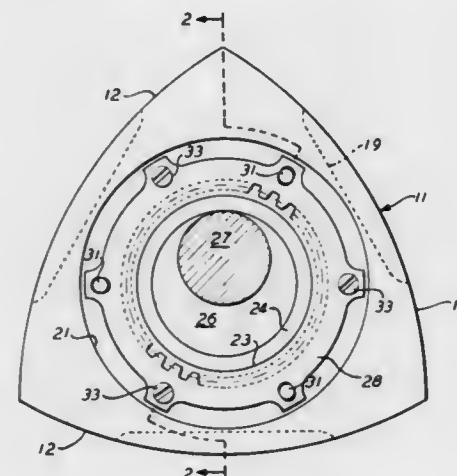
3,830,598
HOUSINGS FOR ROTARY COMBUSTION ENGINES
 Max Ruf, Obereisesheim, Germany, assignor to Audi Nsu Auto Union Aktiengesellschaft, Neckarsulm and Wankel G.m.b.H., Lindau, Bodensee, both of Germany
 Filed Jan. 5, 1973, Ser. No. 321,286
 Claims priority, application Germany, Jan. 15, 1972, 2201886
 Int. Cl. F01c 21/06; B23p 15/00; B22d 27/10
 U.S. Cl. 418-60 6 Claims



Die-cast housings for rotary combustion engines of the trochoidal type, having parallel side plates spaced apart by an annular peripheral shell, the side plates being double-walled and having the exterior wall of greater radial extent than the inner wall with internal coolant passages therebetween opening generally radially outwardly, the peripheral shell also being double-walled and having the exterior wall of greater axial extent than the inner wall and having axial internal coolant passages therebetween, the axial extensions of the peripheral shell abutting the radial extensions of the side

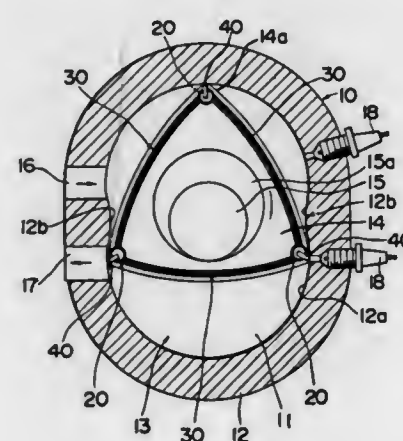
plates and thereby placing the passages of the shell in communication with those of the side plates, the side plates being rendered suitable for pressure die-casting by reason of the radial openings of their passages.

3,830,599
ROTOR AND GEAR ASSEMBLY FOR ROTARY MECHANISMS
 Arthur G. Poehlman, West Bend, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.
 Filed June 25, 1973, Ser. No. 373,516
 Int. Cl. F04c 1/02
 U.S. Cl. 418-61 A 13 Claims



An improved rotor and gear assembly for rotary mechanisms of the trochoidal type, in which a rotor having a central bore is mounted for rotation on a shaft, with a bearing between the rotor bore and the journal portion of the shaft. An internally toothed ring gear is secured to a side face of the rotor for engagement with a stationary spur gear to maintain phasing between the rotor and its trochoidal housing during the planetary and rotary motion of the rotor within the housing. The ring gear is mounted on the rotor in such a manner as to maintain concentricity therewith while permitting differences in thermal expansion between the materials of the rotor and the gear, and without imposing stress on the mounting means or the bearing without causing distortion in the gear or the rotor.

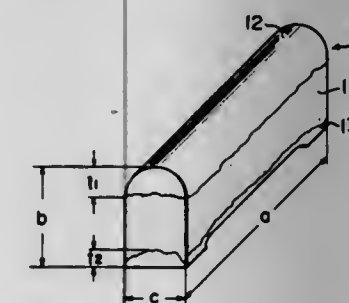
3,830,600
ROTOR PISTON SEALING ARRANGEMENT
 Masaharu Shimoji, and Hideo Shiraishi, both of Hiroshima-ken, Japan, assignors to Toyo Kogyo Co. Ltd., Fuchu-cho, Aki-gun, Hiroshima-ken, Japan
 Filed Aug. 28, 1972, Ser. No. 284,114
 Int. Cl. F04f 1/18
 U.S. Cl. 418-113 4 Claims



A sealing arrangement for use in a rotary piston engine employing a double sealing system for maintaining each one of

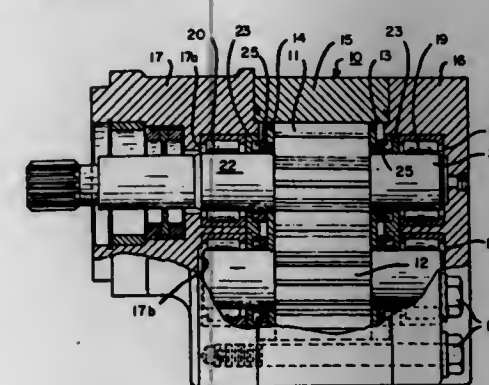
the working chambers, conditioned in the intake, compression, power and exhaust strokes, respectively, in a gas-tight condition within the engine housing structure. To this end, the rotary piston capable of undergoing planetary motion within the engine housing structure for producing a power through a power output shaft is provided with at least three apex seals on piston lobes of the rotary piston, double corner seals provided on each end face of the rotary piston adjacent to the piston lobes and double side seals each extending between one of the double corner seals to another.

3,830,601
APEX SEALING MEMBER FOR ROTARY PISTON ENGINE
 Ryuichi Yamazaki, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd. and Yoshiwa Kogyo K K, both of Hiroshima-ken, Japan
 Filed Feb. 13, 1973, Ser. No. 332,084
 Claims priority, application Japan, Feb. 17, 1972, 47-17461
 Int. Cl. F04c 15/00, 27/00
 U.S. Cl. 418-113 3 Claims



Herein disclosed is a three-layered apex sealing member for use with an internal combustion engine of rotary type. The apex sealing member is made of cast iron but composed of an upper portion having a chilled structure and formed with a sliding top surface for sliding engagement with the inner peripheral surface of the engine housing, of a lower portion having a chilled structure to be operatively received within the apex seal groove, and of an intermediate portion left unchilled and sandwiched between the upper and lower chilled portions. With these construction arrangement, thermally deforming forces to be exerted on the interfaces between each pair of the chilled and unchilled layers are oppositely directed and accordingly offset, so that an undesirable deformation of the sealing member is substantially eliminated.

3,830,602
ROTARY PUMPS AND MOTORS
 John L. Boop, and Joseph P. Rudinec, both of Youngstown, Ohio, assignors to Commercial Shearing Inc., Youngstown, Ohio
 Filed Mar. 14, 1973, Ser. No. 341,148
 Int. Cl. F04c 15/00
 U.S. Cl. 418-131 10 Claims

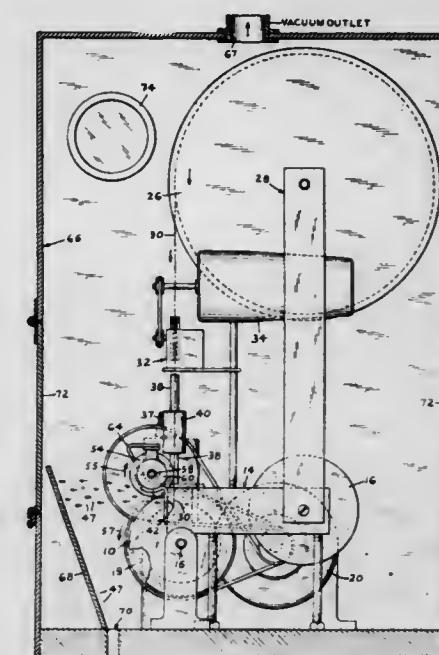


A rotary fluid pump and motor is provided having a rotary impeller with axial stub shafts mounted in bearings at opposite

925 O.G.—35

ends of the impeller, a case enclosing the impeller and bearings, said case including a pair of end covers enclosing said bearings, an annular spacer member in each end cover at each bearing between said bearing and impeller having an axial annular flange extending toward but spaced from said impeller and impeller shaft between said impeller and bearing to form an annular pocket, a piston member in said annular pocket, an end plate against the end of said impeller between said impeller and said case and piston member, a plurality of radial slots in the end covers facing said end plate and a plurality of sealing members, one in each radial slot and bearing on said end plates forming pockets between the end covers and end plates and passage means from one side of the end plate to the other whereby fluid is delivered from the impeller to said pockets to provide balancing pressures on opposite sides of the plate and behind said piston member urging the same axially toward the impeller.

3,830,603
APPARATUS FOR PRODUCTION OF METAL POWDER FROM WIRE STOCK
 Joseph T. Blucher, Waltham, Mass., and Donald D. Dalrymple, North Warren, Pa., assignors to Industrial Materials Technology, Incorporated, Woburn, Mass.
 Filed Mar. 22, 1973, Ser. No. 344,040
 Int. Cl. B22d 23/08; B23c 23/00
 U.S. Cl. 425-3 7 Claims



Small particles of metal, such as those used in making powder metal compacts, are produced by feeding the end of a metal wire or rod against the edge of a rotating disc and causing a direct electrical current to flow through the wire and disc. This melts the end of the wire and also creates a magnetic field about the wire. The rotation of the disc breaks the electrical contact and forms an arc which causes additional melting of the wire. Contact between the wire and disc takes place within a second electromagnetic field. Continuously advancing the end of the wire causes the intermittent making and breaking of electrical contact. The interaction of the two magnetic fields causes the molten particles to be removed from the area of contact. Means are provided for cooling and collecting the metal particles and for preventing the accumulation of solidified metal particles on the electromagnet or the rotating disc. Vacuum conditions may be used, thus producing a powder of high purity.

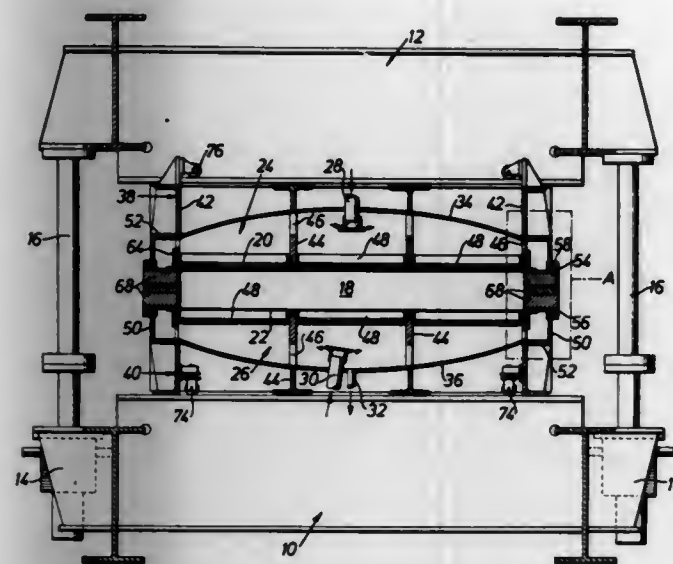
3,830,604
APPARATUS FOR PRODUCING CONTINUOUS STRANDS
OF THERMOPLASTIC MATERIAL

Heikki Korpela, Katrineholm, Sweden, assignor to Gullfiber, A. B., Billsholm, Sweden

Filed Nov. 15, 1972, Ser. No. 306,857
 Claims priority, application Sweden, Dec. 7, 1971, 15501/71
 Int. Cl. B29d 27/00

U.S. Cl. 425-4 C

2 Claims



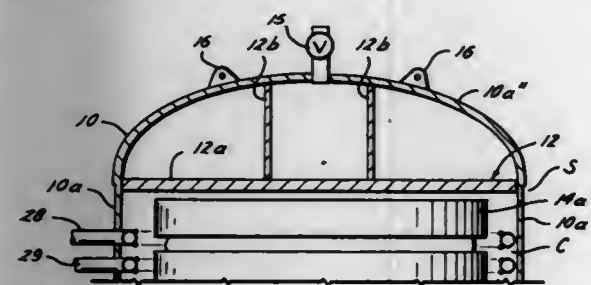
A machine for continuous production of a strand of porous thermoplastic material from expandable, pre-expanded granules of said material by additional expansion and agglutination in a channel open at both ends and defined between opposed horizontal portions of two endless belts movable along closed paths under the action of heat from separate heating boxes adjacent said belt portions. To vary the height of the channel and therewith that of the strand advanced therethrough, the spacing between the opposed defining belt portions is variable. For rendering possible any desired variation of said spacing with as short break of operation as possible, the heating boxes project outside the belt portions and are here sealed from one another and from the sides of the channel between the belt portions by primary beams rigidly secured to the heating boxes and secondary beams exchangeably interposed between the primary beams. The secondary beams have varying height dimensions preferably according to a predetermined module permitting to assemble them to any desired height of the channel. The assembled beams form an interior face in the same vertical plane and their interior surfaces are preferably covered with a layer of friction reducing material.

3,830,605
VULCANIZING DEVICE
 Raymond E. Pechacek, Houston, Tex., assignor to Hahn & Clay, Houston, Tex.

Filed Apr. 12, 1973, Ser. No. 350,617
 Int. Cl. B29h 5/02, 5/08

U.S. Cl. 425-28 R

13 Claims



A self-contained vulcanizing device including a vulcanizing vessel having mounted therein a fixed upper platen and a

movable lower platen to receive a mold therebetween, the lower platen being movable to a clamped position by a piston mounted within the vessel and powered by fluid under pressure.

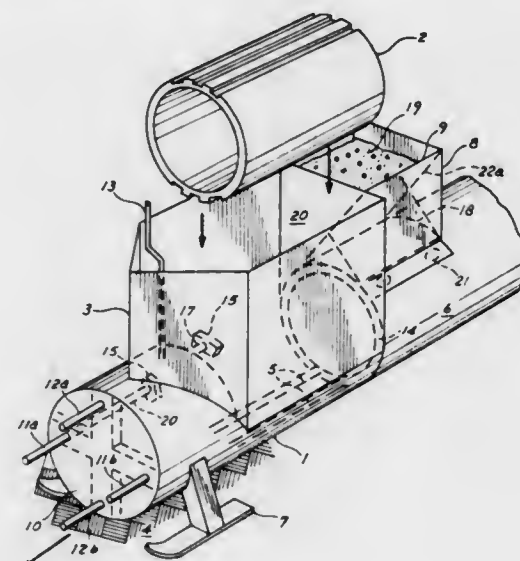
3,830,606
APPARATUS FOR INSTALLING UNDERGROUND
PIPELINES

Thomas K. Breitfuss, 17541 Orange Tree Ln., Tustin, Calif. 92680

Filed May 3, 1972, Ser. No. 249,968
 Int. Cl. E03f 3/06

U.S. Cl. 425-59

20 Claims



An apparatus and method are disclosed for installing preformed pipe sections or for manufacturing in place composite pipelines and reinforced and non-reinforced cast in place pipelines. The apparatus includes means for handling the components which consist of rigid pipe sections, cores or forms and flowable backpacking material such as soil, soil-cement or concrete. The apparatus serves as a protective shield and may be self-propelled. It has optional means of articulation; of lateral and vertical guidance; of installing variable walled core components and of adjusting hopper components to place backfill material on either or both sides or around inner components. Methods are disclosed for manufacturing and installing such pipelines in either narrow or wide trenches or on flat surfaces and of forming all of these pipelines in a continuous, semi-automated fashion.

The apparatus includes receptacle and backpacking portions in combination to receive and position the inner pipe sections or core forms and to distribute and trowel flowable backpacking-ballasting material on the sides, bottom and/or top of the inner units as the apparatus is propelled by reaction of rams against these inner units.

3,830,607
APPARATUS FOR COMPACTING MATERIAL
 Kenneth C. Baxendale, Macedon; Werner E. Bergemann, Brighton; David B. Camp, Irondequoit; John L. Evershed, Webster; Mason M. Howlett, Penfield, and Robert A. Waasdorp, Fairport, all of N.Y., assignors to The Gleason Works, Rochester, N.Y.

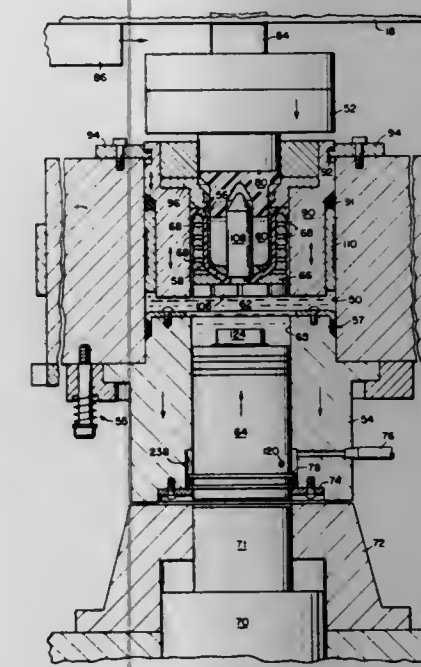
Filed Jan. 5, 1973, Ser. No. 321,438
 Int. Cl. B30b 5/02, 15/16, 11/00

U.S. Cl. 425-78

19 Claims

An improved apparatus for applying a relatively uniformly distributed pressure to a quantity of compactible material, such as a ferrous metal powder, is described. The apparatus includes an essentially self-contained isostatic system within a pressure vessel, and there is no requirement for injection of a high pressure fluid into the pressure vessel from an external source. A deformable mold means is suspended within the

pressure vessel by a support means arranged to be free to move for a limited distance within the pressure vessel during a pressurization of the chamber within the vessel. The apparatus includes means for filling the deformable mold means with the compactible material together with means for closing the



chamber of the pressure vessel in which the deformable mold means is inserted so as to allow a relatively high compacting pressure to be applied to the material without producing unwanted stresses or design variation in the final product to be produced.

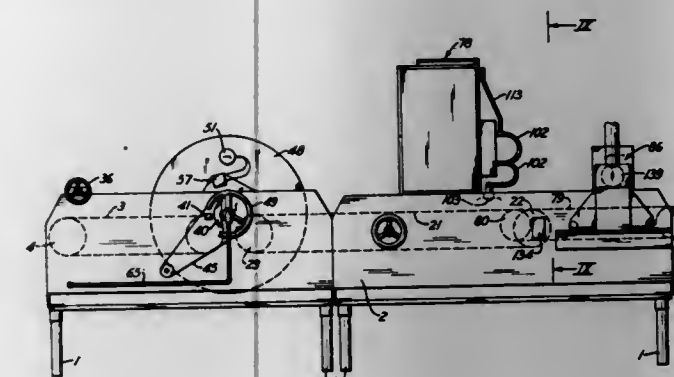
3,830,608
AUTOMATIC MACHINE FOR GREASING BAKERY PANS
AND DEPOSITING BATTER THEREIN

Anthony Sebastian, Pittsburgh, Pa., assignor to Mallet & Co., Inc., Carnegie, Pa.

Filed Dec. 30, 1971, Ser. No. 213,875
 Int. Cl. A21c 9/00

U.S. Cl. 425-103

10 Claims



A bakery machine receives inverted multi-cavity bakery pans, turns them right side up, carries them beneath a pan greasing unit and then deposits batter in the pan cavities. The inverted pans are gripped by their ends and carried in a circular path in a vertical plane to turn them over. Grease is sprayed downwardly into the pans only when their cavities are beneath the grease nozzles. Measured amounts of batter are delivered at uniform intervals to the greased cavities.

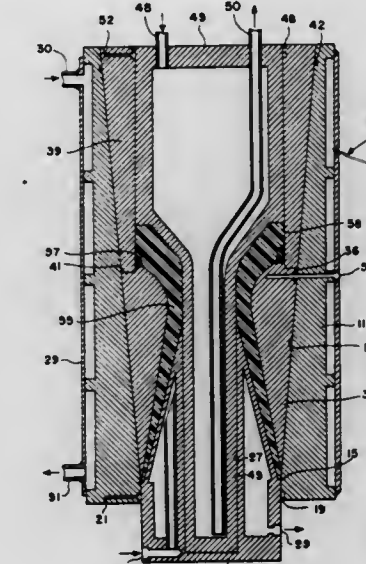
3,830,609
MOLDING APPARATUS

Wilbur C. Heier, Hampton, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 198,763, Nov. 15, 1971. This application Apr. 11, 1973, Ser. No. 350,300
 Int. Cl. B29d 23/08

U.S. Cl. 425-128

5 Claims



Apparatus for compression molding of thermosetting plastics compositions including interfitted hollow male and female components adapted to be compressed to form a rocket nozzle in a cavity therebetween. A thermal jacket is provided exteriorly adjacent the female component for circulating a thermal transfer fluid therethrough to effect curing of a thermosetting plastics material being molded and each of the male and female components being provided with suitable inlets and outlets for circulating a thermal transfer fluid therethrough.

3,830,610
APPARATUS FOR FORMING RUBBER PRODUCTS SUCH
AS A TREAD RUBBER BY EXTRUSION

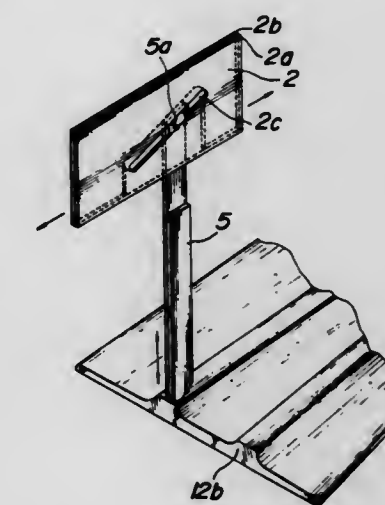
Shunjiro Ohkawa; Yoshihiro Yatabe; Tetsuo Mizuno, and Takeshi Matsumura, all of Tokyo, Japan, assignors to Bridgestone Tire Company, Tokyo, Japan

Division of Ser. No. 210,517, Dec. 21, 1971, abandoned. This application Oct. 24, 1973, Ser. No. 409,157

Claims priority, application Japan, Dec. 23, 1970, 45-116,272
 Int. Cl. B29f 3/04

U.S. Cl. 425-141

8 Claims



An apparatus for forming rubber products such as a tread rubber by extrusion in which rubber is extruded through an extruding die opening which is formed by the lower edge of an

upper slidable thin sheet shaped die piece and the upper edge of a lower plate shaped die piece. The upper slidable thin sheet shaped die piece is constructed by laminating a number of sheet units side by side and each sheet unit consists of an elongated thin sheet piece adapted to be moved in a transverse direction and having at its center portion an inclined groove and of a thin sheet die piece arranged perpendicular to said elongated thin sheet piece and provided at its upper end with a latch portion engaged in said inclined groove. The configuration of the extruding die opening is adjusted to a given configuration by moving upwards and downwards each sheet unit consisting of the upper thin sheet shaped die piece. The configuration of the rubber products extruded through the extruding die opening is adjusted by measuring the configuration and then comparing the measured results with a standard configuration. The adjusting operation is automatically effected under an electronic program using a tape or card punched with holes corresponding to die openings which are similar in contour to given extruding die openings and coded into a program.

3,830,611

APPARATUS FOR MATCHED-MOLD THERMO-FORMING

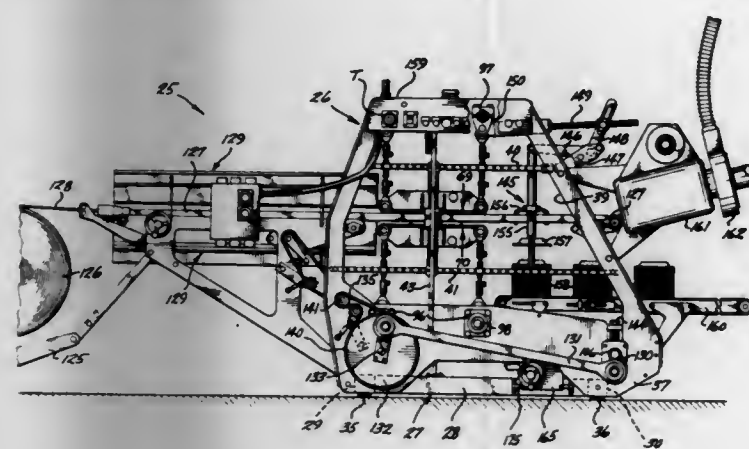
Jere F. Irwin, 1702 S. 24th Ave., Yakima, Wash. 98902

Filed July 25, 1972, Ser. No. 274,843

Int. Cl. B29c 3/06

U.S. Cl. 425—144

2 Claims



The method provides matched molds in superimposed relation, cyclically reciprocating vertically each of said molds relative to the other, to first mold a product in a continuous web of heated thermo-plastic material fed cyclically between said molds, halting each cycle just short of its reaching the point of maximum proximity between said molds to allow the material adjacent the periphery of said product to cool prior to performing the trim step, starting the next following cycle with the trim step, the latter being accomplished by continuing the approach of said molds to the point of their maximum proximity, said product being left connected to the web by easily broken tabs and punching the product from the web at a stacking station during a succeeding cycle.

The apparatus embodies a double action automatic press including parallel vertical side frames rigidly united with each other and with a tripod supported base. A pair of massive vertical guide posts fixed at upper and lower ends to inner faces of said frames, vertically guide upper and lower tooling mounting platens, each platen being connected by four adjustable links to arms on one of two pair of rocker shafts, one such pair being above the upper platen, the other pair being below the lower platen. Outside one side frame, short arms are fixed on the upper pair of rocker shafts and double armed bell cranks are fixed on the lower pair of rocker shafts, each of the bell cranks having a long arm and a short arm. A pair of long links connect upper and lower outside short arms and a third link connects said long arms. A pitman connects one of said long bell crank arms to a crank arm fixed on one end of a transversely journaled crank shaft at the forward end of the

press. A base mounted constant speed motor is connected through a variable speed transmission and an electro-air controlled clutch brake mechanism to a reduction gear box which is interposed in a gap in said crank shaft and directly drives the latter. Each revolution of the drive shaft accomplishes one production cycle of the press. A separate control device determines at what point in the production each cycle ends to provide a cooling "dwell" between cycles so that the trim step takes place at the beginning of each cycle, thereby improving the product.

A cyclic web feeder and heater is provided on and driven by the press. The tooling employed in the press leaves the product lightly connected with the scrap of the web following each trimming step by several oppositely disposed transfer tabs which may readily be broken by a punching operation when the product arrives at a stacking station. The press embodies and automatically drives a product punch for accomplishing this function. A product stack conveyor receives products thus punched from the web and automatically discharges product stacks of predetermined quantity. A scrap chopper disposes of the scrap left in the web. The press also includes separate means manually operable while the press is running to vary the time period of the cooling dwell and also to vary the distance, short of reaching the point of maximum proximity between the platens, at which each operating cycle concludes.

3,830,612

SEGMENTED BRIQUETTING ROLL STRUCTURE

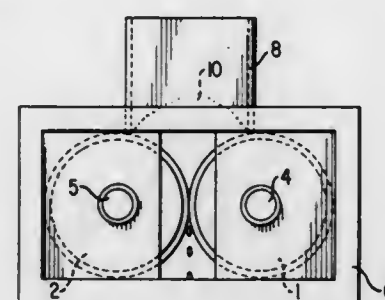
Karl R. Komarek, Chicago, Ill., assignor to K. R. Komarek Inc., Elk Grove Village, Ill.

Filed Mar. 5, 1973, Ser. No. 338,272

Int. Cl. B29c 3/02

U.S. Cl. 425—194

12 Claims



A briquetting press roll comprising a roll frame which retains a plurality of replaceable mold segments. The mold segments have a top working surface of a hard, highly wear-resistant material and a bottom surface opposite the top surface. Two opposite side walls connect the top working surface and the bottom surface, which side walls diverge with respect to each other from the bottom surface. Two opposite end walls also connect the top working surface and the bottom surface. The end walls include means for detachably connecting the mold segments to the briquetting roll frame and for restraining the segments for movement relative to the frame during briquetting operations.

3,830,613

INJECTION MOLDING APPARATUS WITH HORIZONTALLY RECIPROCAL MOLDS AND VERTICALLY ACTING CLAMPING MEANS

Katashi Aoki, 6037 Oaza Minamijo, Sakaki-machi, Japan

Division of Ser. No. 94,662, Dec. 3, 1970, abandoned. This

application May 23, 1973, Ser. No. 363,296

Claims priority, application Japan, Dec. 9, 1969, 44-98519;

Mar. 25, 1970, 45-24628

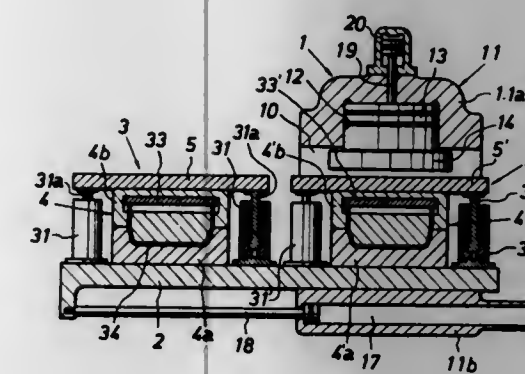
Int. Cl. B29c 1/16

U.S. Cl. 425—246

4 Claims

The apparatus generally comprising a mold clamping device including a mold clamping ram vertically operable toward a

mold receiving chamber, an injection nozzle directed into the mold receiving chamber, and one or more metal molds each provided with a mold opening-and-closing device and mounted on a horizontally reciprocable plate entering into and retracting out of the mold receiving chamber, and the process is so organized that when one of the metal mold is transported, in its closed state, into the mold receiving



chamber under a horizontal movement of the reciprocable plate, the mold clamping ram is operated for clamping the metal mold and a plastic material is injected into the mold cavity of the metal mold through the injection nozzle, and when the reciprocable plate moves out to another position, the metal mold thus injected is opened by means of the mold opening-and-closing device and the molded product is delivered.

3,830,614

INJECTION MOLDING MACHINE

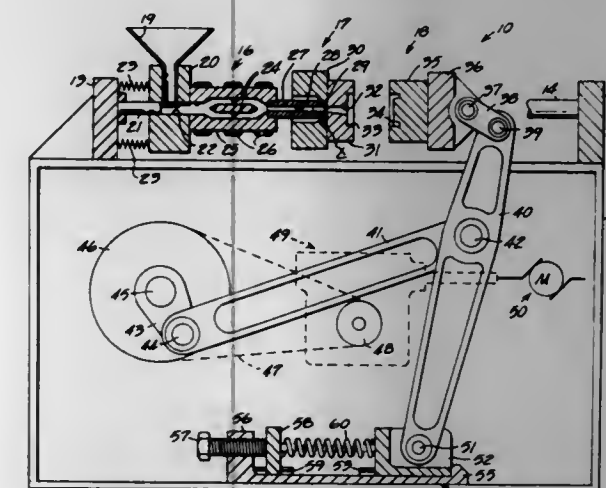
Albert Kurtz, Box 147, Inverness, Calif. 94937

Filed Dec. 1, 1972, Ser. No. 311,273

Int. Cl. B29f 1/06

U.S. Cl. 425—242

20 Claims



An injection molding machine comprises a stationary support having first and second mold parts reciprocally mounted thereon to define a split mold cavity therebetween. The upper end of an actuating lever is pivotally attached to the second mold part whereas the lower end thereof is pivotally attached to a spring-biased slide block. A continuously rotating crank is attached to the lever to reciprocate the second mold part relative to the first mold part during a molding cycle. The spring-biased slide block is pre-adjusted to apply a substantially uniform molding pressure to the mold parts and attendant structures upon rotation of the crank.

3,830,615

PRESS, PARTICULARLY FOR THE MANUFACTURE OF CERAMIC AND REFRACTORY ARTICLES

Ulrico Walchhuetter, Quartiere Fiori Edilnord, Brugherio, Italy

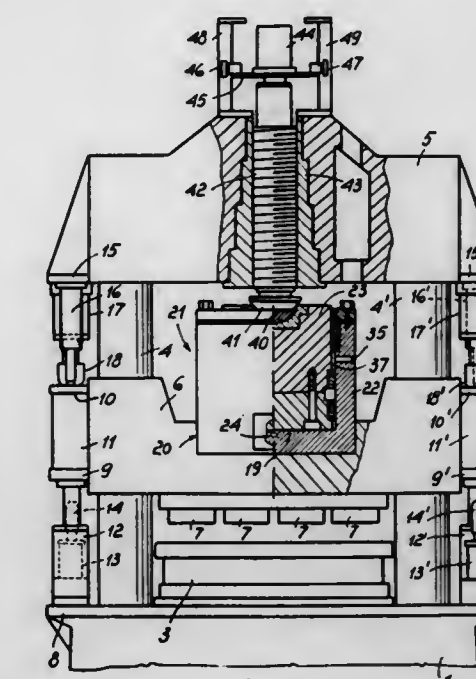
Filed Sept. 1, 1972, Ser. No. 285,864

Claims priority, application Italy, Sept. 2, 1971, 28156/71; May 31, 1972, 25077/72

Int. Cl. B28b 3/02

U.S. Cl. 425—344

16 Claims



A traverse is mounted above a mold for movement vertically toward and away from the same. It carries plungers which can enter into the mold, and a hydraulic unit which can be operated to press the traverse and plungers downwardly against the mold. A mobile abutment is mounted on a stationary support and travels with the traverse to provide a mobile reaction point for the hydraulic unit when the latter with the traverse has reached a lowered position in which the transmission of pressure from the unit to the traverse is required.

3,830,616

MEANS FOR MOLDING ARTICLES OF THERMOPLASTIC SHEET MATERIALS

Carl J. Hawkins, Toledo, Ohio, assignor to Rowe Industries

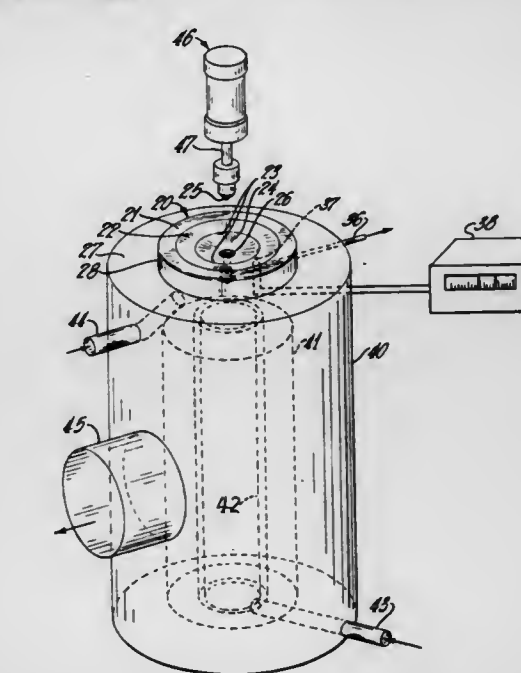
Division of Coleman Cable & Wire Company, Toledo, Ohio

Filed July 3, 1972, Ser. No. 268,879

Int. Cl. B29c 17/04

U.S. Cl. 425—384

7 Claims



Method and apparatus for molding three dimensional articles of thermoplastic sheet material which after molding will

withstand the high temperatures of autoclaving for sterilization in hospital use without distortion. Molding is accomplished by providing a low mass mold made of sheet metal which has low heat sink characteristics and is adapted to providing a high degree of temperature uniformity by being made of substantially uniform thickness high thermal conductivity material heated by convection hot air means for a preselected dwell time with the consequent attainment of thermal stability during formation of the article.

3,830,617

MELT SPINNING APPARATUS

Ronald Bell Coates; Ralph John Basil Marsden; Frederick Arthur Smith, and Gerald Towle, all of Harrogate, England, assignors to Imperial Chemical Industries Limited, Millbank, London, England

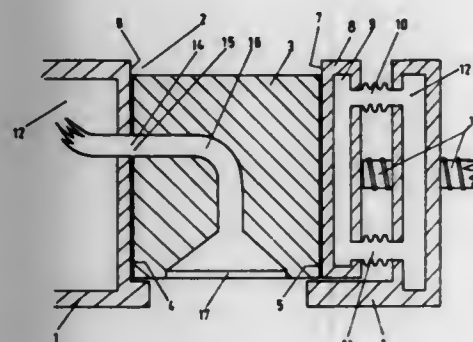
Filed Aug. 28, 1972, Ser. No. 284,376

Claims priority, application Great Britain, Sept. 14, 1971, 42772/71

Int. Cl. D01d 3/00

U.S. Cl. 425—464

4 Claims



Melt-spinning assembly in which opposed heat transfer surfaces of pack are gripped by heat transfer surfaces of setting by relative displacement of the latter surfaces, preferably transversely to the direction of movement of the filaments.

3,830,618

APPARATUS AND METHOD FOR INCREASING THE TEMPERATURE OF AN EFFLUENT BURNER

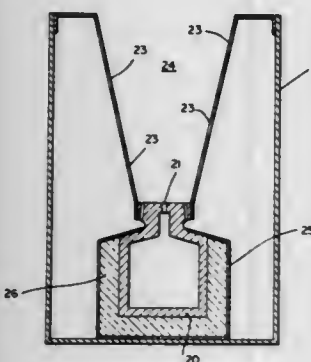
Harold R. Smithson, Westtown; Joseph E. Conroy, Jr., Media, and Cevat Kardan, Huntingdon Valley, all of Pa., assignors to Oxy-Catalyse, Inc., West Chester, Pa.

Filed Nov. 20, 1972, Ser. No. 307,923

Int. Cl. F23d 13/20

U.S. Cl. 431—5

4 Claims



The fuel chamber of the effluent burner is insulated from the surrounding effluent to maintain the temperature of the fuel below its "cracking point." The effluent is heated beyond the cracking point of the natural gas or other fuels prior to burning.

3,830,619

BURNER CONTROL SYSTEM

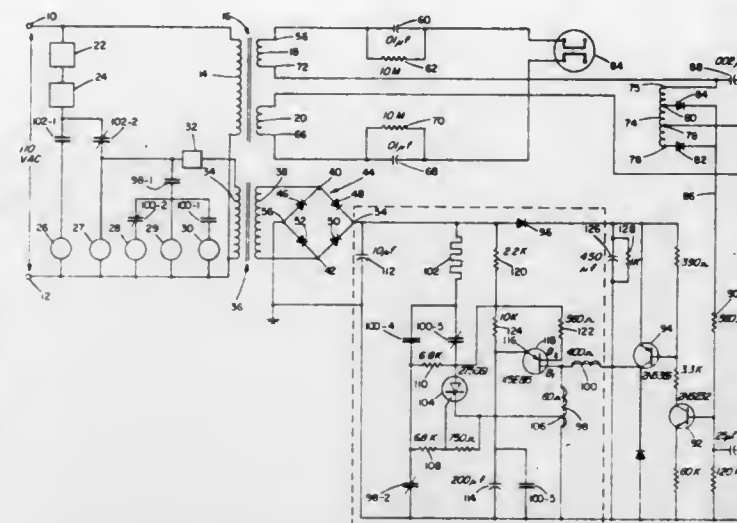
Phillip J. Cade, Winchester, Mass., assignor to Electronics Corporation of America, Cambridge, Mass.

Filed May 4, 1973, Ser. No. 357,457

Int. Cl. F23n 5/00

U.S. Cl. 431—78

14 Claims



A burner control system that locks out for flame failure but recycles to an ignition sequence after a power failure. Recycling can occur even if a flame is momentarily present in the combustion chamber when power is restored, but the system locks out if the flame is not extinguished within a predetermined period of time.

Included in the control system is a control circuit with a lockout switch actuating circuit including a latchable switch means that closes when there is no flame and an energizing signal is applied, remains closed for the duration of the energizing signal, and opens when the signal has terminated. Closing of the latchable switch means is triggered by a control relay, and the control circuit is electrically isolated from greater voltages in the output of a flame sensor, thereby causing the latchable switch means to open at least as soon as the control relay is de-energized when an energizing signal is lost. A circuit to lockout for flame failure or a dangerously long flame persistence after power failure is also provided.

3,830,620

GAS BURNER FOR HEAT-RECOVERY STEAM GENERATOR

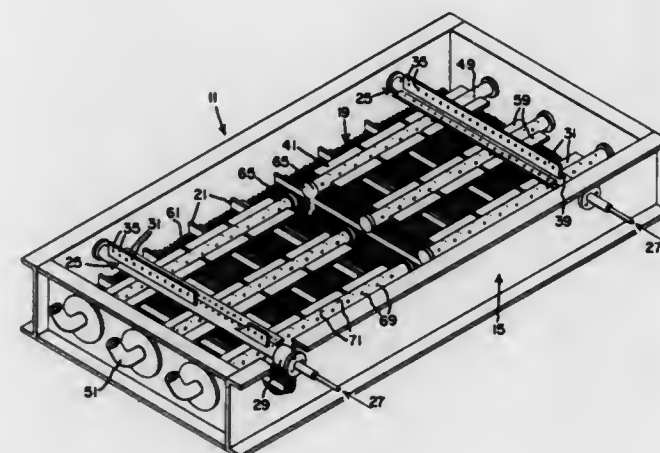
Frederick J. Martin, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 22, 1972, Ser. No. 227,788

Int. Cl. F23d 13/24

U.S. Cl. 431—350

6 Claims



A gas burner comprising a straight main burner pipe with imperforate horizontal wing baffles extending diametrically therefrom. The downstream side of the pipe is formed with a

number of fuel holes. Some fuel is fed directly toward an exhaust gas recirculation pattern while the remaining fuel is distributed laterally of the recirculation pattern toward an up-draft of exhaust gas. A second manifold pipe having a longitudinal row of fuel distribution holes provides uniform fuel distribution in the main pipe.

3,830,621

PROCESS AND APPARATUS FOR EFFECTING EFFICIENT COMBUSTION

Doyle H. Miller, Corpus Christi, Tex., assignor to Electro-Static Magnetic Corporation, Corpus Christi, Tex.

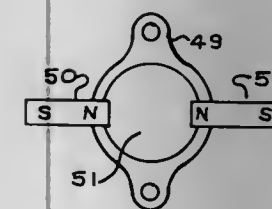
Continuation-in-part of Ser. No. 222,095, Jan. 31, 1972, abandoned, which is a continuation-in-part of Ser. No. 13,136, Feb. 20, 1970, abandoned, which is a continuation-in-part of Ser. Nos. 758,565, Sept. 9, 1968, abandoned, and Ser. No. 731,369, May 21, 1968, abandoned. This application July 23, 1973, Ser. No. 381,431

Int. Cl. F23d 21/00; F02b 75/10; B03c 1/14; F02b 75/12;

B01f 3/20; F02m 27/04

U.S. Cl. 431—356

16 Claims



Means for effecting a more efficient combustion by causing the oxygen fed to the combustion zone to be in a south pole magnetic state.

3,830,622

METHOD AND APPARATUS FOR BRAZING ALUMINUM AND ITS ALLOYS WITHIN A VACUUM HEATING FURNACE

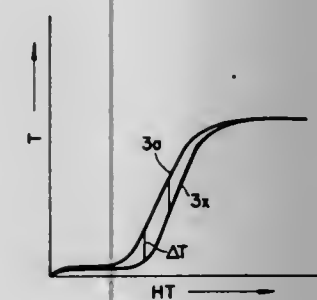
Kazuo Hosoi, Tokyo, Japan, assignor to Japan Oxygen Co., Ltd., Minato-ku, Tokyo, Japan

Filed May 14, 1973, Ser. No. 359,943

Int. Cl. F27b 5/06

U.S. Cl. 432—12

8 Claims



Brazing of complex structures of aluminum metal or its alloys is performed within a vacuum heating furnace in a continuous sequence of heating stages, each having an upper limit temperature by utilizing detected temperature differentials between body surface and interior locations later heated by radiation, for control of the heating rate so that the rate decreases from stage to stage.

3,830,623

COOLER TUBE FOR ROTARY KILN

Soren B. Christiansen, Copenhagen, Denmark, assignor to F. L. Smidth & Co., Cresskill, N.J.

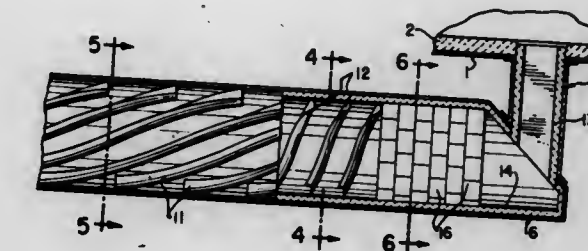
Filed Jan. 3, 1973, Ser. No. 320,764

Claims priority, application Great Britain, Jan. 17, 1972, 2138/72

Int. Cl. F27b 7/38

U.S. Cl. 432—80

16 Claims



An improved cooler tube structure for a rotary kiln is disclosed. In construction, the cooler tube includes combined means for lifting and conveying material exiting from the kiln through the cooler tube. This combined means is selectively positioned at a predetermined distance away from the material inlet opening into the cooler tube. The cooler tube further includes separate means for conveying material exiting from the kiln through the cooler tube substantially without lifting it. The separate means is advantageously positioned upstream of said combined lifting and conveying means in relation to the direction of material flow through the cooler tube.

3,830,624

OVENS

Richard Lawrence Sperring, 175 Pine Gardens, Ruislip; Stephen Raymond Stansfield, Langford Green, London, and Mohamed Hassan Kubba, 301 Landon Rd., Isleworth, all of England

Continuation of Ser. No. 121,366, March 5, 1971, abandoned.

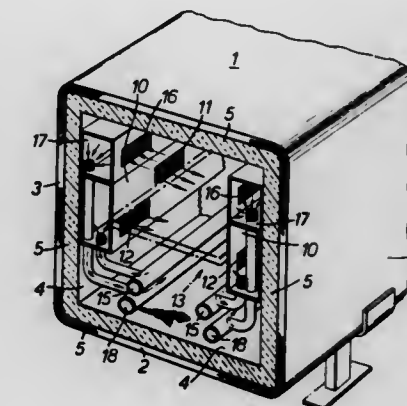
This application Mar. 7, 1973, Ser. No. 338,881

Claims priority, application Great Britain, Mar. 6, 1970, 10937/70

Int. Cl. F27b 9/14

U.S. Cl. 432—145

25 Claims



A light weight, low thermal mass modular tunnel oven comprising two convection modules each having a top, bottom and side wall with hot gas manifolds mounted on each side wall for directing hot gas above and below a conveyor supported on the manifolds, and a radiant module following the second convection module and having top, bottom and side walls, a radiant heater being supported above the conveyor running through all the modules.

3,830,625
METHOD AND APPARATUS FOR FAST FIRING GLAZED CERAMIC TILE TRIM

John A. Cable; Stephen J. Cable, and Richard R. Falbo, all of Canton, Ohio, assignors to United States Ceramic Tile Company, Canton, Ohio

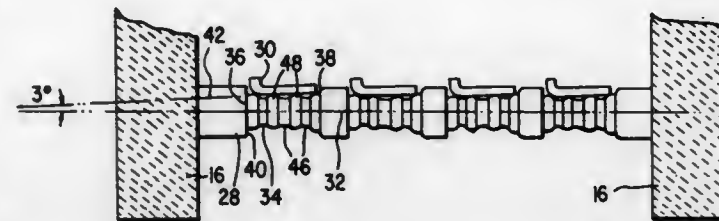
Filed Sept. 17, 1973, Ser. No. 397,732
 Int. Cl. F27b 9/20

U.S. Cl. 432-236

14 Claims

The method and apparatus for fast firing glazed ceramic tile trim pieces includes passing the trim pieces through a firing chamber by means of ceramic rollers which are designed to move the trim pieces in substantially a straight line through the chamber. The rollers include trim piece supporting surfaces which are inclined relative to a horizontal plane to cause

gravitational forces to maintain the trim pieces against aligned orienting stops. Deposited glaze is removed from the rollers by



periodically increasing the firing chamber temperature to a point where the glaze will release from the supporting roller and redeposit on a porous refractory passed over the roller.

3,830,626
CONTRAST DYEING OF ARTICLES MANUFACTURED FROM PLASTICIZED POLYVINYL CHLORIDE HOMOPOLYMERS AND COPOLYMERS

Bjorn Jossi Rosenberger, Trippestadaasen, Askim, and Erik Czypionka, Hoyby, Mysen, both of Norway

Continuation-in-part of Ser. No. 168,460, Aug. 2, 1971, abandoned, which is a continuation-in-part of Ser. No. 6,966, Jan. 29, 1970, abandoned. This application July 14, 1972, Ser. No. 271,794

Int. Cl. D06p 3/00

U.S. Cl. 8-4

11 Claims

Articles manufactured from uniformly colored plasticized polyvinyl chloride homopolymers and copolymers are dyed to provide them with the non-uniformly colored appearance usually associated with similar articles made from traditional materials. A solution in a volatile organic solvent of a dye soluble in the plasticized polyvinyl chloride homopolymers or copolymers is selectively applied to certain portions of the articles and permitted to penetrate into those portions to provide color contrast between the dyed and undyed portions of the article.

3,830,627
DYE BATH WITH BLOCK COPOLYMERIC PROPYLENE AND ETHYLENE OXIDES AS FOAM SUPPRESSANTS
 Manfred Dauble, Frankenthal; Knut Oppenlaender, and Rolf Fikentscher, both of Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany

Filed Sept. 8, 1971, Ser. No. 178,820

Claims priority, application Germany, Sept. 9, 1970, 2044647

Int. Cl. D06p 1/68

U.S. Cl. 8-92

8 Claims

Low-froth water-soluble dyeing auxiliaries based on surfactants and esterification products of fatty acids and oleic acid.

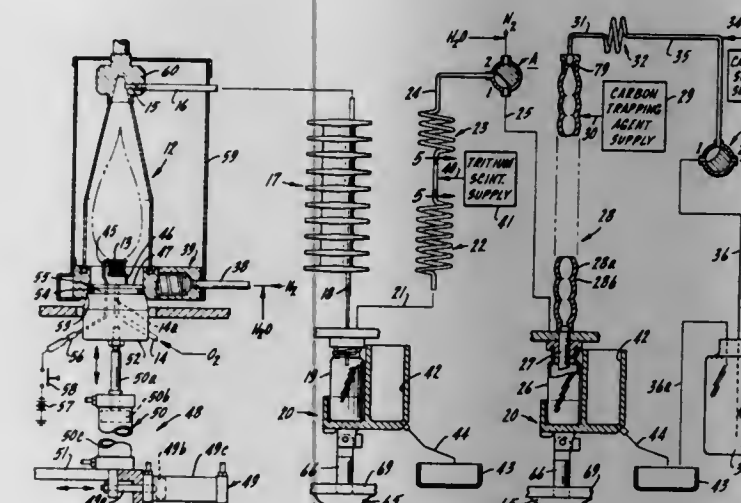
3,830,628
SAMPLE PREPARATION METHOD AND APPARATUS
 Niilo H. Kaartinen, Turku, Finland, assignor to Packard Instrument Company, Inc., Downers Grove, Ill.

Filed Apr. 10, 1972, Ser. No. 242,481

Int. Cl. G01n 31/12

U.S. Cl. 23-230 PC

32 Claims



Method and apparatus for the processing of fluid materials, particularly for the preparation of samples for radioactive isotope tracer studies by combustion of starting materials containing such isotope tracers. A starting material is burned in a combustion chamber. The combustion products are continuously exhausted from the combustion chamber and passed sequentially through a heat exchanger, one or more first

CHEMICAL

exchange columns, a reaction column (if there is a radioactive isotope tracer remaining in gas form), and a second exchange column. Oxygen is fed into the combustion chamber at a controlled rate during combustion, and after combustion inert gas and injected water are fed into the combustion chamber and exhausted therefrom through the entire apparatus, so as to purge it of any remaining gaseous combustion products. The heat exchanger condenses most of the condensable vapors in the combustion products from the combustion chamber, and these condensed vapors (along with vapor from the injected water) are separated from the gases and collected in a first counting vial. The gases containing the remaining condensable vapors which pass into the first exchange columns are mixed therein and exchanged with a liquid. A first liquid scintillator is introduced to the first exchange columns and the direction of gas flow is then reversed therein to thereby discharge the residual liquid and scintillator liquid into the first counting vial. The uncondensed gases from the first exchange columns (containing the radioactive isotope tracer) which pass into the reaction column are reacted with a trapping agent therein, the reaction column comprising a series of smoothly contoured reaction chambers interconnected by smoothly contoured necked down portions. Untrapped gases discharged from the reaction column are passed through the second exchange column, comprising a series of bulbous chambers of small diameter relative to the reaction column, where they are scrubbed of any residual reaction products. A second liquid scintillator is introduced to the second exchange column and the direction of gas flow is then reversed therein, and in the reaction column, to thereby discharge the reaction products and scintillator liquid into a second counting vial. The apparatus is then cleaned by (a) passing inert gas along with additional injected water into the combustion chamber in a direction concurrent with the previous flow therein of combustion products, thence through the heat exchanger and into a waste receiver, (b) passing inert gas along with added water through the first exchange columns in a direction countercurrent to the previous flow therein of combustion products, and thence into the waste receiver, and (c) passing inert gas through the second exchange column in a direction countercurrent to the previous flow therein of combustion products, and thence through the reaction column and to waste.

3,830,629
FLUOROMETRIC ANALYSIS OF SECONDARY ALPHA-AMINO ACIDS

Willy Leimgruber, Montclair, and Manfred Weigele, North Caldwell, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Oct. 18, 1972, Ser. No. 298,680

Int. Cl. G01n 31/22

U.S. Cl. 23-230 R

23 Claims

Secondary α -amino acids are fluorometrically assayed by conversion to primary amines followed by reaction with known fluorogenic reagents and measurement of fluorescence. This technique is suitably adapted for automated analysis.

3,830,630
APPARATUS AND METHOD FOR ALCOHOLIC BREATH AND OTHER GAS ANALYSIS

Michael E. Kiefer, Raleigh, N.C., and Stanford B. Spracklen, San Juan Capistrano, Calif., assignors to Trienco, Inc., Raleigh, N.C.

Filed June 21, 1972, Ser. No. 264,956

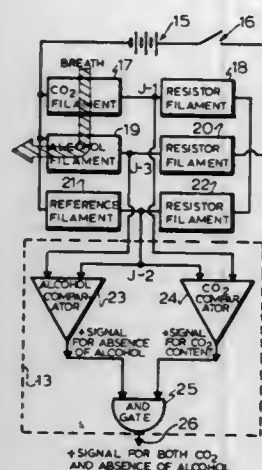
Int. Cl. A61b 5/08; G01n 31/12, 33/16

U.S. Cl. 23-232 E

12 Claims

A gas detecting apparatus and method for qualitatively and quantitatively analyzing a gas for a particular constituent de-

depends on sampling of the gas until the level of one constituent can be detected at some predetermined level; then when this level is attained measuring the gas for the presence of another constituent. Measurement of human alcohol content is achieved by first measuring several samples of the CO₂ level in



the breath and when the CO₂ reaches a predetermined minimum level, corresponding to a true lung sample, the apparatus responds and the alcoholic content is measured. A detecting filament bridge configuration measures alcoholic content by catalytic combustion of the alcohol and oxygen over a platinum filament.

3,830,631

APPARATUS FOR THE PREPARATION OF POROUS, PARTICULATE SULFUR

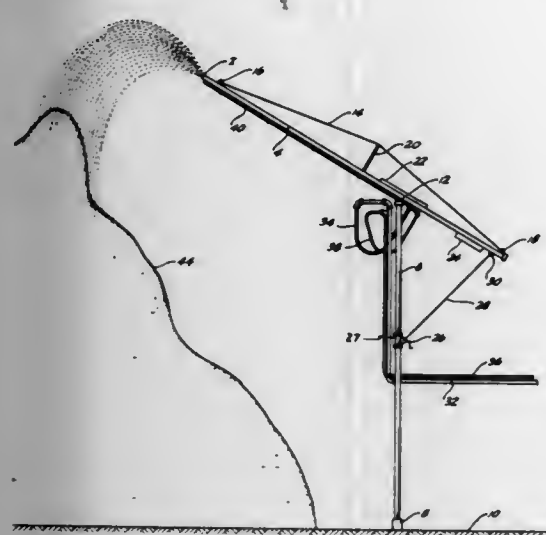
Donald C. Young, Fullerton, and Bruce A. Harbolt, Northridge, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Continuation of Ser. No. 846,141, July 30, 1969, Pat. No. 3,637,351. This application Sept. 9, 1971, Ser. No. 178,941

Int. Cl. B01J 2/04

U.S. Cl. 23—252 R

5 Claims

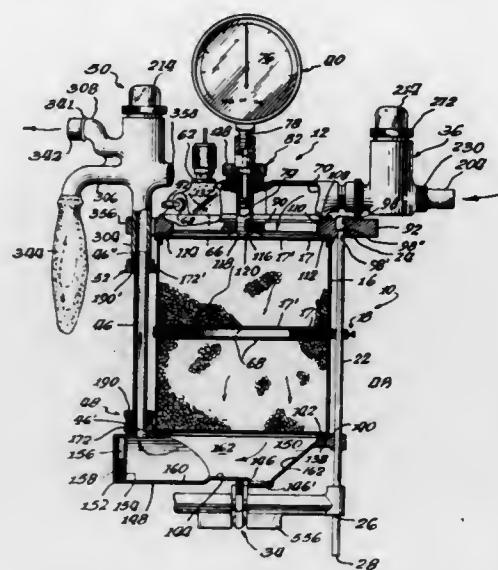


An apparatus is disclosed for preparing porous sulfur particles by discharging, into a vapor space at substantially atmospheric pressure, water and molten sulfur in intimate admixture to form sulfur droplets having a continuous sulfur phase and a contained water phase, permitting the sulfur droplets to solidify into discrete particles and the water to separate therefrom. This can be accomplished by discharging molten sulfur and water from separate conduits and into intimate admixture in the atmosphere. The sulfur is solidified into porous particles and the momentum of the combined streams is sufficient to convey the sulfur to a desired location on a storage pad. The invention is useful in conveying molten sulfur from tanks of a truck or tankcar to a storage site for further delivery to consumers.

3,830,632
CARBON DIOXIDE ABSORBER APPARATUS
Casimer M. Guzey, 7705 Peterson Ave., Chicago, Ill. 60631
Filed July 23, 1969, Ser. No. 843,947
Int. Cl. B01d 15/00

U.S. Cl. 23—284

9 Claims



A carbon dioxide absorber apparatus for use in the administration of anesthesia to enable respiratory gases from a patient undergoing surgical procedures to be cleared of carbon dioxide and returned to the patient, said absorber utilizing disposable absorbent cartridges and being capable of quick assembly and disassembly into component parts all capable of being sterilized in an autoclave apparatus, the absorber apparatus also being characterized by inlet and outlet valve means of novel construction and by the provision of minimal length passageways and channels throughout for directing gas flow, all being accessible and capable of being easily cleared of residue. Novel quick coupling means are provided to aid in the assembly and disassembly of the absorber as well as partial disassembly to remove and replace absorbent cartridges.

3,830,633

METHOD AND APPARATUS FOR ADJUSTING TAPERED ROLLER BEARINGS AND FOR ASSEMBLING DEVICES EMPLOYING SUCH BEARINGS AS JOURNALS

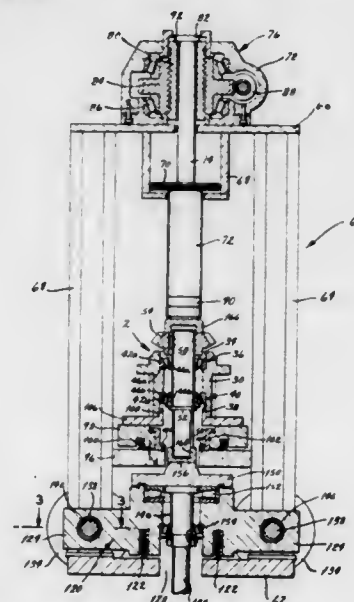
William E. Harbottle, Canton, Ohio, assignor to The Timken Company, Canton, Ohio

Division of Ser. No. 237,462, March 23, 1972, Pat. No. 3,785,023. This application Sept. 18, 1973, Ser. No. 398,421

Int. Cl. B23p 11/00, 19/04

U.S. Cl. 29—148.4 A

17 Claims



A shaft is journaled in a shaft housing by means of a pair of tapered roller bearings, and the assembly of the foregoing structure, including the adjustment of the tapered roller bearings, is performed on an assembly tool having a fixed anvil

and a shiftable pilot base which moves against a spring load toward the anvil. In addition, the tool includes a carriage which shifts axially relative to the anvil against a spring bias and may be locked in a fixed axial position. To assemble the foregoing structure the cone assembly of one of the bearings is fitted against an abutment on the shaft, while the cup of that bearing is seated in the housing. Next the shaft is supported on the shiftable carriage of the tool and thereafter the housing is fitted over the shaft and supported on the pilot base, with its cup receiving the cone assembly. Next an axial force is applied to the housing in the direction which seats the rollers of the bearing, so that the force is transmitted to the shaft through the bearing. The force depresses the pilot base against the anvil while depressing the carriage in opposition to the spring load thereon. Once the pilot base engages the anvil, the carriage is locked in position, and the housing is allowed to return to its initial position so that a prescribed or working point clearance exists between the anvil and pilot base and likewise in the bearing. With the other cup seated in the housing, the remaining cone assembly, which is shiftable along the shaft to effect adjustment of the two bearings, is advanced along the shaft toward its cup, and when the rollers of that bearing seat, a portion of the axial force is transmitted to the housing, and the housing is again depressed along with the pilot base. The advancement is continued until the clearance in the first installed bearing reaches a prescribed value, and that clearance is ascertained by measuring the distance between the pilot base and the anvil. The shaft is rotated slowly as the rollers of the two bearings are seated against their respective cups and cones to insure proper seating.

3,830,634

TRIM MEMBERS AND PRODUCTION THEREOF

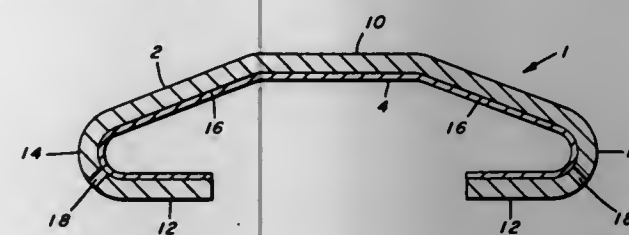
Donald R. Zaremski, Cheswick, and Jack M. Beigay, Freeport, both of Pa., assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.

Filed Mar. 29, 1972, Ser. No. 239,146

Int. Cl. B23p 3/00

U.S. Cl. 29—191.6

17 Claims



A stainless steel trim member, a method of making a stainless steel trim member and an assembly comprised of a stainless steel trim member in combination with a metallic body member. The stainless steel trim member has an exposed surface, a contact surface which converges with the exposed surface, a connecting surface which joins the exposed surface and the contact surface, and an inner surface opposite the exposed, contact and connecting surfaces. Adhered to the inner surface is a layer of sacrificial metal. The sacrificial metal is exposed through a perforation which extends into the contact and/or connecting surfaces of the stainless steel.

3,830,635

ALUMINUM NICKEL ALLOY ELECTRICAL CONDUCTOR AND METHOD FOR MAKING SAME

Enrique C. Chia, and Roger J. Schoerner, both of Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga.

Continuation-in-part of Ser. No. 147,196, May 26, 1971, abandoned. This application July 9, 1971, Ser. No. 161,324

The portion of the term of this patent subsequent to Apr. 30, 1991, has been disclaimed.

Int. Cl. B21c 1/00; C22f 1/04

U.S. Cl. 29—193

25 Claims

Aluminum alloy electrical conductors are produced from aluminum base alloys containing from about 0.20 percent to

about 1.60 percent by weight nickel, from about 0.30 percent to about 1.30 percent by weight cobalt, optionally up to about 2.00 percent by weight of additional alloying elements, and from about 97.00 percent to about 99.50 percent by weight aluminum. The alloy conductors have an electrical conductivity of at least 57 percent, based on the International Annealed Copper Standard (IACS), and improved properties of increased thermal stability, tensile strength, percent ultimate elongation, ductility, fatigue resistance and yield strength as compared to conventional aluminum alloys of similar electrical properties.

3,830,636

FUEL BY-PRODUCTS OF MUNICIPAL REFUSE

Paul G. Marsh, Hamilton, Ohio, assignor to Black Clawson Fibreclaim, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 94,084, Dec. 1, 1970, Pat. No. 3,736,223, which is a continuation-in-part of Ser. No. 14,431, Feb. 26, 1970, abandoned, and a continuation-in-part of Ser. No. 99,554, Dec. 18, 1970, Pat. No. 3,714,038. This application Nov. 30, 1971, Ser. No. 203,295

Int. Cl. C10I 5/00; F23g 3/00, 5/00

U.S. Cl. 44—1 D

10 Claims

Municipal refuse is treated to produce a particulate mixture consisting essentially of its organic constituents substantially free of inorganic materials, the particles in the mixture being of less than a predetermined maximum particle size, and the mixture also being characterized on a volumetric unit basis by (a) substantial homogeneity of component materials, (b) substantial uniformity from the standpoint of distribution of particle sizes, (c) substantially uniform moisture content, and (d) substantially uniform fuel value. This mixture has many possible uses, including directly as fuel, as raw material for conversion by pyrolysis or hydrogenation, as raw material for the production of hardboard, and as compost or landfill.

3,830,637

FLUIDISED BED HYDROGENATION

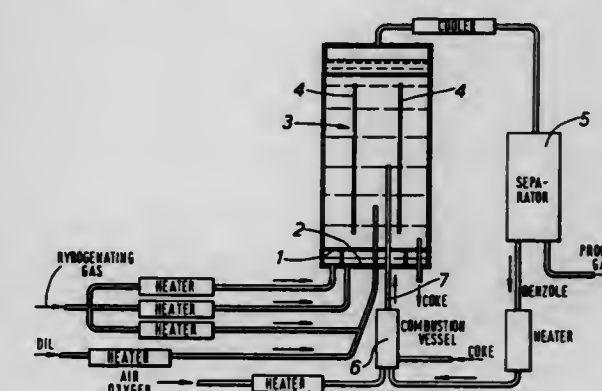
Brian Hoyle Thompson, Harpenden, England, assignor to British Gas Corporation, London, England

Filed Mar. 30, 1973, Ser. No. 346,297

Int. Cl. C10k 3/06; C10g 13/18

U.S. Cl. 48—213

5 Claims



A method of supplying heat to the reactants in a fluidised bed hydrogenator by the combustion of carbonaceous materials found in the hydrogenator and wherein the carbonaceous material is injected with air and/or oxygen into a combustion chamber and the products of combustion are supplied to the

hydrogenator vessel to provide additional heat to the reactants. The combustion products are supplied to a position within a central rise or risers in the fluidised bed.

3,830,638

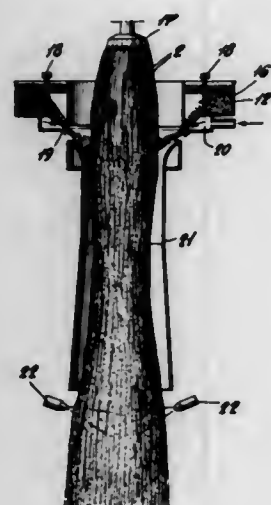
APPARATUS FOR MANUFACTURE OF PLATES OR SHAPED SHEETS HAVING A BASE OF MINERAL FIBERS, PARTICULARLY GLASS FIBERS

Claude Jumentier, La Celle Saint Cloud, and Alain Bonnet, Clermont, both of France, assignors to Certain-Feed Products Corporation, Valley Forge, Pa.
Division of Ser. No. 100,750, Dec. 22, 1970, abandoned, which is a division of Ser. No. 726,706, May 5, 1969, Pat. No. 3,616,030. This application Jan. 5, 1973, Ser. No. 321,344
Claims priority, application France, May 11, 1967, 67.106046

Int. Cl. C03b 37/04

U.S. Cl. 65—14

12 Claims



The invention contemplates the homogeneous distribution of hard granules or particles throughout a mass of resin-coated mineral fibers to produce structural units in the form of sheets or slabs composed of the mass of mineral fibers in lattice-work form, particularly glass fibers, agglomerated with the dried and cured resin binder and having interspersed in the meshes of the mass, the separate hard and indeformable particles, either in solid form, such as sand, or in porous form, such as perlite or vermiculite, which render the structural units strongly resistant to physical deformation while enhancing the heat-insulating characteristics thereof.

3,830,639

MANUFACTURE OF COLORED GLASS

Raymond H. Evans; David D. Myers, both of Yardley, and Wilbur W. Hunt, Levittown, all of Pa., assignors to The Calumite Company, Trenton, N.J.
Continuation-in-part of Ser. No. 232,946, March 8, 1972, abandoned. This application Jan. 16, 1974, Ser. No. 433,825

Int. Cl. C03c 5/02

U.S. Cl. 65—19

9 Claims

Colored glass is produced from a mixture of glass making ingredients including boiler slag compositions which may contain little or no sulfur but contain substantial amounts of iron, manganese or other metals required to produce the desired glass colorants. In this way the amount of sulfide and sulfate compounds employed in the glass forming mix can be limited and a significant reduction in sulfur dioxide and other fumes and pollutants discharged from the glass making furnace is effected. At the same time the stability of the glass produced is improved and a greater uniformity in color is assured.

3,830,640

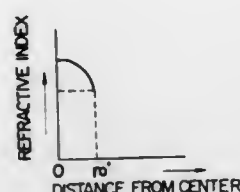
PRODUCTION OF LIGHT-CONDUCTING GLASS STRUCTURES WITH INDEX GRADIENT

Ichiro Kitano, Kobe; Ken Koizumi, Kawanishi; Yoshiro Ikeda, Nishinomiya, and Hiroyoshi Matsumura, Ashiya, all of Japan, assignors to Nippon Selfoc Kabushiki Kaisha (a/k/a Nippon Selfoc Co., Ltd.), Tokyo-to, Japan
Continuation-in-part of Ser. No. 7,855, Feb. 2, 1970, abandoned. This application Dec. 4, 1972, Ser. No. 311,947
Claims priority, application Japan, Feb. 2, 1969, 44-8886; Mar. 18, 1969, 44-21137

Int. Cl. C03b 29/00, 25/02; G02b 3/00

U.S. Cl. 65—30

10 Claims



A light-conducting glass rod is passed continuously through a furnace wherein it is heated to a temperature above its softening point and is stretched into a thin filament. The rod has a refractive index gradient in any transverse cross-section such that the index decreases progressively or continuously from the central axis outward towards the periphery and this gradient is increased in the filament by the stretching. The heating and stretching may also be carried out by concentrically disposing a glass tube around the light-conducting glass rod and evacuating the interior of the glass tube to thereby produce a light-conducting filament having a covering layer. The filament thus produced may be subjected to a simple thermochemical treatment to increase its strength and several pieces of the filament may be bundled together to produce an ommateal lens.

3,830,641

1,2,3-THIAZOL-5-YLCARBAMATE HERBICIDE COMPOSITIONS

Gert Paul Volpp, Princeton, N.J., assignor to FMC Corporation, New York, N.Y.

Filed July 13, 1971, Ser. No. 162,264

Int. Cl. A01n 9/12

U.S. Cl. 71—90

1 Claim

Novel herbicidal compositions containing lower alkyl and phenyl 1,2,3-thiazol-5-ylcarbamates as an essential active ingredient have selective pre-emergence and post-emergence activity. The synthesis of a preferred member of this class, methyl 1,2,3-thiazol-5-ylcarbamate, is described and its utility is exemplified.

3,830,642

METHOD FOR CONTROLLING WEEDS WITH 1'-FORMYL-1'-HALOBENZENEAZOMETHANES AND FORMULATIONS THEREFOR

Malcolm W. Moon, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Apr. 28, 1971, Ser. No. 138,338

Int. Cl. A01n 9/24

U.S. Cl. 71—107

53 Claims

Some new 1'-formyl-1'-halobenzeneazomethanes have been prepared. The compounds are active as herbicides. There is variable activity against arthropod pests from com-

pound to compound. The 1'-formyl group can be substituted so as to form a keto or ester functional group. Alkyl, haloalkyl, and cycloalkyl substituent groups form ketones according to the invention. Alkoxy, haloalkoxy, and cycloalkoxy substituent groups form esters according to the invention. The 1'-halogen can be bromine, chlorine, or fluorine; and the benzene ring of the azobenzene group can be variously substituted with halogens (preferred), alkyl, alkoxy, and haloalkyl groups. In addition, the methyl carbon (1'-position) can have another halogen atom substituent, or an alkyl, haloalkyl, cycloalkyl, or phenyl substituent group. The invention comprehends the use of the new 1'-formyl-1'-halobenzeneazomethanes as herbicides, and further comprehends new formulations for effecting the new use. Both a method of using and herbicidal formulations of the new 1'-formyl-1'-halobenzeneazomethanes are described.

3,830,643

REGULATION OF FLOWER AND FRUIT SET IN CULTURED PLANTS

Gerhart Schneider; Sigmund Lust; Konrad Niethammer; Ernst Jacobi; Dietrich Erdmann, and Gunther Mohr, all of Darmstadt, Germany, assignors to Merck Patent Gesellschaft Mit Beschraenkter Haftung, Darmstadt, Germany
Continuation-in-part of Ser. No. 817,194, April 17, 1969, Pat. No. 3,598,564, and a continuation-in-part of Ser. Nos. 326,186, Nov. 26, 1963, abandoned, and Ser. No. 310,118, Sept. 19, 1963, abandoned, and Ser. No. 736,954, June 14, 1968, Pat. No. 3,506,434, and Ser. No. 508,835, Nov. 19, 1965, Pat. No. 3,476,545. This application Aug. 4, 1971, Ser. No. 169,119

Claims priority, application Germany, Dec. 1, 1962, 5497445. The portion of the term of this patent subsequent to Aug. 10, 1988, has been disclaimed.

Int. Cl. A01n 9/12

U.S. Cl. 71—107

5 Claims

A method of regulating flower and fruit set in cultured plants by treatment with alkyl esters of 9-hydroxy fluorene-9-carboxylic acid.

3,830,644

COPPER ALLOY FOR PLASTIC-WORKING MOLDS
Seizo Watanabe, Kadoma; Minoru Maeda, Osaka, and Masaru Yamaguchi, Nishinomiya, all of Japan, assignors to Hitachi Shipbuilding and Engineering Co., Ltd., Osaka City, Japan
Continuation-in-part of Ser. No. 859,341, Sept. 19, 1969, abandoned. This application Apr. 3, 1972, Ser. No. 240,571

Int. Cl. C22c 9/10

U.S. Cl. 75—153

6 Claims

Copper alloy for plastic-working molds, containing as other principal components aluminum, beryllium, silicon and cobalt, having a value of 9 to 18 weight percent, calculated by an aluminum conversion formula $Al + 1.8 \text{ percent Be} + 1.5 \text{ percent Si} + 1.5 \text{ percent Co}$, all in weight percent, and containing 6 to 15 percent Al, 0.6 to 2 percent Be, 0.9 to 3.5 percent Si, 0.5 to 2.5 percent Co and the balance Cu, the alloy being characterized by readiness to be used in the as-cast state without being subjected to heat treatment, and having excellent wear resistance under load, as well as high toughness and other desirable mechanical properties. In some cases, the alloy may additionally contain as secondary elements at least one of the elements Sn, Zn, Mn, Fe and Zr. The alloys are particularly suitable for dies in deep drawing, which are required to have high mechanical strength and wear resistance.

3,830,645

METHOD AND APPARATUS FOR CREATING AN ELECTROSTATIC LATENT IMAGE BY CHARGE MODULATION

Gilbert Zweig, Stamford, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.

Continuation of Ser. No. 105,432, Jan. 11, 1971, Pat. No. 3,722,992. This application Sept. 1, 1972, Ser. No. 285,573
Int. Cl. G03g 5/10

U.S. Cl. 96—1 R

7 Claims

A transparent dielectric film is juxtaposed with the electrostatically charged surface of a photoconductive member. An optical image is projected onto the photoconductive member to create a corresponding first electrostatic latent image on the photoconductive member surface. The exposed dielectric film surface is charged by an AC scorotron; the first electrostatic latent image acting to modulate the charge deposition such as to produce a zero potential at the exposed film surface. The photoconductive member is flooded with light to dissipate the first electrostatic latent image, rendering the charge deposition on the exposed film surface effective as a second corresponding electrostatic latent image for ultimate development and image transfer to plain paper.

3,830,646

IMAGE REGISTRATION CORRECTION FOR NON-IMPACT PRINTERS

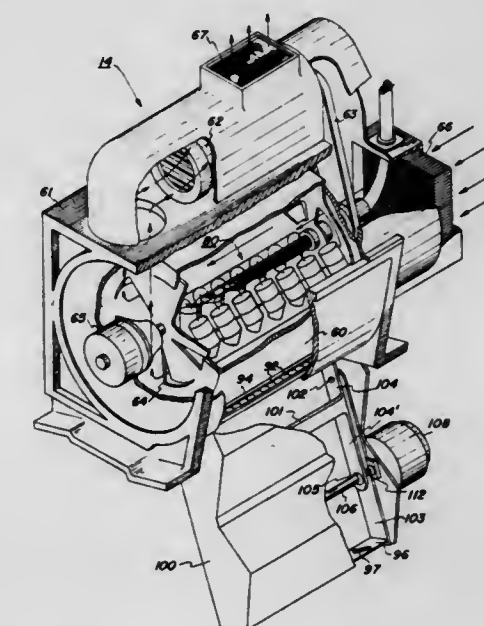
Philip L. Chen, Los Angeles, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 3, 1972, Ser. No. 303,454

Int. Cl. B41b 17/14

U.S. Cl. 95—4.5

10 Claims



A non-impact printer adapted for on-line or off-line use with digital computers, combines a xerographic processor with an optical character generator, the latter having a continuously rotating character drum sectored into a predetermined number of character groups with a series of flash lamps operative to print out computer generated line copy. The character drum is operatively coupled with the photosensitive surface of the xerographic processor by a lens strip and mask assembly displaceable in predetermined steps corresponding to the character drum sectors. Stepping of the lens strip and mask assembly is effected when there is a lag in starting printout of the first line equal to one drum sector or more, such stepping movement of the lens strip and mask assembly resulting in incremental corrective displacement in the position of the character image generated by the character generator on the processor photosensitive surface.

3,830,647

RECORDING PROCESS AND ELEMENT EMPLOYING AS PHOTOCONDUCTIVE MATERIAL FLUORENE RING SYSTEM FUSED 1,2-DIHYDRO-2,2,4-TRIALKYL-QUINOLINES

Wilhelmus Janssens, Aarschot; Johannes Josephus Vanheertum, Halle-Zandhoven; Albert Lucien Poot, Kontich, and Robert Joseph Pollet, Vremde, all of Belgium, assignors to AGFA-Gevaert N.V., Mortsel, Belgium

Filed Dec. 10, 1971, Ser. No. 206,901

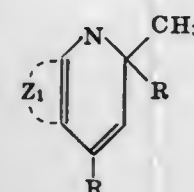
Claims priority, application Great Britain, Dec. 11, 1970, 59094/70

Int. Cl. G03g 5/06

U.S. Cl. 96—1.5

33 Claims

Photoconductive elements containing a monomeric organic photoconductive compound corresponding to the following general formula:



wherein: R represents a (C₁-C₄) alkyl radical, and Z, represents the necessary atoms to close an adjacent ring system of the fluorene series, are described. The described photoconductors can be chemically and spectrally sensitized and charged either negatively or positively.

3,830,648

PHOTOCONDUCTOR-GLASS BINDER PLATE WITH INSULATING RESIN IN PORES

Sherman L. Rutherford, Menlo Park, and Morris Feinlieb, Los Altos, both of Calif., assignors to Varian Associates, Palo Alto, Calif.

Continuation of Ser. No. 131,385, April 5, 1971, abandoned.

This application Jan. 12, 1973, Ser. No. 322,996

Int. Cl. G03g 5/04

U.S. Cl. 96—1.5

8 Claims

An electrophotographic charge image transfer plate, of the type comprising a matrix of interconnected photoconductive crystals bound into a glass binder to form a porous photoconductive charge transfer layer bonded to an underlying electrically conductive photon transparent substrate, has its charge transfer characteristics stabilized by infiltrating an electrically insulative material into the porous surface of the photoconductive layer. The infiltrated insulative material coats the interior surfaces of the porous glass coated and bound layer with a coating of the insulative material, whereby the charge transfer characteristics of the charge transfer plate are stabilized.

3,830,649

METAL PHOTOGRAPHIC PLATE COMPRISING A SILVER HALIDE AND PROCESS

Robert F. Gracia, Scituate; Richard A. Laughrey, Woburn, and Paul F. Tuohy, Quincy, all of Mass., assignors to Itek Corporation, Lexington, Mass.

Division of Ser. No. 55,238, July 13, 1970, Pat. No. 3,807,305, which is a continuation-in-part of Ser. No. 744,631, July 15, 1968. This application Oct. 19, 1973, Ser. No. 408,141

Int. Cl. G03c 1/94

U.S. Cl. 96—86 R

12 Claims

A metallic base photographic plate having images adherently and preferably conductively bonded to the metallic support is produced by exposing a copy medium comprising silver halide on a superficially roughened metallic support wherein the photoconductor is substantially photoconductive-

ly insulated from the metallic support, and contacting this copy medium with chemically reactive image-forming materials, such as a physical developer. A preferred process is one utilizing a copy medium capable of being rapidly processed and having a layer of a photoconductor-binder emulsion on a roughened metallic support and a physical developer capable of producing an image adherently and conductively bonded to the metallic support. The plate produced by this invention is useful as a printing plate, name plate, printed circuit and the like.

3,830,650

NON-AQUEOUS SILVER FILM FORMATION

Gary L. Henriksen, Crofton, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed June 18, 1973, Ser. No. 370,907

Int. Cl. C23c 3/02

U.S. Cl. 106—1

12 Claims

An anhydrous silver plating solution comprising an alcohol such as methanol or ethanol; a silver salt such as silver nitrate; a hydroxide such as NaOH, KOH, etc.; and a complexing agent such as ammonia, ethylene diamine, or pyridine.

Addition of an anhydrous reducing aldehyde such as dextrose to the solution results in a thin silver plating on objects placed in the solution. The solution is particularly suitable for silver plating electrically nonconductive, water sensitive substances having relatively high vapor pressures.

3,830,651

FINE LINE ELECTRONIC MICRO-CIRCUITRY PRINTING PASTES

Lester C. Minneman, Maumee; Ralph E. Trease, Toledo; Lowell J. Wells, Toledo, and Raymond Louis Dietz, Toledo, all of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed May 25, 1970, Ser. No. 40,359

Int. Cl. C09d 5/24

U.S. Cl. 106—1

23 Claims

A printing paste for fine line electronic circuitry comprising a thixotropic carrier vehicle and an electronically effective material.

3,830,652

HOT PRESSED, HIGH STRENGTH SILICON NITRIDE

George E. Gazza, Sudbury, Mass., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 28, 1973, Ser. No. 374,603

Int. Cl. C04b 35/58

U.S. Cl. 106—58

11 Claims

The fabrication of high strength, high density, silicon nitride by the addition of between 1.0 to 3.5 percent by weight of yttrium in the form of a compound to silicon nitride powder and pressing the material at temperatures of between 1,750° C. and 1,800° C. and at uniaxial pressures of between 6,000 and 7,000 psi.

3,830,653

REFRACTORY

Mark E. Harnish, and Merrit A. Peters, both of Plymouth Meeting, Pa., assignors to International Minerals & Chemical Corporation

Division of Ser. No. 92,870, Nov. 25, 1970, Pat. No. 3,678,143. This application Apr. 27, 1972, Ser. No. 248,329

Int. Cl. C04b 35/04, 35/12

U.S. Cl. 106—59

7 Claims

Refractory linings of metallurgical vessels are protected from the destructive effects of molten metal, skull, and skull removal by applying a coating of special refractory parting

3,830,656

RESISTOR FILM

Haruo Takenaka, and Toshiaki Okiyama, both of No. 210, Nakanuma, Minamia Ashigara machi, Ashigara-Kamigun, Kanagawa, Japan

Continuation of Ser. No. 776,189, Nov. 15, 1968, abandoned.

This application June 25, 1971, Ser. No. 156,946

Claims priority, application Japan, Nov. 15, 1967, 42-73500

Int. Cl. B44d 1/18; C09c 1/44

U.S. Cl. 117—212

12 Claims



Coatings of a dispersion of carbon black or silver dust in a cellulose acetate resin or a polyurethane resin are locally formed on an electrical resistor film consisting of a cellulose acetate resin base having dispersed therein carbon black to give a local variation in the resistivity or to give terminals providing good electrical contact to the metallic electrodes of an electrical source. A process for forming said coatings is also disclosed.

3,830,657

METHOD FOR MAKING INTEGRATED CIRCUIT CONTACT STRUCTURE

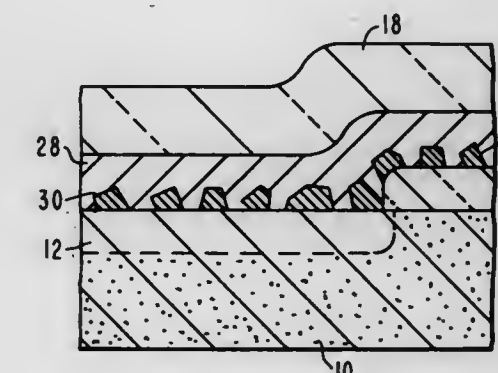
Paul A. Farrar, South Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1971, Ser. No. 158,467

Int. Cl. B44d 1/18

U.S. Cl. 117—217

15 Claims



An electrical interconnection contact structure including a layer containing a major proportion of an intermetallic compound contacting the surface of an integrated circuit device. The intermetallic layer is covered by a layer of conductive alloy which includes a major proportion of a solid solution of the same chemical elements as the intermetallic compound. One of the chemical elements is preferred to be an electromigration preventing dopant. Two methods of creating such a contact structure are disclosed including a sandwich technique where a layer of a first element and a layer of a second element form the intermetallic compound and a co-deposition technique where the first and second elements are co-deposited as the intermetallic compound. An alternative embodiment includes causing the intermetallic layer to spheroidize after exposure to high temperature stress allowing the major ingredient of the overlying layer to contact the semiconductor surface between spheroids. The invention provides an effective method of controlling spiking of shallow semiconductor junctions while improving the electromigration characteristics of the conductive member.

3,830,654

OPTICAL DEVICES UTILIZING SINGLE CRYSTAL GaP OR GaAs FILMS EPITAXIALLY GROWN ON CaF₂ SUBSTRATES AND METHOD OF FABRICATING SAME

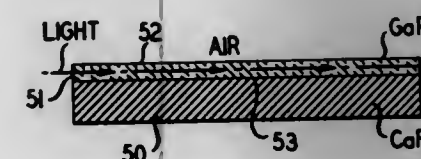
Alfred Yi Cho, New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Jan. 30, 1970, Ser. No. 7,022

Int. Cl. B44d 1/02, 1/18; C23c 13/02

U.S. Cl. 117—201

12 Claims



Single Crystal GaP or GaAs films are epitaxially grown on CaF₂ substrates by a molecular beam method. The film itself as well as the interface between the film and substrate exhibits few defects since the lattice constants of the film and substrate are substantially identical, thus making the films particularly useful as optical waveguides with reduced light scattering centers, or as nonlinear optical devices in which phase matching is readily accomplished by controlling the thickness of the film.

3,830,655

CONDUCTIVE PAPERS

Eric Rothwell, Bradford, and Graham Smalley, Huddersfield, both of England, assignors to Allied Colloids Manufacturing Company Limited, Low Moor, Bradford, England

Filed May 17, 1972, Ser. No. 254,197

Claims priority, application Great Britain, May 19, 1971, 15796/71

Int. Cl. B44d 1/18; D21h 1/10

U.S. Cl. 117—201

9 Claims



Electrically conductive paper is made by coating or impregnating paper with a polymer containing at least 70 percent quaternised dialkylamino methylene acrylamide or methacrylamide groups, and then curing the polymer. The polymer must also have another property. Thus it may be defined as containing also methylolated acrylamide or methacrylamide units. Preferred polymers are made by the Mannich reaction. The polymers used cure under moderate conditions and are then resistant to leaching by moisture.

3,830,658

METHOD AND DEVICE FOR WASHING A CONTINUOUS FILTER WITH A HORIZONTAL FILTRATION SURFACE AND CELLS

Armand Davister, Liege, Belgium, assignor to Societe de Prayon, Prayon (Commune de Foret), Belgium
 Filed June 13, 1972, Ser. No. 262,259
 Int. Cl. B08b 7/04; B01d 35/00
 U.S. Cl. 134—13

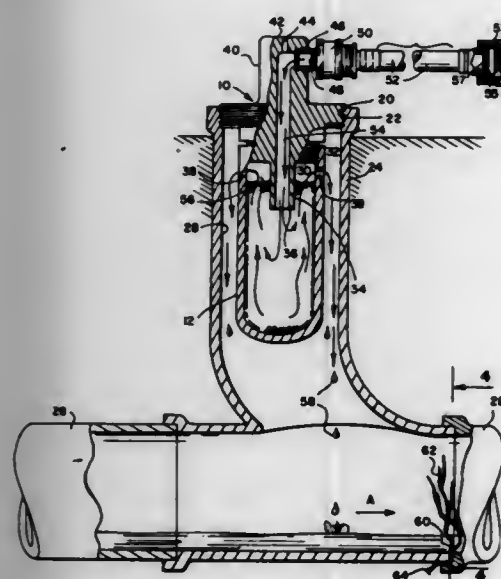


Method for washing with water a continuous filter with a horizontal filtration surface and cells, washing carried out after the discharge of the filtration cake, wherein water jets of high kinetic energy are used and/or heavily turbulent water flows in order to cause a mechanical scouring of possible sediments and scales formed at least on the walls of the filters and on the cloths of the latter in the course of filtration and to take such sediments and/or scales away by mechanical means. Wash water is supplied internally of the cells.

3,830,659

METHOD FOR TREATING ROOTS ABOUT DRAIN LINES

Fred Farage, 1002 E. Northern Ave., Phoenix, Ariz. 85020
 Continuation-in-part of Ser. No. 248,398, April 28, 1972, abandoned. This application July 14, 1972, Ser. No. 272,030
 Int. Cl. B08b 9/04; C23g 3/04; E03c 1/30
 U.S. Cl. 134—22 C



The disclosure relates to a means and method for treating roots about drain lines so that such roots do not plug or impede the flow of fluid through such drain lines, the means comprising a male fitting adapted for disposition in a female drain line cleanout structure and a chemicals container is suspended from the male fitting and adapted to hold crystalline or other suitable dissolvable chemicals such as copper sulphate or the like, and water inlet means is adapted to introduce water through the male fitting and into the chemicals container so that the water will flow through the crystals and overflow from an elevated outlet in the side of the container above an area into which water is introduced into the chemicals container; a vent means provides communication of the

atmosphere with the interior of the water inlet tube and a connection means is provided for introducing water into the inlet tube at a level below the atmospheric vent.

3,830,660

METHOD FOR OPERATING A COMPRESSOR

Emory L. Ezell, Old Ocean, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.
 Filed Nov. 30, 1972, Ser. No. 310,808
 Int. Cl. B08b 9/00

U.S. Cl. 134—23

7 Claims

A method for operating a compressor whereby fouling materials are removed from the compressor.

3,830,661

PROCESS FOR PREPARATION OF CATHODE MIX FOR ALKALINE CELL

Takashi Tsuchida, Shizuoka-ken; Kenichi Shinoda, Aichi-ken; Kohei Yamamoto, Shizuoka-ken; Noriaki Sakamoto, Shizuoka-ken, and Mastatake Nishio, Shizuoka-ken, all of Japan, assignors to Fuji Electrochemical Co. Ltd., Tokyo, Japan

Filed Apr. 5, 1973, Ser. No. 348,339

Claims priority, application Japan, Oct. 28, 1972, 47-108363

Int. Cl. H01m 13/08

U.S. Cl. 136—120 R

4 Claims

A process for the preparation of a cathode mix for an alkaline cell, which comprises forming a slurry by adding water and a binder to a powder of a depolarizer and a powder of an electrically conductive substance and kneading them, spray-drying the slurry to form particles, and molding the particles into a cathode mix.

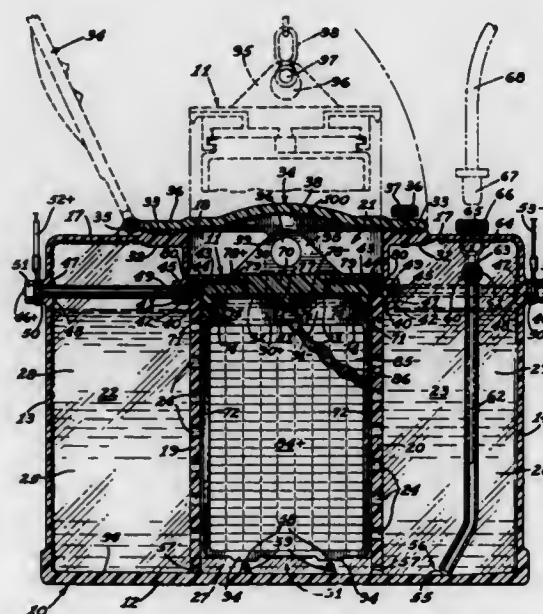
3,830,662

METHOD OF RECHARGING A STORAGE BATTERY WITH EXCHANGEABLE ELEMENTS

Lewis R. Kinsey, 108 S. 25th St., Phoenix, Ariz. 85034
 Division of Ser. No. 116,400, Feb. 18, 1971, Pat. No. 3,781,175. This application Oct. 24, 1972, Ser. No. 299,914
 Int. Cl. H01m 47/00

U.S. Cl. 136—165

4 Claims



A rebuildable, rechargeable wet cell storage type battery employing a novel replaceable modular plate structure.

3,830,663

BATTERY HOLDER FOR SATELLITE AND METHOD

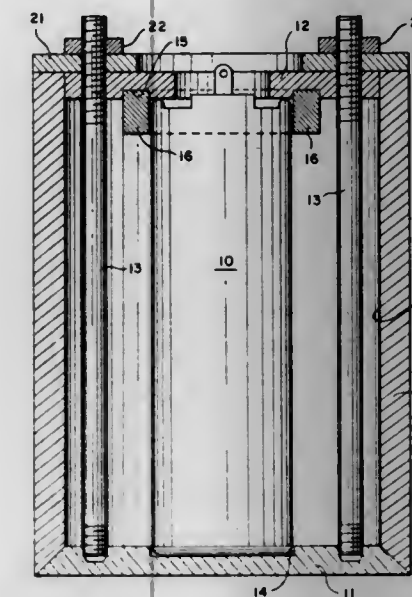
John A. Eisele, Hillcrest Heights, Md.; Francis J. Campbell, Alexandria; Bruce J. Faraday, Annadale, both of Va., and Richard L. Statler, Clinton, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 5, 1973, Ser. No. 337,981

Int. Cl. H01m 1/02

U.S. Cl. 136—166

3 Claims



This disclosure is directed to a battery holder for providing a thermal path from the battery to the skin of a satellite by which the heat may be distributed over the entire surface of the satellite.

3,830,664

THERMOELECTRIC GENERATOR

Josef Winkler, Nurnberg, and Dieter Falkenberg, Erlangen, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
 Continuation of Ser. No. 868,195, Oct. 21, 1969, abandoned.

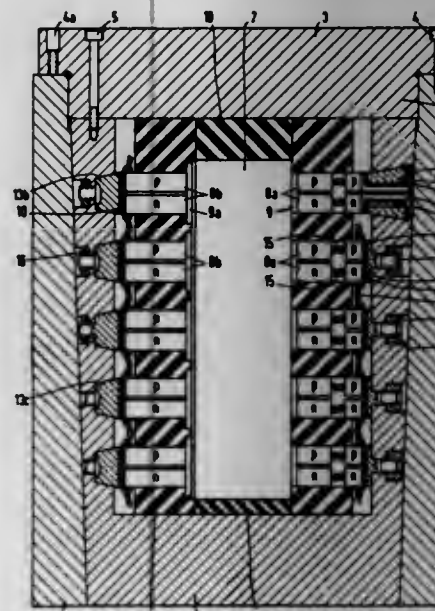
This application Apr. 17, 1972, Ser. No. 244,991

Claims priority, application Germany, Oct. 24, 1968, 1804859

Int. Cl. G21h 1/10

U.S. Cl. 136—202

1 Claim



Thermoelectric generator includes a chamber containing radioactive nuclides as heating source and surrounded by thermocouple elements formed of respective pairs of thermocouple element legs having a hot side facing toward and a

cold side facing away from the chamber, and shielding means comprising a pair of telescoped hollow members fully surrounding the chamber, the thermocouple element legs being located in the interior of the inner hollow member of the telescoped pair at locations thereof whereat the walls of the hollow members overlap, the respective pairs of thermocouple element legs being connected at their cold side by a contact bridge which is firmly connected mechanically to the wall of the inner hollow member so that the walls of the hollow members serve as heat exchanger for the cold side of the pairs of thermocouple element legs.

3,830,665

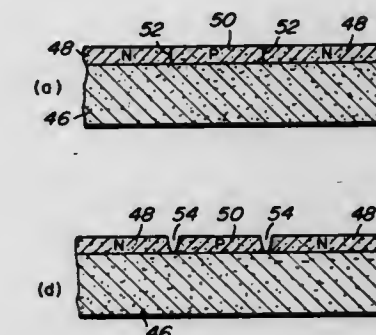
METHOD FOR DELINEATING SEMICONDUCTOR JUNCTIONS

William Clair Roman, and Larry Ray Wilson, both of Tempe, Ariz., assignors to Motorola, Inc., Franklin Park, Ill.
 Filed Dec. 7, 1972, Ser. No. 313,010

Int. Cl. H01l 7/50

U.S. Cl. 156—7

19 Claims



A method for etching a groove along a junction between regions of semiconductor material having different dopant concentrations to delineate or isolate the regions forming the junction. Standard concentrations of sirtl etch are used in conjunction with infrared radiation. Wafers in a holder are placed in a container of sirtl etch and exposed to infrared radiation. Preferential etching creates a groove at the semiconductor junction.

3,830,666

INSULATION APPLICATION

Frank H. Schneider, Los Angeles, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 12, 1973, Ser. No. 369,321

Int. Cl. B32b 31/26

U.S. Cl. 156—84

6 Claims

Disclosed is a method for applying and curing thermo insulation to an aluminum substructure, and particularly, to an elliptical cone shaped aluminum substructure. The method comprises curing and bonding a thin covering of insulation to the aluminum substructure by a one step curing procedure. The insulation thickness is in the range of about 0.0600 inches. The insulation which is comprised of epoxy-phenolic film adhesive and silica fabric-phenolic resin is cured under a predetermined amount of heat and pressure for a predetermined amount of time to yield a cured and bonded insulation capable of withstanding extreme temperature and aerodynamic shear environment.

3,830,667 METHOD OF MAKING FLEXIBLE FIBEROPTIC BUNDLES

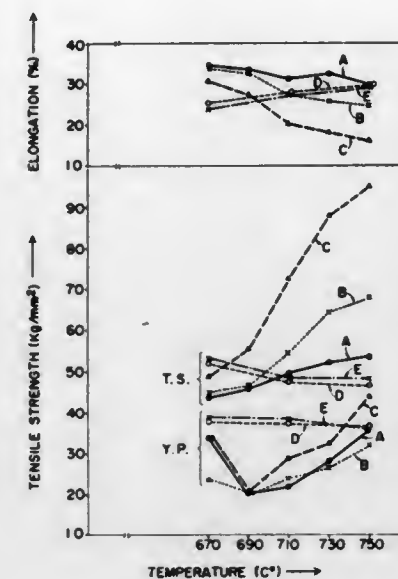
George J. Carpenter, Southbridge, Mass., assignor to American Optical Corporation, Southbridge, Mass.
Division of Ser. No. 97,719, Dec. 14, 1970, abandoned. This application May 12, 1972, Ser. No. 252,866
Int. Cl. B32b 31/00

U.S. Cl. 156—155

6 Claims

A flexible fiberoptic bundle of light-conducting multifibers wherein each multifiber comprises a plurality of fused together individually glass-clad glass monofilaments having overlappings of glass along their respective lengths. The overlappings are removed throughout at least intermediate portions of the lengths of each multifiber in the fused bundle to free corresponding portions of the glass-clad glass monofilaments whereby both the flexibility of the bundle and its resistance to fiber breakage are enhanced.

purities and residual deoxidizing elements, hot rolling the steel to a hot-rolled strip, cold rolling the strip to a steel sheet hav-

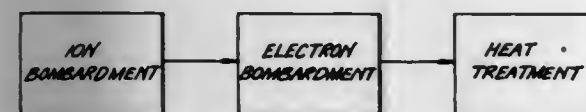


3,830,668 FORMATION OF ELECTRICALLY INSULATING LAYERS IN SEMI-CONDUCTING MATERIALS

Geoffrey Dearnaley, Abingdon, and Richard Stuart Nelson, Goring-on-Thames, both of England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed July 19, 1971, Ser. No. 163,713
Int. Cl. H011 7/54

U.S. Cl. 148—1.5

7 Claims



A method of forming an insulating layer within a semiconductor material by subjecting the material to ion bombardment so as to release impurity atoms from substitutional sites within the lattice, and heat treating the material to cause the impurity atoms to precipitate in the form of an electrically insulating layer in the regions where they were released from their substitutional sites.

3,830,669 PROCESS FOR MANUFACTURING A COLD-ROLLED HIGH STRENGTH STEEL SHEET

Takashi Matsuoka, Osaka, and Masayasu Kojima, Kobe, both of Japan, assignors to Sumitomo Metal Industries Ltd., Higashi-ku, Osaka, Japan

Filed June 11, 1973, Ser. No. 368,478

Claims priority, application Japan, June 13, 1972, 47-58771; Dec. 29, 1972, 47-1006

Int. Cl. C22c 39/30; C21d 9/46

U.S. Cl. 148—12

5 Claims

A process for manufacturing a cold-rolled high strength steel sheet particularly suitable for fabrication of car body comprising the steps of making a steel comprising 0.03—0.2% C, 1.6—3.0% Mn, 0.03—0.6% Si, 0.01—0.25% Nb, 0.01—0.2% Ti, and the remainder being iron excepting inherent im-

ing a thickness of 3 mm or less, and annealing the steel sheet at a temperature of 620°C to A₃ transformation point.

3,830,670 GRADED MULTIPHASE CARBURIZED MATERIALS

Ray J. Van Thyne, Oak Lawn, and John J. Rausch, Antioch, both of Ill., assignors to Surface Technology Corporation, Stone Park, Ill.
Division of Ser. No. 99,366, Dec. 18, 1970, Pat. No. 3,713,907.
This application Apr. 10, 1972, Ser. No. 242,857
Int. Cl. C21d 9/22; C23c 11/14

U.S. Cl. 148—31.5

19 Claims

A carburized, multiphase material formed of at least one metal of each of Group I, II, and III. Group I is columbium, tantalum, and vanadium; Group II is titanium, zirconium and hafnium; and Group III is molybdenum, tungsten, rhenium and chromium. Have excellent abrasion resistance.

3,830,671 THERMALLY IGNITABLE ZIRCONIUM-PLASTIC COMPOSITION

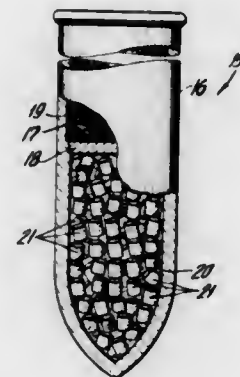
Gordon D. McArdle, Williamsville, N.Y., assignor to American Metal Climax, Inc., New York, N.Y.

Filed Nov. 30, 1972, Ser. No. 310,920

Int. Cl. C06d 1/02

U.S. Cl. 149—2

4 Claims



A thermally ignitable zirconium-plastic composition is provided comprising a thermally decomposable plastic having zirconium powder dispersed therethrough, the plastic being formed of a polyester resin.

3,830,672 SOLID POROUS, COATED OXIDIZER, METHOD OF PREPARATION AND NOVEL PROPELLANT COMPOSITIONS

Edwin L. Lista, Roseville, Calif., assignor to Aerojet General Corporation, Elmonte, Calif.

Filed Aug. 30, 1966, Ser. No. 577,571

Int. Cl. C06d 5/06

U.S. Cl. 149—7

39 Claims

A rocket propellant composition having an exceptionally high burning rate may be prepared by incorporating therein an oxidizing salt which comprises at least in part an ammonium salt characterized by a porous structure.

3,830,673 PREPARING OXIDIZER COATED METAL FUEL PARTICLES

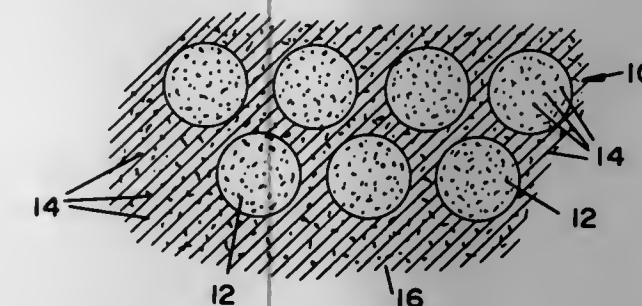
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of; John I. Shafer, 775 Linda Vista Ave., Pasadena, Calif. 91103, and George M. Simmons, 3158 Sawtelle Blvd. No. 1, Los Angeles, Calif. 90066

Filed Feb. 2, 1973, Ser. No. 329,243

Int. Cl. C06b 19/02

U.S. Cl. 149—17

4 Claims



Solid propellant composition of improved efficiency including an oxidizer, particularly ammonium perchlorate, and a powdered metal fuel, preferably aluminum or beryllium, in the form of a composite, the powdered metal fuel being contained in the crystalline lattice framework of such oxidizer, and hence being occluded within the oxidizer particles, as well as being disposed in the interstices between the oxidizer particles of the composition, such propellant composition produced by a process comprising crystallizing ammonium perchlorate in water, in the presence of finely divided aluminum or beryllium. A suitable binder is incorporated in the propellant composition to bind the individual particles of metal and particles of oxidizer containing occluded metal, together.

3,830,674 PROPELLANT COMPOSITION CONTAINING BERYLLIUM AND AN ENERGETIC DIFLUORAMINO CONTAINING BINDER

Kendall B. Randolph, Annapolis, Md., and Lewis B. Childs, Fairfax, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 29, 1969, Ser. No. 823,241

Int. Cl. C06b 1/04

U.S. Cl. 149—19.3

8 Claims

A high energy composite propellant composition comprising a fuel component of beryllium, beryllium hydride and mixtures thereof in an energetic difluoramino containing binder material such as 2,3-bis(difluoramino)propyl acrylate (NF-PA) addition polymerized with a vinyl monomer such as 2-hydroxyl propyl methacrylate and further plasticized with 1,2,3-tris[αβ-bis(difluoramino)ethoxy] propane (TVOPA), additional oxidizer such as ammonium perchlorate in amount sufficient to assure complete oxidation of the binder and fuel component and cured.

3,830,675 SOLID COMPOSITE PROPELLANTS CONTAINING COPOLYMERS OF CONJUGATED DIENES WITH UNSATURATED CARBOXYLIC ACIDS

Robert P. Zelinski, and Paul S. Hudson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed May 15, 1961, Ser. No. 110,617

Int. Cl. C06d 5/06

U.S. Cl. 149—19.9

12 Claims

1. A solid propellant composition comprising an inorganic oxidizing salt and a synthetic polymeric binder formed by reacting a first uncured liquid polymer of conjugated dienes having four to 12 carbon atoms per molecule, said first polymer containing at least about two acidic groups per molecule with a polyfunctional organic compound containing at least 3 functional groups reactive with said acidic groups and selected from the group consisting of aliphatic polyepoxides, polyaziridinyl triazines, polyaziridinyl triphosphatriazines, triaziridinyl phosphine oxides, and triaziridinyl phosphine sulfides, said binder containing a plasticizing amount of a second liquid polymer of 1,3-butadiene having its unsaturation in the form of vinyl content in the range of 0 to 25 per cent, trans content in the range of 0 to 60 per cent, and cis content in the range of 30 to 85 per cent, and a viscosity in the range of 10 to 500 poises at 77°F.

ERRATA

For Classes 156—7, 156—84 & 156—155 see:
Patent Nos. 3,830,665 thru 3,830,667

3,830,676 PROCESS OF MAKING A CONTOURED THERMAL DEVICE

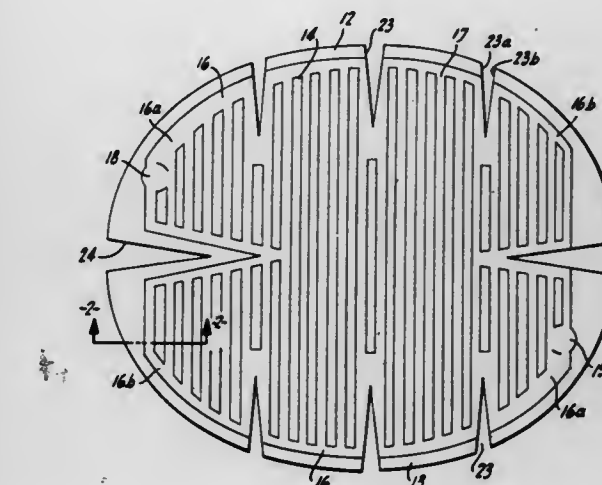
William Elkins, San Jose, Calif., assignor to Acurex Corporation, Mountain View, Calif.

Filed Feb. 28, 1973, Ser. No. 336,615

Int. Cl. B22b 31/00

U.S. Cl. 156—289

4 Claims



Heating and cooling patch in which liquid conducting passageways are formed between superposed sheets of flexible material. In one embodiment, tapered dart-shaped areas are provided at the edges of the sheets for forming the patch to a desired contour. In another embodiment, the patch is heat formed to the desired contour.

3,830,677

APPARATUS FOR STRIPPING COAXIAL CABLE

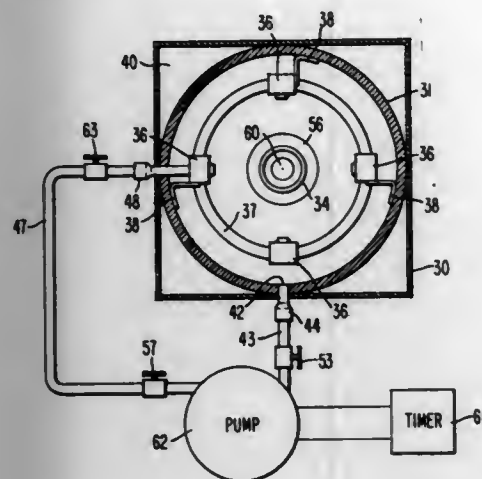
Howard Douglas Paulin, Broomall, Pa., assignor to Burroughs Corporation, Detroit, Mich.

Filed Sept. 20, 1972, Ser. No. 290,774

Int. Cl. C23f 1/02

U.S. Cl. 156—345

9 Claims



An apparatus and method for removing a measured portion of insulation from the end of a miniature solid-jacketed, coaxial cable, the apparatus including a spray chamber having an orifice containing a hermetic seal assembly for the insertion and support of the end of the cable, a precisely adjustable stop member for determining the length of cable to be inserted into the chamber, a spray assembly for applying etchant to the inserted portion, a switch in the face of the stop member for automatically actuating the spray assembly upon insertion of the proper length of the cable into the chamber and an adjustable timing mechanism for controlling the amount of etchant applied to remove the metal sheath. The exposed dielectric insulation is thermally removed, and the conductor cleaned and trimmed to the desired length.

3,830,678

APPARATUS FOR PREFABRICATING MASONRY PANELS

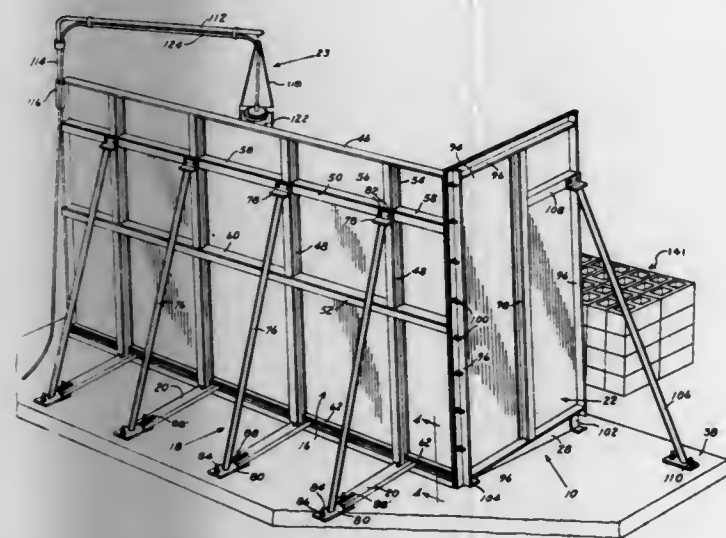
Gage B. Behunin, Arvada, Colo., assignor to Masonry Systems International, Inc., Denver, Colo.

Filed Jan. 7, 1972, Ser. No. 216,027

Int. Cl. B32b 31/00

U.S. Cl. 156—349

14 Claims



A portable high strength erecting stand on which a plurality of panels of hollow blocks or the like may be prefabricated in face-to-face relationship at a construction site includes an inclined floor frame, inclined back frame, bracing assemblies, and a mortar dispenser which are easily assembled and disassembled to facilitate easy transportation. The erecting stand is

particularly adapted for use in practicing the method of the present invention which includes assembling a panel of blocks with adhesive mortar, removing the panel to the structure being constructed, and pouring grout into passages in the blocks to complete the panel. A joint for positively joining adjacent panels into a structural assembly is easily made by utilizing alternating open and close ended blocks at the end of the panel and joining the panels with a cementitious filler which keys the panels together.

3,830,679

DIAPHRAGM

Philip J. Evans, Birmingham, and John F. Askam, Sutton Coldfield, both of England, assignors to Dunlop Limited, London, England

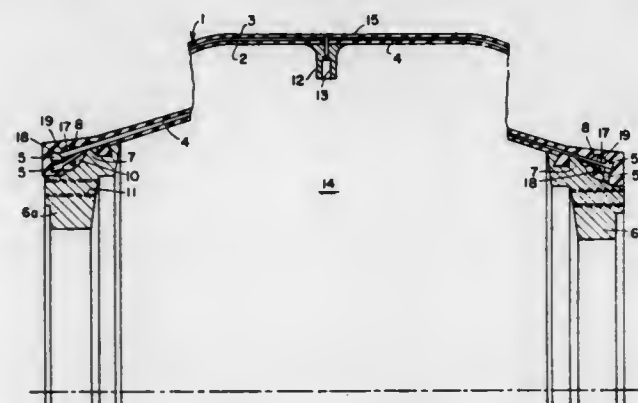
Filed Aug. 9, 1972, Ser. No. 279,230

Claims priority, application Great Britain, Aug. 12, 1971, 37836/71

Int. Cl. B29h 3/042, 5/02, 17/00

U.S. Cl. 156—416

15 Claims



An annular wire reinforced rubber shaping diaphragm comprises a layer of rubber having embedded therein a plurality of individual metal wires, said wires being disposed substantially at right angles to the mid-circumferential plane of the diaphragm. An end ring is provided at each axially outer edge of said diaphragm, each end of each wire being anchored to its respective end ring, of which the following is a specification.

3,830,680

HEATING APPARATUS

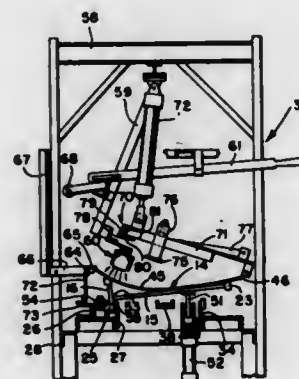
George W. Loy, Scio, Ohio, assignor to Scio Cabinet Company, Inc., Scio, Ohio

Division of Ser. No. 114,290, Feb. 10, 1971, Pat. No. 3,690,995, which is a division of Ser. No. 885,014, Dec. 15, 1969, Pat. No. 3,580,787. This application July 7, 1972, Ser. No. 269,896

Int. Cl. B32b 31/24

U.S. Cl. 156—480

6 Claims



A plastic laminating apparatus for laminating plastic sheet material to a countertop core having a backplash attached at right angles thereto during a single pass through the apparatus.

The apparatus consists of a plurality of longitudinally spaced work stations through which the work is successively moved for progressively shaping and adhering the plastic laminate to the work, such work being guided through the apparatus by receipt of a downwardly projecting portion from the work in a guide track extending the entire length of the apparatus. A back die bends the laminate to conform to the general shape of the backplash and countertop after heating, and fingers and pressure rolls are used to progressively bend and press the projecting edges of the laminate into firm contact with the edges of the countertop and backplash. Floating cutters are also used to trim the excess laminate material extending beyond the countertop and backplash edges, and such excess material may be picked up by a suction blower or removed by a rotary brush prior to passage through final pressure rolls.

3,830,681

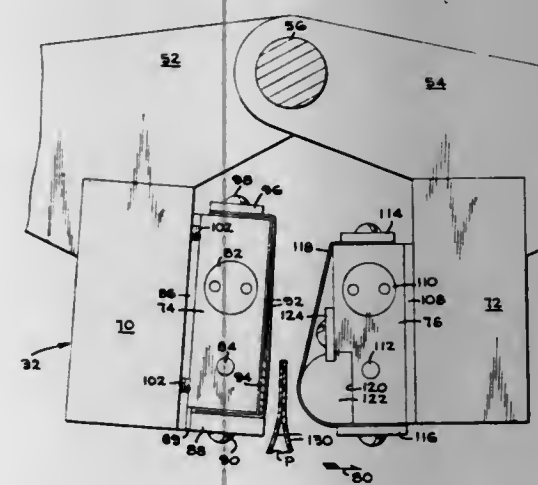
PACKAGE SEALING IN STEAM ATMOSPHERE

Donald C. Wilson, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Nov. 8, 1972, Ser. No. 304,707

Int. Cl. B65b 51/30, 7/06

U.S. Cl. 156—583



A sealing apparatus especially adapted for closing container pouches, either formed of, or coated with thermoplastic material, while the pouches are being processed in a steam atmosphere within a sterilizer or cooker. The disclosure particularly concerns the sealing head and the manner in which the cooperating elements of the sealing head coact to ensure intimate contact and coextensive bonding between the walls defining the open end of the pouch, while the pouch is in a steam atmosphere.

3,830,682

RETROREFLECTING SIGNS AND THE LIKE WITH NOVEL DAY-NIGHT COLORATION

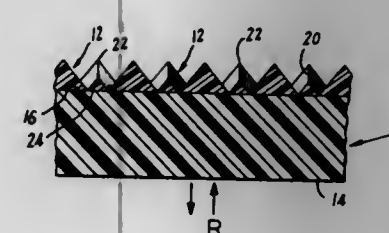
William P. Rowland, Southington, Conn., assignor to Rowland Development Corporation, Kensington, Conn.

Filed Nov. 6, 1972, Ser. No. 304,142

Int. Cl. B44f 1/00

U.S. Cl. 161—2

10 Claims



A retroreflective indicator providing differing day and night coloration is provided by a retroreflective material having a

transparent fluorescent dye composition forwardly of the reflective surface which fluoresces light of a first wavelength band and transmits light of a second wavelength band. The retroreflective material has a front face, a body portion of synthetic plastic material and reflective formations disposed inwardly of the front face. Under the diffuse ultraviolet electromagnetic radiation characteristic of sunlight, the indicator will fluoresce a colored light representative of the first wavelength band while under the generally columnar lower frequency electromagnetic radiation characteristic of artificial nightlight provided by automobile headlight beams, the indicator will retroreflect a colored light representative of the second wavelength band.

The dye composition may be dispersed substantially throughout the retroreflective material, or it may be located only in one or more layers thereof. For highway safety signs or markers, the dye composition is desirably one which fluoresces orange in sunlight and retroreflects red at night.

3,830,683

STEAM-ETCHED SOLVENT EMBOSSED TUFTED CARPET

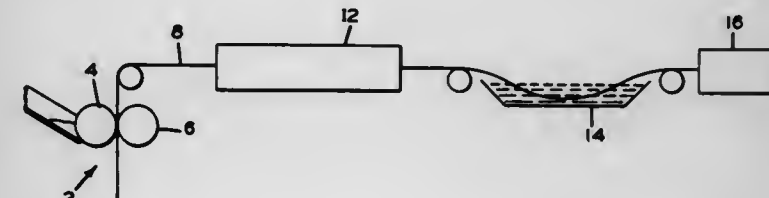
Walter J. Bohrn, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Continuation-in-part of Ser. No. 51,210, June 30, 1970. This application Aug. 21, 1972, Ser. No. 282,276

Int. Cl. D03c 19/00

U.S. Cl. 161—66

2 Claims



A tufted carpet material is printed with a decorative pattern. The ink formulation used for printing contains a solvent for the fiber of the carpet. After printing, the carpet is steamed. This causes the fibers to shrink and/or partially dissolve to produce an embossed effect. The carpet is then washed and dried. There is produced a carpet having an embossed design with a natural fibrous appearance.

3,830,684

FILLING SHEETS FOR LIQUID-GAS CONTACT APPARATUS

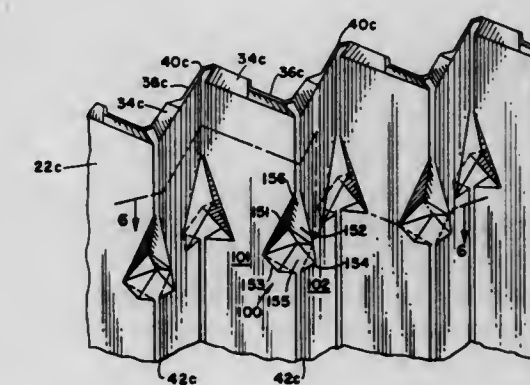
Maurice Hamon, Brussels, Belgium, assignor to Societe Hamon-Sobelco S.A., Bruxelles, Belgium

Filed May 9, 1972, Ser. No. 251,620

Int. Cl. B32b 3/12

U.S. Cl. 161—68

10 Claims



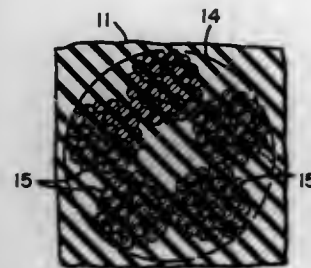
Corrugated sheet type filling for liquid-gas contact apparatus is provided with a plurality of ramp-like deformations which reduce liquid channeling particularly in the trough portions of the corrugations.

3,830,685

POLYURETHANES REINFORCED BY POLYVINYL ALCOHOL CORD

John S. Haley, Lake Junaluska; Jerry W. Cooper, and Arthur D. Logan, both of Waynesville, all of N.C., assignors to Dayco Corporation, Dayton, Ohio
Continuation-in-part of Ser. No. 71,237, Sept. 10, 1970, abandoned. This application Apr. 20, 1972, Ser. No. 245,910
Int. Cl. D06m 15/52; D02g 3/48
U.S. Cl. 161—88

8 Claims



A reinforced composition of improved physical properties is obtained by incorporating polyvinyl alcohol cords or fabrics into curable liquid urethane prepolymers. A strong chemical adhesion is obtained between the polyvinyl alcohol and urethane.

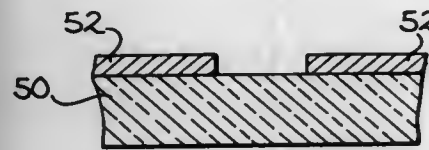
3,830,686

PHOTOMASKS AND METHOD OF FABRICATION THEREOF

William I. Lehrer, 1161 Seena Ave., Los Altos, Calif. 94022
Filed Apr. 10, 1972, Ser. No. 242,383
Int. Cl. C03c 17/00

U.S. Cl. 95—1 R

6 Claims



Photomasks and method of fabrication thereof, whereby a thin layer of germanium is deposited to a substrate which may be then etched in a pattern to provide a photomask or information storage device. In the fabrication method, a substrate is carried by belt through a first inert gas curtain into a furnace containing a mixture of suitable gases for causing the deposition of germanium onto the heated substrate, and there outward through a second inert gas curtain into a cooling region. The use of a germanium film for a mask blank results in a mask which is reasonably transparent to visible light but substantially opaque to ultraviolet light, and which may be deposited on to and removed from various substrates including glass using etchants which do not attack the substrate material.

3,830,687

FLAME RETARDANT AND FIRE RESISTANT ROOFING MATERIAL

Carlo Re, Glendale; Jack R. Conrad, Costa Mesa, and Joseph A. Tasso, Santa Ana, all of Calif., assignors to Dyna-Shield, Inc., Santa Ana, Calif.

Filed Aug. 4, 1972, Ser. No. 277,896

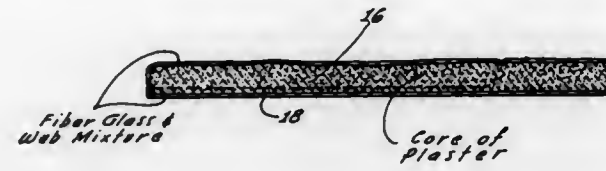
Int. Cl. B32b 5/16, 21/02

U.S. Cl. 161—168

8 Claims

An improved flame retardant and fire resistant roofing product is provided which simulates wooden shake shingles, tiles, planking, panels, or the like. The roofing product to be described can be stained to a wood finish, and it can be nailed,

sawn, or otherwise treated in the same manner as wooden shakes. The product provides a wood waterproof seal, and it is unaffected by wind, rain or snow. The roofing product of the invention comprises fiberglass and water-extended polyester mixed with a heat-proofing material, such as powdered or



fibrous asbestos, or powdered glass; and it may be intermixed with other materials, such as vermiculite (processed mica), ceramic glass modules, or the like; or it may include a core composed, for example, of Hydrocol or other gypsum material with an enclosing web of the fiberglass and water-extended polyester mixed with the heat-proofing material.

3,830,688

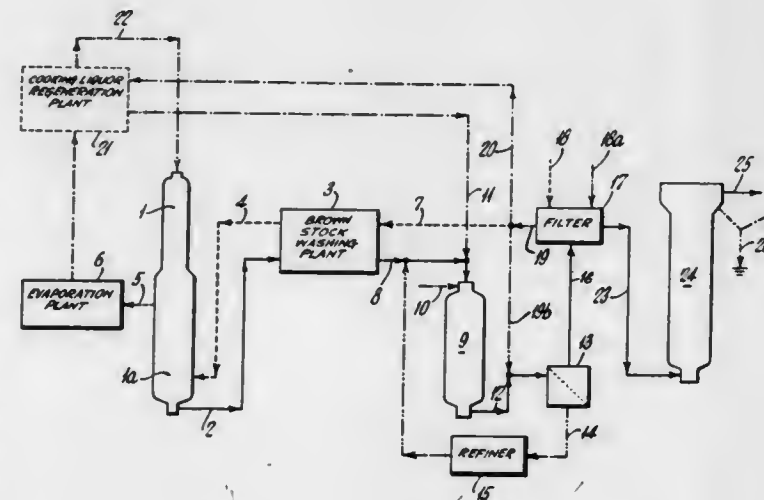
METHOD OF REDUCING THE DISCHARGE OF WASTE PRODUCTS FROM PULP MILLS

Nils Viktor Mannbrö, Morrum, Sweden, assignor to Skog-sagarnas Industri Aktiebolag, Vaxjo, Sweden
Continuation-in-part of Ser. No. 83,371, Oct. 23, 1970, abandoned, which is a continuation-in-part of Ser. No. 654,998, June 21, 1967, abandoned. This application Feb. 22, 1973, Ser. No. 334,785

Int. Cl. D21c 9/02, 9/08, 11/00

U.S. Cl. 162—29

5 Claims



Method for reducing the amount of waste products discharged from cellulose pulp mills to limit the pollution of recipient water into which the wastes are finally discharged. The amounts of coarse pulp waste products as well as fines which pass the dewatering wire cloths are reduced in a single treatment stage, while sulphides and resin acids with black liquor residues left in the pulp are chlorinated and/or oxidized before they are discharged into the recipient water. The volume of waste water is kept small. The process is characterized by the omission of the conventional washed unbleached pulp screening operation and passage of the unbleached pulp and wash medium directly to the bleaching operation. The unbleached pulp washing step is performed with aqueous supplanter, e.g., white water or vapor condensate, and is to be distinguished from fresh water washing.

3,830,689

SEPARATE IMPREGNATION AND COMMON DIGESTION OF DIFFERENT WOODEN RAW MATERIALS

Pentti Rautalahti; Jyrki Kettunen, both of Kirkniemi, and Olavi Sonni, Aankoski, all of Finland, assignors to Metsaluton Selluloosa Oy, Kirkniemi, Finland
Continuation-in-part of Ser. No. 877,417, Nov. 17, 1969, abandoned. This application Sept. 27, 1971, Ser. No. 184,257
Claims priority, application Finland, Nov. 19, 1968, 3310/68

Int. Cl. D21c 3/02, 3/12

U.S. Cl. 162—61

4 Claims

Each of at least two different wooden raw material portions are separately impregnated with separate wood cooking solutions differing in strength and pH after which excess cooking solution is withdrawn from each raw material portion and the separately impregnated raw material portions are cooked together in a single steam phase cooking step.

3,830,690

GROUNDWOOD PULP BLEACHING WITH SODIUM HYDROSULFITE IN THE PRESENCE OF SODIUM SALTS OF GLUCONO-CITRATE COMPLEXES OF POLYAMINOVERSENIC ACID

Leonard C. Ellis, Chesapeake, and Mearl A. Kise, Portsmouth, both of Va., assignors to Virginia Chemicals Inc., Portsmouth, Va.

Filed Aug. 3, 1972, Ser. No. 277,555

Int. Cl. D21c 9/10

U.S. Cl. 162—71

4 Claims

The bleachability of sodium hydrosulfite on groundwood pump is significantly improved when the bleaching is conducted in the presence of either sodium salts of gluconocitrate complexes of polyaminoverenic acid or disilicate complexes of sodium salts of glucono-citrate complexes of polyaminoverenic acid, such bleaching process significantly reducing the eutrophication of waters into which waste effluents may flow.

3,830,691

SPREADER SHOWER FOR FABRIC BELTS OF PAPER MAKING APPARATUS

Robert Andrew Truesdale, Decatur, Ga., and John Gordon Buchanan, Pointe Claire, Quebec, Canada, assignors to J. W. I. Ltd., Montreal, Quebec, Canada

Filed Oct. 23, 1973, Ser. No. 408,272

Claims priority, application Great Britain, Dec. 13, 1972, 57617/72

Int. Cl. D21f 1/30, 1/32

U.S. Cl. 162—273

10 Claims



In a shower for cleansing the fabric on a paper machine, the shower nozzles are angled outward towards the edges of the fabric so as to spread the fabric and prevent ridges and wrinkles from forming. Preferably the nozzles are angled between 20° and 30° from the shower pipe and the shower is located after a driven roll.

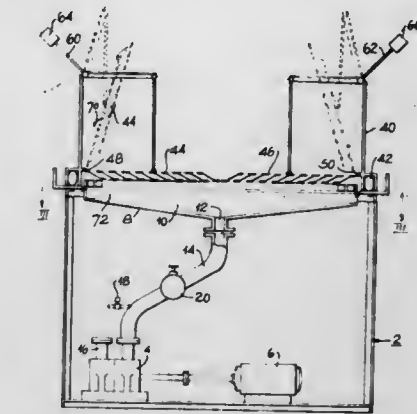
3,830,692

MACHINE FOR THE MECHANICAL RESTORATION OF RARE BOOKS AND MANUSCRIPTS

Esther Alkalay, and Eliahou Sochaczewer, both of Jerusalem, Israel, assignors to Yissum Research Development Company, Hebrew University, Jerusalem, Israel
Filed Feb. 12, 1973, Ser. No. 331,610
Claims priority, application Israel, Feb. 18, 1972, 38793
Int. Cl. D21j 3/00

U.S. Cl. 162—383

8 Claims



A machine for the mechanical restoration of papers and documents comprises a housing having a chamber, a screen over the upper end of the chamber for receiving the documents to be restored, a suction pump applying a vacuum to the lower face of the screen, a well overlying the screen for containing a mixture of water and the paper-restoring composition, and a hold-down member overlying the screen and movable through the well from an operative position pressing against the upper face of the document to hold it firmly against the upper face of the screen. The hold-down member is pivotable to an inoperative position, disengaged from the document and includes water-directing channels for directing the liquid adhering thereto to drain to its sides and then to the sides of the well rather than to drip downwardly onto the document in the middle of the well.

3,830,693

GATE FOR CIRCULATION CONTROL IN NUCLEAR REACTOR USING CIRCULATING FUEL-ELEMENT BALLS

Ali Ekber Beser; Wolfgang Scholz, both of Essen; Rudolf Kaiser, and Norbert Pohlig, both of Ettlingen, all of Germany, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany

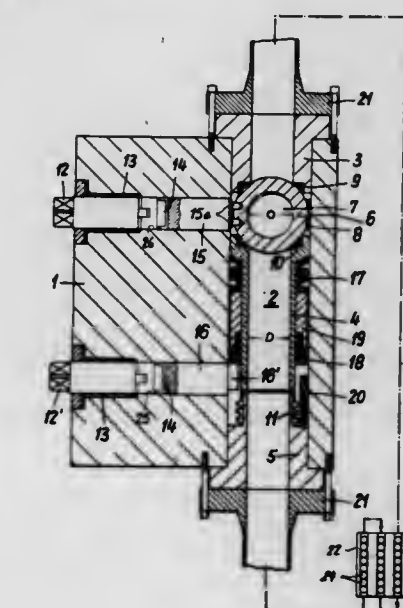
Filed June 14, 1972, Ser. No. 262,682

Claims priority, application Germany, June 18, 1971, 2130220

Int. Cl. G21c 19/02

U.S. Cl. 176—18

4 Claims



A nuclear reactor having a circulation path in which fuel-element or fertile-material balls are circulated is provided with

a gate or valve having a housing formed with an elongated throughgoing passage and a valve ball therein with a throughgoing bore alignable with the passage to permit throughflow and adapted to be oriented transverse to the passage axis to close the gate. The valve ball floats between two annular seals one of which is urged against the ball by a sleeve in turn biased by a spring resting on an annulus which rides on an eccentric or other cam arrangement. The housing is formed with a pair of bores transverse to the passage each of which contain a control rod a further rod and connected thereto via a double slider. One further rod is provided with a pair of pins loosely received in corresponding bores of the valve ball such that its rotation rotates the valve ball. The other second rod carries the eccentric which determines the force with which the seals grip the valve ball.

3,830,694

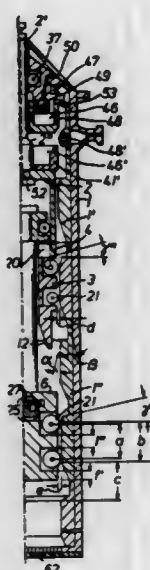
CONTROL ROD DRIVE FOR NUCLEAR REACTORS

Heinz Acher, Friedberg, Germany, assignor to Licentio Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany
Filed May 8, 1972, Ser. No. 251,228

Claims priority, application Germany, May 8, 1971, 2122846

Int. Cl. F15b 15/26; G21c 7/08

U.S. Cl. 176—36 R



A nuclear reactor control rod drive having relatively wide annular gaps for hydraulic fluid between relatively movable parts in the device. Guide structure associated with movable control pistons in the device provides for mounting of these pistons approximately concentrically within a guide tube and with less play with respect to this structure than the clearance between bearing surfaces at the guide tube. Hydraulic fluid at a pressure in excess of fluid pressure in the reactor can be selectively fed into the guide tube from the top of the tube for a rinsing operation.

3,830,695

NUCLEAR REACTOR

Michel Sauvage, Aix-en-Provence, France, assignor to Commissariat A L'Energie Atomique, Paris, France
Filed May 15, 1972, Ser. No. 253,021

Claims priority, application France, May 24, 1971, 71.18628

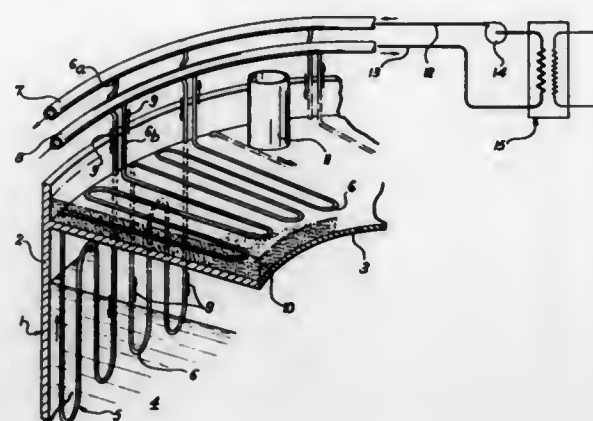
Int. Cl. G21c 9/00

U.S. Cl. 176—38

3 Claims

A nuclear reactor comprising a vessel containing a liquid metal for cooling the reactor core and a roof closing the top of the vessel, the roof being associated with a coolant circuit comprising a first part immersed in the liquid metal in the vessel and a second part secured to the roof, characterized in that the two parts are connected to one another in series and also

respectively connected to inlet and discharge collectors for the coolant, the circuits being formed by at least one continuous pipe disposed in the immediate neighborhood of the inner



surface of the vessel in the first part of the circuit and next to the roof in the second part of the circuit, the inlet and discharge collectors being disposed outside the vessel.

3,830,696

PROCESS FOR THE PREPARATION OF 5-HYDROXY-L-TRYPTOPHAN

Joachim Daum, and Klaus Kieslich, both of Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Germany

Filed Oct. 3, 1972, Ser. No. 294,528

Claims priority, application Germany, Oct. 6, 1971, 2150535

Int. Cl. C12d 1/00

U.S. Cl. 195—29

11 Claims

A process for the preparation of 5-hydroxy-L-tryptophan, comprising microbiologically hydroxylating a substrate selected from the group consisting of L-tryptophan, D,L-tryptophan and ω -N-acyl-L-tryptophan with a human-non-pathogenic microorganism selected from the group consisting of the families micrococcaceae, pseudomonadaceae, corynebacteriaceae, and bacillaceae, especially the specie *Bacillus subtilis* ATCC No. 21733.

3,830,697

PROCESS FOR PRODUCING AMYLOSES

Mikihiko Yoshida, Okayama-shi, and Mamoru Hirao, Okayama, both of Japan, assignors to Hayashibara Company, Okayama-shi, Okayama, Japan

Filed Sept. 2, 1969, Ser. No. 854,760

Claims priority, application Japan, Sept. 3, 1968, 43-63172

Int. Cl. C131 1/08

U.S. Cl. 195—31 R

1 Claim

Production on an industrial scale of amylose having a high purity is made possible by a process for producing amylose mainly composed of a high molecular amylose, wherein amyloamize starch having a high amylose content or amylose starch separated from sweet potato starch, white potato starch or corn starch is subjected to hydrolysis to selectively hydrolyze only α -1,6-glucoside bond of the arborescent structure of amylopectin contained therein in an amount of 20–40 percent with α -1,6-glucosidase, i.e., an enzyme produced by *Aerobacter*, *Pseudomonas*, *Lactobacillus* or *Escherichia*, thereby obtaining starch of amylose type.

3,830,698

METHOD AND APPARATUS FOR CONTROLLING THE TEMPERATURE IN A FRACTIONATION COLUMN

Louis D. Kleiss, Borger, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 869,794, Oct. 27, 1969, abandoned.

This application Dec. 30, 1971, Ser. No. 214,482

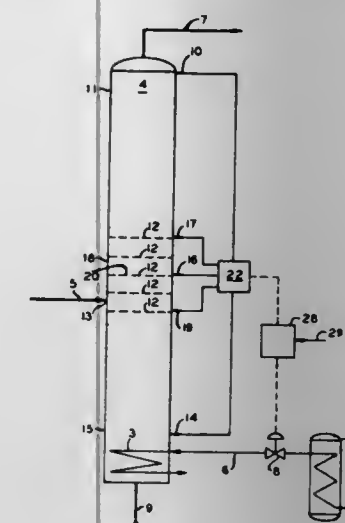
Int. Cl. B01d 3/42

U.S. Cl. 203—2

6 Claims

A plurality of temperature sensing probes are positioned within a separating column at specific spaced-apart locations

throughout the column for obtaining a temperature measurement related to the column's compositional behavior and au-



tomatically controlling the operation of the column in response to computation of the plural temperature measurement.

3,830,699

INSOLUBILIZED ENZYMES

Oskar R. Zaborsky, Watchung, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.

Filed Mar. 16, 1972, Ser. No. 235,437

Int. Cl. C07g 7/02

U.S. Cl. 195—63

18 Claims

A general process for preparing water-insoluble enzymes which comprises covalently bonding said enzymes to an insoluble polymer, said bonding taking place by the reaction of imidoester functional groups on said polymer with enzyme amino groups. The polymer is preferably an acrylonitrile-based polymer wherein at least a substantial portion of the surface acrylonitrile groups are converted into imidoesters by contacting with an alcohol and a hydrogen halide (e.g., HCl) to form imidoester functional groups. Said imidoester functional groups are then contacted with an aqueous enzyme-containing solution at reaction conditions whereby an insoluble enzyme composite is formed. Said insoluble enzyme composite retains activity substantially equivalent to the enzyme in its native state and further shows increased resistance to degradation by heat as well as chemical denaturants.

3,830,700

TEST FOR β -LACTAMASE ACTIVITY USING CHROMOGENIC CEPHALOSPORIN COMPOUND

Cynthia Hilda O'Callaghan and John Colin Clark, Gerards Cross, England, James Kennedy, Montrose, Scotland, Susan Mary Kirby, Iver Heath, Alan Gibson Long, Greenford; Allan Morris, Bagshot and Anthony Harold Shingler, and Niall Galbraith Weir, London, England, assignors to Glaxo Laboratories Limited, Greenford, England

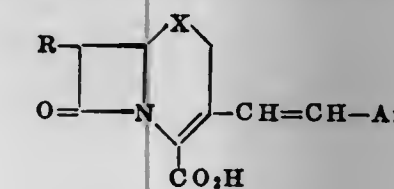
No Drawing. Filed Oct. 3, 1972, Ser. No. 294,649
Claims priority, application Great Britain, Oct. 7, 1971, 46,798/71

Int. Cl. C12k 1/00; G01n 31/22

U.S. Cl. 195—103.5 R

7 Claims

Cephalosporin compounds having the formula



where R is amino or blocked amino, X is —S—, —SO— (α or β) or —SO₂—, and Ar is a carbocycle or a hetero-

cycle substituted by at least one electron withdrawing substituent in conjugation with the exocyclic —CH=CH— double bond, and salts and esters are useful chromogenic agents for the detection of β -lactamase activity. Test reagents containing such compounds are also disclosed.

3,830,701

AUTOMATIC PETRI DISH STREAKING METHODS AND APPARATUS

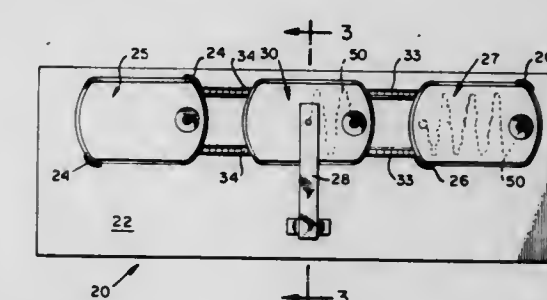
Gerald J. Stussman, Bethel, Conn., Karl H. Larsson, Monrovia, Calif. and John R. Smeaton, Ridgefield, Conn., assignors to Hycel, Inc., Houston, Tex.

Filed Sept. 8, 1970, Ser. No. 70,028

Int. Cl. C12b 1/02

U.S. Cl. 195—120

24 Claims



A captive spherical ball initially suspended in the cover of a petri dish serves as a spreader for streaking and isolating bacteria from a sample. After inoculum is placed on the agar culture medium at one point in the petri dish, the ball is released and dropped into the inoculum. As the dish advances across a streaking station, an underlying magnet reciprocates, rolling the ball through the inoculum and then along a predetermined zig-zag path across the agar in the moving petri dish, depositing microorganisms across the culture medium. This system quickly and automatically spreads or "streaks" the bacteria sample over the culture medium in the petri dish without requiring human exposure or contact with the bacteria sample. When streaking is completed, the ball is recaptured to avoid disturbing the streaked sample.

3,830,702

BACTERIOLOGICAL MEDIA TUBE

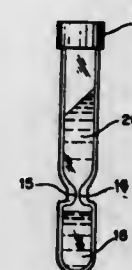
Orville A. Beckford, Port Washington, N.Y., assignor to Diagnostic Research, Inc., Roslyn, N.Y.

Filed Feb. 2, 1973, Ser. No. 329,014

Int. Cl. C12k 1/10

U.S. Cl. 195—139

3 Claims

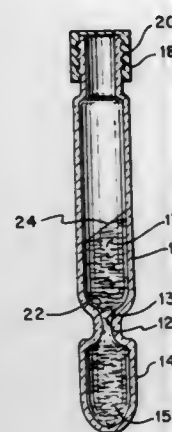


A transparent test tube is provided with a constriction which permits the tube to be filled with two unlike media separated by a gas bubble. The constriction is provided with an arcuate shape which permits filling of the lower portion of the escape confined gas with a constriction small enough to limit the flow from the upper portion to the lower portion during the filling operation.

3,830,703

ENTERIC BACILLI DIFFERENTIAL APPARATUS
Orville A. Beckford, Port Washington, N.Y., assignor to
Diagnostic Research, Inc., Roslyn, New York
Filed Feb. 2, 1973, Ser. No. 329,176
Int. Cl. C12k 1/10
U.S. Cl. 195—127

9 Claims

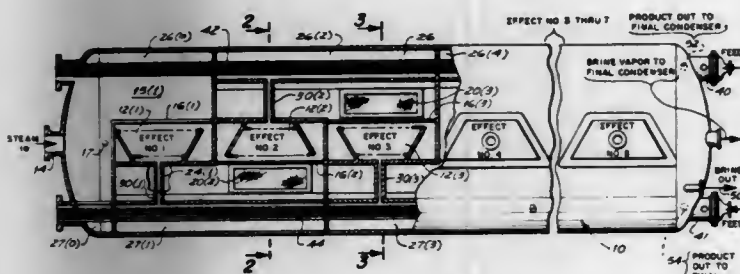


This enteric differential apparatus combines fourteen recognized biochemical parameters in a four-tube culture media in such a manner that each individual species within the family Enterobacteriaceae causes the media to assume a distinctive appearance. Two tubes comprise the basic R/B differential system. Two additional tubes comprise an expander set. One or both of the expander tubes may be used in combination with the basic system. A unique tube facilitates inoculation, separates culture media components to prevent interaction, thus increasing shelf life, provides sharp differentiation between reactions and permits the use of semi-solid gels to obtain more sensitive determination of motility. The tube may be used for other culture media tests. Another advantage is that the tube permits transportation of semi-solid gel media without breakup.

3,830,704

MULTIPLE EFFECT EVAPORATOR SYSTEM
Kurt F. Frank, Pomona, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.
Filed Oct. 6, 1972, Ser. No. 295,588
Int. Cl. B01d 1/22, 1/26, 3/00
U.S. Cl. 202—174

5 Claims



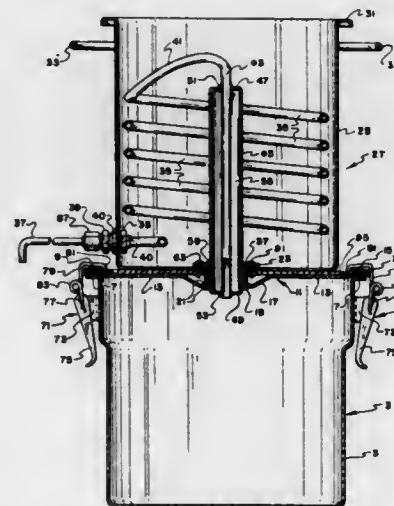
A multiple effect vertical tube evaporator system employing an elongated shell with a plurality of juxtapositioned and transversely-oriented effects characterized by alternatively-opposite, horizontal, transverse vapor flow in adjacent effects and positioned in the shell with each effect having a condensing side and an evaporating side to form a concentrate and a hot vapor with two longitudinally-extending, internally-disposed preheater compartments located respectively along opposite inside walls of the elongated shell. The two preheater compartments are each subdivided into several distinct preheater sections with each preheater section being associated with the condensing side of a single effect with

means being provided for removing condensate and vapor from the condensing side of said single effect to the associated preheater section with alternate effects being connected to preheater sections of the opposing preheater compartments. A bundle of longitudinally-extending tubes is situated in each of the two preheater compartments for heating evaporator feed prior to its introduction into the multiple effect evaporator.

3,830,705

WATER DISTILLER
Karl Dewegeli, 9411 South 1025 East,
Salt Lake City, Utah 84070
Filed Oct. 16, 1972, Ser. No. 298,148
Int. Cl. C02b 1/04
U.S. Cl. 202—189

5 Claims



A domestic water distilling apparatus adapted for use in generating distilled water in the home comprises a boiler section consisting of a kettle-like container cover section releasably engagable thereto by spring clamps which also serve release to the top section in the event of a buildup of an undue amount of pressure within the boiler section. The cover is arranged to receive a condenser section placed vertically above the boiler section and insulated therefrom by an insulation means such as an asbestos mat. A vertically extending portion of a tube which receives steam from the boiler section and delivers it to a coil in the condenser section is insulated from the coolant water reservoir of the condenser section, such as by a fully enclosed air filled chamber. The condenser section may be stored within the boiler section.

ERRATUM

For Class 203—11 see:
Patent No. 3,830,698

3,830,706

HEAT AND MASS TRANSFER BETWEEN TWO LIQUIDS OF DIFFERENT VAPOR PRESSURE VIA A COMMON VAPOROUS COMPONENT
Abraham Kogan, 35a Trumpeldor Avenue,
Neve Shaanan, Haifa, Israel

Continuation-in-part of Ser. No. 11,808, Feb. 16, 1970, which is a continuation-in-part of Ser. No. 755,220, Aug. 26, 1968, both now abandoned. This application Oct. 10, 1971, Ser. No. 188,457

Claims priority, application Israel Oct. 1, 1967 28,707; May 15, 1968 29,999

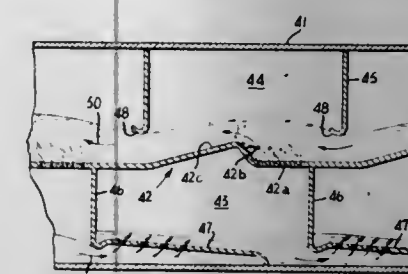
Int. Cl. B01d 1/28, 3/00, 3/02, 3/10

U.S. Cl. 203—11

4 Claims

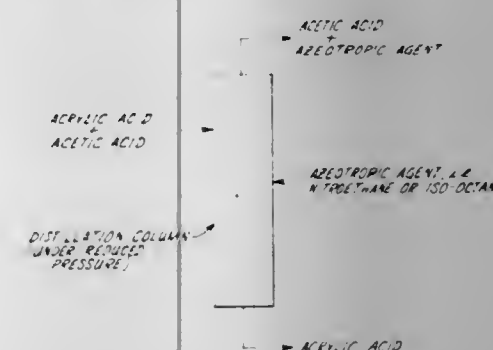
A process and apparatus for transferring heat and/or mass from a stream of homogeneous liquid of higher vapor pressure to another stream of liquid of lower vapor pressure. The process comprises the steps of flowing the

liquid of lower vapor pressure along a channel which includes an apertured partition, flowing solely the homogeneous liquid of higher vapor pressure along a second channel which is separated from the apertured partition by a vapor transfer region, and evolving a vapor from the liquid of lower vapor pressure. The vapor evolved vapor transfer region beneath the apertured partition,



PROCESS FOR THE PURIFICATION OF ACRYLIC ACID
Osamu Kageyama and Manabu Kai, Tsurugaoka, Takuya Miho, Ohtake, and Kunio Koga, Tsurugaoka, Japan, assignors to Daicel Ltd., Osaka, Japan
Filed Dec. 2, 1971, Ser. No. 204,314
Claims priority, application Japan, Dec. 8, 1970, 45/108,823
Int. Cl. B01d 3/10, 3/36
U.S. Cl. 203—8

1 Claim



Pure acrylic acid is obtained from a mixture containing acrylic acid and acetic acid by subjecting the mixture to an azeotropic distillation by employing isooctane or nitroethane as an azeotropic agent at a reduced pressure to remove acetic acid from the mixture.

3,830,708

PROCESS FOR THE PURIFICATION OF PHENOL BY AZEOTROPIC DISTILLATION WITH ETHYLENE GLYCOL

Terry L. Karhan, Somerset and Stephen Kaufman, Bridgewater, N.J., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed July 18, 1972, Ser. No. 272,990

Int. Cl. B01d 3/36; C07c 39/04

U.S. Cl. 203—64

6 Claims

The disclosure of this application is directed to a process for the separation of an aromatic hydroxyl compound, particularly a phenol, from a mixture containing an aromatic hydroxyl compound and liquid hydrocarbon impurities as, for example, result from the cleavage of a hydroperoxide produced by the oxidation of an alkyl

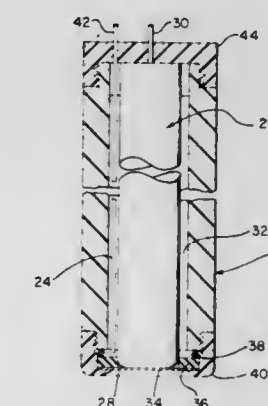
substituted aromatic hydrocarbon such as cumene or secondary-butylbenzene, by distilling the mixture in the presence of sufficient ethylene glycol to form azeotropic compositions between the ethylene glycol and hydrocarbon impurities with the result that the azeotropic compositions distill off and substantially all of the aromatic hydroxyl compound remains as the distilland.

3,830,709

METHOD AND CELL FOR SENSING NITROGEN OXIDES

John A. Krueger, Cambridge, Mass. and James W. Ross, Richmond, Va., assignors to Orion Research Incorporated, Cambridge, Mass.
Filed Apr. 9, 1973, Ser. No. 349,392
Int. Cl. G01n 27/46
U.S. Cl. 204—1 T

8 Claims



An improved gas-sensing electrochemical cell for measuring nitrogen dioxide dissolved in a sample solution. The cell comprises a potentiometric hydrogen ion-sensitive electrode and a reference or standard electrode, both in contact with an internal standard solution comprising an aqueous acid solution of a nitrite salt. A hydrophobic gas-permeable membrane separates the sample solution from the internal solution.

3,830,710

MASKED ELECTRODE STRUCTURE AND PROCESS FOR ELECTROLYTIC DEPOSITION OF METALS

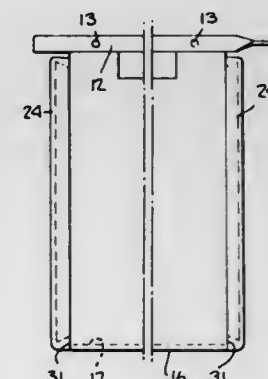
John Stanley Narozanski, Copper Cliff, Ontario and Christopher Charles Dunkley, Sudbury, Ontario, Canada, assignors to The International Nickel Company, Inc., New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 104,981, Jan. 8, 1971. This application July 12, 1972, Ser. No. 271,154

Int. Cl. C22d 1/16

U.S. Cl. 204—12

8 Claims



The invention is directed to the electrolytic deposition of metals and particularly to a novel masked cathode structure upon which metal is deposited. The mask com-

prises a removable, shrink-fitted, corrosion resistant, insulating member which envelops the vertical side edges of the cathode and substantially seals said vertical edges from contact with the electrolyte. Retaining surfaces on the vertical cathode edges mate and lock on to complementary surfaces within the masks. The bottom edge of the cathode is provided with a V-shaped groove whereby a plane of weakness is formed in the electrodeposit at that point.

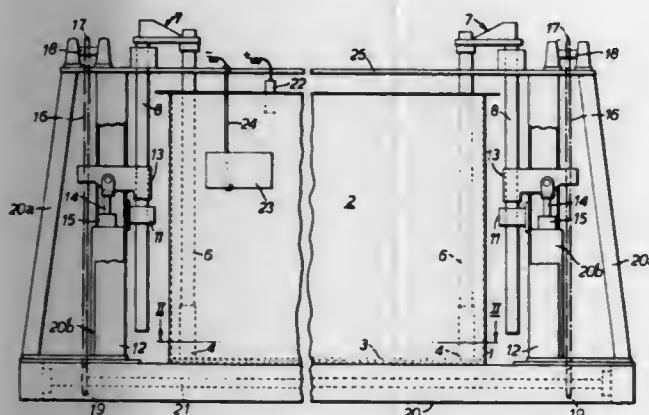
3,830,711 ELECTRODEPOSITION OF COMPOSITE COATINGS

Eric Charles Kedward, Banwell, Somerset, England, and James Graham Martin, Weston-Super-Mare, Somerset, England, assignors to Bristol Aerojet Limited, Weston-Super-Mare, Somerset, England

Continuation-in-part of abandoned application Ser. No. 218,883, Jan. 19, 1972. This application July 20, 1972, Ser. No. 273,644

Int. Cl. C23b 5/00, 5/68
U.S. Cl. 204—43 T

5 Claims



A method and apparatus for the electrodeposition of composite coatings which comprise a metal matrix with ceramic cermet or laminar particle additions in which a horizontal agitator is reciprocated vertically in a region of the plating bath below that used for deposition.

3,830,712 PROCESS FOR HYDRODIMERIZING OLEFINIC COMPOUNDS

Charles R. Campbell and Donald E. Danly, Pensacola, Fla., and Werner H. Mueller, Kelkheim Hornau, Taunus, Germany, assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Aug. 28, 1972, Ser. No. 284,373
Int. Cl. B01k 3/06; C07b 29/06; C07c 121/26

U.S. Cl. 204—73 A

16 Claims

In a process for hydrodimerizing an olefinic nitrile, amide or ester by electrolyzing an aqueous solution of the olefinic compound, an alkali metal salt and quaternary ammonium cations, the selectivity with which the hydrodimer is produced is surprisingly high when the solution contains less than about 5% by weight of the olefinic compound, more than 5% by weight of the alkali metal salt and/or alkali metal cations constituting more than half of the total weight of all cations in the solution and the solution is electrolyzed in contact with a cathode consisting essentially of cadmium. Even in a cell in which the anode is in contact with the solution, fouling of such a cathode proceeds very slowly and the hydrodimer selectivity remains high for an exceptionally long time when the cathodic surface has a centerline average not greater than about 90 microinches.

3,830,713 ELECTROLYTIC TREATMENT OF METAL SURFACES TO ELECTRODEPOSIT ALUMINA

John Kempton Aiken, Warehorne, near Ashford; Clive Larson, Chiswick and Graham Sanderson, High Wycombe, England, assignors to National Research Development Corporation, London, England

No Drawing. Filed Mar. 13, 1973, Ser. No. 340,820
Claims priority, application Great Britain Mar. 14, 1972, 11,853/72

Int. Cl. C01b 13/14

U.S. Cl. 204—96

17 Claims

A method for the anodic electrodeposition of an oxide or hydroxide of aluminium from a bath comprising an aluminate solution stabilised by at least one aliphatic monocarboxylic acid containing at least six carbon atoms and at least four substituent hydroxyl groups, or a salt, boroderivative or lactone thereof, said boroderivative being obtainable by reacting boric acid or a borate with said acid or salt. Sodium gluconate is a particularly useful stabiliser and electrodeposition may be conducted in the presence of a suitable colouring agent to produce a coloured deposit.

3,830,714 ELECTROCHEMICAL WORKING OF ELECTRICALLY CONDUCTIVE MATERIALS

Jan Zubak, Ostrov, Ľibor Trebichavsky, Nove Mesto nad Vahom, and Jan Augustin, Podolie, Czechoslovakia, assignors to Vyskumny ustav mechanizacie a automatizacie, Nove Mesto nad Vahom, Czechoslovakia

Filed Nov. 18, 1968, Ser. No. 776,713

Int. Cl. B23p 1/00

U.S. Cl. 204—129.6

2 Claims

Electrically conductive materials are worked by the electrochemical method by means of a working tool connected to one pole of a source of electric current, whereas the workpiece is connected to the second pole of said source of electric current, the workpiece and working tool facing each other with the surface of the workpiece to be worked and with the active surface of the working tool, with a space left between both surfaces. A medium composed of an electrolyte and of a gas, forming an unstable mixture is forced into the space between workpiece and working tool creating at places to be worked sections with at least two different electric conductivities while proceeding along said place to be worked.

3,830,715 PROCESS FOR THE PREPARATION OF OXYMETHYLENE POLYMERS IN THE PRESENCE OF AN ACYCLIC ACETAL AND A CYCLIC ACETAL

Akihiko Ito, Masaru, Yoshida, and Yoshiaki Nakase, Takasaki, Tadashi Iwai, Kanagawa-ken, Koichiro Hayashi, Sapporo, and Seizo Okamura, Kyoto, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

No Drawing. Continuation of abandoned application Ser. No. 23,059, Mar. 26, 1970. This application June 26, 1972, Ser. No. 266,216

Claims priority, application Japan, Mar. 31, 1969, 44/24,563; Dec. 22, 1969, 44/103,270

Int. Cl. B01f 7/16; C08d 1/00; C08f 1/16

U.S. Cl. 204—159.21

10 Claims

Tetraoxane is polymerized in the solid state in the presence of a cyclic acetal and an acyclic acetal in a short time, with high yields and in one step to produce oxymethylene polymers of high thermal stability. The cyclic acetal is 1,3-dioxolane and the acyclic acetal is methylal. The molecular weight of the product polymers can be controlled by varying the amounts of the acetals.

3,830,716 ELECTROCOATING METHOD AND APPARATUS

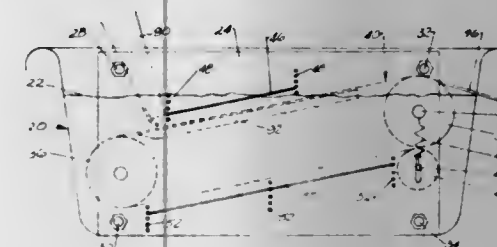
Eugene E. Haney and Harry LaTour, Middletown, and Roy A. Brown, Jr., Monroe, and Karl T. Bagdal, Forest Park, Ohio, assignors to Armco Steel Corporation, Middletown, Ohio

Filed July 22, 1971, Ser. No. 165,165

Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—181

20 Claims



A multiplicity of small articles to be electrocoated are delivered onto a conveyor for movement through the electrocoating bath. The conveyor must include a clean, preferably foraminous surface, and be effective to transmit an electric charge of one potential to the articles carried thereby. An electrode at a second potential is disposed in the electrocoating bath adjacent the path of travel of the articles on the conveyor. The articles may be pretreated with a composition compatible with the electrocoating bath.

3,830,717 SEMICONDUCTOR CAMERA TUBE TARGET

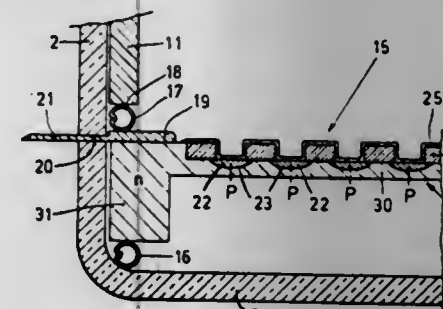
Barry M. Singer, New York, N.Y. and Richard Bently Liebert, Ridgefield, Conn., assignors to North American Philips Corporation, New York, N.Y.

Filed Oct. 16, 1972, Ser. No. 297,715

Int. Cl. C23c 15/00; H01j 31/26; H01l 15/00

U.S. Cl. 204—192

11 Claims



Method of producing a semiconductor target for a camera tube, comprising sputtering a preliminary layer on a target wafer containing p-n junctions, sputtering being carried out in an atmosphere containing a nitrogen partial pressure; annealing the wafer-preliminary layer assembly; removing the preliminary layer; and providing an electron discharge layer on the target wafer.

A semiconductor camera tube target produced by this method.

3,830,718 AMMONIA SENSOR

John H. Riseman and John Krueger, Cambridge, and Martin S. Frant, Newton, Mass., assignors to Orion Research Incorporated, Cambridge, Mass.

Filed Mar. 22, 1973, Ser. No. 343,868

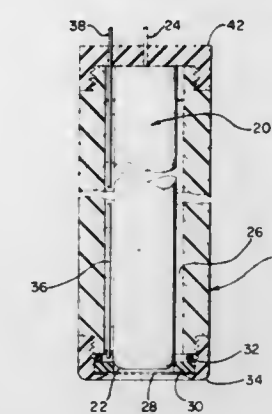
Int. Cl. G01n 27/46

U.S. Cl. 204—195 P

2 Claims

An ammonia electrode has a standard electrolyte solution comprising a saturated aqueous solution of an am-

monium salt of a strong acid anion (e.g., picrate) having a pK not more than 3, the salt having an aqueous solu-



bility at room temperature such that the ammonium ion concentration is about 0.001 M to 1 M.

3,830,719 CATHODIC PROTECTION SYSTEM FOR MARINE PROPULSION UNIT

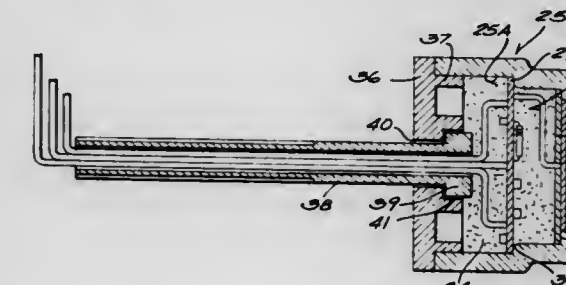
David T. Cavil, Menomonee Falls, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Continuation of abandoned application Ser. No. 27,833 Apr. 13, 1970. This application Dec. 3, 1971, Ser. No. 204,585

Int. Cl. C23f 13/00

U.S. Cl. 204—196

18 Claims



Disclosed herein is a cathodic protection system for the immersed surfaces of a marine propulsion device which includes a power supply, an anode supported on the boat hull below the water surface, and a transistor connected between the power supply and anode. Current flow through the transistor is regulated by a monitoring circuit stage which includes a reference electrode supported on the boat hull below the water surface. The circuit components are contained in a circuit module which is located in a housing below the water surface and which also supports one of the electrodes in a position exposed to the sea water.

3,830,720 MATERIAL FOR PREVENTING CREVICE CORROSION

Yoshihisa Mizutani, and Isao Ohba, Nishinomiya, and Takeshi Misaki, Ikeda, and Harumi Satoh, Hirakata, Japan, assignors to Nippon Yakin Kogyo Company Limited, Tokyo, Japan

Filed May 24, 1971, Ser. No. 146,419

Claims priority, application Japan, May 30, 1970, 45/46,003

Int. Cl. C23f 13/00

U.S. Cl. 204—197

4 Claims

Sacrificing anode for preventing crevice corrosion to be caused in stainless steel container or boiler is constituted by coating a core wire of rod-shaped chromium series or chromium-nickel series stainless steel with aluminum or aluminum alloy, the ratio of the thickness of said coated layer to the diameter of said core wire being 0.5 to 10.

3,830,721

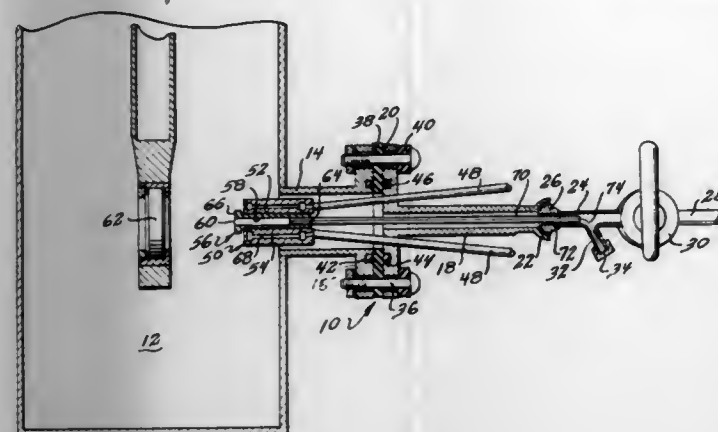
HOLLOW CATHODE SPUTTERING DEVICE
Dieter M. Gruen, Downers Grove, Ill., Dean H. W. Carstens, Los Alamos, N.M., and John F. Kozlowski, West Lafayette, Ind., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 22, 1973, Ser. No. 390,644

Int. Cl. C23c 15/00

U.S. Cl. 204—298

4 Claims



An apparatus for the deposition of thin films of material upon articles by cathodic sputtering. Deposition occurs when a flow of appropriate carrier gas carries material sputtered from the interior of the hollow cathode to the article.

3,830,722

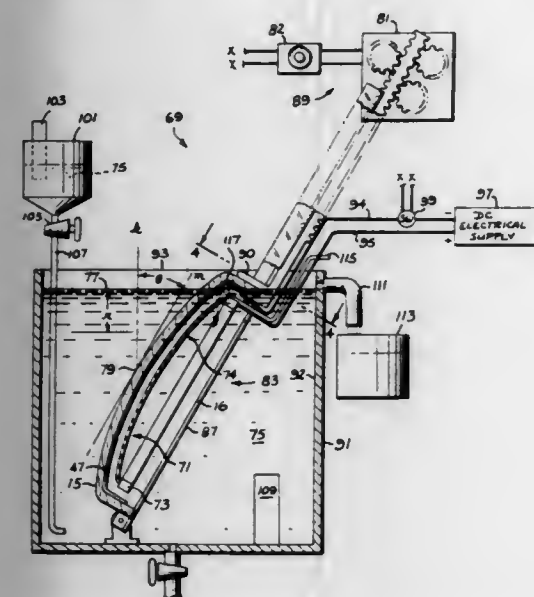
APPARATUS FOR FABRICATING A CATHODE RAY TUBE SCREEN STRUCTURE
Charles H. Rehkopf and Kenneth Speigel, Seneca Falls, N.Y., assignors to GTE Sylvania Incorporated

Filed May 7, 1973, Ser. No. 357,941

Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—299

11 Claims



An apparatus is provided for superposing an electrophoretic coating on a previously applied electrically conductive apertured webbing disposed on the interior surface of a color cathode ray tube viewing panel. Inclined panel supportive means is located in an open top container holding an electrophoretic coating suspension. The panel is placed thereon in a manner whereof the panel opening and the panel interior surface are oriented in a slanted downward direction to provide for a substantially upward electrophoretic deposition of the coating onto the conductive webbing on the panel. A perforated electrode member is formed for positioning relative to the opening

of the panel. Panel movement means effects immersion and withdrawal of the panel from the coating suspension, and a direct current voltage source connected to the electrode member and the panel webbing supplies the electrical potential for coating deposition.

3,830,723

PROCESS FOR PREPARING HVI LUBRICATING OIL BY HYDROCRACKING A WAX

Peter Ladeur and Gerrit Van Gooswilligen, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 21, 1973, Ser. No. 343,614
Claims priority, application Netherlands, Apr. 6, 1972, 7204581; Dec. 19, 1972, 7217257

Int. Cl. C10g 13/06

U.S. Cl. 208—108 11 Claims
A lubricating oil meeting the SAE-10W/30 specification is prepared from wax obtained from a de-asphalted residual mineral oil fraction by hydrocracking at 325–425° C. over a fluorine-containing alumina-supported mixed sulfide catalyst to give a liquid product containing 25–85% wt. material boiling above 400° C., isolating a residual fraction having an initial-boiling point between 350 and 470° C., and dewaxing that fraction.

3,830,724

HYDROCRACKING PROCESS

Hans U. Schutt, Houston, Tex., assignor to Shell Oil Company

No Drawing. Filed Oct. 19, 1972, Ser. No. 298,897

Int. Cl. C10g 13/02; C01b 33/28

Int. Cl. 208—111 7 Claims
A process for hydrocracking a hydrocarbon feedstock by contacting the hydrocarbons under hydrocracking conditions and in the presence of hydrogen with a catalyst having Group VIII and/or Group VI-B metals incorporated into a mixed zeolite support consisting of channel pore structure and three-dimensional pore structure zeolites of low-alkali metal content.

3,830,725

CRACKING HYDROCARBONS WITH CATALYSTS CONTAINING NICKEL AND MAGNESIUM EXCHANGED ZEOLITES

Geoffrey E. Dolbear, Columbia, and John S. Magee, Jr., Baltimore, Md., assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Original application Dec. 23, 1970, Ser. No. 101,099, now abandoned. Divided and this application May 24, 1972, Ser. No. 256,608

Int. Cl. B01j 9/20; C01b 33/28; C10g 11/18

U.S. Cl. 208—120 6 Claims
Z-14 US zeolite promoters for hydrocarbon cracking catalysts are exchanged with a combination of nickel and magnesium ions and subsequently calcined. Cracking catalysts containing these zeolites are found to possess increased selectivity for the production of aromatic gasolines having increased non-leaded octane ratings. Furthermore, the nickel and magnesium exchanged Z-14 US zeolite may be advantageously combined with rare earth exchanged faujasite containing catalysts.

3,830,726

REFORMING WITH A TRIMETALLIC CATALYST
Joseph Edouard Weisang and Philippe Engelhard, Le Havre, France, assignors to Compagnie Francaise de Raffinage, Paris, France

Filed Aug. 10, 1971, Ser. No. 170,583

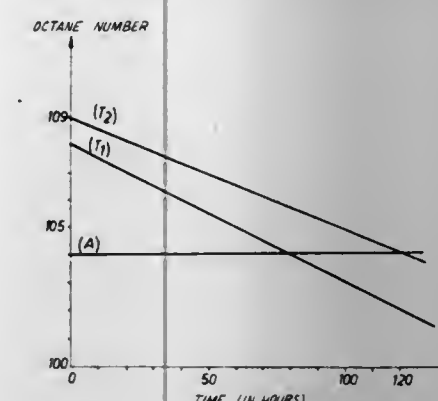
Claims priority, application France Aug. 14, 1970, 7029985

Int. Cl. C10g 35/08

U.S. Cl. 208—138 1 Claim
Novel catalysts for reforming hydrocarbon fractions in the presence of hydrogen and novel applications of

these and similar catalysts are disclosed. These are useful for improving the octane number of petroleum distillates. The catalysts are a combination of the platinum

residual oils which is characterized by high conversion and efficient sulfur removal. The process involves a first step in which the hydrocarbon oil and hydrogen are reacted at elevated temperature and pressure in the presence of an active particulate hydrodesulfurization catalyst wherein hydrocracking occurs up to about 50% conversion. The reaction product is thereafter reacted in a second step with hydrogen at elevated temperature and pressure in the presence of a less active particulate hydrodesulfurization catalyst wherein hydrocracking is carried to an overall conversion of up to about 80% and sulfur content is reduced to a low level.



group metals with tin and rhenium, and possibly a combined halogen. The method of using these catalysts and similar ones using lead in place of tin are disclosed.

3,830,727

REFORMING PROCESS WITH PROMOTED CATALYST

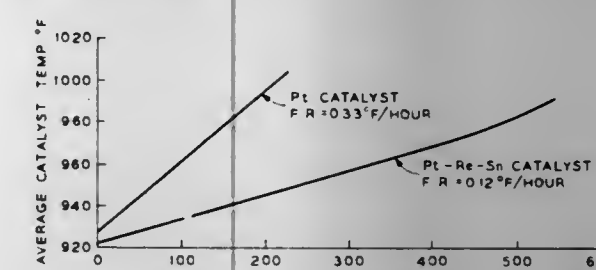
Harris E. Klusdahl, San Rafael, and Robert G. Wall, Pinole, Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation of abandoned application Ser. No. 7,061, Jan. 30, 1970. This application June 16, 1972, Ser. No. 263,574

Int. Cl. C10g 35/08

U.S. Cl. 208—139

3 Claims



Process for reforming a naphtha feedstock, comprising: contacting a naphtha feedstock containing less than about 10 p.p.m. by weight sulfur and less than about 50 p.p.m. by weight water, at reforming conditions and in the presence of hydrogen with a catalytic composition including a porous alumina-containing solid carrier, 0.01 to 3 weight percent platinum, 0.01 to 3 weight percent rhenium, 0.01 to 8 weight percent tin, and 0.1 to 3 weight percent halogen wherein the catalytic composition prior to the contacting is activated by the step comprising reacting the catalytic composition with an activating gas including oxygen and a halogenating component at a temperature from 500° F. to 1300° F. for at least about 0.5 hours.

3,830,728

HYDROCRACKING AND HYDRODESULFURIZATION PROCESS

William Mounce, Cranbury, N.J., assignor to Cities Service Research and Development Company, New York, N.Y.

No Drawing. Filed Mar. 24, 1972, Ser. No. 237,955

Int. Cl. C10g 13/02, 37/02

U.S. Cl. 208—59

5 Claims

An improved process for the hydrocracking and hydrodesulfurization of heavy hydrocarbon oils such as

3,830,729

CHARGING OF HORIZONTAL COKE OVENS

Leslie Frederick King, Cuckfield, Sussex, England, assignor to Woodall-Duckham Limited, Crawley, Sussex, England

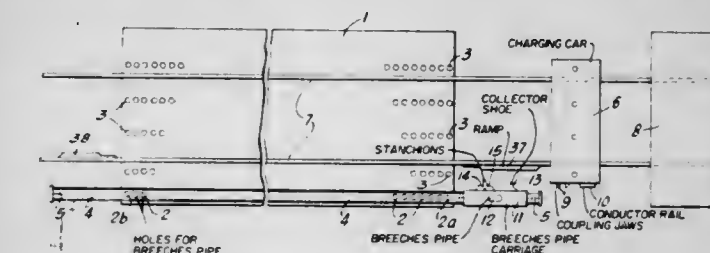
Filed Dec. 19, 1972, Ser. No. 316,458

Claims priority, application Great Britain Dec. 29, 1971, 60,494/71

Int. Cl. C10b 31/04

U.S. Cl. 202—263

9 Claims



In a horizontal coke oven battery having a single collecting main, with ascension pipes connecting the ovens to the main and with the ovens equipped with lidded breeches pipe connections near their ends remote from the ascension pipe, a breeches pipe carriage moves along a track extending between parking areas beyond each end of the battery and running adjacent to the breeches pipe connections. The carriage includes a breeches pipe with means for adjusting the same relative to the carriage to establish communication between a nearby pair of the connections and means for handling the lids of the connections. Coupling means are provided on the breeches pipe carriage and on the charging car for coupling the carriage to the car in either one of two relative positions in the direction of movement; such positions being spaced apart by the distance between adjacent connections. Actuating means are provided adjacent each parking area for actuating the coupling means to uncouple the breeches pipe carriage from the charging car upon approach to a parking area.

3,830,730

VISCOSITY INDEX IMPROVEMENT OF LUBRICATING OIL FRACTIONS

Theodore C. Mead, Port Arthur, and Norman R. Odell, Nederland, Tex., and Robert F. Benson, Fayetteville, Ark., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed Apr. 7, 1972, Ser. No. 242,143

Int. Cl. C10g 31/14, 23/02, 43/08

U.S. Cl. 208—144

6 Claims

A method of improving the Viscosity Index (VI) of hydrocarbon lubricating oil fractions comprising essentially completely absorbing a hydrocarbon lubricating charge oil, e.g., a solvent extract recovered from an extract phase exiting from the extraction zone in solvent refining of lubricating oil, on a solid absorbent, selective-

3,830,742

PIEZOELECTRIC CERAMIC COMPOSITIONS

Masamitsu Nishida, Osaka, and Hiromu Ouchi, Toyonaka, Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma, Osaka, Japan

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,691

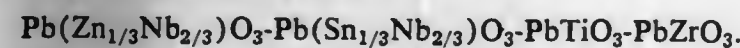
Claims priority, application Japan, Jan. 7, 1971, 46/190

Int. Cl. C04b 35/46, 35/48

U.S. Cl. 252—62.9

2 Claims

Piezoelectric ceramic compositions having high piezoelectric constants and high durabilities of the piezoelectric constants with cycling of mechanical stress, and comprising the quaternary system



3,830,743

CERAMIC PERMANENT MAGNET

Charles M. Schlaudt, Berkeley, Ronald L. Clendenen, Orinda, and Eugene E. Olson, Oakland, Calif., assignors to Shell Oil Company, New York, N.Y.

Filed Sept. 27, 1971, Ser. No. 183,895

Int. Cl. H01f 1/02

U.S. Cl. 252—62.63

4 Claims

Magnetoplumbites having the formula $\text{PbO} \cdot n\text{Fe}_2\text{O}_3$, wherein n is from about 3 to about 6.5, having densities of not less than 85% of the theoretical maximum, having average crystallite sizes of less than about 2.0 microns, having at least 90% of their crystallites less than 2.5 microns in diameter and crystallite orientations of not less than about 70%, yield permanent ceramic magnets having both high coercive forces and remanences.

3,830,744

SILICONE ACETATE BRAKE FLUID

Frank J. Traver, Troy, N.Y., assignor to General Electric Company

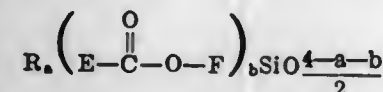
No Drawing. Continuation-in-part of abandoned application Ser. No. 125,397, Mar. 17, 1971. This application May 29, 1973, Ser. No. 364,505

Int. Cl. C09k 3/00

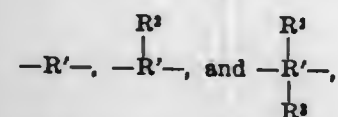
U.S. Cl. 252—78

6 Claims

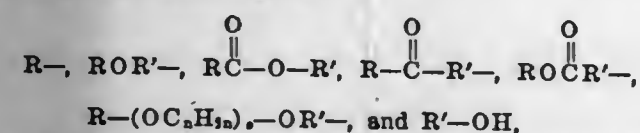
A silicone polymer useful as a brake fluid comprising a polymer of the structure,



where R is a monovalent hydrocarbon radical or a halogenated monovalent hydrocarbon radical, F is selected from



R' is selected from divalent hydrocarbon radicals and substituted divalent hydrocarbon radicals, E is selected from the group consisting of



where R, R² and R³ are selected from monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals, n is a whole number that varies from 2 to 4, and z varies from 1 to 4, where a varies from 1.11 to 2.02, b varies from 0.023 to 1.00 and the sum of $a+b$ varies from 2.024 to 3.00. The present invention comprises a

process in which any brake fluid system is operated using the above polysiloxane polymer as the brake fluid.

3,830,745

DETERGENT COMPOSITION

Hajime Tsukuni and Shun Fujiki, Hitachi, and Teruo Tsunoda and Yoichi Ooba, Tokyo, Japan, assignors to Hitachi Chemical Company, Ltd., and Hitachi, Ltd., both of Tokyo, Japan

No Drawing. Filed Aug. 3, 1972, Ser. No. 277,501

Claims priority, application Japan, Aug. 3, 1971, 46/58,545

Int. Cl. C11d 3/04

U.S. Cl. 252—89

6 Claims

Improved detergent compositions comprising an anionic or nonionic surface active agent and, as a builder, a novel water-soluble salt of copolymer of cyclopentene or its derivative with maleic anhydride. Such detergent compositions have excellent detergency and, in addition, have a practically satisfactory non-irritating property on skin and excellent antistatic effect on the washed materials as well as a superior inhibiting effect on restaining. The novel water-soluble salts can be readily produced at low cost and the present detergent compositions can be easily manufactured therefrom, simply by mixing with other components.

3,830,746

METHOD FOR PREPARING TECHNETIUM-99m GENERATORS LOADED WITH FISSION PRODUCT MOLYBDENUM-99

James L. Brown, Jefferson County, Mo., and Orval A. Harris, Collinsville, Ill., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Filed July 27, 1972, Ser. No. 275,510

Int. Cl. C01f 3/00

U.S. Cl. 252—301.1 R

7 Claims

A method for preparing a technetium-99m generator whose sodium pertechnetate eluates have a very low molybdenum and aluminum content. Low molybdenum content of the eluate is realized by initially heat-activating the alumina used for the generator column. The heat-activated alumina column is loaded by treating it with a solution of pH 3-4 containing molybdate ions whose molybdenum content consists essentially of molybdenum-99.

3,830,747

NEODYMIUM GLASS LASER HAVING ROOM TEMPERATURE OUTPUT AT WAVELENGTHS SHORTER THAN 1060 NM.

Robert R. Shaw and Charles C. Robinson, Sturbridge, Mass., assignors to American Optical Corporation, Southbridge, Mass.

Original application Mar. 10, 1971, Ser. No. 122,723, now Pat. No. 3,714,059. Divided and this application Aug. 31, 1972, Ser. No. 285,261

Int. Cl. C03c 3/12, 3/28; C09k 1/04

U.S. Cl. 252—301.4 F

2 Claims

Laserable material doped with a quantity of neodymium ions in a low concentration which results in the glass exhibiting a ratio of fluorescent intensity peaked at 920 nanometers over the fluorescent intensity peaked at approximately 1060 nanometers of at least .4 as measured by a Cary Model 14 spectrophotometer. The glasses enable the generation of laser light in a waveband with an optical center at about 920 nanometers at room temperature (approximately 20° C.) when positioned in a

laser cavity which is resonant at 920 nanometers. Two such laserable glasses are given below in weight percent:

BaO.....	26.6	59.0
Al ₂ O ₃	8.8	7.8
GeO ₂	63.6	32.2
Nd ₂ O ₃	1.0	1.0

3,830,748

METHOD OF INCREASING THE BRIGHTNESS OF RARE EARTH OXIDE PHOSPHORS

Emil J. Mehalchick, Towanda, and James E. Mathers, Ulster, Pa., assignors to GTE Sylvania Incorporated

No Drawing. Filed Apr. 9, 1973, Ser. No. 348,939

Int. Cl. C09k 1/10

U.S. Cl. 252—301.4 R

2 Claims

Brightness of rare earth oxide phosphors can be increased, color purity improved and lesser amounts of EU activator can be used, if the raw materials contain from about 100 to 1000 p.p.m. Hg⁺² during the fabrication process.

3,830,749

LASER GLASSES WITH HIGH DAMAGE THRESHOLD AND METHOD OF MAKING SUCH GLASSES

Emil W. Deeg, Woodstock, Conn., and Robert E. Graf, Southbridge, Mass., assignors to American Optical Corporation, Southbridge, Mass.

No Drawing. Continuation of abandoned application Ser. No. 148,225, May 28, 1971, which is a continuation of abandoned application Ser. No. 801,800, Feb. 24, 1969. This application Apr. 20, 1973, Ser. No. 353,144

The portion of the term of the patent subsequent to

Feb. 13, 1990, has been disclaimed

Int. Cl. C03b 5/16; C03c 3/00; C09k 1/04

U.S. Cl. 252—301.4 F

14 Claims

Laser glasses having high resistance to self-damage during operation are formed in all ceramic melting units, in the presence of a fining agent to eliminate the formation of metallic inclusions and semi-conductive inclusions and using base glass compositions with reduced tendency toward microphase separation and devitrification. The major ingredients of the glass batches include silicon dioxide, alkali and alkaline earth nitrates, carbonates and fluorides. The method involves introducing oxidizing compounds into the reaction mixture in a sufficient amount that during the reaction and fining phase, oxidizing conditions are maintained throughout the entire volume of the glass melt.

3,830,750

ENCAPSULATING SUBSTANTIALLY SOLUBLE PORTION OF CORE MATERIAL IN SUBSTANTIALLY SOLUBLE SHELL MATERIAL OF DIFFERENT SOLUBILITY

Russell E. Wellman, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 30, 1971, Ser. No. 214,031

Int. Cl. B01j 13/02; B44d 1/02, 1/08

U.S. Cl. 252—316

2 Claims

Encapsulation of liquid, semisolid, or solid core materials in shell material by atomizing and drying a single phase solution of core and shell materials. In one system ment using a mutual solvent-preferential solvent system of chloroform and isopropanol, the core material is the polymeric reaction product of isopropylidenediphenoxypentanol and adipic acid, and the wall material is the reaction product of a dimer acid with a linear diamine. In another embodiment using a mutual solvent-mutual nonsolvent system of chloroform and heptane, the core material is the polymeric reaction product of isopropylidenediphenoxypentanol and adipic acid, and the wall material is polystyrene. The core or shell, or both, may be pigmented or dyed. The capsules produced have numerous uses including their use as an electrostatographic toner.

3,830,751

NOVEL SILICATE CONTAINING STABILIZERS AND RIGID HALOGEN-CONTAINING RESIN COMPOSITIONS STABILIZED THEREWITH

Christian H. Stapfer, Newtown, Pa., and William B. Racz, Highland Park, N.J., assignors to Cincinnati Milacron Chemicals, Inc., Reading, Ohio

No Drawing. Filed Feb. 25, 1971, Ser. No. 118,966

Int. Cl. B01j 1/16; C08f 45/62

U.S. Cl. 252—400 R

11 Claims

Halogen-containing resin compositions containing an admixture of a stabilizer and a synthetic silicate powder exhibit improved stability and processability.

3,830,752

HYDROCARBON CONVERSION CATALYSTS

Grant A. Mickelson, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Division of application Ser. No. 148,194, May 28, 1972, Pat. 3,755,147, which is a continuation-in-part of Ser. No. 856,143, Sept. 8, 1969, Pat. 3,609,099, which is a continuation-in-part of Ser. No. 761,322, Sept. 20, 1968, now abandoned, and a continuation-in-part of Ser. No. 837,340, June 27, 1969, now abandoned. This application Oct. 16, 1972, Ser. No. 297,618

Int. Cl. B01j 11/06, 11/82

U.S. Cl. 252—435

13 Claims

Hydrocarbon conversion catalysts of improved activity are obtained by activating foraminous refractory oxides combined with at least one thermally decomposable and/or oxidizable compound of a catalytically active metal upon calcination while contacting the composite with an accelerated flow of an oxidizing gas at a rate of at least about 2 s.c.f.m. per pound of said composite. Further advantage is realized by heating the composite to the prescribed calcination temperature at a controlled gradual rate. It is also generally desirable to assure that the inlet temperature of the oxidizing gas prior to contact with the composite is less than about 500° F.

3,830,753

CATALYST FOR AMMONIA SYNTHESIS AND A PROCESS PRODUCING THE CATALYST

Masaru Ichikawa, Tokorozawa, Toshihiko Kondo, Sagami, and Kenzi Tamaru, Kamakura, Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

No Drawing. Filed Sept. 13, 1971, Ser. No. 180,187

Claims priority, application Japan Sept. 14, 1970, 45/80,335; Nov. 25, 1970, 45/103,409

Int. Cl. B01j 11/22, 11/78

U.S. Cl. 252—441

5 Claims

A novel catalyst for ammonia synthesis and a process for producing the catalyst are described. The catalyst comprises (a) graphite, (b) a transition metal compound and (c) an alkali metal. The catalyst of this invention is capable of synthesizing ammonia from hydrogen and nitrogen or air at a relatively low temperature even at room temperature under normal or a reduced pressure.

3,830,754

CATALYST COMPOSITION

William John Ball, Capel, England, assignor to BP Chemicals International Limited, London, England

No Drawing. Filed Apr. 20, 1972, Ser. No. 245,934

Claims priority, application Great Britain, Apr. 22, 1971, 10,674/71

Int. Cl. B01j 11/06, 11/32

U.S. Cl. 252—456

9 Claims

Catalyst compositions containing antimony, vanadium and tin are prepared by addition of moist ammonium vanadate to a suspension of antimony trioxide in nitric acid followed by addition of powdered tin and recovery and heating of solid.

3,830,755

SUPPORTED CATALYSTS CONTAINING VANADIUM PENTOXIDE AND ZIRCONIUM DIOXIDE
Peter Reuter, Bad Duerkheim, and Wilhelm Friedrichsen, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Nov. 29, 1972, Ser. No. 310,641
Claims priority, application Germany Dec. 1, 1971, P 21 59 441.2; Jan. 10, 1971, P 22 00 913.8
Int. Cl. B01j 11/06

U.S. Cl. 252-456 7 Claims
Supported catalysts for oxidation reactions consisting of an inert carrier and an active composition applied thereto in a thin layer which contains from 1 to 30% by weight of vanadium pentoxide, from 99 to 40% by weight of zirconium dioxide and from 0 to 59% by weight of titanium dioxide.

3,830,756

NOBLE METAL CATALYSTS
Moises G. Sanchez, Severna Park, James M. Maselli, Ellicott City, and James R. Graham, Columbia, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed Aug. 4, 1972, Ser. No. 278,149
Int. Cl. B01j 11/06, 11/08

U.S. Cl. 252-462 3 Claims
The present invention is concerned with catalysts in which the active components are highly dispersed and stable noble metals. In one specific aspect, the invention deals with catalyst useful in the reduction or elimination of noxious components in auto exhaust gases. In another specific aspect, the invention deals with the stabilization of noble metals by selected supports.

3,830,757

CATALYST FOR THE PREPARATION OF CARBONYL CONTAINING COMPOSITIONS
Anthony B. Eynin, Chappaqua, Jule A. Rabo, Armonk, and Louis F. Elek and Alan P. Risch, Peekskill, and Spiro J. Kavarnos, Ossining, N.Y., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 59,338, July 28, 1970, which is a continuation-in-part of application Ser. No. 853,974, Aug. 28, 1969, both now abandoned. This application Feb. 24, 1971, Ser. No. 118,477
Int. Cl. B01j 11/08

U.S. Cl. 252-464 25 Claims
Carbonyl-containing compositions, such as aldehydes and ketones, are selectively and conveniently prepared in high yields and at high efficiencies by a catalytic vapor phase process which comprises contacting unsaturated compounds with oxygen in the presence of a novel catalyst containing a vanadium oxide doped with at least one, and preferentially two or more, transition metals or transition metal-containing compounds, one of which is, or contains, palladium. The catalysts employed are highly active and selective at moderate temperatures and pressures and have industrially useful lifetime.

3,830,758

METHOD OF MANUFACTURING ELECTRICALLY CONDUCTING MATERIAL HAVING A POSITIVE TEMPERATURE COEFFICIENT OF THE RESISTANCE, AND CONDUCTOR MANUFACTURED OF THIS MATERIAL
Adrianus Cornelis Josephus Maria Snethorst and Abraham Sonneveld, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
No Drawing. Filed May 1, 1972, Ser. No. 249,389
Claims priority, application Netherlands, May 7, 1971, 7106267
Int. Cl. H01b 1/06

U.S. Cl. 252-521 8 Claims
A method of manufacturing electrically conducting material having a positive temperature coefficient of the resistance by sintering and reducing a mixture mainly comprising MgO and containing 0.25-1.5 mol percent of TiO₂, 0.35-2.5 mol percent of SiO₂ and 0.35-2.5 mol percent of CaO.

3,830,759

PROCESS FOR REDUCING DIETHYLENE GLYCOL FORMATION IN POLY(ETHYLENE TEREPHTHALATE) PREPOLYMER
Kenneth T. Barkey, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Original application Dec. 2, 1971, Ser. No. 204,365, now Patent No. 3,749,697. Divided and this application Dec. 7, 1972, Ser. No. 313,047
Int. Cl. C08g 53/22, 39/04

U.S. Cl. 260-2.3 6 Claims
Formation of contaminant diethylene glycol by-product during manufacture of poly(ethylene terephthalate) prepolymer by ester exchange of dimethyl terephthalate and ethylene glycol in the presence of a catalyst mixture is minimized by including lithium acetate dihydrate as an essential ingredient in the catalyst mixture with zinc acetate dihydrate and/or antimony trioxide.

3,830,760

URETHANE FOAMS CURED BY ATMOSPHERIC MOISTURE
Olle Bengtson, Goteburg, Sweden, assignor to Imperial Chemical Industries Limited, London, England
Filed Sept. 11, 1970, Ser. No. 71,625
Claims priority, application Sweden, Sept. 16, 1969, 12,690/69
Int. Cl. C08g 22/48

U.S. Cl. 260-2.5 BD 2 Claims
Process for preparing a foamable composition by forming a mixture of a polymer or polymer precursor, curable on contact with the atmosphere, and a polymer-soluble inert blowing agent under such a pressure that the blowing agent is substantially in condensed form, the mixture being capable, upon release of the pressure, of expanding due to vaporisation of the blowing agent to form a foam which then cures without substantial change in volume.

3,830,761

VINYL CHLORIDE-ETHYLENE-VINYL ACETATE RESIN BINDERS
William Edward Lenney, Middlesex, N.J., assignor to Air Products and Chemicals, Inc., Allentown, Pa.
No Drawing. Filed Oct. 26, 1971, Ser. No. 192,297
Int. Cl. C08f 45/00; C09d 5/02

U.S. Cl. 260-8 10 Claims
Vinyl chloride-ethylene-vinyl acetate emulsion interpolymers are disclosed which provide synthetic polymer dispersions having utility as pigment binders in water based paints. The vinyl chloride-ethylene-vinyl acetate interpolymers have a glass transition temperature (T_g) of between about 20 degrees C. and about -10 degrees C. Substantially improved characteristics, including improved scrub resistance, are obtained when the interpolymers are substituted for conventional resinous binders in paint formulations.

3,830,762

POLYSACCHARIDE-CONTAINING ELASTOMERS
Thomas P. Abbott, Peoria, Ill., assignor to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Aug. 24, 1973, Ser. No. 391,190
Int. Cl. C08c 9/12; C08d 9/06; C08f 45/14

U.S. Cl. 260-17.2 14 Claims
Elastomer compositions prepared by an improved polysaccharide-elastomer coprecipitation method are storage-stable powders which are capable of being formed into vulcanized rubber articles by injection molding or other similar methods without prior high shear mixing. Such

vulcanizates have the improved properties previously associated only with extrusion-processed polysaccharide-reinforced rubbers.

3,830,763

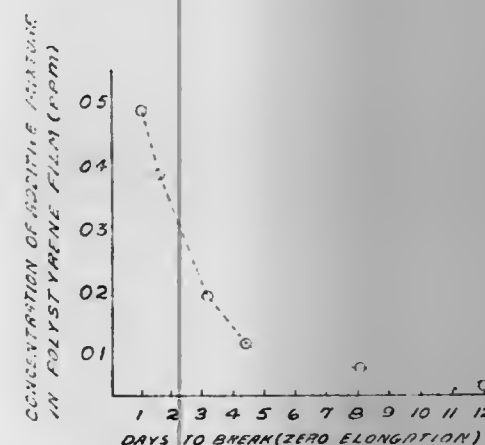
AUTOXIDIZABLE MALEIC ADDUCTS OF FATTY ACID ESTERS OF DIPENTAERYTHRITOL AND TRIPENTAERYTHRITOL
John Gillan, Noble Park, Frederick John Lubbock, Beaumaris, and Livia Polgar, Caulfield, Victoria, Australia, assignors to Dulux Australia Ltd., Melbourne, Victoria, Australia
No Drawing. Filed Apr. 26, 1973, Ser. No. 354,916
Claims priority, application Australia May 9, 1972, 8,901

U.S. Cl. 260-22 R 4 Claims
Novel autoxidizable maleic adducts of fatty acid esters of dipentaerythritol and tripentaerythritol are disclosed. The adducts are modified by reaction of the anhydride rings with monohydric alcohols to have the structure of succinyl half-esters. The compositions are of particular use as film-forming constituents of liquid paint compositions, which can have acceptable application properties at non-volatile contents of the order of 90% by weight. Particularly useful alcohols are acrylic alcohols such as hydroxyethyl methacrylate.

3,830,764

DEGRADABLE HYDROCARBON POLYMERS
Donald E. Hudgin, Princeton Junction, and Thomas Zawadzki, Princeton, N.J., assignors to Princeton Polymer Laboratories, Inc., Princeton, N.J.
Filed July 6, 1972, Ser. No. 269,291
Int. Cl. C08f 45/00

U.S. Cl. 260-23 H 32 Claims



A degradable composition is made from a polymer of a mono olefin having 2-3 carbon atoms or styrene and an additive comprising (1) a derivative of an organic compound of a metal which has at least two valence states and (2) a benzoyl derivative of an organic compound or a triazole.

3,830,765

POLYSTYRENE COLOURING GRANULES
Kazmer Fejer, Zell am Ziller, Austria, assignor to Messrs. Color Service GmbH, Hainstadt am Main, West Germany
No Drawing. Filed Feb. 15, 1973, Ser. No. 332,878
Claims priority, application Germany May 17, 1972, P 22 23 969.6
Int. Cl. C08f 45/04, 45/14

U.S. Cl. 260-27 R 3 Claims
Granules for colouring polystyrene mouldings comprise dyestuff or pigment, polystyrene, and enough of a

3,830,766

SELF-EXTINGUISHING MOULDING COMPOSITION

Hans Eberhard Praetzel and Herbert Jenkner, Cologne, Germany, assignors to Chemische Fabrik Kalk GmbH
No Drawing. Filed Sept. 21, 1971, Ser. No. 182,542
Claims priority, application Germany Sept. 23, 1970, P 20 46 795.2
Int. Cl. C09k 3/28

U.S. Cl. 260-28.5 B 2 Claims
Flame-proofing acrylonitrile-butadiene-styrene (ABS) polymers by incorporating therein an aromatic bromine compound, antimony trioxide or antimony oxychloride and optionally an organo chlorine compound.

3,830,767

BLOCK COPOLYMER COMPOSITIONS

Nancy J. Condon, Long Beach, Calif., assignor to Shell Oil Company
No Drawing. Filed May 2, 1973, Ser. No. 356,683
Int. Cl. C08d 9/08, 11/02; C08f 45/52

U.S. Cl. 260-28.5 B 6 Claims
The bleeding of extending oils from compositions comprising certain hydrogenated block copolymers and polypropylene is minimized by the additional presence of a petroleum hydrocarbon wax.

3,830,768

ETHYLENE COPOLYMER DISPERSIONS CONTAINING A HALOGENATED ALKYL PHOSPHATE
Boni Philip Martinez, Wilmington, Del., and Gerfried Pruckmayr, Media, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 16, 1970, Ser. No. 11,809
Int. Cl. C08f 37/00, 45/04

U.S. Cl. 260-29.6 H 7 Claims
An aqueous dispersion of an ethylene copolymer, a halogenated alkyl phosphate and, optionally, a finely divided particulate matter filler is provided. The dispersion contains as essential ingredients (1) about 20 to 95 percent by weight of an ethylene copolymer such as ethylene/vinyl acetate copolymer or an ethylene/methacrylic acid ionomer copolymer, (2) 0 to about 25 percent by weight of a filler, and (3) about 5 to 80 percent by weight of a halogenated alkyl phosphate such as tris-(2,3-dibromopropyl) phosphate. Polyester fabrics are rendered rainproof and fire-retardant while retaining breathability when coated with particular dispersions.

3,830,769

FIRE RETARDANT POLYMERS

Dilip K. Ray-Chaudhuri, Somerville, Carmine P. Iovine, Somerset, and Albert I. Goldberg, Summit, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.
No Drawing. Filed May 30, 1972, Ser. No. 257,772
Int. Cl. C08f 1/13, 37/00

U.S. Cl. 260-29.6 R 6 Claims
Fire retardant polymers containing moieties derived from (1) brominated phosphate monomers and (2) halogenated ethylenically unsaturated monomers, and an improved method for preparing such polymers which comprises reducing the acid value of the bromine phosphate monomer prior to heating said brominated phosphate monomer together with said halogenated ethylenically unsaturated monomer in the presence of a free radical initiator.

3,830,770

STORAGE STABLE FILLER-CONTAINING AQUEOUS DISPERSION OF TETRAFLUOROETHYLENE POLYMER

Robert Clark Ribbans III, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 2, 1972, Ser. No. 259,046.

Int. Cl. C08f 29/16, 45/24

U.S. Cl. 260—29.6 F

10 Claims

Filler-containing aqueous dispersions of tetrafluoroethylene polymer having good shelf life are provided, said dispersions containing from 5 to 8% by wt. (polymer solids basis) of nonionic surfactant and sufficient water soluble electrolyte, e.g. BaNO₃, NaCl, Na₂CO₃, and ammonium acetate, to give the dispersion an ionic strength of at least 0.01 moles per kilogram of dispersion, the dispersion having a viscosity of at least 50 centipoises.

3,830,771

PHOSPHORUS-CONTAINING POLYESTERS

Stuart Lyle Cohen, Charlotte, N.C., and Robert William Stackman, Morristown, N.J.; said Stackman assignor to Celanese Corporation, New York, N.Y.; said Cohen assignor to Fiber Industries, Inc.

No Drawing. Continuation-in-part of application Ser. No. 51,019, June 29, 1970. This application June 25, 1971, Ser. No. 156,949

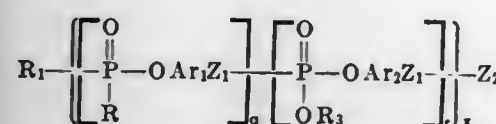
The portion of the term of the patent subsequent to June 25, 1991, has been disclaimed

Int. Cl. C08g 51/02; C09k 3/28

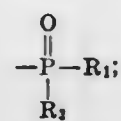
U.S. Cl. 260—40 R

5 Claims

Phosphorous-containing polyester molding resin compositions having improved flame retardant properties wherein said polyester compositions comprise melt blends of a reinforcing agent, a synthetic linear polypropylene terephthalate or polybutylene terephthalate, and up to about 30 percent, based on the weight of polyester, of a polyphosphonate or poly(phosphonate-phosphate) having the following general formula.



wherein R₁ is a monovalent radical having up to about 20 carbon atoms selected from the group consisting of alkoxy, aryloxy, hydroxy, haloalkoxy, haloaryloxy, hydroxyalkoxy, and hydroxyaryloxy; R₂ is a monovalent radical having up to 20 carbon atoms selected from the group consisting of hydrogen, alkyl, aryl, haloalkyl, and haloaryl; R₃ is a monovalent radical having up to 20 carbon atoms selected from the group consisting of alkyl, aryl, haloalkyl and haloaryl; Ar₁ and Ar₂ are divalent radicals each having up to about 20 carbon atoms independently selected from the group consisting of arylene and haloarylene; Z₁ is a divalent radical selected from the group consisting of alkylene, arylene, haloalkylene, haloarylene, oxy, thio, and sulfonyl, Z₂ is either hydrogen or



q is an integer of at least 1; r is 0 or an integer of at least 1; x is greater than 1. The most preferred polyphosphonate is poly(m-phenylene phenylphosphonate). The most preferred copolymer is poly[(m-phenylene phenylphosphonate)_q(m-phenylene phenylphosphonate)_r] where q/r is greater than 3.

3,830,772

THERMO-SETTING Moulding COMPOSITIONS AND PROCESSES FOR THEIR MANUFACTURE

Wolfram Busch, Wiesbaden-Biebrich, and Stefan Mullner, Niederhofheim, Germany, assignors to Chemische Werke Albert Aktiengesellschaft, Wiesbaden, Germany

No Drawing. Filed May 18, 1972, Ser. No. 254,489

Claims priority, application Germany, May 19, 1971, P 21 24 939.8

Int. Cl. C08f 43/08

U.S. Cl. 260—40 R

15 Claims

Thermo-setting molding composition comprising (a) an unsaturated polyester, (b) a copolymerisable vinyl monomer, (c) a filler selected from the group consisting of an inorganic, an organic filler, a reinforcing agent and mixtures thereof, (d) a catalyst and (e) a copolymer of α-methylstyrene and acrylonitrile. A process for the continuous manufacture of molding compositions, and molded articles obtained by hardening such molding compositions.

3,830,773

POLYESTER FILM BASE HAVING UNIFORM HIGH OPTICAL DENSITY

Kenneth T. Barkey, Gerald C. Gandy, and Douglas C. May, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Original application Dec. 29, 1971, Ser. No. 213,808, now Patent No. 3,790,653. Divided and this application Aug. 27, 1973, Ser. No. 392,151

Int. Cl. C08g 39/10, 51/08; G03c 1/84

U.S. Cl. 260—40 R

4 Claims

Biaxially-oriented polyester film base having uniform high optical density and free of pinholes or other opacity defects is produced by forming a dispersion of carbon black and polyvinylpyrrolidone (PVP) in ethylene glycol in a high shear mill, adding the dispersion along with polyester forming reactants to an ester exchange reactor, and carrying out the production of the polyester monomer and its subsequent conversion to polyester prepolymer and polyester in the presence of the dispersed carbon and PVP.

3,830,774

CARBON BLACK REINFORCED RUBBER COMPOSITIONS

Merrill E. Jordan, Walpole, William G. Burbine, Whitman, and Frank R. Williams, Quincy, Mass., assignors to Cabot Corporation, Boston, Mass.

No Drawing. Continuation of abandoned application Ser. No. 140,980, May 6, 1971. This application Feb. 16, 1973, Ser. No. 333,196

The portion of the term of the patent subsequent to Apr. 3, 1990, has been disclaimed

Int. Cl. C08c 11/18

U.S. Cl. 260—42.46

10 Claims

This disclosure relates to the use of a certain novel class of carbon black products possessing usually high tinting strengths as reinforcing additives in the preparation of natural and synthetic rubber compositions having improved reinforcement properties.

3,830,775

PRODUCTION OF AROMATIC POLYESTERS OF IMPROVED COLOUR

Warren Hewertson, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,503

Claims priority, application Great Britain, Dec. 3, 1968, 57,269/68

Int. Cl. C08f 21/04; C08g 17/013, 17/015

U.S. Cl. 260—22 CA

16 Claims

In a process for the preparation of highly polymeric polymer by the polycondensation of polymerizable material at least 85 mole percent of which consists of at least

one bis ethylene glycol ester of an aromatic dicarboxylic acid, especially terephthalic acid, the greyness in the polymeric product normally associated with the use of conventional antimonial polycondensation catalysts is reduced by using as the catalyst a trihalide or tri(pseudo-halide) of antimony and an organic oxo compound of a Group Va element other than nitrogen, especially phosphorus or arsenic.

3,830,776

PARTICULATE FLY ASH BEADS

Jon R. Carlson and William P. Banks, Ponca City, Okla., and Rodney L. Flood, Allen, Tex., assignors to Continental Oil Company, Ponca City, Okla.

No Drawing. Original application Aug. 31, 1971, Ser. No. 176,691, now abandoned. Divided and this application July 2, 1973, Ser. No. 376,006

Int. Cl. C08g 51/04

U.S. Cl. 260—37 EP

3 Claims

Fly ash beads having a specific gravity of less than about 1.25 as separated into fractions having particular properties as particulate filler and substrate.

3,830,777

REINFORCED POLYAMIDES CONTAINING FIBROUS ALKALI METAL TITANATES

Louis Lasseter Burton, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 17, 1973, Ser. No. 425,072

Int. Cl. C08g 51/04

U.S. Cl. 260—37 N

17 Claims

A polyamide containing a particular mineral filler, a silane coupling agent and a fibrous alkali metal titanate. The presence of the titanate improves notch toughness, heat distortion temperatures, stiffness and produces molded articles with low warpage.

3,830,778

POLYESTER COMPOSITIONS CONTAINING DI-HYDROXYSPIROCHROMAN COMPOUNDS

Atsuki Arai and Nobuo Tsuji, Minami Ashigara-machi, and Toshimitsu Okutsu, Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami Ashigara-shi, Kanagawa, Japan

No Drawing. Original application Dec. 29, 1971, Ser. No. 213,540, now Patent No. 3,764,337. Divided and this application Dec. 29, 1972, Ser. No. 319,128

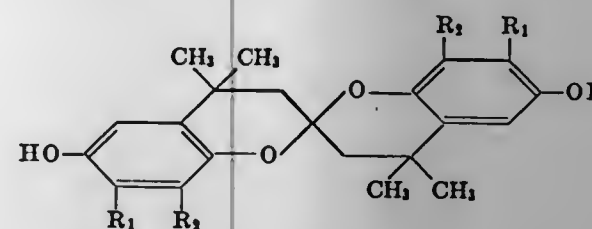
Claims priority, application Japan, May 20, 1971, 46/34,621

Int. Cl. C08f 45/58

U.S. Cl. 260—45.8 A

13 Claims

Polyester compositions which are composed of polyesters produced from terephthalic acid as the main acid component and ethylene glycol as the main glycol component and a compound represented by the formula I



(I)

wherein R₁ is an alkyl group having 18 or less carbon atoms, an alkenyl group, an aryl group, an alkoxy group, an alkenoxy group, an aryloxy group, an acylaminoalkyl group or an acylaminoaralkyl group, and R₂ is a hydrogen atom, a halogen atom, an alkyl group, an alkenyl group or an alkoxy group.

3,830,779

POLYSTYRENE PLASTIC COMPOSITIONS CONTAINING NAPHTHYL ETHER FLAME RETARDANTS

Arnold L. Anderson, Alma, Mich., assignor to Michigan Chemical Corporation, St. Louis, Mich.

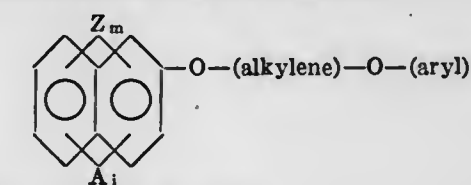
No Drawing. Continuation-in-part of abandoned application Ser. No. 260,240, June 6, 1972. This application Feb. 8, 1973, Ser. No. 330,783

Int. Cl. C08f 45/58, 45/60

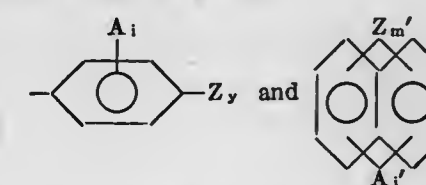
U.S. Cl. 260—45.95 G

18 Claims

Plastic compositions containing polystyrenes and bis-aryloxy compounds having the formula



wherein aryl is from the group



Z is bromine or chlorine, m and m' are integers having a value of 1–7, y is an integer having a value of 1–5, i and i' are integers having a value of 0–2, and A is cyano, nitro, lower alkoxy, lower alkyl, fluorine, dialkylamino, phenyl, halo-phenyl, benzyl or halo-benzyl and alkylene is a straight or branched chain alkylene group having from 1 to 6 carbon atoms.

3,830,780

PROCESS FOR THE CONDENSATION OF ORGANO-SILICON COMPOUNDS WITH SI-BONDED HYDROXYL GROUPS

Siegfried Nitzsche, Burghausen, Helmut Spork, Alttötting, and Rudolf Strasser, Burghausen, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, West Germany

No Drawing. Filed Jan. 8, 1973, Ser. No. 321,616

Claims priority, application Germany, Jan. 18, 1972, P 22 02 283.9

Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 R

9 Claims

A process for condensing essentially linear organosilicon compounds with Si-bonded hydroxyl groups which comprises heating the organosilicon compounds at a temperature of from about 100° C. up to about 300° C. in the presence of an aluminum catalyst, and if desired, after removing the aluminum catalyst heating the thus treated product to a temperature of from 100° C. to 300° C. in the presence of untreated essentially linear organosilicon compounds having Si-bonded hydroxyl groups.

3,830,781

4-HYDROXY-3,3',4'-TRICHLORODIPHENYL SULPHONE

Victor Jeffrey Leslie, Potters Bar, and John Brewster Rose, Letchworth, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Jan. 15, 1973, Ser. No. 323,356

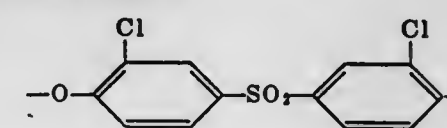
Claims priority, application Great Britain, Jan. 25, 1972, 3,437/72

Int. Cl. C08g 23/00

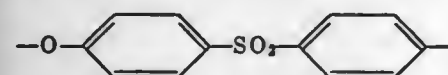
U.S. Cl. 260—49

2 Claims

New aromatic polymers whose molecular chains comprise units of the formula



either alone or copolymerised with other units, and in particular with units of the formula



Polymers containing units of the former formula are of higher fire resistance than equivalent polymers having units of the latter formula alone.

3,830,782

MODIFIED MELAMINE-FORMALDEHYDE RESINS

Fritz Erdmann Kempter, Stuttgart-Mohringen, and Herbert Spoor, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Nov. 29, 1972, Ser. No. 310,643

Claims priority, application Germany, Dec. 2, 1971, P 21 59 737.5

Int. Cl. C08g 9/24

U.S. Cl. 260—67.6 R

9 Claims

Modified melamine-formaldehyde resins which contain o-aminobenzamide units and may be partly or completely etherified with an alcohol. The resins are suitable as baking finishes, particularly when mixed with conventional binders.

3,830,783

PROCESS FOR THE PREPARATION OF RESINS FROM UREA, FORMALDEHYDE, METHANOL AND FORMIC ACID USING THREE STAGES

Silvio Vargiu, Sesto S. Giovanni, Giorgio Mazzoleni, and Ugo Nistri, Milan, Italy, assignors to Societa Italiana Resine S.I.R. S.p.A., Milan, Italy

No Drawing. Filed Dec. 27, 1972, Ser. No. 318,792

Claims priority, application Italy, Dec. 27, 1971, 32,958/71

Int. Cl. C08g 9/34

U.S. Cl. 260—70 A

6 Claims

Urea formaldehyde resins of controllably variable properties, particularly for chipboard and plywood, are made in a process which comprises an initial stage of polymerisation reaction which is carried out at a basic pH and with high ratios of formaldehyde to urea, a second stage of reaction in which the product originating from the first stage is maintained at a relatively acid pH for a short period of time and a third stage of reaction in which a weakly acid pH is maintained, with low ratios of formaldehyde to urea, and is essentially characterised by the fact that methanol is added to the first or to the second stage of reaction or to both stages of reaction, in quantities of 2 to 12% by weight with respect to the total reaction mass which is discharged at the final stage of the process.

3,830,784

SHELF-STABLE ADHESIVE COMPOSITIONS FOR LAMINATING ELASTOMERS TO METAL AND TEXTILE SUBSTRATES AND SUCH LAMINATES

Louie G. Manino and Frederick H. Sexsmith, Erie, Pa., assignors to Lord Corporation, Erie, Pa.

No Drawing. Filed Mar. 22, 1972, Ser. No. 237,071

Int. Cl. C08g 22/00

U.S. Cl. 260—77.5 R

6 Claims

Shelf-stable adhesive compositions for bonding metal and textile substrates to elastomers during vulcanization comprising a solution of one or more polyisocyanates and an acidic halogen-containing polymer in which a poly-C-nitroso aromatic compound is suspended.

3,830,785

THERMOSETTING POLYURETHANE COATINGS BASED ON BLOCKED CYCLO-ALIPHATIC DI-ISOCYANATES

Yutaka Matsui, Shizuoka, and Selji Kazama and Jugo Goto, Kawanishi, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Nov. 14, 1972, Ser. No. 306,196

Claims priority, application Japan, Nov. 20, 1971, 46/93,470

Int. Cl. C08g 22/24, 22/32

U.S. Cl. 260—77.5 TB

10 Claims

The present invention relates to a thermosetting urethane coating composition comprising an active-hydrogen-containing compound of molecular weight of about 400 to about 50,000 and a blocked polyisocyanate component which is obtainable by reacting ω,ω' -diisocyanatodimethylcyclohexane with a low molecular polyol having a molecular weight of about 60 to about 300 in a ratio of NCO/OH of not less than about 2.6, removing the unreacted ω,ω' -diisocyanatodimethylcyclohexane and reacting the resulting polyisocyanate with an isocyanate blocking agent. The polyurethane coating compositions of this invention have long pot life, excellent resistance to discoloration and high gloss.

3,830,786

PROCESS FOR THE PRODUCTION OF BASIC POLYAMIDES AND COPOLYAMIDES

Kurt Findeisen, Kuno Wagner, and Friedrich Moller, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 163,446, July 16, 1971. This application Aug. 21, 1972, Ser. No. 282,101

Int. Cl. C08g 20/18, 20/20

U.S. Cl. 260—78 L

7 Claims

The invention relates to basic polyamides and copolyamides having a molecular weight of from 2000 to $2.5 \cdot 10^5$ obtained from 1-N-substituted hexahydro-1,4-diazepin-3- or -5-ones and to a process for production of said polyamides.

3,830,787

CATALYSTS FOR THE POLYMERIZATION OF OLEFINS

Ermanno Susa, Ferrara, Velmore Davoli, Reggio Emilia, and Adolfo Mayr, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Apr. 5, 1972, Ser. No. 241,450

Claims priority, application Italy, Apr. 6, 1971, 22,790/71

Int. Cl. B01j 11/84; C08f 1/56

U.S. Cl. 260—94.9 D

12 Claims

New catalysts for the polymerization of olefins, more particularly for the polymerization of ethylene and mixtures thereof with higher alpha-olefins are disclosed, as well as methods for preparing the same, and for polymerizing olefins therewith. The new catalysts are prepared by mixing a hydride or organometallic compound of a metal belonging to Group I, II or III of the Mendeleev Periodic Table with the product obtained by contacting a titanium compound with the solid reaction product of a hydrated magnesium halide and an organometallic compound of one of said Groups I to III metals, in a molar ratio organometallic compound/ H_2O of at least 1.

3,830,788

POLYMERISATION PROCESS

Brian Ernest Job and Till Medinger, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation of abandoned application Ser. No. 733,296, May 31, 1968. This application Sept. 11, 1972, Ser. No. 287,705

Claims priority, application Great Britain, June 9, 1967, 26,796/67; July 13, 1967, 32,319/67; Nov. 1, 1967, 49,729/67

Int. Cl. C08f 1/30

U.S. Cl. 260—94.9 C

10 Claims

A process for the polymerization of ethylene which comprises contacting the ethylene monomer with a π -allylic compound of a transition metal of Group IVA of the Periodic Table, as initiator, in the presence of an activator selected from the group consisting of halogenated paraffins and olefins and free halogens at a temperature from 0° to 300° C., the ratio of activator to initiator being not greater than 4:1, expressed as the ratio of gram atoms of halogen present in the activator to moles of π -allylic compound initiator.

3,830,789

SOAP STOCK RECLAMATION PROCESS FOR PRODUCING FATTY ACIDS, GLYCERINE AND SALTS

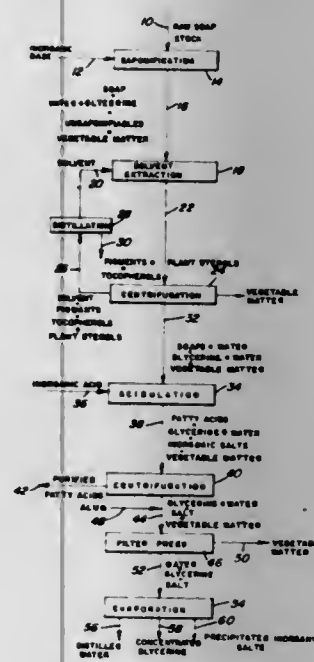
Roger L. Garrett, Alexandria, Va., Charles B. Garrett, Jr., Robeson, Pa., and Alan B. Rubin, Fairfax, Va., assignors to Adams Laboratories, Inc., Alexandria, Va.

Filed Dec. 11, 1972, Ser. No. 313,846

Int. Cl. C11c 1/08; C09f 1/00

U.S. Cl. 260—97.6

7 Claims



Raw soap stock is saponified to a completely water soluble form which enables efficient separation of pigments and tocopherols and increases fatty acid yields during latter steps. The saponified solution undergoes solvent extraction to remove water insoluble pigments and tocopherols. The remaining aqueous solution then undergoes acidulation to convert soaps to water insoluble free fatty acids. Centrifugation causes the removal of purified fatty acids that have great economic worth. The remaining aqueous solution contains glycerine, salt and suspended particles of seed meal. The seed meal is flocculated and filtered from the solution and is collected as a valuable by-product. A final evaporation step separates the components of the aqueous solution into concentrated glycerine and precipitated inorganic salts, both having economic worth.

3,830,790

SEPARATION AND PURIFICATION OF KALLIKREIN-TRYPSIN INHIBITOR

Erich Rauenbusch and Christian Golker, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 29, 1972, Ser. No. 239,315

Claims priority, application Germany, Apr. 3, 1971, P 21 16 377.9

Int. Cl. C07c 103/52; C07g 7/00

U.S. Cl. 260—112.5

15 Claims

The present invention relates to processes for the separation and purification of kallikrein-trypsin inhibitor, otherwise known as kallikrein-inactivator, (KI) from aqueous mixtures which contain a multiplicity of different polypeptide impurities and other cell substances which comprises adsorbing the said kallikrein-trypsin inhibitor onto a non-ionic, porous, cross-linked resin copolymer of styrene and divinyl benzene, said resin having an active surface area of from 10 to 1000 square meters per gram ($m^2/g.$), separating the remainder of said aqueous mixture from said resin and eluting said inhibitor from said resin.

3,830,791

PURIFICATION OF ENZYME INHIBITORS BY AMPHOTERIC ION EXCHANGE RESINS

Christian Gölker, Wuppertal-Elberfeld, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 24, 1972, Ser. No. 246,929

Claims priority, application Germany, Apr. 24, 1971, P 21 20 088.4

Int. Cl. C07c 103/52; C07g 7/00

U.S. Cl. 260—112.5

7 Claims

The invention is directed to processes for the purification and/or enrichment of proteolytic or protease enzyme inhibitor mixtures. More particularly, the invention is concerned with separation of protease enzyme inhibitors from aqueous fluids by contacting said aqueous fluid containing said protease enzyme inhibitor with an amphoteric ion exchange resin to selectively adsorb the desired protease enzyme inhibitor, removing unadsorbed impurities by washing and subsequently eluting the protease enzyme inhibitor from said resin and recovering said protease enzyme inhibitor. Specifically, this invention is concerned with the recovery, in a relatively pure form, of a kallikrein-trypsin inhibitor (also known as kallikrein inactivator, KI) by contacting an impure solution containing the inhibitor with an amphoteric ion exchange resin so that the inhibitor is adsorbed thereon, separating the remaining solution and said amphoteric ion exchange resin from mutual contact and subsequently eluting said inhibitor from said amphoteric ion exchange resin.

3,830,792

METHOD FOR SYNTHESIZING PEPTIDES USING AN EXCESS OF AN UNSYMMETRICAL ACID ANHYDRIDE

Monohar A. Tilak, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Continuation-in-part of abandoned application Ser. No. 822,005, May 5, 1969. This application Apr. 27, 1972, Ser. No. 248,303

Int. Cl. C07c 103/52; C07g 7/00

U.S. Cl. 260—112.5

6 Claims

Improvement in mixed anhydride method for peptide synthesis from a peptide or α -amino acid having a free terminal amine group and a protected terminal carboxyl, and a mixed acid anhydride produced from a chloroformate and an amino-blocked α -amino acid, comprising admixing at least 1.5 moles of the anhydride with each mole of the peptide or α -amino acid having the free terminal amine function in a non-aqueous, water-miscible solvent for a time sufficient to allow complete reaction of the protected terminal carboxyl peptide or amino acid,

and, without pretreatment of the reaction mixture, hydrolyzing excess acid anhydride by adding to the reaction mixture an aqueous buffer solution having a pH of from about 7.5 to about 9.5.

3,830,793

N¹-OXIDES OF ADENOSINE-5'-CARBOXYLATES Raj Nandan Prasad, Pierrefonds, Quebec, Canada, assignor to Abbott Laboratories, North Chicago, Ill.

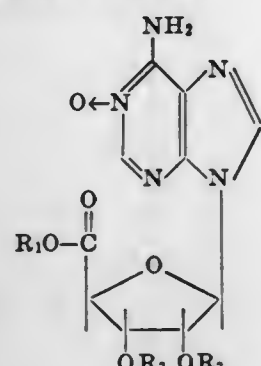
No Drawing. Filed Oct. 3, 1972, Ser. No. 294,741

Int. Cl. C07d 51/54

U.S. Cl. 260—211.5 R

10 Claims

N¹-Oxides of adenosine-5'-alkyl carboxylates represented by the structural formula



wherein R₁ is loweralkyl, lowerhydroxyalkyl or lowerhaloalkyl, and R₂ and R₃ each are hydrogen or acyl or when taken together form an isopropylidene or a benzylidene moiety, and the pharmaceutically acceptable acid addition salts thereof. The compounds are useful as anti-anginal agents.

3,830,794

PROCESS FOR THE PREPARATION OF A CARBOXYLIC ACID AMIDE

Teruaki Mukaiyama, Masaaki Ueki, Rei Matsueda, and Hiroshi Maruyama, Tokyo, Japan, assignors to Sankyo Company Limited

No Drawing. Original application Nov. 17, 1970, Ser. No. 90,419, now Patent No. 3,737,423. Divided and this application Dec. 18, 1972, Ser. No. 316,013

Int. Cl. C07c 103/00, 103/20, 103/52

U.S. Cl. 260—112.5

6 Claims

An improved and novel process for the preparation of a carboxylic acid amide which comprises reacting a carboxylic acid with an organic amine or a sulfenic acid with an organic amine or a sulfenic acid amide thereof in the presence of a tertiary phosphine and a disulfide of a mercaptoheterocyclic compound containing a nitrogen-carbon double bond with which the disulfide linkage is conjugated.

3,830,795

1,N⁶-ETHENO-5-ADENOSINE CARBOXYLATES

Raj Nandan Prasad, Pierrefonds, Quebec, and David Lyon Garmaise, Montreal, Quebec, Canada, assignors to Abbott Laboratories, North Chicago, Ill.

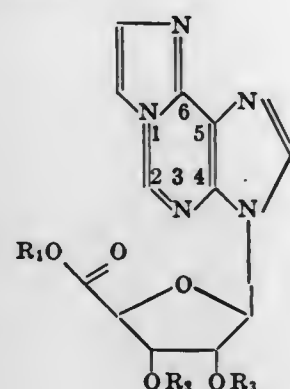
No Drawing. Filed Dec. 21, 1972, Ser. No. 317,325

Int. Cl. C07d 51/54

U.S. Cl. 260—211.5 R

3 Claims

Esters of 1,N⁶-etheno-5'-adenosine carboxylic acid represented by the formula



wherein R₁ is loweralkyl, loweralkenyl, loweralkynyl or cycloalkyl; and R₂ and R₃ each are hydrogen or acyl, or R₂ and R₃ taken together form an isopropylidene or benzylidene moiety; and the pharmaceutically acceptable acid addition salts thereof.

The compounds wherein R₂ and R₃ are hydrogen are useful in treating cardiovascular disorders and are particularly useful as anti-anginal and anti-hypertensive agents. Compounds wherein R₂ and R₃ are acyl or when taken together form an isopropylidene or benzylidene moiety are intermediates useful in the preparation of the final products. (R₂ and R₃=hydrogen.) The final products are also useful as intermediates for preparing pharmaceutically active compounds, and, more specifically, for preparing the corresponding 1,N⁶-etheno-5'-adenosine carboxamides.

3,830,796

1,N⁶-ETHENO-5'-ADENOSINE CARBOXAMIDES

Raj Nandan Prasad, Pierrefonds, Quebec, and David Lyon Garmaise, Montreal, Quebec, Canada, assignors to Abbott Laboratories, North Chicago, Ill.

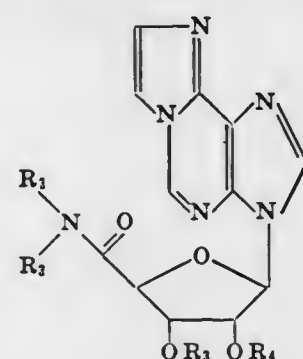
No Drawing. Filed Dec. 21, 1972, Ser. No. 317,326

Int. Cl. C07d 51/54

U.S. Cl. 260—211.5 R

4 Claims

Amides of 1,N⁶-etheno-5'-adenosine carboxylic acid represented by the formula



wherein R₁ and R₂ each are hydrogen, loweralkyl, loweralkenyl loweralkynyl or cycloalkyl, and R₃ and R₄ each are hydrogen, acyl, or R₃ and R₄ taken together form an isopropylidene or benzylidene moiety; and the pharmaceutically acceptable acid addition salts thereof.

The compounds wherein R₃ and R₄ are hydrogen are useful in treating cardiovascular disorders and are particularly useful as anti-anginal and anti-hypertensive agents. Compounds wherein R₃ and R₄ are acyl or when taken together form an isopropylidene or benzylidene moiety are intermediates useful in the preparation of the final products. (R₃ and R₄=hydrogen.)

3,830,797

TERTIARY-ALIPHATIC-α-(PERACYL)AZO COMPOUNDS

Ronald Edward MacLeay, Williamsville, and Chester Stephen Sheppard, Tonawanda, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.

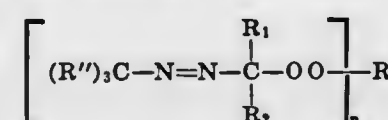
No Drawing. Continuation-in-part of application Ser. No. 725,180, Apr. 29, 1968, which is a continuation of Ser. No. 616,158, Feb. 15, 1967, which is a continuation of Ser. No. 409,306, Nov. 5, 1964, all now abandoned. This application Nov. 9, 1970, Ser. No. 88,109

Int. Cl. C07c 107/02

U.S. Cl. 260—192

7 Claims

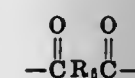
New tertiary-aliphatic α-(peracyl)azo compounds represented by the formula



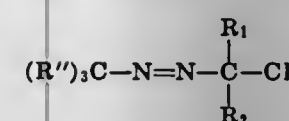
processes for preparing I where R is



and n is 1 or

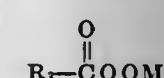


and n is 2 by reacting a t-aliphatic α-chloroazo compound



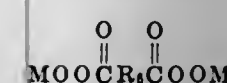
(II)

with peracids or their salts selected from



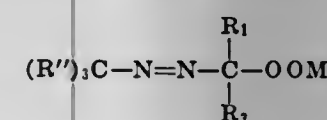
(III)

and



(IV)

processes for preparing compounds I by reacting t-aliphatic azo compounds of the formula



(V)

with the corresponding acylating agent; and the use of these compounds as polymerization initiators for vinyl monomers and as curing agents for resins. For example, 2-t-butylazo-2-(acetylperoxy) - 4 - methylpentane is prepared by reacting the sodium salt of 2-t-butylazo-2-hydroperoxy-4-methylpentane with acetyl chloride; and the product used to polymerize vinyl chloride at 30° C. and to cure unsaturated polyester-styrene resins at room temperature.

3,830,798

HYDROLYSIS OF RIBONUCLEIC ACID CONTAINING MATERIAL

Bobby A. Herndon, Glendale, and Eugene L. Schneider, St. Louis County, Mo., assignors to Ralston Purina Company, St. Louis, Mo.

No Drawing. Original application Mar. 22, 1968, Ser. No. 715,149, now abandoned. Divided and this application June 18, 1970, Ser. No. 57,895

Int. Cl. C07d 51/50

U.S. Cl. 260—211.5 R

10 Claims

Dog food compositions which exhibit enhanced flavor and acceptability when fed to dogs contain small amounts, on the order of 4 parts per million and up, of a ribonucleoside, such as adenosine, a 2',3'-ribonucleotide such as 2',3'-uridylic acid, a poly-2',3'-ribonucleotide, a chemically hydrolyzed ribonucleic acid-containing material and/or certain other structurally related compounds such as uric acid, uracil, pyrimidine and purine, and salts and mixtures of such materials and the like. Enhancement of the flavor and acceptability of such dog food compositions may be further improved by including a glutamic acid salt, such as monosodium glutamate. The compositions may be stabilized against deteriorations of the enhanced flavor and acceptability by the addition of a stabilizing agent such as sodium tripolyphosphate or a salt of ethylenediaminetetraacetic acid. The flavor enhancing materials may be added to conventional dog rations in an aqueous medium at the time of feeding or may be sprayed onto or otherwise added to dog rations during processing thereof. Ribonucleic acid-containing materials, such as yeast materials, may be subjected to chemical hydrolysis at a pH above 12 and a temperature of 25–55° C. for periods of three or more hours to produce hydrolyzate

materials useful for enhancing the flavor and acceptability of dog foods.

3,830,799

METHOD OF PREPARING AN ORGANIC CATION EXCHANGER

Nikolaas Hendrik Siewertsz Van Reesema, Rotterdamseweg 119, Delft, Netherlands

Continuation-in-part of abandoned application Ser. No. 153,035, June 14, 1971. This application Dec. 26, 1972, Ser. No. 318,552

Claims priority, application Netherlands, June 19, 1970, 7009020

Int. Cl. C08b 15/06

U.S. Cl. 260—213

2 Claims

A humic product, such as ammonium humus crystallate or crystal humus acid is treated with an acid to esterify part of the hydroxyl groups, which are then etherified with the non-esterified hydroxyl groups. The resulting insolubilized humic material is neutralized with cations to produce a cation exchanger.

3,830,800

PROCESS FOR THE PREPARATION OF HEXAMETHYLENEIMINE

Loren D. Brake, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 1, 1972, Ser. No. 249,616

Int. Cl. C07d 41/02

U.S. Cl. 260—239 B

7 Claims

Hexamethylenediamine is deaminated and cyclized to hexamethyleneimine in high yields by heating hexamethylenediamine to a temperature of from 180° to 300° C. in the presence of from 0.001 to 10 weight percent, calculated as ruthenium metal and based on the starting weight of hexamethylenediamine, of a specifically prepared ruthenium catalyst, the ruthenium being supported on an inert carrier.

3,830,801

ESTERIFICATION OF PENICILLIN ACIDS

Roy Bywood, Ulverston, and Gerard Gallagher, Barrow-in-Furness, England, Girijesh Kumar Sharma, Delhi, India, and Derek Walker, Westmorland, England, assignors to Glaxo Laboratories Limited, Greenford, Middlesex, England

No Drawing. Filed Jan. 11, 1972, Ser. No. 217,040

Claims priority, application Great Britain, Jan. 12, 1971, 1,528/71

Int. Cl. C07d 99/16, 99/24

U.S. Cl. 260—239.1

13 Claims

The invention provides a method of esterifying N-blocked amino acids by reaction of the N-blocked acid with a hydrazone and an oxidising agent.

3,830,802

FUSED BI- AND TRICYCLIC, DI-, TRI- AND THIODIAZA COMPOUNDS

Marcel K. Eberle, Madison, and William J. Houlihan, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Application Mar. 19, 1971, Ser. No. 126,331, now Patent No. 3,682,897, which is a division of application Ser. No. 867,376, Oct. 17, 1969, now Patent No. 3,598,809. Divided and this application May 30, 1972, Ser. No. 257,739

Int. Cl. C07d 53/00, 53/02, 93/40

U.S. Cl. 260—239.3 B

5 Claims

Fused bi- and tricyclic, di-, tri- and thiodiaza compounds, e.g. 2,3,3a,10 - tetrahydro-3-phenylbenzo[b]pyrrolo[2,3-e][1,4]diazepin-4(3H)-one prepared by treating a corresponding substituted pyridine or pyrroline with a substituted aniline o-phenylenediamine, ethylenediamine or diaminopropane. The compounds are useful as tranquilizers and hypotensives.

3,830,803

5-LOWERALKYL-1-PHENYL-1,3,4,6-TETRAHYDRO-5H-BENZ[F]-2,5-OXAZOCINES AND 4-ONES

Mirle W. Klohs, Tarzana, Marshall D. Draper, Woodland Hills, and Francis J. Petracek, Canoga Park, Calif., assignors to Riker Laboratories, Inc., Norbridge, Calif. No Drawing. Filed May 10, 1965, Ser. No. 454,738

Int. Cl. C07d 87/54

U.S. Cl. 260—239.3 B

4 Claims

Substituted 1-phenyl-1,3,4,6-tetrahydro-5H-benz[f]-2,5-oxazocine final products, having significant pharmacological activity as diuretic agents and central nervous system stimulants, and the substituted 1-phenyl-1,3,4,6-tetrahydro-5H-benz[f]-2,5-oxazocin-4-one intermediates obtained in the synthesis thereof.

3,830,804

FLUORESCENT (PYRIMIDINOTRIAZOLYL)-2-STYRYLBENZOXAZOLES

Robert B. Barbee, Kingsport, Tenn., and Edward C. Taylor, Princeton, N.J., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Nov. 20, 1972, Ser. No. 307,915

Int. Cl. C09b 23/14

U.S. Cl. 260—240 D

4 Claims

This invention relates to novel pyrimidinotriazolyl-2-styrylbenzoxazoles and to these compounds incorporated into filaments, fibers, sheets, films and other shaped articles made of polyester materials having advantageous brightness and/or whiteness.

3,830,805

CONTROL OF UNWANTED PLANTS USING 1-BENZYLIDENEAMINO-2-HYDANTOINS

Kurt H. Pilgram, Modesto, Calif., assignor to Shell Oil Company

Filed Feb. 23, 1973, Ser. No. 335,200

Int. Cl. C07d 49/32

U.S. Cl. 260—240 F

3 Claims

1-(3-(trifluoromethyl)- and 1-(3-(trifluoromethoxy)benzylideneamino)hydantoin, useful for controlling unwanted plants.

3,830,806

DERIVATIVES OF 1-PHENOXY-3-AMINO-PROPAN-2-OL

Thomas Raabe, Heusenstamm, Rolf-Eberhard Nitz, Bergen-Enkheim and Josef Scholtholt, Frankfurt am Main-Fechenheim, Germany, assignors to Cassella Farbwerke Mainkur Aktiengesellschaft, Frankfurt am Main-Fechenheim, Germany

No Drawing. Filed July 28, 1972, Ser. No. 276,029

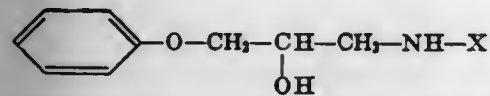
Claims priority, application Switzerland, Aug. 3, 1971, 11415/71

Int. Cl. C07d 31/28

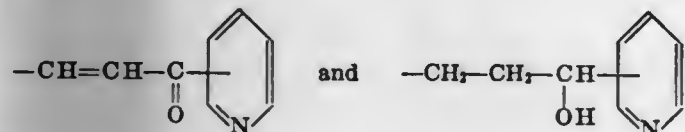
U.S. Cl. 260—240 J

11 Claims

The present invention relates to new pharmacologically valuable derivatives of 1-phenoxy-3-amino-propan-2-ol having the formula

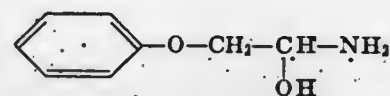


and the aldehyde condensation products and acid addition salts thereof wherein X is selected from the group consisting of



wherein the phenyl ring may have attached to it up to three similar or different substituents selected from the group consisting of alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, alkoxy, alkenyloxy, alkynyloxy, phenyl, halogen and -NR₁R₂, wherein R₁ is selected from alkyl and acyl, and R₂ is selected from hydrogen and alkyl; and to

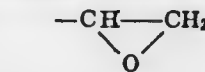
the production thereof by a method selected from (A) reacting 1-phenoxy-3-amino-propan-2-ol having the formula



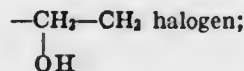
with a compound having the formula Y-X, wherein X has the above-defined meaning and Y is selected from halogen, -OH, -OK or -ONa; (B) reacting a compound of the formula



with a compound of the formula H₂N-X, wherein X has the above-defined meaning and Z is selected from



and



(C) reacting a phenol



with Z-CH₂-NH-X, wherein X and Z have the meaning defined above.

3,830,807

IRON CARBONYL COMPLEXES OF AZO COMPOUNDS

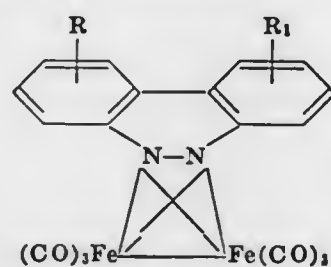
Robert Putnam Bennett, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn. No Drawing. Continuation-in-part of application Ser. No. 154,668, June 18, 1971, which is a continuation-in-part of Ser. No. 775,188, Nov. 12, 1968, both now abandoned. This application Oct. 6, 1972, Ser. No. 295,626

Int. Cl. C07d 51/10

U.S. Cl. 260—242

3 Claims

A diiron hexacarbonyl complex of benzo(c)cinnoline is provided which has the formula



wherein R and R₁ are hydrogen, methyl or halogen. In addition, a method for preparing such complexes is provided which comprises reacting a benzo(c)cinnoline with an iron carbonyl at a temperature above about 100° C. in which the molar ratio of benzo(c)cinnoline to carbonyl is from about 1:1 to 3:2.

3,830,808

CEPHALOSPORINS HAVING A THIOETHERIFIED METHYL GROUP AT THE 3-POSITION

John Colin Clark, Gerrards Cross, England, James Kennedy, Montrose, Scotland, and Alan Gibson Long, Greenford, England, assignors to Glaxo Laboratories Limited, Greenford, Middlesex, England

No Drawing. Original application June 13, 1969, Ser. No. 833,150, now Patent No. 3,668,203. Divided and this application Dec. 28, 1971, Ser. No. 213,193

Claims priority, application Great Britain, May 30, 1969, 28,527/68

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C

1 Claim

7β-Acylamidoceph-3-em-4-carboxylic acids having a thioetherified methyl group at the 3-position and physio-

logically acceptable derivatives thereof. The compounds have utility as antibiotics and show absorption after oral administration.

3,830,809

BIS-DICYCLOHEXYLAMINE N-CARBISOBUTOXY-CEPHALOSPORIN C

Thomas J. Brooks, Jr., Manlius, N.Y., assignor to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Aug. 25, 1972, Ser. No. 283,887

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C

1 Claim

After the reaction at the free amino group of cephalosporin C in a fermentation beer with isobutyl chloroformate followed by extraction into methyl isobutyl ketone at pH 2, the product is recovered in high yield as a substantially pure crystalline bis-amine salt by the addition of two moles of dicyclohexylamine.

3,830,810

s-TRIAZINE DERIVATIVES

Dagmar Berrer, Riehen, Manfred Kühne, Pfeffingen, and Christian Vogel, Binningen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 29, 1972, Ser. No. 310,506

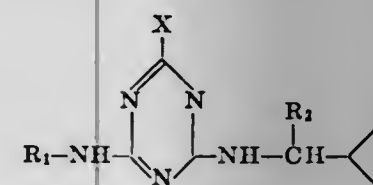
Claims priority, application Switzerland, Dec. 1, 1971, 17,459/71

Int. Cl. C07d 55/20

U.S. Cl. 260—249.8

3 Claims

Triazine derivatives of formula I



wherein

X represents chlorine, the methoxy, the methylthio or the azido group,

R₁ represents hydrogen, a lower alkyl, alkoxyalkyl, cyanoalkyl or cyclopropyl-alkyl radical, or the cyclopropyl radical, or an alkynyl group having 3-4 carbon atoms, and

R₂ represents hydrogen, or an alkyl radical having 1 to 3 carbon atoms, including the cyclopropyl group, can be used as weedkiller in plant crops.

3,830,811

2,6-BIS-ALLYLAMINOPYRIMIDINYL PIPERAZINES

Gilbert Regnier, Ave. due Plessis, Chateaufort Malabry, France; Roger Canevari, 12 Rue Chevreuse, Villebon-sur-Yvette, France; and Michel Laubie, 18 Bd Jardy, Vauresson, France

No Drawing. Filed Feb. 29, 1972, Ser. No. 230,510

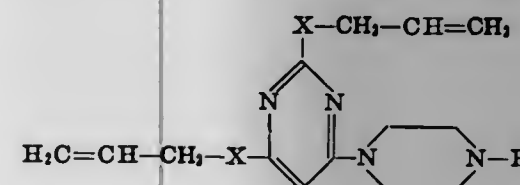
Claims priority, application Great Britain, Mar. 15, 1971, 6,886/71

Int. Cl. C07d 51/42

U.S. Cl. 260—256.4 N

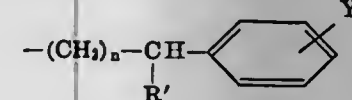
4 Claims

Pyrimidinyl piperazines of the formula:



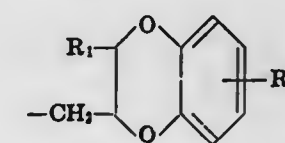
wherein X is oxygen or imino, and R is

(a)



in which n is 0, 1, 2 or 3, R' is hydrogen, phenyl, halo-phenyl, lower alkylphenyl, lower alkoxyphenyl or methylenedioxyphenyl, and Y is hydrogen, halogen, lower alkyl, lower alkoxy or methylenedioxy, or

(b)



in which R₁ is hydrogen or methyl, and R₂ is hydrogen, halogen, lower alkyl, lower alkoxy, hydroxy, nitro or amino.

These compounds possess respiratory analeptic properties.

3,830,812

HERBICIDAL AND GROWTH-REGULANT COMPOSITIONS BASED ON NOVEL PYRIMIDO[4,5-d]PYRIMIDINONES

Arthur Albert Ramsey, Middleport, N.Y., assignor to FMC Corporation, New York, N.Y.

No Drawing. Filed July 10, 1972, Ser. No. 270,049

Int. Cl. C07d 51/46

U.S. Cl. 260—256.4 F

7 Claims

A class of herbicidal compounds consisting of 2,5-dialkyl- and 2,5,7-trialkylpyrimido[4,5-d]pyrimidin-4(3H)-ones exhibits pre-emergence and post-emergence herbicidal activity. The synthesis of members of this class is described in detail and the utility of representative compounds is exemplified.

3,830,813

2-(5'-NITRO-2'-FURYL)-THIENO[2,3-d]PYRIDINES AND SALTS THEREOF

Eberhard Woitman and Wolfgang Reuter, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany

No Drawing. Filed Apr. 5, 1972, Ser. No. 241,414

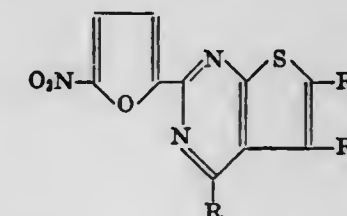
Claims priority, application Germany, Apr. 10, 1971, P 21 17 658.9

Int. Cl. C07d 52/42

U.S. Cl. 260—256.5 R

11 Claims

Compounds of the formula



wherein R is free amino; lower aliphatic acylamino optionally mono- or di-chloro-substituted on the acyl moiety; (straight or branched monoalkyl of 1 to 5 carbon atoms)-amino; di(alkyl of 1 to 4 carbon atoms)-amino, where the alkyl moieties may be identical to or different from each other; mono- or di-hydroxy (straight or branched alkyl of 1 to 5 carbon atoms) amino, where the amino nitrogen may have an alkyl of 1 to 4 carbon atoms substituent attached thereto; di-[hydroxy (straight or branched alkyl of 1 to 3 carbon atoms)]amino; alkoxy of 1 to 2 carbon atoms (alkyl of 1 to 3 carbon atoms)amino; free amino (alkyl of 1 to 3 carbon atoms)amino; N-acetyl-(alkyl-ene of 1 to 3 carbon atoms)-diamino; piperidino; or hydroxy-piperidino; and

R₁ and R₂, which may be identical to or different from each other, are each hydrogen, methyl or ethyl,

and non-toxic, pharmacologically acceptable acid addition salts thereof; the compounds as well as the salts are useful as bactericides, fungicides and trichomonocides.

3,830,814

N-OXIDES OF DIBENZO[b,f]THIEPINES

Jiri Jilek, Miroslav Protiva, Jirina Metysova, and Josef Pomykacek, Prague, Czechoslovakia, assignors to SPOFA, United Pharmaceutical Works, Prague, Czechoslovakia

No Drawing. Filed Dec. 8, 1970, Ser. No. 96,262
Claims priority, application Czechoslovakia, Dec. 10, 1969, 8,111/69

Int. Cl. C07d 51/70

U.S. Cl. 260—268 TR

4 Claims

N-oxides of dibenzo[b,f]thiepinines and salts thereof, these compounds exhibiting a relatively high cataleptic activity with a relatively low central sedative or tranquilizing action. The invention further relates to the production of these new compounds.

3,830,815

DIALKYL-1,2-DIHYDROQUINOLINE AND 1,2-DIHYDROISOQUINOLINE PHOSPHONATES

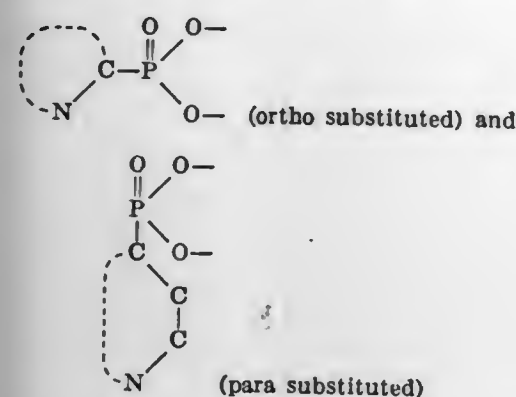
Derek Redmore, Ballwin, Mo., assignor to Petrolite Corporation, Wilmington, Del.
No Drawing. Continuation of abandoned application Ser. No. 733,328, May 31, 1968. This application Mar. 27, 1973, Ser. No. 345,442

Int. Cl. C07d 33/12, 35/14

U.S. Cl. 260—283 P

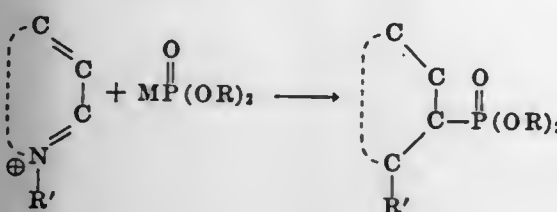
5 Claims

Nitrogen-heterocyclic phosphonates wherein the phosphonate group is ortho- or para- to the nitrogen heterocyclic group, where the compounds are characterized as follows:

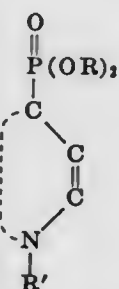


wherein the dotted line represents a cyclic structure which cyclic structure may be the sole cyclic structure, or may be attached to other cyclic groups.

These nitrogen heterocyclic phosphonates are prepared by reacting an aromatic nitrogen heterocyclic compound, wherein the nitrogen atom is in the form of a salt or a quaternary, with a phosphite salt, preferably in the form of esters of the phosphite as exemplified by the following equation:



and/or



These compounds which may be characterized as phosphonates of dihydroaromatic nitrogen heterocyclics have many uses including their use as biocides such as bacteri-

ocides, herbicides, corrosion inhibitors, chelating agents, etc.

3,830,816

1 - CYCLOPROPYLMETHYLENEAMINO - 3,4 - DIHYDROISOQUINOLINE AND ACID ADDITION SALTS THEREOF

Maurice Ward Gittos, Slough, John William James, Langley, and John Pomfret Verge, Henley, England, assignors to Aspro-Nicholas Limited, Slough, England
No Drawing. Continuation-in-part of application Ser. No. 805,868, Mar. 10, 1969, now Patent No. 3,652,570. This application Mar. 27, 1972, Ser. No. 238,530
Claims priority, application Great Britain, Mar. 9, 1968, 11,633/68

Int. Cl. C07d 33/52

U.S. Cl. 260—286 R

2 Claims

1-cyclopropylmethyleneamino-3,4-dihydroisoquinoline is a novel compound possessing hypotensive activity. It may be prepared by the reaction of cyclopropylmethyleneamino with 1,2,3,4-tetrahydro-1-isoquinolthione or with 1-alkylthio-3,4-dihydroisoquinoline.

3,830,817

1 - AZIRIDINYLCARBONYL - QUINOLINE-CARBOXYLIC ACID DERIVATIVES

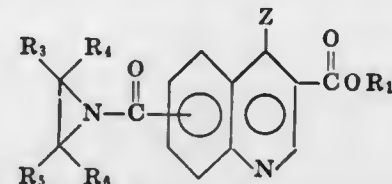
Venkatachala L. Narayanan, Hightstown, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.
No Drawing. Continuation-in-part of abandoned application Ser. No. 73,669, Sept. 18, 1970. This application Nov. 13, 1972, Ser. No. 306,262

Int. Cl. C07d 33/48

U.S. Cl. 260—287 R

8 Claims

Quinoline derivatives are provided having the structure



These derivatives are useful as coccidiostats and nematocides.

3,830,818

AMINO QUINOBENZAZEPINES

Gerhard Hackmack, Aumuehle, and Heinz Guenter Menge, Hamburg, Germany, assignors to Byk Gulden Lomberg, Chemische Fabrik Gesellschaft mit beschränkter Haftung, Constance, West Germany
No Drawing. Filed Feb. 2, 1971, Ser. No. 112,046
Claims priority, application Germany Feb. 3, 1970, P 20 04 818.4

Int. Cl. C07d 39/00

U.S. Cl. 260—288 R

6 Claims

2,3,7,8-Tetrahydro-1H-quinol[1,8-ab][1]benzazepine compounds which are substituted in 3-position by an amino group and their substantially non-toxic acid addition salts have a pronounced effect on the central nervous system.

3,830,819

MANUFACTURE OF 1-DIHYDROCODEINE

Edward Leon Grew and David Jackson Powles, Edinburgh, Scotland, assignors to MacFarlan Smith Limited, Edinburgh, Scotland
No Drawing. Filed Feb. 22, 1972, Ser. No. 228,367
Claims priority, application Great Britain, Feb. 22, 1971, 5,081/71

Int. Cl. C07d 43/28

U.S. Cl. 260—285

3 Claims

A process for the preparation of a purified 1-dihydrocodeine which comprises the steps of:

- catalytically hydrogenating 1-dihydrocodeinone in a liquid medium using a catalyst selected from the group consisting of platinum oxide and supported platinum metal to produce a solution of crude 1-dihydrocodeine,
- removing the catalyst from the solution, and

(c) treating the solution for recovery of a purified 1-dihydrocodeine having a reduced content of 1-dihydrothebainone and/or 1-dihydrothebainol.

3,830,820

MANUFACTURE OF HALOGENATED PYRIDINE DERIVATIVES

Roy Dennis Bowden and Thomas Seaton, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Original application Aug. 16, 1971, Ser. No. 172,266, now Patent No. 3,725,414. Divided and this application Nov. 13, 1972, Ser. No. 305,658

Int. Cl. C07d 31/26

U.S. Cl. 260—290 HL

7 Claims

This invention relates to the manufacture of halogenated pyridine derivatives by reaction of cyclohexanone oxime with chlorine in the vapour phase.

3,830,821

PYRIDOXAL ALPHA - KETOGLUTARATE AND PYRIDOXAMINE ALPHA-KETOGLUTARATE

Cristobal Martinez Roldan and Miguel Fernandez, Madrid, Spain, assignors to Laboratorios Made, S.A., Madrid, Spain
No Drawing. Filed Oct. 10, 1972, Ser. No. 296,056

Int. Cl. C07d 31/36

U.S. Cl. 260—295 VB

2 Claims

Pyridoxal alpha-ketoglutarate and pyridoxamine alpha-ketoglutarate possess anti-convulsant, weight increase and anti-hypnotic properties.

3,830,822

BIS-PYRIDYL AMINES

Charles Brian Barlow, Yateley, and Clive Dudley Spencer Tomlin, Maidenhead, England, assignors to Imperial Chemical Industries Limited
No Drawing. Filed July 19, 1971, Ser. No. 164,082
Claims priority, application Great Britain Aug. 4, 1970, 37,585/70

Int. Cl. C07d 31/42

U.S. Cl. 260—296 R

4 Claims

This invention relates to new bis-pyridyl amine derivatives. These compounds exhibit fungicidal, insecticidal, herbicidal and algicidal properties.

3,830,823

PROCESS FOR THE PREPARATION OF DEETHYLEBURNAMONINES

Albert René Castaigne, Toulouse, France, assignor to Centre d'Etudes pour l'Industrie Pharmaceutique, Toulouse, France
Filed Jan. 15, 1973, Ser. No. 323,429
Claims priority, application France Jan. 24, 1972, 7202196

Int. Cl. C07d 57/04

U.S. Cl. 260—293.53

4 Claims

This invention relates to a process for the preparation of d,l-12-oxo-1,2,5,6,12,13,13a,13b-octahydro-3H-indolo[3,2,1-d,e]pyrido[3,2,1-i,j][1,5]naphthyridines, comprising reacting 2,3,4,6,7,12-hexahydro-indolo(2,3-a)quinolizine with an alkyl haloacetate, reacting the resulting compound with perchloric acid, to give ethyl 1-[1,2,3,4,6,7-hexahydro-indolo(2,3-a)quinolizinium] acetate perchlorate, and then cyclizing and reducing the resulting perchlorate.

3,830,824

PHYSIOLOGICAL ORGANIC ACID SILVER ALLANTOINATES

Harry W. Margraf, Clayton, Mo., assignor of a fractional part interest to Allen P. Klippel, St. Louis, Mo.
No Drawing. Filed July 23, 1971, Ser. No. 165,737

Int. Cl. C07d 49/32

U.S. Cl. 260—299

3 Claims

The application discloses the preparation and uses of physiological organic acid silver salts of allantoin, spe-

3,830,825

ZINC SULF-HYDROXY ALLANTOINATE

Harry W. Margraf, Clayton, Mo., assignor of a fractional part interest to Allen P. Klippel, St. Louis, Mo.
No Drawing. Filed July 23, 1971, Ser. No. 165,736

Int. Cl. C07d 49/32

U.S. Cl. 260—299

1 Claim

Zinc sulf-hydroxy allantoinate has a long-continuing fungicidal property, releasing its zinc ions gradually. It is particularly useful for controlling those fungi which tend to flourish when antibiotics are employed as bactericides.

3,830,826

2-ACYL-5-NITROTHIAZOLE DERIVATIVES

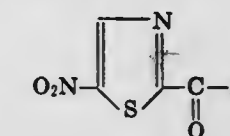
Peter Strehlke, Eberhard Schroder, and Hans-Joachim Kessler, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany
No Drawing. Filed June 23, 1972, Ser. No. 265,462
Claims priority, application Germany, Jan. 27, 1972, P 22 04 364.7

Int. Cl. C07d 11/32

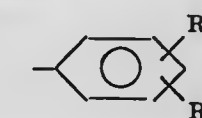
U.S. Cl. 260—302 H

44 Claims

2-acyl-5-nitrothiazoles of the formula



wherein A is furyl, thienyl, or pyrrolyl, which can be substituted by one or more alkyl groups or by phenyl; or a group of the formula



wherein R₁ is hydrogen, halogen, straight or branched chain alkyl, hydroxyl, alkoxy, phenoxy, alkylmercapto, phenylmercapto, phenyl or phenylalkyl; and R₂ is hydrogen, halogen, straight or branched chain alkyl, hydroxyl, or alkoxy. These compounds are useful as fungicides and as intermediates in the preparation of other pharmaceutically active compounds.

3,830,827

L-α-HYDRAZINO - α - SUBSTITUTED - β - (3,4 - DIHYDROXYPHENYL)PROPIONIC ACID SUBSTANTIALLY FREE OF THE D ISOMER, THE LOWER ALKYL ESTERS THEREOF, AND THE PHARMACEUTICALLY ACCEPTABLE SALTS THEREOF, WHEREIN THE SUBSTITUENT IS LOWER ALKYL

Sandor Karady, Mountainside, Manuel G. Ly, Edison, Seemon H. Pines, Murray Hill, and Meyer Slettinger, North Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation of application Ser. No. 22,076, Mar. 23, 1970, which is a continuation-in-part of application Ser. No. 835,307, June 18, 1969, both now abandoned. This application Sept. 7, 1972, Ser. No. 287,147

Int. Cl. C07c 109/04

U.S. Cl. 260—471 A

6 Claims

A novel compound is used to inhibit mammalian decarboxylase, the compound being selected from the group consisting of L-α-hydrazino-α-substituted - β - (3,4-dihydroxyphenyl)propionic acid substantially free of the D isomer, the lower alkyl esters thereof, and the pharmaceutically acceptable salts thereof, wherein the substituent

is lower alkyl. Compounds, compositions and method of treatment are included.

3,830,828

STABILIZER FOR ORGANIC COMPOUNDS

Heinz Eggensperger, Gaderheim, over Bensheim; Volker Franzen, Heidelberg; Karl-Heinz Diehl, Bensheim, Bergstrasse, and Wilfried Kloss, Kolmbach, over Bensheim, Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

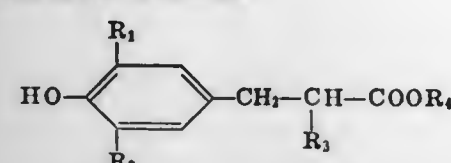
No Drawing. Continuation of abandoned application Ser. No. 661,191, Aug. 17, 1967. This application May 25, 1971, Ser. No. 146,840

Claims priority, application Germany, Aug. 17, 1966, D 50,863

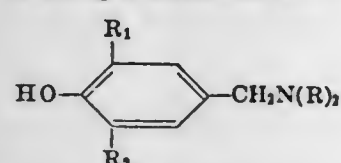
Int. Cl. C07c 69/76

U.S. Cl. 260—473 S

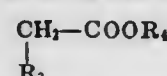
Compounds of the formula



are prepared by reacting a Mannich base



with a carboxylic acid ester of the formula



and are stabilizers for organic materials against deterioration by oxygen, light and heat.

In the formulae, R_1 and R_2 is alkyl, R_3 is $-\text{CN}$ or $-\text{COOR}_4$, and R_4 is an alkyl, aralkyl, cycloalkyl, ether or thioether group.

3,830,829

CHLOROPHENOXYALKYL ANILIDES

John F. Olin, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 1, 1971, Ser. No. 148,894

Int. Cl. C07c 103/32

U.S. Cl. 260—473 G

Herbicidal acyloxyalkyl-2-halo-substituted acetanilides.

3,830,830

PRODUCTION OF DIALKYL ESTERS OF SUCCINIC ACID

James P. Cleveland, Kingsport, and James C. Martin, Johnson City, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Feb. 29, 1972, Ser. No. 230,452

Int. Cl. C07c 69/40

U.S. Cl. 260—485 R

6 Claims

A process is disclosed for the production of dialkyl esters of succinic acid from maleic anhydride and a lower alcohol. The maleic anhydride is first esterified to form a monoalkyl maleate, which is next hydrogenated to form the corresponding succinate. The monoalkyl succinate is then esterified to form the corresponding dialkyl succinate. By use of this process, formation of undesirable side products such as fumarates and malates is substantially eliminated.

3,830,831

11-SUBSTITUTED-DESA-PREGNANES AND DERIVATIVES THEREOF

Milan Radoje Uskokovic, Upper Montclair, and Thomas Henry Williams, Passaic, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Division of abandoned application Ser. No. 736,569, June 13, 1968, which is a division of Ser. No. 499,094, Oct. 20, 1965, now Patent No. 3,574,761, which is a continuation-in-part of Ser. No. 400,206, Sept. 29, 1964, now Patent No. 3,412,107. Divided and this application Nov. 14, 1972, Ser. No. 306,496

Int. Cl. C07c 69/12

U.S. Cl. 260—488 B

3 Claims

This invention is directed to 11-substituted-desA-pregnanes and derivatives thereof which are useful as intermediates in the production of 9,10 α -known steroids of the pregnane series. These latter compounds can be utilized as progestational and salt-retaining agents.

3,830,832

ANTIMICROBIAL ESTERS OF OCTA-2,3-DIENE-5,7-DIYNE-1-OL

Katsumi Suzuki, Tokyo, Isamu Maeyashiki, Yokohama, Akihiro Fukuda, Yokosuka, Asao Mural, Tokyo, Tsuyoshi Shio, Kamakura, and Shinji Okumura, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed June 20, 1973, Ser. No. 371,769

Claims priority, application Japan, June 23, 1972, 47/63,600

Int. Cl. C07c 69/14, 69/24

U.S. Cl. 260—488 H

1 Claim

Octa - 2,3 - diene-5,7-diyne - 1 - ol has antimicrobial effects, but its esters with acetic and propionic acid are effective in very much smaller amounts.

3,830,833

PROCESS FOR ISOMERIZING ALLYLIC ESTERS OF CARBOXYLIC ACID

Shunsuke Mabuchi and Hisashi Kikaki, Yamaguchi, Japan, assignors to Toya Soda Manufacturing Co., Ltd., Yamaguchi, Japan

No Drawing. Filed June 29, 1971, Ser. No. 158,131

Claims priority, application Japan, July 8, 1970, 45/59,644

Int. Cl. C07c 67/00, 79/46

U.S. Cl. 260—491

8 Claims

Allylic esters of carboxylic acid in the liquid phase are isomerized by contact with platinum chlorine compounds.

3,830,834

PROCESS FOR THE CONTINUOUS PREPARATION OF VINYL ACETATE

Walter Kronig, Wiesbaden; Gunter Roscher, Kelkheim; Wulf Schwerdtel, Cologne, and Kurt Sennwald, Huerth-Mitte, Germany, assignors to Bayer Aktiengesellschaft and Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main Hoechst, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 682,564, Nov. 13, 1967. This application Aug. 11, 1971, Ser. No. 170,967

Claims priority, application Germany, Nov. 12, 1966, K 60,705; Dec. 27, 1966, F 51,091

Int. Cl. C07c 67/04

U.S. Cl. 260—497 A

23 Claims

The activity and selectivity of catalysts comprising palladium metal and an alkali metal acetate, when used

for the production of vinyl acetate from ethylene, oxygen and acetic acid, is maintained at a high level even after prolonged long term continuous use, by the continuous addition of quantities of alkali metal acetate to a reactant stream or the reaction space.

3,830,835

LEUCAURAMINE DERIVATIVES

Violet Boyd, Ronald Arthur Evans, Kenneth Anthony Holt, and Andrew Hunter Morris Renfrew, Blackley, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

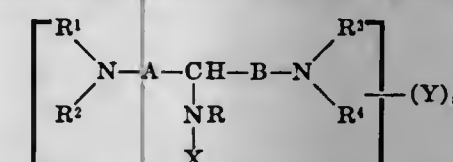
No Drawing. Filed Sept. 1, 1971, Ser. No. 177,110 Claims priority, application Great Britain, Sept. 4, 1970, 42,533; Dec. 16, 1970, 59,715; June 17, 1971, 28,464

Int. Cl. C07c 143/56

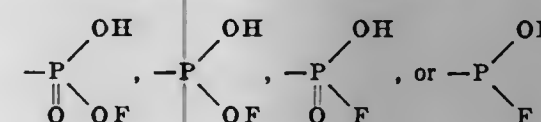
U.S. Cl. 260—510

2 Claims

A leucauramine derivative of the general formula:



wherein A and B each independently represents an optionally substituted 1,4-arylene residue; R represents hydrogen, hydroxyl, alkoxy or an optionally substituted amino, alkyl, aralkyl or cycloalkyl radical; X represents hydrogen or an optionally substituted hydrocarbon radical which may contain one or more hetero atoms, or R and X together with the attached nitrogen atom form an optionally substituted heterocyclic ring; each of R^1 , R^2 , R^3 and R^4 independently represents hydrogen or an optionally substituted alkyl, aralkyl, cycloalkyl or aryl radical or forms part of a divalent organic chain which together with the attached nitrogen atom constitutes a heterocyclic ring; Y represents a sulfo, sulphino, sulphato, sulphito, thiosulphato, thiosulphono, thiosulphino or thiocarboxy radical, a radical of the formula $-\text{D}-\text{E}$ wherein D represents oxygen, sulphur or a direct link and E represents a radical of the formula:



in which F represents hydrogen or a hydrocarbon radical, or a corresponding radical in which one or more of the oxygen atoms may be replaced by sulphur or, provided that Y is attached to a carbon atom forming part of an aromatic carbocyclic or heterocyclic system, Y may represent a hydroxy or mercapto radical, and n has a value of 1, 2 or 3. The compounds may be used as colour formers in hectographic copying processes.

3,830,836

3,4-DIHYDROXYPHENYLALANINE HEMIHYDROCHLORIDE

Solchiro Asai, Kenichi Yaita, Teruo Uzaki, Kouhei Kimura, and Hiroo Kageyama, Kanagawa, Japan, assignors to Ajimoto Co., Inc., Tokyo, Japan

Filed Oct. 6, 1971, Ser. No. 186,983 Claims priority, application Japan, Oct. 15, 1970, 45/90,738; Oct. 31, 1970, 45/96,193; Dec. 28, 1970, 46/128,861; Dec. 30, 1970, 46/128,715

Int. Cl. C07c 101/72

U.S. Cl. 260—519

1 Claim

DOPA [β -(dihydroxyphenyl)-alanine] forms a hemihydrochloride which crystallizes in coarse prisms having a more favorable weight-to-surface ratio and capable of more convenient optical resolution by seeding of its supersaturated solutions than DOPA itself so that very pure L-DOPA can be obtained from crude DL-DOPA by conversion of the crude racemate to the hemichloride, resolution of the latter, and conversion of the L-DOPA hemichloride to L-DOPA.

3,830,837

ANTIBIOTIC SUBSTANCES

Giancarlo Lancini, 4, Via Vittadini, Pavia, and Ettore Lazzari, 10, Via Delle Camelle, and Alberto Dena, 49, Via Jenner, Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 559,749, June 23, 1966. This application Sept. 14, 1972, Ser. No. 289,118

Int. Cl. C07c 135/00

U.S. Cl. 260—534

1 Claim

A process for preparing α -amino- ω -N-nitrosohydroxyl-amino acids is described.

3,830,838

ETHANESULFINAMIDES

Willy D. Kollmeyer, Kurt H. G. Pilgram, and Earl K. Jackson, Modesto, Calif., assignors to Shell Oil Company

No Drawing. Continuation-in-part of abandoned application Ser. No. 162,710, July 14, 1971. This application May 15, 1972, Ser. No. 253,355

Int. Cl. C07c 145/00

U.S. Cl. 260—551 S

5 Claims

Certain novel beta substituted ethanesulfinamides are described, with their preparation and use as plant growth regulators.

3,830,839

IMIDOYL UREAS

Guy D. Diana, Stephentown, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 711,235, Mar. 7, 1968, now Patent No. 3,629,455, dated Dec. 21, 1971. This application Mar. 2, 1970, Ser. No. 15,875

Claims priority, application Great Britain, Mar. 3, 1969, 11,308/69

Int. Cl. C07c 127/16

U.S. Cl. 260—553 A

11 Claims

The compounds of this invention are novel imidoyleureas having anthelmintic activity and imidoylethioureas having antifertility activity. They are prepared by the reaction of appropriate amidines with appropriate isocyanates or isothiocyanates.

3,830,840

1-METHYL-2-(LOWER SULFONYLAMINO-BENZYL)-HYDRAZINES

Werner Bollag, Basel, Hugo Gutmann, Reinach, Balthasar Hegedus, Binningen, Ado Kaiser, Lausen, Basel-Land, Albert Langemann, Binningen, Marcel Muller, Frenkendorf, and Paul Zeller, Allschwil, Basel-Land, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Application June 4, 1970, Ser. No. 43,572, and now Patent No. 3,711,543, dated Jan. 16, 1973, which is a division of application Ser. No. 571,690, Aug. 11, 1966, now Patent No. 3,534,100, which in turn is a division of application Ser. No. 200,059, June 5, 1962, now abandoned. Divided and this application Nov. 21, 1972, Ser. No. 308,628

Int. Cl. C07c 143/74

U.S. Cl. 260—556 A

3 Claims

Benzene-ring substituted (2-methylhydrazino)-methylbenzene compounds and intermediates therefor are described. The former compounds are useful as cytostatic agents and, particularly, inhibit the growth of transplantable tumors in both mice and rats. Thus, they are active, for example, against Walker tumors, Erlich carcinoma and Erlich ascites carcinoma.

3,830,841

HERBICIDAL ANILIDES

Kenneth Wayne Ratts, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 1, 1971, Ser. No. 148,893

Int. Cl. C07c 103/44

U.S. Cl. 260—557 R

9 Claims

Herbicidal amidoalkyl-2-halo-substituted acetanilides.

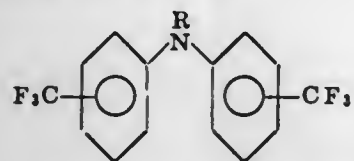
3,830,842

 $\alpha,\alpha,\alpha',\alpha',\alpha',\alpha'$ -HEXAFLUORODI-M-TOLYLAMINE DERIVATIVES

Harry Louis Yale, New Brunswick, N.J., assignor to E. R. Squibb & Sons, Inc., New York, N.Y.
No Drawing. Original application Sept. 10, 1970, Ser. No. 71,234, now Patent No. 3,712,921, dated Jan. 23, 1973. Divided and this application Oct. 24, 1972, Ser. No. 300,049

Int. Cl. C07c 103/10

U.S. Cl. 260—562 P 4 Claims
 $\alpha,\alpha,\alpha',\alpha',\alpha',\alpha'$ -Hexafluorodi-m-tolylamine derivatives are provided having the structure



wherein R is as defined hereinafter. These compounds are useful as antibacterial agents and in the treatment of hypertension.

3,830,843

POLYHYDROPHENANTHRENE DERIVATIVES

Philip E. Shaw, Winter Haven, Fla., and Sol J. Daum, Albany, and Robert L. Clarke, Bethlehem, N.Y., assignors to Sterling Drug Inc., New York, N.Y.
No Drawing. Application Nov. 25, 1969, Ser. No. 879,920, now Patent No. 3,755,361, which is a continuation-in-part of application Ser. No. 585,762, Oct. 11, 1966, now Patent No. 3,592,838. Divided and this application July 6, 1972, Ser. No. 269,402

Int. Cl. C07c 129/08

U.S. Cl. 260—564 F 3 Claims
Alkyl polyhydro-2-phenanthrylideneacetates are prepared by interacting the corresponding 2-oxopolyhydro-phenanthrenes with a tri-lower-alkyl α -phosphono-lower-alkanoate. Said alkyl polyhydro-2-phenanthrylideneacetates are hydrolyzed to the free acid, and then reesterified via the acid chloride with a tertiary-amino-lower-alkanol to give basic esters having cardiotonic activity.

3,830,844

METHOD FOR SYNTHESIZING RHODOXANTHIN

Joseph Donald Surmatis and Armin Walser, West Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Application May 19, 1969, Ser. No. 826,022, now Patent No. 3,624,105, which is a division of application Ser. No. 617,827, Feb. 23, 1967, now Patent No. 3,466,331. Divided and this application June 14, 1971, Ser. No. 153,090

Int. Cl. C07c 49/54

U.S. Cl. 260—586 R 1 Claim
A method by which rhodoxanthin can be synthesized from 3-ethylenedioxy- β -ionone as well as new and novel intermediates produced in the synthesis. Rhodoxanthin is a well-known coloring agent for foodstuffs, including beverages, pharmaceutical and cosmetic preparations.

3,830,845

PURIFICATION OF 2,4-DIHYDROXY-BENZOPHENONE

Fred S. Arimoto, Newark, Del., and Luke D. Ford, Pennsville, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of abandoned application Ser. No. 702,208, Feb. 1, 1968. This application Oct. 30, 1970, Ser. No. 85,819

Int. Cl. C07c 49/82

U.S. Cl. 260—591 5 Claims
Crude 2,4-dihydroxybenzophenone is purified by treating with sodium hydrosulfite in aqueous alkaline medium at a pH of at least about 7.5 and at a temperature of about 70–100° C., precipitating, filtering, washing and drying.

3,830,846

PRODUCTION OF ALDEHYDES AND ALCOHOLS BY THE OXO PROCESS

Gerd Duembgen, Dannstadt, and Guenther Heesemann, Heinz Hohenschutz, and Horst Kerber, Mannheim, Otto Nagel, Hambach, Robert Rothe, Ludwigshafen, and Helmut Walz, Frankenthal, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

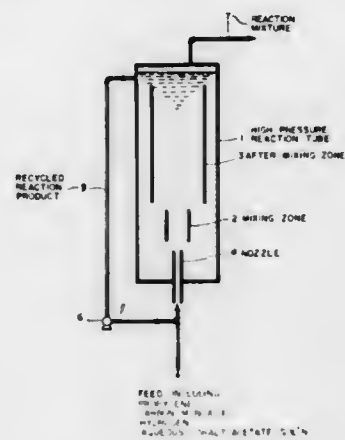
Filed July 22, 1970, Ser. No. 57,190

Claims priority, application Germany, July 26, 1969, P 19 38 102.3

Int. Cl. C07c 27/24, 47/00

U.S. Cl. 260—598

3 Claims



An improved process for the production of aldehydes and alcohols by the oxo process by reaction of olefinically unsaturated compounds with carbon monoxide and hydrogen in the presence of cobalt carbonyl compounds at elevated temperature and superatmospheric pressure in which the reactants are introduced into the reaction zone at high speed. The improvement consists in introducing the reactants into a mixing zone extending in the direction of entry of the reactants, the mixing zone having a diameter which is twice to fifty times the mean diameter of the stream of reactants supplied and the length of the mixing zone being from three to thirty times its hydraulic diameter.

3,830,847

SELECTIVE OXIDATION OF OLEFINS

R. Parthasarathy, Takoma Park, John L. Warthen, Baltimore, and Frank G. Ciapetta, Silver Spring, Md., assignors to W. R. Grace & Co., New York, N.Y.
No Drawing. Division of abandoned application Ser. No. 591,954, Nov. 4, 1966. Divided and this application Jan. 29, 1970, Ser. No. 12,529

Int. Cl. C07c 45/04

U.S. Cl. 260—604 R 5 Claims
A process for converting alpha mono-olefinic hydrocarbons (less than 8 carbon atoms) to the corresponding unsaturated aldehyde is disclosed. The catalyst is a mixture of bismuth oxide, molybdenum oxide and small, promotional amounts of a platinum type transition metal oxide of a Group VIII metal.

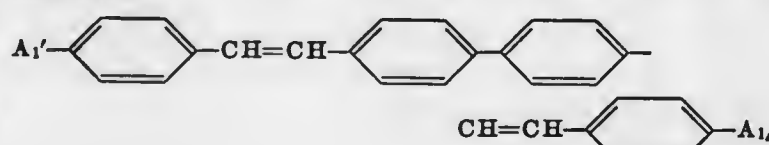
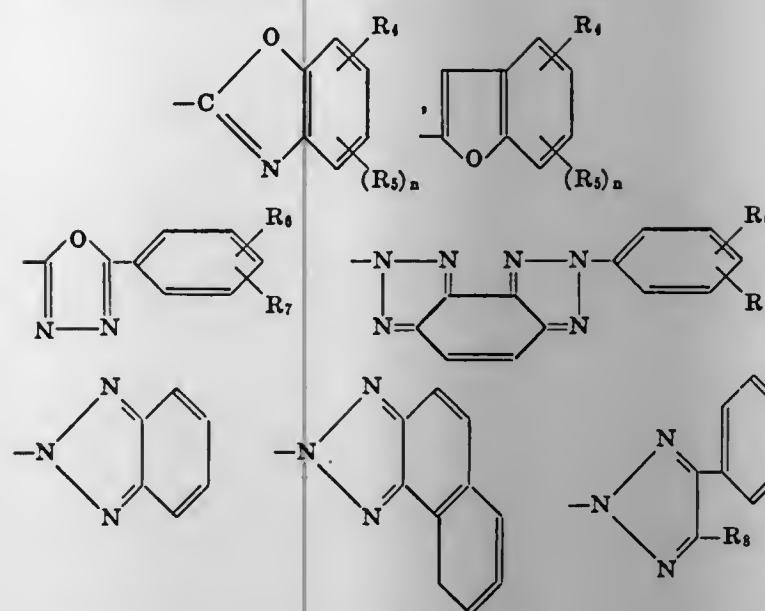
3,830,848

DIPHENYL DERIVATIVES

Adolf Emil Siegrist, Basel, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Filed Sept. 30, 1971, Ser. No. 185,108
Claims priority, application Switzerland, Oct. 1, 1970, 14,516/70

Int. Cl. C07c 147/06

U.S. Cl. 260—607 A 2 Claims
The invention deals with new diphenyl derivatives of the formula

wherein A₁' represents a radical

wherein R₄ denotes hydrogen, methoxy, an alkyl group containing 1 to 12 carbon atoms, a phenylalkyl group with 1 to 8 carbon atoms in the alkyl part, a phenyl group or chlorine, R₅ denotes hydrogen or an alkyl group containing 1 to 4 carbon atoms, R₆ denotes hydrogen, chlorine or an alkoxy group containing 1 to 8 carbon atoms, an alkyl group containing 2 to 4 carbon atoms or a phenyl group, R₇ denotes hydrogen, chlorine or an alkyl group containing 2 to 4 carbon atoms and R₈ denotes hydrogen or phenyl, and n represents an integer from 1 to 2.

The said compounds are valuable fluorescent whitening agents. They are prepared by means of the anilinesynthesis.

3,830,849

PROPARGYL ETHERS

Henry Martin, Basel, and Otto Rohr, Therwil, Switzerland, and Georg Pissiotas, Lorrach, Germany, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 89,528, Nov. 13, 1970. This application June 22, 1972, Ser. No. 265,367

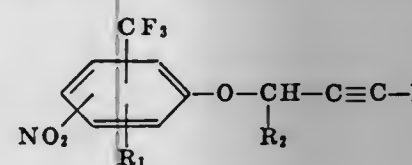
Claims priority, application Switzerland, Nov. 26, 1969, 17,574/69

Int. Cl. C07c 43/20

U.S. Cl. 260—612 D

1 Claim

Halogeno-alkylphenylpropargyl ether of the formula



are disclosed in which R₁ is hydrogen or chlorine and R₂ hydrogen or methyl. These compounds are suitable as active ingredient for combating soil fungi.

3,830,850

ETHOXYLATED CONDENSATION PRODUCT OF A PHENOL AND FORMALDEHYDE

Charles A. Stratton, Dewey, Okla., assignor to Phillips Petroleum Company

No Drawing. Original application Sept. 17, 1969, Ser. No. 858,855, now Patent No. 3,583,486, dated June 8, 1971. Divided and this application July 17, 1970, Ser. No. 55,997

Int. Cl. C07c 41/02

U.S. Cl. 260—613 B

6 Claims

A method is provided for preparing an additive agent comprising an ethoxylated condensation product of a

phenol and formaldehyde. Said additive is preferably prepared by reacting a phenol and a nonaqueous formaldehyde to prepare a polycyclic hydrophobe which is then reacted with ethylene oxide.

3,830,851

PROCESS FOR PREPARING 1-ARYLOXY-2-PROPANOLS

Joseph David, Keith Thomas, and Nand Kishore, Welwyn Garden City, England, assignors to Catomance Limited, Welwyn Garden City, England

No Drawing. Filed Jan. 12, 1971, Ser. No. 105,973

Claims priority, application Great Britain, Jan. 16, 1970, 2,275/70

Int. Cl. C07c 43/20

U.S. Cl. 260—613 D

1 Claim

1-Aryloxy-2-propanols are made by heating a phenol, propylene oxide and a tertiary amine catalyst in an anhydrous medium below 110° C., the phenol and the propylene oxide only being mixed in the presence of the amine.

3,830,852

2-BENZYLPHENOLS

Jacques Debat, Paris, France, assignor to Institut De Recherches Chimiques Et Biologiques Appliquees I.R.C.E.B.A., Paris France

No Drawing. Filed Aug. 4, 1971, Ser. No. 169,113

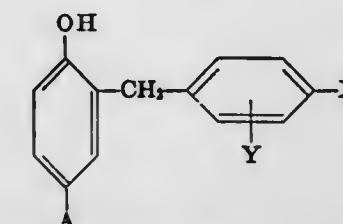
Claims priority, application France, Aug. 18, 1970, 7030276

Int. Cl. C07c 39/12

U.S. Cl. 260—619 R

3 Claims

The specification describes novel 2-benzylphenols of the formula:



in which A is a neopentyl or 1,1,3,3-tetramethylbutyl group, X is a hydrogen or halogen atom, and Y is a hydrogen atom or, when X is halogen, a halogen atom. These compounds have good bacteriostatic properties.

3,830,853

PROCESS FOR THE SIMULTANEOUS PRODUCTION OF STYRENE, ETHYL BENZENE, PHENOL, CRESOLS AND BENZENE

Khachik Egorovich Khcheian, Prospekt Mira 118a, kv. 190; Olga Mikhailovna Revenko, ulitsa Chkalova 48a, kv. 53; Alla Viktorovna Borisoglebskaya, Novoslobodskaya ulitsa 52, kv. 33; and Dina Lvovna Fishman, Dubninskaya ulitsa 51, kv. 19, all of Moscow, U.S.S.R.

No Drawing. Filed Apr. 21, 1971, Ser. No. 136,244

Claims priority, application U.S.S.R., Apr. 27, 1970, I 425602

Int. Cl. C07c 37/00, 37/12

U.S. Cl. 260—621 G

12 Claims

A process for the simultaneous production of styrene, ethyl benzene, phenol, cresols and benzene comprising an interaction of toluene with a lower paraffin hydrocarbon at a temperature of 600–900° C. and a space velocity of 2000–1000 hour⁻¹ in the presence of an initiating reagent, e.g. oxygen or an oxygen-containing gas. The oxygen content in the starting mixture is from 1 to 30 percent by

volume. The molar ratio of the toluene to the lower paraffin hydrocarbon is from 2:1 to 1:20.

3,830,854

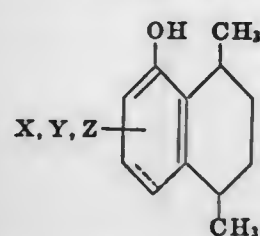
SUBSTITUTED 5,8-DIMETHYL-5,6,7,8-TETRAHYDRO-1-NAPHTHOLS

Edward R. Degginger, Convent Station, and James M. Balquist, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
No Drawing. Filed Jan. 8, 1970, Ser. No. 1,568
Int. Cl. C07c 79/24

U.S. Cl. 260—622 R

9 Claims

Materials can be protected from attack by insects, mites and nematodes by applying to the material a 5,8-dimethyl-5,6,7,8-tetrahydro-1-naphthol having the formula



wherein X, Y and Z are substituents independently occupying the 2, 3 and 4 positions; X is hydrogen, fluorine, chlorine, or bromine; Y is fluorine, chlorine, bromine, nitro or lower alkoxy; and Z is hydrogen or nitro. The tetrahydronaphthols wherein Z is hydrogen can be prepared by cyclalkylating a phenol having corresponding X and Y substituents (Y not being nitro) with 1,5-hexadiene in the presence of a catalyst such as aluminum phenate. Alternatively, tetrahydronaphthols wherein X and/or Y are chlorine or bromine can be prepared by direct halogenation of the cyclalkylation product. Tetrahydronaphthols wherein Z and/or Y are nitro can be prepared by nitrating the cyclalkylation product.

3,830,855

PROCESS FOR PRODUCING CONJUGATED DIENE POLYMERS

Jihei Inomata, Tokyo, and Seiichi Hino and Tatsuo Tani, Yokohama, Japan, assignors to Mitsubishi Chemical Industries, Ltd., Tokyo, Japan
No Drawing. Filed July 31, 1972, Ser. No. 276,788
Int. Cl. C08d 27/00

U.S. Cl. 260—635 E

3 Claims

Conjugated diene polymers are produced by reacting from 0.5 to 2 moles of a haloalkyleneoxide with one mole of a living polymer prepared by reacting a conjugated diolefin or a mixture of the conjugated diene with a vinyl compound having the formula: $\text{CH}_2=\text{CR}_1\text{R}_2$, wherein R_1 represents a hydrogen atom or an alkyl group and R_2 represents an aryl group or a pyridyl group in the presence of an alkali metal or an organoalkali metal compound.

3,830,856

PREPARATION OF VINYLIDENE FLUORIDE

Johann Nikolaus Meussdoerffer, Blecher, and Hans Niederprum, Monheim, Rhineland, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Sept. 2, 1971, Ser. No. 177,443
Claims priority, application Germany, Sept. 8, 1970, P 20 44 370.3
Int. Cl. C07c 17/34

U.S. Cl. 260—653.5

7 Claims

In the pyrolysis of 1,1-difluoro-1-chloroethane to produce 1,1-difluoro-ethylene, the improvement which comprises effecting the pyrolysis in the presence of water. Preferably the reaction is effected in a corrosion-resistant reaction tube filled with a catalytically-active carrier material, the residence time therein ranging from about 1 to 15 seconds. The amount of water is preferably about 20 to 50 mole percent that of the 1,1-difluoro-1-chloroethane. The pressure may be reduced and the temperature

is preferably about 500 to 650° C. In this manner high conversions and almost quantitative yields are achieved.

3,830,857

PROCESS FOR THE MANUFACTURE OF FLUOROALKYL IODIDES

Hans Millauer, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft, vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Dec. 10, 1971, Ser. No. 206,919
Claims priority, application Germany, Dec. 12, 1970, P 20 61 355.2; Jan. 4, 1971, P 21 00 140.1
Int. Cl. C07c 17/20

U.S. Cl. 260—653.7

3 Claims

The invention relates to a process for the manufacture of fluoroalkyl iodides of the general formula



wherein R represents fluorine or trifluoromethyl, by reacting at elevated temperature a mixture of a fluoroalkylene of the general formula $\text{R}-\text{CF}=\text{CF}_2$ wherein R has the above-mentioned meaning and iodine with hydrofluoric acid in the presence of inorganic oxyacids, their alkali metal or alkaline earth metal salts, halides or anhydrides.

3,830,858

ISOMERISATION PROCESS

Peter John Nicholas Brown, Epsom, and Clifford William Capp, Ewell, England, assignors to BP Chemical International Limited, London, England
No Drawing. Filed Dec. 8, 1971, Ser. No. 206,187
Claims priority, application Great Britain, Jan. 11, 1971, 1,157/71
Int. Cl. C07c 21/04

U.S. Cl. 260—654 R

13 Claims

Dichlorobutenes are isomerised by contacting them with a catalyst composition comprising a copper compound and an organic phosphorus compound.

3,830,859

PURIFICATION OF VINYL CHLORIDE

Ronnie D. Gordon, Gary R. Johnson, Joseph L. Skinner, and Bruce E. Leach, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
No Drawing. Filed Nov. 13, 1970, Ser. No. 89,526
Int. Cl. C07c 21/02

U.S. Cl. 260—656 R

7 Claims

A process for the purification of vinyl chloride containing minor amounts of impurities such as butadiene, vinyl acetylene, and the like is provided which consists of intimately contacting the vinyl chloride stream with from about 0.01 to 1 weight percent of an acid constituent having a Hammett acidity function (H_0) of about -11 or less for an effective period of time at a temperature in the range of about 40–160° F. and then separating the substantially pure vinyl chloride from the acid constituent.

3,830,860

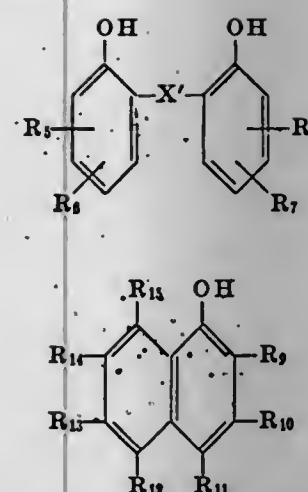
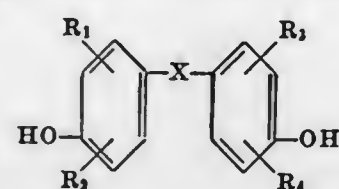
STABILIZATION OF NORBORNENES

Tsuneyuki Nagase, Takatsuki, and Fujio Masuko, Ibaragi, Japan, assignors to Sumitomo Chemical Company, Limited
No Drawing. Filed Jan. 26, 1973, Ser. No. 327,125
Claims priority, application Japan, Jan. 27, 1972, 47/10,383
Int. Cl. C07c 7/18

U.S. Cl. 260—666.5

12 Claims

A method for stabilization of norbornenes which comprises incorporating at least one phenol of either one of the formulae:



and

wherein X and X' are each alkylidene having 1 to 6 carbon atoms, cycloalkylidene having 3 to 6 carbon atoms, thio, sulfinyl or sulfonyl, R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R_7 and R_8 are each hydrogen, alkyl having 1 to 9 carbon atoms or cycloalkyl having 3 to 6 carbon atoms and R_9 , R_{10} , R_{11} , R_{12} , R_{13} , R_{14} and R_{15} are each hydrogen, alkyl having 1 to 9 carbon atoms or phenyl into a norbornene selected from the group consisting of alkenyl norbornenes and alkylidenenorbornenes.

3,830,861

MANUFACTURE OF DIALKYNYL ARYL COMPOUNDS

James M. Watson, Big Spring, Tex., assignor to Cosden Oil & Chemical Company, Big Spring, Tex.
No Drawing. Filed Feb. 19, 1971, Ser. No. 117,069
Int. Cl. C07c 15/04

U.S. Cl. 260—668 R

17 Claims

A process for the preparation of dialkynyl aryl compounds which comprises the steps of (1) intimately mixing at a temperature of 0 to 150° C. an aromatic diketone of the formula



wherein R_1 and R_2 are radicals which may be the same or different and which are selected from the group consisting of hydrogen and hydrocarbonyl radicals of 1 to 10 carbon atoms, X is an alkylene radical and n is 0 or an integer of 1 to 6, Ar is a radical selected from the group consisting of mononuclear and polynuclear carbocyclic and heterocyclic aryl radicals, and wherein the two ketonic radicals are attached to Ar, with the reaction product of an acid halide containing an element selected from the group consisting of phosphorus, sulfur and carbon and an N,N-dihydrocarbonyl substituted amide to thereby produce a bis(beta-halo-alpha, beta-unsaturated carbonyl) substituted aryl compound, and (2) treating said resulting substituted aryl compound with a base selected from the group consisting of the hydroxides of the alkali and alkaline earth metals and the alkoxides of the alkali metals, and (3) recovering dialkynyl aryl compounds of the formula



wherein R_1 , R_2 , Ar, X and n all correspond to those in the aromatic diketone introduced into step (1) above.

3,830,862

REACTIONS INVOLVING CARBON TETRAHALIDES WITH SULFONES

Cal Yale Meyers and Walter Sidney Matthews III, Carbondale, Ill., and Ashok M. Malte, Poona, India, assignors to Southern Illinois University Foundation, Carbondale, Ill.
No Drawing. Filed Dec. 14, 1970, Ser. No. 98,094
Int. Cl. C07c 1/20, 15/12

U.S. Cl. 260—668 C

18 Claims

A process for preparing alkenes by reaction of various sulfone substrates with carbon tetrahalide in the presence

of a strong base. The reactions are accelerated by the presence of a polar compound. Sulfone carbanions attack the carbon tetrahalide to produce an α -halogenated intermediate and a dihalocarbene. α -Halosulfones having α' hydrogens are converted to alkenes *in situ* via the Ramberg-Bäcklund reaction. Sulfones having α but no α' hydrogens are simply α -halogenated. The dihalocarbene generated in the reaction may attack the product, solvent, or another substrate to form other products. Alkenes produced by reaction of carbon tetrahalides with di-sec-alkyl sulfones are readily attacked by dihalocarbene to form the alkene-dihalocarbene adduct (a substituted 1,1-dihalo-cyclopropane).

3,830,863

PRODUCTION OF 1-METHYL-3-PHENYLINDANS

Herbert Armbrust, Gruenstadt, Gerhard Kilpper, Scheidt, Hans-Juergen Quadbeckseeger, Ludwigshafen, Hans-Juergen Sturm, Gruenstadt, Waldemar Koehler, Frankenthal, and Hans-Georg Schecker, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany
No Drawing. Filed Dec. 4, 1972, Ser. No. 312,136
Int. Cl. C07c 3/10, 15/20

U.S. Cl. 260—668 F

10 Claims

Production of 1-methyl-3-phenylindans by dimerization of styrenes in the presence of a catalyst and a surfactant. The compounds obtainable by the process of the invention are valuable starting materials for the production of dyes and pesticides.

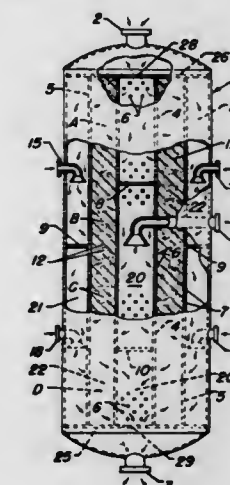
3,830,864

PROCESS FOR EFFECTING THE MULTIPLE-STAGE CATALYTIC CONTACT OF A REACTANT STREAM

Henry C. Borre, Mount Prospect, Ill., and Wayne N. Root, Statesville, N.C., assignors to Universal Oil Products Company, Des Plaines, Ill.
Original application Jan. 14, 1971, Ser. No. 106,512, now Patent No. 3,751,232. Divided and this application Jan. 8, 1973, Ser. No. 322,031
Int. Cl. C07c 5/18, 15/10

U.S. Cl. 260—669 R

5 Claims



A process for effecting the multiple-stage catalytic contact of a reactant stream, particularly directed toward the multi-stage catalytic dehydrogenation of ethylbenzene to styrene. The reaction feed stream is passed alternately in outward and inward radial flow directions through a plurality of adjacent annular catalytic reaction zones, withdrawn from intermediate reaction zones and channeled to mixing zones longitudinally adjacent the next successive annular reaction zones. A heat-exchange medium is introduced into each mixing zone in a manner which effects mixing with the reactant stream and downstream flow thereof to the next succeeding reaction zone.

3,830,865

ALKYLATION PROCESS USING HYDROGEN FLUORIDE CATALYST

Robert F. Anderson, La Grange Park, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Continuation-in-part of application Ser. No. 236,049, Mar. 20, 1972. This application Sept. 21, 1972, Ser. No. 291,137

Int. Cl. C07c 3/54

U.S. Cl. 260—671 R

6 Claims

A process for alkylating an alkylatable hydrocarbon with an olefin-acting reactant by contacting the alkylatable hydrocarbon with a first portion of the olefin-acting reactant and with a first hydrogen fluoride alkylation catalyst in a first alkylation zone; contacting the hydrocarbon effluent with the first alkylation zone with a second portion of the olefin-acting reactant and with a second hydrogen fluoride alkylation catalyst in a second alkylation zone, and recovering the alkylation reaction product from the hydrocarbon effluent from the second alkylation zone.

3,830,866

PROCESS FOR THE CATALYTIC CONVERSION OF OLEFINS TO AROMATICS

Alfred F. D'Alessandro, Havertown, and Maurice M. Mitchell, Jr., Wallingford, Pa., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 84,453, Oct. 27, 1970. This application May 31, 1973, Ser. No. 365,804

Int. Cl. C07c 3/02

U.S. Cl. 260—673

2 Claims

Olefins having an allyl hydrogen are converted to aromatics by contacting them with an intimate mixture of a dehydrodimerization agent and an aromatization catalyst at a temperature of from 400° C. to 650° C. The dehydrodimerization agent is an oxide of bismuth, lead or antimony, and the aromatization catalyst is a metal such as supported platinum, palladium or cobalt, or metal oxide such as chromia-alumina, cobalt molybdate, magnesia, tin oxide or zinc oxide. The advantage for the process is high selectivity for the specific aromatic or aromatics obtainable from each olefin, for example para-xylene from isobutylene.

3,830,867

SOLVENT EXTRACTION OF DIENES

William J. Powers III, and Anthony Macaluso, Sr., Port Arthur, Tex., assignors to Texaco Inc., New York, N.Y.

No Drawing. Filed June 14, 1973, Ser. No. 370,194

Int. Cl. C07c 7/00

U.S. Cl. 260—677 A

12 Claims

Olefins, such as C₅ to C₃₀ alpha olefins formed by thermal cracking of long chain normal paraffins, are subjected to solvent extraction treatment by contacting the olefins in liquid phase at a temperature of about 50° to about 350° F., preferably, from about 65° to about 275° F., with a dipolar aprotic solvent such as dimethylformamide, N-methylpyrrolidone, etc. The thus-treated alpha olefins which are low in conjugated polyenes, i.e., dienes, are highly useful for protection of olefin sulfonate detergents having an improved color.

3,830,868

PROCESSES FOR THE OXIDATIVE DEHYDROGENATION OF HYDROCARBONS

Darrell W. Walker, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Original application May 6, 1971, Ser. No. 140,964, now abandoned. Divided and this application Apr. 19, 1973, Ser. No. 352,742

Int. Cl. C07c 5/18

U.S. Cl. 260—680 E

6 Claims

Organic compounds are dehydrogenated to compounds having a higher degree of unsaturation by contacting the

feedstock at elevated temperatures in the vapor phase in the presence of an oxygen-containing gas with a catalyst comprising iridium and arsenic in combination with a zinc aluminate catalytic carrier. Representative of such conversions is the oxidative dehydrogenation of butane to butenes and butadiene. The conversion products are valuable compounds particularly useful as intermediates for the preparation of polymeric materials such as synthetic rubbers and the like.

3,830,869

OXIDATIVE DEHYDROGENATION PROCESS

Emory W. Pitzer, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Original application June 22, 1970, Ser. No. 48,543, now Patent No. 3,687,868. Divided and this application June 19, 1972, Ser. No. 264,152

Int. Cl. C07c 5/18

U.S. Cl. 260—680 E

16 Claims

An oxidative dehydrogenation process wherein a tin/phosphorus/oxygen/Groups Ia or IIa is impregnated with additional tin and then is heated to improve the physical integrity of the catalyst.

3,830,870

METHOD OF ISOMERIZING BUTENE-1 TO BUTENE-2

Mark A. Harter, deceased, late of Midland, Mich., by Jo Ann Harter, executrix, Midland, Mich., and John R. Frost, and Robert A. Stowe, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 5, 1973, Ser. No. 337,939

Int. Cl. C07c 5/22

U.S. Cl. 260—683.2

7 Claims

Butene-1 in a mixed stream containing isobutene is isomerized to butene-2, by passing the mixture over a strontium-nickel phosphate catalyst at a temperature of 150–440° C.

3,830,871

REMOVAL OF A METAL PENTAFLUORIDE FROM HYDROCARBONS

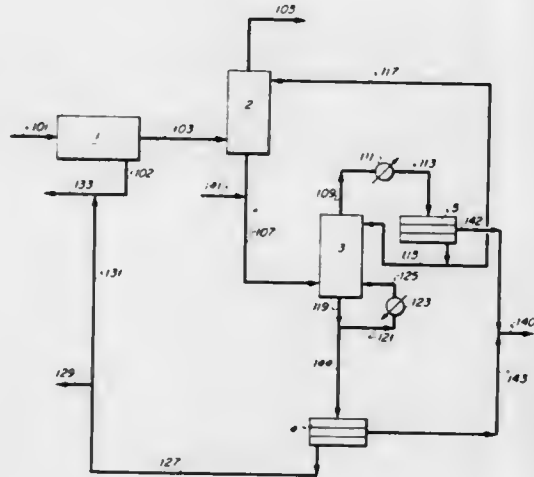
Ivan Mayer, Summit, Michael Siskin, Maplewood, and Thomas G. Otchy, Fanwood, N.J., assignors to Esso Research and Engineering Company

Filed July 2, 1973, Ser. No. 375,662

Int. Cl. C10g 17/00

U.S. Cl. 260—683.68

21 Claims



3,830,878

WEATHER- AND IMPACT-RESISTANT RESIN COMPOSITION COMPRISING A GRAFT COPOLYMER CONTAINING MULTI-LAYER POLYMER PARTICLES AND A RIGID RESIN
Tetsuji Kato, Mikio Izumi, Kunio Chikanishi, Ryoji Handa, and Jinpei Kobayashi, Ohtake, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan
No Drawing. Filed Dec. 17, 1971, Ser. No. 209,422
Claims priority, application Japan, Dec. 18, 1970, 45/113,069

Int. Cl. C08f 41/12

U.S. Cl. 260—876 R

9 Claims

A weather- and impact-resistant resin composition obtained by polymerizing 5 to 1900 parts by weight of a monomer mixture (b) of 90 to 10 parts by weight of an aromatic vinyl compound and 10 to 90 parts by weight of at least one acrylic unsaturated compound (100 parts by weight in total) in the presence of 100 parts by weight (solids) of a latex of a crosslinked elastomer (a) consisting of 60 to 99.9 parts by weight of at least one acrylic ester, 39.9 to 0 part by weight of at least one monomer copolymerizable therewith, and 0.1 to 10 parts by weight of a crosslinking monomer having 2 or more functional groups, which is copolymerizable with both said monomers, and/or an organic peroxide (100 parts by weight in total); and, if desired, mixing a rigid resin (d) with the resulting copolymer (c) so that the composition contains 5 to 40% by weight of (a), the composition being characterized in that the particles of said crosslinked elastomer latex are produced in 2 or more separate steps so that the first layer, i.e. the most inner layer of the particles contains 90 to 40 parts by weight of the 100 parts by weight of (a) and has a degree of swelling of 7 to 30 and the second or subsequent layers, i.e. outer layers contain 10 to 60 parts by weight of the 100 parts by weight of (a) and have a degree of swelling of 7 to 3, whereby the particles have at least two layers different in composition and/or degree of swelling, and the outer layer or layers of the particles are higher in elasticity than the inner layer.

3,830,879

POLYBLEND COMPRISING GRAFT COPOLYMER AND RESINOUS TERPOLYMER

Ronald E. Stark, Naugatuck, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Filed Dec. 23, 1971, Ser. No. 211,697

Int. Cl. C08f 19/08, 19/10

U.S. Cl. 260—876 R

5 Claims

The present invention relates to the improvement of the impact/flow balance of thermoplastic polymer formed by polymerizing a small amount of an alkyl vinyl ether and vinyl ester in combination with acrylonitrile-butadiene-styrene monomers.

3,830,880

DIENE BLOCK COPOLYMERS

Harold E. De LaMare, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

No Drawing. Continuation-in-part of abandoned application, Ser. No. 130,796, Apr. 2, 1971. This application May 14, 1973, Ser. No. 360,275

Int. Cl. C08d 1/20, 3/04, 3/06

U.S. Cl. 260—879

9 Claims

A process is provided for making an all-diene block copolymer by (1) forming a conjugated diene polymer block having more than about 25% 1,2 or 3,4 microstructure by polymerizing a conjugated diene using monofunctional organolithium initiator in the presence of a polar compound selected from the group ethers, thioethers, tertiary amines and hexa alkyl phosphoramides, then (b) adding a complexing agent, such as dialkyl zinc, selected from the group dialkyl and diaralkyl compounds of metals of Group

II of the Periodic Table, to nullify the effects of the polar compound, and then (c) forming a conjugated diene polymer block having a lower 1,2 microstructure. The products are useful as elastomers, and may be vulcanized, if desired.

3,830,881

VULCANIZATES OF EPDM AND DIENE RUBBER BLENDS

Martin E. Woods, Rocky River, and Thomas R. Mass, Avon Lake, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

No Drawing. Filed Feb. 26, 1973, Ser. No. 335,885

Int. Cl. C08c 11/58; C08d 9/08

U.S. Cl. 260—889

10 Claims

Polymer blends of ethylene-higher α -olefin-polyene (EPDM) polymers with highly unsaturated diene rubbers are cured using sulfur and a symmetrical metal dithiocarbamate as a vulcanization accelerator. The vulcanizates exhibit improved stress-strain, flex-heat buildup, and oil swell properties.

3,830,882

SEMICARBAZONO PHOSPHORUS COMPOUNDS

Leonard J. Stach, Riverside, Ill., assignor to Velsicol Chemical Corporation, Chicago, Ill.

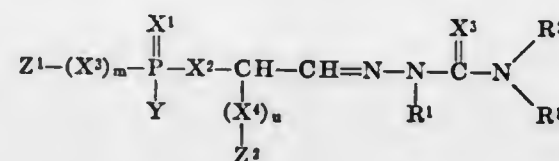
No Drawing. Filed Nov. 16, 1972, Ser. No. 307,262

Int. Cl. C07f 9/16, 9/24; A01n 9/36

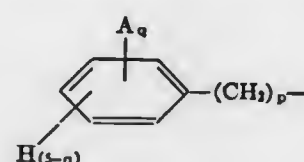
U.S. Cl. 260—923

6 Claims

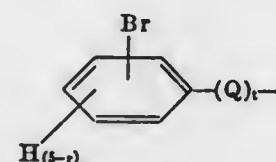
This invention discloses new compounds of the formula



wherein X¹, X², X³, X⁴ and X⁵ are independently selected from the group consisting of oxygen and sulfur; m and n are each integers from 0 to 1; Z¹ is selected from the group consisting of alkyl, alkenyl and

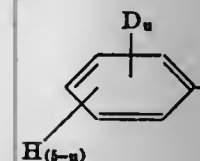


wherein A is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, haloalkyl, halogen, nitro, alkylsulfoxide, alkylsulfone and dialkylamino; and q and p are each integers from 0 to 3; Z² is selected from the group consisting of hydrogen and Z¹, provided that when Z² is hydrogen then n is zero; Y is selected from the group consisting of alkyl, alkenyl, alkoxy, alkenyloxy, alkylthio, amino, alkylamino, dialkylamino and



wherein B is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, nitro, alkylsulfoxide, alkylsulfone and dialkylamino; r is an integer from 0 to 3; Q is selected from the group consisting of oxygen, sulfur, alkylene, alkyleneoxy and alkylthio; and t is an integer from 0 to 1; R¹ is selected from the group consisting of hydrogen and alkyl; and R² and R³ are inde-

pendently selected from the group consisting of hydrogen, alkyl, alkenyl, haloalkyl, cycloalkyl and



wherein D is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, haloalkyl, nitro and dialkylamino; and n is an integer from 0 to 3. The compounds of the above description are useful as insecticides.

3,830,883

POLYMERISATION PROCESS

Alan Charles Sturt, Guildford, England, assignor to BP Chemicals Limited, London, England

No Drawing. Filed Mar. 9, 1971, Ser. No. 122,532
Claims priority, application Great Britain, Mar. 9, 1970, 11,071/70

The portion of the term of the patent subsequent to May 16, 1989, has been disclaimed

Int. Cl. C08f 1/11, 3/30

U.S. Cl. 260—92.8 W

6 Claims

Non film forming polymers are isolated from an aqueous emulsion stabilised by means of a carboxylic acid salt by acidification and agglomeration of polymer particles in the presence of a volatile softening agent and a suspending agent.

3,830,884

DIALKYL SULFOXIMINOCARBONYLMETHYL THIOPHOSPHATES AND PROCESS FOR PREPARATION THEREOF

Jacques Perronet, Paris, André Politevin, Vaires-sur-Marne, and Jean-Pierre Demoute, Montreuil-sous-Bois, France, assignors to Roussel-UCLAF, Paris, France

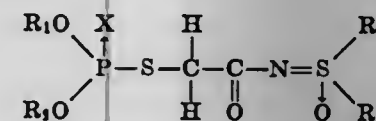
No Drawing. Filed Sept. 15, 1972, Ser. No. 289,474
Claims priority, application France, Sept. 27, 1971, 7134629

Int. Cl. C07f 9/16

U.S. Cl. 260—943

6 Claims

Dialkylsulfoximinocarbonylmethyl thiophosphates having the formula



wherein R₁, R₂, R₃ and R₄ are alkyl having from 1 to 7 carbon atoms and X represents a member selected from the group consisting of oxygen and sulfur; the process of manufacture, pesticidal compositions and the acaricidal method. The said thiophosphates possess acaricidal properties.

3,830,885

DIALKYL N,N-DIALKOXYMETHYL-CARBAMYLPHOSPHONATES

Harro Petersen, Frankenthal, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Germany

No Drawing. Filed Sept. 24, 1969, Ser. No. 860,833

Int. Cl. C07d 105/04; C07f 9/40

U.S. Cl. 260—943

3 Claims

Production of dialkyl N,N-dialkoxymethylcarbamylphosphonates by reaction of dialkyl carbamylphosphonates or their N-methylol or N-alkoxymethyl compounds with formaldehyde followed by treatment of the reaction mixture with alkanols, and the new dialkyl N,N-dialkoxymethylcarbamylphosphonates themselves. The new compounds are assistants, particularly flameproofing additives, for surface-coatings and plastics and valuable starting materials for the production of such assistants.

3,830,886

PHOSPHORUS COMPOUNDS CONTAINING STABLE HALOGEN

Ralph A. Davis, Midland, and Ronald G. Tigner, North Bradley, Mich., assignors to The Dow Chemical Company, Midland, Mich.

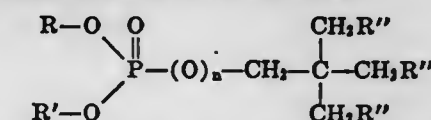
No Drawing. Continuation-in-part of abandoned application Ser. No. 736,557, June 13, 1968. This application Feb. 8, 1971, Ser. No. 113,046

Int. Cl. C07f 9/08, 9/38; C09k 3/28

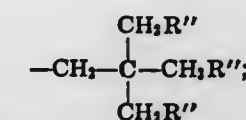
U.S. Cl. 260—953

9 Claims

New compounds have the formula:



wherein n is zero or one; R is lower alkyl, phenyl or alkylated phenyl having one to three lower alkyl substituents, R' is R or



and at least one R'' is Br or Cl and each remaining R'' is OH, Br, or Cl. These compounds are useful fire-retardant additives in plastics, textiles, and other normally flammable materials. They are particularly resistant to the production of hydrogen halides at elevated temperatures.

3,830,887

O,O-DILOWERALKYL-O-(1-METHYL-2-PHENYL VINYL)THIOPHOSPHATES

George B. Large, Pinole, and Leland S. Pitt, Sunnyvale, Calif., assignors to Stauffer Chemical Company, Westport, Conn.

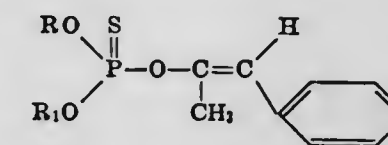
No Drawing. Filed Jan. 31, 1973, Ser. No. 328,173

Int. Cl. A01n 9/36; C07f 9/16

U.S. Cl. 260—957

3 Claims

A composition of matter is described herein which is used as a synergist for insecticides and methods of use. The composition may be defined by the following generic formula



wherein R and R₁ can be the same or different and can be selected from lower alkyl having 1 to 4 carbon atoms.

3,830,888

COMPOSITIONS COMPRISING A BLEND OF A VINYL RESIN AND GRAFTED OLEFIN POLYMER

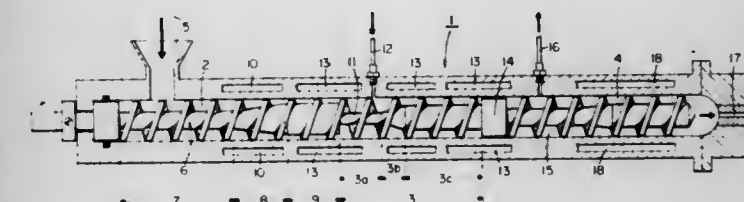
Laurence F. King, Mooretown, Ontario, Canada, assignor to Esso Research and Engineering Company

Filed Apr. 3, 1972, Ser. No. 240,496

Int. Cl. C08f 29/24

U.S. Cl. 260—876

8 Claims



Novel polyvinyl chloride compositions having improved processability plus good thermal properties and exhibiting no heat distortion aspects are obtained by blending a minor proportion of a particular grafted polyolefin into the PVC composition.

3,830,889

METHOD OF RENDERING STYRENE COPOLYMER POLYBLENDS SELF-EXTINGUISHING

Gary L. Deets, Springfield, and Philip M. Jacobs, Agawam, Mass., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Aug. 30, 1972, Ser. No. 284,953
Int. Cl. C08f 15/00, 19/00

U.S. Cl. 260—876 R 11 Claims

This invention relates to a self-extinguishing styrene copolymer polyblend composition and method for rendering styrene copolymer polyblends self-extinguishing. More particularly, high impact strength polyblend compositions of styrene copolymers are rendered self-extinguishing by blending with a novel grafted chloroprene rubber phase, said compositions are not only self-extinguishing polyblend compositions but have excellent physical and engineering properties.

3,830,890

METHOD OF MAKING ESTERS OF 1,4-DIPHOSPHONYL BUTENE

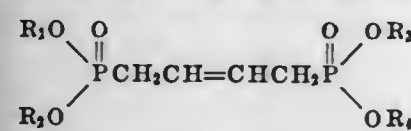
Al F. Kerst, Littleton, and Allen K. Peterson, Denver, Colo., assignors to The Gates Rubber Company, Denver, Colo.

No Drawing. Filed Mar. 30, 1971, Ser. No. 129,605

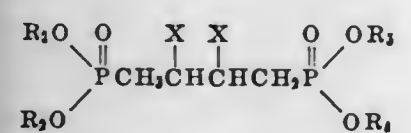
Int. Cl. C07f 9/40

U.S. Cl. 260—932 8 Claims

Esters of 1,4-diphosphonyl butene and their halogenated derivatives having the general formulas:

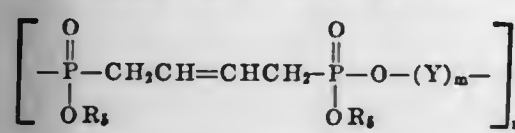


I

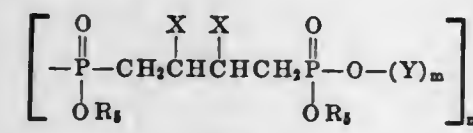


II

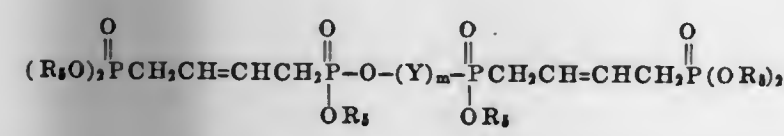
wherein R_1 , R_2 , R_3 and R_4 are independently selected from the group consisting of alkyl, aryl, aralkyl, alkenyl, cycloalkyl, alkaline metal, and wherein X is a halogen selected from the group consisting of bromine, chlorine, or iodine, are useful flame-retardants for polymeric systems. Flame-retardant properties are also imparted by polymers of the above compounds. Representative polymers of compounds I and II would include:



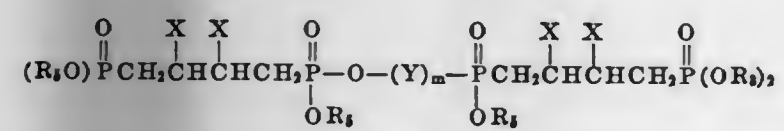
III



IV

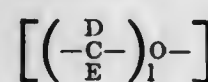


V



VI

wherein R_5 is defined in the same manner as R_1 , R_2 , R_3 , and R_4 above and wherein Y is



where C is carbon and D and E are independently selected from the group consisting of hydrogen, bromine, chlorine, alkyl or aryl and wherein n is an integer less than 5,000, l is an integer from 2 to 15 inclusive, and m is an integer from 1 to 50 inclusive.

3,830,891

NITROPHENYL PHOSPHORUS ACID ESTERS

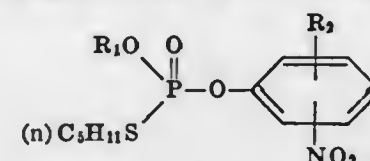
Jozef Drabek, Allschwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Dec. 15, 1972, Ser. No. 315,388
Claims priority, application Switzerland, Dec. 16, 1971, 18,439/71; Oct. 27, 1972, 15,728/72

Int. Cl. A01n 9/36; C07f 9/18

U.S. Cl. 260—954 5 Claims

Nitrophenylthiophosphoric esters of the formula



wherein

 R_1 represents methyl or ethyl, and R_2 represents hydrogen, methyl or chlorine,

processes for their manufacture and their use in pest control.

3,830,892

METHOD FOR MANUFACTURING A MOLDED ARTICLE OF EXPANDED VERMICULITE

Takeo Wada, Suita, Osaka, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Dec. 9, 1971, Ser. No. 206,497

The portion of the term of the patent subsequent to Aug. 21, 1990, has been disclaimed

Claims priority, application Japan, Dec. 29, 1970, 45/128,948

Int. Cl. C04b 31/22, 31/26

U.S. Cl. 264—25 9 Claims

A new expanded vermiculite molded article is produced by a process which comprises subjecting vermiculite to heating or irradiation with electromagnetic waves in the presence of urea or thiourea and, during or after this process, allowing the vermiculite to contact with an aqueous solution of ammonium or alkali silicate.

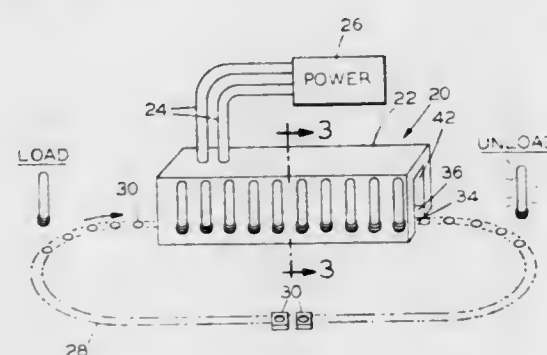
3,830,893

METHOD OF PROCESSING HIGH NITRILE PREFORMS

Samuel Steingiser, Bloomfield, Conn., assignor to Monsanto Company, St. Louis, Mo.

Filed Apr. 25, 1972, Ser. No. 247,409
Int. Cl. B29c 17/07, 25/00; C08f 29/56

U.S. Cl. 264—25 7 Claims



Tubular preforms formed of a synthetic resin, the major constituent of which is polymerized nitrile monomer selected from the group consisting of acrylonitrile, methacrylonitrile and mixtures thereof, are rapidly heated to a temperature at which molecular orientation occurs on

stretching by exposing the body portions of such preforms to microwave energy for a period of from 1/2 to 30 seconds to heat such body portions to a temperature of between 250 to 320° F. without deforming a prior molded finished neck section thereof and without substantially degrading the resin.

3,830,894

PROCESS FOR THE PREPARATION OF FILLED PHENOL RESIN FOAM MATERIALS

Hans Juenger, Emil-Muller-Strasse 21, Troisdorf, and Franz Weissenfels, 17 Grafenkreuz, Siegburg, Germany

No Drawing. Continuation-in-part of application Ser. No. 753,754, Aug. 19, 1968, which is a continuation-in-part of application Ser. No. 428,868, Jan. 1, 1965, both now abandoned. This application Sept. 16, 1971, Ser. No. 181,238

Int. Cl. B29d 27/00

U.S. Cl. 264—41 27 Claims

This present disclosure concerns filled phenol resin foam materials, as well as a process for the preparation of filled phenol resin foam materials containing a skeleton-like mass of particulate filler material suitable as a homogeneous construction materials wherein the interspaces between the filler are filled with the phenolic resin foam.

3,830,895

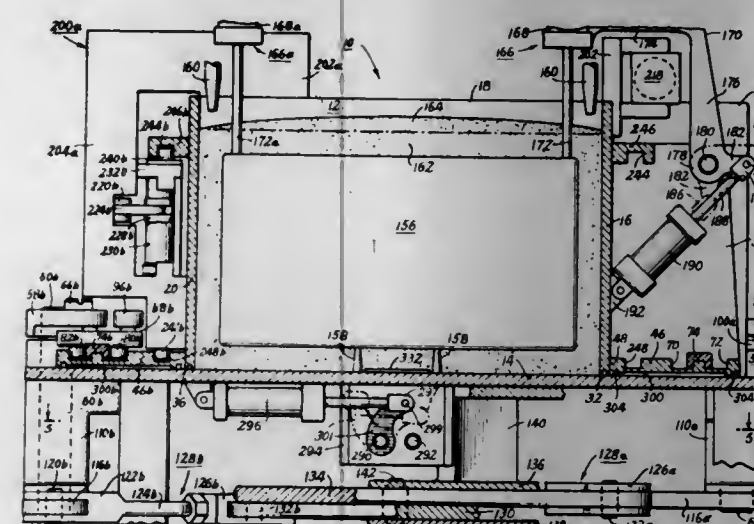
METHOD FOR ENCAPSULATING AN ARTICLE IN MOLDED POLYURETHANE

Theodore E. Theodorsen, Manhasset, N.Y., assignor to Kurt Salmon Associates, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 874,563, Nov. 6, 1969, now Patent No. 3,642,400. This application Oct. 13, 1971, Ser. No. 188,755

Int. Cl. B29d 27/00

U.S. Cl. 264—45 1 Claim



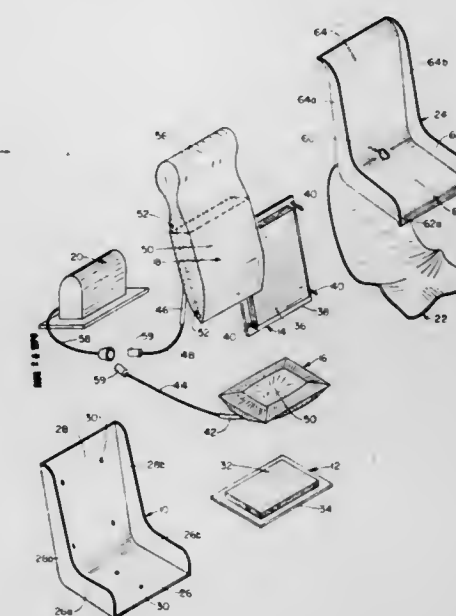
A method and apparatus for encapsulating an article within a plastic foam material, such as polyurethane, wherein the article to be packaged is placed within a mold cavity of an adjustable mold, the walls of the mold are adjusted according to the size of the article and a liquid polymeric-isocyanate mix is injected into the mold cavity and allowed to react to form an insoluble, flexible, polyurethane foam which completely encapsulates the article. After the urethane has set, the mold walls are retracted and the encapsulated article is removed. The apparatus consists of a mold form having a base plate and four upstanding movable side walls which define a mold cavity. Each upstanding wall is movable with respect to the other walls thereby to allow for a wide variation in the size of the mold cavity to accommodate wide variations in article size.

3,830,896
APPARATUS AND PROCESS FOR FORMING CONTOURED IMPRESSIONS OF THE HUMAN BODY
Bernard Flicker, Merrick, N.Y., and Robert E. Burrige, Hillsdale, N.J., and Frank H. Low, Chappaqua, N.Y., assignors to Contourpedic Corporation

Filed June 8, 1972, Ser. No. 261,049

Int. Cl. B29d 27/00

U.S. Cl. 264—45 20 Claims



An impression forming assembly is provided and a flexible base container filled with particulate material positioned on a horizontal platform and a flexible back container in fluid communication with a reservoir of particulate material positioned on a vertical wall spacially juxtaposed to the horizontal platform. A human is positioned on the containers and the pressure in the back container is reduced until the particulate material becomes interlocked and the container assumes a rigid configuration. The back container is thereafter pressurized and particulate material is introduced into the container. The pressure in the second container is reduced until the particulate material becomes interlocked and the back container assumes a rigid configuration. The rigid containers constitute an impression set from which a contoured cushion is subsequently prepared.

3,830,897

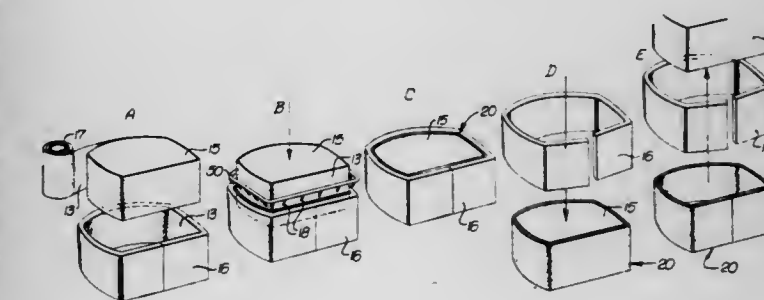
METHOD OF FORMING HOUSING STRUCTURES

Henry S. Hughes, Belmont, Calif., assignor to Lee T. Bordner, Los Angeles, Calif.

Continuation-in-part of abandoned application Ser. No. 40,756, May 27, 1970. This application Jan. 20, 1972, Ser. No. 219,291

Int. Cl. B29d 27/00

U.S. Cl. 264—45 19 Claims



Building structures are formed by a method employing a male mold section lowered into a female mold section,

both sections carrying spaced preformed skin members between which solidifiable urethane foam-forming composition or other cellular material is delivered as the male section is lowered, following which the structure so formed is removed from the mold sections.

3,830,898

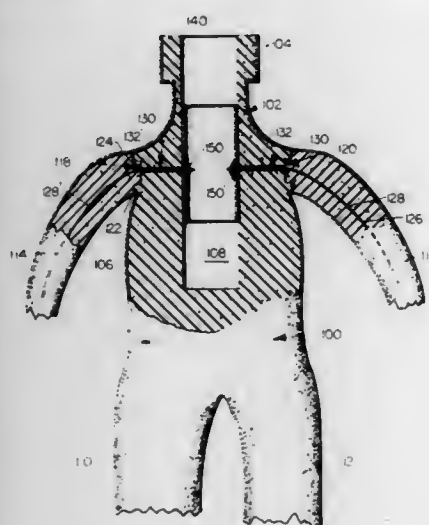
METHOD FOR MAKING SUBSTANTIALLY SEAMLESS FOAMED ARTICLES

Richard Bruce Johnson, Centerear, N.Y., and George Winn, Livingston, N.J., assignors to Jacob J. Rosen, New York, N.Y.

Filed Mar. 11, 1969, Ser. No. 806,180
Int. Cl. B29d 27/00

U.S. Cl. 264-45

11 Claims



Methods and means for producing foamed articles such as doll bodies which are substantially seamless. A limited internal discontinuity is defined during the foaming operation, and stripping of the article through a limited opening in a seamless mold part is accomplished by urging portions of the foamed article into the internal discontinuity. Pressurized gas is introduced between the article-forming surfaces of the mold cavity and the foamed article to facilitate the stripping operation.

3,830,899

PROCESS FOR THE MANUFACTURE OF ARTIFACTS COMPRISING A SUPPORTING STRUCTURE OF REINFORCED THERMOSETTING PLASTICS

Dino Piccioli, and Christian Schmid, Milan, Italy, assignors to Ginsa General Inventors Sociedad Anonima, Panama

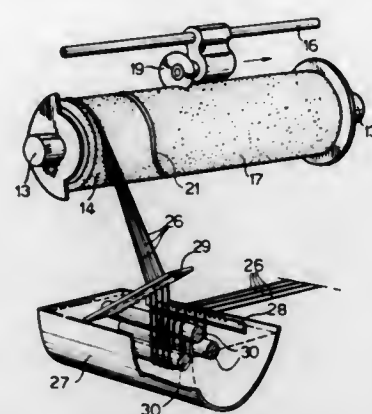
Filed Nov. 30, 1971, Ser. No. 203,255
Claims priority, application Italy, Dec. 5, 1970, 32,703/70; Sept. 13, 1971, 28,542/71
Int. Cl. B29d 27/00

U.S. Cl. 264-47

19 Claims

A process for the manufacture of load bearing plastics material structures is disclosed. The process allows small products to be made by mass production methods or large articles to be made *in situ*, by using, in both cases, the essential steps of the invention. A layer of plastics material is formed to the shape of the article to be manufactured and onto it is formed an intermediate layer having spaces which are subsequently filled with a material which will bond to the plastics material layer to form interconnecting strengthening ribs. The intermediate layer may be formed by a plurality of suitably spaced blocks or strips, or by a helically wound strip in the manufacture of a tubular article, or by forming a continuous layer and subsequently cutting out the spaces required for the strengthening ribs. After the material forming the strengthening ribs has been put into the spaces provided therefor a further plastics material layer is formed over the intermediate layers and the structure is bonded by polymerising the two said plastics material layers to the strengthen-

ing ribs. In an alternative described in the specification the intermediate layer may be formed first, provided with strengthening ribs, then the two plastics material layers formed on the inner and outer faces of the intermediate



layer, and finally the whole structure is bonded by polymerisation of at least the two plastics material layers, and possibly of the strengthening ribs if these are formed of a thermosetting plastics material.

3,830,900

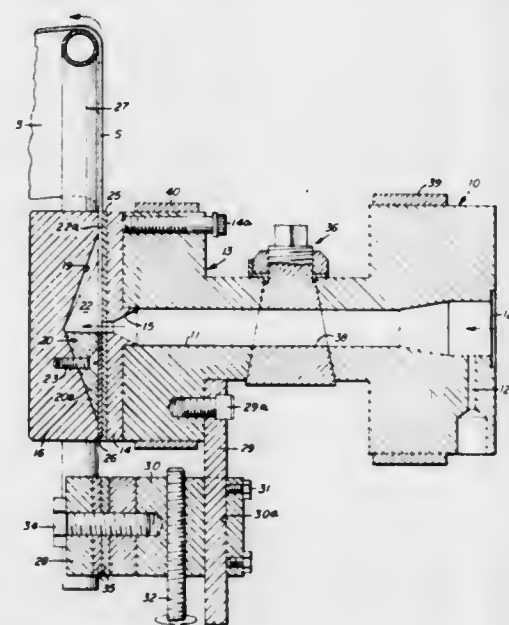
METHOD OF FORMING FOAMED PLASTIC SHEETS

Thomas W. Winstead, 2 Overlook Lane, Baltimore, Md. 21210

Continuation-in-part of abandoned application Ser. No. 719,181, Apr. 5, 1968, which is a division of application Ser. No. 475,734, July 29, 1965, now Patent 3,387,328. This application Dec. 7, 1971, Ser. No. 209,390
Int. Cl. B29d 27/00; B29f 3/04

U.S. Cl. 264-51

8 Claims



A method forming foamed plastic sheets wherein an expandable thermoplastic strip is first extruded through an orifice defining a radiating path and then spread laterally over an arcuate yoke adjacent the orifice to prevent the formation of wrinkles in the sheets.

3,830,901

CONTINUOUS PROCESS FOR EXTRUDING CELLULAR THERMOPLASTICS

Thomas W. Winstead, 2 Overlook Lane, Baltimore, Md. 21220

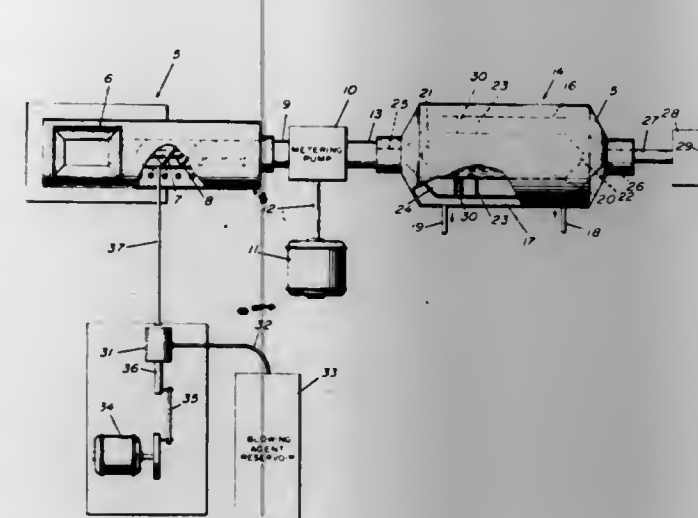
Continuation of application Ser. No. 758,292, Sept. 9, 1968, which is a continuation-in-part of application Ser. No. 476,464, Aug. 2, 1965, both now abandoned. This application June 5, 1970, Ser. No. 43,923
Int. Cl. B29d 27/00

U.S. Cl. 264-51

8 Claims

A continuous process for extruding cellular thermoplastics, wherein a blowing agent is introduced into a

charge of thermoplastic material while the latter is being heated, fluxed and mixed under controlled temperature and pressure conditions in the extrusion barrel of a single screw extrusion machine. After leaving the barrel, the



material is separately metered at a point physically and thermally removed from the extrusion machine to regulate pressures and output, and the metered material is then separately cooled and extruded through a die orifice.

3,830,902

METHOD AND APPARATUS FOR MAKING SELF-LOCKING INTERNALLY THREADED FASTENERS

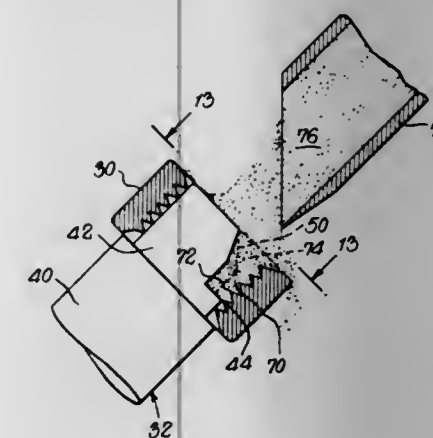
Gerald Barnes, Brooklyn, N.Y., assignor to Amerace Esna Corporation, New York, N.Y.

Continuation of abandoned application Ser. No. 554,096, May 31, 1966. This application Feb. 25, 1969, Ser. No. 802,090

U.S. Cl. 264-267

Int. Cl. B29d 1/00

48 Claims



Method and apparatus for making self-locking internally threaded fasteners in which the self-locking characteristic is derived from a free-form plastic patch of limited axial and circumferential extent adhered to the thread-defining surface of each such fastener by establishing a deposit of plastic powder upon the thread-defining surface of the fastener with the longitudinal boundaries of the deposit spaced axially from both ends of the surface and heating the fastener to fuse the powder deposit and establish a patch adhered to the thread-defining surface. The fasteners are each seated upon a pin having a cavity-forming portion such that a cavity is established between the pin and the fastener thereon and the deposit of plastic powder is placed within the cavity. An excess amount of plastic powder is deposited within the cavity and unwanted powder is subsequently removed from at

least one end of the deposit to establish a longitudinal boundary spaced from the corresponding end of the thread-defining surface.

3,830,903

CARBONIZATION OF EXPANDED NATURAL GRAINS

Eli I. Robinsky, 66 Lytton Blvd., and John Timusk, 506 St. Clements Ave., both of Toronto, Ontario, Canada, and Victor R. Riley, 145 The East Mall, Islington, Ontario, Canada

No Drawing. Continuation-in-part of abandoned application Ser. No. 59,326, July 29, 1970. This application Nov. 1, 1971, Ser. No. 194,709

Int. Cl. C01b 31/02; C09c 1/44

U.S. Cl. 423-449

1 Claim

A lightweight material in the form of expanded stabilized natural grains or cereals such as puffed wheat or puffed rice which are treated by a stabilizing means and used either alone or combined with other materials. The treatment of the grains, after expansion by stabilizing the same, such as by carbonization, enhances their properties as a building material by improving mechanical properties, by reducing the softening effect of water, by increasing resistance to biological attack, etc. The carbonized expanded natural grains may be used as an insulating material in discrete particles, or bonded together into boards or other bodies or as a lightweight insulating aggregate for use in concrete or in spray-on applications.

3,830,904

METHOD OF REMOVING FLUORIDE FROM SPENT ACID

William J. Chiasson, and Ralph T. Russell, Lafayette, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed May 15, 1972, Ser. No. 253,042

Int. Cl. C01b 17/94

U.S. Cl. 423-531

1 Claim

Fluoride, both organic and inorganic, is removed from spent acid derived from a nitric acid-sulfuric acid nitrating mixture from the nitration of *p*-trifluoromethylphenylchloride by treating said spent acid with a source of silicon at elevated temperatures.

3,830,905

OXIDATION OF FERRIC CHLORIDE

Robert Dexter Rennick, Thousand Oaks, Calif., and Homer Charles Reed, Oklahoma City, Okla., assignors to Kerr-McGee Chemical Corp., Oklahoma City, Okla.

No Drawing. Filed Mar. 9, 1973, Ser. No. 339,508

Int. Cl. C01g 49/02; C01b 7/02

U.S. Cl. 423-633

15 Claims

This invention relates to a continuous process for the recovery of chlorine from iron chloride. More particularly, this invention relates to a continuous process wherein iron chloride is reacted with a mixture of an oxygen-containing gas and an oxide of nitrogen to produce iron oxide and gaseous chlorine.

3,830,906

TWO STEP PROCESS FOR PRODUCING BERYLLIUM HYDRIDE FROM A BERYLLIUM HALIDE

Roy J. Laran, Greenwell Springs, and Paul Kobetz, Baton Rouge, La., and Robert W. Johnson, Jr., Savannah, Ga., assignors to Ethyl Corporation, New York, N.Y.

No Drawing. Filed Apr. 23, 1965, Ser. No. 451,694

Int. Cl. C01b 6/00

U.S. Cl. 423-645

8 Claims

1. A two-stage process for the preparation of beryllium hydride which comprises, in the first stage, reacting an

organoaluminum compound selected from the group consisting of aluminum trialkyls and alkali metal aluminum tetraalkyls wherein the alkali metal has an atomic number from 3 to 55, inclusive, and wherein the alkyl groups contain from 4 to 10 carbon atoms, inclusive, with a beryllium halide wherein the halogen has an atomic number from 9 to 53, inclusive, to form the corresponding beryllium dialkyl and, in the second stage, pyrolyzing, without separation of intermediate reaction products, the beryllium dialkyl to form beryllium hydride, each of said stages being carried out under an atmosphere inert with respect to both reactants and products.

3,830,907

COMPOSITIONS FOR THE SUSTAINED RELEASE OF 17 α -ETHYL-19-NORTESTOSTERONE

George E. Short, Arlington Heights, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 723,284, Apr. 22, 1968, now Patent No. 3,565,991, dated Feb. 23, 1971. This application Apr. 15, 1970, Ser. No. 28,934

Int. Cl. A61k 17/00

U.S. Cl. 424-19

9 Claims

Compositions for the sustained release of 17 α -ethyl-19-nortestosterone comprising the steroid dispersed in a copolymer of a monoester of an olefinic acid and a diester of an olefinic acid. A method of controlling ovulation and estrus in bovines by the parenteral administration of 17 α -ethyl-19-nortestosterone. Compositions containing 17 α -ethyl-19-nortestosterone for parenteral administration.

3,830,908

ANTI-MICROBIAL COMPOSITIONS UTILIZING ALLANTOIN COMPOUNDS AND COMPLEXES

Allen P. Klippel and Harry W. Margraf, Clayton, Mo., assignors of fractional part interest to Harry W. Margraf and Allen P. Klippel, St. Louis, Mo.

No Drawing. Filed July 23, 1971, Ser. No. 165,753

Int. Cl. A61f 13/00; A61k 27/00

U.S. Cl. 424-28

5 Claims

The disclosure relates to a composition in which micronized allantoin serves as a diluent or carrier for a bactericidal or bacteriostatic ingredient, such as silver citroallantoinate, and/or for a fungicidal or fungistatic ingredient, such as a zinc compound. The composition is particularly useful when dispersed on the surface of a plastic air splint or other bandaging or wrapping product, rendering it continually safe for use despite storage under unsterile conditions.

3,830,909

METHOD FOR THE PRODUCTION OF ANTI-AUSTRALIA ANTIGEN ANTISERUM

Zenro Hayakawa, Matsumoto, Japan, assignor to Tokyo Standard Serums, Ltd., Tokyo, Japan

No Drawing. Filed Nov. 8, 1971, Ser. No. 196,726

Claims priority, application Japan, Nov. 9, 1970, 45/98,953

Int. Cl. C12k 1/10; G01n 31/02, 33/16

U.S. Cl. 424-12

5 Claims

Anti-Australia antigen antiserum is produced by immunizing a warm-blooded animal with a complex of Australia antigen and anti-Australia antigen antibody and absorbing the immune serum of the immunized animal with water-insolubilized serum protein of Australia antigen negative human serum. Thus-produced antiserum contains anti-Australia antigen antibody in a titer of not less than 32 and gives no positive reaction with Australia antigen negative human serum.

3,830,910 PSEUDO-SYNOVIAL PLASTIC BODY FLUIDS AND METHOD OF PREPARING SAME

Charles A. Homsy, 10019 Inwood Drive, Houston, Tex. 77042

No Drawing. Filed Mar. 16, 1972, Ser. No. 235,311

Int. Cl. A61k 27/00

U.S. Cl. 424-128

10 Claims

A fluid having the rheological properties of synovial fluid or other body fluids exhibiting pseudo-plasticity which fluids are found in human bodies and consisting essentially of a water solution of sodium carboxymethylcellulose, an anti-microbial preservative and certain inorganic salts in the approximate concentrations found in human synovial fluid. The fluid is prepared by adding the salts and preservative to water being stirred at high speed and thereafter the sodium carboxymethylcellulose is slowly added and stirred into the liquid. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,830,911

GLYCOSIDE METABOLITES OF OOSPORA VIRESCENS (LINK) WALLER FUNGUS

Nera Cagnoli Bellavita, Via XX Settembre 2, Perugia, Italy

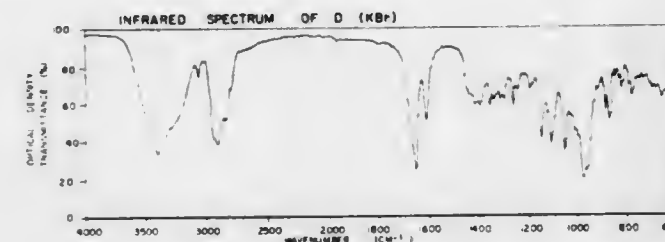
Original application Jan. 11, 1971, Ser. No. 105,477.

Divided and this application Aug. 23, 1973, Ser. No. 390,862

Int. Cl. A01n 9/00, 9/28

U.S. Cl. 424-180

14 Claims



Eight Glycoside Metabolite compounds are produced by the *Oospora virescens* (Link) Waller fungus in glucose-organic decoction media which can be separated from the growth media and from each other. These compounds are effective bacterial and antimycotic agents.

3,830,912

METHOD FOR DECREASING THE REPRODUCTIVE FUNCTION OF MAMMALS

Donald R. Bennett, and James A. McHard, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

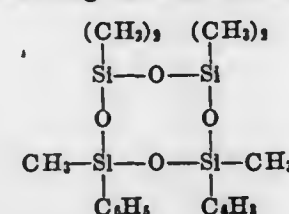
No Drawing. Continuation-in-part of abandoned application Ser. No. 741,336, July 1, 1968. This application June 30, 1969, Ser. No. 837,922

Int. Cl. A61k 27/00

U.S. Cl. 424-184

2 Claims

A method for altering the reproductive function of mammals by administering a pharmacologically effective amount of certain organosilicon compounds. As a means of illustration, one can orally or parenterally administer from 1.0 mg. to 5000 mg. per kilogram of body weight (either as a single dose or as a daily dosage over a period of time) of an organosilicon compound of the formula



thereby rendering the subject (either a male or female mammal) infertile.

3,830,913

ANTIFUNGAL AND ANTIBACTERIAL GRAPEFRUIT DERIVATIVE

Jakob Harich, Orlando, Fla., assignor to Rush-Hampton, Inc., Orlando, Fla.

No Drawing. Filed Apr. 29, 1971, Ser. No. 138,819

Int. Cl. A01n 9/08

U.S. Cl. 424-195

12 Claims

A composition effective as a biocidal agent is prepared by adding 2-phenoxy-ethanol to a grapefruit derivative prepared by reacting the pulps of fresh grapefruit with an organic alcohol or ketone in the presence of a free radical initiator and then successively adding n-alkyl substituted dimethyl benzyl ammonium chloride, isopropyl alcohol, and 1-(3-chloroallyl)-3,5,7-triaza-1-azonia-adamantane chloride. The final composition is effective against a broad spectrum of gram positive and gram negative microorganisms.

3,830,914

MICRO-ENCAPSULATED INSECTICIDE FEED-ADDITIVE FOR CONTROL OF FLY LARVAE IN COW MANURE

Richard W. Miller, Bowie, and Morton Beroza, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Continuation-in-part of abandoned application, Ser. No. 60,938, Aug. 4, 1970. This application June 28, 1971, Ser. No. 157,762

Int. Cl. A01n 9/36

U.S. Cl. 424-219

5 Claims

A micro-encapsulated insecticide fed to lactating dairy cows gives effective control of the development of insecticide resistant and nonresistant fly larvae in manure.

3,830,915

CERTAIN DI-HALO-S-TRIAZINES USED AS PLANT FUNGICIDES

Jiban Kumar Chakrabarti, Camberley, and Alec Todd, Wokingham, England, assignors to Lilly Industries Limited, London, England

No Drawing. Original application Apr. 13, 1971, Ser. No. 133,702, now Patent No. 3,681,332, dated Aug. 1, 1972. Divided and this application Feb. 11, 1972, Ser. No. 225,674

Int. Cl. A01n 9/12, 9/22

U.S. Cl. 424-249

5 Claims

2-(Heteroaryl substituted)-4,6-di-halo-s-triazines are useful as pesticides, being active in controlling fungi, bacteria, viruses and insects which attack plants.

3,830,916

POLYCYCLIC PIPERAZINO PENTANONE COMPOSITIONS

Melvin Harris Rosen, Florham Park, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

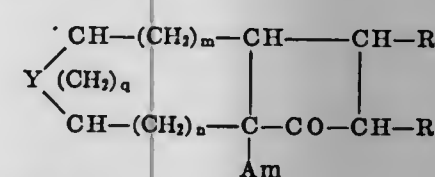
No Drawing. Filed Aug. 12, 1971, Ser. No. 176,389

Int. Cl. A61k 27/00

U.S. Cl. 424-250

3 Claims

2-amino-2,3-polycyclo-4,5-diaryl-cyclopentanones, e.g. those of the formula

R_{1,2}=isocyclic aryl

Am=piperazino, q=1 or 2

Y=p,(p+1)-alkylene or 1,2-[cyclopent(en)ylene or phenylene]

p=1 to 3, m+n=0 to 2

the 4,5-dehydro-derivatives or salts thereof are antifertility agents.

3,830,917

ALLOXAN-5-THIOSEMICARBAZONE AS AN ANTIFUNGAL AGENT

John D. Douros, Jr., Littleton, Milan Brokl, Denver, and Al F. Kerst, Littleton, Colo., assignors to The Gates Rubber Company, Denver, Colo.

No Drawing. Original application July 6, 1971, Ser. No. 160,143, now Patent No. 3,773,952. Divided and this application June 27, 1973, Ser. No. 374,145

Int. Cl. A01n 9/00, 9/12, 9/20, 9/22

U.S. Cl. 424-251

8 Claims

Alloxan-5-thiosemicarbazone can be used to inhibit and/or prevent the growth of undesirable fungi.

3,830,918

METHOD OF TREATING PARKINSONISM AND PARKINSONOID SYNDROMES

Istvan Molnar, Theodor Wagner-Jauregg, and Ulrich Jahn, Zofingen, Switzerland, assignors to Siegfried Aktiengesellschaft, Zofingen, Switzerland

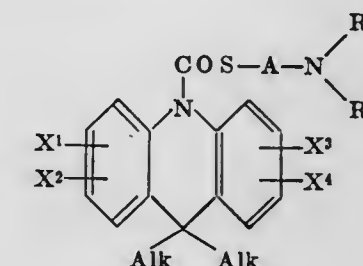
No Drawing. Filed May 17, 1972, Ser. No. 253,993

Int. Cl. A61k 27/00

U.S. Cl. 424-257

20 Claims

A method of treating Parkinsonism and parkinsonoid syndromes induced by medical therapy comprising administering to the patient a thioester having the following formula:



and pharmaceutically acceptable acid addition salts thereof, wherein: R¹ and R², which may be the same or different, are straight or branched-chain alkyl groups of up to 5 carbon atoms, one of which is optionally substituted by a phenyl group which itself is optionally substituted by one or more halogen atoms and/or alkyl, haloalkyl, alkoxy and/or amino groups, or R¹ and R² are joined together to form with the nitrogen atom a saturated heterocyclic ring optionally containing a further heteroatom; A is a straight or branched alkylene chain which optionally may be connected to R¹ or R² to constitute a ring; Alk represents an alkyl group of up to 4 carbon atoms; and X¹, X², X³ and X⁴, which may be the same or different, are hydrogen or halogen atoms, or optionally halogenated lower alkyl, alkoxy or alkylthio groups, or aryl, amino or nitrile groups.

3,830,919

ANTIMICROBIAL HAIRDRESSING

Frank Wesley Olson, Jr., Pompton Plains, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed June 17, 1971, Ser. No. 154,180

Int. Cl. A61k 7/06, 27/00

U.S. Cl. 424-258

8 Claims

Transparent, antimicrobial hairdressing compositions, comprising an alkyl isoquinolinium salt, such as a higher alkyl isoquinolinium halide, a hydrophilic oil and a hydrophobic oil, both of which are monoethers of lower alcohol(s) and poly-lower alkylene glycol(s), and an aqueous or aqueous alcoholic medium.

3,830,920

BACTERICIDAL VETERINARY COMPOSITIONS

Alexander McKenzie Morrison, Bury, and Charles Leslie Meredith Brown, Epsom, England, assignors to Wigglesworth Limited, Westhoughton, Bolton, England

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,642

Claims priority, application Great Britain, Oct. 30, 1970, 51,809/70; July 14, 1971, 33,129/71

Int. Cl. A61k 27/00

U.S. Cl. 424—258

12 Claims

Veterinary compositions are described which have bactericidal and possibly also fungicidal and/or acaricidal properties. The compositions comprise a synergistic mixture of at least one of capryhydrocupreinotoxine HCl, benzalkonium chloride and bis-(2-hydroxy-5-chlorophenyl) sulphide, and a physiologically acceptable solvent such as 2,2-dimethyl-1,3-dioxolane-4-methanol which may have a synergistic effect. The compositions preferably additionally include an acylated protein hydrolysate which, besides being useful in giving the compositions an acid pH hostile to bacteria, is a powerful penetrating agent to assist in killing infections immediately below the skin and also promotes healing of damaged tissue. The compositions are very useful in the treatment of mastitis in cows where, besides being more powerful than penicillin, they do not contaminate milk or animal flesh and so build up penicillin-resistance in humans. Also they have been found to cure demodectic mange in dogs.

3,830,921

PYRIDINE INSECTICIDES

Elmer R. Johnson, Walter T. Reed, Charles H. Tieman, and Samuel B. Soloway, Modesto, Calif., assignors to Shell Oil Company

No Drawing. Filed Apr. 6, 1973, Ser. No. 348,576

Int. Cl. A01n 9/00, 9/22

U.S. Cl. 424—263

3 Claims

2 - (nitromethyl)pyridines are useful insect control agents.

3,830,922

THIOPIPERIDONE ANTIINFLAMMATORY AGENTS

Bruce E. Witzel, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application May 17, 1971, Ser. No. 144,333, now Patent No. 3,754,088. Divided and this application Nov. 24, 1972, Ser. No. 309,322

Int. Cl. A61k 27/00

U.S. Cl. 424—267

7 Claims

Methods and compositions for the treatment of inflammation, pain and fever employing piperidones and thio-piperidones.

3,830,923

PHENYL ALKYL AMINE DERIVATIVES TO TREAT INFLAMMATION

William Robert Nigel Williamson, Farnham Common, Terence Alan Hicks, Farnborough, and Elaine Hilda Day (nee Quinell), Reading, England, assignors to Lilly Industries Limited, London, England

No Drawing. Continuation-in-part of abandoned application, Ser. No. 316,966, dated Dec. 20, 1972, which was a divisional of Ser. No. 125,421, dated Mar. 17, 1971, now U.S. Patent No. 3,729,475, which was a continuation-in-part of abandoned application Ser. No. 866,026, dated Oct. 13, 1969. This application Aug. 27, 1973, Ser. No. 391,725

Int. Cl. A61k 27/00

U.S. Cl. 424—267

10 Claims

Phenyl alkyl amine derivatives in which the phenyl ring is substituted by a piperidino group. The compounds pos-

sess central nervous system activity and a powerful anti-inflammatory action.

3,830,924

SUBSTITUTED NITROIMIDAZOLYL - THIADIAZOLES AS GROWTH PROMOTING AGENTS

Gerald Berkelhammer, Princeton, and Goro Asato, Titusville, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of abandoned application Ser. No. 17,977, Mar. 9, 1970, which is a continuation of abandoned application Ser. No. 814,205, Apr. 7, 1969, which is a continuation-in-part of application Ser. No. 659,596, Aug. 10, 1967, now Patent No. 3,452,035, which is a continuation-in-part of Ser. No. 604,158, Dec. 23, 1966, now abandoned. This application Nov. 15, 1971, Ser. No. 199,005

Int. Cl. A61k 27/00

U.S. Cl. 424—270

3 Claims

The use of substituted nitroimidazolyl-thiadiazoles and oxadiazoles are described along with methods of administration of the same. These compounds are active in enhancing the growth rate of warm-blooded animals and in controlling the growth of pathogenic microorganisms such as bacteria.

3,830,925

NEMATOCIDAL AND FUNGICIDAL AGENTS

Paul Rathgeb, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Nov. 24, 1971, Ser. No. 201,955

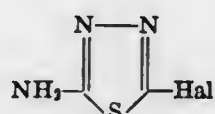
Claims priority, application Switzerland, Dec. 15, 1970, 18,553/70; Aug. 12, 1971, 11,942/71; Oct. 22, 1971, 15,408/71

Int. Cl. A01n 9/22, 9/12

U.S. Cl. 424—270

2 Claims

New methods for combating plant parasitic nematodes and fungi employ compounds of the formula



wherein Hal is chlorine or bromine or a salt thereof with organic or inorganic acids.

3,830,926

ANTI-MICROBIAL COMPOSITIONS AND METHODS WITH 3-(5-NITRO-2-FURYL)-PYRAZOLES

Graham Arton Howarth, Wilmslow, and William Hoyle, Bramhall, England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Original application June 4, 1970, Ser. No. 43,585, now Patent No. 3,682,956. Divided and this application June 1, 1972, Ser. No. 258,704

Int. Cl. A61k 27/00

U.S. Cl. 424—273

3 Claims

Compounds of the class of 5-amino-4-carbamoyl-3-(5-nitro-2-furyl)-pyrazole substituted in 1-position of the pyrazole ring by alkyl or hydroxyalkyl have anti-microbial properties; these compounds are active ingredients of pharmaceutical and feedstuff compositions; they are useful for the treatment of microbial infections and for protecting organic material against microbial attack; a typical embodiment is 5-amino-4-carbamoyl-1-methyl-3-(5-nitro-2-furyl)-pyrazole.

3,830,927

CERTAIN PHOSPHORUS CONTAINING COMPOUNDS USED AS INSECTICIDES AND ACARICIDES

Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

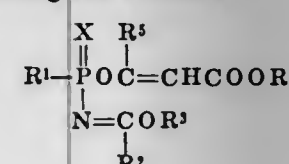
No Drawing. Original application Apr. 24, 1972, Ser. No. 247,172, now Patent No. 3,760,040. Divided and this application Mar. 19, 1973, Ser. No. 342,344

Int. Cl. A01n 9/36

U.S. Cl. 424—212

20 Claims

Compounds having the formula



in which

R¹ is alkyl or alkoxy,
R² is hydrogen or alkyl,
R³ is alkyl,
R⁴ is alkyl,
R⁵ is methyl or —CH₂COOCH₃ and
X is oxygen or sulfur are useful as insecticides and acaricides.

3,830,928

SUBSTITUTED PHENYLTETRAZOLES AS COCCIDIOSTATS

Helmut H. Mrozik, Matawan, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed June 9, 1972, Ser. No. 261,464

Int. Cl. A61k 27/00

U.S. Cl. 424—269

4 Claims

Nitrophenyl-5-aminotetrazoles are active antiparasitic agents and are particularly active coccidiostats. The nitrophenyl-5-aminotetrazoles are included in compositions useful for the prevention and cure of coccidiosis in poultry.

3,830,929

PROCESS FOR THE TREATMENT OF HYPERURICEMIA

Joseph Nordmann, Paris, Georges Dominique Mattioda, Enghien-les-Bains, Robert Alexandre Antoine Faure, Paris, and Gerard Paul Marie Henri Loiseau, Sceaux, France, assignors to Produits Chimiques Ugine Kuhlmann, Paris, France

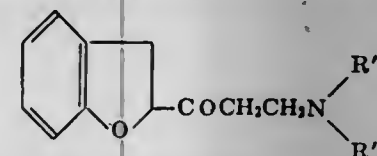
No Drawing. Filed Apr. 11, 1973, Ser. No. 350,228

Int. Cl. A61k 27/00

U.S. Cl. 424—285

6 Claims

Process for the treatment of hyperuricemia which comprises administering a compound of the formula



in which R' and R'' each represent an alkyl group containing 1 to 5 carbon atoms or together with the nitrogen atom form a heterocyclic ring; or a pharmaceutically acceptable salt thereof.

3,830,930

LABIAL COMPOSITIONS CONTAINING MENTHYL KETO ESTERS

Alfred H. Moeller, Tenafly, Michael Demont, River Vale, and Albert G. Nickstadt, Ridgewood, N.J., assignors to Nickstadt-Moeller, Inc., Ridgewood, N.J.

No Drawing. Original application May 14, 1969, Ser. No. 824,664, now Patent No. 3,644,613. Divided and this application Nov. 26, 1971, Ser. No. 202,688

Int. Cl. A61k 27/00

U.S. Cl. 424—308

3 Claims

Compositions for application to the oral and nasal areas of the body are disclosed which contain alpha, beta,

gamma, delta, epsilon, zeta and eta keto esters of menthol. These compositions impart a long-lasting cooling sensation to tissues of the lips and the mucous membranes of the oral cavity and nasal passages.

3,830,931

CARNITINE AND ITS USE IN THE TREATMENT OF ARRHYTHMIA AND IMPAIRED CARDIAC FUNCTION

Stephen L. De Felice, 430 Topping Hill Road, Westfield, N.J. 07090

No Drawing. Filed Nov. 6, 1972, Ser. No. 303,772

Int. Cl. A61k 27/00

U.S. Cl. 424—319

4 Claims

Arrhythmia and impaired cardiac function associated with congestive heart failure and shock are often dramatically reversed through administration, either orally or parenterally, of β -hydroxy- γ -trimethylaminobutyric acid or the salt thereof.

3,830,932

METHODS AND NITRO-BENZAMIDE COMPOSITIONS FOR PRODUCING TRANQUILIZING AND HYPOTENSIVE ACTIVITY

William D. Roll, Toledo, Ohio, assignor to The University of Toledo, Toledo, Ohio

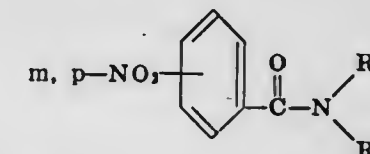
No Drawing. Continuation-in-part of application Ser. No. 137,674, Apr. 26, 1971, now Patent No. 3,751,464. This application Aug. 6, 1973, Ser. No. 386,046

Int. Cl. A61u 27/00

U.S. Cl. 424—324

28 Claims

Simultaneously acting tranquilizing and/or hypotensive pharmaceutical compositions comprising effective amounts of compounds of the formula:



wherein R is selected from the group consisting of alkyl, hydroxyalkyl, cyanoalkyl, aryl, aralkyl, and hydroxy-aralkyl radicals; and wherein R' is selected from the group consisting of cycloaliphatic radicals containing between three and seven carbon atoms.

3,830,933

1-SUBSTITUTED BIGUANIDES AS ANTI-HYPERTENSIVE AGENTS

Julius Diamond, Lafayette Hill, George H. Douglas, Paoli, and Bernard J. Burns, Philadelphia, Pa., assignors to William H. Rorer, Inc., Fort Washington, Pa.

No Drawing. Original application Nov. 12, 1970, Ser. No. 89,005, now abandoned. Divided and this application May 12, 1971, Ser. No. 142,797

Int. Cl. A61k 7/00

U.S. Cl. 424—326

9 Claims

1 - aryl and aralkyl biguanide compounds possess useful gastric anti-secretory and spasmolytic properties. Compounds of this type which also display anti-hypertensive and CNS depressant properties are also disclosed.

3,830,934

ANALGESIC AND ANTITUSSIVE COMPOSITIONS AND METHODS

Kurt Flick, Bochum-Stiepel, and Ernst Frankus, Schleckheim, Germany, assignors to Chemie Grunenthal G.m.b.H., Stolberg, Rhineland, Germany

No Drawing. Division of application Ser. No. 656,314, July 27, 1967, now Patent No. 3,652,589, and a continuation-in-part of abandoned application Ser. No. 357,024, Mar. 30, 1964. Divided and this application Jan. 13, 1972, Ser. No. 217,690

Int. Cl. A61k 27/00

U.S. Cl. 424—330

11 Claims

The present invention relates to new and valuable phenol ethers containing basic groups and, more particu-

larly, to cycloalkanol-substituted phenol ethers having basic groups, to a process of making such compounds, to pharmaceutical compositions containing such compounds, and to a method of using such compounds and compositions therapeutically.

3,830,935

METHOD FOR THE CONTROL OF THE DOUGLAS FIR BEETLE

Julius A. Rudinsky, % Department of Entomology, Oregon State University, Corvallis, Oreg. 97331

No Drawing. Filed July 24, 1972, Ser. No. 274,708

Int. Cl. A01n 9/24

U.S. Cl. 424—331 2 Claims

Method for the control of the Douglas fir beetle using 3-methyl-2-cyclohexen-1-one.

3,830,936

DIUMYCIN A' AND B' AND SALTS THEREOF

William A. Slusarchyk, Belle Mead, and Frank Lee Weisenborn, Titusville, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Continuation-in-part of abandoned application Ser. No. 198,826, Nov. 15, 1971. This application July 24, 1972, Ser. No. 274,361

Int. Cl. A61k 21/00

U.S. Cl. 424—116 5 Claims

Diumycin A' and diumycin B', new chemical compounds, are provided, which are useful as antibiotics, and are prepared employing the same procedure as disclosed in U.S. Pat. No. 3,496,268. Diumycin A' and diumycin B' possess antibacterial activity against gram-positive bacteria.

3,830,937

BALANCED AMINO-ACID FEED COMPOSITION FOR PRAWNS

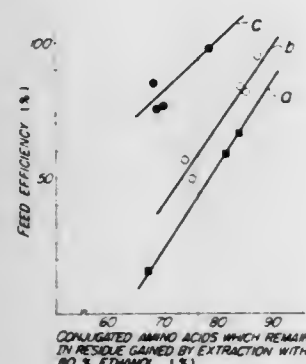
Kunihiko Shigeno, Kazumi Kumada, Osamu Deshimaru, Takayuki Aramaki, Katsunobu Kuroki, and Kazuo Kitaue, Kagoshima, Japan, assignors to Kagoshima-Ken, Kagoshima-shi, Kagoshima-ken, Japan, a local autonomy of Japan

Filed Dec. 27, 1971, Ser. No. 212,539

Claims priority, application Japan, Jan. 11, 1971, 46/561

Int. Cl. A23k 1/10, 1/18

U.S. Cl. 426—2 2 Claims



A feed composition for prawns comprising at least two main compounding elements selected from the group con-

sisting of animal products such as squids, whales, mysid shrimps and fishes or meals thereof, botanical products such as soya bean protein and gluten and cells of micro-organisms such as petroleum yeasts, marine yeasts, leavens and active sludge, which is characterized in that the content of crude protein in an end product is at least 60% by weight and the content of conjugated amino acids therein is at least 46% by weight.

3,830,938

METHOD OF MAKING BREAD OF HIGH SUGAR CONTENT

Eiji Morikawa, Tokyo; Kenkichi Kodama, Akita-ken; Tokuji Tanaka; Hisayoshi Fukatsu, and Shizuo Enokida, Tokyo, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

No Drawing. Filed Apr. 12, 1972, Ser. No. 243,402

Claims priority, application Japan, Apr. 14, 1971, 46/23,607

Int. Cl. A21d 2/18, 8/04

U.S. Cl. 426—18 1 Claim

Method of making bread of high sugar content which comprises adding *Saccharomyces rosei* to bread ingredients high in sugar content to prepare a dough, fermenting the dough and then baking the fermented dough. According to the present method, excellent fermentation power and high dough raising power as well as a reduced period of fermentation and a smaller amount of the yeast can be attained.

3,830,939

PROCESS FOR PRODUCING SOY SAUCES

Toshio Sakasai, and Katsumi Yuasa, Noda, Japan, assignors to Kikkoman Shoyu Co., Ltd., Noda, Japan

Filed Aug. 25, 1972, Ser. No. 283,668

Claims priority, application Japan, Aug. 28, 1971, 46/65,577

Int. Cl. A23l 1/20

U.S. Cl. 426—46 9 Claims

A soy sauce is produced by subjecting a protein-containing starting material to steaming treatment in the presence of 0.05 to 1.0% by weight, based on the weight of the starting material, of a calcium salt in terms of calcium, whereby not only the utilization ratio of protein in said starting material is increased but also the period of time required for the production of soy sauce can be shorter than in the conventional process.

3,830,940

PREPARATION OF AQUEOUS BEVERAGE CONCENTRATE OF COFFEE

Michael Sivetz, 3635 NW. Elmwood Drive, Corvallis, Oreg. 97330

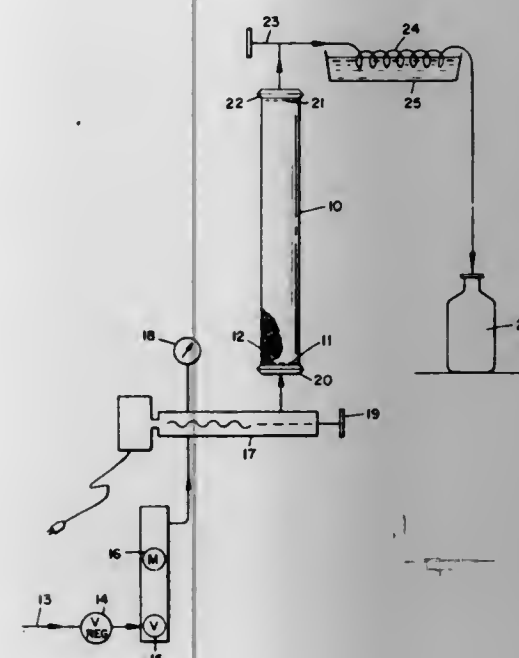
Filed June 7, 1972, Ser. No. 261,552

Int. Cl. A23f 1/08

U.S. Cl. 426—148 10 Claims

A process for preparing an aromatic and flavorful, relatively flavor-stable aqueous coffee beverage concentrate containing almost all the aromatic-volatile constituents and about 18% of the non-volatile flavored solubles. The concentrate is prepared from columnar beds of finely ground roast coffee beans. The column sizes have a height to diameter ratio of at least six, and the column diameters are less than nine inches. Pressurized hot water

flows upwardly through the vertical columns, venting air and gases, facilitating wetting and minimizing channeling. The effluent concentrate from the top of the column is



collected mostly at ambient temperatures, and yields about fifty-five fluid-ounce cups of diluted beverage from each pound of original roast and ground coffee.

3,830,941

FOOD COATING COMPOSITION AND PROCESS USING SAME

Leslie R. Luft and Daniel G. Murray, Muscatine, Iowa, assignors to Grain Processing Corporation, Muscatine, Iowa

No Drawing. Filed July 5, 1972, Ser. No. 269,150

Int. Cl. A23d 5/00; A23l 1/27

U.S. Cl. 426—177 5 Claims

Flavored edible coating compositions for foods such as snack foods comprising oil-water emulsions and a starch hydrolyzate having a relatively low dextrose equivalent value.

3,830,942

NON-ISOELECTRIC PROTEIN

Robert L. Hawley, Webster Groves, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

No Drawing. Filed Aug. 13, 1970, Ser. No. 63,631

Int. Cl. A23l 1/00; A21d 2/26; A23j 3/00

U.S. Cl. 426—190 15 Claims

A soluble protein product for use in foodstuffs and particularly for use in highly acid foods is produced from oleaginous seed materials. In addition, an insoluble protein product for use in foodstuffs is obtained from the same process. The properties of these products are obtained by placing protein containing materials in a solution having a specified pH at or about the isoelectric point and under controlled conditions effecting enzyme digestion of the protein. The material is then heated to inactivate the enzyme and the digested and undigested protein portions separately dried. These two dried fractions produce the desired products of the invention. The soluble protein product may be used to produce protein enriched food products and is particularly desirable for use in drinks at acidity levels below approximately pH 4.6 since said protein product is very soluble, has good stability

in high acid foods and does not tend to gel or curdle. The insoluble protein product may be used to produce protein enriched food products and is particularly desirable for use in bakery goods since the product is in the form of inert protein which does not react or undesirably bind the water of such products.

3,830,943

METHOD FOR AGGLOMERATING DRY FOOD PARTICLES IN A ROTATING DRUM

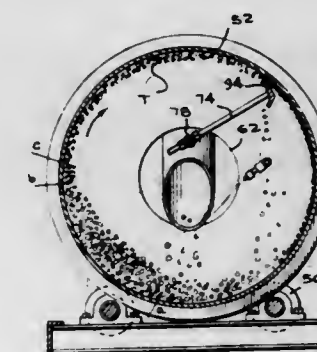
Veldon Max Hix and Warren J. Simon, Idaho Falls, and Donald Jay Anderson, Blackfoot, Idaho, assignors to Rogers Brothers Company, Idaho Falls, Idaho

Filed June 14, 1972, Ser. No. 262,524

Int. Cl. B23b 7/02

U.S. Cl. 426—285

14 Claims



A method for agglomerating particles utilizing a rotating drum in which not greater than 10% of the total volume of the drum is composed of the particles to be agglomerated, spraying the particles in a spray zone with liquid to permit particles of at least a single depth to adhere to the interior surface of the drum and form a traction layer of the particles which upon rotating the drum carries particles up the side in the direction of rotation until they reach a fall back zone. The particles which do not adhere to the traction layer roll back down in the spray zone and adhere to other particles to agglomerate.

3,830,944

SANDWICH PACKAGE

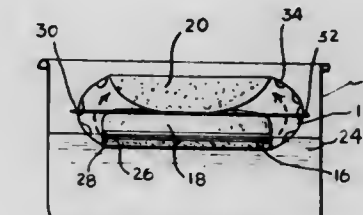
George Dimitriadis, 2209 S. Hickory, Santa Ana 92707, and Gloria Belle Dimitriadis Alwood, 7597 El Terrazo Drive, Sacramento, Calif. 95828

Filed Apr. 13, 1972, Ser. No. 243,770

Int. Cl. B65b 25/22

U.S. Cl. 426—113

7 Claims



A package of a pre-cooked and frozen sandwich is described which is formed with an outer foil envelope of a high melting point plastic suitable for immersion in boil-

ing water surrounding sandwich ingredients. The sandwich is encased in the package with the meat portion bearing against at least one side of the surrounding envelope and the bread portions of the sandwich disposed in successive layers thereon. The package automatically rights its position when placed in water to immerse the meat side into the water for thorough heating of the meat while the bread portions are heated by internal steam generated from the meat and sauce components. A preferred embodiment comprises a hamburger where the meat patty bears against the inside surface of the plastic envelope and the package contains, in successive layers, a meat sauce, a bread-sealing cheese sauce, one of the halves of a hamburger bun and the remaining half of the bun.

3,830,945

METHOD AND APPARATUS FOR PROCESSING EGGS WITH MICROWAVE ENERGY

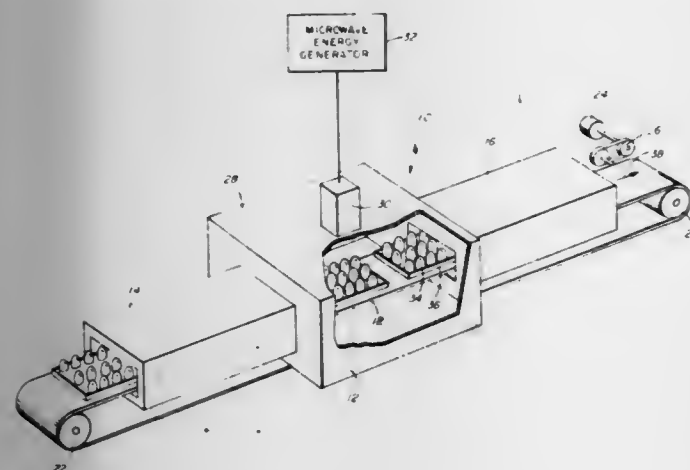
Howard Scharfman, Lexington, Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Dec. 8, 1972, Ser. No. 313,320

Int. Cl. A23I 1/32

U.S. Cl. 426—243

6 Claims



A method of and means for cooking and sterilizing is disclosed involving the application of microwave energy to complete processes of food products in the precooked state. Continuous transport of the product being treated is provided by means of a conveyorized system.

3,830,946

PROCESS FOR THE PRODUCTION OF FRITTATEN

Alois Ruhdorfer, Membergerstrasse 15, Salzburg, Austria
Continuation of abandoned application Ser. No. 871,906, Oct. 28, 1969. This application May 1, 1972, Ser. No. 249,618

Int. Cl. A23I 1/10, 1/16

U.S. Cl. 426—347

7 Claims

The production of Frittaten is improved by dehydration of dough that has been baked and browned on both sides and cut into short length narrow strips in cooking

oil or fat heated to 100° to 190° C. until the product reaches a water content below 7% by weight.

3,830,947

PREPARATION OF CREAMED COTTAGE CHEESE

Lawrence L. Little, Creve Coeur, Mo., assignor to The Battelle Development Corporation, Columbus, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 796,207, Feb. 3, 1969. This application Mar. 3, 1971, Ser. No. 120,716

Int. Cl. A23c 19/00

U.S. Cl. 426—361

16 Claims

Creamed cottage cheese is made by adding a creaming mix to dry cottage cheese curd, the creaming mix being made by adding a colloid former to cream and acidifying the cream to a pH below 5 before pasteurizing, while heating to pasteurizing temperatures, or before cooling below pasteurizing temperatures.

3,830,948

METHOD FOR IMPROVING SHELF-LIFE OF BAKED GOODS

Leonard G. Fischer, College Point, and Monroe B. Sherain, and Klemens Strum, Brooklyn, N.Y., assignors to DCA Food Industries, Inc., New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 51,689, July 1, 1970. This application June 18, 1973, Ser. No. 371,254

Int. Cl. A21d 13/08, 15/00

U.S. Cl. 426—363

7 Claims

The shelf-life of comestibles such as pastries or other baked goods is extended for indefinite periods of time by providing the products with a filling or topping comprising a combination of a whipped blend of sugar, fat, and an emulsifier, and a microbiologically stable system such as natural or artificial fruit preserves. When such products are placed in a moisture-proof package, a vapor equilibrium is established whereby the filling or topping meters vapor into the product at a rate approximating the rate at which the original water present in the product is being lost due to retrogradation of starch.

3,830,949

PROCESS FOR CONVERTING RETROGRADED AMYLOSE CONTAINED WITHIN CELLS OF A DEHYDRATED POTATO PRODUCT TO SOLUBLE AMYLOSE

Mounir A. Shatila, Blackfoot, Idaho, assignor to American Potato Company, San Francisco, Calif.

No Drawing. Filed Sept. 1, 1971, Ser. No. 177,089

Int. Cl. A23b 7/02

U.S. Cl. 426—456

15 Claims

A mixture consisting essentially of a dehydrated potato product and water, having a moisture content of 25–70%, is heated to a product temperature of about 220° F.–250° F. to effect a conversion of retrograded amylose, contained within the cells of said dehydrated potato product, to its soluble form followed by prompt reduction of said moisture content to about 7% before said soluble form of the amylose retrogrades so as to preserve the cold water absorption and cohesive properties acquired as a result of said conversion.

ELECTRICAL

3,830,950

ROTARY FURNACES OF THE PLASMA-ARC HEATING TYPE

Henry Schoumaker, Bruxelles, and David Yerouchalmi, Le-Mesnil-Saint-Denis, both of France, assignors to Commissariat à l'Energie Atomique, Paris, France

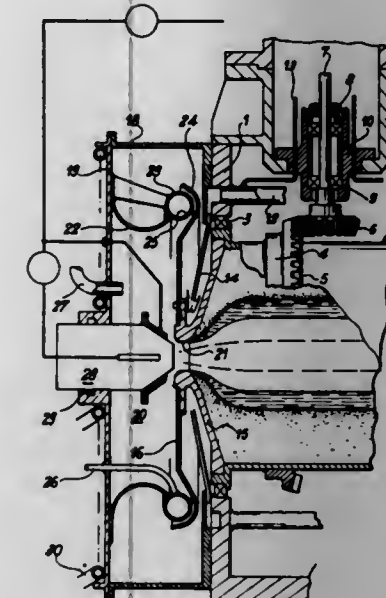
Filed Sept. 27, 1973, Ser. No. 401,230

Claims priority, application France, Oct. 6, 1972, 72.35622

Int. Cl. H05b 7/18

U.S. Cl. 13—9

7 Claims



The furnace is provided at each end with a chamber placed opposite to the moving enclosure of the furnace and limited by a casing attached to the stationary enclosure. The chamber is made leak-tight with respect to the moving enclosure by means of at least one torus supplied with gas at a pressure which is higher than the pressure within the chamber. A continuous curtain of gas is thus formed between the torus and a front plate which is attached to the moving enclosure.

3,830,951

TRAFFIC CONTROLLER TRAINING AID

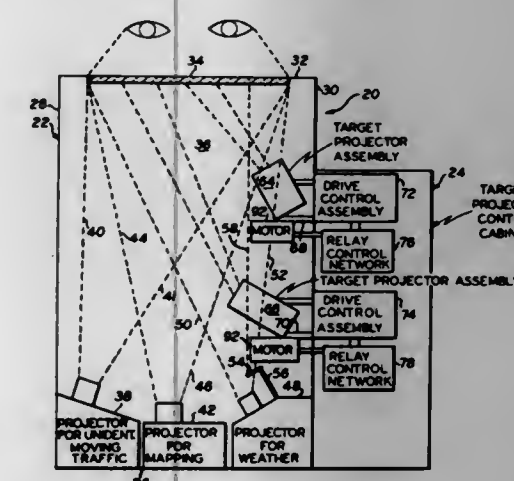
Melvin Rumstein, 47 Mackay Dr., Hauppauge, N.Y. 11787

Filed June 28, 1972, Ser. No. 267,041

Int. Cl. G09b 9/00

U.S. Cl. 35—10.4

12 Claims



A training aid for assisting in the training of air traffic controllers which simulates live air traffic conditions on a simulated radar scope wherein a plurality of individually controllable multi-axis target projectors under the control of a relay control network associated with each of the projectors pro-

vide a plurality of targets each having independently variable target parameters, such as speed and amount of turn of the target. In addition, a radar simulation of environmental conditions, such as weather is provided. The focus of the movable projector as well as the proper orientation of target identification signals, such as a transponder simulation, is automatically controlled by synchros in conjunction with the relay control network associated with the projector as the simulated target moves across the screen in a line traffic simulation. The movement of the projector is controlled by a turn motor and a speed motor which determine the rate of turn of the target and the speed thereof, respectively, the motor rates being inversely proportional in the apparatus of the present invention so that the vectors in the direction of movement do not tend to increase the forward speed of the target making the turn. The simulator may be controlled either manually or via a preprogrammed tape.

3,830,952

ELECTRONIC MUSICAL INSTRUMENT SIMULATING A STRINGED MUSICAL INSTRUMENT

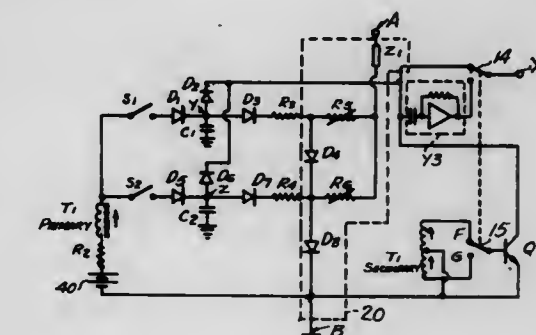
Harry E. Kitchen, 7910 Woodmont Ave., Bethesda, Md. 20014

Filed Sept. 27, 1972, Ser. No. 292,809

Int. Cl. G10h 1/02

U.S. Cl. 84—1.24

12 Claims



An electronic instrument for simulating the sound of a plucked string bass or other stringed instrument is described. The instrument incorporates a circuit in which the shunt resistance of a resistive capacitive phase shift oscillator is varied selectively in order to more closely simulate the sound generated by a stringed instrument, where the string is more taut when first plucked and consequently at a higher pitch than after its vibration has damped. The circuit also incorporates a switching arrangement whereby a note can be played either with a gradual decay following release of the key or with a decay while the key is depressed and a rapid cutoff when the key is released in order to permit the person utilizing the instrument to have effective control over the staccato effect.

3,830,953

CABLE SEALANT

James E. Wood; Larry A. Strecker, both of St. Louis, Mo., and Robert E. Cratz, North Brunswick, N.J., assignors to Inmont Corporation, New York, N.Y.

Division of Ser. No. 11,605, Feb. 16, 1970, abandoned. This application Aug. 16, 1971, Ser. No. 165,814

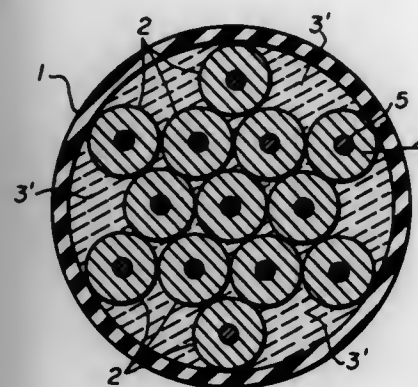
Int. Cl. H01b 3/30, 7/02

U.S. Cl. 174—23 C

2 Claims

A cable sealant to seal the voids between the strands of electrical and similar cables to prevent water flow through same and to seal the cable elements from the atmosphere. The preferred cable sealant composition comprises about 20 percent by weight ethylene propylene rubber copolymer, about

30 percent polypropylene, about 23 percent polyethylene, and 27 percent paraffinic hydrocarbons. A small amount of colorant such as iron oxide is normally added to this composition.



tion, which is blended to form the cable sealant.

A method of sealing cable by filling the voids between cable strands with the above composition at a temperature preferably in the range between 225° and 275°F.

3,830,954

APPARATUS FOR SHIELDING AGAINST ELECTROMAGNETIC INTERFERENCE

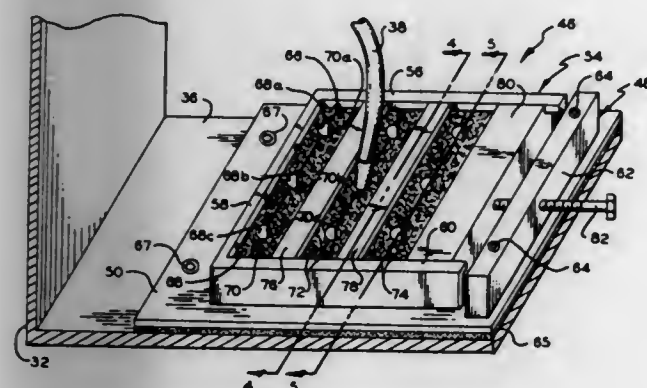
Herman T. Caudill, Hyattsville, Md., assignor to The Singer Company, Binghamton, N.Y.

Continuation-in-part of Ser. No. 293,099, Sept. 28, 1972, abandoned. This application June 26, 1973, Ser. No. 373,754

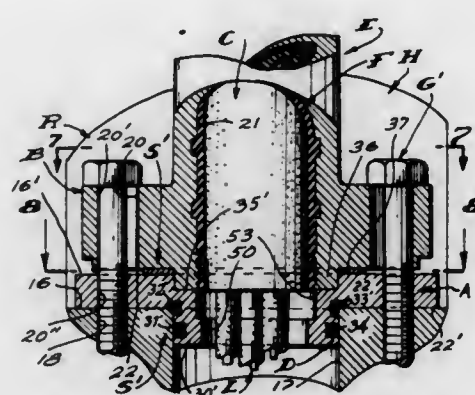
Int. Cl. H05k 9/00

U.S. Cl. 174—35 MS

7 Claims



Apparatus for preserving the integrity of electromagnetic interference protection in electrical information transmission systems when transmission lines penetrate cabinets and similar enclosures. A structure is placed over the opening in the wall of an equipment cabinet through which transmission line cables pass. The structure comprises a metallic frame containing a deformable electrically conductive material in direct contact with the frame. The cables, stripped of their external insulation in order to expose their shielding for a short distance, are passed through the conductive material so that the exposed portions of each cable's shielding is surrounded by the conductive material. With the cables in place, a compression member compresses the conductive material tightly around the cables to form a tight, electrically conductive contact between the conductive material and the cable shielding. In this manner all the cable shields are grounded at the point where they penetrate the cabinet.



3,830,955

COUPLING HEAD ADAPTER

Richard L. Double, 1926 Raxanne Ave., Long Beach, Calif. 90813

Filed July 19, 1973, Ser. No. 380,670

Int. Cl. F04b 39/00, 47/00; H02g 15/00

U.S. Cl. 174—65 R

9 Claims

An adapter to connect a coupling part and related sealing means structure at the end of an electric cable with a non-compatible coupling part receiving means and related sealing means structure in equipment with which the cable is to be connected; said adapter comprising an insert engagable between the non-compatible coupling part and receiving means and defining receiving structure compatible with the coupling part and its related sealing means structure and defining coupling part structure compatible with the receiving means and its related sealing means structure whereby the non-compatible coupling part and coupling part receiving means can be related and coupled to establish sealed connection between the cable and the equipment.

3,830,956

MULTILAYER PRINTED CIRCUIT BOARD WITH TEST PADS

Derek Sidney Wootton, Hitchin, and Colin Sidney Osborne, Sandy, both of England, assignors to International Computers Limited, London, England

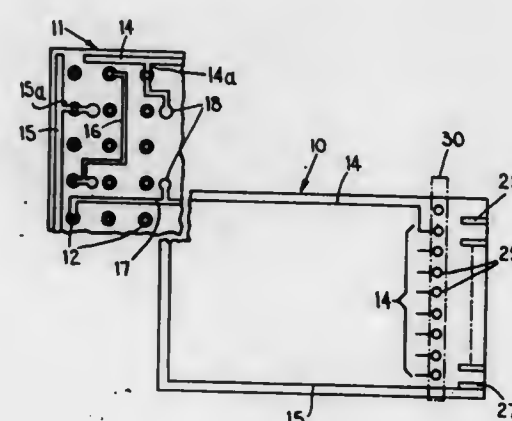
Filed Mar. 27, 1973, Ser. No. 345,302

Claims priority, application Great Britain, Mar. 28, 1972, 14401/72

Int. Cl. H05k 1/02

U.S. Cl. 174—68.5

3 Claims



A construction of printed circuit board is disclosed in which conductive pads are arranged on the surface of a printed circuit board for contacting by probes of a test rig and which are connected to conductive tracks of the circuit board which otherwise may be inaccessible for test purposes.

3,830,957

GROUNDING DEVICE FOR SHIELDED ELECTRICAL CABLE

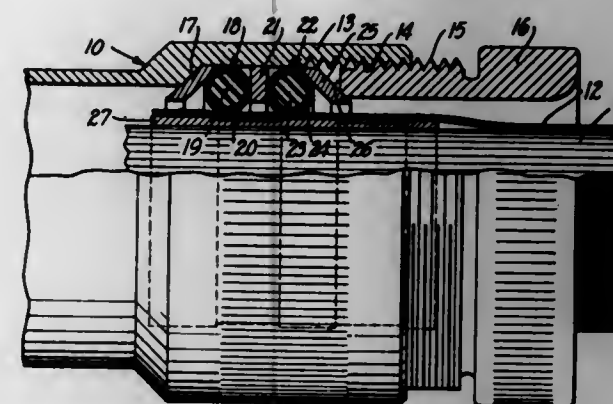
Robert C. Oberdieck, Los Angeles, Calif., assignor to Amex Systems, Inc., Lawndale, Calif.

Filed Aug. 20, 1973, Ser. No. 389,675

Int. Cl. H02g 15/02; H01r 3/02

U.S. Cl. 174—78

5 Claims



A grounding device for a shielded electrical cable extending through a housing. A pair of relatively soft resilient O-rings, each of which is surrounded by a braided metal sheath, are disposed between the cable and housing. The rings are mounted adjacent oppositely facing bevel rings, with a straight sided washer disposed between them. A jam nut threadedly connected to the housing is tightened to compress and distort the O-rings and sheaths simultaneously. The sheaths are distorted into electrical grounding engagement with the shield of the cable, the bevel rings, washer and inner wall of the housing. A rigid metallic collar may be mounted between the cable and its shielding. The braiding of the O-ring sheaths and the cable shielding preferably interengage each other for better physical and electrical connection.

3,830,958

IMAGE ENHANCEMENT APPARATUS UTILIZING VARIABLE VELOCITY SCAN

Yuzo Fuse; Seisuke Yamanaka, and Tsunenari Saito, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

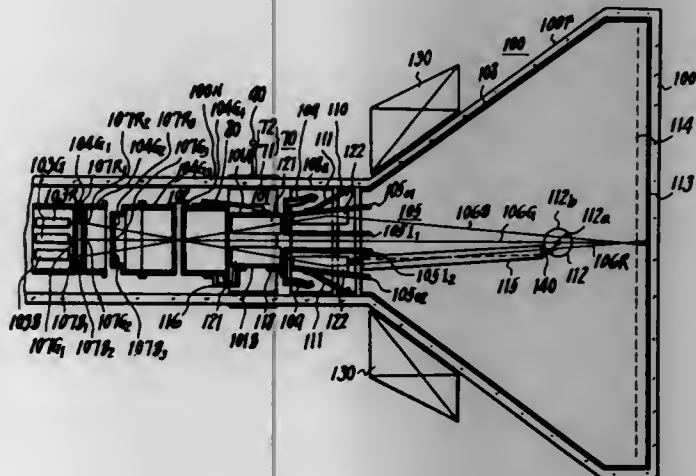
Filed Mar. 19, 1973, Ser. No. 342,453

Claims priority, application Japan, Mar. 23, 1972, 47-29260; Mar. 23, 1972, 47-29263

Int. Cl. H04n 9/16

U.S. Cl. 178—5.4 R

2 Claims



An electron beam tube with internal deflection plates to modulate the scanning velocity of an electron beam in response to a control signal. The control signal is produced in response to at least transient parts included in a video signal and supplied to the beam deflection means through condenser means fabricated by conductive films coated on the inner and outer surfaces of a neck portion of the tube.

3,830,959

AUTOMATIC CENTERING CONTROL SYSTEM FOR TELEVISION APPARATUS

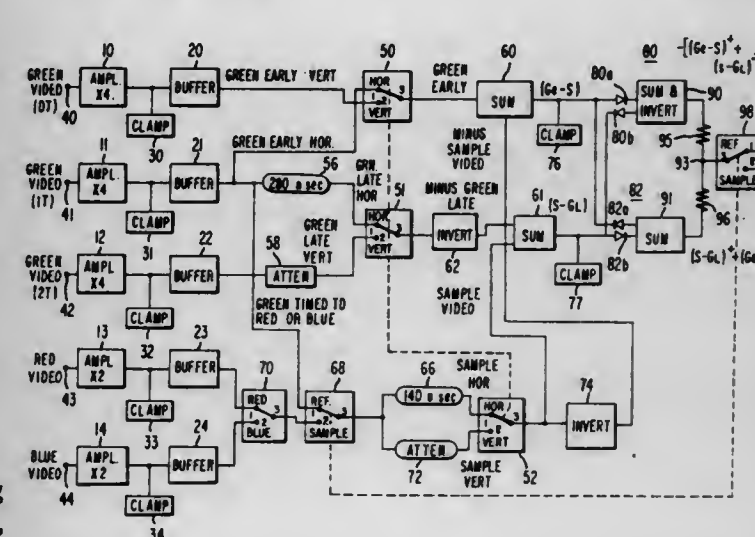
Robert Adams Dischert, and John Francis Monahan, both of Burlington, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 23, 1973, Ser. No. 344,066

Int. Cl. H04n 9/08

U.S. Cl. 178—5.4 M

10 Claims



The described control system provides automatic registration of colors for television reproduction by comparing individual horizontal and vertical color components of an object scene, and by developing output control voltages whenever mis-registration occurs. The horizontal and vertical components of one such color are periodically compared against themselves at different points in the system to provide a further control signal indicative of differences in the translation characteristics of the comparison channels utilized.

3,830,960

CONTROL CIRCUIT FOR CONTROLLING AN APPARATUS

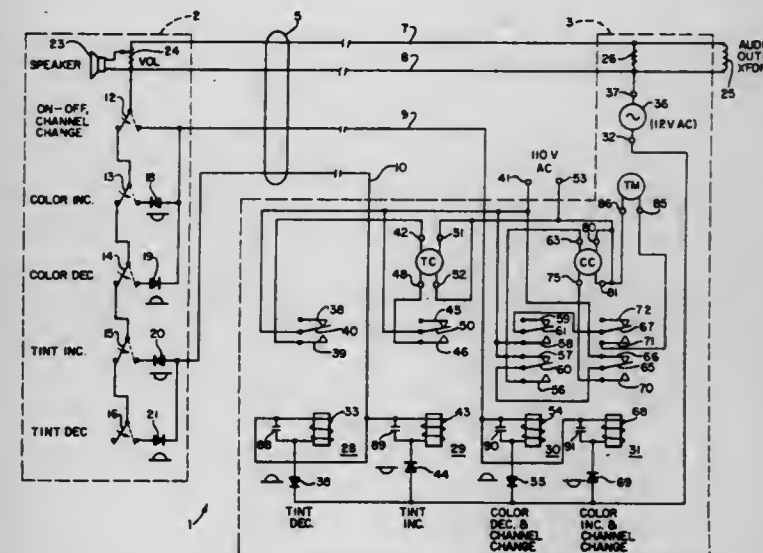
Joseph A. Keelan, Nabbasset, Mass., assignor to GTE Sylvania Incorporated, Stamford, Conn.

Filed Mar. 30, 1973, Ser. No. 346,475

Int. Cl. H04n 9/02

U.S. Cl. 178—5.4 R

12 Claims



A receiver control circuit for controlling the operation of a color television receiver, particularly in hospital installations. The receiver control circuit includes a remote control unit and a receiver unit connected to the remote control unit via a multi-wire cable. The remote control unit, when used in a hospital installation, is positioned at a bedside location and includes a plurality of manually-operated switches. These switches are assigned to different control modes of the

receiver including turning the receiver "on" and "off" and changing channels, increasing the color level of the receiver, decreasing the color level of the receiver, increasing the tint level of the receiver, and decreasing the tint level of the receiver. The receiver unit, which is typically mounted in the cabinet of the receiver, includes a plurality of relay assemblies which are selectively operated in response to selective actuation of the switches in the remote control unit to variously operate motors and related mechanisms in the receiver for turning the receiver "on" and "off" or changing channels, for increasing or decreasing the color level of the receiver, and for increasing or decreasing the tint level of the receiver.

A significant advantage of the invention, particularly in hospital installations, is that the multi-wire cable interconnecting the remote control unit and the receiver unit may be implemented by an existing multi-wire cable as currently employed in a hospital with a black-and-white television receiver. Consequently, there is no need to replace an existing cable which could be costly and also disruptive of normal hospital operations. At the same time, several additional control functions can be achieved by the invention beyond the limited "on" and "off" and channel selection control functions associated with a black-and-white receiver.

3,830,961

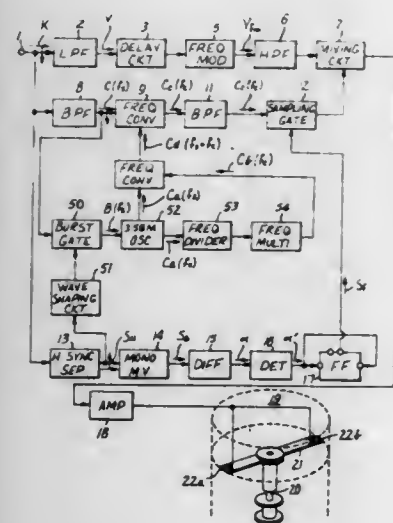
MAGNETIC RECORDING AND REPRODUCING SYSTEM
Hisaaki Narahara, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 21, 1973, Ser. No. 362,053

Claims priority, application Japan, May 22, 1972, 47-50461
Int. Cl. H04n 5/78

U.S. Cl. 178—5.4 CD

5 Claims



3,830,974

VIDEO SIGNAL GENERATOR

Marcel Dupouy, 7, rue de l'Yser-92, Saint Cloud, France

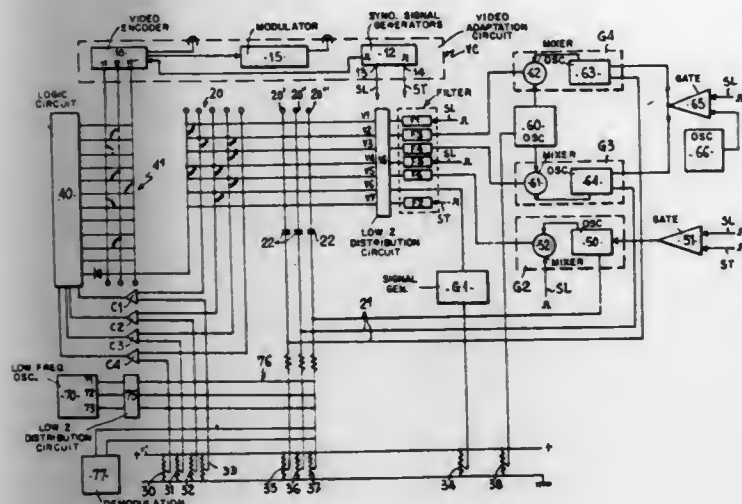
Filed Aug. 1, 1972, Ser. No. 276,911

Claims priority, application France, Aug. 2, 1971, 71.28193

Int. Cl. H04n 5/66

U.S. Cl. 178-7.3 D

13 Claims



Signals rephased with each cycle of the line and frame synchronization signals of a standard television system are employed to generate complex voltages. These complex voltages are utilized to produce fixed and animated displays on the screen of a television receiver.

3,830,975

FACSIMILE DOT PRINTING SYSTEM WITH STEW CORRECTION

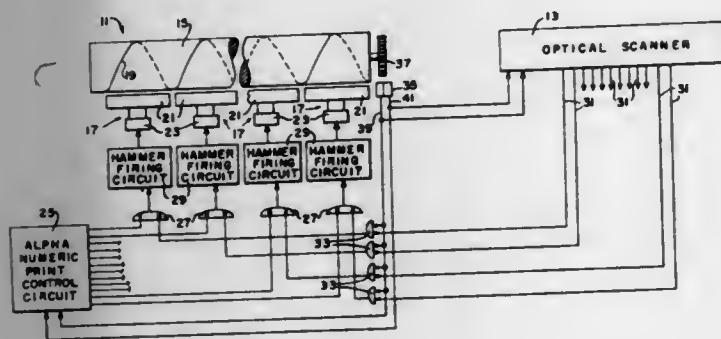
John T. Potter, 151 Sunnyside Blvd., Plainview, N.Y. 11803

Filed Apr. 23, 1971, Ser. No. 136,950

Int. Cl. H04I 21/00

U.S. Cl. 178-30

6 Claims



In a facsimile system a document is copied by a helical bar dot printer in which the helical bar has a plurality of convolutions. A plurality of hammer blades each spanning one convolution of the helical bar function to print dots in the pattern of the document. The document to be copied is scanned line by line by an optical scanner to produce signals to control the printer. The scan line of the scanner is divided into a plurality of segments which are scanned simultaneously to severally control simultaneous printing by the hammer blades. Means are provided independent of the optical scanner to control the printer to print selective alphanumeric characters. In one embodiment, the scan line and print line are skewed relative to the direction of movement of the document and the printing medium, respectively, to accommodate an alphanumeric code input to the printer.

3,830,976

PRINTING TELEGRAPH MECHANISM

Terrence Francis Edward Taylor, Burgess Hill, England, assignor to International Standard Electric Corporation, New York, N.Y.

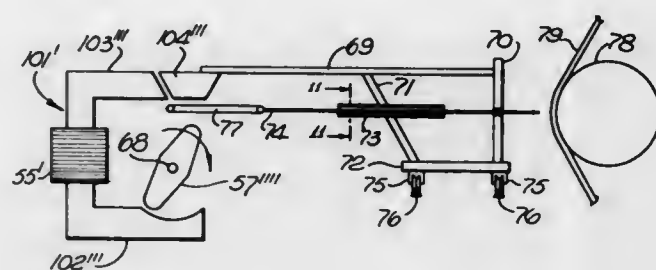
Filed June 1, 1973, Ser. No. 366,220

Claims priority, application Great Britain, June 1, 1972, 25597/72

Int. Cl. B41j 9/38; H04I 21/00

U.S. Cl. 178-30

10 Claims



The styli of a mosaic printhead are each attached to switchable conductive loops positioned in a gap between a pole piece and a rotatable magnetic member. The rotatable member is rotated continuously and periodically induces currents in closed, conductive short circuited loops thus causing them and their associated styli to move.

3,830,977

SPEECH-SYNTHEISER

Claude Dechaux, Paris, France, assignor to Thomson-CSF, Paris, France

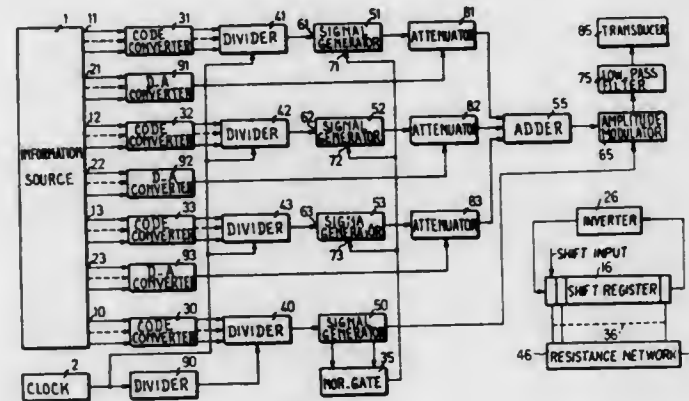
Filed Mar. 3, 1972, Ser. No. 231,558

Claims priority, application France, Mar. 26, 1971, 71.10824

Int. Cl. G10I 1/00

U.S. Cl. 179-1 SA

2 Claims



In a synthesiser which, for each sampling period, reconstitutes a language element by means of three sinusoidal components obtained with the help of variable-frequency generators and variable-attenuators, those components are simultaneously subject to predetermined rephasing operations carried out at an auxiliary frequency identified with the pitch frequency (or frequency of vibration of the voice) at the time of emission of vowels or voiced consonants. This auxiliary frequency is delivered by a further variable-frequency generator. In addition, the signal representing the sum of these components is amplitude-modulated by a modulating signal at the auxiliary frequency.

3,830,978

CIRCUIT FOR MIXING FOUR AUDIO INPUT SIGNALS TO PRODUCE FOUR AUDIO OUTPUT SIGNALS

Kanji Odagi, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka-fu, Japan

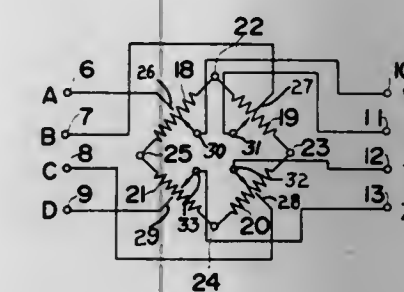
Filed July 5, 1972, Ser. No. 269,085

Claims priority, application Japan, July 8, 1971, 46-50535

Int. Cl. H04r 5/00

U.S. Cl. 179-1 GQ

2 Claims



A four channel stereo mixing circuit is disclosed whereby four audio input signals may be mixed in various proportions to yield four audio output signals. The mixing is accomplished through the use of four ring connected potentiometers with the audio input signals applied either to the midpoint of the potentiometers or to the connection point of two potentiometers. The output signals are derived from the moveable terminals of the four potentiometers.

3,830,979

TELEPHONE HANDSET AMPLIFIER

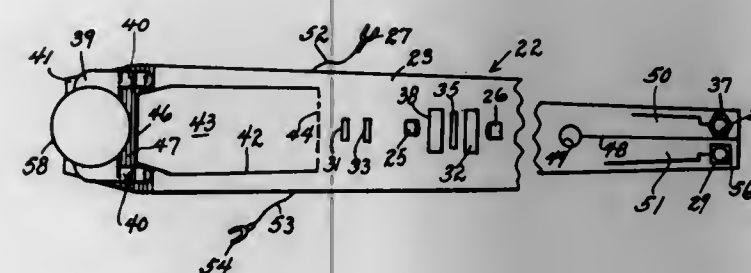
Alex McIntosh, Oak Harbor, Wash., assignor to Tone Commander Systems, Inc., Redmond, Wash.

Filed May 2, 1973, Ser. No. 356,334

Int. Cl. H04m 1/60

U.S. Cl. 179-1 A

12 Claims



A receiver amplifier attachment for a Trimline telephone handset which is installed without modification of the handset. The amplifier attachment consists of a transistorized amplifier circuit mounted on a flexible strip and employing printed circuitry. The strip is slit longitudinally at one end portion and the two segments thus defined have respective printed and terminals with printed connections to the input and output of the amplifier circuit. With the back cover of the handset removed, these are clamped on opposite sides of the normal receiver board terminals of the handset by a Nylon screw which is substituted for the normal metal connection screw, whereby the amplifier is connected into the handset receiver circuit. The strip has a large aperture at its opposite end portion to define a loop which is engaged over and interlocks with the peripheral shoulder of the handset connection plug receptacle so that the strip is stretched over the handset. Respective flexible terminal wires are provided on the strip to connect the amplifier to the transmitter supply voltage and common terminals of the handset. A volume control potentiometer is mounted on the outer margin of the apertured end portion of the strip. The attachment is thus substantially fully housed beneath the back cover of the handset when the cover is replaced.

3,830,980

DEVICE FOR CORRECTION OF SYNCHRONISATION FAULTS FOR A SWITCHABLE DATA TRANSMISSION NETWORK OPERATING ON A TIME SHARING BASIS

Roger J. Peron, Z.U.P. Batiment G.B., Lannion, and Maurice J. Revel, Rue de Lanneg-Braz, Perros-Guirec, both of France

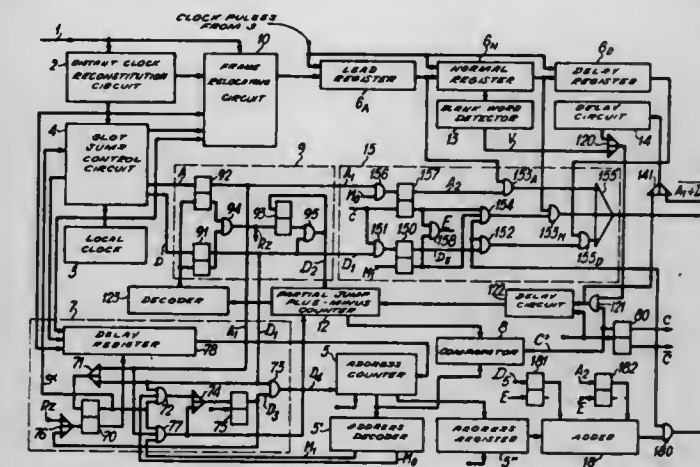
Filed , Ser. No. 345,853

Claims priority, application France, Mar. 31, 1972, 72.11440

Int. Cl. H04j 3/06

U.S. Cl. 179-15 BS

2 Claims



A switchable transmission system operating by time-sharing for data carrying digital information, comprises a distant exchange and a local exchange, whereof the timers are not strictly synchronous, and means of correcting the relative drift of these timers. The system employs means for correcting the repetitions or omissions of synchronization words. Means are incorporated in the distant exchange for the transmission of blank words on each transmission line between data-carrying words. The local exchange comprises three shift registers grouped in cascade and chronologically staggered with respect to each other, means for scanning words carrying digital information and for selectively connecting these scanning means to the said registers. The connecting means are controlled by repetitions or omissions of synchronization words, and by the reception of the blank words, in such manner as to make use, as the case may be, of the first or second registers or of the third and first registers, depending on the kind of synchronization error observed.

3,830,981

PULSE STUFFING CONTROL CIRCUIT FOR REDUCING JITTER IN TDM SYSTEM

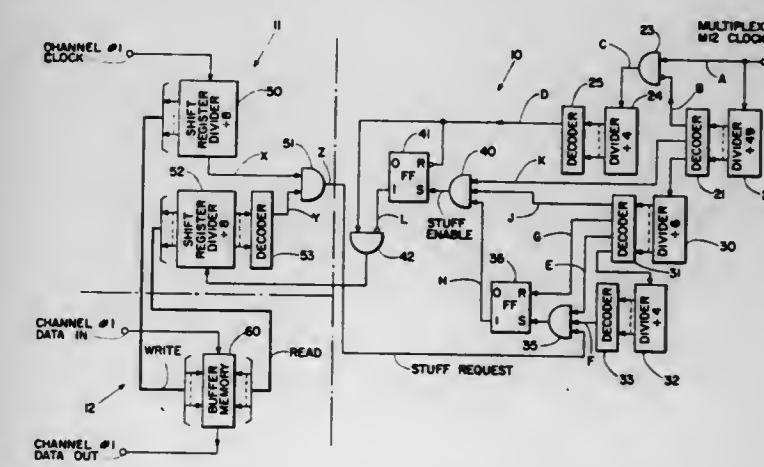
John Gerald Gruber; Peter El Kwan Chow, and Joseph Winston Houghton, all of Ottawa, Ontario, Canada, assignors to Bell-Northern Research Ltd., Ottawa, Ontario, Canada

Filed Apr. 2, 1973, Ser. No. 347,190

Int. Cl. H04j 3/06

U.S. Cl. 179-15 AF

6 Claims



A pulse stuffing control circuit, for reducing waiting time jitter in a time division multiplex system, in which a sampling

window is provided to determine the need for a stuffed pulse. The use of the window creates a higher frequency jitter component in the transmitted pulse stream which can be readily filtered out at the receiving terminal.

3,830,982

TIME DIVISION MULTIPLEX DATA TRANSMISSION SYSTEM HAVING A MONITORING SIGNAL

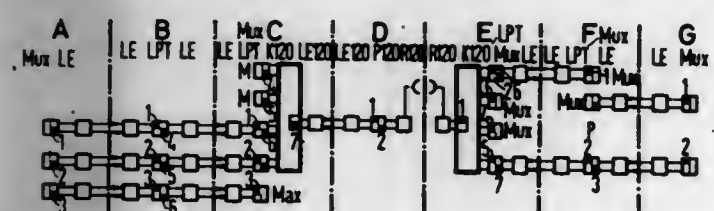
Hans-Martin Christiansen, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany
Filed Apr. 9, 1973, Ser. No. 348,900

Claims priority, application Germany, Apr. 14, 1972, 2218128

Int. Cl. H04j 3/14

U.S. Cl. 179—15 AE

5 Claims



A data transmission system, in particular a time division multiplex (TDM) pulse code modulation (PCM) system, in which a continuous sequence of individual signals is transmitted includes a transmission path extending between two end stations which is divided into a plurality of sections and in which a monitoring signal is interposed at regular intervals into the sequence of transmitted signals. At the start of each transmission section, as viewed in the direction of transmission, the monitoring signal is either reconstructed or reinserted in the correct form independently of whether it has been received at this station in a disturbed form or in the correct form by way of the preceding transmission section. The monitoring signal is a pulse signal containing a plurality of bits. At the start of each transmission section only some of the bits of the monitoring signal are reconstructed or reinserted in the correct form, while the remaining uncorrected bits of the monitoring signal are employed for fault rate analysis and/or for message and alarm functions.

3,830,983

COMMUNICATION SYSTEM INTERLOCK ARRANGEMENT

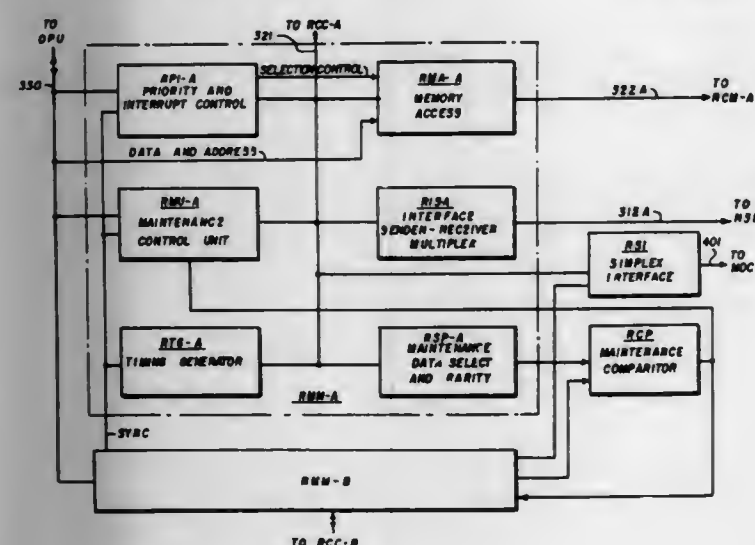
John W. Eddy, Villa Park, and Sergio E. Puccini, Wood Dale, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 4, 1972, Ser. No. 311,606

Int. Cl. H04q 3/54

U.S. Cl. 179—18 ES

15 Claims



Control transfer arrangement for a communication system including a switching system wherein a marker applies temporary hold signals to establish temporary connections between

line circuits and register junctors while also transmitting information signals to a data processor. Logic circuits are provided for responding to instruction signals from the data processor and to signals from the register junctors to develop sustaining hold signals which are applied to sustain connections through the switching system and to permit release of the marker after each connection is established. Important features relate to the form of the logic circuits, to the use of memory means and multiplex circuitry to permit use of common logic circuits and to the provision of timer means for operating trouble indicating means when both conditions required for a sustaining hold signal are not established within a certain length of time after one is established.

3,830,984

AUTOMATIC COMMON CONTROL SWITCHING SYSTEM

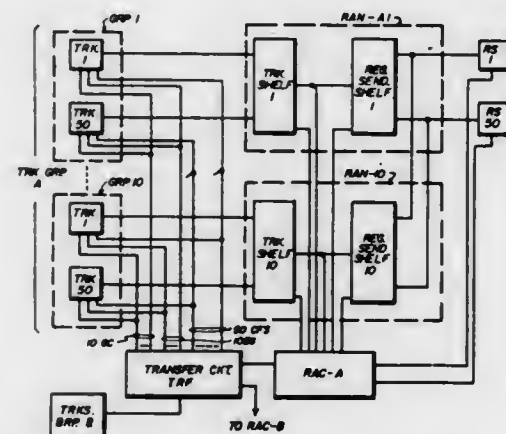
Walter Gloeckler, Elk Grove Village, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 21, 1972, Ser. No. 317,436

Int. Cl. H04q 3/42

U.S. Cl. 179—18 AG

27 Claims



A register-sender access subsystem which interfaces a plurality of incoming trunks with a lesser number of register-senders is disclosed, together with the method in which the incoming trunks are scanned to locate a trunk with a request for service, and the manner in which such a trunk is identified and coupled with an idle register-sender.

3,830,985

CALLING PARTY CONTROL CIRCUIT

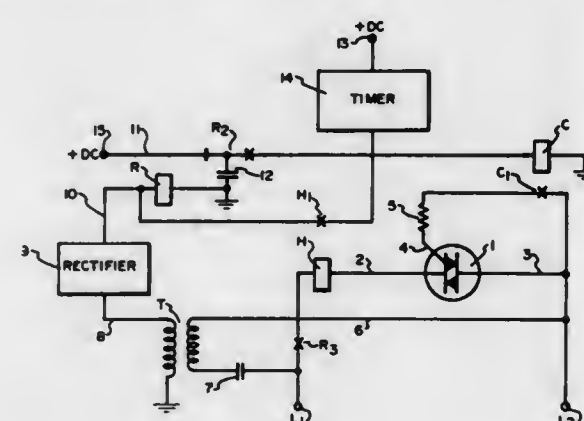
Richard J. Troemel, North Prairie, and Francis Y. Uechi, New Berlin, both of Wis., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Nov. 29, 1972, Ser. No. 310,313

Int. Cl. H04m 1/64

U.S. Cl. 179—81 R

8 Claims



Disclosed is a circuit for use in a telephone system for seizing a telephone line in response to incoming ringing signals and holding the line for either a predetermined period of time

or until the calling party goes on-hook if that occurs prior to the expiration of the predetermined period of time. A bidirectional switching device is used in conjunction with a relay to hold the telephone line. Second and third relays and a timing arrangement cooperate to seize the line and drop it either after a predetermined period of time or upon the calling party going on-hook.

3,830,986

MAGNETIC CIRCUIT FOR AN ELECTRO-ACOUSTIC CONVERTER

Isao Yamamuro, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

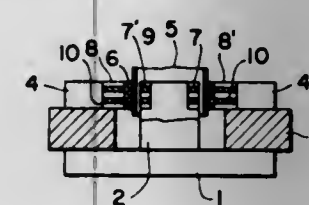
Filed Dec. 18, 1972, Ser. No. 315,963

Claims priority, application Japan, Dec. 17, 1971, 46-102519

Int. Cl. H04r 9/02

U.S. Cl. 179—115.5 R

5 Claims



An improvement in an electro-acoustic converter having a magnetic circuit with an air gap therein, the improvement including an air gap formed of a magnetic material laminated with a conductive layer having a comparatively higher magnetic resistance in the magnetic circuit, thereby increasing a magnetic resistance against a magnetic flux caused by a voice coil and acting the conductive layer as shorting rings to decrease the inductance of the voice coil, and thus eliminating the reproduction distortion caused by the magnetic non-linearity of the magnetic circuit.

3,830,987

TWO POSITION TELEPHONE HANDSET SUPPORT

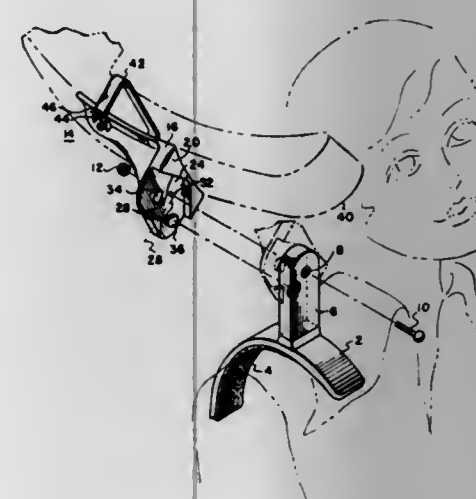
Lyle H. Van Dyke, 4411 S.W. Twombly, Portland, Oreg. 97201

Filed Jan. 11, 1973, Ser. No. 322,854

Int. Cl. H04m 1/05

U.S. Cl. 179—157

10 Claims



A telephone handset support adapted for use on either shoulder of a person to enable the person to speak and listen over a telephone handset without using his hands. The support includes a curved base member shaped to fit over the top of a person's shoulder, an arm which extends from the base member upwardly when the base member is placed on a person's shoulder, a holder mounted on the end of the arm to extend laterally therefrom and rotatable about an axis perpendicular to the arm between a first and second position and ap-

paratus for rigidly securing the holder in either the first or second position. A flexible band is looped over a telephone handset positioned in the holder to secure it therein. The holder includes apparatus for alternatively tightening or loosening the band loop to enable insertion and removal of a telephone handset. Rotating the holder to and securing it in the first position enables use of the support on a person's left shoulder whereas rotating the holder to and securing it in the second position enables use of the support on a person's right shoulder.

3,830,988

NOISE CANCELING TRANSMITTER

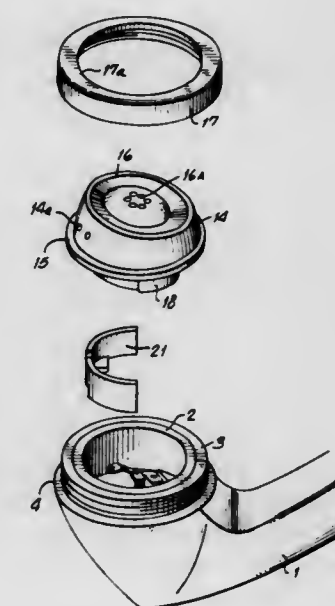
Hans Cornelis Mol, Wilton, Conn.; Ranjit Biswas, East Orange, N.J., and Bernard Frank Klock, Brooklyn, N.Y., assignors to Roanwell Corporation, New York, N.Y.

Filed Dec. 21, 1972, Ser. No. 317,241

Int. Cl. H04m 1/19

U.S. Cl. 179—187

10 Claims



A noise canceling transmitter including a directionally sensitive microphone asymmetrical with respect to a mounting flange adapted to engage a supporting surface and insertable in a telephone handset as a replacement for a directionally insensitive conventional transmitter symmetrical with respect to said supporting surface. The transmitter assembly of the invention includes an annular contact and a central contact which engages two spring contacts within the handset, regardless of the orientation of the transmitter assembly. Orientation control means are provided to limit relative rotation of the replacement assembly with respect to the handset casing so as to maintain it within a predetermined range of orientation, where its noise cancelling characteristic is effective. A retainer ring holds the mounting flange in place on the handset casing. The ring is threadably engaged with the casing.

3,830,989

COMPOSITE CONDUCTOR FOR SLIDING CURRENT COLLECTORS

Daniel Laurent, Grenoble, France, assignor to Merlin Gerin, Grenoble, France

Filed Feb. 2, 1973, Ser. No. 329,050

Claims priority, application France, Feb. 10, 1972, 72.4590

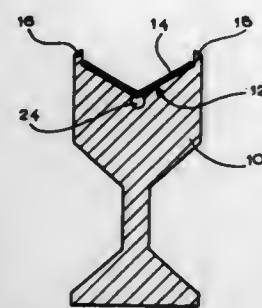
Int. Cl. B60m 1/34

U.S. Cl. 191—29 DM

8 Claims

Composite conductor for sliding contact with high speed contact shoes. The conductor comprises a metal rail of high electrical conductivity including a generally dihedral end face and a V-shaped metal contact strip of low friction wear proof

material having a poorer electrical conductivity. The contact strip engages the coextensive dihedral end surface which has



lateral end flanges bent over the edges of the strip so as to grip the strip and hold the latter firmly against the rail along the whole length thereof.

3,830,990

PANTOGRAPH WEARING STRIP SUPPORT

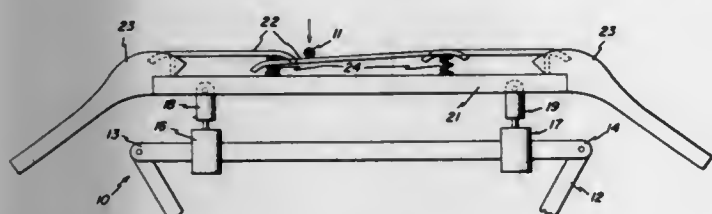
Richard Thurby Gray, Erie, Pa., assignor to General Electric Company, Erie, Pa.

Filed Dec. 20, 1972, Ser. No. 316,913

Int. Cl. B601 5/08

U.S. Cl. 191—55

21 Claims



A pantograph shoe has a plurality of wearing strips each being independently supported by elastic members preloaded against stops to provide a high average force against the contact wire while retaining the desired low spring constant within the working range. The high average force, resulting from a relatively large pre-displacement, counteracts the constant push-up force on the pantograph frame plus the aerodynamic lift of the pantograph plus the dynamic forces due to varying contact wire profile at high speeds. The low spring constant provides for a "soft shoe" which is flexible to the changes in pressure due to variation in the contact wire profile, and it prevents separation that would otherwise occur at high speeds.

3,830,991

PRESSURE SENSITIVE MAT SWITCH CONSTRUCTION

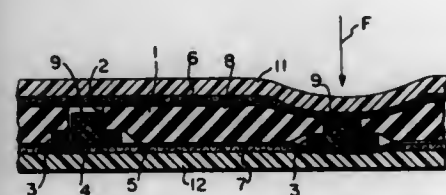
Gideon A. Durocher, Mt. Clemens, Mich., assignor to Essex International Inc., Fort Wayne, Ind.

Filed July 24, 1973, Ser. No. 382,138

Int. Cl. H01h 13/16

U.S. Cl. 200—86 R

17 Claims



A pressure sensitive switch useful in a mat of the kind adapted to operate a door in response to a person's stepping on the mat comprises a switch assembly composed of a pair of sheet-like electrical conductors between which is interposed a sheet of resiliently compressible and expansible non-conductive material such as foamed rubber or plastic having a plurali-

ty of openings therethrough in each of which is accommodated a bridging member operable to establish a conductive path between the two conductors when the latter are moved relatively toward one another in response to the application to the mat of a compressive force. The switch assembly is enclosed within a non-conductive rubber or plastic sheath. Conductive wires connected to the two conductors of the switch assembly extend through the sheath for connection to a source of energy and to the actuating mechanism for the door to be operated.

Means are provided for limiting the compressive force to which said bridging member may be subjected.

3,830,992

MINIMUM OIL INTERRUPTER IN DEAD TANK BULK OIL POWER CIRCUIT BREAKER CONSTRUCTION

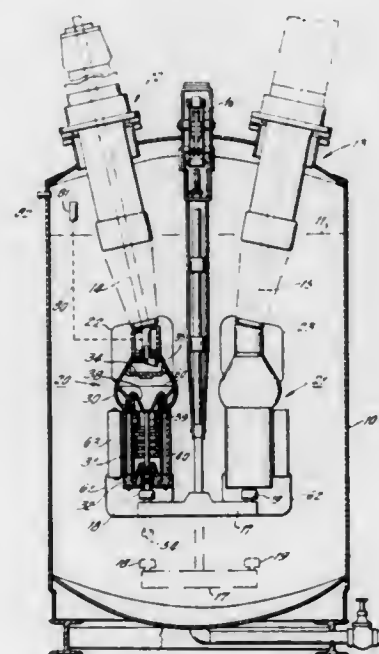
Giovanni Paolo Guaglione, La Canada, Calif., assignor to I-T-E Imperial Corporation, Spring House, Pa.

Filed Dec. 26, 1972, Ser. No. 318,497

Int. Cl. H01h 33/68

U.S. Cl. 200—150 R

7 Claims



A minimum volume oil interrupter is immersed in the oil of a dead tank bulk oil circuit breaker and is operated by the conventional operating mechanism of the bulk oil breaker. The minimum volume interrupter vents to the external atmosphere through a hollow tube in the terminal bushing.

3,830,993

MULTI-CIRCUIT CYCLE TIMER AND MODULAR CONSTRUCTION

Karl J. Schulze-Berge, Manitowoc, Wis., assignor to AMF Incorporated, White Plains, N.Y.

Filed Apr. 4, 1973, Ser. No. 347,656

Int. Cl. H01h 43/10

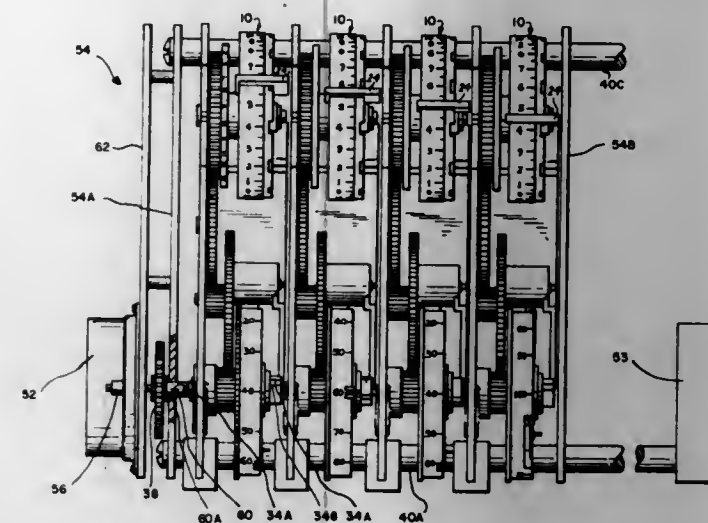
U.S. Cl. 200—35 R

17 Claims

A modular electromechanical timer is provided for initiating a timing cycle at a preselected time and for terminating said cycle at the end of a predetermined period. The timing module generally includes two rotary timing dials one being a 24 hour timing dial for setting the time at which the timing cycle should be initiated and the other being a 2 hour timing dial for setting the duration of the predetermined period. The timing dials are coupled together by a gear train and are driven by a common drive shaft connected to the two hour dial. Each of said timing dials are provided with actuator means thereon for tripping a spring biased pivot lever into or out of engagement with a switch means which initiates or terminates the desired timing cycle.

A plurality of the timing modules of the present invention may be juxtaposed in a modular unit for controlling timing

functions in a plurality of output circuits. The respective modules may be readily removed from the unit and are in-



terchangeable in position. Means are provided to prevent any two timing modules from initiating a timing cycle simultaneously.

3,830,994

DOUBLE BREAK HIGH VOLTAGE DISCONNECT SWITCH

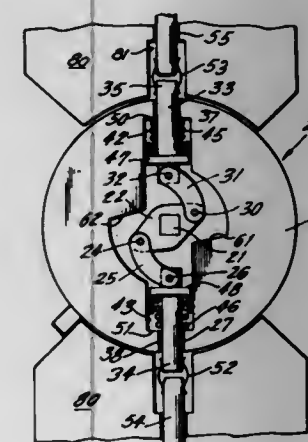
Philip C. Netzel, Milmont Park, Pa., assignor to I-T-E Imperial Corporation, Spring House, Pa.

Filed Sept. 13, 1973, Ser. No. 396,757

Int. Cl. H01h 31/24

U.S. Cl. 200—48 R

7 Claims



High voltage disconnect switchgear having a double break contact operation. The main movable contacts are slidably mounted radially within a rotating insulating carrier. The opening operation first withdraws the main movable contacts into the carrier and then rotates the carrier thereby providing both the double break and the insulating interposition of the carrier between the main movable contacts and the stationary contacts. The main contacts are protected by arcing contacts which make first on closing and break last on opening. The arcing contacts are carried by the rotatable carrier and operate in an arcuate shaped arc chute adjacent the carrier.

3,830,995

CONTROL DEVICE WITH SNAP SWITCH

Sven Borje Fredrik Carlstedt, Stockholm, Sweden, assignor to Sixten Englesson Teknisk Konsult AB, Solna, Sweden, a part interest

Filed Apr. 13, 1970, Ser. No. 27,693

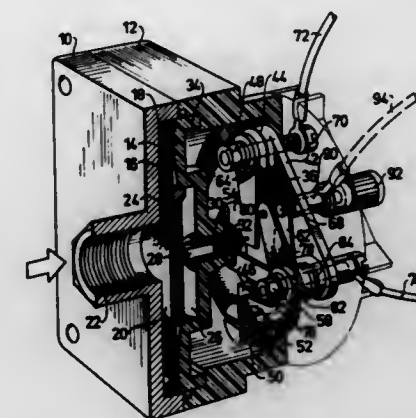
Int. Cl. H01h 21/04

U.S. Cl. 200—67 DA

1 Claim

The invention relates to a control device of the type including a movable impulse member which is responsive to predetermined values and acts against a plate spring member,

and takes one or the other of two positions, said plate spring member, which is kept under tensional stress, having a lever arm at one location and being acted upon by said impulse



member at another location and being devised to impart to said arm a deflection reaching a considerable angle at one position of said impulse member but an insignificant deflection only in the other position of said impulse member.

3,830,996

SUPERIMPOSED MOTION ELECTRO-EROSION ELECTRODE DRIVE

Werner Ullmann, Locarno-Muralto; Arno Sieg; Silvano Mattei, both of Locarno, and Bernd Schumacher, Losone, all of Switzerland, assignors to A.G. fur industrielle Elektronik AGIE Losone b. Locarno, Losone, Switzerland

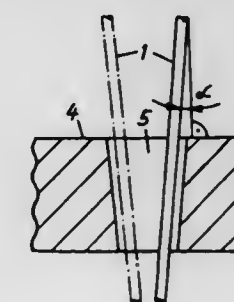
Filed Feb. 4, 1972, Ser. No. 223,420

Claims priority, application Switzerland, Aug. 26, 1971, 12622/71

Int. Cl. B23k 9/16

U.S. Cl. 219—69 V

20 Claims



A wire electrode of an electro-erosive cutting machine is guided along a cutting path in a feed motion. In order to remove material from the work piece, for example to make a V-shaped notch for later welding, the electrode has a cyclical motion, for example circular or elliptical, imparted thereto superimposed upon the feed motion over the cutting path, the cyclical motion being obtained for example by a mechanical linkage drive, by electrical signal-motion transducers and the like, preferably at a rate which is high with respect to the feed motion.

3,830,997

METHOD OF AND DEVICE FOR THE THERMAL WORKING AND PROCESSING OF HIGH-MELTING-POINT MATERIALS

Wilhelmus Gerardus Essers; Gerardus Jelmorini, and Gerrit Willem Tichelaar, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 14, 1972, Ser. No. 288,921

Claims priority, application Netherlands, Sept. 17, 1971, 7112767

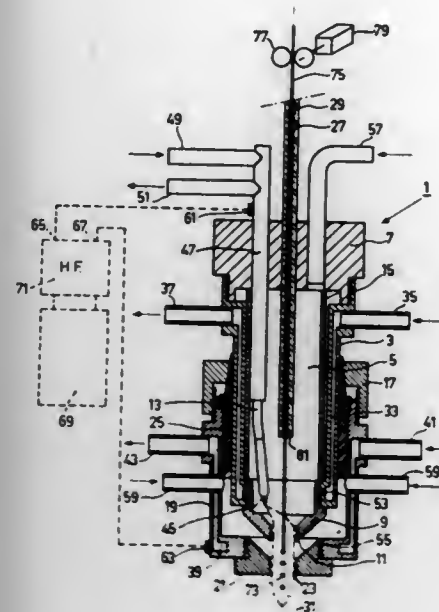
Int. Cl. B23a 9/16

U.S. Cl. 219—76

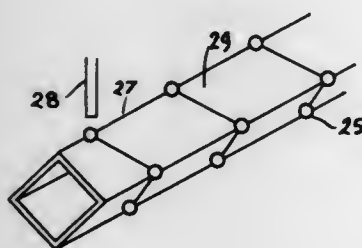
6 Claims

A method and device for the thermal working and processing of high-melting-point materials, in which an elec-

tric arc is maintained in a gas stream between a primary electrode and an annular secondary electrode, and the arc plasma is constricted first by a flow aperture between the two elec-



3,830,998
SINGLE ARC ELECTRIC WELDING WITH MULTIPLE PATHWAYS
Rene D. Colinet, 1525 Earl St., Philadelphia, Pa. 19125
Filed June 5, 1973, Ser. No. 367,232
Int. Cl. B23k 29/00
U.S. Cl. 219-137 1
9 Claims

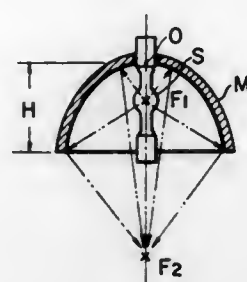


A process of automatic arc welding using a single electric arc of high intensity to weld with a fusible electrode metallic parts along multiple and distinct pathways by successive deposition of individual high-penetration welds distributed over separate pathways.

3,830,999
METHOD OF WELDING, FUSING OR HEATING WORKPIECE UTILIZING ENERGY OF LIGHT
Shuzo Yoshizumi, Takarazuka; Takao Doe, Toyonaka; Takeshi Oku, Kawanishi, and Yoshimitsu Matsumoto, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Nov. 7, 1972, Ser. No. 304,468
Claims priority, application Japan, Nov. 10, 1971, 46-90188
Int. Cl. B23k 9/00
U.S. Cl. 219-137 2
2 Claims

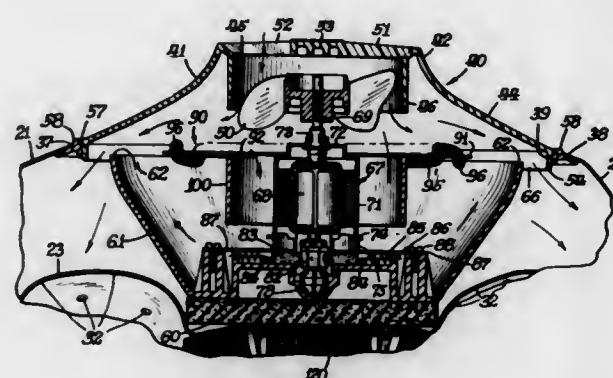
A method of welding, fusing or heating a workpiece by concentrating light emitted from an arc lamp as a heat source by

an elliptical reflector in which the ratio between the second and first focal lengths of the reflecting mirror is selected to be



smaller than eight and the depth of the reflector is selected to be greater than the first focal length.

3,831,000
PORTABLE HAIR DRYER
Robert S. Waters, Oakbrook, Ill., and Ronald R. Liedtke, Redondo Beach, Calif., assignors to Sunbeam Corporation, Chicago, Ill.
Division of Ser. No. 127,666, March 24, 1971, Pat. No. 3,727,321. This application Dec. 15, 1972, Ser. No. 315,530
Int. Cl. H05b 3/00; A45d 20/38; F24h 3/04
U.S. Cl. 219-368 9 Claims

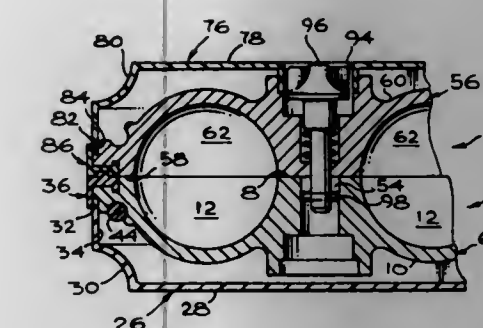
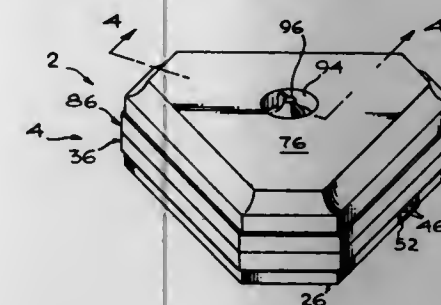


A motor driven blower for use in supplying heated air to a flexible, double walled hat having provisions to support the motor driven blower centrally on the bonnet as it is worn on the head of the user. The motor driven blower is made up of two cup-shaped housing portions which enclose a motor driven fan and heater which draws air into the housing, heats it and discharges it from an annular opening formed by the spaced walls of the two housing portions.

3,831,001
GOLF BALL HEATING DEVICE
Thomas H. Toomey, P.O. Box 686, Lake San Marcos, Calif. 92069, and Robert S. Goodrich, 27901 S. Golden Meadow Dr., Palos Verdes Peninsula, Calif. 90274
Filed Aug. 17, 1973, Ser. No. 389,257
Int. Cl. F27d 11/02
U.S. Cl. 219-386 7 Claims

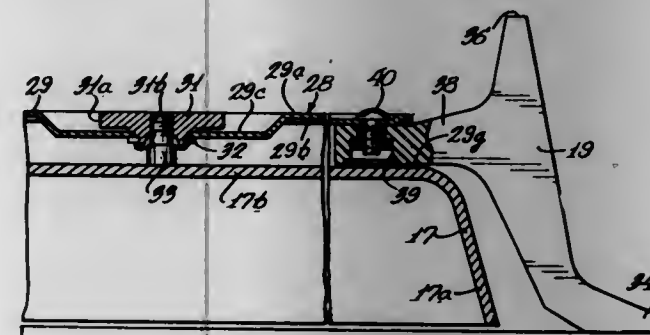
A relatively separable, bipartite golf ball heating device is provided having confronting upper and lower sections. Each section includes: (a) a heat conductive tray having a plurality of hemispherically shaped receptacles, (b) a closure overlying the back side of the tray in spaced relationship to the receptacle with the end of the closure in abutment with the underside of the outer peripheral portion of the tray and (c) an insulative band overlying the peripheral portion of the tray and insulatively engaging the closure. The insulating bands of the upper and lower sections are provided with cooperatively engaging insulating means such as a tongue and groove combination. This cooperative combination also aligns the sections during the assembly thereof whereby corresponding receptacles of the upper and lower sections are brought into golf ball encap-

ulating alignment. Means, such as an electrical resistance heating element, are disposed about the back side of one of the heat conductive trays for directly heating such tray; and



means, such as a spring biased, push button key and lock slot combination are provided for removably securing the upper and lower sections.

3,831,002
FRYPAN WITH REMOVABLE HANDLES AND HEAT SHIELD
James C. Mysicka, Berwyn, and William L. Lockett, Downers Grove, both of Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Filed May 21, 1973, Ser. No. 362,041
Int. Cl. F27d 11/02
U.S. Cl. 219-432 14 Claims

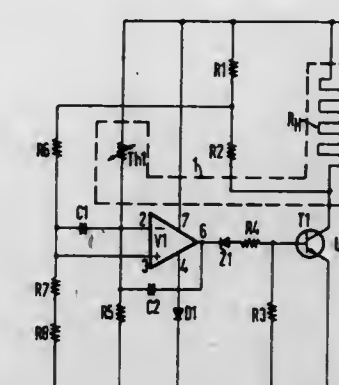


An electric frying pan having handles and a shield for the bottom surface of the frypan detachably secured to the vessel portion of the frypan. In one embodiment the handles and shield are detachable as a unitary assembly. An alternative embodiment provides for the detachment of the shield and handles separately.

3,831,003
CIRCUIT ARRANGEMENT FOR THE STEADY TEMPERATURE CONTROL
Hans-Joachim Foerster, Taufkirchen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany
Filed Mar. 8, 1973, Ser. No. 339,096
Claims priority, application Germany, Mar. 10, 1972, 2211759; Feb. 5, 1973, 2305510
Int. Cl. H05b 1/02
U.S. Cl. 219-499 10 Claims

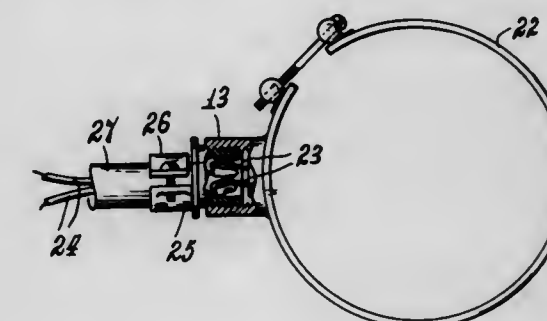
A circuit arrangement for effecting a uniform temperature control, utilizing a resistance bridge having a temperature-de-

pendent resistance as a temperature sensor and an operational amplifier in whose output circuit a heating resistance is disposed, the two difference inputs of the operational amplifier being connected in the zero branch of the resistance bridge, and the heating resistance being operatively connected to the output of the operational amplifier by a transistor, circuited



for common-emitter operation, the heating resistance being connected to the collector electrode of the transistor, a voltage divider being connected in parallel with the heating resistance, with a part of the resistance of such voltage divider being disposed in a branch of the resistance bridge, and the resistance values of the respective bridge branches or legs, at the normal operating temperature, being substantially equal.

3,831,004
ELECTRIC HEATER
Ray Wallstrom, Hoffman Estates, Ill., assignor to Fast Heat Element Manufacturing Co., Inc., Chicago, Ill.
Filed July 27, 1973, Ser. No. 383,453
Int. Cl. H05b 3/58
U.S. Cl. 219-535 4 Claims



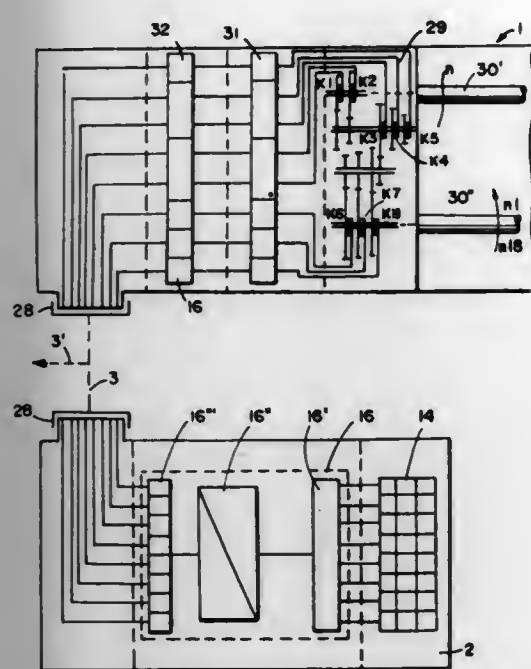
A cartridge or band heater having an internally threaded bushing secured thereof affording a secure mounting for electric wires or a conduit containing such wires.

ERRATUM
For Class 235-61 see:
Patent No. 3,831,119

3,831,005
TEXTILE MACHINE
Heinz Schippers; Karl H. Bauer; Gerhard Martens, all of Remscheid, and Karl-Werner Frolich, Wuppertal-Langerfeld, all of Germany, assignors to Barmag Barmer Maschin-fabrik Aktiengesellschaft, Wuppertal, Germany
Filed Mar. 1, 1972, Ser. No. 230,906
Claims priority, application Germany, Mar. 4, 1971, 2110348
Int. Cl. D01h 13/00
U.S. Cl. 235-61.6 R 4 Claims

A textile machine with switchable multistage gearing for the adjustment of the turning speed ratio between rotating parts of

the textile machine, such as drives, spindles, delivery members, stretching members, and the like, having a control system for switching the respective couplings of the multistage gearing upon a command from a decimal feed-in means having



3,831,006

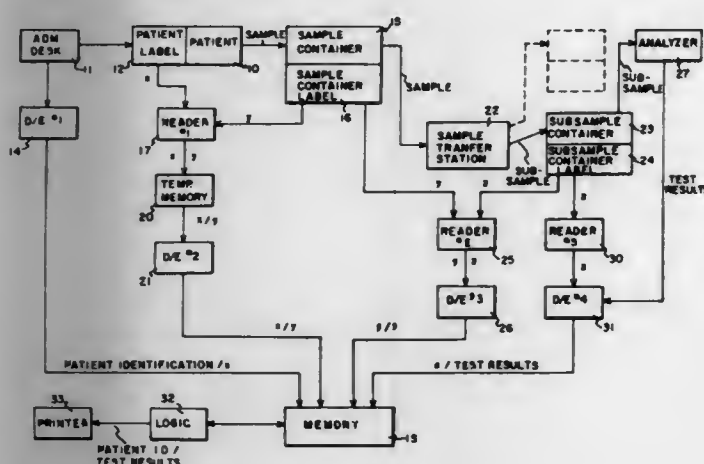
PATIENT-SPECIMEN IDENTIFICATION SYSTEM USING STORED ASSOCIATED NUMBERS

John H. Chaffin, III, Minnetonka; William D. Ellis, Bloomington; Herbert E. Heist, Excelsior, and Wayne L. Walters, Bloomington, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 19, 1973, Ser. No. 324,931
Int. Cl. G06k 17/00; G09f 3/00

U.S. Cl. 235—61.7 R

27 Claims



A patient-specimen identification system provides error-free identification of a specimen or sample from the time it is taken from a patient to the time when the results of the sample analysis are reported. Machine-readable labels are attached to the patient and to each container in which a sample or sub-sample may be contained. The machine-readable labels each contain a permanently encoded unique random number. When a sample is taken from the patient, the labels attached to the patient and the sample container are read and the two numbers are stored in an associated manner. Similarly, when portions of the sample are transferred to sub-sample containers, labels attached to the sample container and the sub-sample container are read and the two numbers are stored in

an associated manner. The sub-samples are analyzed and the analysis results are associated with the number on the sub-sample container label. The analysis results are then correlated to the patient's identity and the analysis results and patient's identity are printed out in an associated manner.

3,831,007

NON-REPRODUCIBLE DOCUMENT

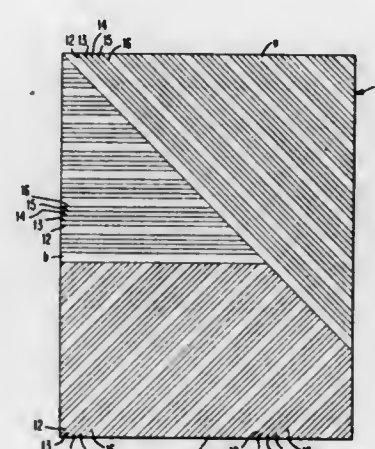
Joerg P. Braun, Mount Airy, Md., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 21, 1973, Ser. No. 343,597

Int. Cl. G06k 7/10; G01n 21/30

U.S. Cl. 235—61.11 E

5 Claims



Illegal or unauthorized reproduction of copyrighted or classified indicia is precluded by imprinting such indicia on a document having a special preprinted background. This background comprises a plurality of groups of lines, the lines of each group being parallel to each other and having a predetermined spacing to form a series of light and dark areas in a repetitive delta-distance code pattern; however, the lines of each group are nonparallel to the lines of adjacent other groups.

If this code pattern is detected during movement of a sensing means translationally relative to the document during photocopying by a convenience office copier, appropriate circuitry responds to shut down the copier. The nonparallel groups of lines assure that shutdown will occur irrespective of the manner in which the document is oriented relative to the sensing means during the aforesaid translational movement.

3,831,008

ELECTRICAL INFORMATION RECOGNITION AND RETRIEVAL

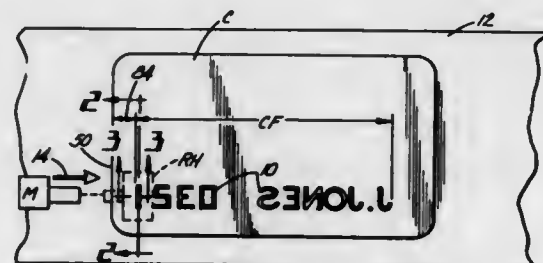
Randolph F. Bradshaw, Willoughby, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed Feb. 14, 1973, Ser. No. 332,478

Int. Cl. G06k 7/08

U.S. Cl. 235—61.11 H

19 Claims



Apparatus and method for reading an information carrying member, such as an embossed credit card or the like, wherein information is defined on one side of the member by surface level transitions from a reference level. An electric potential is established on the one side, as by an electric surface charge.

An electrically conductive probe scans a path over the one side such that a characteristic current is caused to flow in the probe as it traverses past a surface level transition. The characteristic current is binary in that it exhibits first and second binary levels as the probe respectively traverses past surface level transitions in a first direction and a second direction relative to the probe. The binary levels of the characteristic current are utilized for providing an output as to the information represented by the surface level transitions.

3,831,009

TIMING SYSTEM FOR OPTICALLY SCANNED DOCUMENTS

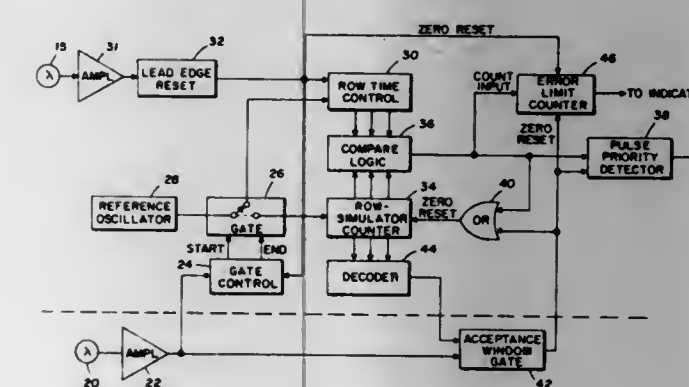
John V. McMillin, Iowa City, Iowa, assignor to Westinghouse Learning Corporation, Iowa City, Iowa

Filed Aug. 3, 1973, Ser. No. 385,393

Int. Cl. G06k 7/016; G08c 9/06

U.S. Cl. 235—61.11 E

11 Claims



A system for use in document readers of the type in which manually-entered responses in predetermined data response areas on a document are optically scanned or read electronically as the document is conveyed at high speed. The data response areas are arranged in regularly spaced rows, and the timing of the scanning of each data row is usually controlled solely by preprinted regularly-spaced indicator marks along an edge of each document. The system of the invention measures the time interval between the initial indicator marks by counting timed pulses at a predetermined rate and these pulses are then used as a reference to control scanning of the data rows in the event that the timing indicator marks fail to produce the necessary signals to control the scanning of the data rows. The system also provides for continuous synchronizing of the timed pulses with those produced directly from the indicator marks.

3,831,010

AREA NAVIGATION COMPUTER

John E. Games, Granby; Clarence Casper, Jr., Windsor, and Bertram F. Kupersmith, Bloomfield, all of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed June 4, 1973, Ser. No. 367,070

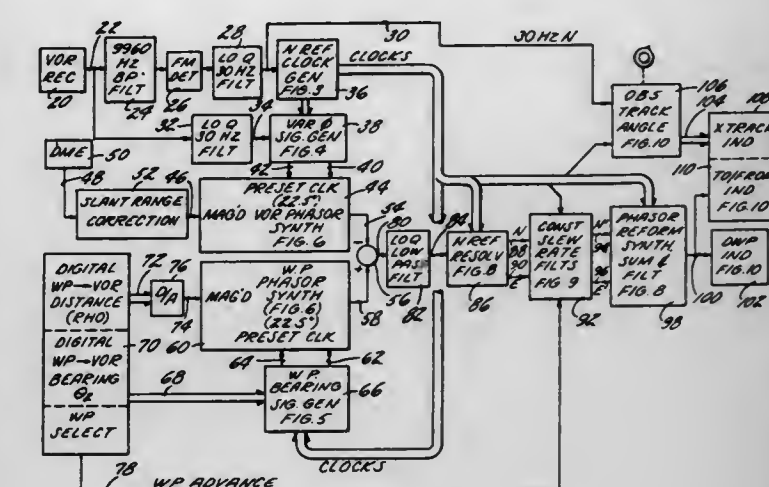
Int. Cl. G06f 15/50

U.S. Cl. 235—150.27

4 Claims

Digital signals relating to the north reference and variable phase components of the output of the VOR receiver are used along with slant range corrected output of distance measuring equipment to generate a synthetic, stepped sinewave representing the phasor from the VOR ground station to the aircraft. Stored digital waypoint distance (Rho) and bearing are combined with north reference signals to generate a synthetic, stepped sinewave representing the phasor of the VOR to a selected waypoint. The aircraft phasor is subtracted from the waypoint phasor and the resultant passed through a low pass filter, thereby providing a sinewave, the amplitude of which represents the distance from the aircraft to the waypoint and the phase of which represents the bearing of the aircraft track to the waypoint with respect to north, which comprises the phasor, or vector, to the waypoint. This phasor

is resolved into X and Y components (arbitrarily with respect to north) each component then being constant slew rate filtered, and, with north reference signals, synthetic phasors are recreated, summed and filtered so as to provide a slew rate filtered



tered phasor representing the vector from the aircraft to the waypoint, the magnitude of which is used to drive a distance to waypoint indicator, the phasor being combined with OBS track angle information to provide cross track error and to/from indications.

3,831,011

METHOD AND APPARATUS FOR COMPENSATING A MANIFESTATION OF FLUID FLOW FOR TEMPERATURE AND SPECIFIC GRAVITY

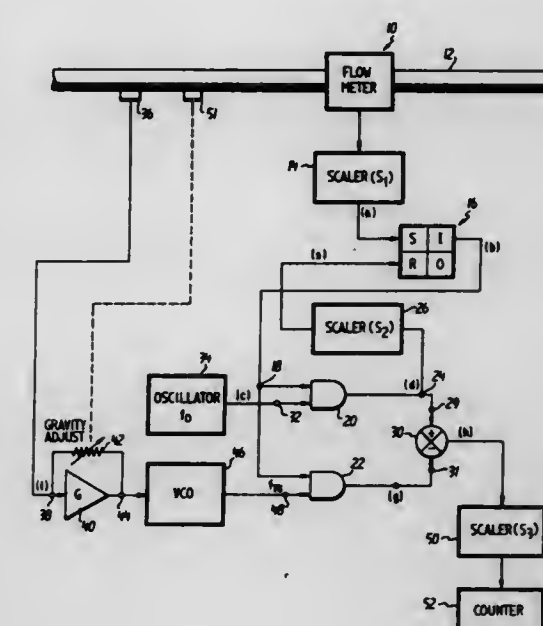
Jack R. Hulme, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Feb. 28, 1973, Ser. No. 336,757

Int. Cl. G06f 15/46; G01f 1/08

U.S. Cl. 235—151.34

11 Claims



A method and digital apparatus for correcting a manifestation of fluid flow for variations in the temperature of the fluid and for the specific gravity of the fluid to produce an indication of the volume of the fluid corrected to a predetermined temperature. A digital signal representing the sensed temperature is modified as a function of the specific gravity of the fluid and thereafter subtracted from a predetermined digital signal during a series of time intervals each commenced responsively to a unit of flow.

3,831,012

NORMALIZE SHIFT COUNT NETWORK

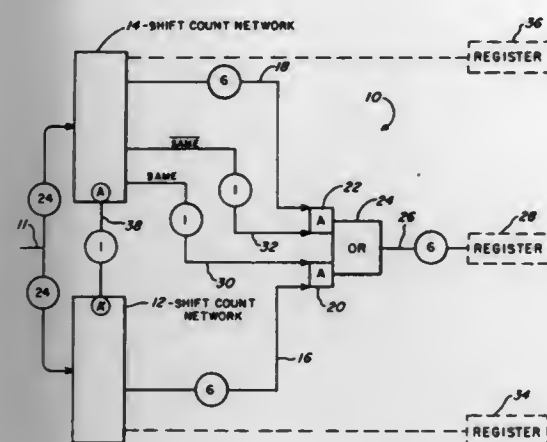
Donald P. Tate, St. Paul, and Daniel J. Desmonds, Roseville, both of Minn., assignors to Control Data Corporation, Minneapolis, Minn.

Filed Mar. 28, 1973, Ser. No. 345,613

Int. Cl. G06f 7/38

U.S. Cl. 235—164

4 Claims



In a digital computer, a normalize shift count network is provided which operates on either positive or negative operands stored in a register. The shift count network operates in either a regular mode or a double operand mode where each of the two operands is one-half the regular width operand to produce as a result operand or operands the number of register positions the input operand or operands must be shifted in order to produce normalized operands.

Initially the operand is examined by a rank of Exclusive OR circuits arranged so that, generally, each bit of the operand forms one input to two adjacent exclusive OR circuits and so that each exclusive OR circuit, in turn, receives its two independent input quantities from adjacent bits of the operand. The upper bit of the operand is the sign bit and forms one input to a first exclusive OR circuit. The sign bit also forms one input into a second exclusive OR circuit which has as its other input the first significant bit of the operand. The exclusive OR circuits determine where the first significant bit of the operand is located by the comparison of the first bit of the numerical portion of the operand with the sign bit and by subsequent comparison of each bit with the preceding bit. The shift count for this first significant bit is decoded by examining the outputs of the exclusive OR circuits in a plurality of independent predetermined groups to independently define the individual bit values in a binary number expressing their required shift count for normalization.

3,831,013

CORRELATORS USING SHIFT REGISTERS

James M. Alsup, and Harper John Whitehouse, both of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 20, 1973, Ser. No. 333,608

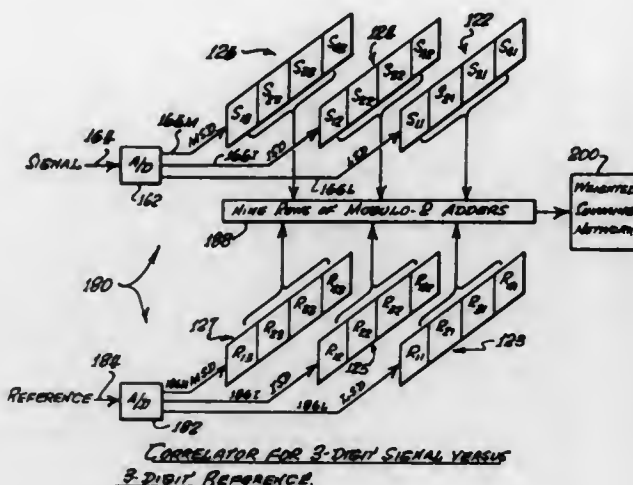
Int. Cl. G06g 7/19

U.S. Cl. 235—181

5 Claims

A correlator comprising a plurality of sets of multivibrators, each set being serially connected to form a shift register, each multivibrator having a set and a reset output lead, indicating its binary state. The plurality of shift registers comprise a J number of signal shift registers and, in the simplest embodiment, one reference shift register. Each multivibrator is connectable to a clocking source for shifting the states of the multivibrators. One of the multivibrators of each set, at one end of the series, the input multivibrator, is connectable to a source of signals, generally bilevel signals or pulses, each pulse having a predetermined time duration or a multiple thereof. The binary states of the multivibrators of the reference shift register, whether stationary or shifting with the incoming stream of bits, may be added to the binary states of corresponding mul-

tivibrators of the signal shift registers. Means are operatively connected to the output leads of corresponding multivibrators for summing the outputs of the multivibrators for each shift of binary states, the sum being a maximum for a particular combination, or coding, of binary states of the multivibrators of the shift registers. The means may comprise a plurality of



modulo-2 adders, one for each of the multivibrators of the signal shift registers, and the same number of output resistors. The specific combination of connections are chosen in a manner so that, with applied input signals to the input multivibrators, a particular combination of binary states of the multivibrators will result in a maximum total output signal.

3,831,014

ANALOG COMPUTER CIRCUIT FOR PERFORMING MULTIPLICATION, DIVISION AND SQUARE ROOT

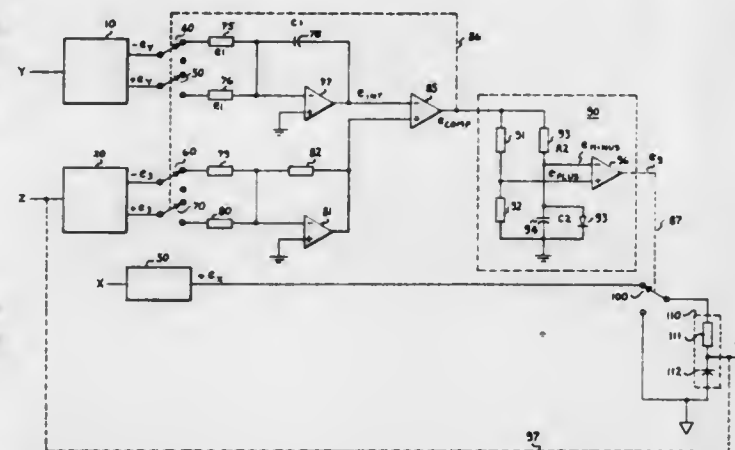
William R. Haid, Georgetown, Mass., assignor to Bailey Meter Company, Wickliffe, Ohio

Filed Feb. 2, 1973, Ser. No. 328,911

Int. Cl. G06j 7/16, 7/20

U.S. Cl. 235—195

12 Claims



A first positive voltage and a first negative voltage, each having an amplitude that is proportional to a first variable, Y, are alternately integrated by an integrating amplifier to generate a triangular wave signal. The maximum and minimum amplitude of the triangular wave are constrained to equal the magnitude of a voltage proportional to a second variable Z. Under these conditions, the frequency of the triangular wave signal is proportional to Y/Z. Once during each cycle of the triangular wave signal, a second integrating circuit is driven with a pulse having a fixed time duration and an amplitude proportional to a third variable X. The output of the second integrating circuit is a voltage proportional to XY/Z.

3,831,015

SYSTEM FOR GENERATING A MULTIPLICITY OF FREQUENCIES FROM A SINGLE REFERENCE FREQUENCY

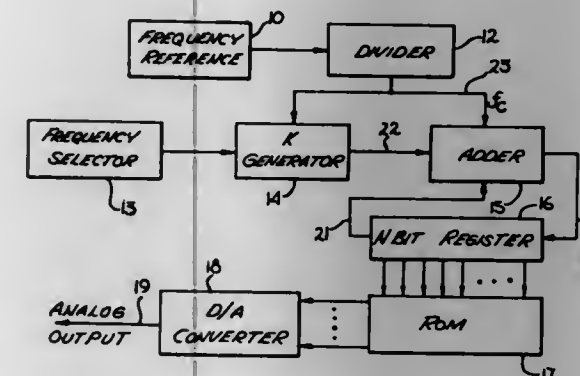
Marcian E. Hoff, Jr., Mountain View, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed June 8, 1972, Ser. No. 261,054

Int. Cl. G06f 15/34

U.S. Cl. 235—197

6 Claims



A digital system which enables the generation of frequencies, including frequencies which are not submultiples of a reference frequency is disclosed. A predetermined number K is periodically added at the rate of $1/c$ to the contents of an N bit register which is permitted to overflow when its content exceeds its capacity. Any frequency equal to $Kf_c/2^N$ may be generated by the system.

3,831,016

FUNCTION INTERPOLATOR

Amos Nathan, 11, Habrosim Ave., Haifa, 34483, Israel

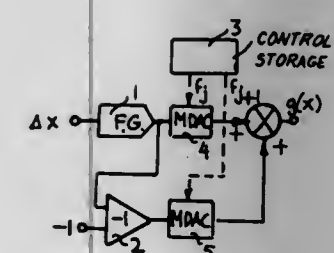
Filed July 5, 1972, Ser. No. 269,258

Claims priority, application Great Britain, July 7, 1971, 31851/71

Int. Cl. G06g 7/26

U.S. Cl. 235—197

19 Claims



Methods and apparatus are disclosed for producing an output signal by interpolation from a finite plurality of samples representing values of a function at sample points thereof. The output signal is produced as the sum of reconstruction functions having similar shape, one each associated with each sample point and so chosen as to ensure a frequency spectrum that is substantially band-limited and an output signal that is substantially continuous when the samples are updated and to produce a constant output signal when the accepted samples are all equal.

3,831,017

SELECTOR TURRET FOR FIBER OPTIC CABLES

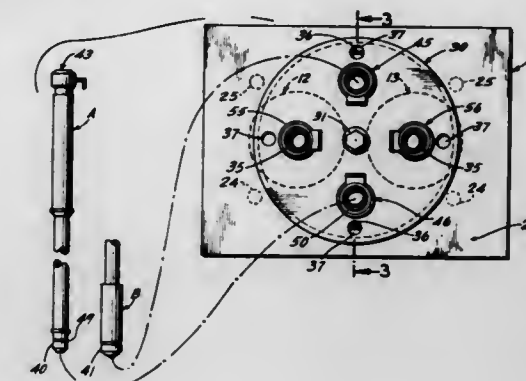
William F. Auer, Des Plaines, Ill., assignor to Willmark Products Company, Des Plaines, Ill.

Filed Sept. 5, 1972, Ser. No. 286,329

Int. Cl. F21v 33/00

U.S. Cl. 240—2 R

7 Claims



Fiber optic cables having physically different receptor ends may be alternately related to a lamp by moving a selector having receptacles configured to accept the different receptor ends.

3,831,018

MULTI-PURPOSE VEHICLE LAMP HAVING SIDE LIGHT EMITTING LENS

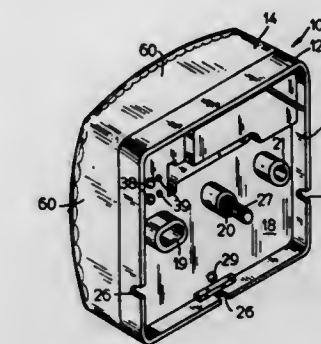
Bernard R. Weber, Elm Grove, Wis., assignor to Wesbar Corporation, West Bend, Wis.

Filed June 21, 1973, Ser. No. 372,026

Int. Cl. B60g 1/32; H01r 9/06, 11/20

U.S. Cl. 240—8.2

8 Claims



A vehicle lamp is provided which is usable as a side marker, clearance, combination side marker and clearance lamp, or identification lamp on a vehicle such as a trailer. The lamp is adapted to be mounted, depending on its use, at the side, front or rear of the vehicle or at a corner position 45° to the longitudinal centerline of the vehicle. The lamp comprises a base for connection to the vehicle (or a suitable support thereon), a four-sided translucent lens cover releasably engageable by snap-on connector means to the base, said lens being adapted to emit light from the end thereof as well as from all four sides, a bulb for disposition between the base and the lens cover, and bulb support means on the base for mounting the bulb with its base extending upwardly and on a slight angle so that sufficient light is emitted from all sides of the lens cover.

3,831,019

CEILING MODULES WITH LAMP HOUSINGS

Thomas C. Halfaker, St. Louis, and Leo G. Stahlhut, Kirkwood, both of Mo., assignors to Emerson Electric Co., St. Louis County, Mo.

Filed Jan. 23, 1973, Ser. No. 326,061

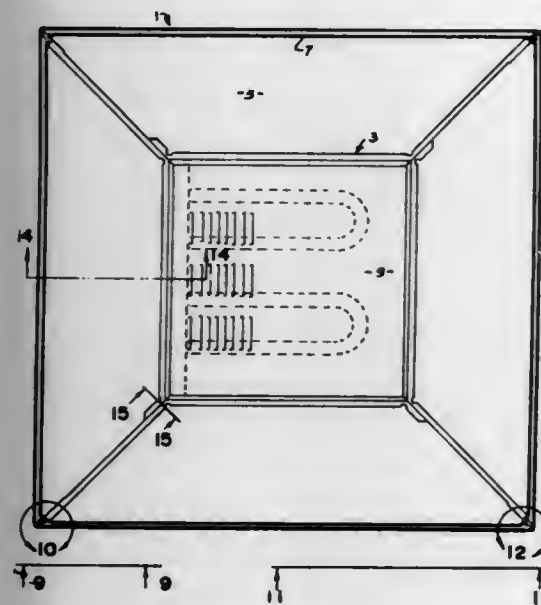
Int. Cl. F21v 21/02; E04b 5/52

U.S. Cl. 240—9 R

21 Claims

A ceiling module formed of four trapezoidal panels, each convergent edge of each of the panels being contiguous a con-

vergent edge of another panel, the long bases of the panels lying in a common plane and the short bases of the panels defining an open seat. The panels and an electric light source are supported by a framework consisting of four sheet metal beams secured together face to face. Each of the beams includes an outwardly turned spine part extending from a corner of the open seat to an outside corner of the module, a lamp housing part extending along a side of the open seat and an at-



tachment part extending outwardly along a line of contiguity between adjacent panels and secured to the spine part of an adjacent beam. A cover is mounted on the upper edges of the lamp housing. A lighting panel is mounted in the open seat by four parallel spring-loaded pins at the corners of the lighting panel. A lighting source is mounted in the lamp housing above the lighting panel. A trim rail around the periphery of the module is provided with inwardly turned ears which are secured to the spine to stiffen the spines.

3,831,020

SIMULATED BEAM LIGHT FIXTURE

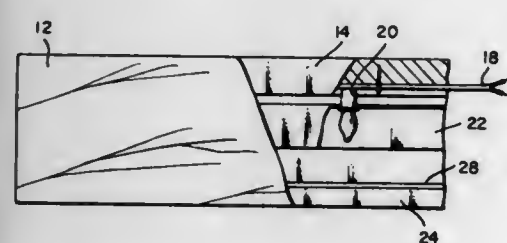
Ralph E. Paulson, 14802 Grevillea St., Lawndale, Calif. 90260

Filed Apr. 9, 1973, Ser. No. 349,011

Int. Cl. F21v 21/02

U.S. Cl. 240—10 R

6 Claims

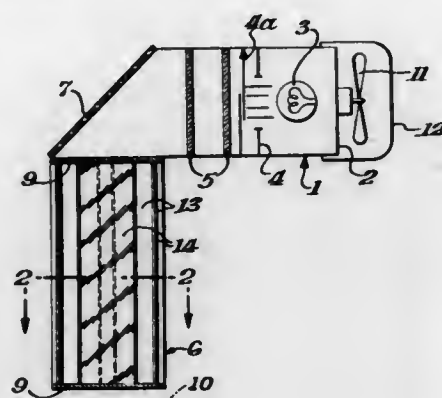


A simulated beam light fixture having all of the outward appearances of a wooden beam for mounting in a room as a beam. A pair of parallel spaced-apart decorative wood panels is held in a spaced-apart relationship by an internal bracket. A plurality of light fixtures are mounted preferably on both sides of said bracket for directing light in both an upward and downward direction from between the panels. Removable lenses are adapted to be located between opposing panels on both the upper and lower edges. The outside faces of the panels are preferably sandblasted to enhance the appearance of the wood grain. Different colored lenses are available depending on the moods of the user.

3,831,021
ILLUMINATING DEVICE, PARTICULARLY FOR
PHOTOGRAPHIC ENLARGING APPARATUS
Leopold Muhlogger, Brixen, Italy, assignor to Durst A.G.
Fabrik Fototechnischer Apparate, Bolzano-Bozen, Italy
Filed June 4, 1973, Ser. No. 366,406
Claims priority, application Italy, June 9, 1972, 25444/72
Int. Cl. F21m 1/00

U.S. Cl. 240—41 R

14 Claims



An illuminating device, particularly for a photographic enlarger and having a continuously variable intensity, includes a first mirrored shaft or casing connected at right angles to a second mirrored shaft (having a variable cross-section) by a cold light reflector which allows the infrared light components to pass through it. The first mirrored shaft has a continuously variable diaphragm and a shutter for controlling the amount of light transmitted to the second mirrored shaft. Diffusers and filters are inserted in the shafts for varying the quality of the light. The cross-sectional area of the second shaft is changed by varying the magnitude of engagement between angle corners and flat mirrored sides.

3,831,022

COLLAPSIBLE CHANDELIER

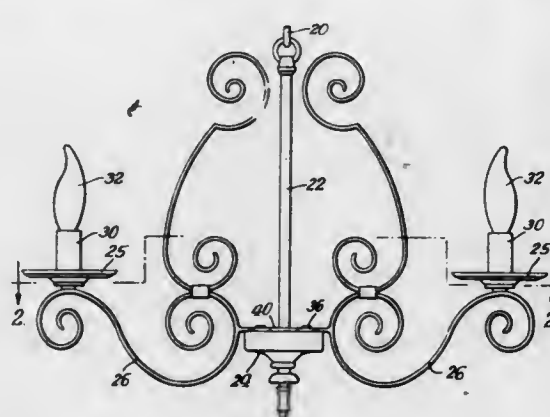
David H. Porter, and Douglas R. Bray, both of Fort Atkinson, Wis., assignors to Thomas Industries, Inc., Ft. Atkinson, Wis.

Filed Aug. 14, 1972, Ser. No. 280,251

Int. Cl. F21v 21/00

U.S. Cl. 240—78 F

11 Claims



This invention provides a prewired chandelier having a supporting stem with radially extended arms which arms are permanently hinged to the stem to permit them to be folded into a more compact form without disturbing the prewiring which extends through the stem, the hinged connections and the arms. In the preferred form of the invention the hinges are disposed with vertical axes parallel to each other and to the supporting stem, and the arms are foldable from their radial positions to positions where they are substantially parallel to each other, that is, in planes substantially parallel to a plane, passing through the vertical axis of the stem. The arms being permanently hinged do not allow any substantial stress

upon the prewired conductors beyond flexing sufficiently to allow the arms to swing from folded to unfolded position and vice versa. The chandelier in folded condition requires less space and packing for shipment. The invention employs a simple but effective locking means for rigidly holding the lamp arms in their radial positions. This locking means may be disengaged by a very simple operation to release the lamp arms for folding to their collapsed or folded form. It appears to be broadly new the present invention to fold the arms of a prewired chandelier, on permanent hinges, to reduce the space required for shipment or storage while at the same time maintaining continuously, in both folded and unfolded condition, functional mechanical hinge and electric flexible connections whereby the folded or collapsed condition of the chandelier may be converted with minimum effort into the completely expanded and electrically connected chandelier ready be installed. In brief, the mechanical and electrical connections are maintained in folded as well as expanded condition and through all intermediate positions.

3,831,023

ILLUMINATING DEVICE

Moody L. Coffman, 1832 N.W. 17th St., Oklahoma City, Okla. 73106

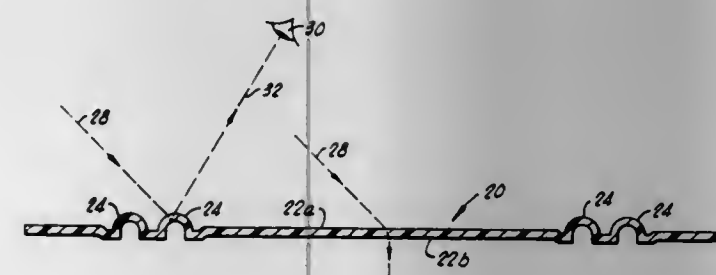
Continuation of Ser. No. 65,473, Aug. 20, 1970, abandoned.

This application Nov. 30, 1972, Ser. No. 310,883

Int. Cl. F21v 13/04; G09f 13/00

U.S. Cl. 240—106 R

5 Claims



A device for directing light in a predetermined pattern, and including a light conductive medium bounded by two non-parallel surfaces arranged with respect to a light source and with respect to each other so that light rays impinging upon the medium from a less optically dense medium are partially refracted at the first of the surfaces, and the refracted rays are then totally reflected at the second surface, and pass back through the surface-bounded medium to be partially refracted at the second surface and directed thereby toward an object to be illuminated. In one form of the invention, a plurality of regions of the surface-bounded, light conductive media are provided in a predetermined geometrical arrangement to provide a sign or indicia carrying device in which letters or characters appear to glow or shine in contrast to surrounding portions of the sign or indicia carrying device.

3,831,024

POSITION SENSING APPARATUS

Raymond E. Gill, and Floyd J. McMahon, both of Peoria, Ill., assignors to Westinghouse Air Brake Company, Pittsburgh, Pa.

Division of Ser. No. 160,741, July 8, 1971, Pat. No. 3,743,026.

This application Aug. 4, 1972, Ser. No. 277,947

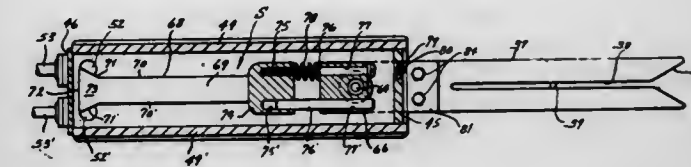
Int. Cl. G01d 5/34

U.S. Cl. 250—229

3 Claims

A position sensing apparatus mounted on the cutting tool of a surface finishing machine for automatically adjusting the height of said cutting tool; said apparatus having a feeler arm adapted to ride over a reference string being preset at a desired height, and a switch control arm disposed within a dust proof housing and coupled to said feeler arm for opening and closing a photoelectric cell switch within said housing. The cutting tool is raised and lowered by an elevator mechanism,

such as a fluid responsive cylinder, of the double-acting type, or hydraulic motor arrangement, which is in communication



with an electro-hydraulic valve and operates responsive to the movement of said switch control arm to maintain the height of the cutting tool at the desired level above the ground surface.

3,831,025

ION SOURCE FOR PROVIDING A SUPPLY OF CHARGED PARTICLES HAVING A CONTROLLED KINETIC ENERGY DISTRIBUTION

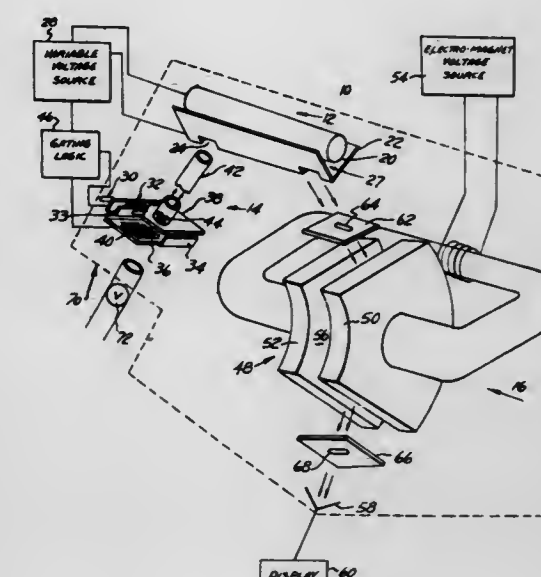
William C. Wiley, Conshohocken, Pa., and John P. Carrico, Royal Oak, Mich., assignors to The Bendix Corporation, Southfield, Mich.

Filed Feb. 28, 1972, Ser. No. 229,816

Int. Cl. H01j 39/34

U.S. Cl. 250—292

2 Claims



An ion source device that includes apparatus for pulse injecting ions into a field-free drift region where those ions separate according to their velocities or kinetic energies. A cyclically varying electric field is established at the end of the field-free drift region. Each charged particle enters the electric field at a time determined by its velocity and interacts with the field in a manner dependent upon the phase of the field upon receipt of that particle. The cyclically varying electric field decreases the velocity distribution for particles received during the first half of a cycle, and increases the distribution for particles received during the second half of a cycle. Mass analyzing apparatus is disposed to receive and measure the concentrations of species of charged particles expelled from the cyclically varying field. The output provided by the mass analyzing apparatus also facilitates variation of the cyclically varying electric field to provide a particular species with a desired velocity or kinetic energy distribution.

3,831,026

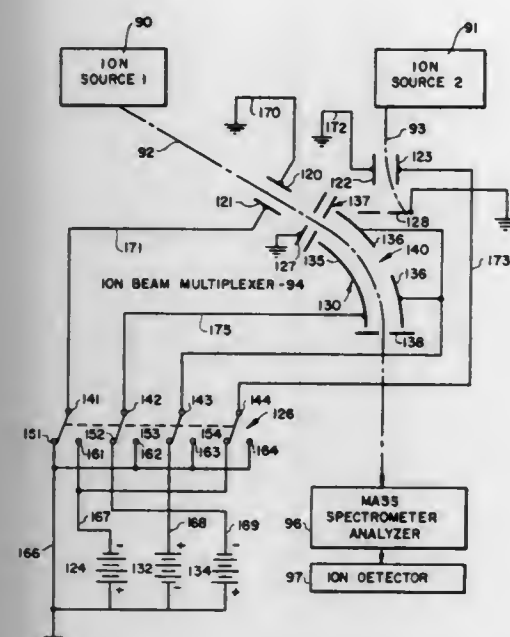
PLURAL BEAM MASS SPECTROMETER AND METHOD OF CONDUCTING PLURAL BEAM STUDIES

Patrick Powers, Cheadle, Hulme, Cheshire, England
Continuation-in-part of Ser. No. 112,716, Feb. 4, 1971, abandoned, which is a continuation-in-part of Ser. No. 638,133, May 12, 1966, Pat. No. 3,573,453. This application June 1, 1972, Ser. No. 258,793
Claims priority, application Great Britain, Aug. 20, 1970, 41519/70

Int. Cl. H01j 39/34

U.S. Cl. 250—296

24 Claims



Plural ion beams emanating from one or more ion sources are conducted in multiplexed fashion through the magnetic analyzer of a mass spectrometer toward one or more collectors. In one embodiment, the beams traverse spaced paths and are received by separate collectors. In another embodiment, the beams are time division multiplexed along a common path and received by a single collector. The magnetic analyzer may be scanned during operation to simultaneously provide spectra for each of the beams and the mass spectral range of the beams compared.

3,831,027

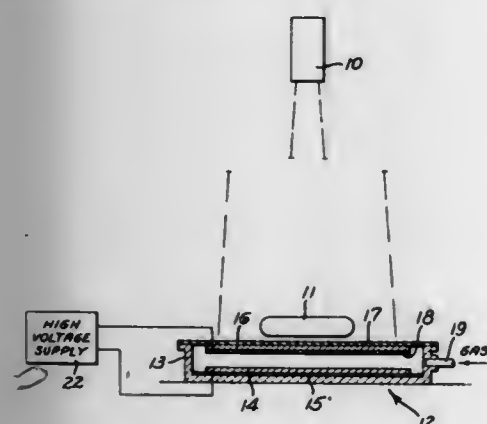
IMAGING GAS FOR IMPROVED RESOLUTION IN IMAGING CHAMBER OF ELECTRON RADIOGRAPHY SYSTEM

Andrew P. Proudian, Chatsworth, and Paul B. Scott, Topanga, both of Calif., assignors to Xonics, Inc., Van Nuys, Calif.
Filed Sept. 28, 1973, Ser. No. 401,689

Int. Cl. G03b 41/16

U.S. Cl. 250—315

12 Claims



An electron radiography system with improved resolution obtained by incorporating a few per cent of an electro-negative gas with the imaging gas to combine with the electrons

forming negative ions for attracting to the anode and depositing on the dielectric sheet.

3,831,028

RADIATION DETECTOR USING ELECTRO-OPTICS

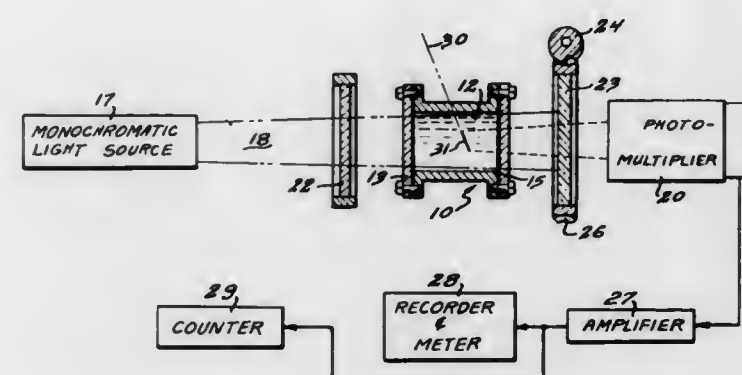
Isadore B. Kerlman, Jerusalem, Israel; Alfred Strash, Midlothian, Va.; and Jacob Kastner, Kensington, Md., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed June 26, 1973, Ser. No. 373,714

Int. Cl. G01t 1/16

U.S. Cl. 250—336

7 Claims



The radiation detector consists of a cell containing a polar liquid positioned between two crossed polarizers. The light beam is directed through the cell to a detector and the polarizers are arranged for extinction of the light. Local birefringence developed by the ionizing radiation permits light to be transmitted to the light detector.

3,831,029

PYROELECTRIC DEVICE USING LEAD GERMANATE

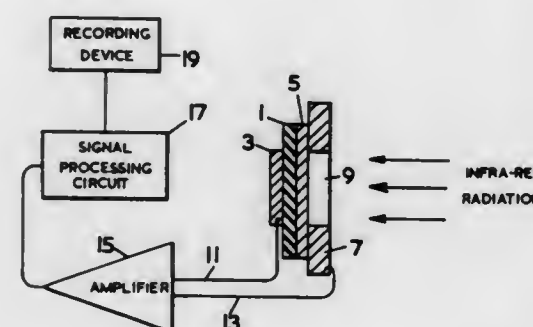
Gordon Robert Jones; Norman Shaw, both of Malvern, and Anthony Worswick Vere, Whyteleafe near Caterham, all of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed July 11, 1973, Ser. No. 378,099

Claims priority, application Great Britain, July 12, 1972, 32616/72

Int. Cl. G01j 5/10

U.S. Cl. 250—338

12 Claims



A pyroelectric device includes as its pyroelectric material the material lead germanate, $Pb_3Ge_2O_{11}$. The device may be a single element detector, an array of single element detectors, a laser detector system, a laser heterodyne detector system or a pyroelectric camera tube. The lead germanate may be either single crystal material or polycrystalline material.

3,831,030

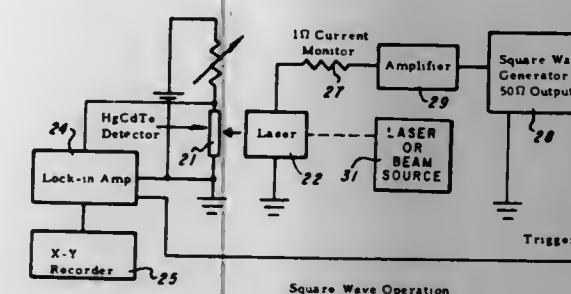
LASER-OPERATED SYSTEM FOR SPECTROSCOPIC ANALYSIS

Joseph Wrobel, Garland, and Robert Thomas Bate, Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 163,819, July 19, 1971, Pat. No. 3,800,243. This application Sept. 7, 1973, Ser. No. 395,203
Int. Cl. H01j 11/00

U.S. Cl. 250—339

3 Claims



A system for spectroscopic analysis is disclosed, the system being laser-operated and including a semiconductor diode laser fabricated from a lead-germanium telluride crystal. An infrared detector is disposed in the optical path of the laser, with a sample holder being positioned between the laser and the infrared detector. The sample being analyzed may comprise a gas and/or vapor having infrared absorption bands matching the wavelength of the laser output to enable the system to perform spectroscopic analysis of the sample.

3,831,031

ZONE PLATE IMAGING SYSTEM

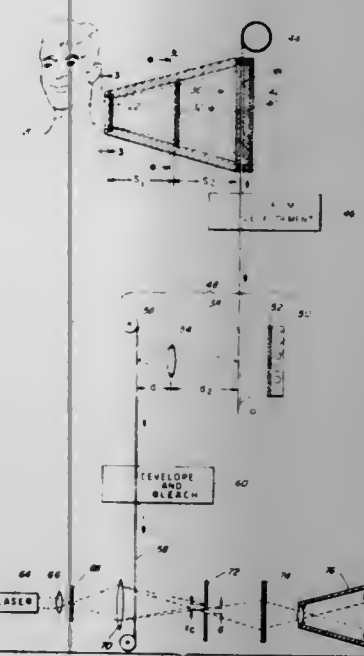
Harrison H. Barrett, Lexington; Gordon D. Demeester, Marlboro, and David T. Wilson, Bedford, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Sept. 15, 1972, Ser. No. 289,707

Int. Cl. G01j 39/18

U.S. Cl. 250—363

19 Claims



A nuclear imaging system for mapping a spatially distributed source of high energy nuclear particles from a living organ which has selectively absorbed a radioactive compound in which the nuclear energy is spatially coded and modulated on a carrier for recording on a record medium as a shadow hologram in which signal strength and definition enhancement may be achieved by converting the amplitude hologram to a phase hologram while reducing the size of the hologram to allow tomographic reconstruction of the nuclear energy source with a substantially coherent beam of light.

3,831,032

TOMOGRAPHIC AND X-RAY PHOTOGRAPHIC DIAGNOSTIC APPARATUS FOR PEDIATRIC EXAMINATION

Rene Putod, Paris, France, assignor to Compagnie Generale De Radiologie, Paris, France

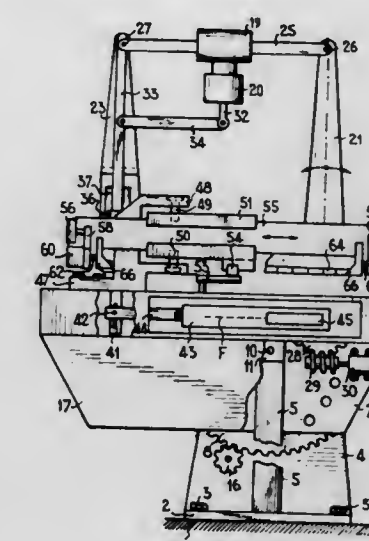
Filed Mar. 9, 1973, Ser. No. 339,858

Claims priority, application France, Mar. 15, 1972, 72.08925

U.S. Cl. 250—447

Int. Cl. G01n 23/04

4 Claims



The radiodiagnostic apparatus is composed of a radiodiagnostic table of reduced size which is easy of access for a young patient, to which table a support is attached which holds a carrier plate for the patient through the medium of mechanical devices enabling said plate to translate and rotate in relation to the table, the plate axis remaining substantially parallel to the table and the plate being provided with means to hold the patient in position.

3,831,033

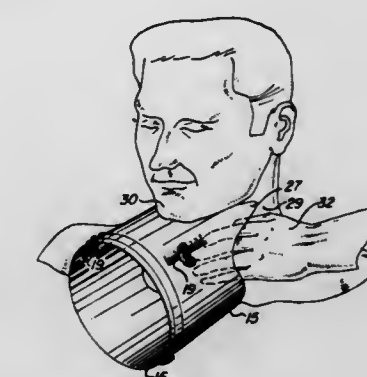
PATIENT POSITIONING DEVICE FOR THYROID EXAMINATION

Hector Chapa, 2048 Hicks St., San Antonio, Tex. 78210
Filed Sept. 24, 1973, Ser. No. 400,028

Int. Cl. G01j 39/18; G01t 1/20

U.S. Cl. 250—491

9 Claims



This specification discloses a device for positioning the neck of a patient relative to a positron camera with gamma ray detectors on which stereoscopic images are formed for examination of the thyroid gland of the patient. The device consists essentially of two telescopic, cylindrical members of plastic, a ring clamp for securing one of the telescopic members to the collimator of the camera, and means for securing the telescopic members in an adjusted relation. Calibrations are provided on one of the telescopic members which cooperate with an end edge of the other member to indicate the length of the device in an adjusted position. One of the telescopic members

is formed with a recess at the top which receives the neck of a patient immediately below the chin and also with a pair of recesses at its opposite sides to accommodate the hands of an examining physician.

3,831,034

APPARATUS FOR TAKING A CONTINUOUS X-RAY PICTURE OF THE DENTAL ARCH

Sadayasu Ota, and Masato Miyahara, both of Kyoto, Japan, assignors to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

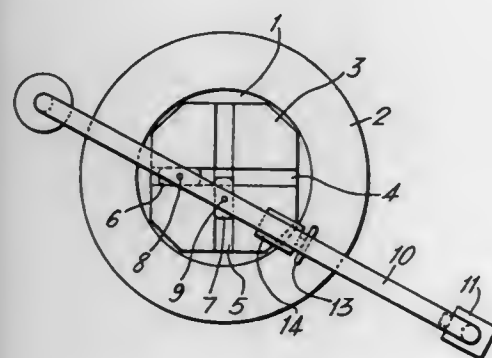
Filed Nov. 2, 1972, Ser. No. 303,125

Claims priority, application Japan, May 29, 1972, 47-53165

Int. Cl. G03b 41/16

U.S. Cl. 250—523

3 Claims



Apparatus for taking a continuous X-ray picture of the dental arch, wherein an X-ray tube and a film holder are carried on an arm at longitudinally spaced apart positions thereof. With the patient's jaws held between the X-ray tube and the film holder, the arm is so turned that the tube and the film holder are moved along an elliptical arc about the jaws thereby taking a clear, continuous X-ray picture of the dental arch.

3,831,035

SWITCHING NETWORK FOR INFORMATION CHANNELS, PREFERABLY IN THE OPTICAL FREQUENCY RANGE

Bernhard Hill, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

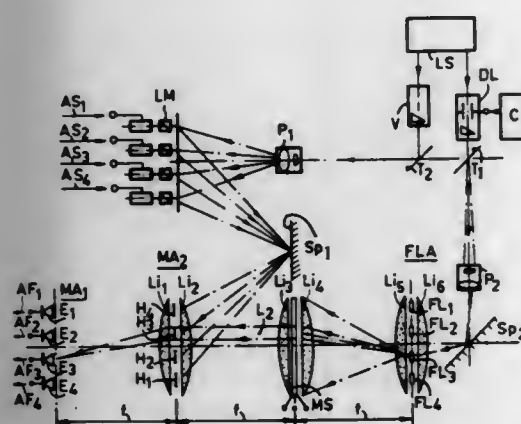
Filed Feb. 5, 1973, Ser. No. 329,691

Claims priority, application Germany, Feb. 9, 1972, 2206098

Int. Cl. H01j 39/12; G02b 27/00

U.S. Cl. 250—578

4 Claims



The invention relates to a switching network for selectively interconnecting input channels and output channels, in which between the optical outputs of the input channels and the optical inputs of the output channels a light deflection system is provided which is controllable in steps or in a digital manner. This light deflection system connects optically, in accordance with the angle of incidence of an object light beam one or

more of the optical outputs to one or more of the correspondingly arranged optical inputs.

3,831,036

SAFETY CUT-OFF SYSTEM FOR A CIRCUIT SUPPLIED BY TWO ALTERNATORS

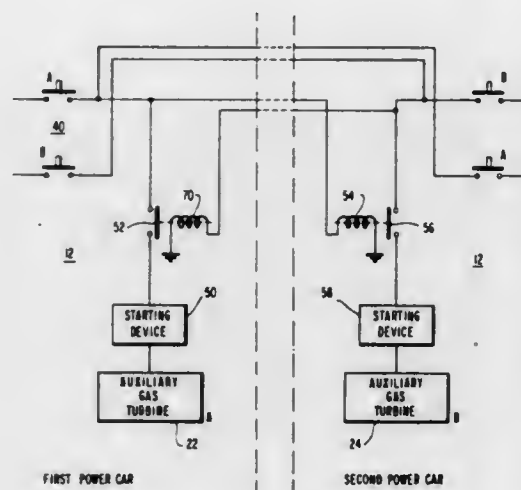
Andre E. Pelabon, Paris, France, assignor to ANF-Frangeco, S.A., Courbevoie, France

Filed Apr. 13, 1973, Ser. No. 350,816

Int. Cl. H02j 9/00

U.S. Cl. 307—64

7 Claims



A control and starting circuit system in which out of several possible generators being operable, only the first energizable generator comes into play or operation, and solenoid means by positive action perform the step of opening the power circuits of the other generators so that they are precluded from being energized at all as long as the first generator is energized.

3,831,037

PARAMETRIC AMPLIFIER HAVING AN IDLER CIRCUIT REDUCING SPURIOUS IDLER SIGNAL MAGNITUDE

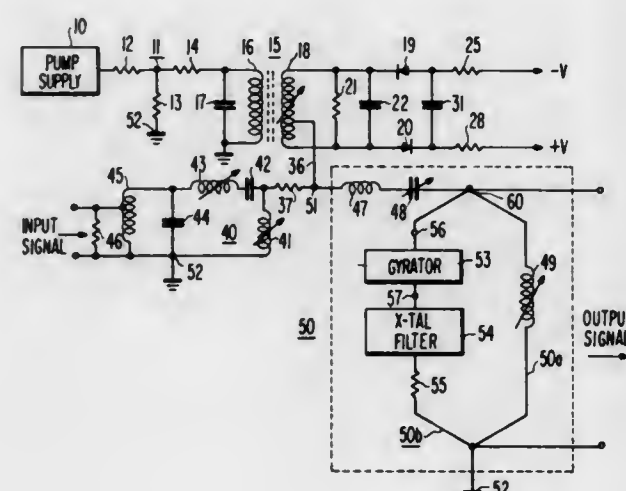
James Walter Daniel, Jr., Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sept. 27, 1973, Ser. No. 401,211

Int. Cl. H03f 7/04

U.S. Cl. 307—88.3

4 Claims



The magnitude of spurious idler signals in a parametric amplifier is reduced by use of an idler circuit which impedes the circulation of currents at undesired idler frequencies.

3,831,038

PERIODIC DIELECTRIC WAVEGUIDE FOR BACKWARD PARAMETRIC INTERACTIONS

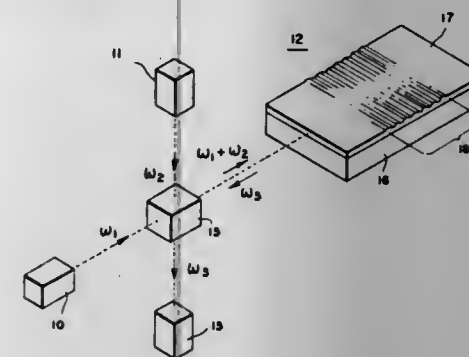
Franklin Winston Dabby, West Trenton, and Ami Kestenbaum, Cranbury, both of N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.

Filed Sept. 19, 1973, Ser. No. 398,720

Int. Cl. H03f 7/00

U.S. Cl. 307—88.3

32 Claims



A periodic dielectric waveguide capable of supporting backward parametric interactions comprises in one embodiment a substrate having an index of refraction n , and a layer of nonlinear dielectric material overlaid thereon. A region of the nonlinear material is treated to have a periodic index of refraction variation, the period of the variation d being given by the equation:

$$d = 2\pi m / \beta_1 + \beta_2 + \beta_3$$

where β_1 , β_2 , and β_3 are respectively the propagation constants of the three angle frequencies ω_1 , ω_2 , and ω_3 traveling in the guide.

3,831,039

SIGNAL RECOGNITION CIRCUITRY

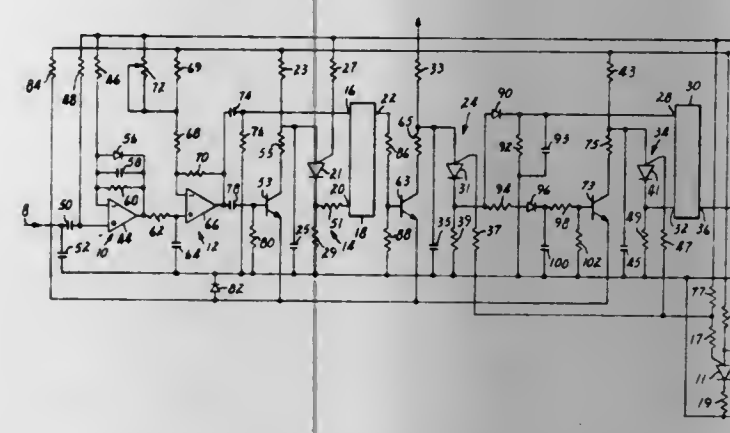
John P. Henschel, White Bear Township, Ramsey County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 9, 1973, Ser. No. 404,431

Int. Cl. H03k 5/20

U.S. Cl. 307—234

6 Claims



Signal recognition circuitry provides a control signal which is initiated following the receipt of successive input signals provided they are spaced less than a first duration apart and have been received for at least a second duration with such control signal continuing for at least a third duration. A first pulse generator is controlled by the input signals and is used to assure that the spacing between pulses is proper by producing a pulse if the spacing is improper with such pulse being used to inhibit operation of a second pulse generator used to measure the second duration. The second pulse generator controls operation of a switching circuit and operation of a third pulse generator. If the second duration is satisfied, a pulse is provided by the second pulse generator causing the switching circuit to provide the control signal. The third pulse generator begins operation after the pulse has been provided by the

second pulse generator and connects with the switching circuit to terminate the control signal in response to a pulse produced by the third pulse generator when it has been operating for said third duration.

3,831,040

TEMPERATURE-DEPENDENT CURRENT SUPPLIER

Yasuhiro Nanba, and Masayoshi Sahara, both of Sakai, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka City, Japan

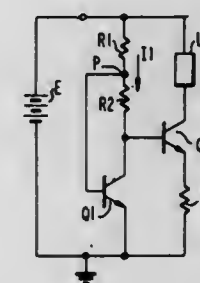
Filed Nov. 10, 1972, Ser. No. 305,317

Claims priority, application Japan, Nov. 11, 1971, 46-90203

Int. Cl. H03k 17/00

U.S. Cl. 307—296

11 Claims



A temperature-dependent current supplier specially suitable for application to an integrated circuit is characterized as follows. The base of a first transistor is connected to a connecting point between two resistors which are connected in series to each other in a collector circuit of said transistor, the voltage between the base and the collector of said transistor being selected at about kT/q where the charge quantity is q , the Boltzmann's constant is k and the absolute temperature is T ; and the base of a second transistor is connected to the collector of said first transistor, respective temperature coefficients of the base-emitter voltages of said first and second transistors being selected to differ from each other; and also current-outputs of the quantity proportional to the absolute temperature is taken out from the collector circuit of said second transistor.

3,831,041

COMPENSATING CIRCUIT FOR SEMICONDUCTIVE APPARATUS

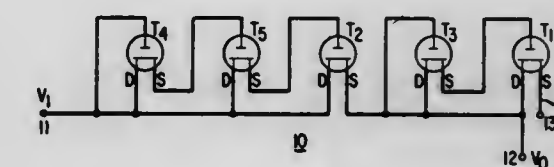
Robert Harold Krambeck, South Plainfield, and Robert Joseph Strain, Plainfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 3, 1973, Ser. No. 356,958

Int. Cl. H03k 1/14, 3/33

U.S. Cl. 307—304

8 Claims



A number of compensating circuits each of which provides an output voltage which differs from an applied input voltage by one or more IGFET threshold voltages. Each circuit typically includes a main IGFET, a load IGFET and one or more bias control IGFETS in the gate branch of either the active or load transistor. Specific compensating circuits adapted for use in the regenerator of a charge transfer device and in a constant current generator are disclosed.

3,831,042

TEMPERATURE COMPENSATION CIRCUIT FOR SENSOR OF PHYSICAL VARIABLES SUCH AS TEMPERATURE AND PRESSURE

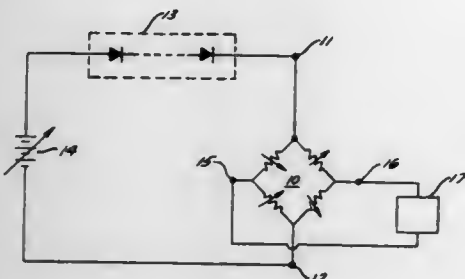
Pal Andre La Claire, Claremont, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Oct. 27, 1972, Ser. No. 301,606

Int. Cl. H03k 3/42, 19/14

U.S. Cl. 307-310

6 Claims



A temperature compensating circuit for transducers, which have an overall negative temperature coefficient, employs a plurality of diodes connected in series with the transducer. The diodes are sensitive to changes in ambient temperature and provide discrete levels of temperature compensation. More precise compensation is provided by employing an adjustable voltage source in combination with a plurality of diodes.

3,831,043

PIEZOELECTRIC OSCILLATOR ARRANGEMENTS

Rudolf Hoffmann, Germering; Manfred Mackuth; Werner Mattuschka, both of Munich, and Franz Schoefer, Fichtenau, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

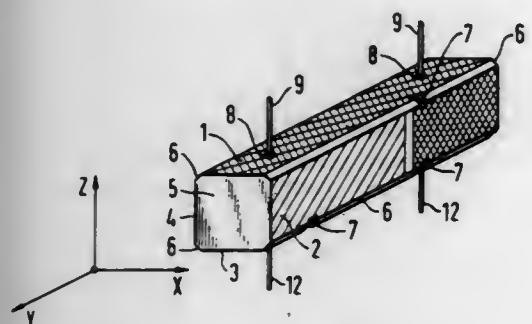
Filed Dec. 13, 1972, Ser. No. 314,862

Claims priority, application Germany, Dec. 28, 1971, 2165143

Int. Cl. H04r 17/00

U.S. Cl. 310-9.7

4 Claims



A piezoelectric oscillator includes a bar of piezoelectric material having four longitudinal surfaces carrying respective electrodes or electrode areas thereon. The longitudinal edges are chamfered to separate the electrodes or electrode areas and selected electrodes and electrode areas are connected via transverse grooves through the chamfers which carry the electrode material. The grooves are first cut in the piezoelectric bar to a depth greater than that of the chamfer. Then a cohesive conductive coating is applied over the surfaces of the bar and the grooves. Next, the edges are ground to separate the electrodes, except for the connections through the grooves. Two pair of electrodes are connected to respective mutually opposed electrodes at nodal points of the oscillator in the same plane for mechanically mounting and electrically energizing the oscillator.

3,831,044

CODED GRATING TRANSDUCER

Jeffrey M. Speiser, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

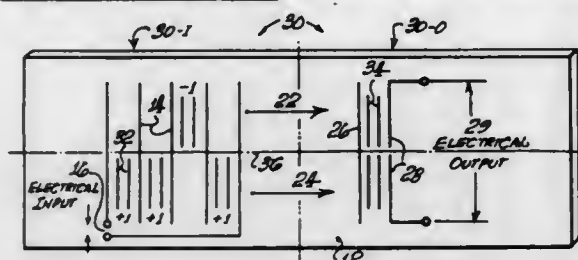
Filed Nov. 7, 1973, Ser. No. 413,485

Int. Cl. H01v 7/00; H04r 17/00

U.S. Cl. 310-9.8

9 Claims

CODED GRATING TRANSDUCER COMPOSED IN THE FORM OF A TRANSDUCER FILTER WITH CODING 1,1-1,1



A coded, acoustic, surface-wave, device having a high input impedance, comprising a substrate, and an input and an output transducer, both disposed upon the substrate. The input transducer comprises a plurality of N linear, parallel, equally-spaced electrodes and a plurality of N-1 sets of linear, parallel, electrodes, shorter in length than the first-named plurality of longer electrodes, and interposed between, parallel to, and equally spaced between, the longer electrodes, the shorter electrodes being disposed at one or the other end of the longer electrodes, in either the upper or lower propagation channel. The combination of placements form a code. The output transducer disposed upon the substrate comprises: a longer electrode, spaced a distance apart from, and parallel to the electrodes of, the input transducer, which first intercepts the propagating acoustic wave; and a pair of sets of shorter electrodes; a pair of output electrodes, approximately equal in length to either of the other named shorter electrodes, for providing a transduced electrical signal.

3,831,045

AIR-COOLED ELECTRIC MACHINE

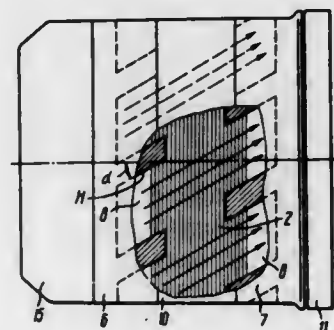
Pavel Mikhailovich Anisimov, Tkatskaya ulitsa, 46, kv. 9; Boris Ivanovich Evgrafov, Chisty Prudy, 9, kv. 8; Jury Alexandrovich Kupeev, ulitsa 9-Rota, 15, kv. 11; Boris Petrovich Orlov, ulitsa 9-Rota, 15, kv. 29; Antonina Nikolaevna Kotova, Tashkentskaya ulitsa, 29/179 kv. 194; Galina Iosifovna Turok, Borisovskaya ulitsa, 18/12, kv. 9, all of Moscow, and Pavel Gdaliyevich Berman, ulitsa Ushakova, 58, kv. 44, Kherson, all of U.S.S.R.

Filed Apr. 6, 1972, Ser. No. 241,526

Int. Cl. H02k 9/00

U.S. Cl. 310-52

3 Claims



The present invention relates to air-cooled electric machines used as generators in vehicles.

The electric machine comprising a rotor, a stator having a winding and secured mechanically to bearing housings provided with vent passages made in the internal cylindrical surface thereof, according to the invention, is characterized in that said vent passages are arranged above the end portions of

the stator winding disposed obliquely with respect to the longitudinal axis of the machine and intercommunicated through an annular chamber.

This embodiment of the machine ensures the improvement of cooling thereof and better utilization of active materials.

3,831,046

SEALING DEVICE FOR DISCHARGE CHAMBER OF LIQUID COOLED ROTORS FOR DYNAMOELECTRIC APPARATUS

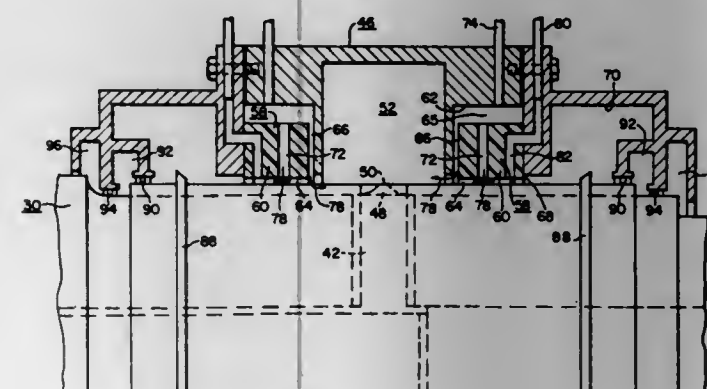
Little P. Curtis; Sui C. Ying, both of Monroeville, and George F. Dailey, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 16, 1973, Ser. No. 389,046

Int. Cl. H02k 9/00

U.S. Cl. 310-54

12 Claims



A gland seal for the discharge passages of a liquid cooled rotor for a dynamoelectric apparatus. Coolant liquid is discharged into a stationary coolant collection chamber surrounding the rotor. The stationary coolant discharge chamber has a gaseous fluid therein. A gland seal ring encircles the rotor adjacent the discharge chamber and a first sealing liquid having a predetermined pressure is introduced into a clearance disposed between the seal ring and the rotor. A second sealing liquid having a pressure not exceeding the pressure of the first sealing liquid is introduced into the clearance between the seal ring and the rotor. The first sealing liquid minimizes leakage of the coolant liquid from the discharge chamber, and also prevents contamination of the coolant liquid by the second sealing liquid.

3,831,047

CONSTRUCTIONS IN AC GENERATORS

Gunter Sokol, and Karl Kleebaur, both of Stuttgart, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

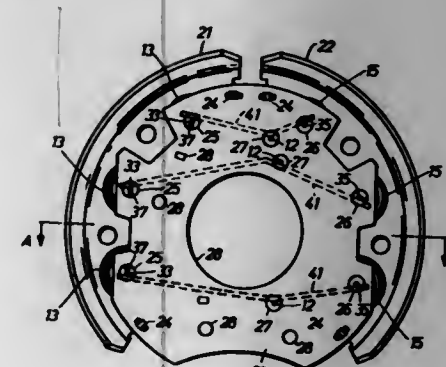
Filed July 1, 1970, Ser. No. 51,660

Claims priority, application Germany, Aug. 26, 1969, 1943333

Int. Cl. H02k 11/00

U.S. Cl. 310-68

13 Claims



An electrically insulating board, placed over the terminals of the diodes of the rectifying circuit of the AC generator, has openings therein that register with these terminals. Bus bars

embedded in the board pass through these openings to connect the diodes together and to the generator windings.

3,831,048

BEARING ASSEMBLY FOR POWER TOOLS

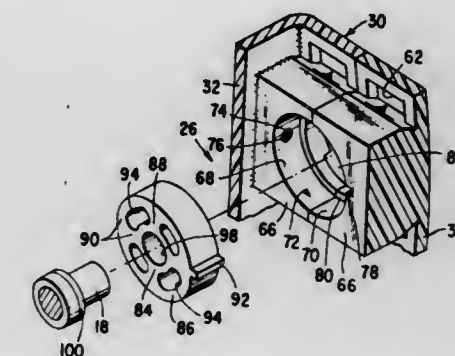
Robert W. Wagner, Easley, S.C., assignor to The Singer Company, New York, N.Y.

Filed July 30, 1973, Ser. No. 384,164

Int. Cl. H02k 5/20

U.S. Cl. 310-90

6 Claims



A bearing assembly for a power tool, such as a drill, having a housing formed of plastic in which a universal motor is mounted. The motor has an armature and a stator, with the armature shaft disposed axially in the housing and having a fan affixed thereto. Cooling apertures are formed in the housing in axially spaced relationship to each other on either side of the fan to permit ventilating air to enter and to exit the housing to cool the motor. A first bearing journals one end of the armature shaft in the housing. An improved second bearing is disposed in the path of ventilating air to journal the other end of the armature shaft. The improved bearing includes a bearing sleeve and a plurality of circumferentially spaced radial support members formed integrally with and extending from the bearing sleeve to seat and to support the second bearing within the housing. A plurality of axial apertures are formed in superposition to the bearing sleeve about the support members to permit the flow of ventilating air therethrough to cool the second bearing and the housing.

3,831,049

METHOD AND APPARATUS FOR REDUCING LOSSES IN TRANSMISSION SYSTEMS EMPLOYING ELECTRIC UNIPOLAR MACHINES WITH LIQUID-METAL CONTACTS

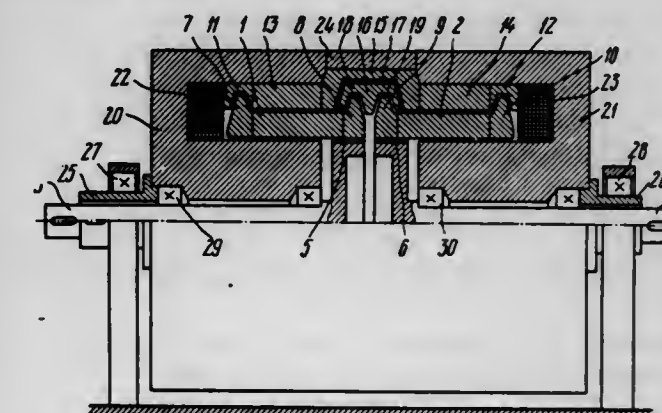
Boris Evdokimovich Korotenko, Armyansky pereulok, 1/3, kv. 15; Vitaly Borisovich Korotenko, Armyansky pereulok, 1/3, kv. 15, and Pavel Korneevich Shtepa, Pushinskaya ulitsa, 54, kv. 177, all of Kharkov, U.S.S.R.

Filed Apr. 6, 1972, Ser. No. 241,675

Int. Cl. H02k 31/00

U.S. Cl. 310-178

7 Claims



A method of reducing losses in electric unipolar transmissions is disclosed, the transmission having at least one first and

one second coaxially interconnected unipolar electric machines each having at least two working current conductors. One of the current carrying conductors of the first machine is rotated jointly with one of the current carrying conductors of the second machine at the same speed and in the same direction, while the other working current conductor of the first machine is rotated in the same direction but at an increased speed. The other working conductor of the second machine rotates under the action of the magnetic fields set up during operation of the transmission system. An apparatus for carrying out the above method is also disclosed.

3,831,050

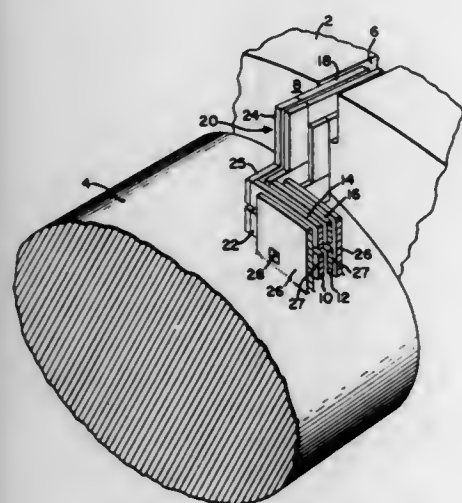
ROTOR FOR A DYNAMOELECTRIC MACHINE

Evangelos T. Laskaris, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sept. 17, 1973, Ser. No. 398,211

Int. Cl. H02k 3/46, 1/32

U.S. Cl. 310—270



A rotor for a dynamoelectric machine is formed of a rotor body and a rotor spindle having a smaller diameter than the rotor body. A plurality of coils are provided, each having side portions, offset portions, and arcuate end portions. Each offset portion includes a radially directed portion and a downset portion. The side portions are disposed in axial slots in the rotor body. The downset portions and arcuate end portions extend axially and circumferentially along the rotor spindle, respectively, with the arcuate end portions disposed in slots formed by circumferentially directed flanges on the rotor spindle. The radially directed portions provide a current path between respective side portions and downset portions. The radial distance to the outside of the downset portions, the outer radius of the arcuate end portions and the outer radius of the circumferentially directed flanges is substantially the same, so that inner retaining ring means may be installed over the circumferentially directed flanges in order to restrain the arcuate end portions and downset portions against centrifugal force as the rotor turns. An outer ring is installed over the end of the rotor body and a portion of the inner retaining ring means in order to restrain the radially directed portions against centrifugal force as the rotor turns.

3,831,051

COLOR PICTURE TUBE WITH DEFLECTION CENTER CONTROL

Akio Ohgoshi, and Yoshiharu Katagiri, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sept. 30, 1969, Ser. No. 862,411

Claims priority, application Japan, Oct. 8, 1968, 73723/68

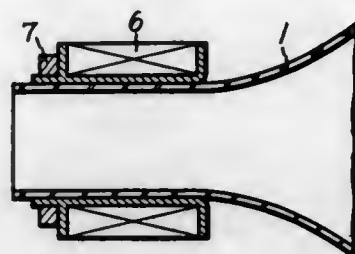
Int. Cl. H01J 29/56, 29/76

U.S. Cl. 313—75

6 Claims

A color picture tube consisting of a shadow mask, color

prophors, a deflection yoke and a magnetic compensating alloy ring provided adjacent to the deflection yoke for changing a magnetic flux therethrough in response to the temperature on the shadow mask.



3,831,052

HOLLOW CATHODE GAS DISCHARGE DEVICE

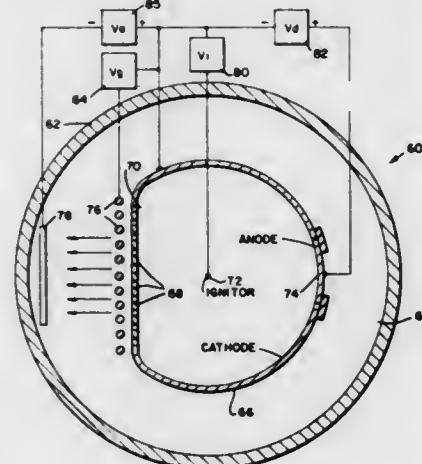
Ronald C. Knechtli, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed May 25, 1973, Ser. No. 363,904

Int. Cl. H01J 7/24

U.S. Cl. 313—187

9 Claims



The hollow cathode gas discharge device is configured with a maximized cathode-to-anode area ratio to operate in a low-pressure glow discharge mode to generate a plasma of adequate density from which electrons or ions can be extracted and accelerated. This permits the gas pressure to be kept low to avoid Paschen breakdown in the high voltage acceleration region.

The invention herein described was made in the course of or under a Contract or subcontract thereunder with the Department of the Navy.

3,831,053

DIFFERENTIAL OUTPUT LAMP CONTAINING CHLORINE AND HYDROGEN

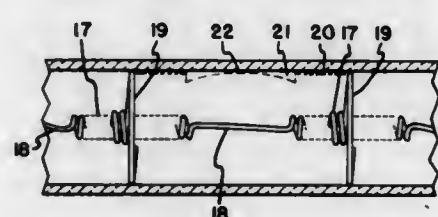
Richard H. Holcomb, and Warren D. Young, both of South Euclid, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed June 28, 1973, Ser. No. 374,787

Int. Cl. H01k 5/02

U.S. Cl. 313—222

6 Claims



A differential output incandescent lamp of the pulled turn-coil type, having an on-off duty cycle, contains chlorine and

hydrogen to establish a halogen regenerative cycle. The amount of chlorine varies between 3.6×10^{-7} and 5.1×10^{-7} grams atoms/cc, and the amount of hydrogen varies between 1.8 to 4.0×10^{-7} gram atoms/cc.

3,831,054

STORAGE TUBE ERASE CONTROL

Denis Peter Dorsey, Levittown, Pa., and William E. Rodda, Trenton, N.J., assignors to RCA Corporation, New York, N.Y.

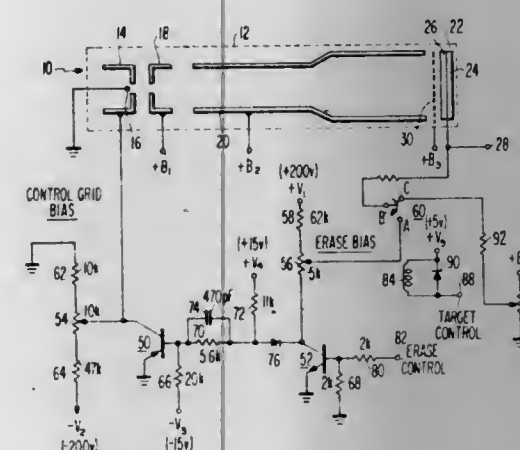
Filed Mar. 23, 1973, Ser. No. 344,069

Claims priority, application Great Britain, Apr. 24, 1972, 19014/72

Int. Cl. H01J 29/70

U.S. Cl. 315—12

4 Claims



Storage tubes are typically operated in either ERASE, WRITE, or READ modes. In accordance with the invention, there is provided a hybrid mode of operation, incorporating characteristics of both WRITE and READ control, to enhance the removal of previously stored charge patterns during image ERASE operation.

3,831,055

RASTER DISPLAY GENERATOR

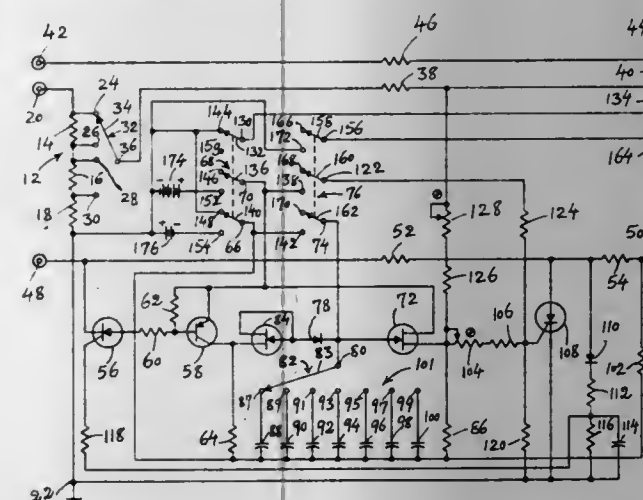
Frederick L. Eno, North Stonington, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 2, 1973, Ser. No. 320,045

Int. Cl. H01J 29/70

U.S. Cl. 315—27 TD

6 Claims



A raster display generator to display the output of a spectrum analyzer in the form of a raster display on a storage oscilloscope. The generator comprises a step generator wherein a preselected capacitor is charged uniformly in discrete steps, by a constant current generator, one step per sweep of the analyzer, and the resulting D.C. voltage level is superimposed on the spectrum output of the analyzer. The step generator

circuit is controlled by the unblanking pulse output of the analyzer so that the capacitor is charged only during the sweep flyback interval, the period of time between the end of one sweep and the start of the next. The unblanking pulse remains at a fixed voltage level during the sweep and goes to zero volts during the flyback interval.

3,831,056

BEAM CURRENT STABILIZATION AND BLANKING APPARATUS

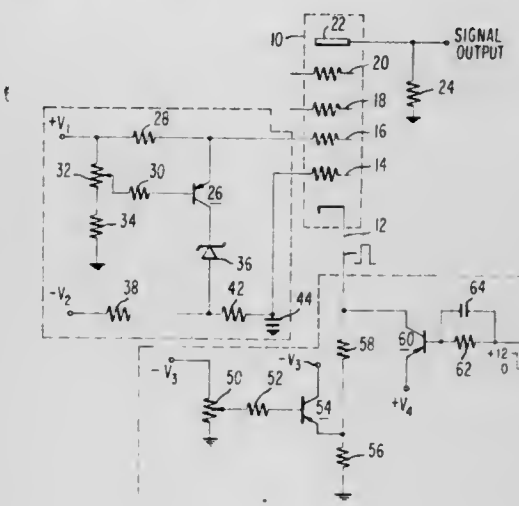
Lucas John Bazin, Stratford, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 6, 1973, Ser. No. 348,621

Int. Cl. H01J 29/70

U.S. Cl. 315—30

9 Claims



That portion of the beam current of a television pick-up tube which is collected by its limiting aperture grid is sensed to provide a feedback voltage for the control grid to stabilize against beam current variations. The cathode electrode is not incorporated within the current stabilization loop, and can thus be gated to provide the desired target-to-cathode bias voltage during the active interval of the scanning beam and to blank the beam during retrace intervals.

3,831,057

CIRCUIT ARRANGEMENT FOR GENERATING A BEAM CURRENT IN A CATHODE-RAY TUBE

Klaus Meyer, Konstanz, Germany, assignor to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

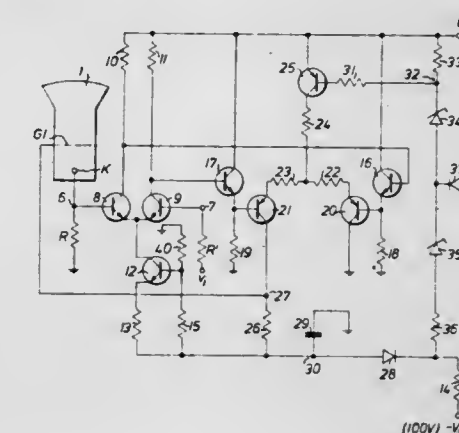
Filed Feb. 27, 1973, Ser. No. 336,218

Claims priority, application Germany, Feb. 28, 1972, 2209425

Int. Cl. H01J 29/00

U.S. Cl. 315—30

9 Claims



A circuit arrangement in a cathode-ray tube for producing a cathode-ray beam current which is proportional to the deflection speed of the beam. The cathode-ray tube includes a cathode and a control grid along with circuitry for providing

an intensity control voltage which is proportional to the deflection speed of a spot traveling across the face of the cathode-ray tube. A regulating circuit regulates the beam current such that the difference between a voltage proportional to the beam current and the intensity control voltage remains substantially at zero.

3,831,058

DEVICE COMPRISING A TELEVISION CAMERA TUBE AND TELEVISION CAMERA

Johannes H. T. Van Roosmalen, Emmasingel, Eindhoven,
Netherlands

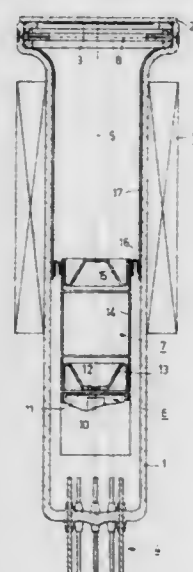
Continuation of Ser. No. 176,017, Aug. 30, 1971, abandoned.

This application Apr. 26, 1973, Ser. No. 354,877

Int. Cl. H01j 29/56

U.S. Cl. 315—31 R

6 Claims



A device including a television camera tube provided with an electron gun, a focusing gun and a photoconductive layer. The television camera tube has a beam current inertia which is as small as possible. For that purpose, the current density of the electron beam in the electron gun during scanning at any point along the axis between the cathode and the anode is at most three times the current density at the point of intersection of the axis with the cathode. The anode preferably is supplied with a voltage of at most 125 volts. A television camera tube for such a device preferably comprises a grid between the cathode and the anode having an aperture which has a diameter which is at least 20 times as large as the aperture in the anode.

3,831,059

TIME INTERVAL LIGHTING SYSTEM

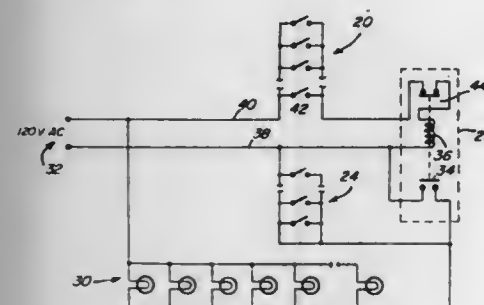
Antonio Lo Nigro, 13 Stowers St., Revere, Mass. 02151

Filed Mar. 5, 1973, Ser. No. 338,187

Int. Cl. H05b 37/02, 39/06

U.S. Cl. 315—320

16 Claims



A lighting system for homes and the like comprising a voltage source, a plurality of lamps at various locations, a time interval relay for connecting the lamps to the voltage source for

a predetermined time interval, and control switch means connected to the voltage source for selective energization of the time interval relay from an entranceway to light the corridors and other areas in the home to allow an individual sufficient time to walk through such areas before the lights turn off.

3,831,060

CORONA DISCHARGE DEVICE

Walter Spengler, Stehlgasse, CH 4105 Biel-Benken, Switzerland

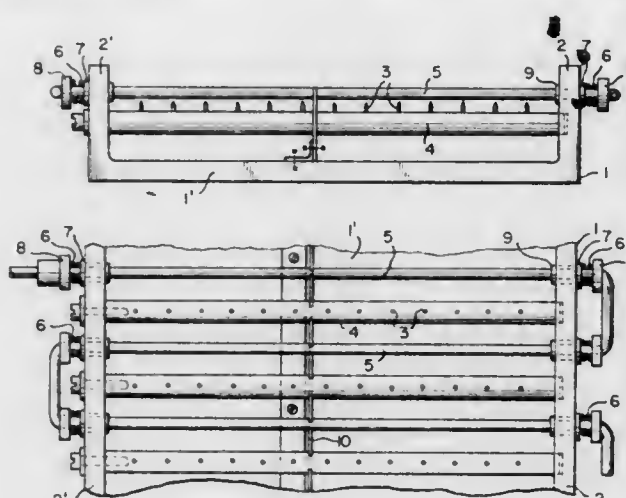
Filed May 22, 1973, Ser. No. 362,939

Claims priority, application Switzerland, June 15, 1972, 8966/72

Int. Cl. H01t 19/00; H05f 3/06

U.S. Cl. 317—2 F

4 Claims



Corona discharge equipment for poorly conducting material is characterized in that one of a pair of electrodes is a rigidly mounted conductor having discrete discharge points spaced therealong while the other electrode of the pair is a resiliently supported conductor, the resilient support of which ensures the maintenance of a substantially constant distance between the electrodes of the pair and between the other electrode and the surface to be treated.

3,831,061

OVERCURRENT TRIP DEVICE

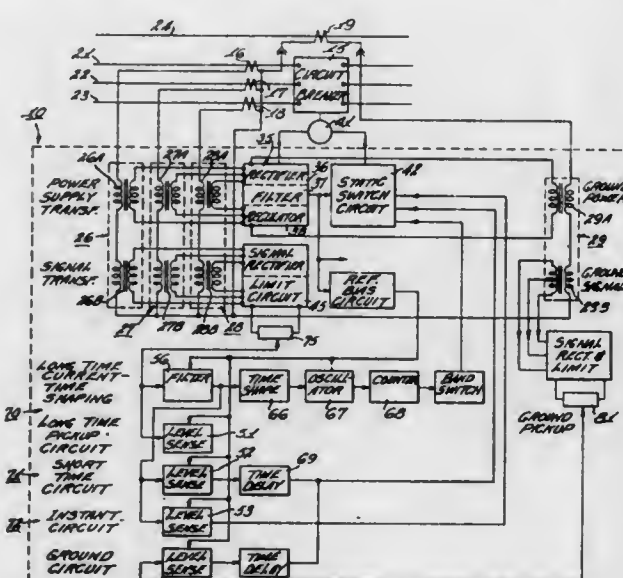
Donald R. Boyd, Waukesha, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Dec. 18, 1972, Ser. No. 316,372

Int. Cl. H01h 47/18

U.S. Cl. 317—36 TD

1 Claim



A static overcurrent trip device for sensing line and/or ground faults with improved timing circuits provided to operate a circuit breaker for protecting an electrical system in

response to signals. The energy to operate the tripping device is obtained solely from the circuit being protected. Current transformers, one per phase, provide a signal to the static trip device proportional to the primary current. These are toroidal current transformers or hereinafter known as tripping transformers and establish the maximum continuous current rating of the breaker that it is associated with. The static trip device receives the signal from the tripping transformers, monitors the signal, senses overloads and faults, and determines the required action in accordance with preselected control settings. When the static trip device senses a circuit condition that requires the circuit breaker to open, it produces an output that is fed to the tripping actuator. The actuator then causes the circuit breaker contacts to open and isolate the circuit.

3,831,062

RECTIFIER HEAT SINK PLATES WITH ALTERNATE SUPPORTING TABS

Gerhard Haug, Stuttgart, and Frithjof Werner, Leinfelden, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

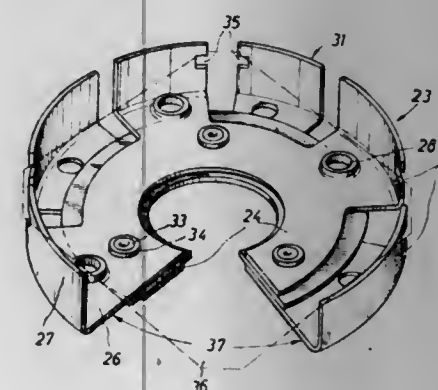
Filed Oct. 15, 1973, Ser. No. 407,345

Claims priority, application Germany, Oct. 14, 1972, 2250577

Int. Cl. H02k 9/00; H05k 7/20

U.S. Cl. 317—100

14 Claims



The heat sink plates on which the main current diodes are mounted have the shape of annular discs with outwardly extending tabs bent up at right angles with circumferential spacing between them sufficient for interfitting the tabs of the two heat sinks when they are superimposed with just enough spacing for insulation from each other. The main current diodes are mounted on the flat portions of the tabs and their free connection leads are connected to connection plates on a circuit connecting support plate, held in position on the upturned part of the tabs of the heat sinks, forming a sort of lid to the pot-shaped assembly and carrying clips for connections to the windings of the generator. There is a cut-out sector of the annular disc assembly to accommodate a brush, regulator, or both. Exciter diodes are mounted on the connection support plate with anodes connected to a metal strip extending around the inner circumference of the central hole of the annular disc and connection support plate, with its end extending for connection to the regulator or brush in the cut-out sector.

3,831,063

KEYBOARD ELECTRONIC APPARATUS AND METHOD OF MAKING

Laurence J. Keough, Walpole, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 17, 1972, Ser. No. 307,706

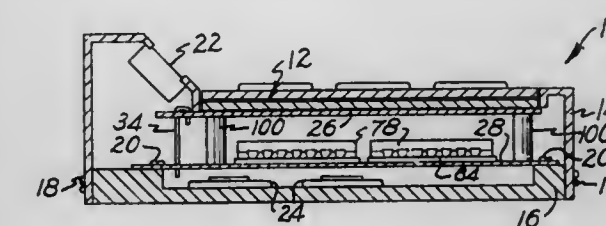
Int. Cl. H02b 1/02

U.S. Cl. 317—101 D

3 Claims

A novel and improved keyboard-operated electronic apparatus is shown to incorporate at least two printed circuit boards and to utilize novel and advantageous means for electrically interconnecting selected circuit paths on the two boards. A novel and improved method for assembling the

keyboard-operated electronic apparatus is also shown. In the disclosed method and apparatus, a strip of normally shape-retaining but bendable electrically-conductive metal material is blanked to form a plurality of normally shape-retaining but bendable leads which are held in spaced, side-by-side, parallel relation to each other by integral web portions of the strip material. Preferably the leads are blanked in a selected configuration providing the leads with a common, preferential bending direction. Corresponding first ends of the leads are then inserted into apertures in a first printed circuit board such as a printed circuit keyboard and are simultaneously soldered to selected circuit paths on the first board, preferably at the same time that all keyboard components are soldered to



said circuit paths. The web portions of the strip material are then cut from the leads for separating the leads and, while the leads are retained in spaced, side-by-side parallel relation to each other in the first board, the opposite ends of the leads are inserted into apertures in a second printed circuit board such as a board mounting selected electronic components and are simultaneously soldered to selected circuit paths on the second board, preferably at the same time that all of the noted electronic components are soldered to the circuit paths on the second board. The leads are then bent in their common, preferential bending direction to adjustably dispose the two printed circuit boards in closely spaced parallel relation to each other to form a light, compact, easily repairable, and inexpensive apparatus.

3,831,064

LOCKING BAR ARRANGEMENT FOR SECURING ELECTRONIC ASSEMBLIES

Roman Keller, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munchen, Germany

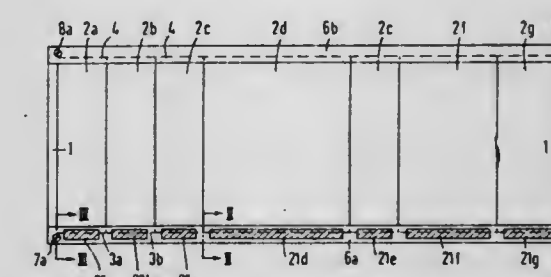
Filed Mar. 22, 1973, Ser. No. 343,956

Claims priority, application Germany, Mar. 24, 1972, 2214537

Int. Cl. H02b 1/04; H05k 5/00

U.S. Cl. 317—101 CB

16 Claims



A locking bar arrangement is disclosed for securing a plurality of electronic assemblies disposed in a mounting frame and arranged in a row one next to the other. The edges of the electronic assemblies are locked by means of elastic formed members in a vibration-proof manner. Separate fastening of each assembly is therefore not necessary and it is sufficient to fasten only a locking bar to a mounting frame. The locking bar can be attached to the mounting frame so that it can be tilted to permit removal of the assemblies from the mounting frame without having to take the locking bar out completely. Designation markings can be applied on the locking bar and their correspondence to appropriate assemblies is maintained.

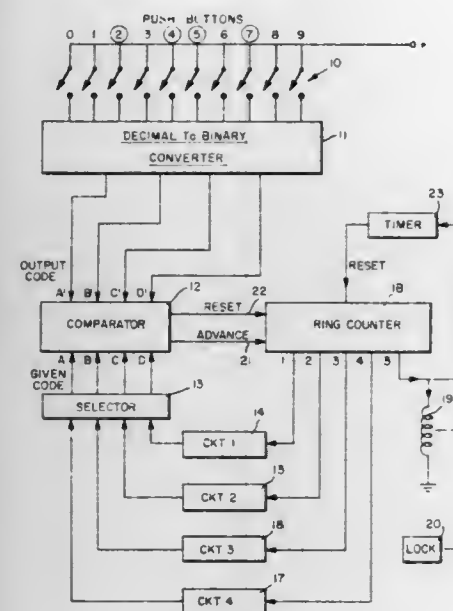
3,831,065

ELECTRONIC PUSH BUTTON COMBINATION LOCK
Ricky Martin, Santa Ana, and Paul Quinn, Anaheim, both of Calif., assignors to Integrated Conversion Technology, Anaheim, Calif.

Filed Apr. 6, 1973, Ser. No. 348,753
Int. Cl. E05b 49/00

U.S. Cl. 317—134

7 Claims



The electronic lock includes a plurality of push buttons which are sequentially actuated to provide a series of output binary signals. These signals are successively compared with a series of stored coded signals in a plurality of circuits which are caused to be successively actuated by a ring counter, a correct comparison providing an advance signal for the ring counter so that the next stored coded binary signal can be compared with the next applied output binary signal from the push button console. If the input code corresponds correctly with the codes in the coded circuits, the ring counter will complete its complete count, the last stage of the counter providing an unlocking signal to open the lock.

3,831,066

HERMETICALLY SEALED SEMICONDUCTOR DEVICE WITH CORROSION INHIBITED FERROUS METAL PORTIONS

Sami Ibrahim Gabrail, Syracuse, N.Y., assignor to General Electric Company, Syracuse, N.Y.

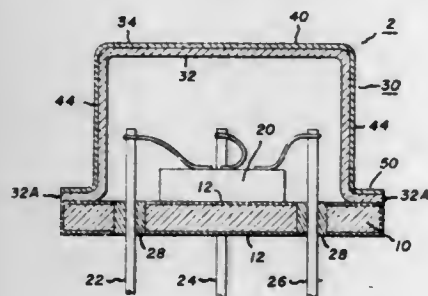
Continuation of Ser. No. 44,127, June 8, 1970, abandoned.

This application Apr. 10, 1972, Ser. No. 242,813

Int. Cl. H011 5/00

U.S. Cl. 317—234 R

6 Claims



Semiconductor devices hermetically sealed within metal cases formed, at least in part, of laminated or clad ferrous metal are subject to corrosion of the exposed portions of the ferrous metal. The invention inhibits the corrosion of the ferrous metal by providing a phosphatized ferrous metal surface which is coated with a transparent, hydrophobic, organic flux agent having a melting point above 70° C such as, for example, a stearic acid-aluminum stearate mixture.

3,831,067

SEMICONDUCTOR DEVICE WITH PRESSURE CONNECTION ELECTRODES AND WITH HEADERS CEMENTED TO INSULATION RING

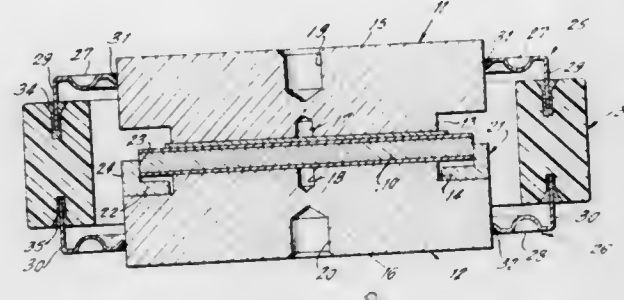
Joseph Wislocky, El Segundo, and Alan J. Carlan, Palos Verdes Peninsula, both of Calif., assignors to International Rectifier Corporation, Los Angeles, Calif.

Filed May 15, 1972, Ser. No. 253,200

Int. Cl. H011 3/00, 5/00

U.S. Cl. 317—234 R

10 Claims



A pressure-assembled device has a premolded insulation ring with slots at each end of the ring which receive flexible header rims. The slots are tapered to automatically center the rims and the rims are cemented in the slots. The upper and lower headers and upper and lower main electrodes are identical in construction and the insulation ring is symmetrical. The same components are used for semiconductor devices with or without control electrodes except that a tube is molded in the insulation ring if the device is to have a control electrode.

3,831,068

METAL-SEMICONDUCTOR SMALL-SURFACE CONTACTS

Hermann Kniepkamp, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

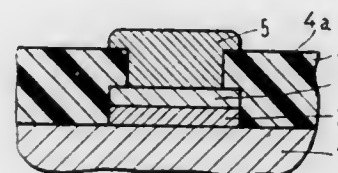
Filed Sept. 5, 1972, Ser. No. 286,265

Claims priority, application Germany, Sept. 29, 1971, 2148658

Int. Cl. H011 5/00

U.S. Cl. 317—234 R

4 Claims



Metal-semiconductor low capacitance contacts are produced by depositing a first metal layer on a semiconductor surface in the pattern corresponding to a desired contact pattern, applying a second metal layer on the first metal layer and coating all exposed metal and semiconductor surfaces with an insulator layer. Then areas of the insulator above the second metal layer are removed to expose only the underlying second metal surface and a third metal is deposited on such exposed second metal surface in an amount sufficient to extend beyond the upper surface or plane of the insulator coating and form a sufficiently large surface for contacting a given electrical component.

3,831,069

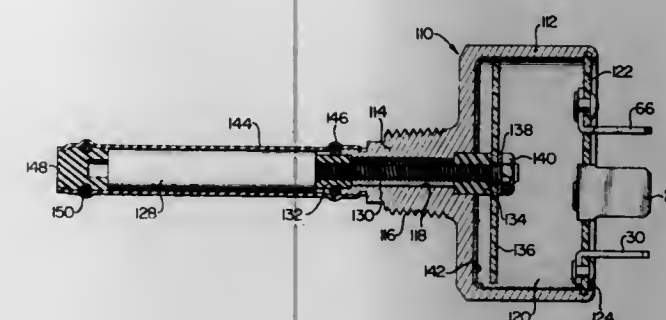
MINIATURE CAPACITANCE LEVEL DETECTOR
Kenneth C. Merrell, Brea, and Oscar J. Petersen, Orange, both of Calif., assignors to Robertshaw Controls Company, Richmond, Va.

Filed Nov. 3, 1972, Ser. No. 303,586

Int. Cl. H01g 7/00

U.S. Cl. 317—246

12 Claims



A level detecting probe is constructed with a capacitor having a capacitance which varies in accordance with the level of the material under observation. The probe is self-contained in that its electrical circuitry is enclosed within a housing forming a part of the probe. In one probe embodiment for detecting the level of conductive materials the capacitor includes a conductive rod as one plate that is insulated from the conductive material which acts as the other plate. Another probe embodiment for non-conductive materials includes a conductive rod and conductive sleeve surrounding the rod and insulated therefrom as the plates of the capacitor with the non-conductive material acting as the dielectric therebetween.

3,831,070

IONIZATION SELF-PROTECTING CAPACITOR

Jean Bernard Bouille, Jumet; Jose Ledoyen, Mont-sur-Marchienne, and Georges Warmont, Monceau-sur-Sambre, all of Belgium, assignors to Ateliers De Constructions Electriques De Charleroi (ACEC), Charleroi, Belgium

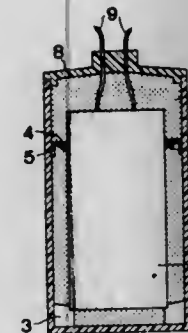
Filed Mar. 7, 1973, Ser. No. 338,983

Claims priority, application Belgium, Mar. 8, 1972, 3850

Int. Cl. H01g 1/02

U.S. Cl. 317—260

6 Claims



Self-protecting capacitor against internal ionization, characterized in that it is coated with a gas-tight plastic material having a thickness such as to maintain constant the pressure due to the evolved gases arising from a damage of the capacitor dielectric material, caused by a start of ionization, and to avoid all contact of its active part with the atmosphere. The equilibrium pressure determines the end of the ionization.

3,831,071

BRUSHLESS DIRECT CURRENT MOTOR & CONTROL THEREFOR

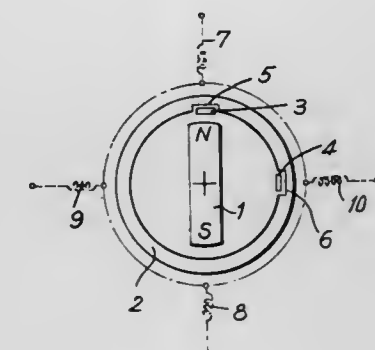
Yoshihiro Mitsui, Matsumoto, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Aug. 14, 1972, Ser. No. 280,705

Claims priority, application Japan, Aug. 18, 1971, 46-62278

U.S. Cl. 318—254

11 Claims



A brushless direct current motor is formed with a rotor having a magnetic construction in which the direction of magnetic flux is parallel to the rotary axis of the motor. At least one magnetic sensitive element is disposed in the magnetic flux of the rotor for detecting the state of said flux. A base plate is provided on which driving coils are disposed, the current controlled by a signal from said magnetic sensitive element is supplied to said driving coils to drive said rotor.

3,831,072

DC MOTOR WITH HALL GENERATORS

Kinzi Tanikoshi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha and Canon Seiki Kabushiki Kaisha, both of Tokyo, Japan

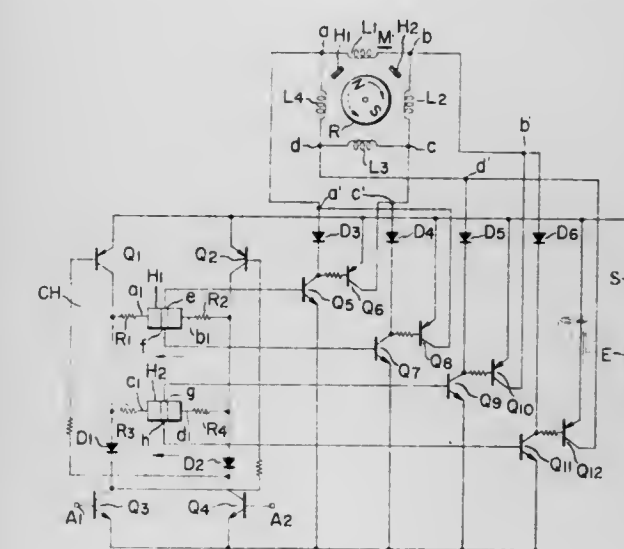
Filed Feb. 14, 1973, Ser. No. 332,523

Claims priority, application Japan, Feb. 21, 1972, 47-17813; Feb. 21, 1972, 47-17814

Int. Cl. H02k 29/00

U.S. Cl. 318—138

24 Claims



DC motor and control system therefor utilizing Hall generators are disclosed. A stator has a pair of flux-producing windings positioned in torque-producing relation with a rotor having magnetic poles of opposite polarities. A pair of Hall

generators are positioned in flux-sensing relation with the poles on the rotor, and driving means for applying the currents to the stator windings is connected to a switching or commutation circuit which is actuated in response to the output signal from a control signal generating circuit so that the direction of the current flowing through the Hall generators may be automatically reversed, thereby automatically reversing the rotation of the rotor.

3,831,073

CONTROL SYSTEM FOR SYNCHRONOUS DRIVE OF DC MOTOR

Kinji Tanikoshi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha and Canon Seiki Kabushiki Kaisha, both of Tokyo, Japan

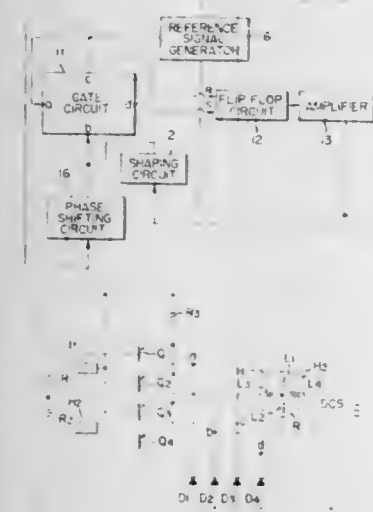
Filed Apr. 24, 1973, Ser. No. 353,950

Claims priority, application Japan, Apr. 28, 1972, 47-43051; July 11, 1972, 47-69232; July 11, 1972, 47-69231

Int. Cl. H02p 5/16

U.S. Cl. 318-254

16 Claims



A control system is disclosed for driving a DC commutator motor or brushless motor in precise synchronism with the external reference signal. A gate circuit which gives the logic output of the reference signal and the frequency signal representative of the rotational speed of the DC motor, generates the signal for permitting the power supply to the DC motor in response to the first reference signal even when the reference and frequency signals are not alternately applied to the gate circuit, and also generates the signal for interrupting the power supply to the DC motor in response to the first frequency signal. A phase shifting circuit, which is actuated a predetermined time after the DC motor is started, delays the reference signal by a time slightly shorter than the interval of the reference signals, thereby generating the signal for interrupting the power supply to the DC motor. By the combination of the gate circuit and the phase shifting circuit the step out or beat of the DC motor may be completely prevented.

3,831,074

ROTATOR SYSTEM INCLUDING A REMOTE DRIVE MOTOR AND A LOCAL INDICATOR-CONTROL MOTOR

Paul Joseph Smalser, Deptford, N.J., assignor to RCA Corporation, New York, N.Y.

Filed July 24, 1972, Ser. No. 274,637

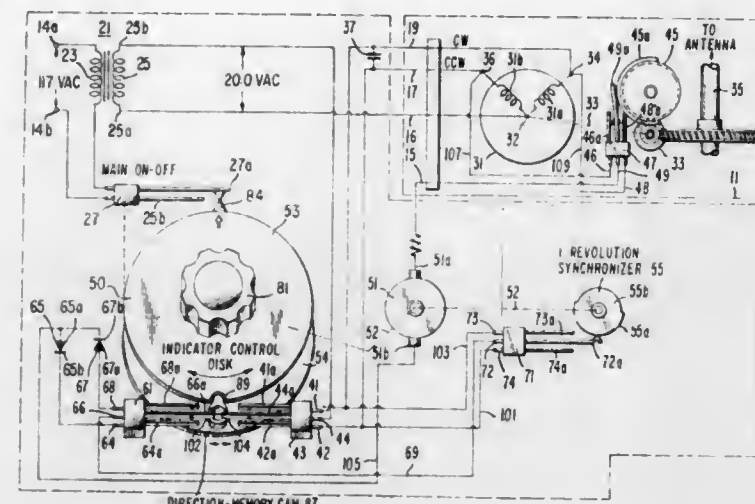
Int. Cl. H02p 7/80

U.S. Cl. 318-265

8 Claims

A rotator system is described wherein a remote drive motor rotates a shaft and an associated first cam. A regulated, local reversible motor when activated rotates a local indicator-control device and an associated second cam. The first and second cams function with separate switch means in a manner to each apply to the local motor one of two voltage potentials.

The local reversible motor is responsive to a difference of electrical potential there across which is associated with the



3,831,075

CONTROL SYSTEM FOR POSITIONING A MOTOR-DRIVEN POTENTIOMETER

Manfred Liska, Nurnberg; Hans Kuhnlein, Grossgrundlach, and Georg Kogler, Schwabach, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

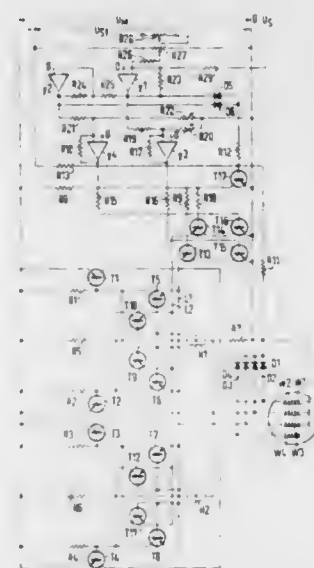
Filed Mar. 12, 1973, Ser. No. 340,057

Claims priority, application Germany, Mar. 13, 1972, 2212110

Int. Cl. G05b 1/06

U.S. Cl. 318-596

6 Claims



A control system for positioning a motor-driven potentiometer, in which a control amplifier, which detects the difference between the actual and desired potentiometer voltage, has a feedback resistor coupled to an inverting signal input terminal and the output terminal thereof has a resistance which is chosen so that the control amplifier is driven at maximum output whenever the voltage difference is at least equal to a selected voltage difference. A control transistor coupled to the control amplifier controls the speed of the motor, so that the motor is driven at maximum speed when the output of the control amplifier is at maximum, and the speed thereof decreases linearly proportional to the amplifier output until a minimum speed, determined by a control voltage source, is reached. Bistable switching amplifiers coupled to the control amplifier energize and deenergize the motor to position the potentiometer.

3,831,076

SECTOR SCANNING CONTROL SYSTEM

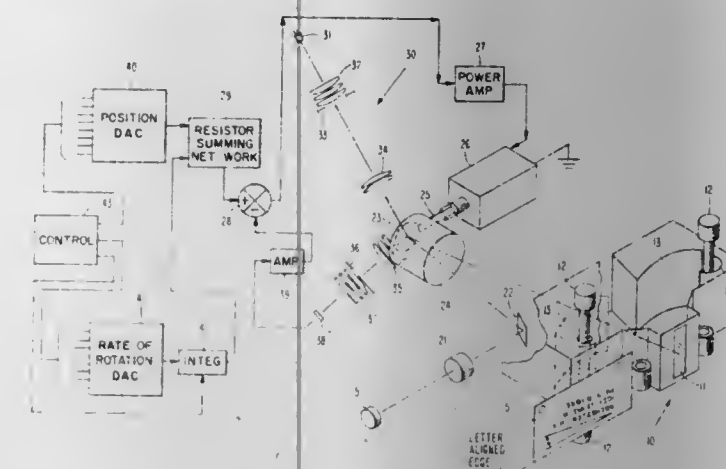
Michael J. Burke; Kenneth E. Hendrickson, both of Rochester; Gary L. Mattson, Pine Island, and William D. McNeil, Rochester, all of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 17, 1972, Ser. No. 235,703

Int. Cl. G05g 5/00

U.S. Cl. 318-627

8 Claims



A control system for a motor which angularly positions a mirror at a predetermined rate. The initial angular position for the mirror is applied in digital form to a digital analog converter (DAC). The rate of angular rotation is coded in digital form and the digital signals representing a particular rate are applied to a rate of change DAC. The output of the rate of change DAC is connected to an integrator which provides a voltage changing at a constant rate with time. A control signal starts the integrator and resets the integrator after the mirror has been rotated at the predetermined angular rate for a predetermined period of time. The output of the integrator is combined with the output of the position DAC so as to provide a reference position signal which is summed with a negative feedback signal obtained by sensing the position of the mirror. This results in a voltage difference signal which is amplified and applied to a high torque low inertia DC motor.

3,831,077

REGULATED, CONTROLLED-RECTIFIER POWER SUPPLY

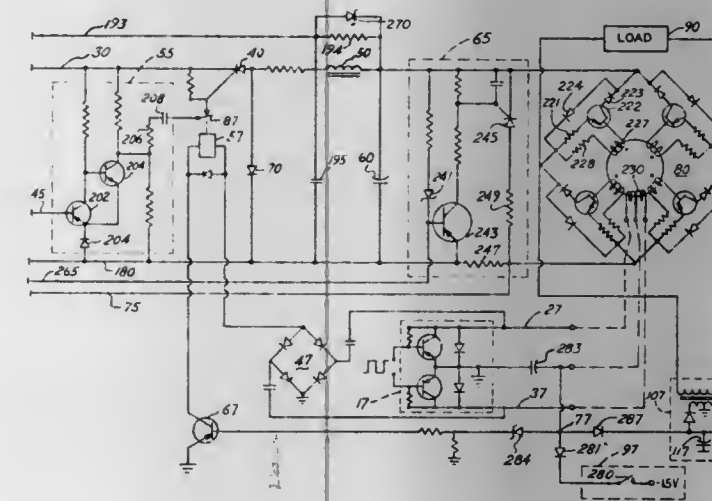
William E. Richeson, Jr., Fort Wayne, Ind., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 2, 1973, Ser. No. 320,536

Int. Cl. H02m 3/32

U.S. Cl. 321-2

8 Claims



A regulated and protected power supply in which the amount of energy delivered to a load from an A.C. source is controlled by varying the timing of the "firing-angle" when

conduction is initiated through a controlled-rectifier. The zero-crossings of the A.C. supply voltage are sensed to time an isolated source of an accurately defined sawtooth waveshape. This sawtooth signal is mixed with an error signal indicating load voltage fluctuations and the result signal is applied to a threshold circuit which supplies firing impulses to the gate electrode of a silicon controlled-rectifier (SCR). The SCR is interconnected with the combination of a smoothing inductor, a filter capacitor, and a catching diode in a switching regulator configuration and supplies regulated D.C. power to a transistor bridge which is switched by a precision frequency driving signal to supply power to a load circuit. An SCR crowbar circuit, activated by either overvoltage or overcurrent conditions at the output of the switching regulator, protects the bridge and load circuit against damage by first placing a low-impedance across the switching regulator output, and then initiating a power supply shut-down sequence which protects the supply and the load against damage.

3,831,078

TRANSISTOR SWITCHING NETWORK WITH REDUCED DISSIPATION

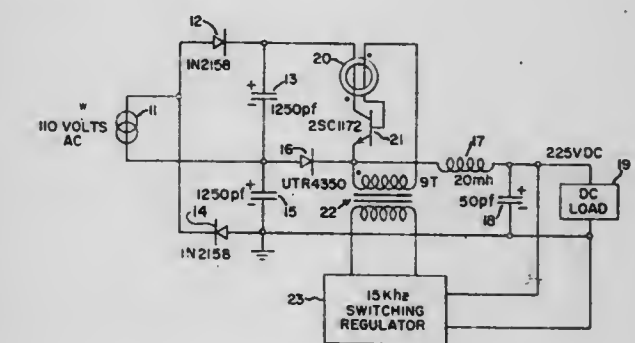
William Peil, North Syracuse, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Jan. 8, 1973, Ser. No. 322,092

Int. Cl. H02m 3/32

U.S. Cl. 321-2

10 Claims



The transistor switching network comprises a power transistor, used to deliver power from a DC source to a load, which is switched at a rate at which stored charge in the transistor potentially increases the internal power dissipation. A current transformer is provided comprising a small saturable core whose primary carries collector current and whose secondary couples the induced voltage to the base. The core of the current transformer creates an initial and a terminal transient which steepens the switching characteristic and reduces the power dissipation in the transients. The invention has application to regulators and to DC to DC converters.

3,831,079

ELECTRONIC PHOTOGRAPHIC FLASH APPARATUS

Hiroshi Iwata, Osaka, Japan, assignor to West Electric Co. Ltd., Osaka, Japan

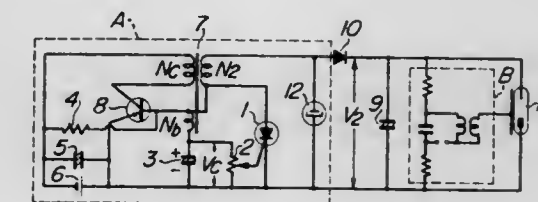
Continuation of Ser. No. 152,805, June 14, 1971, abandoned.

This application Apr. 16, 1973, Ser. No. 351,360

Int. Cl. H02m 3/22

U.S. Cl. 321-2

11 Claims



An electronic photographic flash apparatus with a constant voltage power supply, wherein the oscillation of a DC-DC

3,831,086

APPARATUS FOR IDENTIFYING AND TRACING A PAIR OF CONDUCTORS

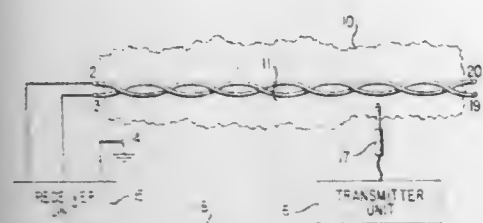
William Steve Pesto, Jamestown, N.C., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 28, 1973, Ser. No. 419,706

Int. Cl. G01r 19/00, 31/02

U.S. Cl. 324-67

15 Claims



Apparatus for tracing electrically conductive elements particularly adapted to the tracing of twisted communications wire pairs is described. Both wire tracing and identification of an unknown terminus is provided by comparing the magnitude of the metallic and longitudinal signals induced into the wire pair by a portable transmitter unit which is moved along the path of the wire.

3,831,087

BIOLOGICAL CELL ANALYSIS

Jurgen Schulz, Ulm/Donau, and Hans-Jurgen Nitsche, Bellenberg, both of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

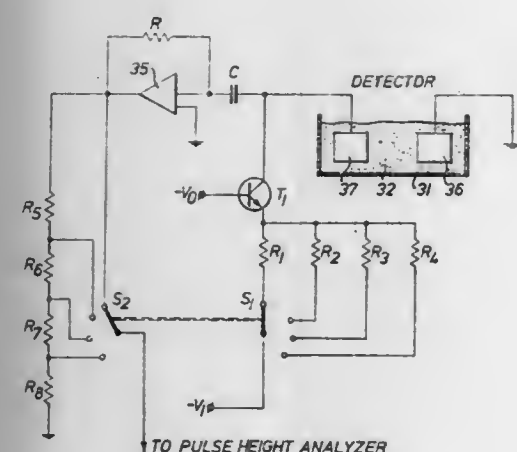
Filed Apr. 23, 1973, Ser. No. 353,768

Claims priority, application Germany, Apr. 16, 1973, 2319247; Apr. 22, 1972, 2219778

Int. Cl. G01n 27/00

U.S. Cl. 324-71 CP

25 Claims



The observation of native biological cells, particularly blood cells, suspended within a test liquid according to a technique based on the discovery that the resistivity of native cells in the path of an electric current changes abruptly when a given current value is exceeded. The technique involves establishing an electric current within the test liquid, varying the magnitude of this current over a range encompassing such current value to cause a corresponding change in the resistivity of the test liquid, and monitoring the resistance of the electrical current path within the test liquid to detect and measure any resistivity changes.

3,831,088

PULSED SIGNAL PHASE LOCK SPECTRAL PURITY MEASURING APPARATUS

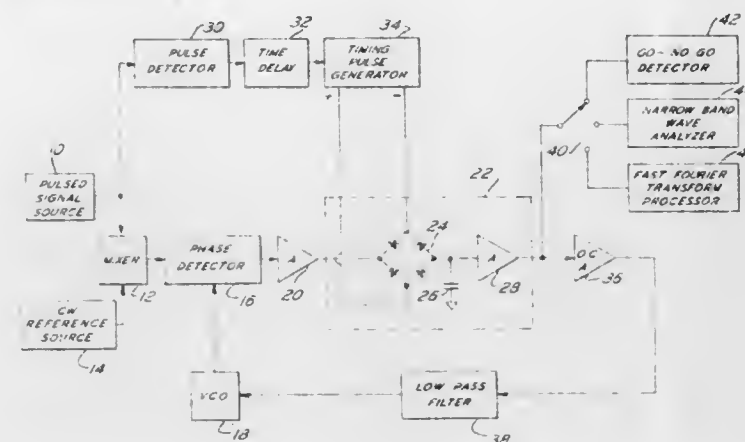
Eldon L. Ort, Doylestown, and Stinson R. Swyers, New Hope, both of Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 1, 1973, Ser. No. 384,775

Int. Cl. G01r 23/16

U.S. Cl. 324-77 E

10 Claims



Apparatus for measuring the spectral purity of a low duty cycle pulsed signal. A continuous wave (CW) reference signal is mixed with the pulsed signal forming an IF signal that is applied to one input of a phase detector. The output of the phase detector is amplified and applied to a sample and hold circuit which compresses the pulse spectrum of the pulse signal under test. After a time delay the sample and hold circuit provides an output to a voltage controlled oscillator which supplies a variable frequency CW signal to a second input of the phase detector to complete a phase locked loop allowing FM sideband detection. The sample and hold circuit output is passed, for example, to wave analyzers or through a threshold detector arranged to drive an indicator.

3,831,089

CONTINUITY TESTER

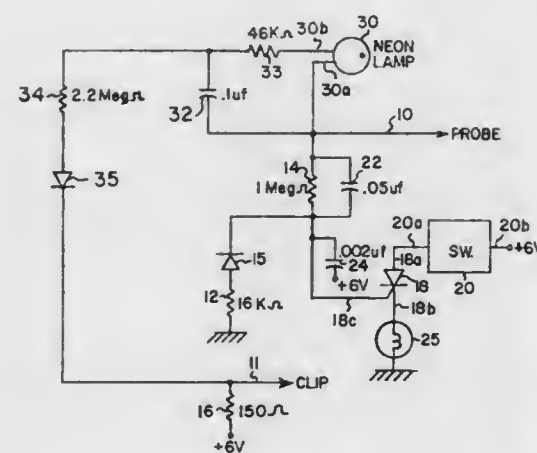
George Pearce, 5 Elm St., Wenham, Mass. 01923

Continuation of Ser. No. 173,536, Aug. 20, 1971, abandoned. This application Oct. 10, 1973, Ser. No. 404,851

Int. Cl. G01r 31/02, 19/14

U.S. Cl. 324-122

5 Claims



A multi-test, handheld instrument for testing the continuity of an electrical circuit utilizes an indicator lamp which lights when continuity is present. The instrument also serves as a voltmeter by causing a neon lamp to flash at a rate dependent upon the impressed voltage. The instrument contains a battery as its power source and is arranged to prevent discharge of the battery when the test leads are inadvertently or deliberately shorted together.

3,831,090

CONTROL METER

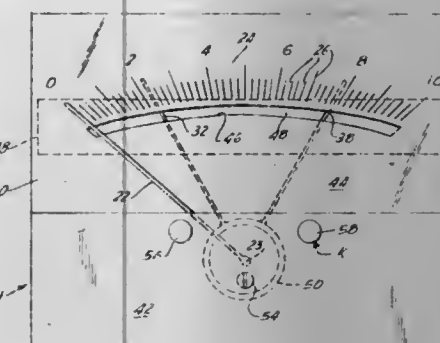
Henry R. Woolner, Manchester, N.H., assignor to Modutec Incorporated, Norwalk, Conn.

Filed Dec. 14, 1971, Ser. No. 207,821

Int. Cl. G01r 1/102

U.S. Cl. 324-157

16 Claims



A control meter has a first pointer that rotates about an axis. Also disposed on the meter assembly is a manually actuated element having a variable electrical value and a second pointer to indicate said value, the two pointers rotating about said same axis, and the second pointer preferably being mounted directly on the stator of the meter, although the manually actuated element itself is located to one side of said axis. Said first pointer moves relative to and in front of a slotted scale, while said second pointer is disposed behind the scale and is viewable through the slot. Nonlinearities between the meter-first pointer and element-second pointer relationships are compensated for by means of a non-linear transmission means operatively interposed between the element and the second pointer.

3,831,091

DATA COMMUNICATION SYSTEM

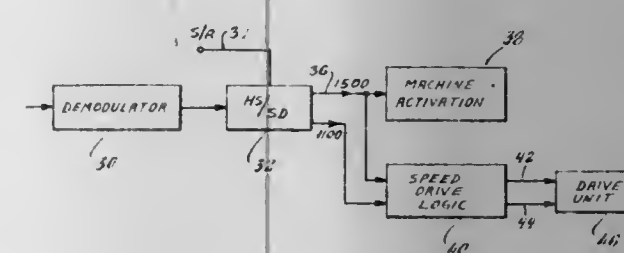
Bruce R. Kanitz, Fairport; Virgil H. Koning, Henrietta, and Charles L. Jacobson, Pittsford, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed May 16, 1972, Ser. No. 253,727

Int. Cl. H04b 1/40

U.S. Cl. 325-18

39 Claims



A transceiver unit employing a time sharable circuit for performing two functions, the first of the functions operable during the send mode of the transceiver, the next function operable during the receive mode of the transceiver. In the send mode, the circuit responds to a proper receiver ready signal to activate the transmission. By proper filtering the circuit distinguishes over noise. In the receive mode, the circuit responds to the initial portion of the transmitting signal for determining the proper receiver speed. The circuit includes a filter, a voltage window detector responsive to a frequency band represented by a voltage range, and two detection circuits. The first detection circuit is provided with delay time sufficient to insure receipt of a valid ready signal when in the send mode and a lesser delay time to assure a valid receipt of a transmitted speed select signal when in the receive-speed select mode. A second detection circuit is gated from the voltage window detector to detect a different speed select signal transmission indicating a different speed. Logic circuitry is

coupled to the decoded speed indicating signals as a means of further decoding, interpreting and determining transmitted speed information in the unit.

3,831,092

TRANSMITTER FOR THE TRANSMISSION OF SIGNALS BY PULSE CODE MODULATION

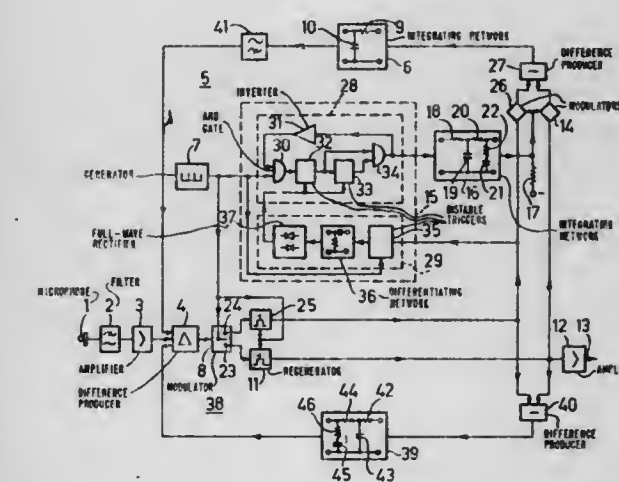
Johannes Anton Greefkes, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 133,587, April 13, 1971, abandoned. This application Mar. 7, 1973, Ser. No. 338,766

Int. Cl. H04b 1/00

U.S. Cl. 325-38 B

7 Claims



A delta modulation transmitter which in addition to the comparison circuit includes a second circuit having a dynamic control voltage generator fed by the output pulses from the pulse code modulator and including in its output circuit an integrating network for producing a dynamic control voltage which controls a pulse modulator in the comparison circuit, and a control voltage balancing circuit. For a considerable further reduction of the quantization noise and the influence of tolerance in the elements, so that complete integration in a semiconductor body is made possible, the transmitter is furthermore provided with a third feedback circuit whose input is connected to the output of the pulse code modulator and which includes an integrating network whose cut-off frequency is lower than the cut-off frequency of the integrating network incorporated in the comparison circuit so as to integrate the output pulses from the pulse code modulator, while the output of the third circuit is coupled to said comparison circuit in a point located between the output of the pulse modulator and the input of the pulse code modulator.

3,831,093

SIGNAL-TO-NOISE RATIO DETECTOR FOR AUTOMATIC GAIN CONTROLLED RECEIVERS

Edward Hugh Walker, Mt. Fern, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 28, 1973, Ser. No. 336,787

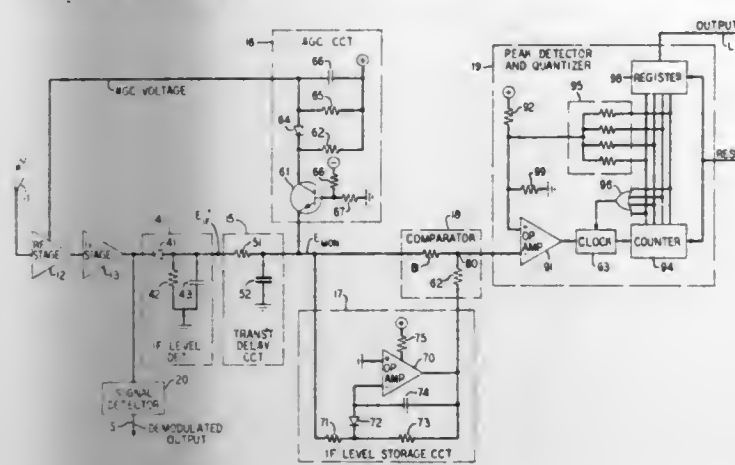
Int. Cl. H04b 7/02, 3/46

U.S. Cl. 325-56

10 Claims

In an automatic gain controlled receiver for receiving alternating periods of signal and noise the transient response to the termination of signal reception is used to produce an indication of signal-to-noise ratio. The level of the gain controlled input is monitored and a charging circuit is used to delay the change of level which would otherwise occur as a step function upon termination of signal reception. The level monitored during signal reception is then compared with the peak of the level attained after termination and due to the delayed

change, this difference is essentially proportional to the db signal-to-noise ratio.



The resultant signal-to-noise indication, which may be quantized, can be used as the basis for selection among remote receivers in a diversity receiver arrangement.

3,831,094

MEANS TO PREVENT COINCIDENTAL PHASE MODULATION IN AN AMPLITUDE MODULATION TRANSMITTER

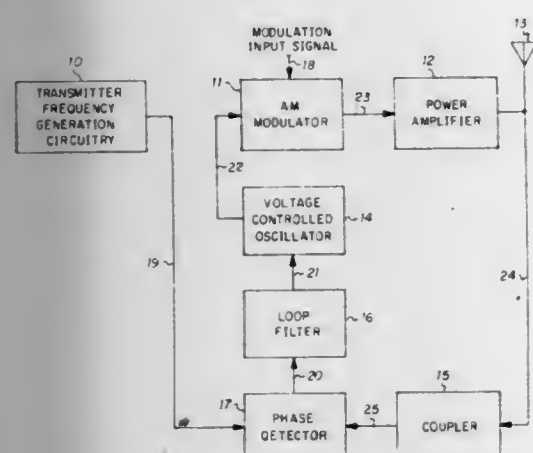
Harris A. Stover, Vienna, Va., assignor to Collins Radio Company, Dallas, Tex.

Filed Aug. 30, 1973, Ser. No. 392,903

Int. Cl. H04b 1/04

U.S. Cl. 325-159

4 Claims



Means, including a voltage controlled oscillator in a phaselocked loop, whereby the transmitted carrier frequency is locked to a source of carrier frequency generation. The loop includes AM modulator AM modulator such that coincidental phase modulation is removed from AM transmitted AM modulated carrier.

3,831,095

RECEIVER SYSTEM HAVING MULTIPLE CONTRIBUTING CHANNELS

George R. Mounce, 18 Bridle Path, Willowdale, Ontario, Canada

Filed Mar. 26, 1973, Ser. No. 344,886

Int. Cl. H04b 1/06

U.S. Cl. 325-302

5 Claims

A system for receiving multiple transmission arriving in separate channels all modulated with identical information where the signal strengths among the channels are variable, these signals being received by separate tuners each tuned to one of the channels, the signals being combined after reception into a common audio output to which all of the channel tuners are continuously connected in such a way that the strongest channel usually is the source of the output although another channel having a comparable signal strength can also

contribute. The individual tuners each have an automatic gain control lead extending from the tuner and connected and driven in parallel with all the others whereby all the gains of their respective tuners are uniformly adjusted according to the

average signal level of their composite output, usually the level in the strongest channel. The system is illustrated herein by tuners receiving the plural different frequency channels on which WWV broadcasts the same information.

3,831,096

TELEMETRY RECEIVER PHASE DETECTOR OUTPUT SIGNAL PROCESSING CIRCUIT

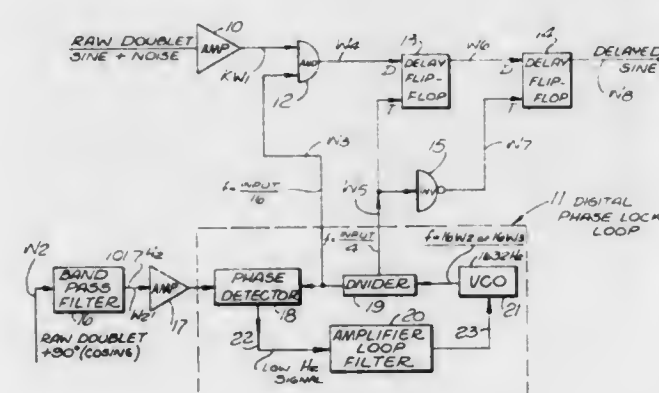
Houston A. Brown, Jr., Granada Hills, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Apr. 24, 1972, Ser. No. 246,676

Int. Cl. H04b 1/10

U.S. Cl. 325-321

9 Claims



A doublet signal detection arrangement using a phase lock loop to generate a constant timing signal. A sampling technique operating from the constant timing signal reproduces one side of the doublet with essentially perfect shape and no edge jitter. The timing signal can then be used to further decode the signal.

3,831,097

IMAGE RECOVERY RECEIVER

Donald Neuf, Wantagh, N.Y., assignor to RHG Electronics Laboratory, Inc., Deer Park, N.Y.

Filed Feb. 23, 1973, Ser. No. 335,337

Int. Cl. H04b 1/26

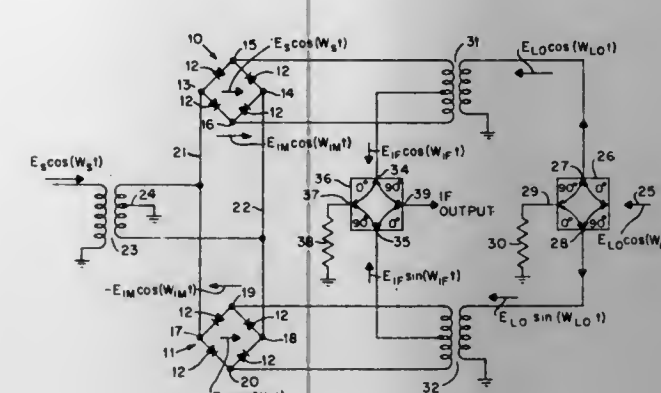
U.S. Cl. 325-446

14 Claims

An image recovery mixer system comprising two double balanced mixers each of the diode bridge type and having one

set of opposing diagonals of one bridge interconnected with one set of opposing diagonals of the other set, thereby can-

work is not connected in the feedback path of the controller, it is connected to ground and its rate capacitor is discharged,



celling the image frequency signal directly between the diode mixers. The input RF signal can then be applied in phase to both mixers by means of a transformer or balun.

3,831,098

PULSE STRETCHER FOR NARROW PULSES

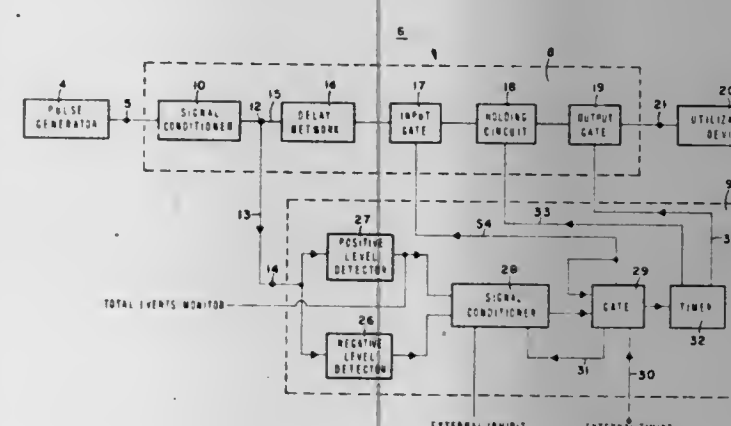
James C. Fletcher, Administrator of the National Aeronautics and Space Administration, with respect to an invention by, and Reed S. Lindsey, Jr., 1002 Antoine, Apt. 15, Houston, Tex. 77055

Filed June 25, 1973, Ser. No. 373,587

Int. Cl. H03k 5/04

U.S. Cl. 328-58

7 Claims



A pulse stretcher for narrow pulses comprising an analog section for processing each arriving analog pulse and a digital section having logic for providing command signals to the gates and switches in the analog section.

3,831,099

CONTROLLER HAVING GAIN SELECTABLE INDEPENDENTLY OF CONTROLLER OUTPUT

Elmer Paul Diehl, Wakefield, Mass., assignor to The Babcock & Wilcox Company, New York, N.Y.

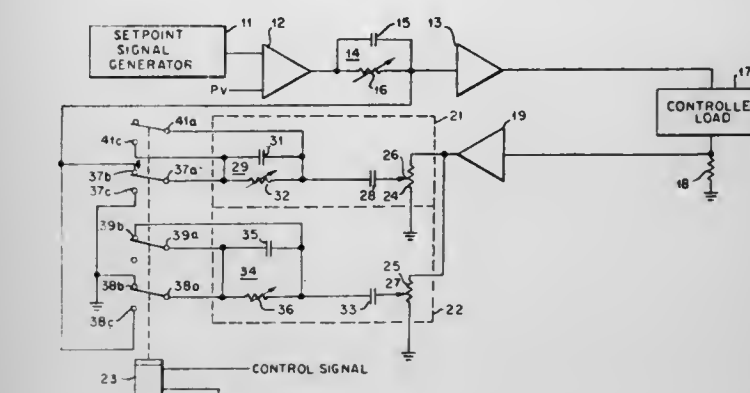
Filed Jan. 27, 1972, Ser. No. 221,239

Int. Cl. H03f 1/32

U.S. Cl. 328-71

8 Claims

A process controller having selectable feedback networks for changing the controller gain independently of the controller output. Each feedback network includes proportional and rate control circuitry. When a particular feedback net-



thereby allowing a smooth transfer of control when the feedback network is switched into the controller circuit.

3,831,100

PULSE SEQUENCE CONTROL CIRCUIT

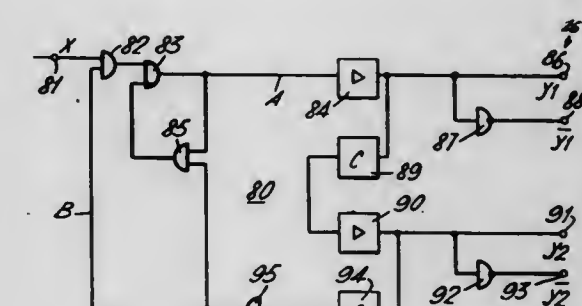
Karl-Heinz Forster, Dresden; Lothar Vetter, Radebeul; Hans John, Radebeul, and Klaus Schanze, Radebeul, all of Germany, assignors to VEB Polygraph Leipzig Druckmaschinenwerk Planeta Radebeul, Radebeul, Germany

Division of Ser. No. 72,737, Sept. 16, 1970, Pat. No. 3,746,957. This application May 10, 1973, Ser. No. 359,151

Int. Cl. H03k 17/28

U.S. Cl. 328-71

1 Claim



A remote control arrangement for the positioning and drive members, for example, of a printing machine, in which stepping motors are coupled to the positioning or drive members. The stepping motors are controlled by a control network which is responsive to a single input pulse of determined duration for applying a series of successive control pulses to the stepping motors, so that the rotors of the stepping motors are in electrically similar positions, with respect to their stators, before and after each control pulse series. Means are provided for mechanically coupling the stepping motors to their respective positioning and drive members to obtain stepwise axial movement or rotation of the positioning or drive members. An input circuit of the control network may be provided to enable single step movement, continuous movement, or continuous movement for a preselected number of steps.

3,831,101

PARTICLE BEAM INJECTION SYSTEM

James Nelson Benford, Kensington; Sidney Darwin Putnam, Berkeley, and Charles Henry Stallings, Pleasanton, all of Calif., assignors to Physics International Company, San Leandro, Calif.

Filed Mar. 5, 1973, Ser. No. 338,089

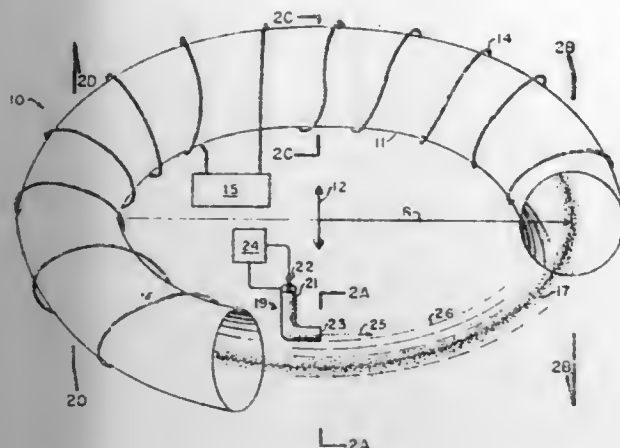
Int. Cl. H01j 29/76

U.S. Cl. 328-230

17 Claims

A beam of electrons is injected into a plasma confining magnetic field by directing the beam of particles along a trajectory which is generally parallel to the lines of force of the magnetic

field with drift forces existing on the particles to cause them to drift across magnetic lines of force by either the use of an auxiliary magnetic field or by adjusting the parameters of the toroidal system when injecting into a toroidal confining magnetic field. The system is also adaptable to simultaneous injection of a plurality of beams and for injection times greater than one transit of the torus.



toroidal system when injecting into a toroidal confining magnetic field. The system is also adaptable to simultaneous injection of a plurality of beams and for injection times greater than one transit of the torus.

3,831,102

PUSH-PULL AUDIO AMPLIFIER

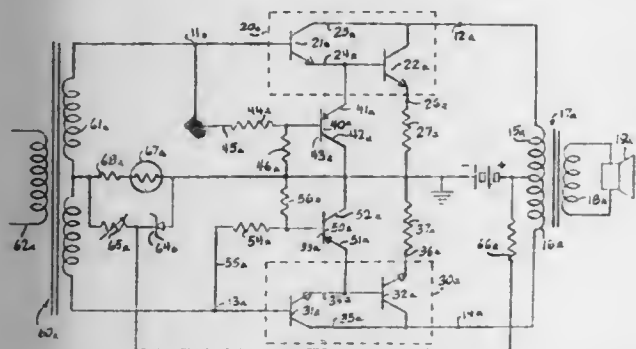
Richard J. Medal, Mount Prospect, Ill., assignor to Rauland-Borg Corporation, Chicago, Ill.

Filed Mar. 9, 1973, Ser. No. 339,726

Int. Cl. H03f 3/26

U.S. Cl. 330—15

2 Claims



A push-pull class B amplifier circuit having upper and lower legs each including transistors connected in Darlington pair configuration and feeding an output transformer. Each Darling pair is provided with an auxiliary transistor having its output connected, in shunting relation, to ground with the base of the output transistor thereof having its input controllably connected to a respective amplifier input terminal so that the auxiliary transistor forms an open circuit during conductive half cycles and forms a low resistance shunt connection for draining charge from the base of the output transistor to insure that there is no conduction in the latter whatsoever during inactive half cycles.

3,831,103

ACTIVE FILTER CIRCUIT

Frank A. Ruegg, Brea, and Lawrence M. Silva, Palos Verdes Peninsula, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Apr. 30, 1973, Ser. No. 355,890

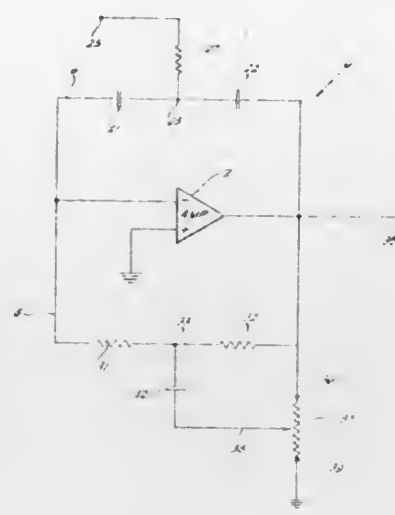
Int. Cl. H03f 1/36

U.S. Cl. 330—109

5 Claims

An active element sharp cut-off bandpass filter circuit having independently tunable center frequency and Q characteristics. The filter circuit incorporates a high performance operational amplifier having one input connected to ground and a pair of feedback paths interconnecting the amplifier

output and the other input. One feedback path includes two capacitors connected in series and the other path includes two resistors connected in series. The input to the filter circuit is connected, via an input resistor, to the common juncture of the capacitors; and the amplifier output is connected to the



filter output terminal, as well as to one end of a grounded voltage divider having a movable tap. The common juncture of the feedback resistors is connected, via a capacitor, to the movable tap of the voltage divider. In one embodiment the capacitors have equal values and the feedback resistors have values which are four times the value of the input resistor.

3,831,104

LASER TRANSMITTER

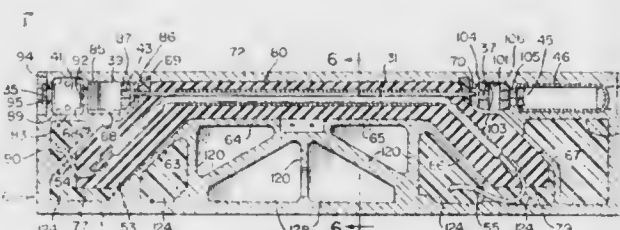
David A. La Marre, Woodstock, Conn.; Albert D. Battista, Worcester, Mass., and Donald A. Smith, Woodstock, Conn., assignors to American Optical Corporation, Southbridge, Mass.

Filed Sept. 5, 1969, Ser. No. 855,496

Int. Cl. H01s 3/02, 3/09

U.S. Cl. 331—94.5 D

1 Claim



In a laser transmitter employing a glass laser rod, the laser rod, a flashlamp for exciting the rod, and pump light reflector are encapsulated in a resilient potting material and the resulting assembly is secured in a frame by means of a resilient potting material. The reflectors defining the laser cavity together with other elements of the cavity are also mounted in pockets defined in the frame. A circuit is provided to generate high voltages from a low voltage supply for energizing the flashlamp and for Q switching the laser cavity by means of a Pockels cell.

3,831,105

CYANINE DYE INFRARED LASERS

Frank G. Webster, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 6, 1972, Ser. No. 295,774

Int. Cl. H01s 3/20; C09b 23/00

U.S. Cl. 331—94.5 L

10 Claims

Cyanine dyes containing a benzopyrylium nucleus in the chromophoric chain are useful as laser dyes. These dyes are

used in solution with a non-interfering solvent to form lasing media useful in dye lasers. When excited, these dyes typically emit in the near infrared region of the spectrum.

3,831,106

Q SWITCHED LASERS

Ronald Douglas Ward, Dunfermline, Scotland, assignor to Ferranti Limited, Hollinwood, Lancashire, England

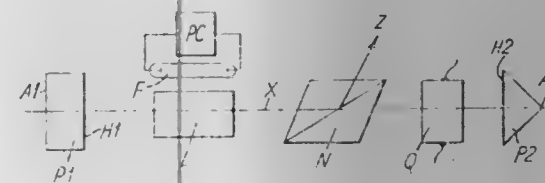
Filed Feb. 7, 1973, Ser. No. 330,405

Claims priority, application Great Britain, Feb. 11, 1972, 6408/72

Int. Cl. H01s 3/00

U.S. Cl. 331—94.5 Q

5 Claims



A Q-switched laser has its optical cavity defined by two right-angled prisms arranged with their hypotenuse faces towards one another and normal to the optical axis of the laser. The apex lines of the two prisms are perpendicular to one another. The optical cavity contains the laser active medium and means for exciting the medium, and also an electro-optic birefringent Q-switching device aligned with its fast axis parallel to the apex line of one of the prisms. A beam-splitting polariser is located between the Q-switching device and one prism.

3,831,107

CESIUM QUENCHED COPPER LASER

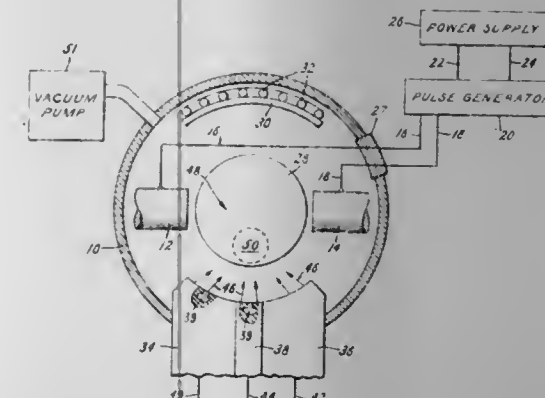
Thomas W. Karras, Berwyn, Pa., assignor to General Electric Company, New York, N.Y.

Filed Mar. 21, 1973, Ser. No. 343,381

Int. Cl. H01s 3/22

U.S. Cl. 331—94.5

2 Claims



Laser employing copper vapor as lasing gas is provided with small proportion (e.g., 5 percent) of cesium atoms, and operated in pulsed mode. Cesium atoms, while ionized by discharge, return very rapidly to ground state at its termination. Cesium first excitation energy from ground state is very nearly equal to energy of metastable lower lasing state of copper, which cesium at ground state will rapidly remove, preparing copper to be reexcited to upper lasing state at next pulse of exciting energy.

3,831,108

METHOD OF FREQUENCY AND INTENSITY STABILIZATION OF THE RADIATION EMITTED BY A HIGH-POWER GAS LASER AND A GAS LASER FOR THE APPLICATION OF SAID METHOD

Albert Le Floch, Rennes, France, assignor to Agence Nationale de Valorisation de la Recherche Anvar, Neuilly sur Seine, France

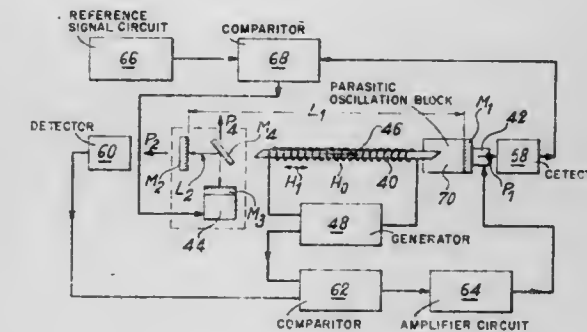
Filed Apr. 10, 1973, Ser. No. 349,867

Claims priority, application France, Apr. 21, 1972, 72.14213

Int. Cl. H01s 3/10

U.S. Cl. 331—94.5

24 Claims



The method consists in selecting a longitudinal mode having a frequency deviation δ from the center of the amplification line of the active gaseous medium, in applying a steady axial magnetic field within the gaseous medium so as to cause splitting of the amplification line by Zeeman effect, in superimposing an alternating axial magnetic field on the steady magnetic field so as to modulate the position of the magnetic Lamb dip and the output luminous intensity of the laser, in detecting and comparing the variations in output intensity with those of the alternating magnetic field, in generating a signal for correcting the frequency of the luminous emission and holding the frequency of the selected mode at the center of one of the two split lines.

3,831,109

TEMPERATURE-COMPENSATED VOLTAGE-TUNABLE GUNN DIODE OSCILLATOR

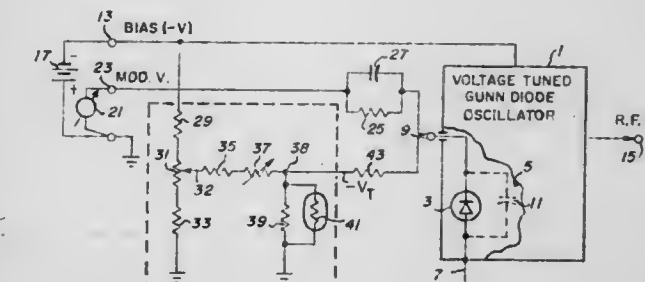
Robert Frank Leiby, San Mateo, Calif., assignor to Litton Systems, Inc., San Carlos, Calif.

Filed Feb. 9, 1973, Ser. No. 331,070

Int. Cl. H03b 7/06

U.S. Cl. 331—107 G

1 Claim



A novel temperature-compensated voltage-tuned Gunn diode oscillator is disclosed. The voltage-tuned Gunn diode oscillator is an oscillator of the type which contains a Gunn diode coupled to a frequency-determining circuit and includes a varactor, a voltage dependent capacitor, as an element of the oscillator frequency-determining network. Hence the oscillator may be tuned as a function of the voltage, sometimes termed the "modulating voltage," applied across the varactor by a modulating voltage source. A temperature dependent voltage source provides an output voltage which is a function of ambient temperature and functions as a source of

compensating voltage. A first high resistance means is connected in series circuit between the source of modulating voltage input and the varactor; a second high resistance means is connected in series circuit between the output of the temperature-dependent voltage source and said varactor; and the resultant voltage applied to the varactor is proportional to the sum of the modulating source voltages and the temperature-dependent network output voltage. The "net" modulating voltage applied to the varactor to set the oscillator frequency includes an "offset" voltage to compensate for the ambient temperature. The temperature-dependent voltage source includes a first low resistance network connected to the same source of voltage which supplies the normal bias voltage to the Gunn diode and further includes a second resistive voltage divider network and a thermistor.

3,831,110

MULTI-AXIS CAVITIES FOR MICROWAVE SEMICONDUCTORS

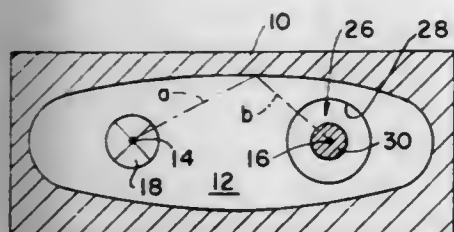
Lester F. Eastman, Ithaca, N.Y., assignor to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed May 1, 1972, Ser. No. 249,274

Int. Cl. H03b 7/14

U.S. Cl. 331-107 G

41 Claims



Multi-axis resonant cavities are provided in which a microwave semiconductor oscillator, e.g., an L.S.A. diode, operates in a below cut off mode with respect to the propagation characteristics of the cavity. An output coaxial transmission line extending into the cavity is radially spaced from the semiconductor and couples energy to a load by means of mutual inductance. In one arrangement, a flat circular cavity is formed in a block of electrically conductive material with a microwave semiconductor coaxially mounted at the center of the cavity having one face in electrical contact with a wave trap through which DC bias voltage is applied. The transmission line is off-center, adjacent to the semiconductor. In a modification of this arrangement, the floor of the circular cavity forms a truncated cone and the side wall comprises a spherical section. The angle of the conical floor is used to determine the cavity inductance. A flat elliptical cavity is described in one arrangement wherein the semiconductor and the transmission line are located respectively at the two foci of the ellipse. The elliptical cavity forms a resonator as well as a means of coupling out energy. Other arrangements of the circular cavity are described in which a plurality of semiconductors are located symmetrically in the cavity. In another system a semiconductor is located at the center of a partial circular cavity connected to a ridge wave guide having a coaxial transmission line displaced from the semiconductor extending through the ridge. A special low impedance slug in the output line of a multi-axis cavity is designed to load the fundamental frequency of oscillation of the diode and reduce the loading at the second harmonic, thereby producing more power at the fundamental frequency. Varactor-tuned Gunn oscillator and Gunn effect amplifier embodiments are also presented.

3,831,111 TEMPERATURE COMPENSATOR FOR A CRYSTAL OSCILLATOR

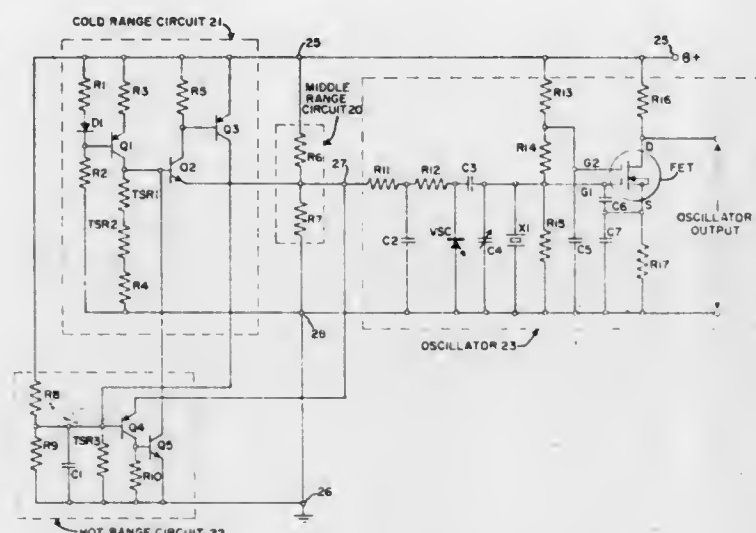
Edwin Carlton Lafferty, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.

Filed Aug. 6, 1973, Ser. No. 386,060

Int. Cl. H03b 5/36

U.S. Cl. 331-116 R

2 Claims



Crystal oscillators have been provided with a negative temperature characteristic capacitor to improve the frequency stability of the oscillator in the middle range of temperature, and have been provided with a voltage sensitive capacitor to improve the frequency stability of the oscillator in the cold and hot ranges of temperature. A temperature compensator is provided for varying the voltage applied to the voltage sensitive capacitor as a function of temperature. The temperature compensator has a middle temperature range circuit, a cold temperature range circuit, and a hot temperature range circuit which can stabilize the oscillator frequency to within plus or minus two parts per million (± 2 ppm) over a temperature range between -40°C and $+85^\circ\text{C}$.

3,831,112

VOLTAGE CONTROLLED SWEEP OSCILLATOR

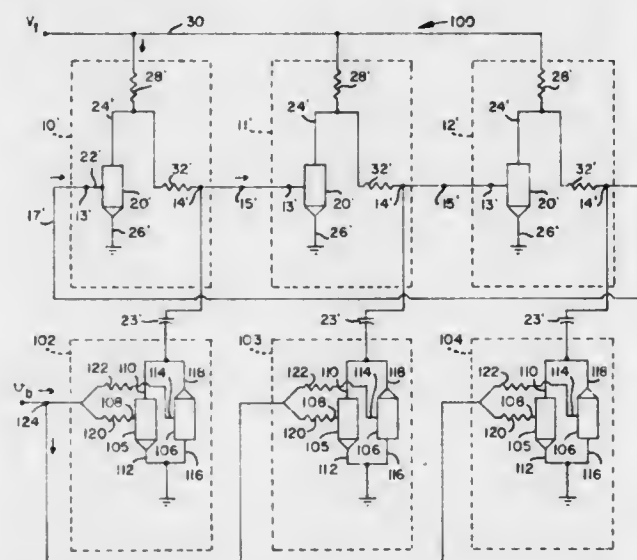
Charles A. Walton, Los Gatos, Calif., assignor to Proximity Devices, Incorporated, Sunnyvale, Calif.

Filed Dec. 27, 1972, Ser. No. 319,038

Int. Cl. H03b 5/24

U.S. Cl. 331-108 B

5 Claims



A sweep oscillator comprising a plurality of individual amplifier-phase shift stages connected in cascade, each of said stages being adapted to amplify an input signal and generate an output signal more than 180° out of phase relative to the input to said stage, the number of amplifier-phase shift stages

connected in cascade being adapted such that the phase relationship of the output of the last stage relative to the input of the first stage is a multiple of 360° ; terminal means for receiving a variable supply potential to vary the internal impedance of each of said stages responsive to the supply potential; and feedback means for returning an output signal from the last stage of the cascade to the input of the first stage of the cascade.

3,831,113

RELAXATION OSCILLATOR

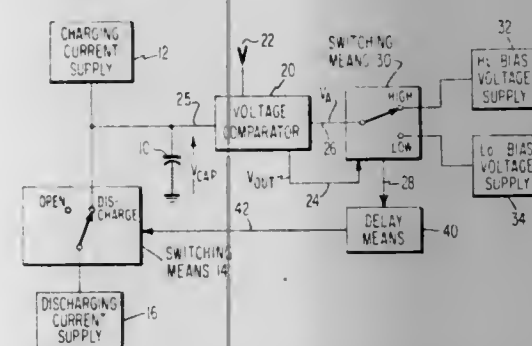
Adel Abdel Aziz Ahmed, Annandale, N.J., assignor to RCA Corporation, New York, N.Y.

Filed June 1, 1973, Ser. No. 365,840

Int. Cl. H03k 4/50

U.S. Cl. 331-111

17 Claims



A voltage comparator compares the voltage across a capacitor which is being charged with a reference voltage of a first value. When the voltage across the capacitor becomes equal to this first value, the comparator causes the reference voltage to switch to a second lower value and, a short time later, the capacitor is caused to switch from a charging to a discharging condition. When the two voltages again become equal, the process is reversed. In a preferred circuit, the means employed to delay the switching of the capacitor condition comprises a threshold detector connected to receive the reference voltage applied to the comparator and having a threshold intermediate the first and second reference voltage values.

3,831,114

ENCAPSULATED MICROSTRIP CIRCULATOR WITH MODE ELIMINATION MEANS

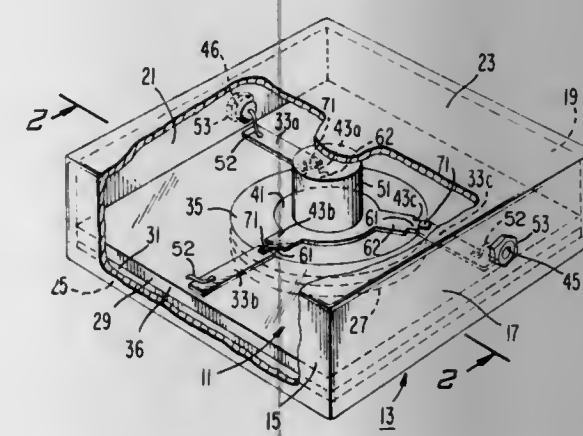
Robert Wayne Paglione, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 30, 1973, Ser. No. 355,716

Int. Cl. H01p 1/32, 1/16

U.S. Cl. 333-1.1

3 Claims



A microstrip circulator mounted within a metallic enclosure includes a dielectric substrate, a single ground planar conductor on one surface of the substrate and a plurality of narrow strip-like conductors extending from a common junction region on the opposite surface of the substrate. The substrate at the junction region includes gyromagnetic material so that

when a D.C. magnetic field is applied in the direction perpendicular to the substrate, circulator action is provided. A metallic post positioned between the junction region of the narrow conductors and a wall of the metallic enclosure eliminates unwanted radiation modes.

3,831,115

ACOUSTIC SURFACE WAVEGUIDE WITH GRADED PROFILE CROSS SECTION

Larry Allen Coldren, Leonardo, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 20, 1973, Ser. No. 381,054

Int. Cl. H03h 9/00, 9/30; H01v 7/00

U.S. Cl. 333-30 R

14 Claims



The edges of an acoustic surface wave slot waveguide are formed with graded edge thickness of decreasing magnitude toward the center of the slot to create a similarly graded Rayleigh wave velocity profile across the waveguide. An acoustic wave delay system utilizing the invention is shown, and different thickness profiles are illustrated for several slot waveguides and a strip waveguide.

3,831,116

SURFACE ACOUSTIC WAVE FILTER

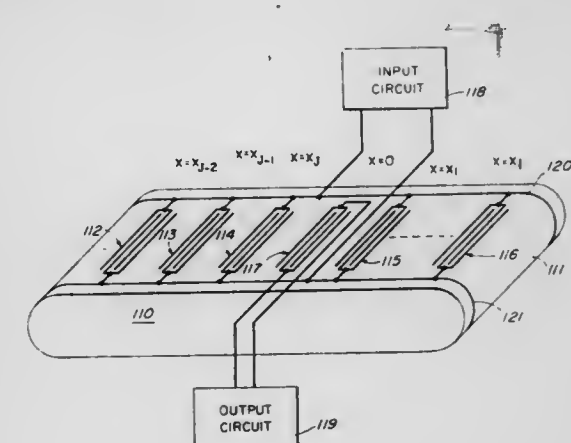
Luther Davis, Jr., Wayland, and Melvin G. Holland, Lexington, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Apr. 9, 1973, Ser. No. 349,601

Int. Cl. H03h 9/26, 9/32; H03b 5/30

U.S. Cl. 333-72

13 Claims



An acoustic wave filter is disclosed in which a number of input/output transducers are mounted on a piezoelectric substrate upon which surface waves may propagate in a continuous manner. The substrate may consist of either a continuous surface where the surface waves can circulate or a planar substrate with reflectors at either end of the substrate so that the waves will reflect back and forth from end to end. With such a device, using a single input transducer and a plurality of output transducers or alternatively a plurality of input transducers and a single output transducer, a narrow-band filter may be realized. In the preferred embodiment, the input or output transducers may be switched in and out thereby switching in and out different frequency response peaks. The device may be embodied as a switchable frequency selection device in a multichannel transceiver.

3,831,117

CAPACITANCE MULTIPLIER AND FILTER
SYNTHESIZING NETWORK

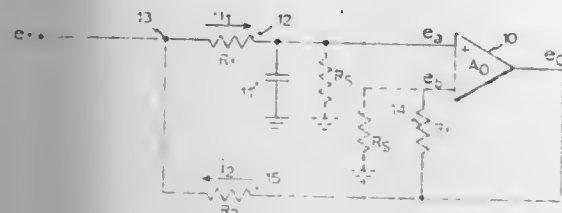
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention by, and Arthur J. Kline, 6453 E. Monta Rosa St., Scottsdale, Ariz. 85251

Filed Nov. 15, 1972, Ser. No. 306,652

Int. Cl. H03h 7/44, 11/00

U.S. Cl. 333-80 R

5 Claims



A circuit using a differential amplifier multiplies the capacitance of a discrete integrating capacitor by $(R_1 + R_2)/R_2$ where R_1 and R_2 are values of discrete resistor coupling an input signal e_i to the amplifier inputs. The output e_o of the amplifier is fed back and added to the signal coupled by the resistor R_2 to the amplifier through a resistor of value R_1 . A discrete resistor R_3 may be connected in series for a lag filter and a discrete resistor may be connected in series with the capacitor for a lead-lag filter. Voltage dividing resistors R_4 and R_5 may be included in the feedback circuit of the amplifier output e_o to independently adjust the overall circuit gain e_o/e_i .

3,831,118

MERCURY SWITCH

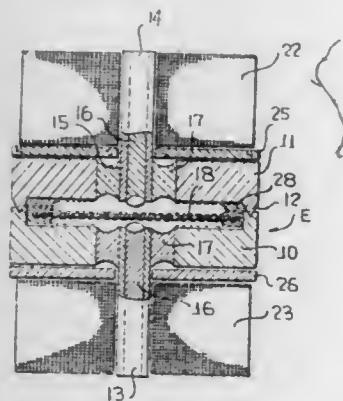
Sheldon S. Bitko, East Brunswick, N.J., assignor to Fifth Dimension, Inc., Princeton, N.J.

Division of Ser. No. 134,959, April 19, 1971, which is a continuation-in-part of Ser. Nos. 66,534, Aug. 24, 1970, and Ser. No. 71,294, Sept. 11, 1970. This application May 12, 1972, Ser. No. 252,810

Int. Cl. H01h 1/08

U.S. Cl. 335-47

11 Claims



An attitude insensitive mercury relay including a hermetically sealed non-magnetic enclosure composed of a header and header cap, welded together in a high pressure hydrogen atmosphere, including one or more stationary contacts extending insulatedly into the enclosure and a magnetic diaphragm as armature, in the form of a single planar tight spiral having physically separated turns. In one form of the device, the interior of the enclosure and the diaphragm may be mercury wettable, excluding only an insulating feedthrough button as provided for a stationary contact, and also excluding a portion of the face of the contact which is intended to sustain impact by the armature, the mercury wettable portion of that face being indented with respect to the impact area, and the quantity of mercury in the enclosure being sufficient, but only sufficient, to sustain a thin layer of mercury on the

mercury wettable surfaces. In other forms the enclosure may be nonametallic, e.g., ceramic, provided with mercury wettable screen surfaces or fabricated of non-mercury wettable material, e.g., magnetic material.

3,831,119

CREDIT CARD AND READER APPARATUS

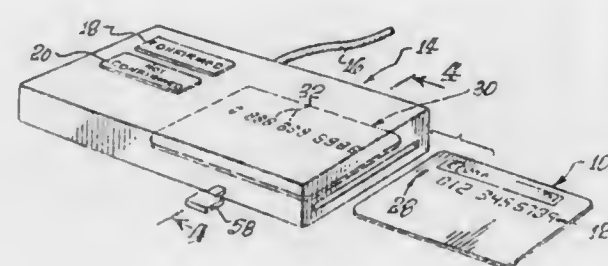
Biagio F. Ambrosio, Woodland Hills, Calif., assignor to Electronic Memories & Magnetics Corp., Los Angeles, Calif.

Filed Dec. 14, 1972, Ser. No. 315,129

Int. Cl. G06k 7/06, 19/06

U.S. Cl. 235-61.11 A

4 Claims



A simple credit card and reader apparatus, including a card with insulative outer layers and with an electrically conductive inner layer that is exposed to form numerals, and a reader having static electrical contacts that engage the numeral-forming areas of the conductive card layer. The reader includes a signal generator that passes current into the conductive layer of the card, and a circuit that senses current picked up by the contacts to transmit signals representing the card numerals over a telephone line to a central receiving station.

3,831,120

TRIP UNIT HAVING IMPROVED TRIP ADJUSTMENT
INDICATOR AND CIRCUIT BREAKER INCORPORATING
SAME

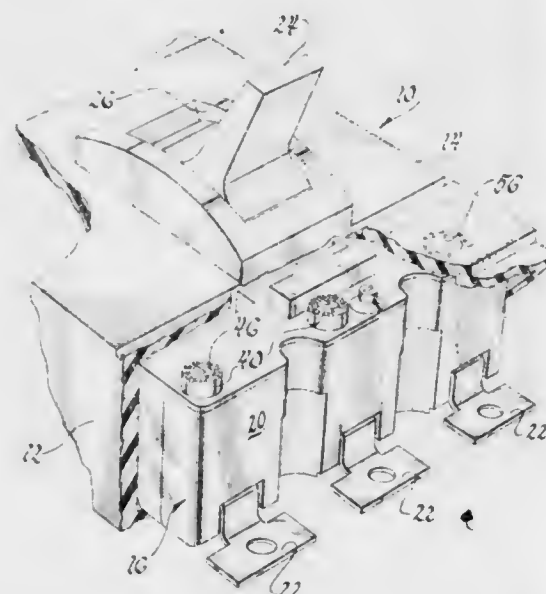
David Barton Powell, and Vincent Paul Acampora, both of Bristol, Conn., assignors to General Electric Company, New York, N.Y.

Filed Nov. 8, 1973, Ser. No. 413,840

Int. Cl. H01h 69/01

U.S. Cl. 335-176

14 Claims



A trip unit for molded case circuit breakers utilizes a tubular extension of its housing to carry a trip adjustment scale which is visible through an opening in the breaker case. An adjustment knob mounted on an adjustment shaft coaxially within the tubular extension is angularly positioned relative to the scale graduations to establish the desired trip setting. The scale graduations may be labeled by indicia imprinted on the breaker case about the opening therein.

3,831,121

FOCUSING MAGNET

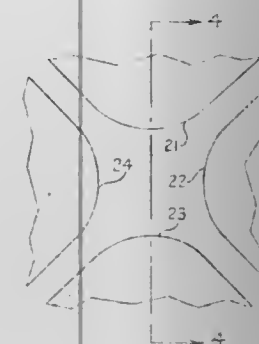
Eugene L. Oster, Sunnyvale, Calif., assignor to Magna Tek Systems, Inc., Hayward, Calif.

Filed July 10, 1973, Ser. No. 378,013

Int. Cl. H01f 7/00

U.S. Cl. 335-210

5 Claims



An electromagnet pole piece structure having four or more pole pieces with the surface of each piece being a modified hyperboloid in the vicinity of the central magnetic focusing gap to improve field linearity, reduce variations in effective length at various angles and radii and minimize field distortions resulting from fringe effects at entrance and exit.

3,831,122

BLUE LATERAL CORRECTION SYSTEM FOR COLOR
TELEVISION TUBES

Peter Hauke, Sarstedt; Hans-Joachim Ludeke, Nastatten; Heribert Martinetz, and Rolf Ohlhorst, both of Hildesheim, all of Germany, assignors to Blaupunkt-Werke GmbH, Hildesheim, Germany

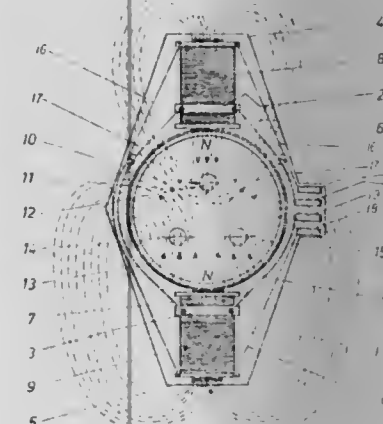
Filed Sept. 12, 1973, Ser. No. 396,445

Claims priority, application Germany, Sept. 13, 1972, 2244797

Int. Cl. H01f 7/00

U.S. Cl. 335-210

3 Claims



Two oppositely directed electromagnets are mounted on a printed circuit plate around the neck of the television tube, one oriented directly towards the beam of the blue gun and the other one provided with a pole strap extending partway around the tube in both directions, surrounding the portion of the tube in which the beams of the other two guns are located. The direction of the field intersecting the beam of the blue gun is opposite to that of the field intersecting the beams of the red and green guns.

3,831,123

YOKE REMOVAL FROM A BONDED YOKE-CATHODE
RAY TUBE ASSEMBLY

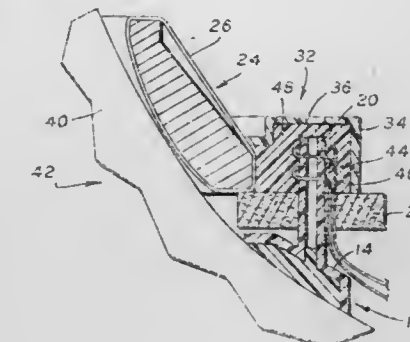
Floyd E. Aldrich, Waterloo, and Joseph L. Hallett, Seneca Falls, both of N.Y., assignors to GTE Sylvania Incorporated, Stamford, Conn.

Filed Oct. 31, 1973, Ser. No. 411,303

Int. Cl. H01f 7/00

U.S. Cl. 335-210

3 Claims



In a cathode ray tube-deflection yoke combination wherein the yoke is bonded to the cathode ray tube by a hot melt adhesive to effect semi-permanent adherence thereto, means for softening the adhesive to permit yoke removal for repair or replacement are provided. The adhesive softening means comprises resistance wire wound about the supporting posts which are surrounded by hardened adhesive in order to mount the yoke. Applying electrical current to the resistance wire softens the adhesive and allows the yoke to be removed.

3,831,124

MAGNETIC CORE APPARATUS

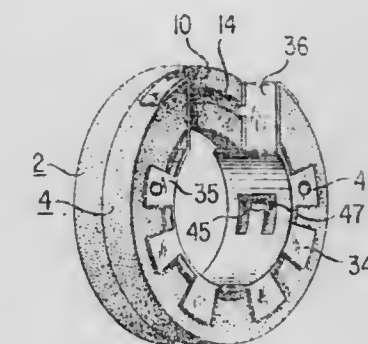
Alfonso Joseph D'Alessio, Rockaway, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Nov. 8, 1973, Ser. No. 413,878

Int. Cl. H01f 3/00

U.S. Cl. 335-298

7 Claims



A magnetic core apparatus includes two arcs of magnetic material which are rotatably mounted with respect to each other within a holder. The arcs can be rotated into alignment for placement about conductors not having accessible ends and then locked thereabout by rotating the arcs out of alignment.

3,831,125

WELDING UNIT WITH IMPROVED TRANSFORMER TAP
AND SWITCH CONSTRUCTION

Richard B. Brundage, St. Louis, and Walter P. Jost, Jr., Manchester, both of Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Filed June 6, 1973, Ser. No. 367,486

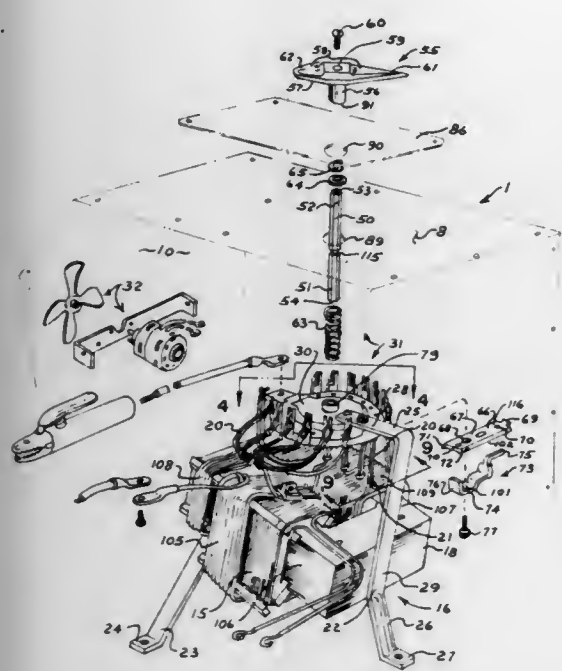
Int. Cl. H01f 21/12

U.S. Cl. 336-90

18 Claims

A core type transformer for an AC welder has a primary and a secondary winding composed of a plurality of wire turns. In

manufacturing the secondary winding, individual wire turns are preselected and pulled away from the remaining body of wire turns so as to form a wire loop. The wire loops function as winding taps and each of the wire loops is connected within the welder enclosure to one of a plurality of positions selectively engageable by a switch assembly. The switch assembly includes a rotatable shaft which is operatively connected to a

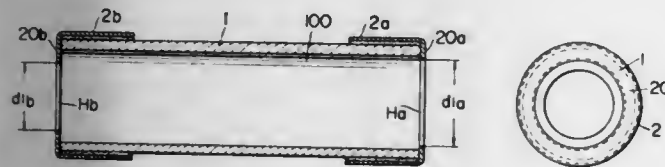


switch body on a first end and extends through the enclosure on a second end. An indicator means in the form of a pointer is mounted to the second end of the shaft. The enclosure has at least two scales concentrically arranged on it, each extending over an arc of less than 180°. Rotation of the switch assembly and the pointer in particular, in either direction over 180° automatically changes scales.

3,831,126
CYLINDRICAL FUSE AND PRODUCTION THEREOF
Toshio Wakui, Kawasaki, Japan, assignor to Fuji Denki Seizo Kabushiki Kaisha, Kawasaki, Japan
Division of Ser. No. 223,495, Feb. 4, 1972. This application July 9, 1973, Ser. No. 378,310
Int. Cl. H01h 85/16

U.S. Cl. 337—231

1 Claim



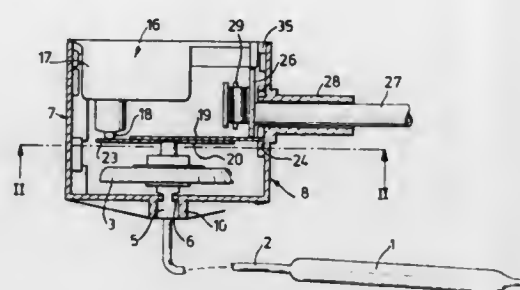
An electric power fuse produced by a method comprising the steps of preparing two circular discs each having a central hole and a plurality of peripheral slits, and each slit having a lug at the radially inner end thereof, placing the circular discs at a predetermined distance, inserting fuse elements in the slits so that two ends of the fuse elements are fixed around the lugs, slipping an insulating tube over the fuse elements thus assembled, and filling the interior of the insulating tube with an arc extinguishing substance.

3,831,127
CONTROL SWITCH UNITS
Robert F. Pursell, Devon, England, assignor to Ranco Controls Limited, Devon, England
Filed Sept. 7, 1973, Ser. No. 395,078
Claims priority, application Great Britain, Sept. 9, 1972, 41981/72

U.S. Cl. 337—321

Int. Cl. H01h 37/04

16 Claims

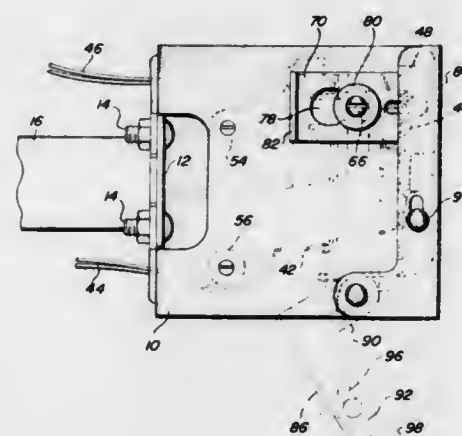


A temperature-responsive switch unit has a casing enclosing a bellows device and a switch unit arranged to be operated by the bellows device through a lever. To facilitate precision assembly the casing is made in two rigid parts, preferably die-cast, which fit together and which between them clamp the conduit leading to the bellows device, or a clevis surrounding this conduit, and the switch unit to locate and clamp the switch unit and the bellows device positively relative to each other.

3,831,128
ROTATABLE TERMINAL BLOCK
Edward S. Paluch, Elmwood Park, Ill., assignor to Reliable Electric Company, Franklin Park, Ill.
Filed July 23, 1973, Ser. No. 381,785
Int. Cl. H01r 9/02

U.S. Cl. 339—18 B

6 Claims

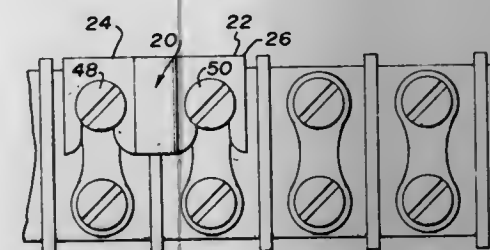


A rotatable terminal block for communications circuits has a group of terminals with front and rear portions projecting respectively from opposite faces of the block. The block is mounted on a bracket that is in turn adapted to be mounted on a main distribution frame. The block is rotatably mounted on the bracket for movement between two positions in order to present alternatively the front or rear portions of the terminals for the purpose of affixing wire conductors. Lock levers are provided that cooperate with trunions on the block for releasably locking the block in each of the two positions. A cover is pivotally mounted on the block and is rotatably therewith. Latch plates on the cover hold the cover over the terminals, the latch plates being releasable to permit exposure of the front portions of the terminals for attachment of wires thereto.

3,831,129
DEFLECTABLE JUMPER STRIP
William G. Frey, Union, N.J., assignor to Thomas & Betts Corporation, Elizabeth, N.J.
Filed Sept. 14, 1973, Ser. No. 397,243
Int. Cl. H01r 31/08

U.S. Cl. 339—19

3 Claims

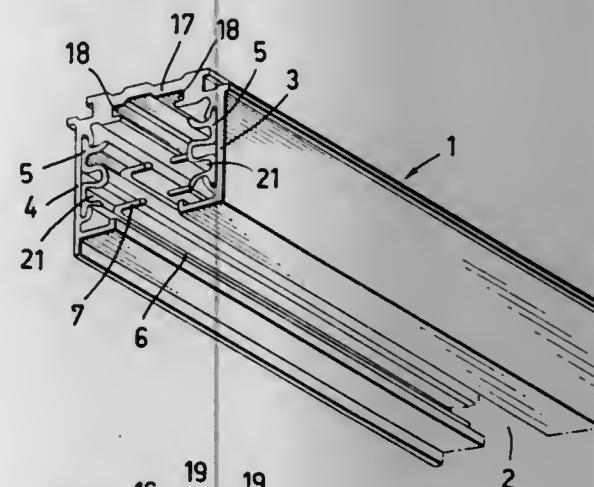


A jumper strip for terminal blocks or the like comprises in one embodiment a pair of fastener engaging portions coupled together by a resiliently deflectable upstanding arched portion so that the spacing between the apertures may be selectively varied by exerting suitable pressure on the arched portion. The strip may be disposed over terminal screws having a center to center spacing slightly greater or smaller than the spacing between the apertures in the strip whereby upon release of the arched portion the strip is urged against the shank of the terminal screws and retained in position during the loosening and tightening of the screws. In another embodiment, a plurality of such fastener engaging portions are resiliently joined one to another in strip fashion to provide a multiple terminal shorting bar or jumper strip. The apertures are joined to a common edge of the jumper strip by a slot which may be aligned with or offset from the axis of the aperture.

3,831,130
COUPLING ELEMENT FOR AN ELECTRIC CURRENT SUPPLY CONDUIT
Rainer Iikka Tapio Valtanen, Espoo, Finland, assignor to Oy Nokia Ab, Helsinki, Finland
Filed Feb. 22, 1973, Ser. No. 334,882
Int. Cl. H01r 9/00

U.S. Cl. 339—21 R

3 Claims



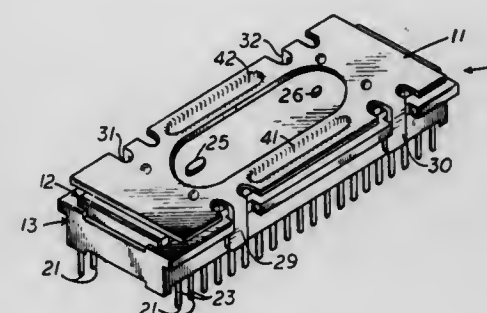
A coupling element for an electric current supply conduit comprising a metal support rail of substantially U-shaped cross-section forming an open longitudinal channel. The op-

posite side walls of the support rail is provided with longitudinally extending current conductors terminating a short distance inside the ends of the support rail. The coupling element comprises a body which can be removably inserted into said open channel from the end of the support rail and provided with contacts for connection with the ends of the current conductors. The body is provided with projections or similar which abut against the ends of the current conductors and prevent the coupling element from being inserted into the support rail if said ends of the current conductors extend to the end surface of the supply rail.

3,831,131
INTEGRATED CIRCUIT PACKAGE CONNECTORS
Brain R. Woodcock, Chadds Ford, and John L. Tansky, Collingdale, both of Pa., assignors to Bunker Ramo Corporation, Oak Brook, Ill.
Filed Nov. 8, 1971, Ser. No. 196,676
Int. Cl. H05k 1/12; H01r 13/50

U.S. Cl. 339—95 R

20 Claims



Electrical conductors in which a flat integrated circuit package is held on insulating base means to engage conductive pads of the package with forwardly projecting active end portions of contact means disposed in the base means. Initially, the active portions are moved rearwardly, through bending of a laterally extending portion of the contact means, and a high unit contact pressure is developed after which the active portions are moved laterally, through bending of an angularly extending portion of the contact means, with a wiping action under the high unit contact pressure. The contact means are disposed in two parallel groups for coaction with pads disposed along opposite sides of a rectangular package and are arranged in a manner such as to balance lateral forces developed from the wiping actions. The package is held on the base by holding plate or screws, engaging the package at points such as to equalize contact pressures and minimize stresses on the package.

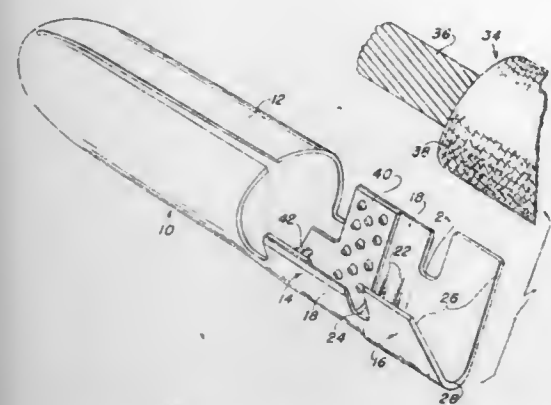
3,831,132
CRIMP TERMINAL FOR ALUMINUM WIRE
Wade R. Bowden, Jr., Milford, Conn., and Allen J. Bury, Prospect Heights, Ill., assignors to Molex Incorporated, Downers Grove, Ill.
Continuation of Ser. No. 138,471, April 29, 1971, abandoned.
This application Apr. 25, 1973, Ser. No. 354,186
Int. Cl. H01r 11/20

U.S. Cl. 339—95 R

6 Claims

A terminal, which may be a male or female pin terminal, or any other type of terminal commonly used for crimping onto electrical wire leads, is provided with an inner liner in the electrical crimping area which liner has a plurality of inwardly protruding asperities or open-top punched projections resem-

bling volcanoes for biting into the aluminum or other wire, the conductor extruding within the asperities, and the outer por-



tion of the terminal providing an air and moisture excluding housing for the electrical connection between the inner lining and the aluminum wire.

3,831,133

ELECTRICAL CONNECTOR WITH MODULAR GROOVES

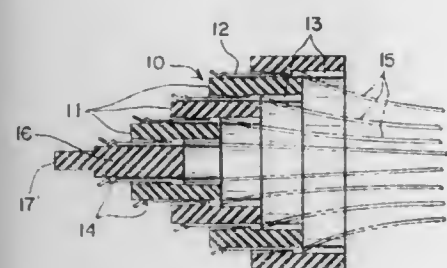
Michael Grundfest, 99-41 64th Ave., Forest Hills, N.Y. 11374

Filed May 11, 1972, Ser. No. 252,439

Int. Cl. H01r 13/64

U.S. Cl. 339-186 M

4 Claims



An electrical connector including a plug and receptacle member comprising a plurality of annular cylinders coaxially and telescopically interdisposed over one another. A plurality of flat electrical contacts are disposed in grooves provided in the cylinders parallel to the longitudinal axis of the plug and receptacle members for interconnecting a plurality of electrical conductors. Retaining members are integrally formed in the grooves to prevent axial movement of the flat contacts in the plug and receptacle members, and each of the contacts is provided with a V-shaped portion near its free end which interengages with a corresponding portion of mating contacts of the connector to prevent disengagement of the plug from the receptacle. The cylinders which form the plug and receptacle members may also be provided with a plurality of radially outwardly extending rib members having semi-circular projections integrally formed thereon which are received in correspondingly shaped recesses on the internal surfaces of the cylinders to prevent circular movement of the cylinders with respect to each other.

3,831,134

CABLE CLAMP WITH NON-SHEARING JAWS

Paul A. Cornell, Knockanore, Ireland, and Lynn H. Latta, Pismo Beach, Calif., assignors to Electro-Clamp Corporation, Beverly Hills, Calif.

Filed June 15, 1973, Ser. No. 370,393

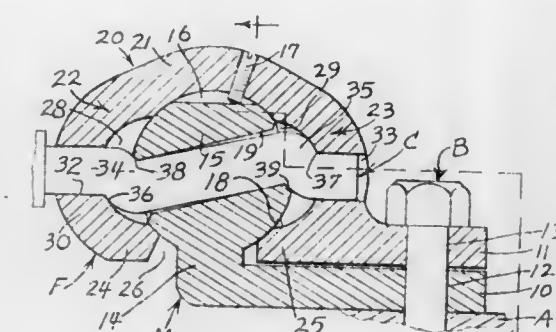
Int. Cl. H01r 7/08

U.S. Cl. 339-266 R

10 Claims

A cable clamp of the type embodying rotatably coupled male and female clamping members with respective tails adapted to

be secured together to effect clamping action, is particularly characterized by arching of diametrically opposed cheeks of the female member away from opposite sides of the cylindrical male member which are in radially opposed relation to such cheeks, the male member being provided with a bore extending diametrically therethrough and the cheeks of the female member having openings which, in an open position of the



clamp, are aligned with the bore of the male member so as to receive the end of the cable; the arching of the cheeks providing pockets between the cheeks and the opposed surfaces of the male member, in which the traversing portions of the cable, in response to closing of the clamp, will be distorted into offset bends without any shearing action which would weaken the cable.

3,831,135

OPTICAL IMAGING OF SOUND FIELDS BY HETERODYNING

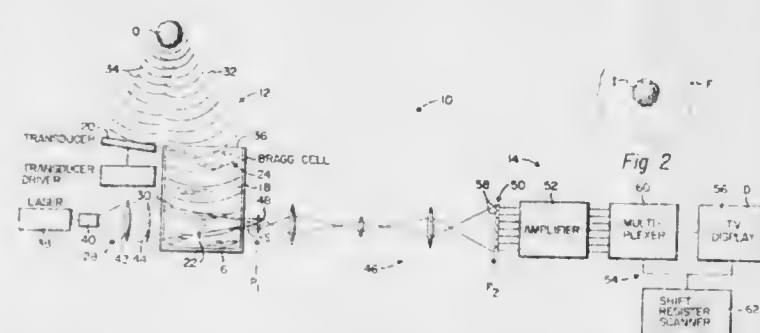
Roy A. Smith, Redondo Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Sept. 10, 1973, Ser. No. 395,490

Int. Cl. G01s 9/66, 7/56

U.S. Cl. 340-3 R

10 Claims



Bragg imaging at relatively low acoustic imaging frequencies is accomplished by Bragg diffracting light-beam lightbeam in such a way that the diffracted light from the Bragg light-sound interaction region includes an image sideband of one order or frequency and a relatively uniform field of reference light of another order or frequency which is superimposed on the image sideband at the image plane of the sideband image. The image sideband light heterodynes with the reference light to replicate the sideband image as a signal whose frequency is the beat frequency of the sideband and reference lights. The replicate heterodyne image is detected with a photodetector tuned to the beat frequency and electrically converted to an image display.

The invention herein described was made in the course of or under a contract or subcontract thereunder with the Department of Defense.

3,831,136

METHOD OF INITIATING AND COLLECTING SEISMIC DATA RELATED TO STRATA UNDERLYING BODIES OF WATER USING A CONTINUOUSLY MOVING SEISMIC EXPLORATION SYSTEM LOCATED ON A SINGLE BOAT

Hilmi F. Sagoci, Houston, Tex., assignor to Chevron Research Company, San Francisco, Calif.

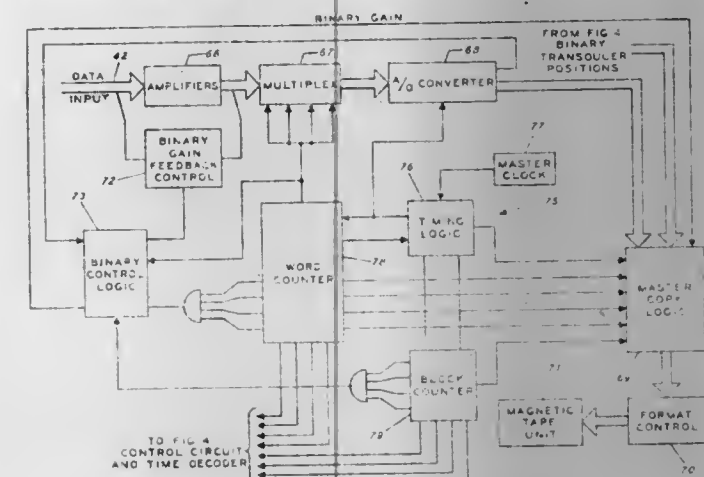
Continuation of Ser. No. 250,503, May 5, 1972, abandoned.

This application June 6, 1973, Ser. No. 366,382

Int. Cl. G01v 1/38, 1/28

U.S. Cl. 340-7 R

19 Claims



Description is hereinafter had to a method for collecting seismic data related to two-dimensional subsurface coverage of strata underlying a body of water. In accordance with the present invention, a continuously moving marine seismic exploration system includes a repetitive seismic source and a streamer of hydrophones trailing behind a single seismic boat traversing the body of water along a straight base course line. The seismic source is fired at a selected repetition rate to generate a series of firing stations coincident with the base course line. The streamer includes a plurality of hydrophones connected to the seismic boat by means of a lead-in cable extending from the rear of the boat and also includes a paravane assembly connected to the trailing end of the seismic streamer. The paravane has a rudder assembly whose position can be preset or be varied, as by radio commands from the seismic boat or under mechanically induced programmed commands, to change direction whereby the trailing end of the streamer is drawn through the water along a straight line parallel to the base line and offset from it by a selected distance. The terminus of the lead-in cable and the position of the remainder of the streamer (including all hydrophones) maintain a fixed geometry with respect to the base course line of the seismic boat. When the seismic source is activated at a selected repetition rate, a swathe of seismic data thus can be generated related to positional locations in a form of a swathe of two-dimensional center point grid arrays having an outer boundary parallel to the base course line at a distance equal to 1/2 the offset distance of the trailing end of the streamer from this same base course line. Since the seismic boat proceeds along the base course line at a constant speed, a uniform density of in-line seismic depth points is obtained. The density of cross-depth points depends on the distribution of hydrophones along the streamer. For equi-spaced hydrophones the density of cross-depth points decreases away from the base course line. In a preferred implementation of the method the hydrophones would be spaced along the streamer in such a way as to yield a uniform density of seismic cross-depth points. In order for the swathe of source-receiver positions at the surface to be clearly identified with the series of center point arrays, the streamer is provided with a series of sonic transducers along its length. Sonic pulses are emitted from a transmitter aboard the boat (preferably after the seismic source is activated, but before the reflections are received at the hydrophones) and are subsequently detected by the streamer transducers and retransferred back to the boat. In that way, identifying the instantaneous locations of the transducers by means of digital ranging techniques can be achieved. In one

form of the invention, the binary indications of the travel time of the sonic wave, and hence the instantaneous positions of the transducers per each shot, are directly encoded onto the field magnetic tape for later use in mapping of the subsurface under survey.

3,831,137

ACOUSTO-OPTIC UNDERWATER DETECTOR

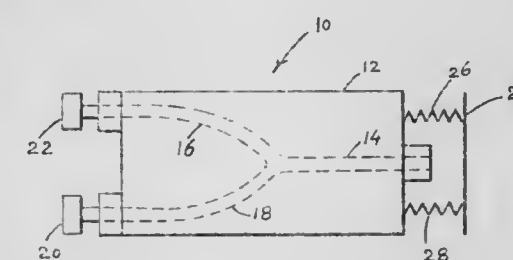
Frank W. Cuomo, East Providence, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 14, 1972, Ser. No. 246,092

Int. Cl. G01v 1/16

U.S. Cl. 340-8 R

4 Claims



A low frequency or pressure-gradient hydrophone comprising an optical reflector experiencing displacements responsive to acoustic waves. A beam light from a light source is carried by a first group of fiber optics guides and is incident upon the optical reflector. The light reflected from the reflector is carried by a second group of fiber optics guides to a light detector. Any displacements of the reflector due to pressure gradient due to acoustic waves impinging on the opposite sides of the reflector are detected by changes in intensity of reflected light from the light source.

3,831,138

APPARATUS FOR TRANSMITTING DATA FROM A HOLE DRILLED IN THE EARTH

Rudolf Rammner, Auf dem Hansenberg, D 6472 Altenstadt 2, Germany

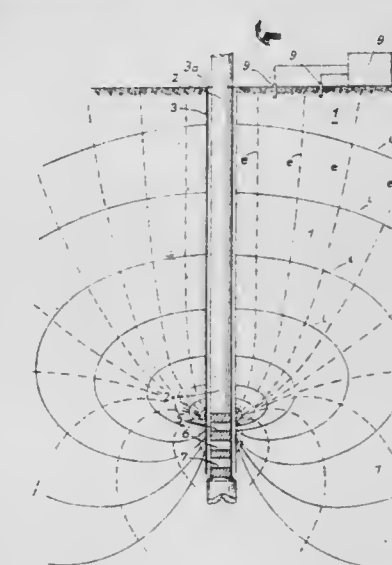
Filed Mar. 8, 1972, Ser. No. 232,799

Claims priority, application Germany, Mar. 9, 1971, 2111046; Feb. 8, 1972, 2205837

Int. Cl. G01v 1/40

U.S. Cl. 340-18 LD

8 Claims



An arrangement for measuring and transmitting geological, physical, geometrical or chemical data of soil strata penetrated by a drilling hole, comprising a signal generator located inside the drilling hole and including a converter which produces signals corresponding to the measured data and a transmitter controlled by the converter and which emits modulated output signals. A receiver is located in the region

of the open upper end of the drilling hole for demodulating the received signals and producing a visual display thereof in an indicator. The output of the transmitter of the signal generator and the input of the receiver are connected to conductive dipoles which are in electrically conductive connection with the soil such that the electrical signals are wirelessly transmitted through the soil in accordance with the electrical conductivity of the soil.

3,831,139

SHIPS' ANCHOR DRAG INDICATOR

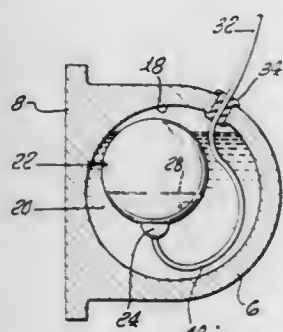
Thomas S. Hennessey, 971 Cold Springs, Santa Barbara, Calif. 93108

Filed Jan. 26, 1973, Ser. No. 327,155

Int. Cl. B63b 21/24

U.S. Cl. 340-29

6 Claims



A motion responsive device for use on boat anchors and other movable structures including an outer shell containing a liquid, a float in the shell having a spherical chamber therein containing a pool of mercury or other conductive liquid, a weight for maintaining the shell normally in a given position, an electrical contact ring about the inside of the spherical float or inner shell and a ground contact to the pool of mercury whereby a circuit is completed upon movement of the assembly sufficient to cause the float to rock and permit the pool of mercury to make electrical contact with the contact ring.

3,831,140

ELECTRICAL INTERLOCKING SAFETY BELT SYSTEM

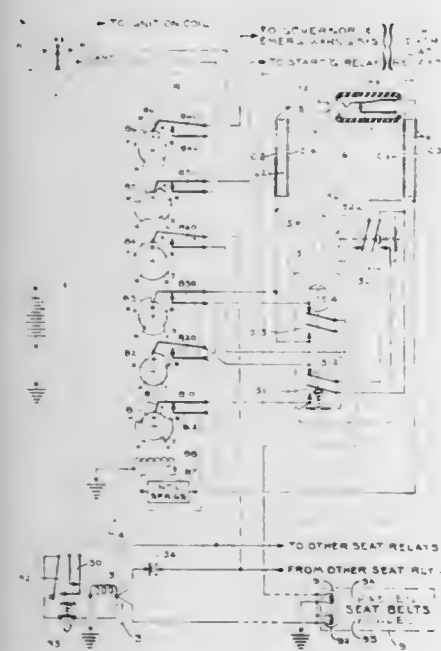
William W. Anderson, Jr., 26 Western Rd., Newport News, Va. 23601, and Ray M. Burcher, Box 107, Rt. 2, Grafton, Va. 23490

Filed June 7, 1972, Ser. No. 260,469

Int. Cl. B60r 25/10

U.S. Cl. 340-52 E

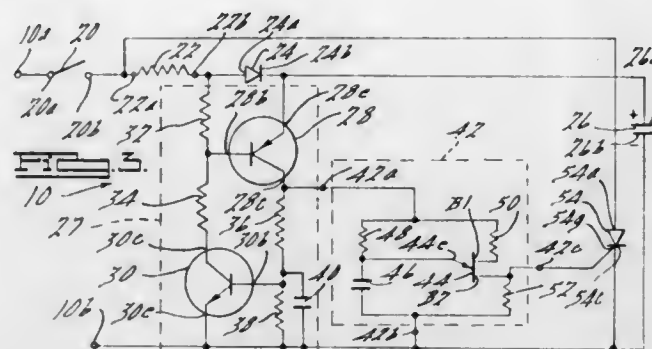
10 Claims



An electrically operated personal safety system for vehicles which makes the use of seat belts, including shoulder belts, mandatory in order to obtain full use of the related vehicles.

3,831,141
ALARM CIRCUIT
Richard J. Bowman, Croswell, Mich., assignor to W. M. Vick, Warren, Mich.
Filed Aug. 31, 1972, Ser. No. 285,449
Int. Cl. B60r 25/00; G08b 13/00
U.S. Cl. 340-63

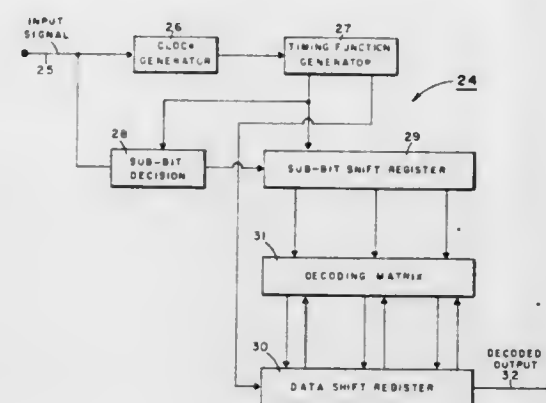
23 Claims



An alarm system particularly suited for detecting unauthorized entry into a vehicle having one or more load circuits which are energized by the vehicle battery when such entry is attempted. When the system is armed, battery voltage is continuously monitored against a reference voltage previously derived from the battery. The energization of one of said circuits causes a sudden drop in battery voltage and hence, a differential voltage between the battery and reference voltages. This differential voltage causes an alarm signal to be generated.

3,831,142
METHOD AND APPARATUS FOR DECODING COMPATIBLE CONVOLUTIONAL CODES
James C. Fletcher, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and George D. Doland, Houston, Tex.
Filed June 28, 1972, Ser. No. 266,940
Int. Cl. G06f 11/00
U.S. Cl. 340-146.1 AQ

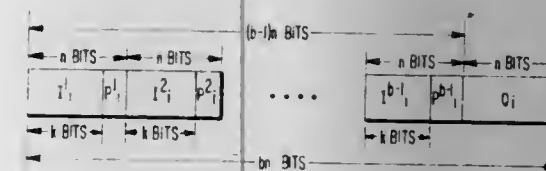
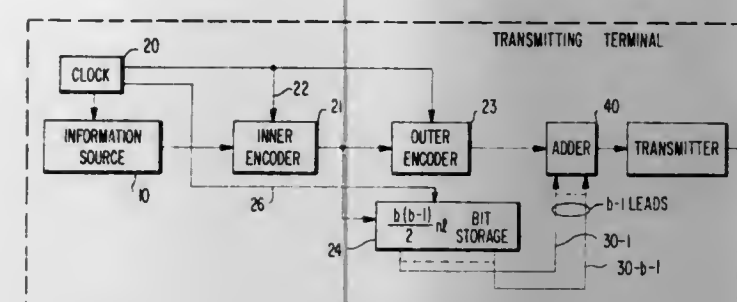
1 Claim



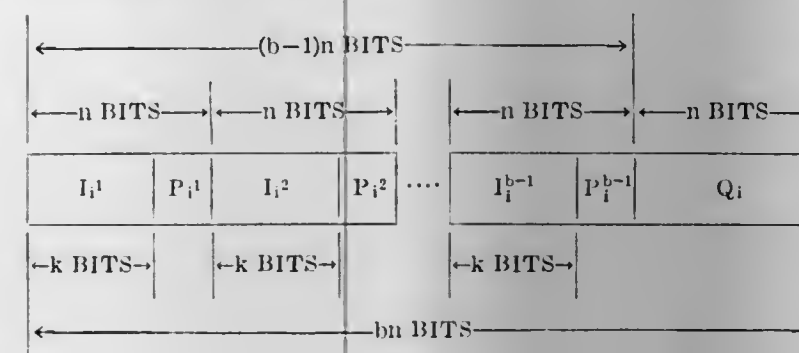
This invention relates to learning decoders for decoding compatible convolutional codes. The decoder decodes signals which have been encoded by a convolutional coder and allows performance near the theoretical limit of performance for coded data systems. The decoder includes a sub-bit shift register wherein the received sub-bits are entered after regeneration and shifted in synchronization with a clock signal recovered from the received sub-bit stream. The received sub-bits are processed by a sub-bit decision circuit, entered into a sub-bit shift register, decoded by a decision circuit, entered into a data shift register, and up-dated to reduce data errors. The bit decision circuit utilizes stored sub-bits and stored data bits to determine subsequent data-bits. Data errors are reduced by using at least one up-date circuit.

3,831,143
CONCATENATED BURST-TRAPPING CODES
Paul J. Trafton, Washington, D.C., assignor to Computer Science Corporation, Los Angeles, Calif.
Filed Nov. 26, 1971, Ser. No. 202,463
Int. Cl. H04l 1/10
U.S. Cl. 340-146.1 AL

3 Claims

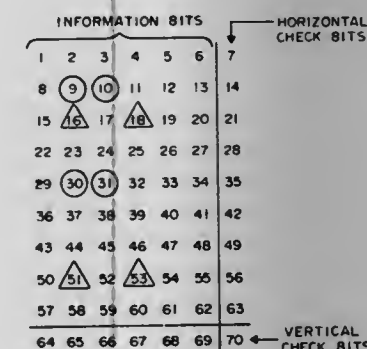


There is disclosed a data transmission system having a source of binary information data, encoding means responsive to the binary information data for encoding the data and applying the resulting code words to a communication link. At the receiving end of the communication link, a receiver means has a decoder for decoding the code words. The improvement lies in the encoding system which comprises means for transmitting a concatenated burst-trapping code word having the following form:



3,831,144
MULTI-LEVEL ERROR DETECTION CODE
John En, Palatine, Ill., assignor to Motorola, Inc., Chicago, Ill.
Filed June 11, 1973, Ser. No. 368,803
Int. Cl. H04l 1/10
U.S. Cl. 340-146.1 AL

13 Claims

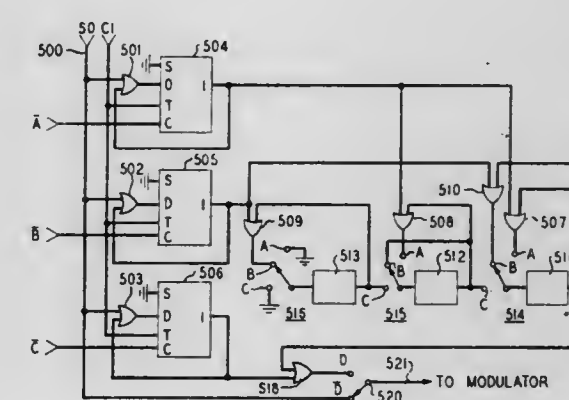


An error detecting coding and decoding system employing an encoder having a plurality of shift register systems for

generating independent sequences of check bits for multiple level checks. A decoder having similar shift registers is employed to regenerate the check bits from the transmitted information and to compare the locally generated check bits with the transmitted check bits generated by the encoder.

3,831,145
MULTILEVEL DATA TRANSMISSION SYSTEMS
Paul Mecklenburg, Fort Lee; William King Pehlert, Jr., Holmdel, and Daniel David Sullivan, Howell Township, all of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed July 20, 1973, Ser. No. 380,999
Int. Cl. G06f 11/12; G08c 25/00
U.S. Cl. 340-146.1 R

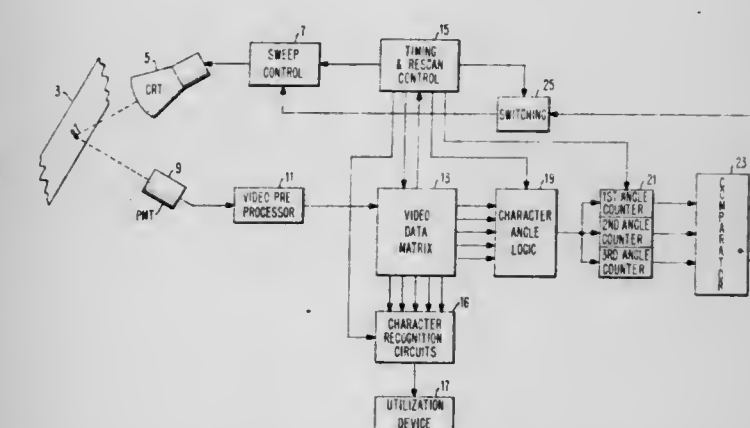
6 Claims



Improved forward acting error-control arrangements, including encoders and decoders, are described for use in 2ⁱ-level data transmission systems which employ Gray coding to transform a binary source sequence into the 2ⁱ-ary transmitted sequence. The codes called i-compressed codes make use of the structure of binary codes and have the property that for some integer i , $1 \leq i \leq l$, transmission errors can be corrected if the erroneously received signals lie less than 2ⁱ⁻¹ levels from the corresponding correct, or nominal, signal levels.

3,831,146
OPTIMUM SCAN ANGLE DETERMINING MEANS
Alfred T. Rundle, Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 19, 1973, Ser. No. 342,912
Int. Cl. G06k 9/04
U.S. Cl. 340-146.3 H

10 Claims



An arrangement for determining the optimum angle to scan characters for subsequent character recognition. Data from a plurality of initial or preliminary vertical scans is stored in a matrix and analyzed at the end of each scan for the angular relationship of the stored data, each representing a line segment oriented at one or another of several pre-selected angles from the horizontal. In each instance where an angle criterion is satisfied, a corresponding latch or memory device is set on.

At the end of each trace, the memory devices are interrogated and corresponding counters are advanced to record the number of times the various angle measurements are met.

When a predetermined portion of the line, or the entire document, if needs be, has been scanned, the optimum angle is selected by determining which of the counters has achieved the greatest count.

3,831,147

COMMUNICATION SYSTEM FOR THE HANDICAPPED

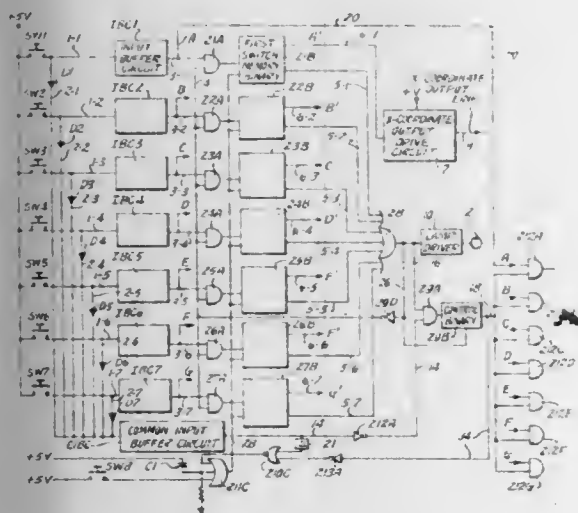
Haig Kafarian, 4201 Cathedral Ave., Washington, D.C. 20016

Filed Jan. 26, 1972, Ser. No. 220,995

Int. Cl. H04q 3/00

U.S. Cl. 340-166 R

7 Claims



A seven-key hard wire controller with a dual-sequence operation is used to provide an output signal for producing a typed symbol or the like. When used in a matrix arrangement, the first actuation of one of the switches will provide an X-coordinate, and the second actuation of one of the switches will provide the Y-coordinate. Circuitry is provided to store the X-coordinate signal until the second switch actuation occurs. Upon release of the second switch of the actuated pair, the symbol is typed or the desired function is activated, and the system is reset to accept another pair of inputs. The system is compatible with most types of electric typewriters, adding machines and punched and magnetic tape devices, as well as almost any machine where data or information is to be stored, printed, displayed or otherwise used.

3,831,148

NONEXECUTE TEST APPARATUS

Donald J. Greenwald, Nashua, N.H., and Thomas O. Holtey, Newton, Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 2, 1973, Ser. No. 320,048

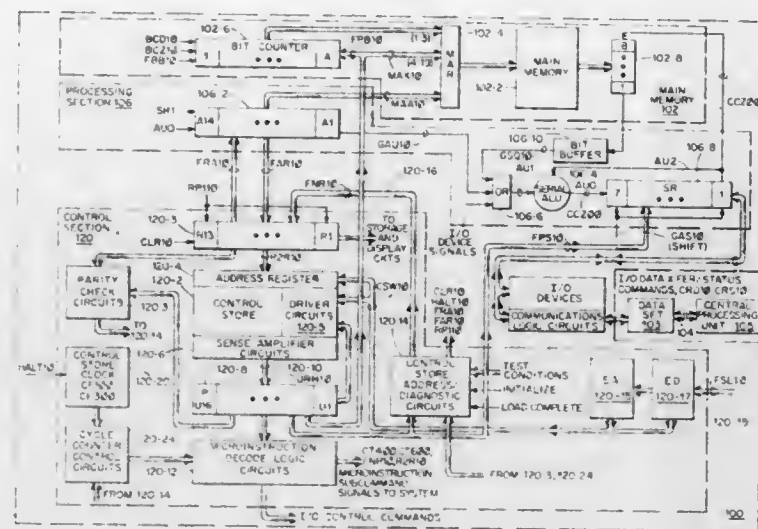
Int. Cl. G06f 11/04

U.S. Cl. 340-172.5

20 Claims

Diagnostic apparatus tests the operation of a control store included within data processing apparatus to verify the contents of each storage location and the operation of logic circuits associated therewith. The diagnostic apparatus is utilized when a resident maintenance routine stored within the control store is referenced which causes the read out of a microinstruction included within a predetermined control store location. Logic circuits included within the diagnostic apparatus decode the microinstruction and generate a subcommand which transfers control to the diagnostic apparatus. The diagnostic apparatus inhibits all operations except the addressing and the reading of the control store locations. The contents of the control store locations are checked in sequence by checking circuits until either the logic circuits decode a second microinstruction or until an error is detected. When the checking circuits detect an error, they cause the diagnostic apparatus to halt the test. At this time, the contents of the con-

trol store address register are displayed indicating where the failure occurred. When no failures are displayed, testing continues until a second microinstruction is decoded by the ap-



paratus which completes the testing by causing the transfer of control back to the control store enabling execution of subsequently read microinstructions.

3,831,149

DATA MONITORING APPARATUS INCLUDING A PLURALITY OF PRESETTABLE CONTROL ELEMENTS FOR MONITORING PRESELECTED SIGNAL COMBINATIONS AND OTHER CONDITIONS

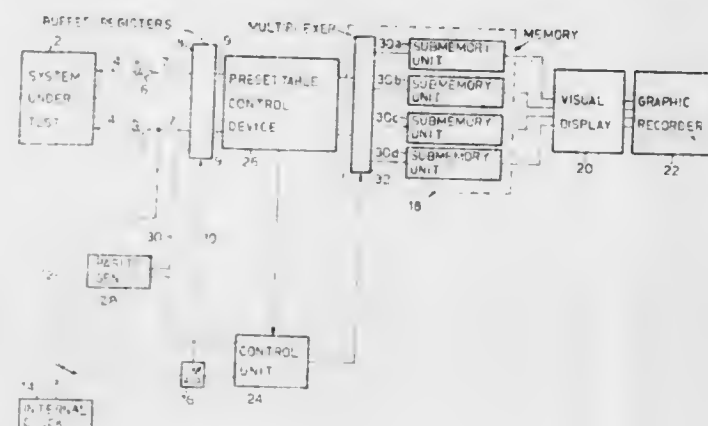
Andre Job, Beaufays, Belgium, assignor to Burroughs Corporation, Detroit, Mich.

Filed Feb. 14, 1973, Ser. No. 332,531

Int. Cl. G01r 15/00; G06f 11/06

U.S. Cl. 340-172.5

40 Claims



Data monitoring apparatus particularly useful for testing a data processing system functioning under its normal program control, comprises a plurality of test leads connectable to selected test points of the data processing system to be tested; a memory for storing information received by the test leads; an output device, such as a visual display or graphic recorder; and read-in, read-out control means including a presettable control device having a plurality of presettable elements, e.g. electrical switches.

The control device includes a group of presettable control elements, one for each test lead, each presettable to a "true" state, a "false" state, or an "indifferent" state, for specifying specific signal-combinations to be monitored, which signal-combinations control the read-in of information into the memory unit, and/or the read-out of information from the memory unit to the output device. Other presettable control elements are included to specify other conditions, such as "AT," "FROM," and "DIFFERENT DATA" conditions, also controlling the read-in and/or the read-out.

3,831,150

DATA ORDERING SYSTEMS

Benjamin O. Haynes, St. Louis Cty., Mo., assignor to Mylee Digital Sciences, Inc., Maryland Heights, Mo.

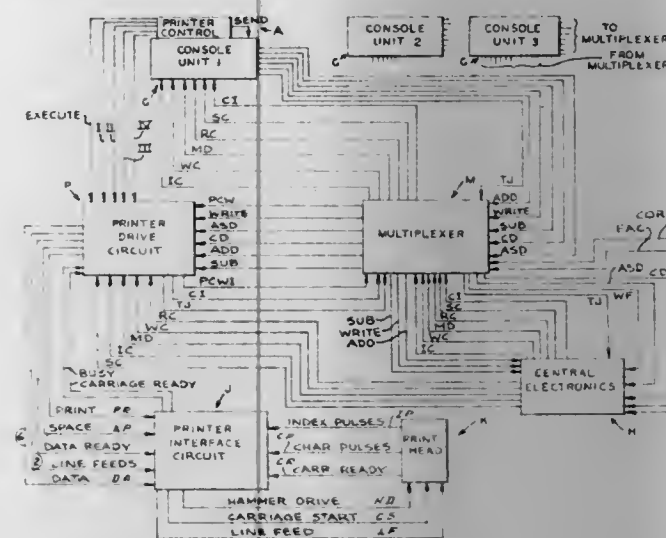
Division of Ser. No. 141,913, May 10, 1971, Pat. No.

3,747,071. This application Mar. 2, 1973, Ser. No. 337,770

Int. Cl. G06f 7/30, 7/12

U.S. Cl. 340-172.5

25 Claims



Data ordering systems for electronic data processing equipment, preferably of the non-programmable type which perform data storage and retrieval functions and selected arithmetic functions on sectors of data. The electronic data processing equipment may include one or more counsel units which may be remote or proximate to and connected to a central electronics unit, through a multiplexer circuit. The central electronics unit contains a memory section in the form of an addressable storage member for retaining the information introduced into the data processing equipment. A printer drive circuit is interposed between the printing mechanism and the multiplexer circuit and the central electronics unit.

The data ordering systems are used to present selected portions of the data, which may be stored or which may be introduced into the data processing system, to the printing mechanism in a desired format. The data ordering systems are preferably included with the printer drive circuit and enable an examining and subsequent ordering of the data according to certain selected criteria. Thus, these data ordering systems will perform certain functions including at least (1) examining sectors of data and selecting certain sectors of data having character fields therein, (2) determining whether the character fields are within preselected maximum or minimum limits, (3) determining the size values of character fields in the selected certain sectors, and (4) determining the presence of preselected codes in the sectors of data.

3,831,151

SENSE LINE PROCESSOR WITH PRIORITY INTERRUPT ARRANGEMENT FOR DATA PROCESSING SYSTEMS

Leo V. Jones, Jr., Chicago, and Paul A. Zelinski, Elmhurst, Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Apr. 4, 1973, Ser. No. 347,966

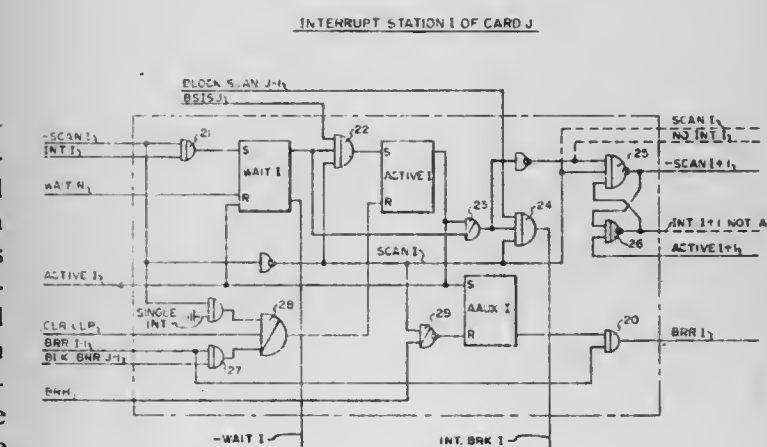
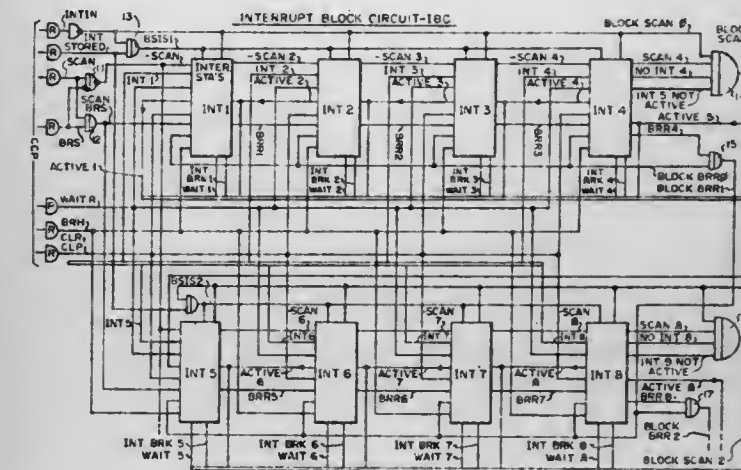
Int. Cl. G06f 9/18

U.S. Cl. 340-172.5

18 Claims

An interrupt block circuit uses hardware to scan interrupt leads during every instruction, with a station for every interrupt level, organized in blocks of four stations each, with the scan proceeding through all blocks in parallel, and then through the blocks in sequence, thereby reducing the scan time compared to sequential scanning of all stations in sequence. All interrupt leads having true signals set a WAIT latch in their station and when selected by the scan set an ACTIVE latch. There is also a branch return scan to reset the highest level ACTIVE latch that has been set. Any number of

sense leads may be merged for each interrupt priority level. The software selects the sense lead that is true after an interrupt. The interrupt block circuit is part of a computer line processor for processing sense leads, and merging them by



selection of a group. In a duplicated system a computer line synchronizer will sync hold circuits to ensure that the signals appear at the same time to the duplicated computers which are operating in synchronization.

3,831,152

BUFFER MEMORY EMPLOYING INTERREACTION BETWEEN SHIFT REGISTERS

Anthony John Perneski, Martinsville, and Robert McKee Smith, Hoiindel, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

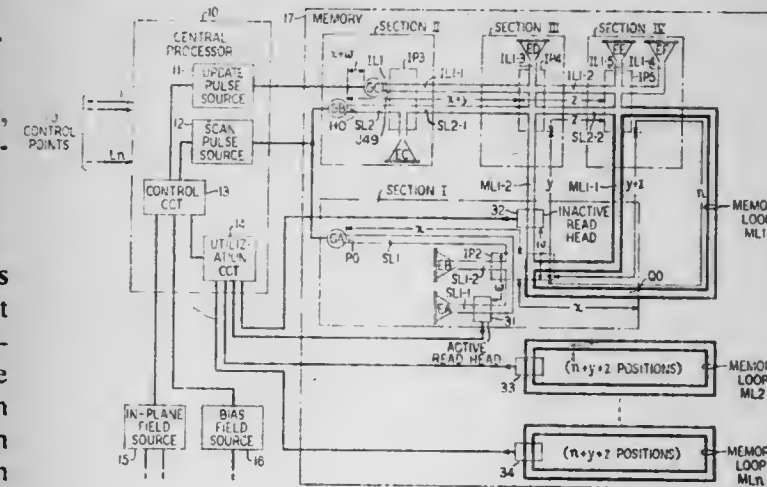
Continuation of Ser. No. 89,631, Nov. 16, 1970, abandoned.

This application Sept. 14, 1973, Ser. No. 397,438

Int. Cl. G06f 11/00; G11c 11/14

U.S. Cl. 340-172.5

29 Claims



A buffer memory utilizing a magnetic domain structure is arranged with a magnetically soft overlay defining intersecting

shift registers. Magnetic domains circulating in a first shift register represent data bits, such as the past busy-idle status of a telephone in a communications system. Magnetic domains selectively generated in a second shift register represent data bits, such as the present status of a telephone, for synchronous comparison with corresponding data bits in the first shift register. When a mismatch occurs between the corresponding magnetic domains an output signal is provided and the first shift register is updated in accordance with the domain representation contained in the second shift register. Provision is made for selectively inhibiting the updating procedure.

3,831,153

METHOD FOR QUASI CONTINUOUS OPERATION OF AN ELECTRO-OPTIC IMAGE CONVERTER

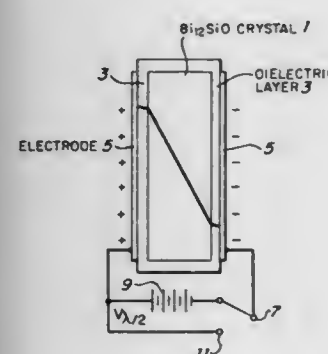
Donald S. Oliver, Acton, and Paul Vohl, Lexington, both of Mass., assignors to Itek Corporation, Lexington, Mass.

Filed Nov. 30, 1972, Ser. No. 310,756

Int. Cl. G11c 11/42

U.S. Cl. 340—173 LS

19 Claims



An improved method for the operation of an image converter or optical buffer store formed from electro-optic and photoconductive materials is disclosed. In general, the method comprises operating the converter to take advantage of the material's inherent type of photoconductivity to maximize its photosensitivity to incident radiation. If the image converter, for example, is formed from a cubic, single crystal of bismuth silicon oxide $\text{Bi}_{12}\text{SiO}_{22}$, an n-type photoconductor, then negatively biasing the illuminated electrode for write and/or erase/prime functions results in a large change in the electro-optic read-out light compared to positively biasing the illuminated electrode. Thus, both the write and erase/prime steps take advantage of the greater mobility of photogenerated electrons compared to holes to maximize the efficiency of these steps. In like manner, positively biasing the illuminated electrode can minimize the crystal's sensitivity to electro-optic read-out radiation.

3,831,154

SINGLE AND POLYCRYSTALLINE SEMICONDUCTORS

David J. Epstein, Watertown, Mass., and David C. Bullock, Richardson, Tex., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 65,819, Aug. 21, 1970, Pat. No. 3,714,633.

This application Sept. 1, 1972, Ser. No. 285,728

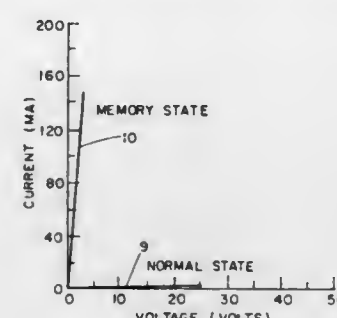
Int. Cl. G11c 11/14

U.S. Cl. 340—174 TF

8 Claims

A class of either single crystal or polycrystalline ferromagnetic materials containing an iron oxide whose resistivity vs. temperature characteristic is such that the resistivity decreases substantially with increasing temperature. The class has non-linear current-voltage (I-V) properties (when employed in electric circuit devices) characterized by a high resistance branch and a negative resistance branch, and the class also exhibits binary characteristics in that devices embodying materials of the class can be made to operate either in a memory state (low resistance) or a normal state (high resistance). The material of the class is prepared by a process

which modifies the electrical conductivity of the iron oxide, which is originally highly insulating and also ferromagnetic, to render the material slightly conductive or semiconductive. In the insulating state the oxide contains iron in the trivalent state (Fe^{3+}). The process includes reduction of the iron in the insulating oxide either by heat treating in a vacuum or a controlled atmosphere gas or by doping to reduce some of the trivalent iron (Fe^{3+}) to bivalent iron (Fe^{2+}). The material properties are such that when said devices are operated in either the negative resistance branch or in the memory state the ferromagnetic curie point of the material is exceeded and the or-



dered magnetic properties of the material are locally destroyed. The local destruction can be sensed optically or by other means. The materials of the class disclosed may be used simply in conductive devices, but they can also be used in apparatus, as, for example, the matrices discussed hereinafter, which employ their multi-faceted electrical characteristics as well as their magnetic properties. Materials, which exhibit characteristics of the high resistance branch and the negative resistance branch and are ferroelectric, are also disclosed, as are, also, iron oxide materials which exhibit such characteristics and are neither ferromagnetic nor ferroelectric.

3,831,155

NONVOLATILE SEMICONDUCTOR SHIFT REGISTER

Keikichi Tamaru, Isao Nojima, and Yukimasa Uchida, all of Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

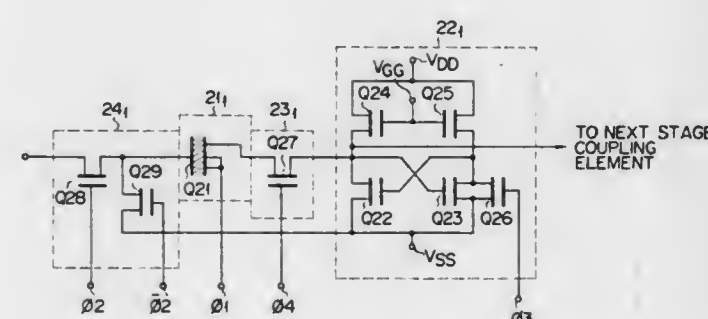
Filed Dec. 29, 1972, Ser. No. 319,358

Claims priority, application Japan, Dec. 29, 1971, 46-702; Dec. 29, 1971, 46-2061

Int. Cl. G11c 11/40

U.S. Cl. 340—173 R

6 Claims



A shift register comprises as one of two shift register halves, a permanent or nonvolatile memory element including a non-volatile semiconductor element and, as the other shift register half, a temporary or volatile memory element including a conventional flip-flop circuit or a capacitance. A switching element is connected between the permanent memory element and the temporary memory element.

A plurality of shift register stages including the permanent and temporary memory elements and, the switching element are cascade arranged through respective coupling elements. According to the shift register so constructed, any binary coded input signal is shifted from stage to stage and even after

the cut-off of a power source, information stored in each permanent memory element can be retained without being extinguished.

3,831,156

BIASING APPARATUS FOR MAGNETIC DOMAIN STORES

Jon H. Myer, Woodland Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 205,095, Dec. 6, 1971. This application

Apr. 16, 1973, Ser. No. 351,394

Int. Cl. G11c 11/14

U.S. Cl. 340—174 TF

3 Claims



This invention relates to magnetic biasing apparatus for devices employing cylindrical magnetic domains (commonly called bubbles) in a uniaxially anisotropic magnetic medium such as a single crystal platelet for the analysis and storage of digital information. Presence or absence of changes in the state of polarization of polarized light transmitted through one or more of said transparent platelets may be detected to perform a subtractive comparison of an unknown signal comprised of unipolar bits with a reference signal or to provide readout signals from a random access, large scale nondestructive-readout memory. Many different logic configurations may additionally or alternatively be incorporated in these devices by virtue of a unique pattern of conductors used to define bit storage locations in the crystal platelet and magnetic means to confine the magnetic bubbles therein.

3,831,157

SPRING LOADED POWER SOURCE FOR INTRUSION ALARM

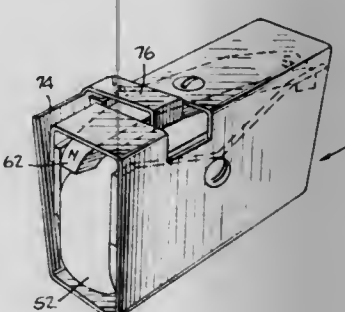
John R. Wiegand, 101 E. Hathorne, Valley Stream, N.Y. 11580

Filed Apr. 10, 1973, Ser. No. 349,738

Int. Cl. G08c 17/00

U.S. Cl. 340—224

12 Claims



A magnet is mounted for snap action movement between first and second positions. The magnet is spring loaded into a normal first position. The event causes the spring to move the magnet sufficiently so that the magnet rapidly switches into its second position. This switch of the magnet changes the direction of flux through the core of a coil thereby generating a pulse to the output of the coil. This pulse is applied as the power input of an oscillator to generator a pulse of a radio frequency signal for transmission.

A super regenerative receiver tuned to the oscillator frequency is normally on producing a noise output that pro-

vides a signal for maintaining a relay on or energized. As long as this relay is on an alarm is maintained off. Receipt of the radio frequency pulse by the super-regenerative receiver quiets or quenches the output of the super-regenerative receiver thereby removing the signal that causes the relay to be maintained energized. The relay becomes deenergized and the alarm is set off.

3,831,158

SELF-LEVELLING MOTION DETECTING DEVICE AND ALARM SYSTEM INCORPORATING THE SAME

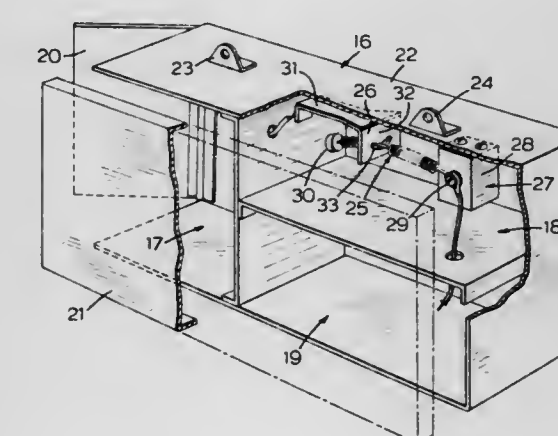
Robert H. Rempel, Taylor Rd., Bracebridge, and Joseph J. Bulger, 44 Ironshield Crescent, Thornhill, Ontario, both of Canada

Filed Apr. 30, 1973, Ser. No. 355,655

Int. Cl. G08c 17/00

U.S. Cl. 340—224

10 Claims



A motion detecting device is adapted to be secured to a moveable object such as a door, window or curtain through which access to premises to be protected may be obtained. When the motion detecting device is moved, an electrical circuit is completed causing an alarm to be given. The motion detecting device includes a resilient spring finger that extends in cantilevered configuration from a support member in a direction other than vertically downwardly. Under the influence of gravity the spring finger assumes a curved configuration. An electrically conductive contact has an opening therein through which a part of the spring finger extends, the opening being of arcuate configuration with the curve of the opening in the contact member having its centre of curvature on the side of the opening that is closest to the means by which the motion detecting device may be secured to a moveable object.

3,831,159

HIGH LEVEL AND LOW LEVEL ALARM FOR BINS AND HOPPERS

Ward H. Parsons, 1202 Green Glen Rd., Birmingham, Ala. 35216

Filed May 2, 1973, Ser. No. 356,473

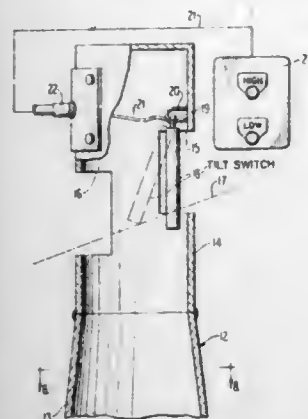
Int. Cl. G08b 21/00

U.S. Cl. 340—246

6 Claims

A bin level monitoring device such as a tilt switch is suspended eccentrically in a storage bin or hopper for particulate material which is discharged from the bottom of the bin either at the center or the side thereof. The monitoring device is contained near the top of a downwardly flaring tube body whose length is determined by the height of the bin and the

desired high and low level points to be monitored. Tube body functions with relation to the rising and falling level of the



material in the bin to enable a single level monitoring or sensing device to properly detect both conditions in a very accurate manner

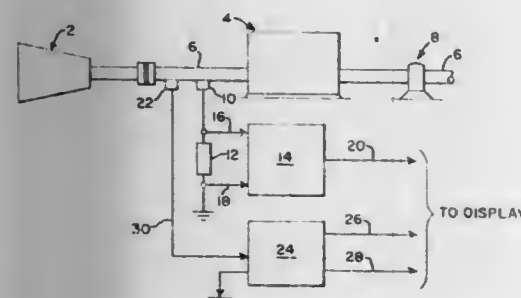
3,831,160

VOLTAGE AND CURRENT MONITORING SYSTEM
Michael J. Cronin, Salem, and George H. Vogt, Topsfield, both of Mass., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 1, 1973, Ser. No. 402,262
Int. Cl. G08b 21/00

U.S. Cl. 340—256

10 Claims



A voltage and current monitoring system for use in detecting pulse and continuous voltages and currents on a rotating shaft. The system includes contacts for electrically grounding a shaft and means for monitoring current flow through a grounding contact and to provide an alarm if excessive current is present. Voltage monitoring circuits are also provided to ascertain whether the grounding contacts are operative and to provide an alarm if excessive voltage is present between the shaft and ground.

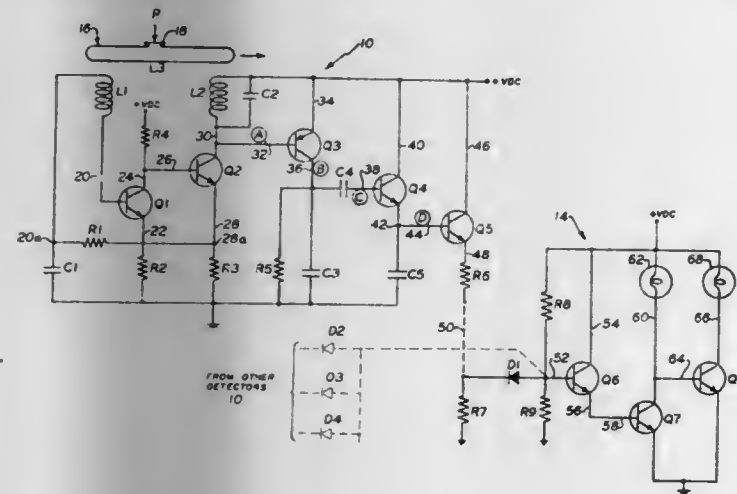
3,831,161

FAIL-SAFE MONITORING APPARATUS
Robert S. Enabnit, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed June 8, 1972, Ser. No. 260,935
Int. Cl. B65h 25/30; B60c 23/00

U.S. Cl. 340—259

11 Claims



An amplifier oscillates when a moving close-circuited inductor increases the coupling between a pair of input and output inductors. The oscillatory bursts, due to the periodic and

proximate passage of the moving inductor, are integrated and averaged to provide a voltage level sufficient to maintain a warning circuit in a "safe operating" condition indication. The absence or open-circuiting of the moving inductor drops the voltage to a level such that the warning circuit provides an "abnormal operating" condition indication.

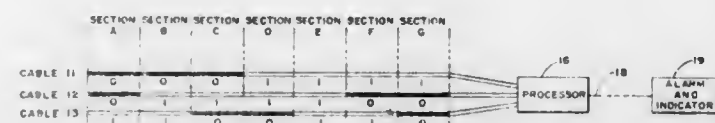
3,831,162

INTRUSION DETECTION AND LOCATION SYSTEM
John E. Armstrong, Cupertino, Calif., assignor to GTE Sylvania Incorporated, Mountain View, Calif.

Filed Sept. 4, 1973, Ser. No. 393,796
Int. Cl. G08b 13/16

U.S. Cl. 340—261

7 Claims



An intrusion detection and location system for perimeter protection comprises an elongated composite sensor line having a plurality of closely spaced coaxial electret cable transducers with known different sensitivities over their lengths and circuits responsive to electrical signals from the cables caused by mechanical vibrations applied to the cable by an intruder for producing an indication of the attempted intrusion and its location. Each of the cables has several longitudinal sections and laterally adjacent sections of the several cables have equal lengths and are respectively differently sensitized so that an intrusion occurring at one section generates in all the cables a binary coded output which uniquely identifies that section. In a preferred embodiment of the invention, the cable sections are either in a sensitized or non-sensitized state and the cables in successive sections are conditioned to produce a Gray code to minimize location errors for intrusions occurring at or near the junction of two sections. The cables are connected to processing circuits which decode the signals and transmit alarm and intrusion location information to the remote monitoring station.

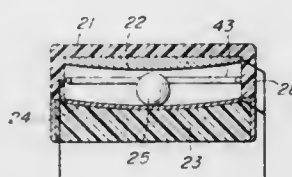
3,831,163

INERTIA-TILT SWITCH
William L. Byers, Glidden St., Newcastle, Maine 04553
Continuation-in-part of Ser. No. 203,009, Sept. 27, 1972, Pat. No. 3,763,484. This application July 20, 1973, Ser. No. 381,361

Int. Cl. G08b 21/00; H01h 35/02

U.S. Cl. 340—262

6 Claims



An inertia and tilt activated switch suitable for use in an alarm system, responsive to small angular and velocity deviations and capable of discriminating against false activation due to sudden jarring, bumping, or the like. A conductive ball rests in a drum-shaped housing, the floor and roof of which are diaphragm electrodes. A conductive ring is supported on the wall of the housing between the diaphragm electrodes. The floor electrode is slightly concave, having radius of curvature considerably greater than the diameter of the ball or the diameter of the floor electrode. The concavity allows the ball to roll into simultaneous contact with the ring and at least one of the diaphragm electrodes when the housing is sufficiently disturbed from the resting orientation, thereby completing an electrical circuit. An optional delaying mechanism suppresses output from the system until the circuit has been continuously activated for a predetermined time interval.

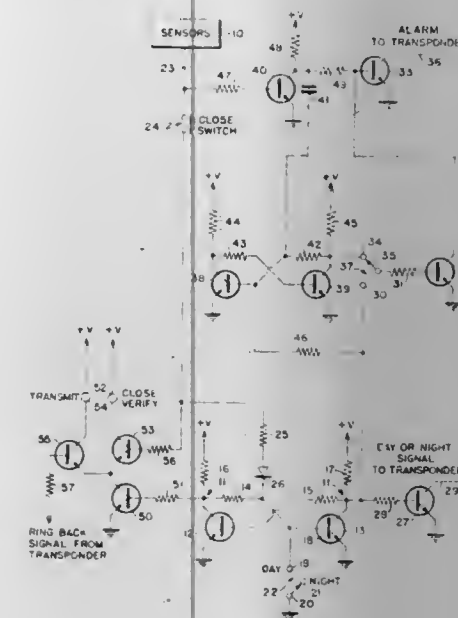
3,831,164

ALARM SIGNAL CHANNEL CONTROL CIRCUIT FOR BURGLAR AND FIRE ALARM SYSTEM
Charles W. Cook, Huntsville, Ala., assignor to Avco Corporation, Huntsville, Ala.

Filed Apr. 27, 1973, Ser. No. 355,030
Int. Cl. G08b 19/00, 29/00

U.S. Cl. 340—276

5 Claims



A control circuit which, in one state, appropriate for the day season, inhibits an alarm signal channel and furnishes a signal indicative of such "day" state. The control circuit responds to collective command and circuit-closing and safe sensor-state-indicating operations to assume another condition in which it enables the alarm signal channel and sends out a signal indicative of the other or night-season state and enables lamp circuitry that verifies the collective existence of such other state and such safe sensor-state indication.

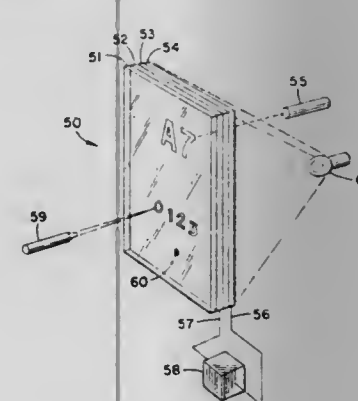
3,831,165

APPARATUS AND METHOD FOR AFFECTING THE CONTRAST OF THERMOCHROMIC DISPLAYS
Jay S. Chivian, Richardson, and Dayton D. Eden, Dallas, both of Tex., assignors to Advanced Technology Center Inc., Grand Prairie, Tex.

Continuation-in-part of Ser. No. 825,691, May 19, 1969, abandoned. This application Oct. 26, 1971, Ser. No. 192,124
Int. Cl. G08b 5/36

U.S. Cl. 340—324 R

20 Claims



Display devices utilize thermotropic materials for recording and displaying information. The display devices incorporate a thermochromic film disposed between a pair of electrically conductive plates, one of which is transparent. Reflectivity of the film is altered by selectively changing the temperature of discrete portions of the film, and hysteresis in the thermochromic material is relied on to retain the information stored in the film for as long as it is needed. The electrically

conductive plates may be used as one means to selectively heat the film so as to enhance a thermally generated image. Also disclosed are methods for changing information recorded in such displays.

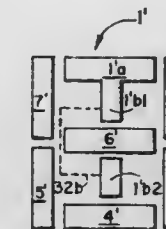
3,831,166

DISPLAY CHARACTER PATTERN
Frank De Nardo, Villa Park, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Mar. 16, 1973, Ser. No. 342,139
Int. Cl. G09f 9/32

U.S. Cl. 340—336

3 Claims



A segmented character pattern for a liquid crystal display presents a centered "1" and a "4" that has intersecting vertical and horizontal bars. Electrically conductive segments on one of a pair of facing glass plates of the liquid crystal display panel cooperate with a pair of common electrodes for each such character pattern formed on the back plate of the display panel. Selective energization of one or the other of the common electrodes and a selected combination of character pattern segments of the front plate afford an increased number of configurations with a given group of character pattern segments.

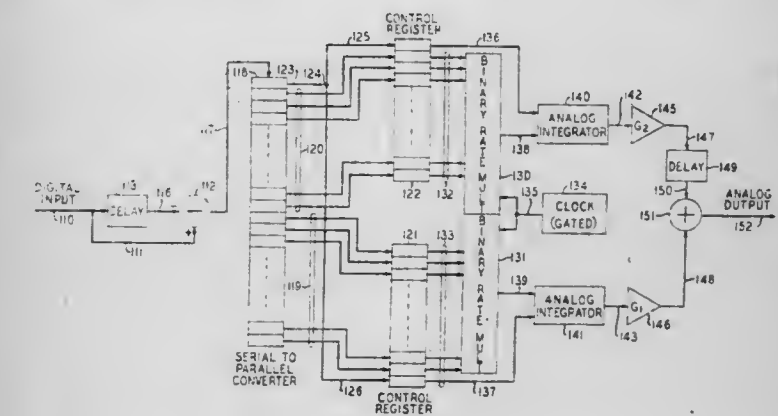
3,831,167

DIGITAL-TO-ANALOG CONVERSION USING MULTIPLE DECODERS

Stuart Keene Tewksbury, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Nov. 8, 1972, Ser. No. 304,643
Int. Cl. H03k 13/22

U.S. Cl. 340—347 DA

12 Claims



A technique and apparatus are described for converting a digital signal to analog form wherein pulse code modulated signals are first converted to a differential pulse code modulated format. The differential pulse code modulated signal is then partitioned and the sign of the sample is associated with each segment. Each partitioned signal segment is applied to a control register of a binary rate multiplier. The binary rate multiplier generates a pulse train representing a delta modulated signal format wherein the number of pulses in the train is equal to the numerical value of the partitioned signal segment. These delta modulated-type signals are decoded in analog integrators, each segment of the analog signal is scaled in accordance with the partitioned differential pulse code modulated sample value, and the segments are combined to form a

composite analog signal having a value which corresponds to the original pulse code modulated digital sample.

3,831,168

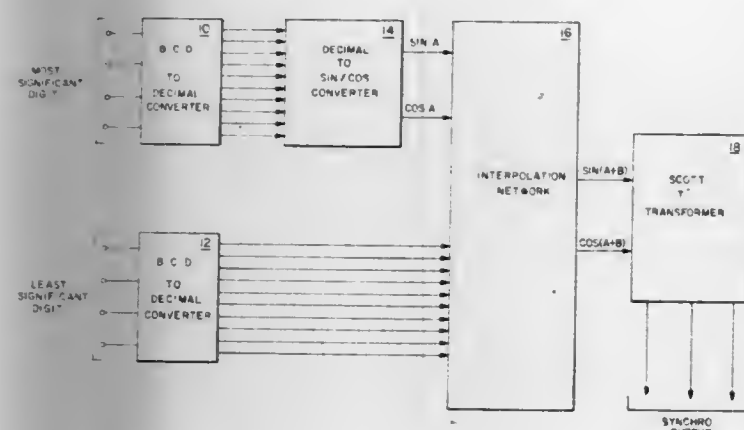
BINARY CODED DECIMAL-SYNCHRO CONVERTER
Alfred D. Gronner, White Plains, N.Y., and Louis Deleo, Totowa, N.J., assignors to The Singer Company, Little Falls, N.J.

Filed June 6, 1973, Ser. No. 367,502

Int. Cl. H03k 13/02

U.S. Cl. 340—347 SY

5 Claims



An improved system is provided for converting binary coded decimal information into synchro signals. The system responds to binary coded decimal signals representing the more significant digits of unknown two-digit decimal numbers to obtain coarse values of the corresponding synchro signals, and it also responds to binary coded decimal signals representing the lesser significant digits of the two-digit decimal numbers to interpolate between the coarse values of the synchro signals.

3,831,169

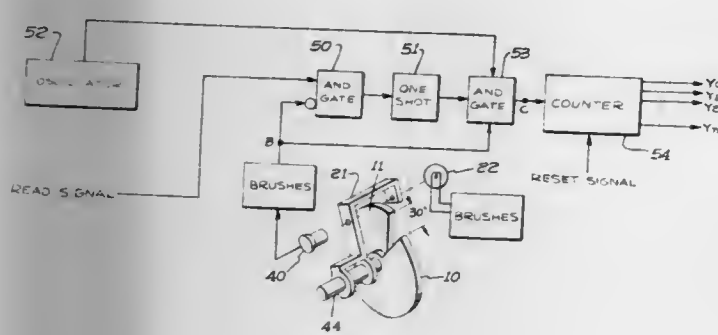
OPAQUE-VANE ANALOG TO DIGITAL CONVERTER
William H. Raser, 645 W. 83rd, Los Angeles, Calif. 90045

Filed May 15, 1972, Ser. No. 253,330

Int. Cl. G08c 9/06

U.S. Cl. 340—347 P

17 Claims



In an analog-to-digital converter involving photo-optical sensing of a relatively movable part having a semicircular vane, an optical scanning head traverses the extremity of both this vane and a fixed vane to generate a pulse, the duration of which determines the output of a counter. Because of the absence of intricate mechanical components such as coded disks, precise measurements can be obtained using inexpensive components that can be combined in a compact housing.

3,831,170
POSITION INDICATING APPARATUS AND DIGITAL CIRCUITRY FOR IT

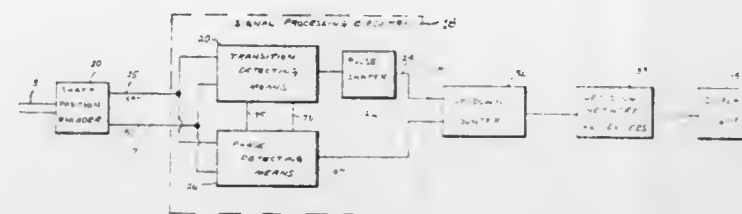
Wynn L. Christensen, Yorba Linda, Calif., assignor to Readx Inc., Garden Grove, Calif.

Filed Oct. 13, 1972, Ser. No. 297,403

Int. Cl. H03r 13/20

U.S. Cl. 340—347 SY

8 Claims



Indicating apparatus includes an incremental shaft position encoder having a shaft whose angular position is to be indicated. A multi-phase electrical signal developed by the encoder in response to rotation of the shaft is processed by digital circuitry to provide pulses suitable for counting by an up/down counter. The counter accumulates a count that represents the net rotation of the shaft.

3,831,171

REMOTE VISUAL READOUT

Daniel Arron Seltzer, Cincinnati, Ohio, assignor to Gamon-Calmet Industries, Inc., Florence, Ky.

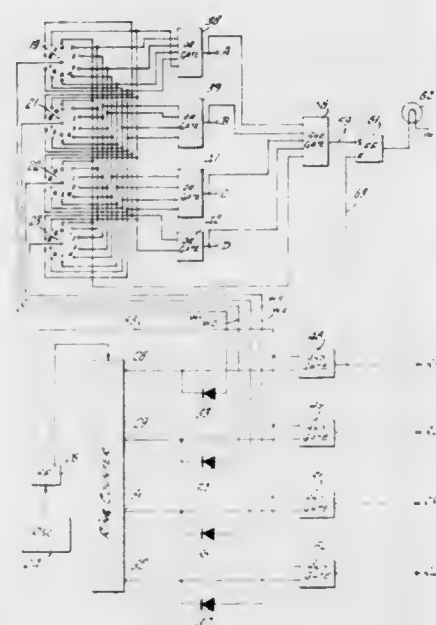
Continuation of Ser. No. 160,398, July 7, 1971, abandoned.

This application Mar. 2, 1973, Ser. No. 337,424

Int. Cl. G01r 31/02; H03k 13/24

U.S. Cl. 340—347 DD

8 Claims



A system is disclosed in which an information signal presented in a one out of 10 coded format is converted first to a binary coded decimal signal and then into a seven-line signal for driving a neon display tube. Circuitry for converting the one out of 10 signal into the binary coded decimal signal is shared by time multiplexed division to service four transducers each providing a one out of 10 signal. The one out of 10 to binary coded decimal converting circuitry includes circuitry for comparing the zero indication in the one out of 10 format with the decoded signal to check for and indicate broken wires leading thereto.

3,831,172

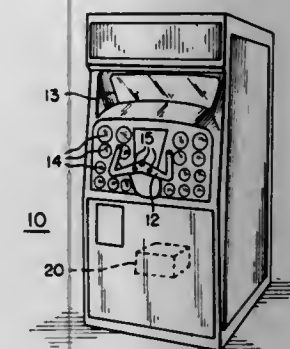
SOLID-STATE SOUND EFFECT GENERATING SYSTEM
William E. Olliges, Arlington Heights, and Edward L. Polanek, Glendale Heights, both of Ill., assignors to Universal Research Laboratories, Incorporated, Elk Grove Village, Ill.

Filed Jan. 3, 1972, Ser. No. 215,025

Int. Cl. G08b 3/00

U.S. Cl. 340—384 E

4 Claims



A solid-state sound effect generating system for selectively producing any one of a plurality of predetermined sound effects has a plurality of interchangeable plug-in printed circuit boards each having mounted thereon an electronic circuit capable of being actuated to produce an electrical output signal representative of a unique one of a group of desired sound effects, without the use of any prerecorded signals or recording medium. The circuit boards are plugged into a common control chassis which interconnects them with an audio power amplifier and loudspeaker arrangement and which further provides input terminals for external triggering signals.

3,831,173

GROUND RADAR SYSTEM

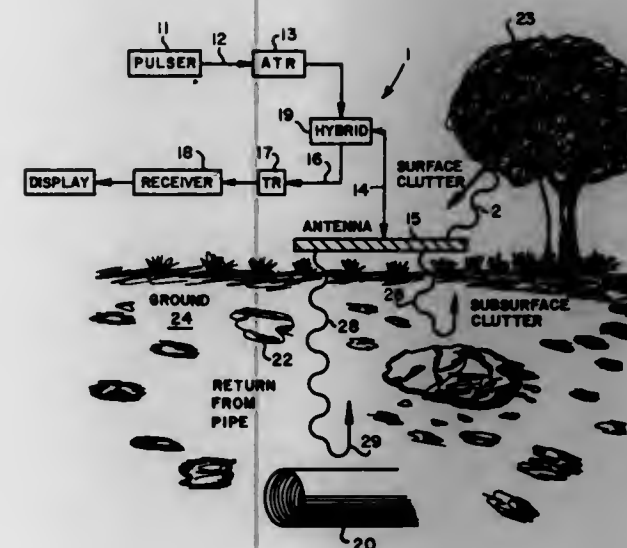
Robert M. Lerner, Arlington, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Dec. 17, 1969, Ser. No. 885,877

Int. Cl. G01s 9/02

U.S. Cl. 343—5 R

8 Claims



A system for locating underground objects, such as pipes, utility lines, culverts, ledges, and like kinds of underground discontinuities, including voids to depths in excess of 10 feet, includes a basic radar having a special antenna design which launches radiation that penetrates the earth and receives reflections from underground discontinuities for recordation in a moving vehicle.

3,831,174
AUTOMATIC TARGET ACQUISITION IN MTI RADAR SYSTEM

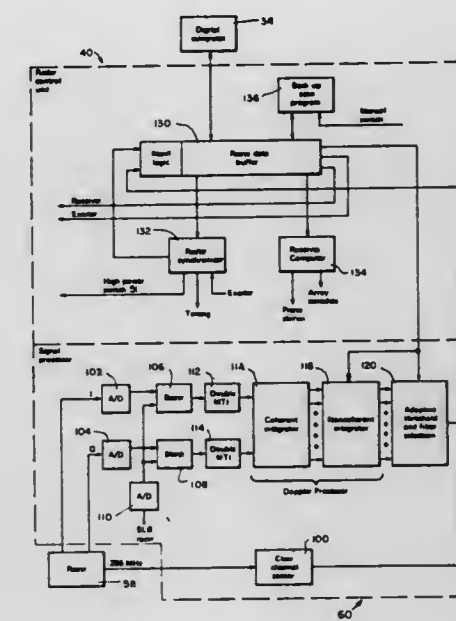
Donald L. King, La Mirada; Gerald M. Goldberg, Chatsworth; Donald P. Parke, Anaheim; Willis M. Priester, Garden Grove, and Richard A. Gebhardt, Orange, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Feb. 5, 1973, Ser. No. 329,762

Int. Cl. G01s 9/06

U.S. Cl. 343—7 A

9 Claims



An airborne MTI radar system is disclosed for searching and tracking airborne targets over large bodies of water. In the search mode, returns from staggered PRF's are used to resolve range ambiguity of targets, and first and second multipath returns are used to more positively identify an airborne target for automatic acquisition. The number of target returns counted (1, 2 or 3) at each PRF combined with the numbers at the other two PRF's yields a plot combination count which serves to indicate the "quality" of a target in selecting new targets for tracking, but first each target is correlated with targets already being tracked. Uncorrelated targets are then checked as to quality by reordering the combination of target return counts in descending order and checking the resulting combination number, Q_p , against a predetermined minimum acceptable plot quality, Q_m , for the range of the target and the sea state. If this check is passed by a particular target, it is entered into a table for automatic acquisition, provided the track store is not full to capacity; otherwise, the target is set up for display only for possible manual acquisition of track. Once acquired, the target is tracked automatically.

3,831,175

MULTICHANNEL REMOTE CONTROL SYSTEM
Anthony P. Mazalas, Hartford, Conn., assignor to Sound Technology, Inc., Enfield, Conn.

Filed Dec. 8, 1971, Ser. No. 206,064

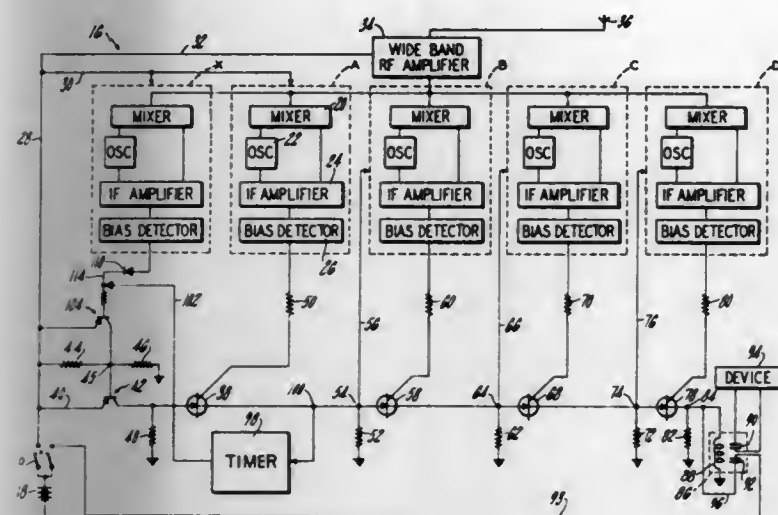
Int. Cl. H04b 7/00

U.S. Cl. 343—228

23 Claims

A multichannel remote control system is presented having a series of crystal oscillator controlled channels of selected different carrier frequencies arranged in a predetermined order in both the transmitter and receiver. Reception of a proper carrier signal at any channel in the receiver serves both to power the next succeeding stage and to arm that next succeeding channel for the delivery of power to still another succeeding channel. A stage or channel of a random frequency is in-

cluded in the detector to deactivate the detector in the event of the reception of an improper transmission, and a timing circuit is also included to deactivate the receiver in the event the proper sequence of signals is not received within an allotted time.



3,831,176

PARTIAL-RADIAL-LINE ANTENNA

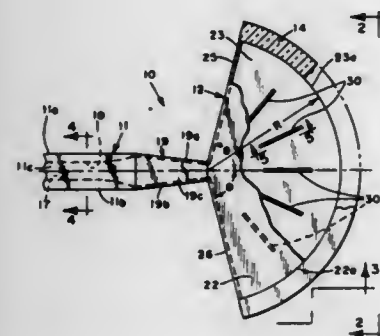
James J. Epis, Sunnyvale, and F. Ernest Robles, Mountain View, both of Calif., assignors to GTE Sylvania Incorporated, Mountain View, Calif.

Filed June 4, 1973, Ser. No. 366,558

Int. Cl. H01q 19/00

U.S. Cl. 343-756

6 Claims



A partial-radial-line antenna comprises a sector of a radial waveguide with the outer edges of its two parallel spaced plates terminating in identical circular arcs which define the antenna aperture. The radial sector is connected at its center or apex to a rectangular-waveguide input transmission line such that the wave excited in the radial sector propagates with its electric or E-field lines extending along circular arcs between the diverging side walls of the same radial waveguide sector. For circularly polarizing the radiated energy, the circularly-shaped antenna aperture is covered by a polarizer, and a plurality of arcuately displaced radial absorption vanes are mounted between and normal to the plates of the radial waveguide sector. The antenna is excited with energy in the TE_{10} radial line mode such that the E-field lines are circular and emanate from the centered feed point. The E-field is thus perpendicular to all the absorption vanes and to the diverging side walls. With an appropriately designed polarizer, antennas of this type are designed to radiate elliptically polarized waves characterized by low or near zero db axial ratio (i.e., nearly circular polarization) over entire angular sectors ranging from 60° to 300° for a broad frequency band extending over at least an octave.

3,831,177
EXPONENTIAL APERTURE DISTRIBUTION HORN
ANTENNA

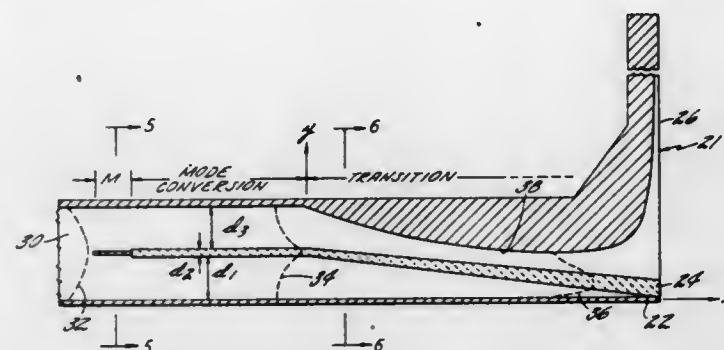
An-Hwa Soong, Westport, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Aug. 2, 1973, Ser. No. 385,207

Int. Cl. H01q 13/00

U.S. Cl. 343-776

6 Claims



A horn antenna suitable for use at microwave frequencies having an exponential amplitude distribution across substantially the entire aperture is composed of three sections. The first section is a section of quarter-wave long dielectric-filled waveguide which matches the waveguide wave number (or propagation constant) to the propagation constant at the aperture required for a damping factor which will yield a desired boresight scale factor at the design wavelength. The second section is also a dielectric-filled waveguide which supports a complex wave including a transverse standing wave in a central dielectric region and damped fields in the two air regions on opposite sides of the dielectric region, and whose propagation constant is the same as that at the aperture. The third section terminates at the aperture, and precisely at the aperture, the microwave fields have the characteristics of waves supported by a surface wave structure, the third section transposing the energy so as to consist of a transverse standing wave of very thin finite dimension in the dielectric material near a reference plane, and an exponentially damped wave (or hyperbolic cosine field) progressing from the reference plane, thereby to achieve an exponential aperture distribution across substantially the entire aperture. In other embodiments, the sections are combined.

3,831,178

ELECTROSTATIC MARKING SYSTEM WITH A LOAD STABILIZED POWER SUPPLY

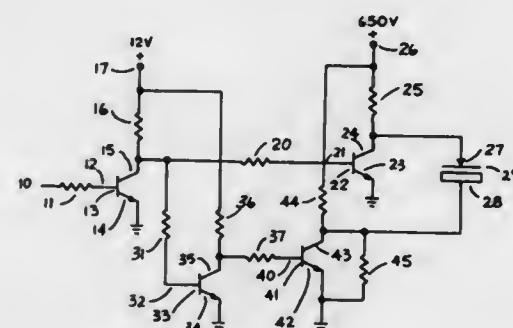
John W. Smith, Whitestone, N.Y., and John H. Long, Oakland, N.J., assignors to Muirhead, Inc., Mountainside, N.J.

Filed Feb. 5, 1973, Ser. No. 329,646

Int. Cl. G01d 15/06; H04n 1/24

U.S. Cl. 346-74 ES

3 Claims



A circuit adapted to provide marking and reverse potentials for an electrostatic recorder utilizing a single power supply which may be of poor regulation, the circuit including switching means and ballast means arranged so that the load on the power supply is substantially constant during both the

marking and erase operations so that stability of the output of the power supply is achieved.

3,831,179

ELECTROGRAPHIC TAPE RECORDING MEDIUM
Klaus Brill, Korntal, and Wolfgang Grothe, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

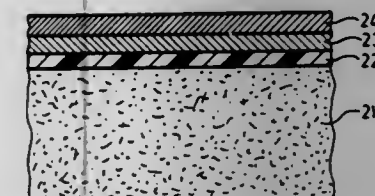
Filed Dec. 18, 1972, Ser. No. 316,001

Claims priority, application Germany, Feb. 1, 1972, 2204509

Int. Cl. B41m 5/18

U.S. Cl. 346-76 R

4 Claims



A layer of a metallic oxide having a heat of formation less than that of aluminum oxide is provided between the paper or synthetic flexible carrier and an aluminum film having a square resistance of about 2.5 ohms. Electric current flows between a stylus and the aluminum layer, but the effect of the current is merely to initiate an aluminothermic reaction between the aluminum and the oxide which, however, is sharply limited to the path of the stylus over the medium as the stylus or the medium is moved, leaving a clearly visible trace.

3,831,180

ELECTRICAL EXPOSURE CONTROL DEVICE FOR SINGLE LENS REFLEX CAMERAS

Kayoshi Tsujimoto, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka-fu, Japan

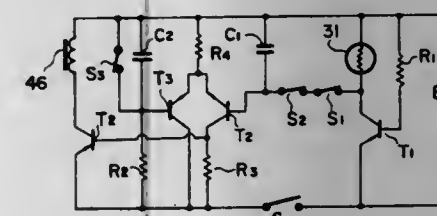
Continuation of Ser. No. 90,888, Nov. 19, 1970, abandoned.

This application Oct. 30, 1972, Ser. No. 301,844

Int. Cl. G03b 7/08

U.S. Cl. 354-51

2 Claims



First and second switch mechanisms are connected in series between means for generating an output voltage corresponding to detected light and means for storing that output voltage. The first switch is opened upon actuation of a shutter release member and the second switch is opened upon actuation of the reflex mirror from a viewing position to an exposure position. The diaphragm aperture is preset to a desired value and stopped-down from full aperture to that desired value prior to the initiation of film exposure such that the second switch is opened by the stopping-down of the diaphragm aperture in synchronization with the operation of the reflex mirror.

3,831,181

DEVICE FOR CONTROLLING DIAPHRAGM IN LENS OF SINGLE-LENS REFLEX CAMERA

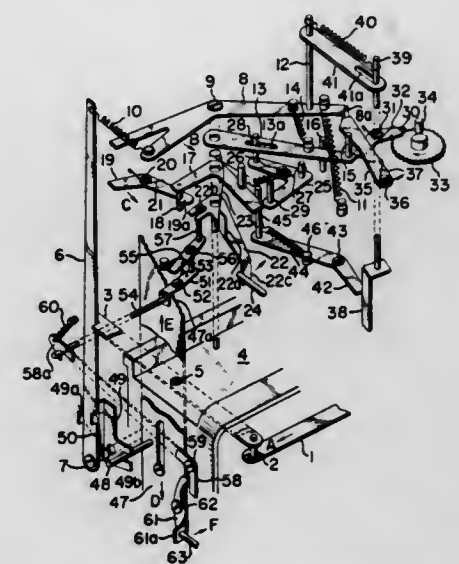
Shozo Nozawa, Kawasaki, Japan, assignor to Ricoh Co. Ltd., Tokyo, Japan

Filed Oct. 19, 1973, Ser. No. 408,061

Int. Cl. G03b 7/12, 9/02

U.S. Cl. 354-45

2 Claims



A device for automatically controlling a diaphragm in a lens of an EE type single-lens reflex camera is disclosed in which upon depression of a shutter release button, a member operatively coupled to the shutter release button releases a start lever which in turn actuates members for controlling the diaphragm. Once the start lever is actuated, a toothed stop ratchet plate is displaced to a position corresponding to the angular position of a pointer of an exposure meter to control the angle of rotation of a pawl lever which in turn controls the angle of rotation of a diaphragm control lever in engagement with a pin operatively coupled to the diaphragm in the lens, whereby the optimum aperture is set. The stroke of the shutter release member may be reduced, and the construction of a diaphragm control mechanism may be considerably simplified.

3,831,182

WATER-PROOF CAMERA CONSTRUCTION

Terushige Shimizu, Kawasaki, Japan, assignor to Nippon Kogaku K. K., Tokyo, Japan

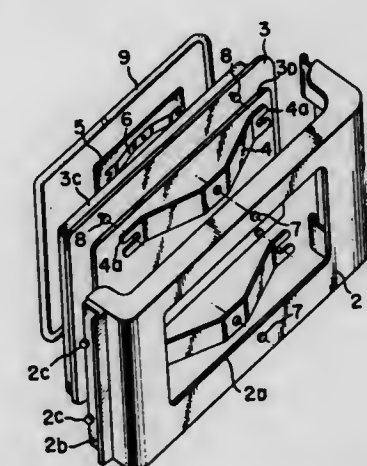
Filed Dec. 18, 1973, Ser. No. 425,823

Claims priority, application Japan, Dec. 25, 1972, 47-147674

Int. Cl. G03b 17/08

U.S. Cl. 354-64

6 Claims



A water-proof camera comprises a hinged back cover and an auxiliary back cover with resilient means interposed therebetween. A water-proof resilient member is provided inwardly of the auxiliary back cover so that it is urged against the body of the camera with a predetermined force when the hinged back cover is closed with respect to the camera body.

3,831,183

DATA SUPERIMPOSING DEVICE FOR USE WITH CAMERA

Fumihiko Miyagawa, Yokohama, Japan, assignor to Ricoh Co. Ltd., Tokyo, Japan

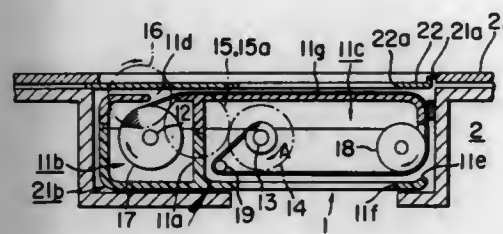
Filed Nov. 2, 1973, Ser. No. 412,096

Claims priority, application Japan, Dec. 4, 1972, 47-110530; Dec. 4, 1972, 47-110531

Int. Cl. G03b 17/24

U.S. Cl. 354-109

3 Claims



A data superimposing device is disclosed which permits superimposing upon a film data recorded upon a tape stored in the data capsule which is detachably placed in a camera. The data tape is advanced by the manual operation from the exterior of the camera to be placed upon the writing table which is the exterior part of the data capsule casing. The data to be superimposed are recorded upon the tape through an opening formed in the camera body. The tape is inserted again into the data capsule so that the data upon the tape may be superimposed upon the film through an optical system including a light source.

3,831,184

SELF-TIMER ATTACHMENT FOR CAMERA

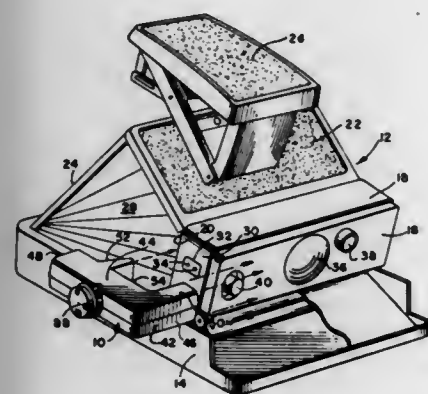
John B. Morse, Boston, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 2, 1974, Ser. No. 429,899

Int. Cl. G03b 17/40

U.S. Cl. 354-240

12 Claims



A self-timing accessory having a casing configuration adapted for connection directly to the shutter housing of cameras particularly of the type in which an automatic electronic shutter supported in the shutter housing is actuated by depression of an exposure initiating actuator presented on one face of the shutter housing. The casing is designed to be secured by frictional engagement with opposed exterior surfaces on the shutter housing and is equipped with a timing mechanism operable after a time delay interval to depress and release the exposure initiating actuator thereby to avoid a drain on the electric power supply of the camera as a result of retention of the actuator in a depressed condition.

3,831,185

CONTROLLED INVERSION BISTABLE SWITCHING DIODE

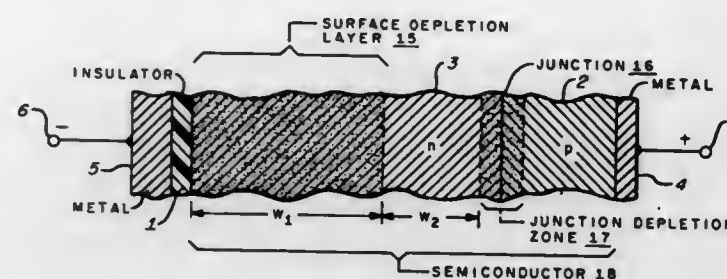
Harry Kroger, Sudbury, and Horst A. R. Wegener, Carlisle, both of Mass., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Apr. 25, 1973, Ser. No. 354,271

Int. Cl. H011 49/02

U.S. Cl. 357-6

15 Claims



The bistable semiconductor diode switching device is provided with voltage controlled switching characteristics by use of a resistive non-linear impedance layer and by balancing injection of carriers with their rate of removal by conduction through the non-linear impedance layer.

3,831,186

CONTROLLED INVERSION BISTABLE SWITCHING DIODE DEVICE EMPLOYING BARRIER EMITTERS

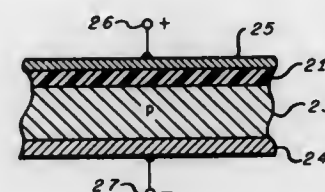
Harry Kroger, Sudbury, Mass., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Apr. 25, 1973, Ser. No. 354,279

Int. Cl. H011 49/02

U.S. Cl. 357-6

12 Claims



The bistable semiconductor diode switching device employs barrier emitter means and is provided with temperature stable voltage controlled switching characteristics by use of a resistive non-linear impedance layer and by balancing injection of carriers with their rate of removal by conduction through the non-linear impedance layer.

3,831,187

THYRISTOR HAVING CAPACITIVELY COUPLED CONTROL ELECTRODE

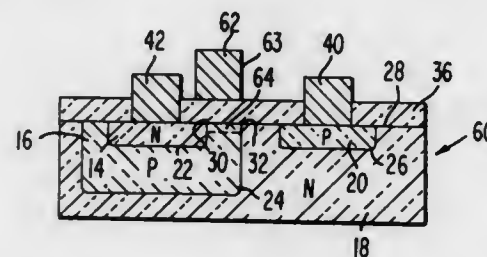
John Manning Savidge Neilson, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 11, 1973, Ser. No. 350,110

Int. Cl. H011 11/10, 5/06

U.S. Cl. 357-38

4 Claims



A control electrode overlies one of the base regions of the thyristor, a dielectric layer being disposed therebetween. To

minimize the potential stress applied across the dielectric layer, the control electrode overlies less than the entire width of the depletion layer associated with the thyristor forward direction, voltage blocking PN junction.

3,831,188

MOUNTING AND DRIVE ASSEMBLY FOR MAGNETIC STRIPE READING HEAD

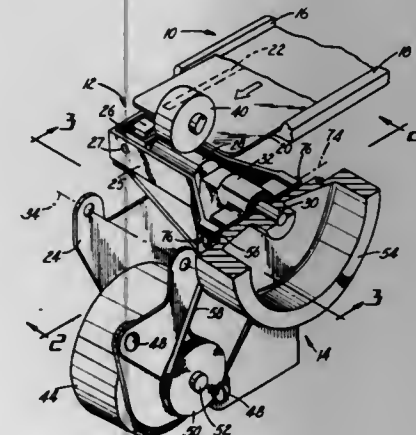
Anton Z. Zupancic, Cleveland, and Gary G. See, Chagrin Falls, both of Ohio, assignors to Addressograph-Multigraph Corporation, Cleveland, Ohio

Filed May 4, 1973, Ser. No. 357,431

Int. Cl. G06k 7/08, 13/05, 9/04

U.S. Cl. 360-2

6 Claims



The specification and drawings disclose an apparatus particularly suited for reading a magnetically encoded credit card. The apparatus disclosed includes a magnetic reading head aligned with a guideway along which the card is moved. Card movement is provided by a drive roll carried on a first frame mounted for pivoting movement about an axis perpendicular to the path of card movement. A pinch roll is arranged to maintain the credit card engaged with the drive roll. Both the drive roll and the pinch roll have their axes perpendicular to the path of movement. The magnetic reading head is preferably aligned with the axis of the drive roll and located so that as a credit card is conveyed between the drive roll and the pinch roll the magnetic stripe thereon is moved past the reading head. Additionally, the magnetic reading head is carried by a second frame mounted on the first frame for pivotal movement about an axis generally parallel to the intended path of movement of the card. The disclosed drive assembly for the drive roll comprises a synchronous motor mounted on the first frame and having a light-weight pulley carried on its output shaft. A relatively heavy flywheel-pulley assembly is drivingly connected with the drive roll and a resilient belt interconnects the light-weight pulley and the flywheel-pulley assembly.

3,831,189

WIDEBAND FREQUENCY COMPENSATION SYSTEM

Edwin K. Shenk, Littleton, and Stewart W. Wilson, Concord, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 294,488, Oct. 2, 1972, abandoned. This application July 16, 1973, Ser. No. 379,829

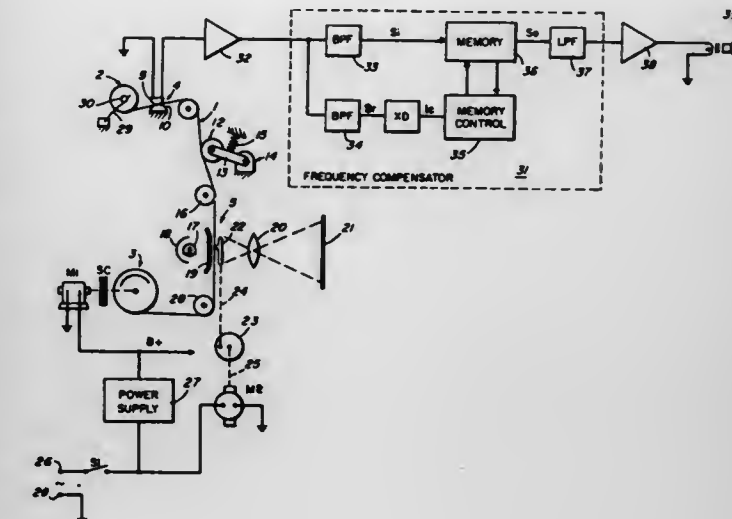
Int. Cl. G11b 27/02, 5/00

U.S. Cl. 360-8

20 Claims

A frequency deviation compensation system in which an information signal is recorded on a record medium simultaneously with a pilot reference signal. A reproducing system is provided in which samples of the recorded information are

read from the record into a storage register at a rate determined by the reproduced pilot signal, and read out of the



storage register at a fixed rate to compensate for differences in the speeds at which the information is stored on, and retrieved from, the record.

3,831,190

SYSTEM FOR PRODUCTION OF RECORDING

Donald H. Ward, Glen Ellyn, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

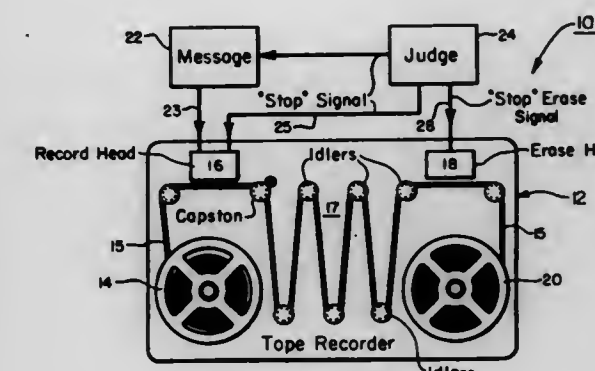
Division of Ser. No. 887,852, Dec. 24, 1969, Pat. No.

3,711,658. This application Dec. 27, 1971, Ser. No. 215,443

Int. Cl. G11b 5/02, 23/36, 27/12

U.S. Cl. 360-12

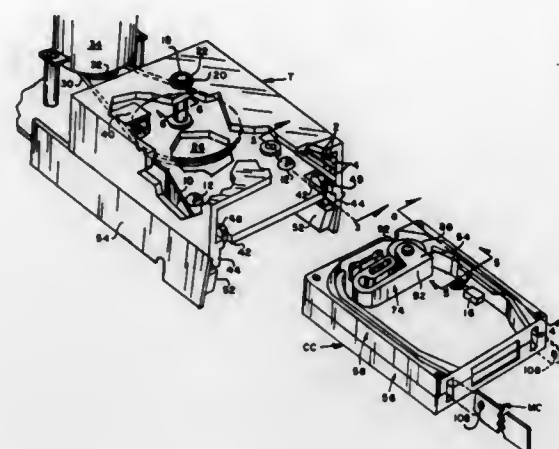
3 Claims



A system for the production of a recording of a succession of audio messages each of a desired maximum time length and proceeded by an indexing signal. The system includes station means for producing indexing signals and audio messages and judging station means for producing and not producing an erase signal and recording means including means for transporting an erasable recording media past a recording unit coupled to said station means to record successively an indexing signal and a message, and past an erase unit coupled to the erase signal the erase unit being located downstream of the path of transported recording media at a distance approximately equal the travel of the media during the maximum message time length so that the indexing signal may selectively be erased or not erased at the end of the message period as when the message is over length or otherwise is judged not acceptable.

position and for withdrawing a progressively extended loop of the tape from the cassette and wrapping the extended tape loop about at least a portion of the guide drum periphery in response to movement of the support ring to its active position at which the pinch roller is located within the tape loop adjacent the capstan, and an actuating device is operative only during recording and reproducing operations of the apparatus, for example, by energizing of a solenoid, for pressing the pinch roller against the capstan so that the latter drives the tape therebetween and such actuating device is otherwise effective for locking or securely holding the pinch roller away from the capstan with the support ring in its active position so that the tape can remain wrapped about the guide drum, for example, during fast forward and rewinding operations, without the danger that the resulting increased tape tension will move the pinch roller against the capstan.

means for latching either cartridge in position therein and switch means for actuating the driving capstan to drive the



3,831,199

COMMON TRANSPORT FOR MAGNETIC TAPE CARTRIDGE OR MAGNETIC CARD CARTRIDGE

Charles Howard Vollum, and Sidney Hubert Broughton, both of Portland, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed Mar. 19, 1973, Ser. No. 342,901
Int. Cl. G11b 23/04, 25/06

U.S. Cl. 360-94

22 Claims

A one-piece transport for receiving therein magnetic tape cartridge or magnetic card cartridge which includes latching

tape or card. The cartridges are provided with a one-piece pinch-roll spring for springably urging the tape or card against the driving capstan.

DESIGNS

AUGUST 20, 1974

232,396

WET SUIT

Robert Maxwell Seddon, Knaresborough, England, assignor to Unitex Limited, Knaresborough, England
Filed May 15, 1972, Ser. No. 253,689

Claims priority, application Great Britain Mar. 23, 1972

Term of patent 14 years

Int. Cl. D2-02

U.S. Cl. D2-40



232,398

CHAIR

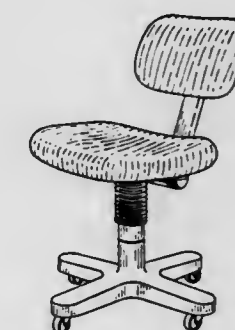
Ettore Sottsass, Jr., Milan, Italy, assignor to Ing. C. Olivetti & C. S.p.A., Turin, Italy
Filed July 25, 1972, Ser. No. 274,944

Claims priority, application Italy Jan. 31, 1972

Term of patent 14 years

Int. Cl. D6-01

U.S. Cl. D6-30



232,397

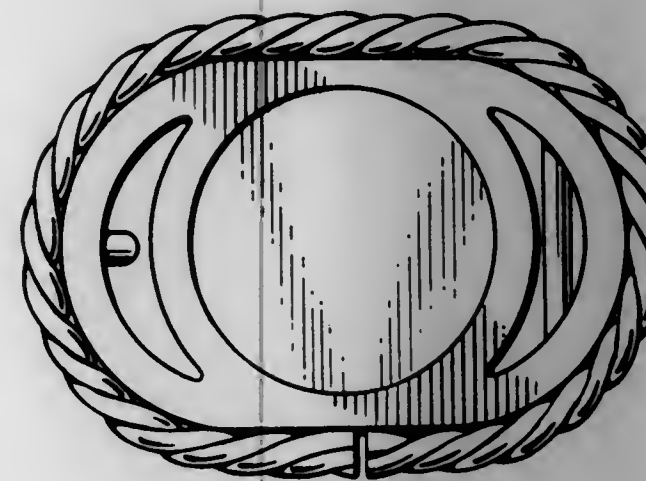
BELT BUCKLE

Andrew E. Johnson, Rte. 1, Sheboygan Falls, Wis. 53085
Filed Nov. 21, 1972, Ser. No. 308,544

Term of patent 7 years

Int. Cl. D2-07

U.S. Cl. D2-427



232,399

CARPET DISPLAY UNIT

Erle W. Miles, Jr., Dalton, Ga., assignor to The Little Rascals, Inc., Dalton, Ga.
Filed May 19, 1972, Ser. No. 255,303

Term of patent 14 years

Int. Cl. D6-06

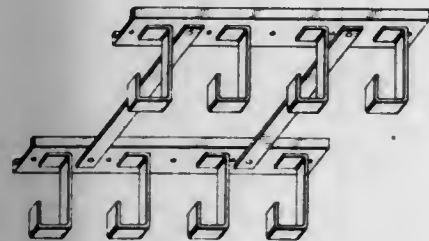
U.S. Cl. D6-85



232,400
HORIZONTALLY MOUNTED RACK FOR A
PLURALITY OF LAWN CHAIRS OR THE
LIKE

James Blaschke, 7399 Pineville Drive,
 Jacksonville, Fla. 32210
 Filed July 31, 1972, Ser. No. 276,426
 Term of patent 7 years
 Int. Cl. D6—04

U.S. Cl. D6—113



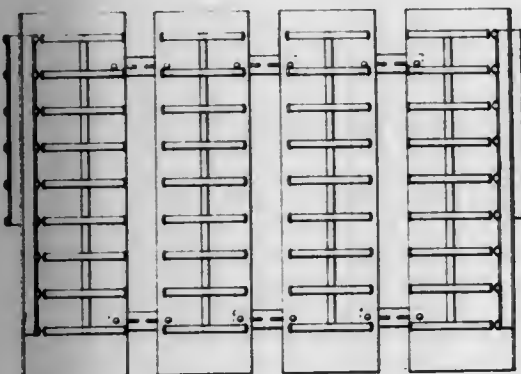
232,401
JEWELRY DISPLAY RACK
 Robert D. Joyce, Gloucester, R.I., assignor to Richton
 International Corporation, New York, N.Y.
 Filed Jan. 29, 1973, Ser. No. 327,756
 Term of patent 14 years
 Int. Cl. D20—02

U.S. Cl. D6—139



232,402
JEWELRY DISPLAY RACK
 Robert D. Joyce, Gloucester, R.I., assignor to Richton
 International Corporation, New York, N.Y.
 Filed Jan. 29, 1973, Ser. No. 327,757
 Term of patent 14 years
 Int. Cl. D20—02

U.S. Cl. D6—139



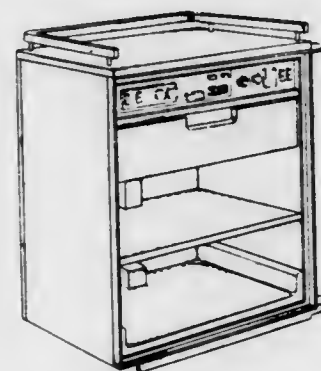
232,403
STACK TABLE
 Arnold C. Martinelli, Lake Shore Drive,
 Rawdon, Quebec, Canada
 Filed Jan. 19, 1973, Ser. No. 324,993
 Term of patent 14 years
 Int. Cl. D6—03

U.S. Cl. D6—146



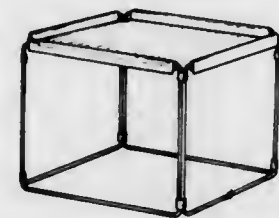
232,404
CABINET
 Donald W. Turner and John R. Schultz, Batesville, Ind.,
 assignors to Hill-Rom Company, Inc., Batesville, Ind.
 Filed May 1, 1972, Ser. No. 249,469
 Term of patent 14 years
 Int. Cl. D6—04

U.S. Cl. D6—158



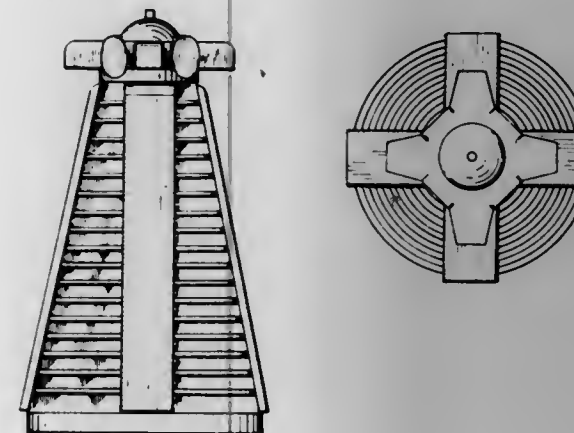
232,405
DISPLAY SHELF
 Aldis J. Leikarts and Larry R. Miller, Indianapolis, Ind.,
 assignors to Litton Business Systems Inc., Albert Lea,
 Minn.
 Filed Oct. 24, 1972, Ser. No. 300,344
 Term of patent 14 years
 Int. Cl. D6—04

U.S. Cl. D6—181



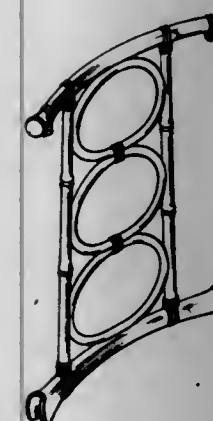
232,406
DISPLAY STAND
 Alfred A. Burrell, 10323 106th St.,
 Edmonton, Alberta, Canada
 Filed May 8, 1972, Ser. No. 251,600
 Term of patent 14 years
 Int. Cl. D6—04

U.S. Cl. D6—189



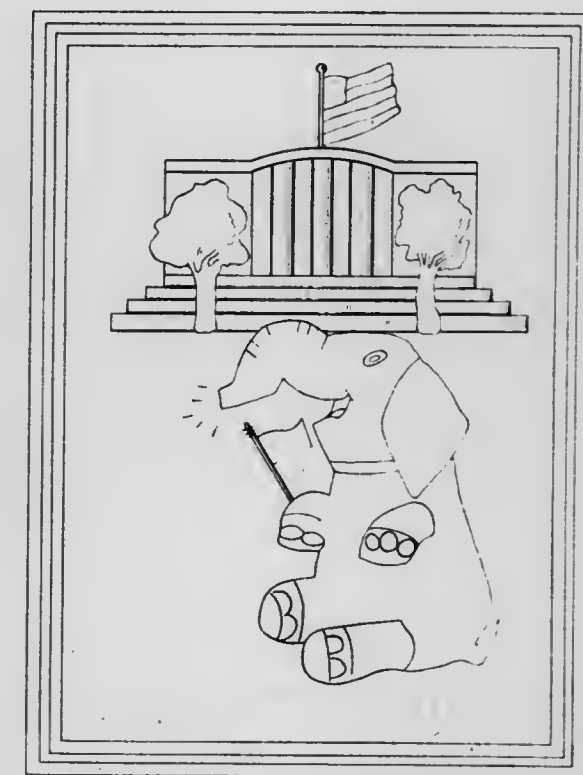
232,407
CHAIR BACK
 Warren D. Petersen, St. Charles, Ill., assignor to
 Interlake, Inc.
 Filed Oct. 27, 1972, Ser. No. 301,483
 Term of patent 14 years
 Int. Cl. D6—06

U.S. Cl. D6—197



232,408
BEACH TOWEL
 Bernice G. Karney, 212 E. Broadway,
 New York, N.Y. 10002
 Filed Mar. 13, 1972, Ser. No. 234,471
 Term of patent 14 years
 Int. Cl. D6—13

U.S. Cl. D6—265



232,409
BEACH TOWEL
 Bernice G. Karney, 212 E. Broadway,
 New York, N.Y. 10002
 Filed Mar. 13, 1972, Ser. No. 234,472
 Term of patent 14 years
 Int. Cl. D6—13

U.S. Cl. D6—265

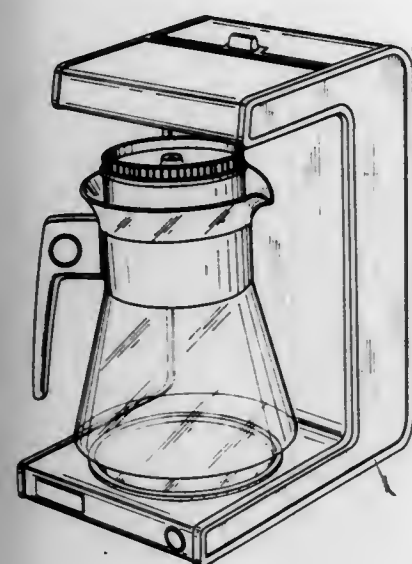


232,410

ELECTRIC COFFEE MAKER

William J. Rakocy, Clifton, N.J., assignor to North American Philips Corporation, New York, N.Y.
 Filed Dec. 20, 1972, Ser. No. 316,813
 Term of patent 14 years
 Int. Cl. D7-04

U.S. Cl. D7-62

232,411
CARAFE

Kenneth M. Douglas, Lake Delton, Gerald A. Rau, Baraboo, and Donald W. Doman, Janesville, Wis., assignors to Flambeau Products Corporation
 Filed May 29, 1973, Ser. No. 364,558
 Term of patent 14 years
 Int. Cl. D7-01

U.S. Cl. D7-65



232,412

CASSEROLE OR SIMILAR ARTICLE
 Paul Charles Schmitt, 6 Les Grives, 78170 La Celle-Saint-Cloud, France
 Filed Dec. 11, 1972, Ser. No. 313,924
 Claims priority, application France June 28, 1972
 Term of patent 14 years
 Int. Cl. D7-02

U.S. Cl. D7-97



232,413

FOOD CUTTER

Fred S. Steiner, Woodmere, N.Y., assignor to Bonny Products Inc.
 Filed Mar. 15, 1973, Ser. No. 341,479
 Term of patent 14 years
 Int. Cl. D7-04

U.S. Cl. D7-106

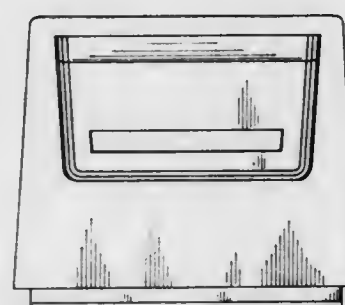


232,414

TRAVEL IRON

William J. Rakocy, Clifton, N.J., assignor to North American Philips Corporation, New York, N.Y.
 Filed Jan. 24, 1972, Ser. No. 220,548
 Term of patent 14 years
 Int. Cl. D7-05

U.S. Cl. D7-202



232,415

RING-STYLE CAP OPENER OR SIMILAR ARTICLE

Haruo Matsumoto, 783-92 Shimabiraki Tonnouchi, Amagasaki, Japan
 Filed Mar. 9, 1972, Ser. No. 233,389
 Term of patent 14 years
 Int. Cl. D7-06

U.S. Cl. D8-40

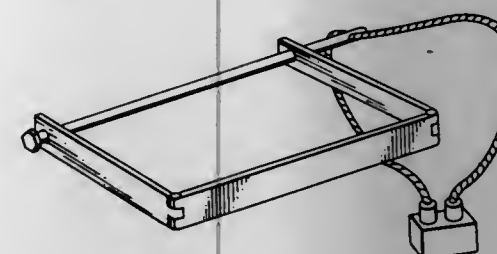


232,416

SKI LOCK

Edward F. Gazda and Doris M. Gazda, both of 32 Alton Drive, Dudley, Mass. 01570
 Filed June 2, 1972, Ser. No. 259,361
 Term of patent 14 years
 Int. Cl. D8-07

U.S. Cl. D8-109



232,417

BOTTLE

Stefan Macko, Milwaukee, Wis., assignor to Miller Brewing Company, Milwaukee, Wis.
 Filed Sept. 15, 1972, Ser. No. 289,497
 Term of patent 14 years
 Int. Cl. D9-01

U.S. Cl. D9-1



232,418

DISPENSING CONTAINER FOR TOOTHPICKS OR THE LIKE

Latham S. Bennett, 409 E. 87th Place, Chicago, Ill. 60619
 Filed Aug. 11, 1972, Ser. No. 280,081
 Term of patent 14 years
 Int. Cl. D9-01

U.S. Cl. D9-23



232,419

BOTTLE

Warren J. Luedtke, Racine, Wis., assignor to S. C. Johnson & Sons, Inc., Racine, Wis.
 Filed Oct. 30, 1972, Ser. No. 301,919
 Term of patent 14 years
 Int. Cl. D9-01

U.S. Cl. D9-42

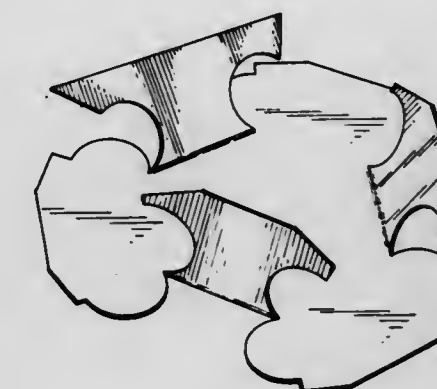


232,420

COMBINED RETAINING AND DISPENSING CARD FOR A COILED FISHING LINE

Leon L. Martuch, Midland, Mich., assignor to Scientific Anglers, Inc., Midland, Mich.
 Filed Mar. 30, 1972, Ser. No. 239,835
 Term of patent 14 years
 Int. Cl. D9-03

U.S. Cl. D9-171



232,421

PREFORM CONTAINER OR THE LIKE

Bryant Edwards, Clarendon Hills Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
 Filed Apr. 26, 1972, Ser. No. 247,918
 Term of patent 14 years
 Int. Cl. D9-01

U.S. Cl. D9-171



232,422

COMBINED PACKAGING AND SERVING TRAY

Karl Rune Persson, Halmstad, Sweden, assignor to

Bila Cup AB, Halmstad, Sweden

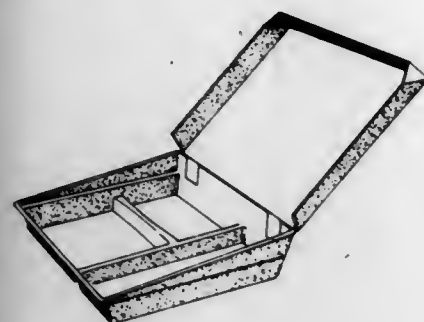
Filed May 1, 1972, Ser. No. 249,491

Claims priority, application Sweden Nov. 1, 1971

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—185



232,423

CLOCK OR SIMILAR ARTICLE

Arthur M. Felske, Westport, Conn., assignor to

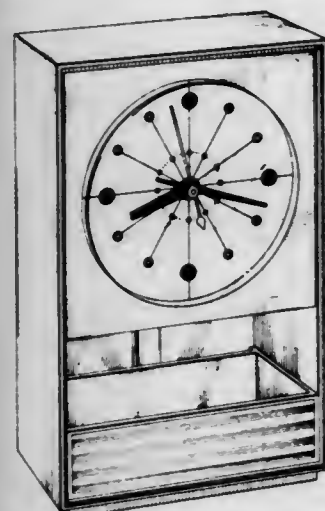
General Electric Company

Filed May 26, 1972, Ser. No. 257,471

Term of patent 3½ years

Int. Cl. D10—01

U.S. Cl. D10—25



232,424

CLOCK OR SIMILAR ARTICLE

Arthur M. Felske, Westport, Conn., assignor to

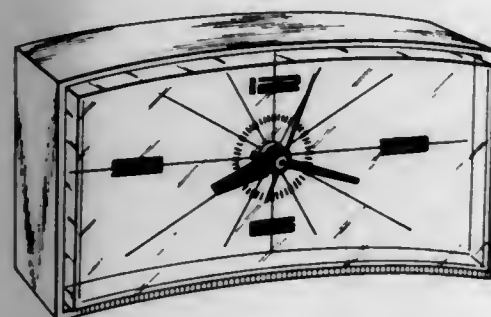
General Electric Company

Filed May 26, 1972, Ser. No. 257,470

Term of patent 3½ years

Int. Cl. D10—01

U.S. Cl. D10—28



232,425

WORKBOAT

John E. Marriner, 4019 Pine Ave.,

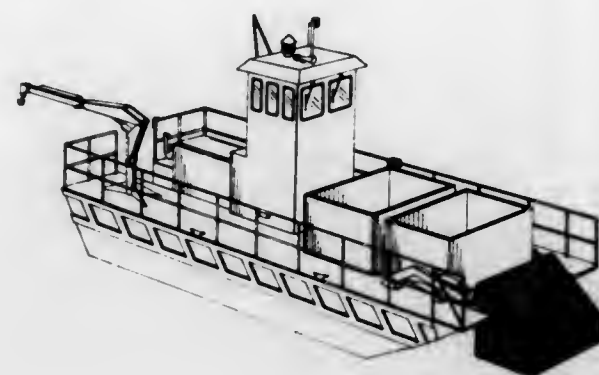
Long Beach, Calif. 90807

Filed Sept. 28, 1972, Ser. No. 292,952

Term of patent 14 years

Int. Cl. D15—04

U.S. Cl. D12—66



232,426

V/STOL AIRCRAFT

Tadeusz Karol Sienkier, Hatfield, England, assignor to

Hawker Siddeley Aviation Limited, Kingston-upon-

Thames Surrey, England

Filed Nov. 17, 1971, Ser. No. 199,827

Claims priority, application Great Britain May 17, 1971

Term of patent 14 years

Int. Cl. D12—07

U.S. Cl. D12—79



232,427

V/STOL AIRCRAFT

Tadeusz Karol Sienkier, Hatfield, England, assignor to

Hawker Siddeley Aviation Limited, Kingston-upon-

Thames Surrey, England

Filed Nov. 17, 1971, Ser. No. 199,828

Claims priority, application Great Britain May 19, 1971

Term of patent 14 years

Int. Cl. D12—07

U.S. Cl. D12—79



232,428

TIRE

Walter W. Hinkel, Massillon, and Arthur L. Finley,

Akron, Ohio, assignors to The Goodyear Tire & Rubber

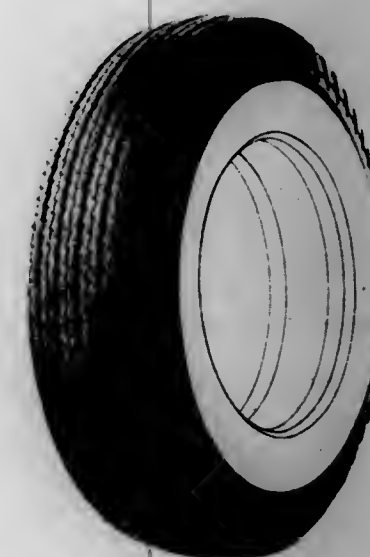
Company, Akron, Ohio

Filed June 25, 1973, Ser. No. 373,232

Term of patent 14 years

Int. Cl. D12—15

U.S. Cl. D12—141



232,429

TIRE

Walter W. Hinkel, Massillon, Ohio, assignor to The

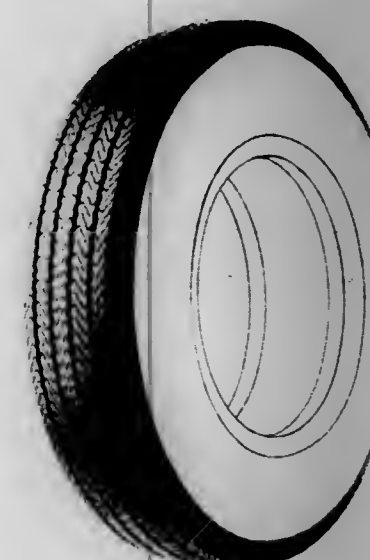
Goodyear Tire & Rubber Company, Akron, Ohio

Filed June 25, 1973, Ser. No. 373,233

Term of patent 14 years

Int. Cl. D12—15

U.S. Cl. D12—142



232,430

HUB CAP

Henry James Clary, Orange, Calif.

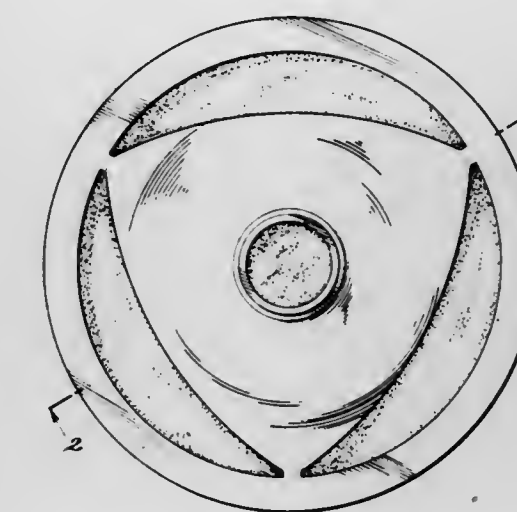
(16427 S. Avalon Blvd., Gardena, Calif. 90248)

Filed May 24, 1973, Ser. No. 363,653

Term of patent 14 years

Int. Cl. D12—16

U.S. Cl. D12—204



232,431

WHEEL

David V. Kimball, 1817 W. Anamaker, Covina, Calif.

91723, and Daniel L. Baughn, 16059 Double Grove,

Valinda, Calif. 91744

Continuation-in-part of design applications Ser. No.

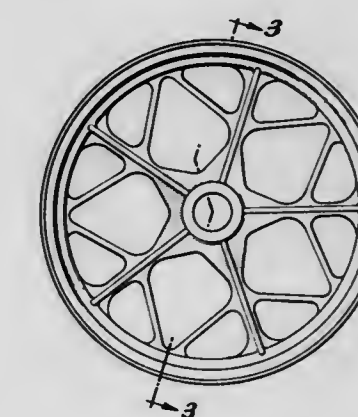
204,793 and Ser. No. 204,794, both Dec. 3, 1971.

This application Aug. 7, 1972, Ser. No. 278,298

Term of patent 14 years

Int. Cl. D12—16

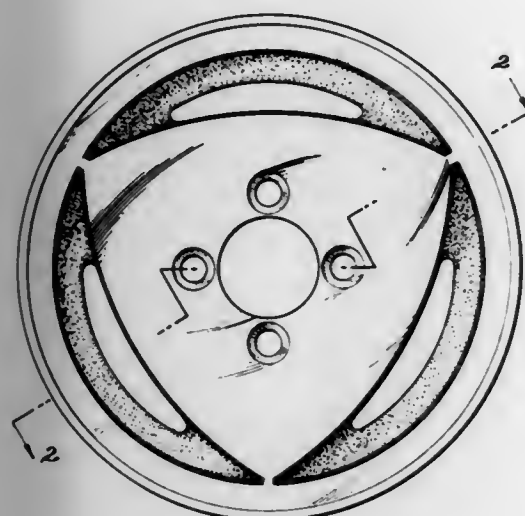
U.S. Cl. D12—205



232,432
AUTOMOBILE WHEEL

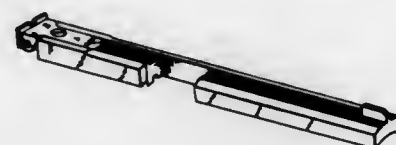
Henry James Clary, Orange, Calif.
(16427 S. Avalon Blvd., Gardena, Calif. 90248)
Filed May 7, 1973, Ser. No. 357,539
Term of patent 14 years
Int. Cl. D12—16

U.S. Cl. D12—209



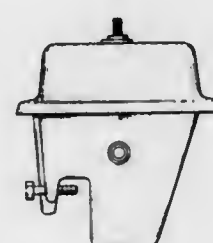
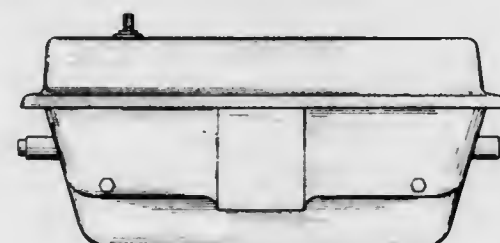
232,434
GUN SIGHT
Robert Korzeniewski, 115 N. Live Oak St.,
Carthage, Tex. 75633
Filed Sept. 6, 1973, Ser. No. 394,911
Term of patent 14 years
Int. Cl. D16—06; D22—99

U.S. Cl. D22—8



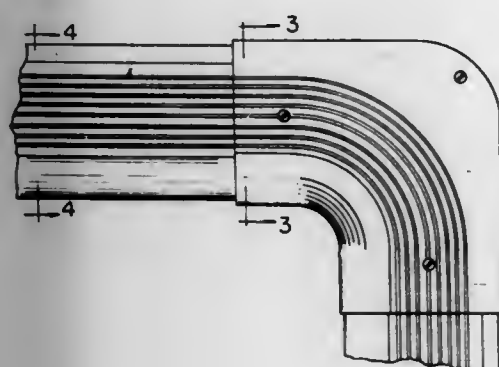
232,435
ULTRAVIOLET WATER PURIFIER FOR
AQUARIUMS OR THE LIKE
Richard H. Bennett, 8731 SW. 125th St. 33156, and
Douglas N. Lambert, 9451 Haitian Drive 33157, both
of Miami, Fla.
Filed Mar. 20, 1972, Ser. No. 236,546
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—3



232,433
SWIMMING POOL COPING
Chris Scourtes, West Bloomfield Township, Mich.
(28875 Joy Road, Westland, Mich. 48185)
Filed Mar. 3, 1972, Ser. No. 231,773
Term of patent 14 years
Int. Cl. D25—99

U.S. Cl. D13—6



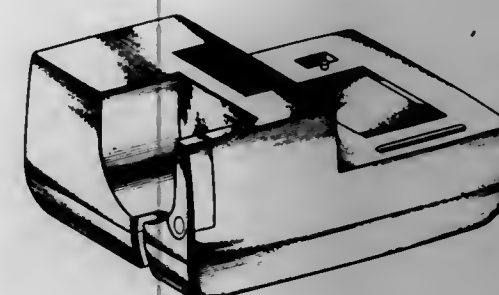
232,436
PORTABLE DATA RECORDER
William R. Goodale, Claremont, and Ronald E. Loosen,
Malibu, Calif., assignors to MSI Data Corporation,
Costa Mesa, Calif.
Filed Dec. 13, 1972, Ser. No. 314,697
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5 C



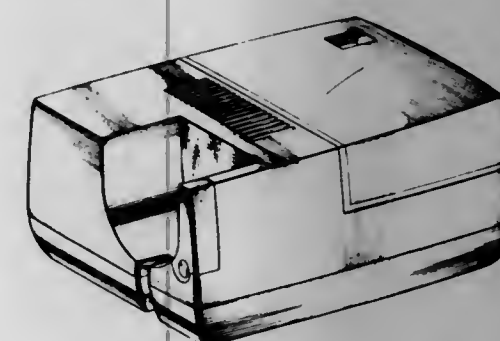
232,437
DATA TRANSMITTER
William R. Goodale, Claremont, and Ronald E. Loosen,
Malibu, Calif., assignors to MSI Data Corporation,
Costa Mesa, Calif.
Filed Dec. 13, 1972, Ser. No. 314,696
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5 C



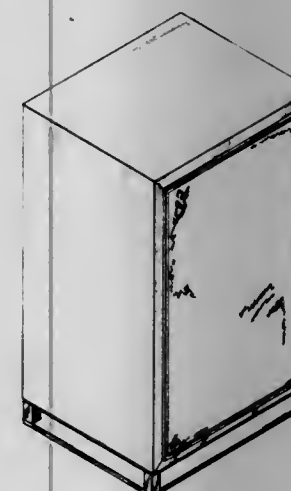
232,438
DATA TRANSMITTER
William R. Goodale, Claremont, and Ronald E. Loosen,
Malibu, Calif., assignors to MSI Data Corporation,
Costa Mesa, Calif.
Filed Dec. 13, 1972, Ser. No. 314,699
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5 C



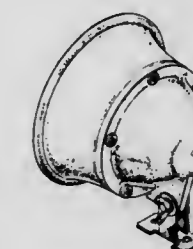
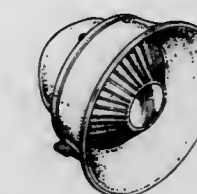
232,439
LOUDSPEAKER-STAND COMBINATION
Norman Leonard Thomasen, 615 San Jose Ave.,
San Francisco, Calif. 94110
Filed Feb. 16, 1972, Ser. No. 227,013
Term of patent 14 years
Int. Cl. D14—01

U.S. Cl. D26—14 G



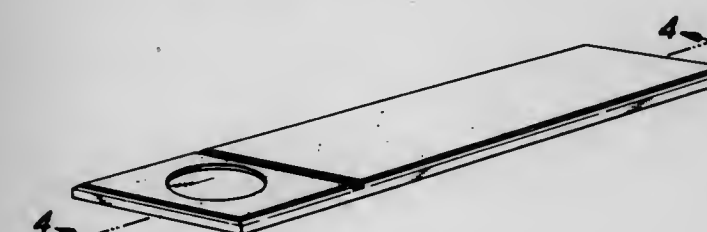
232,440
HORN-SPEAKER
Haruo Yanagawa, Tokyo, Japan, assignor to Ashida
Kabushiki Kaisha (Ashida Sound Co. Ltd.) Tokyo,
Japan
Filed Apr. 11, 1972, Ser. No. 243,103
Claims priority, application Japan Nov. 12, 1971
Term of patent 14 years
Int. Cl. D14—01

U.S. Cl. D26—14 G



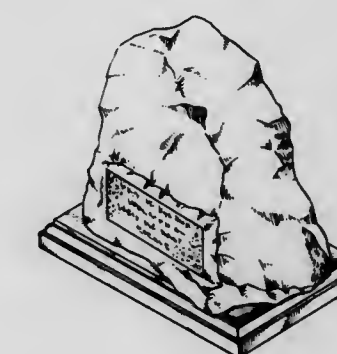
232,441
BADGE
Peter R. Camposco, 250 Charter Oak St.,
Manchester, Conn. 06040
Filed Apr. 19, 1972, Ser. No. 245,700
Term of patent 14 years
Int. Cl. D11—03

U.S. Cl. D29—2 R



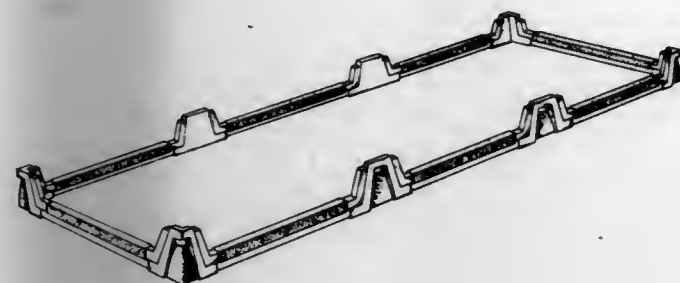
232,442
STATUETTE
Walter E. Atwell, 7411 W. 75th St.,
Downers Grove, Ill. 60515
Filed July 21, 1972, Ser. No. 273,960
Term of patent 14 years
Int. Cl. D11—02

U.S. Cl. D29—23 A



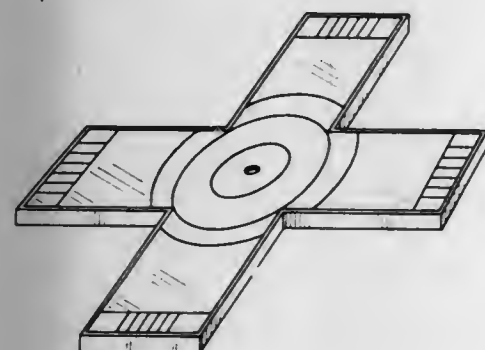
232,443
COMBINED CASKET HANDLES AND BRACKETS
 Charles F. Winburn, Cincinnati, Ohio, and Herbert K. Y. Sun, Sunman, Ind., assignors to Batesville Casket Company, Inc., Batesville, Ind.
 Filed Apr. 24, 1972, Ser. No. 247,240
 Term of patent 14 years
 Int. Cl. D8—06

U.S. Cl. D31—11



232,444
GOLF GAME PUTTING TARGET
 James C. Scully, Scarsdale, N.Y., assignor to Styne, Inc., Scarsdale, N.Y.
 Filed Aug. 19, 1971, Ser. No. 173,355
 Term of patent 3½ years
 Int. Cl. D21—01

U.S. Cl. D34—5 NN



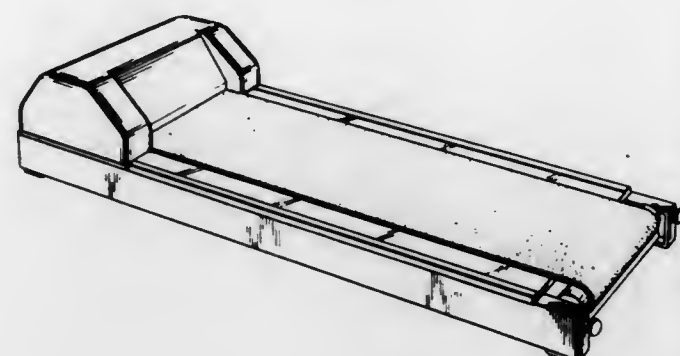
232,445
TETHERED BALL BOWLING GAME BOARD
 Walter Moe, Huntington, N.Y., assignor to Aurora Products Corp., West Hempstead, N.Y.
 Filed Apr. 4, 1972, Ser. No. 241,105
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—5 BB



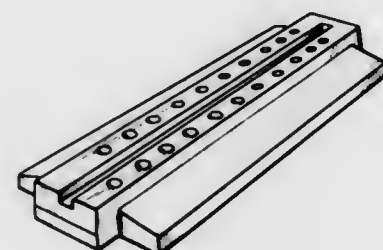
232,446
TREADMILL
 Ray T. Townsend, Des Moines, Iowa, assignor to Townsend Engineering Company, Des Moines, Iowa
 Filed May 5, 1972, Ser. No. 250,842
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5 K



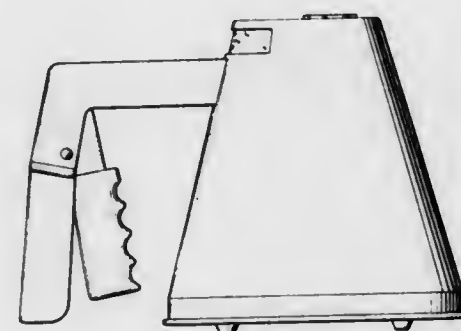
232,447
GAME SCOREKEEPING BOARD
 Abigail Van Buren, St. Paul, Minn., assignor to Ideal Toy Corporation, Hollis, N.Y.
 Filed May 12, 1972, Ser. No. 252,732
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—5 TT



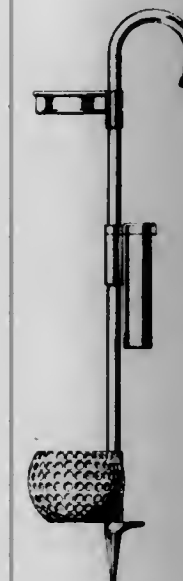
232,448
GRIP STRENGTH MEASURER
 Bo Hjalmar Andersson, Ofella Nieto 75, Madrid, Spain
 Filed Aug. 24, 1972, Ser. No. 283,441
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5 K



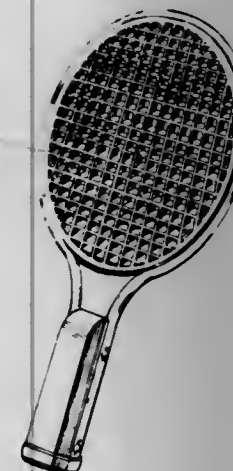
232,449
GOLF CLUB CARRIER
 Arthur L. Herring, % Modern Manufacturing Inc., Brussels St., Worcester, Mass. 01610
 Filed Oct. 31, 1972, Ser. No. 302,519
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5 GB



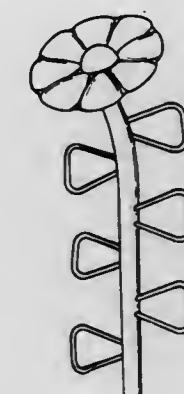
232,450
TENNIS RACKET
 Louis R. Chreist, Jr., Darle L. Kerkenbush, Peter D. Pook, and Monte C. Gillespie, South Bend, Ind., assignors to South Bend Toy Manufacturing Company, Inc., South Bend, Ind.
 Filed Dec. 5, 1972, Ser. No. 312,365
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5 ST



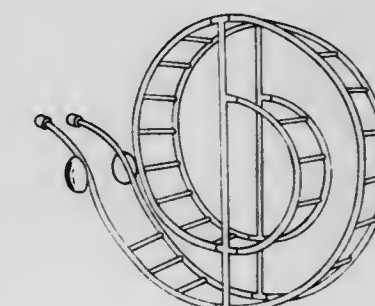
232,451
PLAYGROUND CLIMBER REPRESENTING A FLOWER
 Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.
 Filed Feb. 12, 1973, Ser. No. 331,977
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5 H



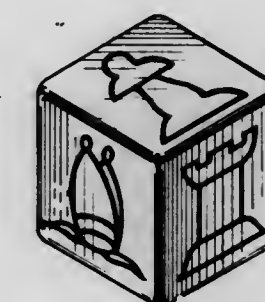
232,452
PLAYGROUND CLIMBER REPRESENTING A SNAIL
 Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.
 Filed Feb. 23, 1973, Ser. No. 335,069
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5 H



232,453
GAME DIE
 Norman Bialek, 14 Broadview Road, Westport, Conn. 06880
 Filed Mar. 2, 1973, Ser. No. 337,530
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—5 DT



232,454

BEE-SHAPED SEAT FOR PLAYGROUND APPARATUS

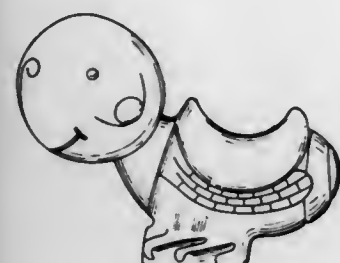
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.

Filed Oct. 27, 1972, Ser. No. 301,621

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D34-15 B



232,455

FROG-SHAPED SEAT FOR PLAYGROUND APPARATUS

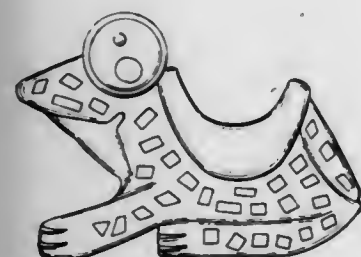
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.

Filed Oct. 27, 1972, Ser. No. 301,622

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D34-15 B



232,456

BIRD-SHAPED SEAT FOR PLAYGROUND APPARATUS

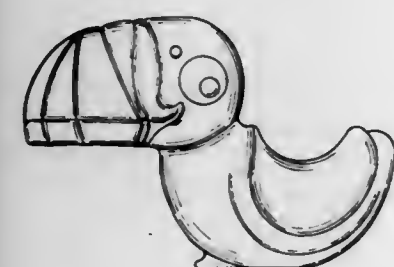
Robert S. Wormser, Hillsdale, Mich., assignor to Game Time, Inc., Litchfield, Mich.

Filed Oct. 27, 1972, Ser. No. 301,633

Term of patent 14 years

Int. Cl. D21-02

U.S. Cl. D34-15 B



232,457

AUDIBLE TOY

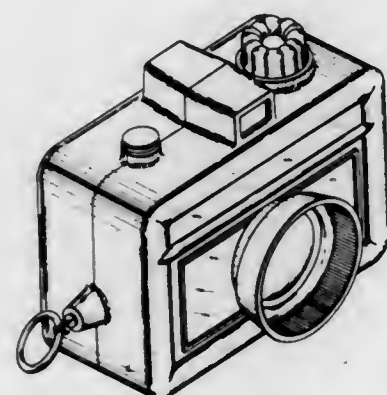
Richard E. Henderson, Huntington Beach, and Gale D. Jenkins, Jr., Palos Verdes, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Jan. 18, 1973, Ser. No. 324,633

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D34-15 A



232,458

NOISE-MAKING TOP

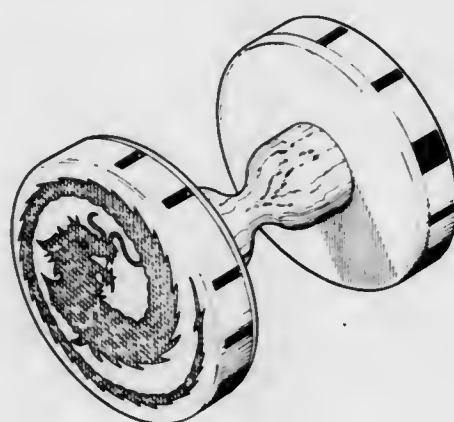
George A. Van Vranken, 1407 Oak Grove Ave., Burlingame, Calif. 94010; and James D. Putz, 1219 Alicante Drive, Pacifica, Calif. 94044

Filed Apr. 10, 1973, Ser. No. 349,799

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D34-15 AH



232,459

TOY GLIDER

Eugene J. Kilroy, Inglewood, Gerald K. Leistikow, San Pedro, and Philip B. Du Breuil, Redondo Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed May 4, 1973, Ser. No. 357,404

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D34-15 AF



232,460

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden

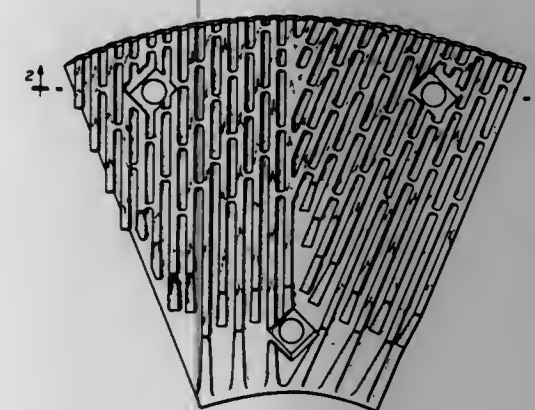
Filed July 19, 1971, Ser. No. 164,190

Claims priority, application Sweden Jan. 20, 1971

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D37-1 R



232,461

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden

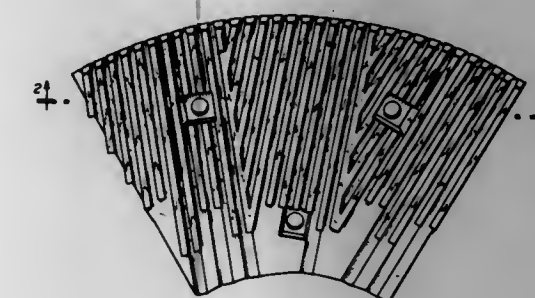
Filed July 19, 1971, Ser. No. 164,191

Claims priority, application Sweden Jan. 20, 1971

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D37-1 R



232,462

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden

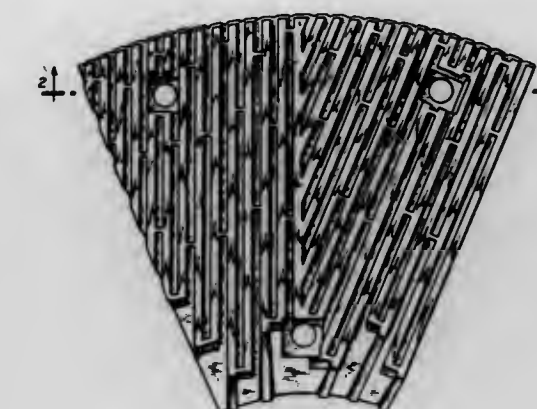
Filed July 19, 1971, Ser. No. 164,193

Claims priority, application Sweden Jan. 20, 1971

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D37-1 R



232,463

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden

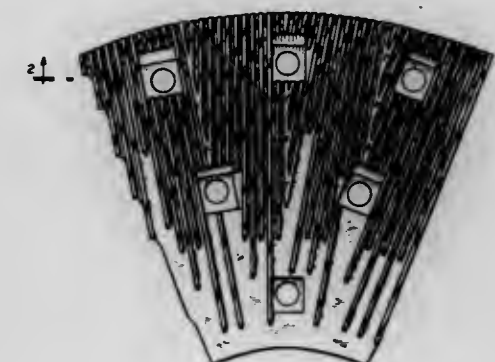
Filed July 19, 1971, Ser. No. 164,194

Claims priority, application Sweden Jan. 20, 1971

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D37-1 R



232,464

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden

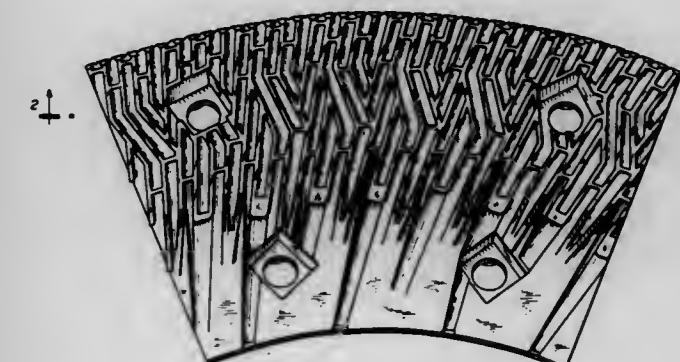
Filed July 19, 1971, Ser. No. 164,197

Claims priority, application Sweden Jan. 20, 1971

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D37-1 R

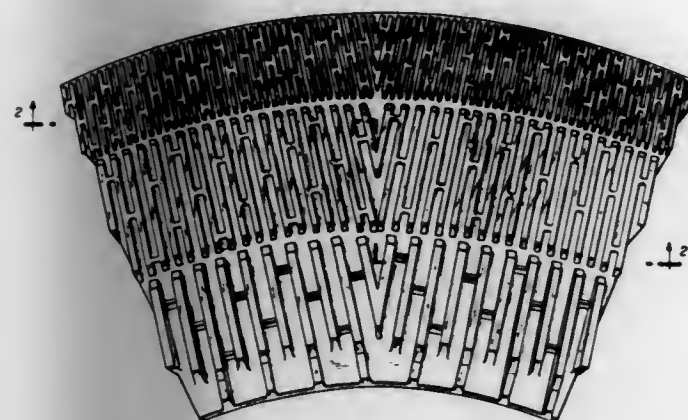


232,465

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden
 Filed July 19, 1971, Ser. No. 164,216
 Claims priority, application Sweden Jan. 20, 1971
 Term of patent 14 years
 Int. Cl. D15-09

U.S. Cl. D37-1 R

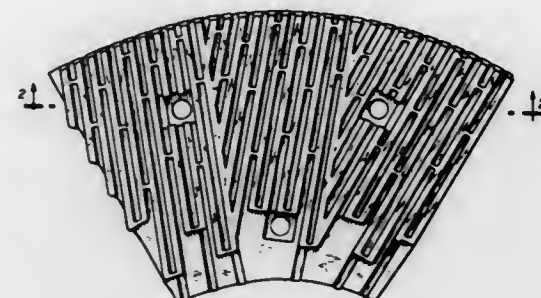


232,468

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden
 Filed July 19, 1971, Ser. No. 164,222
 Claims priority, application Sweden Jan. 20, 1971
 Term of patent 14 years
 Int. Cl. D15-09

U.S. Cl. D37-1 R

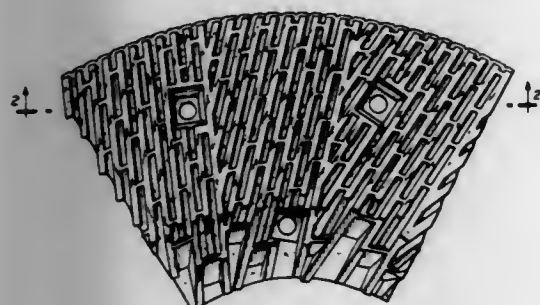


232,466

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden
 Filed July 19, 1971, Ser. No. 164,220
 Claims priority, application Sweden Jan. 20, 1971
 Term of patent 14 years
 Int. Cl. D15-09

U.S. Cl. D37-1 R

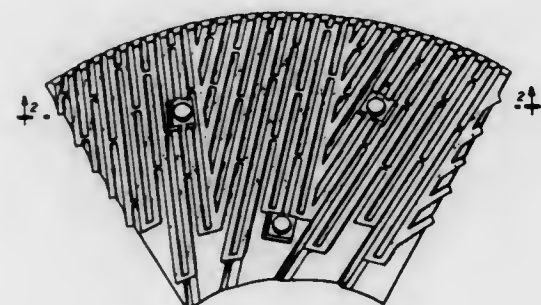


232,469

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden
 Filed July 19, 1971, Ser. No. 164,223
 Claims priority, application Sweden Jan. 20, 1971
 Term of patent 14 years
 Int. Cl. D15-09

U.S. Cl. D37-1 R

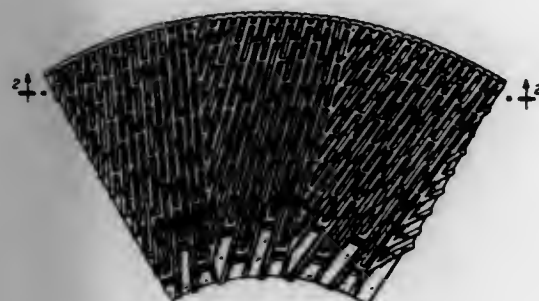


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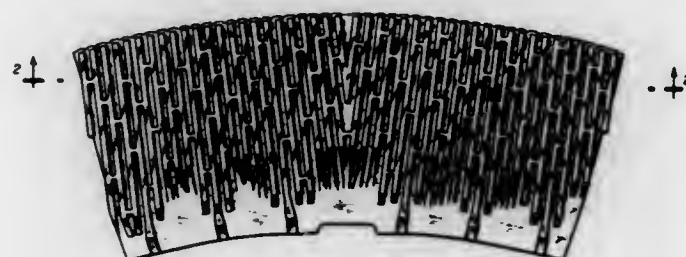
Ake Sandstrom, Falkvagen 65, Taby, Sweden
 Filed July 19, 1971, Ser. No. 164,221
 Claims priority, application Sweden Jan. 20, 1971
 Term of patent 14 years
 Int. Cl. D15-09

U.S. Cl. D37-1 R



Ake Sandstrom, Falkvagen 65, Taby, Sweden
 Filed July 19, 1971, Ser. No. 164,226
 Claims priority, application Sweden Jan. 20, 1971
 Term of patent 14 years
 Int. Cl. D15-09

U.S. Cl. D37-1 R

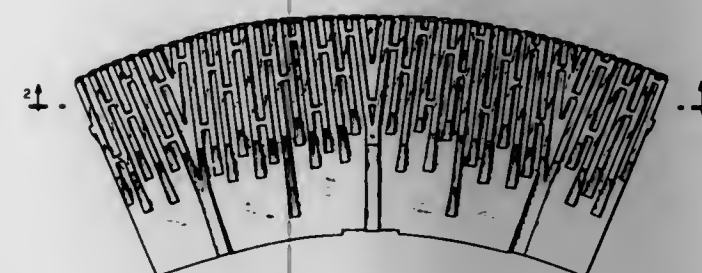


232,471

GRINDING DISC SEGMENT

Ake Sandstrom, Falkvagen 65, Taby, Sweden
 Filed July 19, 1971, Ser. No. 164,227
 Claims priority, application Sweden Jan. 20, 1971
 Term of patent 14 years
 Int. Cl. D15-09

U.S. Cl. D37-1 R

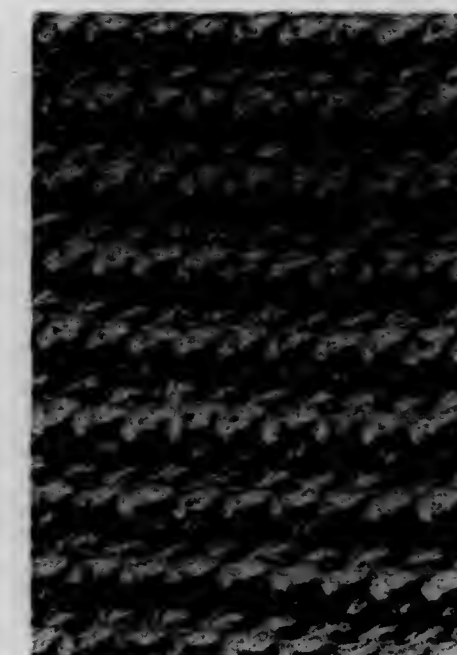


232,473

CROCHET FABRIC

Catherine Mary Toscano, 1657 1/2 E. Santa Clara St.,
 San Jose, Calif. 95116
 Filed July 27, 1972, Ser. No. 275,495
 Term of patent 14 years
 Int. Cl. D5-02

U.S. Cl. D47-2



232,472

CROCHET FABRIC

Catherine Mary Toscano, 1657 1/2 E. Santa Clara St.,
 San Jose, Calif. 95116
 Filed July 27, 1972, Ser. No. 275,482
 Term of patent 14 years
 Int. Cl. D5-05

U.S. Cl. D47-2



232,474

CROCHET FABRIC

Catherine Mary Toscano, 1657 1/2 E. Santa Clara St.,
 San Jose, Calif. 95116
 Filed July 27, 1972, Ser. No. 275,631
 Term of patent 14 years
 Int. Cl. D5-05

U.S. Cl. D47-2



232,475

CROCHET FABRICCatherine Mary Toscano, 1657½ E. Santa Clara St.,
San Jose, Calif. 95116

Filed July 27, 1972, Ser. No. 275,703

Term of patent 14 years

Int. Cl. D5—05

U.S. Cl. D47—2



232,476

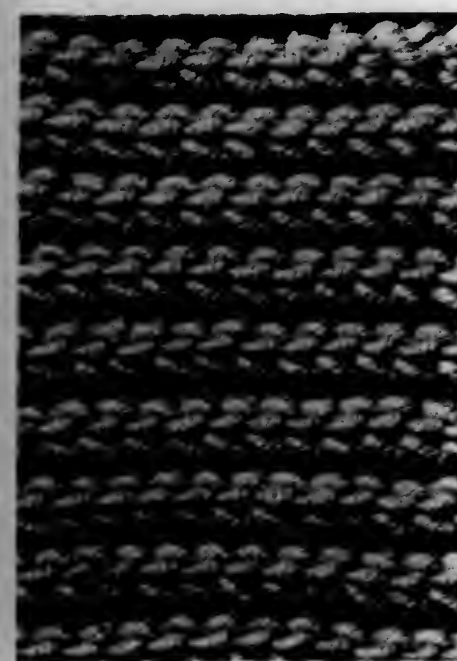
CROCHET FABRICCatherine Mary Toscano, 1657½ E. Santa Clara St.,
San Jose, Calif. 95116

Filed July 27, 1972, Ser. No. 275,798

Term of patent 14 years

Int. Cl. D5—05

U.S. Cl. D47—2



232,477

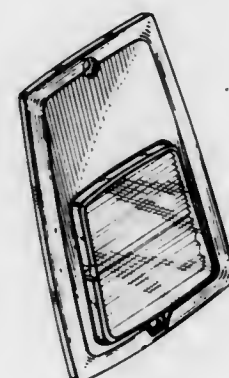
PORCH LIGHT FOR MOTOR HOMESHoward R. Moon, Fort Atkinson, Wis., assignor to Lake
Center Switch Company, Winona, Minn., and Guy F.
Atkinson Company, South San Francisco, Calif.

Filed Dec. 6, 1972, Ser. No. 312,772

Term of patent 14 years

Int. Cl. D26—06, 05

U.S. Cl. D48—32 R



232,478

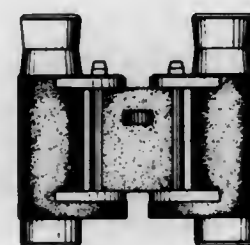
BINOCULARSJoachim Hornschu, Oberkochen, and Volker Donn,
Heidenheim, Germany, assignors to Carl Zeiss-Stiftung
(doing business as Carl Zeiss), Oberkochen-Württem-
berg, Germany

Filed Dec. 21, 1973, Ser. No. 427,365

Term of patent 14 years

Int. Cl. D16—06

U.S. Cl. D57—1 E



232,479

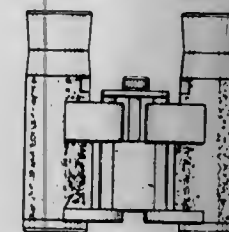
BINOCULARSArtur Jung, Königsbrunn, and Joachim Hornschu, Ober-
kochen, Germany, assignors to Carl Zeiss-Stiftung
(doing business as Carl Zeiss), Oberkochen-Württem-
berg, Germany

Filed Dec. 21, 1973, Ser. No. 427,415

Term of patent 14 years

Int. Cl. D16—06

U.S. Cl. D57—1 E



232,480

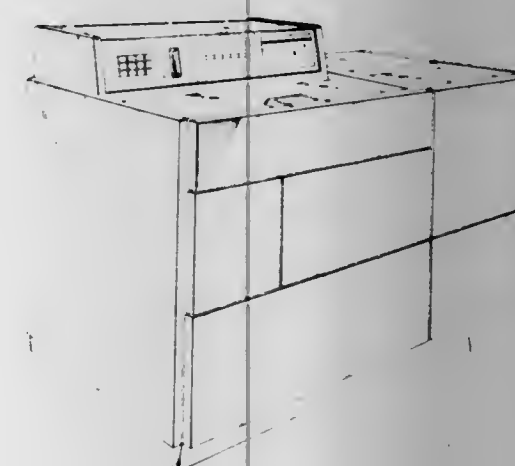
**COMPUTER OUTPUT MICROFILMER
OR THE LIKE**Thomas Cecil Laughon, Rochester, N.Y., assignor to
Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 5, 1972, Ser. No. 295,409

Term of patent 14 years

Int. Cl. D16—03

U.S. Cl. D61—1 Q



232,481

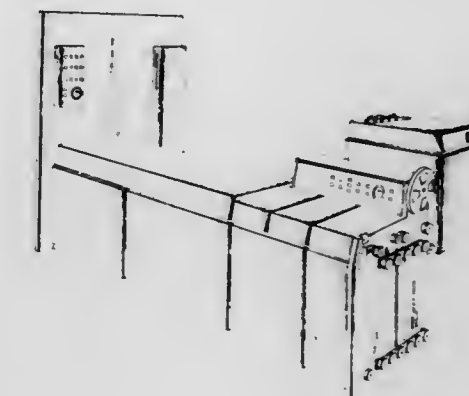
PHOTOGRAPHIC FILM PROCESSORAndrew V. McClare, Rochester, N.Y., assignor to
Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 9, 1973, Ser. No. 330,901

Term of patent 14 years

Int. Cl. D16—04

U.S. Cl. D61—1 Q



232,482

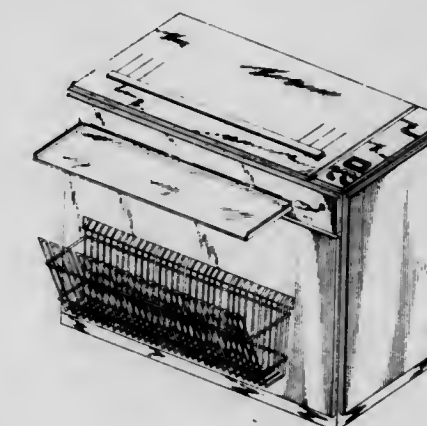
PHOTOGRAPHIC FILM PROCESSORRalph M. Vigna, Rochester, N.Y., assignor to
Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 25, 1973, Ser. No. 354,277

Term of patent 14 years

Int. Cl. D16—04

U.S. Cl. D61—1 Q



232,483

MOTION PICTURE CAMERAMasahiro Fukuda, Tokyo, Japan, assignor to Fuji Photo
Film Co., Ltd., Minamishiga-shi, Kanagawa-ken,
Japan

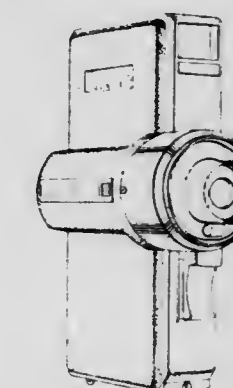
Filed July 25, 1973, Ser. No. 382,473

Claims priority, application Japan Jan. 30, 1973

Term of patent 14 years

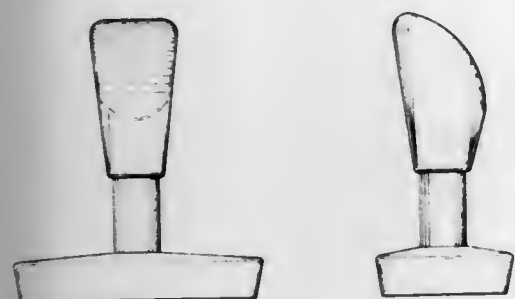
Int. Cl. D16—01

U.S. Cl. D61—1 C



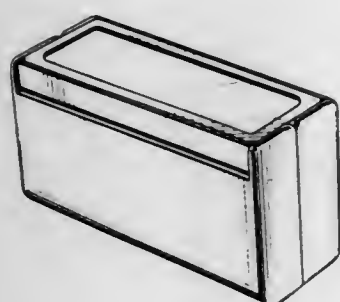
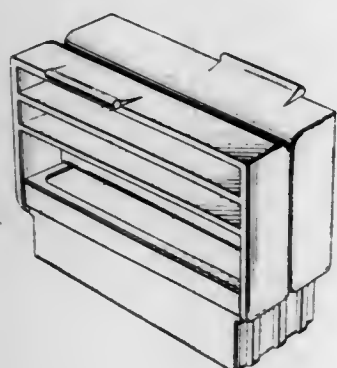
232,484

HAND STAMP KNOB OR SIMILAR ARTICLE
 Heinz-Gunter Michels, Berlin, Germany, assignor to The
 National Cash Register Company, Dayton, Ohio
 Filed Nov. 17, 1972, Ser. No. 307,570
 Claims priority, application Germany Sept. 30, 1972
 Term of patent 14 years
 Int. Cl. D19—02
 U.S. Cl. D64—10



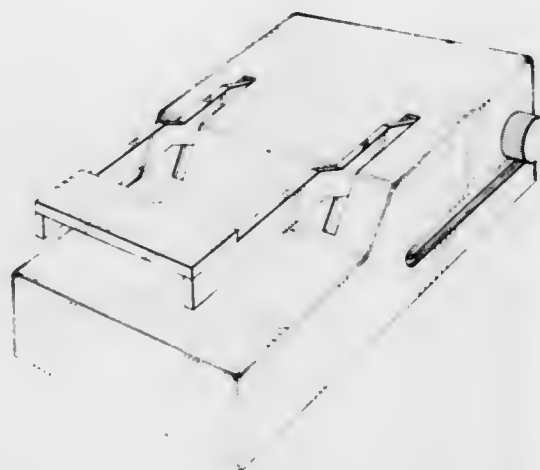
232,485

POCKET HAND STAMP
 Takaji Funahashi, 1, 2-chome Kitatako-machi,
 Nagoya, Japan
 Filed Mar. 2, 1973, Ser. No. 337,734
 Claims priority, application Japan Sept. 16, 1972
 Term of patent 14 years
 Int. Cl. D19—02
 U.S. Cl. D64—10



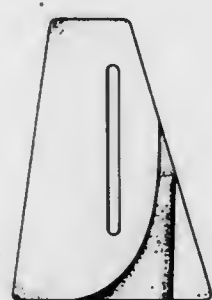
232,486

SIGNATURE WRITER
 Joseph K. Dikoff, 4 Privateer, Apt. 3,
 Marina Del Rey, Calif. 90029
 Filed July 12, 1973, Ser. No. 378,802
 Term of patent 14 years
 Int. Cl. D18—02
 U.S. Cl. D64—11 B



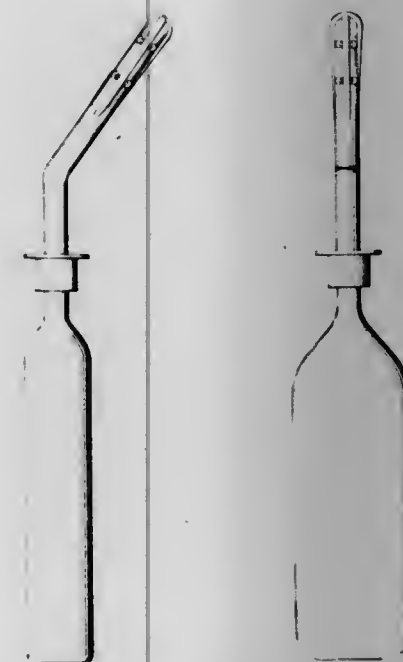
232,487

**SEWING GUIDE ATTACHABLE TO A
 SEWING MACHINE**
 Walter K. Fogg, 45 Kensington St.,
 Feeding Hills, Mass. 01030
 Filed Nov. 13, 1972, Ser. No. 306,361
 Term of patent 14 years
 Int. Cl. D15—06
 U.S. Cl. D70—2 B



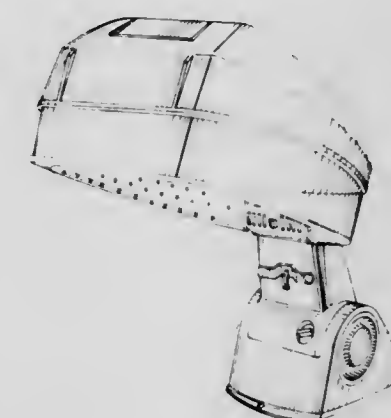
232,488

DOUCHE APPLIANCE
 Virginia A. Winter and Thomas E. Hatch, Jr., Chicago,
 Ill., assignors to The Gillette Company, Boston, Mass.
 Filed June 14, 1972, Ser. No. 262,553
 Term of patent 14 years
 Int. Cl. D24—04
 U.S. Cl. D83—1 Q



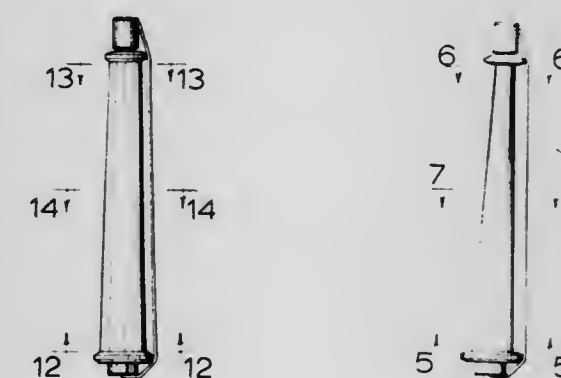
232,490

HAIR DRYER
 Robert S. Waters, Lancaster, Edward J. Doyle, Hatboro,
 and Meyric K. Rogers, Lancaster, Pa., and Nial C.
 Bartram, Wilmington, Del., assignors to Schick Incor-
 porated, Lancaster, Pa.
 Filed Feb. 23, 1973, Ser. No. 335,356
 Term of patent 14 years
 Int. Cl. D28—03
 U.S. Cl. D86—10 F



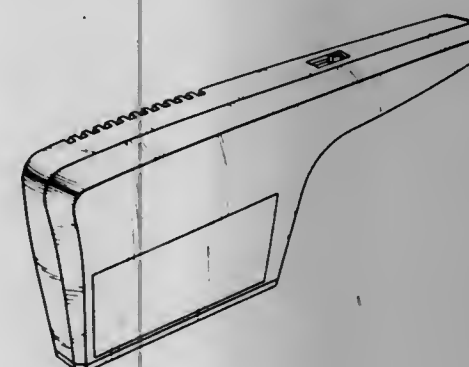
232,491

HAIR CURLER
 Virginia Claire Snow, 4023 N. Whitehouse,
 Spokane, Wash. 99205
 Filed Apr. 30, 1973, Ser. No. 355,517
 Term of patent 14 years
 Int. Cl. D28—03
 U.S. Cl. D86—10 E



232,489

CASING FOR HAND HELD HAIR DRYER
 Douglas G. Long, Lombard, Ill., assignor to Sunbeam
 Corporation, Chicago, Ill.
 Filed June 21, 1972, Ser. No. 264,725
 Term of patent 14 years
 Int. Cl. D28—03
 U.S. Cl. D86—10 F



232,492

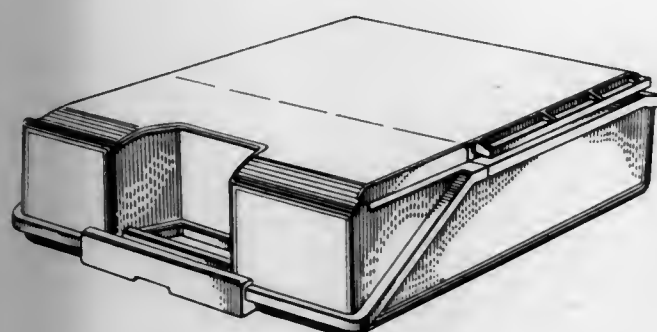
CARRYING CASE

Chester J. Barecki, Grand Rapids, Mich., assignor to American Seating Company, Grand Rapids, Mich.
Filed Feb. 23, 1972, Ser. No. 228,801

Term of patent 14 years

Int. Cl. D3—99

U.S. Cl. D87—1 R



232,493

DRY SHAVER

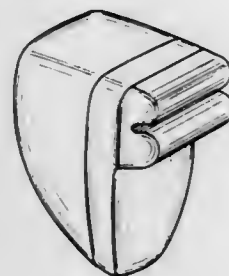
Maarten Willem van Lelyveld, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 14, 1972, Ser. No. 280,132

Claims priority, application Switzerland Feb. 14, 1972

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D95—3 A



232,494

DRY SHAVER

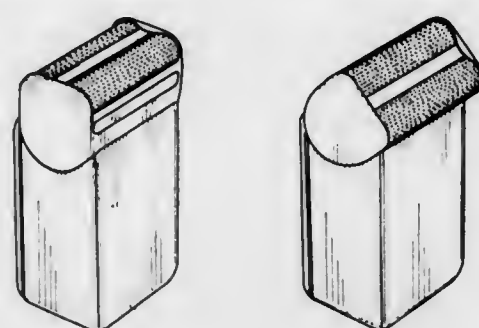
Maarten Willem van Lelyveld, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 14, 1972, Ser. No. 280,169

Claims priority, application Switzerland Feb. 14, 1972

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D95—3 A



232,495

DRY SHAVER OR SIMILAR ARTICLE

Leslie Leonard Lane, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Feb. 21, 1973, Ser. No. 334,467

Claims priority, application Switzerland Nov. 27, 1972

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D95—3 A

**LIST OF PATENTEEES**

TO WHOM

PATENTS WERE ISSUED ON THE 20TH DAY OF AUGUST, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A/S Ardal og Sunddal Verk: See—
Nielsen, Kjell; and Dethloff, Finn H., 3,830,043.
- Abbott, Dominic C.; and Chen, Godfrey, said Abbott assor to Abbott Tresses Inc. Wig with improved front hairline construction. 3,830,245, Cl. 132-5.000.
- Abbott Laboratories: See—
Prasad, Raj Nandan; and Garmaise, David Lyon, 3,830,793.
Prasad, Raj Nandan; and Garmaise, David Lyon, 3,830,796.
- Abbott, Thomas P., to United States of America, Agriculture. Polysaccharide-containing elastomers. 3,830,762, Cl. 260-17.200.
- Abbott Tresses Inc.: See—
Abbott, Dominic C.; and Chen, Godfrey (said Abbott assor to), 3,830,245.
- Abildgaard, William H.; and Groswith, Charles T., III, to Velo-Bind, Inc. Book bound by ultrasonic means. 3,830,524, Cl. 281-21.000.
- Abrahams, Jacobus Hubertus: See—
Harrewijne, Arend; and Abrahams, Jacobus Hubertus, 3,830,254.
- Acampora, Vincent Paul: See—
Powell, David Barton; and Acampora, Vincent Paul, 3,831,120.
- Acharkan, Evgeny Adolfovich; Khaskin, Ilia Naumovich; Tstrulnikov, Isak Meerovich; Povolotsky, Emil Lvovich; and Jurovsky, Vladimir Solomonovich. Method for measuring diameter and flexibility of rubber shaft seals. 3,830,097, Cl. 73-37.500.
- Acher, Heinz, to Licentia Patent-Verwaltungs-G.m.b.H. Control rod drive for nuclear reactors. 3,830,694, Cl. 176-36.00r.
- Acme Highway Products Corporation: See—
Becht, H. Allen; Campbell, James; Kerschner, James J.; and Krollman, Edward J., 3,830,583.
- Action Industries, Inc.: See—
Salladay, Mack, 3,829,926.
- Acurex Corporation: See—
Elkins, William, 3,830,676.
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Takamizawa, Noboru; and Miura, Teizo, 3,829,954.
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- Adams Laboratories, Inc.: See—
Garrett, Roger L.; Garrett, Charles B., Jr.; and Rubin, Alan B., 3,830,789.
- Addressograph-Multigraph Corporation: See—
Bradshaw, Randolph F., 3,831,008.
Zupancic, Anton Z.; and See, Gary G., 3,831,188.
- Advanced Drainage Systems, Inc.: See—
Sext, Marty E., 3,830,373.
- Advanced Technology Center Inc.: See—
Chician, Jay S.; and Eden, Dayton D., 3,831,165.
- Aerofet Limited: See—
Kedward, Eric Charles; and Martin, James Graham, 3,830,711.
- Aerojet-General Corporation: See—
Frank, Kurt F., 3,830,704.
Lista, Edwin L., 3,830,672.
- Aeroquip Corporation: See—
Lago, Ernest T., 3,830,262.
Roberts, Arnold E., 3,830,532.
- Affiliated Hospital Products, Inc.: See—
Hoover, Robert B., 3,830,035.
- A.G. fur industrielle Elektronik AGIE: See—
Ullmann, Werner; Sieg, Arno; Mattei, Silvano; and Schumacher, Bernd, 3,830,996.
- Agence Nationale de Valorisation de la Recherche Anvar: See—
Le Floch, Albert, 3,831,108.
- AGFA-Gevaert N.V.: See—
Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poot, Albert Lucien; and Pollet, Robert Joseph, 3,830,647.
- Ahmed, Adel Abdel Aziz, to RCA Corporation. Relaxation oscillator. 3,831,113, Cl. 331-111.000.
- Aiken, John Kempton; Larson, Clive; and Sanderson, Graham, to National Research Development Corporation. Electrolytic treatment of metal surfaces or electrodeposit alumina. 3,830,713, Cl. 204-96.000.
- Ainsworth, Richard, to Avco Corporation. Fan engine mounting. 3,830,058, Cl. 60-226.00r.
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Lenney, William Edward, 3,830,761.
- Airco, Inc.: See—
Crichtlow, Philip R.; and Zeitlin, Bruce A., 3,829,964.
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Kito, Masahiro; and Kawaguchi, Hiroshi, 3,830,549.
Kondo, Toshiyuki, 3,830,550.
- Aitkenhead, William. Flexible harrows. 3,830,314, Cl. 172-776.000.
- Ajax Hardware Corporation: See—
Read, George D.; Tintary, F. Raymond; and Du Shane, Raymond N., Jr., 3,830,535.
- Ajinomoto Co., Inc.: See—
Asi, Soichiro; Yaita, Kenichi; Uzuki, Teruo; Kimura, Kouhei; and Kageyama, Hiroo, 3,830,836.
Suzuki, Katsumi; Maeyashiki Isamu; Akihiro, Murai, Asao; Shio, Tsuyoshio; and Okumura, Shinji, 3,830,832.
- Akamatsu, Hiroyuki: See—
Saito, Masatoshi; Namiki, Ryoichi; Fujii, Tadashi; and Akamatsu, Hiroyuki, 3,830,199.
- Akihiro: See—
Suzuki, Katsumi; Maeyashiki Isamu; Akihiro, Murai, Asao; Shio, Tsuyoshio; and Okumura, Shinji, 3,830,832.
- Aktien-Gesellschaft "Weser": See—
Janssen, Hans Georg; and Weissenborn, Gustav, 3,830,186.
- Albrecht, Richard Edmund, to Eastman Kodak Company. Illumination apparatus. 3,830,591, Cl. 355-71.000.
- Alcan Research and Development Limited: See—
Snider, James Roy, 3,830,281.
- Aldrich, Floyd E.; and Hallett, Joseph L., to GTE Sylvania Incorporated. Yoke removal from a bonded yoke-cathode ray tube assembly. 3,831,123, Cl. 335-210.000.
- Aldrich, Wilbert H.; and Beaudette, Charles G., to EG&G, Inc. Apparatus and method for transmitting a bandwidth compressed digital signal representation of a visible image. 3,830,966, Cl. 178-6.000.
- Alexander, Ben H.: See—
Fischbein, Irwin W.; Alexander, Ben H.; and Sastri, Aiyaswami S., 3,829,969.
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- Allredge, Russell Herbert. Apparatus for enclosing a coin-operated pin ball machine or the like. 3,830,499, Cl. 273-126.00r.
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Zaremski, Donald R.; and Beigay, Jack M., 3,830,634.
- Allen, Herbert, to Cameron Iron Works, Inc. Ball valve. 3,830,465, Cl. 251-360.000.
- Allen, John B., to Texas Instruments Incorporated. Multiple detection volume laser doppler velocimeter. 3,830,568, Cl. 356-28.000.
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- Allen, Ralph E., to Raymond Corporation. The. Material handling vehicles. 3,830,342, Cl. 187-9.000.
- Allen, Walter C., to Xerox Corporation. Conductive block transfer system. 3,830,589, Cl. 355-3.00r.
- Allied Chemical Corporation: See—
Degginger, Edward R.; and Balquist, James M., 3,830,854.
Lewis, Donald Joseph, 3,830,519.
- Allied Colloids Manufacturing Company Limited: See—
Rothwell, Eric; and Smalley, Graham, 3,830,655.
- Allied Filter Engineering, Inc.: See—
MacDonnell, Robert W., 3,830,042.
- Allis-Chalmers Corporation: See—
Boyd, Donald R., 3,831,061.
- Allum, Kenneth W.: See—
Purdum, Clyde H.; Allum, Kenneth W.; and Shackelford, Harold D., 3,830,037.
- Alsop, James M.; and Whitehouse, Harper John, to United States of America, Navy. Correlators using shift registers. 3,831,013, Cl. 235-181.000.
- Aluminum Plumbing Fixture Corporation: See—
McPhee, John L., 3,829,906.
- Alvic Development Corporation: See—
Tylus, Adolfo, 3,830,026.
- Alwood, Gloria Belle Dimitriadis: See—
Dimitriadis, George; and Alwood, Gloria Belle Dimitriadis, 3,830,944.
- Amagi, Yasuo; Noguchi, Kazuo; and Inada, Satoshi, to Kureha Kagaku Kogyo Kabushiki Kaisha. Process for the production of carbon or graphite foam containing hollow carbon microspheres. 3,830,740, Cl. 252-62.000.
- Amalgamated Dental Company Limited, The: See—
Roe, Donald Cyril, 3,830,579.
- Ambrosio, Biagio F., to Electronic Memories & Magnetics Corporation. Credit card and reader apparatus. 3,831,119, Cl. 235-61.11a.
- Amerace Esna Corporation: See—
Barnes, Gerald, 3,830,902.
- American Can Company: See—
Matejek, John Michael, 3,830,265.
- American Cyanamid: See—
Berkelhammer, Gerald; and Asato, Goro, 3,830,924.

American Cyanamid Company: See—
Bennett, Robert Putnam, 3,830,807.
Day, Arnold; and Hartjens, Herman, 3,830,366.
Vasil, James Francis; and Bursel, Joseph S., 3,830,874.
American Metal Climax, Inc.: See—
McArdle, Gordon D., 3,830,671.
American Optical Corporation: See—
Carpenter, George J., 3,830,667.
Deeg, Emil W.; and Graf, Robert E., 3,830,749.
La Marre, David A.; Battista, Albert D.; and Smith, Donald A., 3,831,104.
Shaw, Robert R.; and Robinson, Charles C., 3,830,747.
American Potato Company: See—
Shatila, Mounir A., 3,830,949.
Amex Systems, Inc.: See—
Oberdear, Robert C., 3,830,957.
AMF Incorporated: See—
Reizer, Robert F., 3,830,496.
Schulze-Berge, Karl J., 3,830,993.
Scott, Frederick M., 3,830,185.
AMP Incorporated: See—
Benfer, David Van Dike, 3,830,263.
Amsted-Siemag Kette G.m.b.H.: See—
Jepsen, Kurt Friedrich; and Janzen, Wolfgang, 3,830,133.
Jepsen, Kurt Friedrich; Stahl, Bernhard; and Janzen, Wolfgang, 3,830,486.
Andera, Joseph F.: See—
Stumpf, Joseph G.; and Andera, Joseph F., 3,830,239.
Anderson, Arnold L., to Michigan Chemical Corporation. Polystyrene plastic compositions containing naphthyl ether flame retardants. 3,830,779, Cl. 260-45.95g.
Anderson, Charlie Emanuel. Wood cutting machine. 3,829,971, Cl. 30-383.000.
Anderson, Donald Jay: See—
Hix, Velson Max; Simon, Warren J.; and Anderson, Donald Jay, 3,830,943.
Anderson, Martin P., to Milwaukee Electric Tool Corporation. Compression spring tensioner for the blade of portable electric band saw. 3,829,970, Cl. 30-380.000.
Anderson, Robert F., to Universal Oil Products Company. Alkylation process using hydrogen fluoride catalyst. 3,830,865, Cl. 260-671.00r.
Anderson, William W., Jr.; and Burcher, Ray M. Electrical interlocking safety belt system. 3,831,140, Cl. 340-52.00e.
Ando, Eiichi: See—
Hirao, Toshiro; and Ando, Eiichi, 3,830,096.
Andrejkovics, Richard S.; and Sikra, John F., to United States of America. Army. Rain impact gage. 3,830,103, Cl. 73-170.000.
Andrews, Harry N.: See—
Frisch, Erling; Andrews, Harry N.; and Haga, Phillip B., 3,830,536.
Anelli, John: See—
Wolowoduik, Walter; Dawson, Bruce Edgar; and Anelli, John, 3,830,292.
ANF-Frangeco, S.A.: See—
Pelabon, Andre E., 3,831,036.
Anglers Masterline Limited: See—
Collingbourne, Terence David, 3,830,009.
Anisimov, Pavel Mikhailovich; Evgrafov, Boris Ivanovich; Kupeev, Jury Alexandrovich; Orlov, Boris Petrovich; Kotova, Antonina Nikolaevna; Turok, Galina Iosifovna; and Berman, Pavel Gdaliyevich. Air-cooled electric machine. 3,831,045, Cl. 310-52.000.
Anthony, William B.: See—
Wingard, Michael G.; Werkmeister, Dennis W.; Thies, Curt; and Anthony, William B., 3,830,734.
Antoine, Robert Alexandre: See—
Nordmann, Joseph; Mattioda, Georges Dominique; Antoine, Robert Alexandre; and Loiseau, Gerard Paul Marie Henri, 3,830,929.
Antonevich, John N.; and Goodfriend, Roger, to Blackstone Corporation. Method and apparatus for disintegration of urinary calculi. 3,830,240, Cl. 128-328.000.
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Aoki, Katsuhiko. Injection molding apparatus with horizontally reciprocal molds and vertically acting clamping means. 3,830,613, Cl. 425-246.000.
Applied Materials Technology, Inc.: See—
Benzing, Walter C.; and McDiarmid, James, 3,830,194.
Applied Power Industries Inc.: See—
Peterson, Harold Severin, 3,830,120.
Arai, Hiroshi; Yunuki, Morio; and Nakamura, Masahiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Safety device for power window. 3,830,018, Cl. 49-28.000.
Aramaki, Takayuki: See—
Shigeno, Kunihiko; Deshimaru, Osamu; Aramaki, Takayuki; Kuroki, Katsunobu; and Kitaue, Kazuo, 3,830,937.
Arbenz, Heinz; and Baumgartner, Werner, to Schweizerische Aluminium AG. Method and apparatus for forming sand molds. 3,830,279, Cl. 164-7.000.
Ari, Atsuki; Tsuji, Nobuo; and Okutsu, Toshimitsu, to Fuji Photo Film Co., Ltd. Polyester compositions containing dihydroxypropanol compounds. 3,830,778, Cl. 260-245.80a.

Arimoto, Fred S.; and Ford, Luke D., to Du Pont de Nemours, E. I., and Company. Purification of 2,4-dihydroxybenzophenone. 3,830,845, Cl. 260-591.000.
Arita, Yukio; Ninomiya, Katsuya; and Miwa, Eiichi, to Mitsubishi Jukogyo Kabushiki Kaisha. Semi-submerged marine platform structure. 3,830,176, Cl. 114-50d.
Armbrust, Herbert; Kilpper, Gerhard; Quadbeckseeger, Hans-Juergen; Sturm, Hans-Juergen; Koehler, Waldemar; and Schecker, Hans-Georg, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of 1-methyl-3-phenylindans. 3,830,863, Cl. 260-668.00f.
Armco Steel Corporation: See—
Haney, Eugene E.; La Tour, Harry; Brown, Roy A., Jr.; and Bagdal, Karl T., 3,830,716.
Armstrong Cork: See—
Bohrn, Walter J., 3,830,683.
Armstrong, John E., to GTE Sylvania Incorporated. Intrusion detection and location system. 3,831,162, Cl. 340-261.000.
Arrow Development Company: See—
Bacon, Karl W., 3,830,161.
Asaka, Urataro; and Tanaka, Yuji, to Honda Giken Kogyo Kabushiki Kaisha. Dual throttle valve control for internal combustion engine. 3,830,206, Cl. 123-32.0st.
Asato, Goro: See—
Berkelhammer, Gerald; and Asato, Goro, 3,830,924.
Ashworth, Denis Henry, to Simon Engineering Dudley Limited. Access equipment. 3,830,339, Cl. 182-129.000.
Asi, Soichiro; Yaita, Kenichi; Uzuki, Teruo; Kimura, Kouhei; and Kageyama, Hiroo, to Ajinomoto Co., Inc. 3,4-Dihydroxyphenylalanine hemihydrochloride. 3,830,836, Cl. 260-519.000.
Askam, John F.: See—
Evans, Philip J.; and Askam, John F., 3,830,679.
Aspro-Nicholas Limited: See—
Gittos, Maurice Ward; James, John William; and Verge, John Pomfret, 3,830,816.
Asumendi, Vicente. Ratooning device. 3,830,047, Cl. 56-53.000.
Ateliers de Constructions Electriques de Charleroi: See—
Burny, Gilbert, 3,829,988.
Ateliers de Constructions Electriques de Charleroi (ACEC): See—
Bouille, Jean Bernard; Ledoyen, Jose; and Warmont, Georges, 3,831,070.
Atlantic Richfield Company: See—
D'Alessandro, Alfred F.; and Mitchell, Maurice M., Jr., 3,830,866.
Perkins, Thomas K., 3,830,303.
Perkins, Thomas K., 3,830,305.
Perkins, Thomas K., 3,830,317.
Atwood Vacuum Machine Co.: See—
Slattery, Robert E.; and Braukhoff, Ronald E., 3,830,580.
Audi NSU Auto Union Aktiengesellschaft: See—
Ruf, Max, 3,830,598.
Audi NSU Auto Union Aktiengesellschaft and Wankel G.m.b.H.: See—
Wilmers, Gottlieb, 3,829,944.
Auer, William F., to Willmark Products Company. Selector turret for fiber optic cables. 3,831,017, Cl. 240-2.00r.
Augustin, Jan: See—
Zubak, Jan; Trebichavsky, Ctibor; and Augustin, Jan, 3,830,714.
Aupor, Hans: See—
Kanzler, Hans Joachim; and Aupor, Hans, 3,829,945.
Aurora Products Corporation: See—
Martin, Donald E., 3,830,426.
Austin, Carl F.: See—
Sewell, Robert G. S.; and Austin, Carl F., 3,830,156.
Avco Corporation: See—
Ainsworth, Richard, 3,830,058.
Cook, Charles W., 3,831,164.
Awazi, Yoshiharu; and Yamada, Norio, to Pentel Kabushiki Kaisha. Synthetic fiber end tapering method. 3,830,547, Cl. 300-21.000.
B. F. Goodrich Company, The: See—
Woods, Martin W.; and Mass, Thomas R., 3,830,881.
Baba, Masahiro: See—
Masuhara, Eiichi; Tarumi, Niro; Nakabayashi, Nobuo; Baba, Masahiro; Tanaka, Shinsuke; and Mochida, Ei, 3,829,973.
Babcock & Wilcox Company, The: See—
Eisenstein, Albert, 3,830,287.
Babcock & Wilcox, Company, The, mesne: See—
Diehl, Elmer Paul, 3,831,099.
Babcock & Wilcox Limited: See—
Smith, William Arthur, 3,830,250.
Babcock-Davis Associates Inc.: See—
Levine, Nathan, 3,830,016.
Bacon, Karl W., to Arrow Development Company. Flume boat ride with a double downchute. 3,830,161, Cl. 104-70.000.
Badische Anilin & Soda-Fabrik Aktiengesellschaft: See—
Petersen, Harro, 3,830,885.
Badische Anilin- & Soda-Fabrik Aktiengesellschaft: See—
Armbrust, Herbert; Kilpper, Gerhard; Quadbeckseeger, Hans-Juergen; Sturm, Hans-Juergen; Koehler, Waldemar; and Schecker, Hans-Georg, 3,830,863.
Daeuble, Manfred; Oppenlaender, Knut; and Fikentscher, Rolf, 3,830,627.
Duembgen, Gerd; Heesemann, Guenther; Hohenschutz, Heinz; Kerber, Horst; Nagel, Otto; Rothe, Robert; and Walz, Helmut, 3,830,846.
Kempter, Fritz Erdmann; and Spoor, Herbert, 3,830,782.
Reuter, Peter; and Friedrichsen, Wilhelm, 3,830,755.

Bagdal, Karl T.: See—
Haney, Eugene E.; La Tour, Harry; Brown, Roy A., Jr.; and Bagdal, Karl T., 3,830,716.
Bailey Meter Company, mesne: See—
Haid, William R., 3,831,014.
Baker, Alfred R. Tree canopy heater. 3,830,014, Cl. 47-1.700.
Baker Oil Tools, Inc.: See—
Cockrell, Darryl W., 3,830,297.
Crowe, Talmadge L., 3,830,295.
Swanson, Roy E. Jr., 3,830,294.
Baker Perkins Limited: See—
Shaw, James Thomas; Fawcett, Colin Graham; and Lilley, Raymond Percy Arthur, 3,830,022.
Ball, William John, to BP Chemicals International Limited. Catalyst composition. 3,830,754, Cl. 252-456.000.
Ballin, Gene. Separable interlocking fasteners and method of making them. 3,829,938, Cl. 24-201.00c.
Balquist, James M.: See—
Deggner, Edward R.; and Balquist, James M., 3,830,854.
Balson, John E. Dental matrix band and clamp. 3,829,975, Cl. 32-63.000.
Banks, William P.: See—
Carlson, Jon R.; Banks, William P.; and Flood, Rodney L., 3,830,776.
Barber, Robert B.; and Taylor, Edward C., to Eastman Kodak Company. Fluorescent (pyrimidinotriazolyl)-2-styrylbenzoxazoles. 3,830,804, Cl. 260-240.00d.
Barber, Anthony Clifford: See—
McDougall, Ian Leitch; and Barber, Anthony Clifford, 3,829,963.
Barber, John Chester. Lading vehicle cargo lift. 3,830,384, Cl. 214-67.00p.
Barkey, Kenneth T., to Eastman Kodak Company. Process for reducing diethylene glycol formation in poly(ethylene terephthalate) prepolymer. 3,830,759, Cl. 260-2.300.
Barkey, Kenneth T.; Gandy, Gerald C.; and May, Douglas C., to Eastman Kodak Company. Polyester film base having uniform high optical density. 3,830,773, Cl. 260-40.00r.
Barlow, Charles Brian; and Tomlin, Clive Dudley Spencer, to Imperial Chemical Industries Limited. Bis-pyridyl amines. 3,830,822, Cl. 260-296.00r.
Barmag Barmer Maschinenfabrik Aktiengesellschaft: See—
Schippers, Heinz; Bauer, Karl H.; and Frolich, Karl-Werner, 3,831,005.
Barnes, Gerald, to Amerace Esna Corporation. Method and apparatus for making self-locking internally threaded fasteners. 3,830,902, Cl. 264-267.000.
Barrett, Harrison H.; Demeester, Gordon D.; and Wilson, David T., to Raytheon Company. Zone plate imaging system. 3,831,031, Cl. 250-363.000.
Barton, Glen B.: See—
James, Urban E.; and Barton, Glen B., 3,830,127.
Bartosek, Milan, to Maag Gear Wheel & Machine Company Limited. 3,830,215, Cl. Device for dressing grinding.
Bartoszewicz, Joseph G.; Murphy, George H. Jr.; and Schmidt, Frederick W., to Fansteel Inc. Threading tool. 3,829,943, Cl. 29-97.000.
Basin, Naum Genrikovich; Vysotsky, Alexei Viktorovich; Kurochkin, Anatoly Petrovich; and Okun, Ura Julievna. Worktable for positioning workpieces in measuring devices to check dimensions. 3,829,978, Cl. 33-174.00a.
Bate, Robert Thomas: See—
Wrobel, Joseph S.; and Bate, Robert Thomas, 3,831,030.
Batozsky, Vadim Ivanovich: See—
Makeev, Boris Anatolievich; Stepochkin, Lev Mikhailovich; Batozsky, Vadim Ivanovich; Korot, Garri Moiseevich; and Gladikh, Anatoly Ivanovich, 3,830,121.
Battelle Development Corporation, The: See—
Little, Lawrence L., 3,830,947.
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., to Polaroid Corporation. Processing composition release mechanism for film cassette comprising self-contained film processing system. 3,830,563, Cl. 352-10.000.
Batter, John F., Jr., to Polaroid Corporation. Photographic system. 3,830,564, Cl. 352-130.000.
Battista, Albert D.: See—
La Marre, David A.; Battista, Albert D.; and Smith, Donald A., 3,831,104.
Bauer, Karl H.: See—
Schippers, Heinz; Bauer, Karl H.; and Frolich, Karl-Werner, 3,831,005.
Bauerlein, Rudolf; and Uhl, Dieter, to Siemens Aktiengesellschaft. Method of improving the radiation resistance of silicon transistors with a silicon oxide coating. 3,829,961, Cl. 29-585.000.
Baumgartner, Werner: See—
Arbenz, Heinz; and Baumgartner, Werner, 3,830,279.
Baviello, Michael A., Sr. Conduit leak sealing device. 3,830,260, Cl. 138-97.000.
Baxendale, Kenneth C.; Bergemann, Werner E.; Camp, David B.; Evershed, John L.; Howlett, Mason M.; and Waasdorp, Robert A., to Gleason Works, The. Apparatus for compacting material. 3,830,607, Cl. 425-78.000.
Bayer Aktiengesellschaft: See—
Findeisen, Kurt; Wagner, Kuno; and Moller, Friedrich, 3,830,786.
Kronig, Walter; Roscher, Gunter; Schwerdtel, Wulf; and Sennewald, Kurt, 3,830,834.

Muessdoerffer, Johann Nikolaus; and Niederprum, Hans, 3,830,856.
Bazin, Lucas John, to RCA Corporation. Beam current stabilization and blanking apparatus. 3,831,056, Cl. 315-30.000.
BBC Brown, Boveri & Co.: See—
Domer, Wolfgang, 3,830,529.
Bea, Donald A.: See—
Reed, Echol M., Jr.; and Bea, Donald A., 3,830,731.
Beach, Laurence R.; Junge, Bjarne; and Zentgraf, Henry J., to International Business Machines Corporation. Article handling and data retrieval. 3,831,197, Cl. 360-71.000.
Beam, Richard M.: See—
Jedlicka, James R.; Guist, Le Roy R.; and Beam, Richard M., 3,830,060.
Beattie Development Company: See—
Beattie, John O., 3,830,460.
Beattie, John O., to Beattie Development Company. Polymeric replica molds and replication processes for producing plastic optical components. 3,830,460, Cl. 249-134.000.
Beaudette, Charles G.: See—
Aldrich, Wilbert H.; and Beaudette, Charles G., 3,830,966.
Beaudette, Charles G., to EG&G, Inc. Apparatus and method for transmitting bandwidth compressed digital signal representation of a visible image. 3,830,965, Cl. 178-6.000.
Bechstein, Herbert; Jaenke, Hans-Juergen; Muller, Rolf; Ritter, Ernst; and Staudt, Heinrich, to Bosch, Robert, GmbH. Centrifugal governor for controlling the RPM of injection type internal combustion engines. 3,830,211, Cl. 123-140.00r.
Becht, H. Allen; Campbell, James; Kerschner, James J.; and Krollman, Edward J., to Acme Highway Products Corporation. Composite expansion joint assembly. 3,830,583, Cl. 404-69.000.
Becker, Kunibert: See—
Rosenberg, Harry E.; Wojaczek, Egon; Plevak, Lubomir; and Becker, Kunibert, 3,830,070.
Beckford, Orville A., to Diagnostic Research, Inc. Bacteriological media tube. 3,830,702, Cl. 195-139.000.
Beckford, Orville A., to Diagnostic Research, Inc. Enteric bacilli differential apparatus. 3,830,703, Cl. 195-127.000.
Beckman Instruments, Inc.: See—
Ruegg, Frank A.; and Silva, Lawrence M., 3,831,103.
Beets, Roland H. C.: See—
Fader, John G.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., 3,830,347.
Behunin, Gage B., to Masonry Systems International, Inc., mesne. Apparatus for prefabricating masonry panels. 3,830,678, Cl. 156-349.000.
Beigay, Jack M.: See—
Zaremski, Donald R.; and Beigay, Jack M., 3,830,634.
Belgiorno, Carlo. Root separating means for plant container. 3,830,015, Cl. 47-37.000.
Bell & Howell Company: See—
La Claire, Pal Andre, 3,831,042.
Bell, Alan. Tube and shell heat exchangers. 3,830,293, Cl. 165-174.000.
Bell Telephone Laboratories, Incorporated: See—
Cho, Alfred Yi, 3,830,654.
Coldren, Larry Allen, 3,831,115.
D'Alessio, Alfonso Joseph, 3,831,124.
Krambeck, Robert Harold; and Strain, Robert Joseph, 3,831,041.
Mecklenburg, Paul; Pehlert, William King, Jr.; and Sullivan, Daniel David, 3,831,145.
Perneski, Anthony John; and Smith, Robert McKee, 3,831,152.
Pesto, William Steve, 3,831,086.
Tewksbury, Stuart Keene, 3,831,167.
Walker, Edward Hugh, 3,831,093.
Bell Northern Research Ltd.: See—
Gruber, John Gerald; Chow, Peter El Kwan; and Houghton, Joseph Winston, 3,830,981.
Purdy, Michael Leonard, 3,830,528.
Bellavita, Nera Cagnoli. Glycoside metabolites of oospora virescens (link) wall fungus. 3,830,911, Cl. 424-180.000.
Bendix Corporation, The: See—
Wiley, William C.; and Carrico, John P., 3,831,025.
Benfer, David Van Dike, to AMP Incorporated. Strap applying tool. 3,830,263, Cl. 140-93.200.
Benford, James Nelson; Putnam, Sidney Darwin; and Stallings, Charles Henry, to Physics International Company. Particle beam injection system. 3,831,101, Cl. 328-230.000.
Bengtson, Olle, to Imperial Chemical Industries Limited. Urethane foams cured by atmospheric moisture. 3,830,760, Cl. 260-2.5bd.
Benness Marrel: See—
Lablance, Jean, 3,830,542.
Bennett, Donald R.; and McHard, James A., to Dow Corning Corporation. Method for decreasing the reproductive function of mammals. 3,830,912, Cl. 424-184.000.
Bennett, Frank P., to GAF Corporation. Small slide tray. 3,830,566, Cl. 353-116.000.
Bennett, Robert Putnam, to American Cyanamid Company. Iron carbonyl complexes of azo compounds. 3,830,807, Cl. 260-242.000.
Bense, William Malcolm, to Leesona Corporation. Winding apparatus. 3,830,440, Cl. 242-35.50r.
Benson, Robert F.: See—
Mead, Theodore C.; Odell, Norman R.; and Benson, Robert F., 3,830,730.

Benwood, Bruce R.; Morse, Theodore H.; and Siebenrock, Howard D., to Eastman Kodak Company. Toner concentration monitoring apparatus. 3,830,401, Cl. 222-57.000.

Benzing, Walter C.; and McDiarmid, James, to Applied Materials Technology, Inc. Susceptor support structure and docking assembly. 3,830,194, Cl. 118-9.000.

Berardinelli, Vincent J.: See—
Guttman, Earnest C.; Suchy, William J.; and Berardinelli, Vincent J., 3,830,196.

Beretsky, Irwin; and Lichtenstein, Bernard, to Technicon Instruments Corporation. Methodology and apparatus for non-invasive biophysical diagnosis. 3,830,223, Cl. 128-2.00v.

Bergemann, Werner E.: See—
Baxendale, Kenneth C.; Bergemann, Werner E.; Camp, David B.; Evershed, John L.; Howlett, Mason M.; and Waasdorp, Robert A., 3,830,607.

Berkelhammer, Gerald; and Asato, Goro, to American Cyanamid. Substituted nitroimidazole thiazidiazoles as growth promoting agents. 3,830,924, Cl. 224-270.000.

Berkley & Company, Inc.: See—
Johnson, Paul C., 3,830,008.

Berman, Pavel Gdaliovich: See—
Anisimov, Pavel Mikhailovich; Evgrafov, Boris Ivanovich; Kuppev, Jury Alexandrovich; Orlov, Boris Petrovich; Kotova, Antonina Nikolaevna; Turok, Galina Iosifovna; and Berman, Pavel Gdaliovich, 3,831,045.

Bernard, Charles, to Societe Airborne S.A. Bed settee. 3,829,913, Cl. 5-46.000.

Bernardin, Leo J.; and Radl, Michael D., to Kimberly-Clark Corporation. Method for scenting tampons and product obtained thereby. 3,830,237, Cl. 128-270.000.

Bernhardt, Bruno: See—
Buchsteiner, Hans, deceased, 3,830,477.

Bernhardt, Helga, nee Knobel: See—
Buchsteiner, Hans, deceased, 3,830,477.

Bernstein, Lawrence A., to Dart Industries, Inc. Illuminated modular type sign. 3,829,999, Cl. 40-125.00h.

Beroza, Morton: See—
Miller, Richard W.; and Beroza, Morton, 3,830,914.

Berrer, Dagmar; Kuhne, Manfred; and Vogel, Christian, to Ciba-Geigy Corporation. S-triazine derivatives. 3,830,810, Cl. 260-249.800.

Beser, Ali Ekber; Scholz, Wolfgang; Kaiser, Rudolf; and Pohlig, Norbert, to Krupp, Fried., Gesellschaft mit beschränkter Haftung. Gate for circulation control in nuclear reactor using circulating fuel-element balls. 3,830,693, Cl. 176-18.000.

Bethlehem Steel Corporation: See—
Domiguez, Ezekiel C.; Lynn, John D.; and Sundry, George J., 3,830,481.

Bettin, Edoardo: See—
Zabert, Alessandro; and Bettin, Edoardo, 3,831,080.

Bidwell, Robert E.: See—
Kurtz, Leonard D.; and Bidwell, Robert E., 3,830,238.

Biessener, Richard M., to Nutting Truck and Caster Company. Tow truck. 3,830,164, Cl. 104-170.000.

Bildplatten, TED, AEG-Telefunken, teldec Aktiengesellschaft: See—
Ewert, Manfred; and Roggenbuck, Klaus, 3,830,506.

Billett, Ronald J.; and Niemann, Gary O., to FMC Corporation. Positive displacement filling machine. 3,830,264, Cl. 141-1.000.

Bimell, Harvey. Hinged curb for protecting highway exit roads and the like. 3,830,582, Cl. 404-11.000.

Binard, William J.: See—
Dye, John F.; and Binard, William J., 3,830,241.

Birrell, Stewart H., to Reflex Corporation of Canada Limited. Child proof safety package and fitment therefor. 3,830,413, Cl. 222-563.000.

Bishop, Kenneth M. Swimming pool water circulation system. 3,829,911, Cl. 4-172.170.

Biskup, Edward J. Ball hitting practice device. 3,830,494, Cl. 273-26.00e.

Biswas, Ranjit: See—
Mol, Hans Cornelis; Biswas, Ranjit; and Kloek, Bernard Frank, 3,830,988.

Bitko, Sheldon S., to Fifth Dimension, Inc. Mercury switch. 3,831,118, Cl. 335-47.000.

Black Clawson Fibreclaim, Inc., mesne: See—
Marsh, Paul G., 3,830,636.

Blackstone Corporation: See—
Antonevich, John N.; and Goodfriend, Roger, 3,830,240.

Antonevich, John V., 3,830,098.

Blaupunkt-Werke GmbH: See—
Hanke, Peter; Ludeke, Hans-Joachim; Martinetz, Heribert; and Ohlhorst, Rolf, 3,831,122.

Blucher, Joseph T.; and Dalrymple, Donald D., to Industrial Materials Technology, Incorporated. Apparatus for production of metal powder from wire stock. 3,830,603, Cl. 425-3.000.

Blum, Raymond T.; and Laughman, George J. Spherical bearing work-piece holder in an optical lens generating machine. 3,830,021, Cl. 1.

Boaz, Fred: See—
Turner, William F., 3,830,208.

Bodenheimer, Bert A.; and Parady, Victor G., Jr., to Sea-Land Service, Inc. Truck and outside cargo container. 3,830,381, Cl. 214-10.50r.

Boehringer Ingelheim GmbH: See—
Woitun, Eberhard; and Reuter, Wolfgang, 3,830,813.

Bohrn, Walter J., to Armstrong Cork. Steam-etched solvent embossed tufted carpet. 3,830,683, Cl. 161-66.000.

Boileau, Jacques, to Compagnie Generale des Etablissements Michelin raisin sociale Michelin & Cie. Dual tire. 3,830,273, Cl. 152-352.000.

Bollag, Werner; Gutmann, Hugo; Hegedus, Balthasar; Kaiser, Ado; Langemann, Albert; Muller, Marcel; and Zeller, Paul, to Hoffman-La Roche Inc. 1-Methyl-2-(lower sulfonamide-benzyl)-hydrazines. 3,830,840, Cl. 260-556.00a.

Bolton, Harold B., to Litton Systems, Inc. Cryogenic ship containment system having a convection barrier. 3,830,180, Cl. 114-74.00a.

Bonnet, Alain: See—
Jumentier, Claude; and Bonnet, Alain, 3,830,638.

Boone, Jack L.: See—
Stati, Wayne H.; and Boone, Jack L., 3,829,903.

Boone, Philip. Device for providing treated sheet-like materials. 3,830,198, Cl. 118-506.000.

Boone, Philip. Device for providing treated sheet-like materials. 3,830,198, Cl. 118-506.000.

Boop, John L.; and Rudinec, Joseph P., to Commercial Shearing Inc. Rotary pumps and motors. 3,830,602, Cl. 418-131.000.

Bordner, Lee T.: See—
Hughes, Henry S., 3,830,897.

Borg-Warner Corporation: See—
Claus, Julius A., Jr.; Conley, Jack S.; and Lemon, Robert W., 3,830,082.

Fisher, Walter, 3,830,116.

Ward, Donald H., 3,831,190.

Borg-Warner Limited: See—
Leach, Michael Ernest Humphrey, 3,830,258.

Borisoglebskaya, Alla Viktorovna: See—
Khcheian, Khachik Egorovich; Revenko, Olga Mikhailovna; Borisoglebskaya, Alla Viktorovna; and Fishman, Dina Lvovna, 3,830,853.

Borre, Henry C.; and Root, Wayne N., to Universal Oil Products Company. Process for effecting the multiple-stage catalytic contact of a reactant stream. 3,830,864, Cl. 260-669.00r.

Borwn, Peter John Nicholas; and Capp, Clifford William, to BP Chemicals International Limited. Isomerisation process. 3,830,858, Cl. 260-654.00r.

Bosch, Robert, GmbH: See—
Bechstein, Herbert; Jaenke, Hans-Jürgen; Muller, Rolf; Ritter, Ernst; and Staudt, Heinrich, 3,830,211.

Brill, Klaus; and Grothe, Wolfgang, 3,831,179.

Dittrich, Gunter; and Kolb, Erich, 3,829,924.

Groetzner, Kurt; Mayer, Rudolf; and Mayer, Siegfried, 3,830,570.

Haug, Gerhard; and Werner, Frithjof, 3,831,062.

Sokol, Gunter; and Kleebauer, Karl, 3,831,047.

Bota of Boulder: See—
Hagert, Robert D.; and Sanderson, James L., 3,830,270.

Boucher, Paul A. Adjustable trailer tongue. 3,830,522, Cl. 280-405.00r.

Bouille, Jean Bernard; Ledoyen, Jose; and Warmont, Georges, to Ateliers de Constructions Electriques de Charleroi (ACEC). Ionization self-protecting capacitor. 3,831,070, Cl. 317-260.000.

Bowden, Roy Dennis; and Seaton, Thomas, to Imperial Chemical Industries Limited. Manufacture of halogenated pyridine derivatives. 3,830,820, Cl. 260-290.00h.

Bowden, Wade R., Jr.; and Bury, Allen J., to Molex Incorporated. Crimp terminal for aluminum wire. 3,831,132, Cl. 339-95.00r.

Bowman, Jerry D.; and Bowman, William V. Expandable travel trailer. 3,830,541, Cl. 296-27.000.

Bowman, Richard J., to Vick, W. M., mesne. Alarm circuit. 3,831,141, Cl. 340-63.000.

Bowman, William V.: See—
Bowman, Jerry D.; and Bowman, William V., 3,830,541.

Boyd, Donald R., to Allis-Chalmers Corporation. Overcurrent trip device. 3,831,061, Cl. 317-36.00d.

Boyd, H. Edward; and Curtiss, George R., to Cooper Industries, Inc. Ring clinching tool. 3,830,089, Cl. 72-407.000.

Boyd, Violet; Evans, Ronald Arthur; Holt, Kenneth Anthony; and Renfrew, Andrew Hunter Morris, to Imperial Chemical Industries Limited. Leucauramine derivatives. 3,830,835, Cl. 200-510.000.

Boyland, Albert Henry John, to Vickers Limited. Doctors for paper making machines. 3,829,927, Cl. 15-301.000.

Boyle and Osborn a Partnership of N.Y.: See—
Osborn, Robert O.; and Boyle, Donn G., 3,830,067.

Boyle, Donn G.: See—
Osborn, Robert O.; and Boyle, Donn G., 3,830,067.

Boyles, Elmo N. Disk brakes. 3,830,345, Cl. 188-71.600.

BP Chemicals Limited: See—
Sturt, Alan Charles, 3,830,883.

BP Chemicals International Limited: See—
Ball, William John, 3,830,754.

Borwn, Peter John Nicholas; and Capp, Clifford William, 3,830,858.

Bradshaw, Randolph F., to Addressograph-Multigraph Corporation. Electrical information recognition and retrieval. 3,831,008, Cl. 235-61.11h.

Bragg, Kenneth R.; and Nichols, Richard A., to Parker-Hannifin Corporation. Fire prevention and/or suppression system. 3,830,307, Cl. 169-9.000.

Brake, Loren D., to Du Pont de Nemours, E. I., and Company. Process for the preparation of hexamethyleneimine. 3,830,800, Cl. 260-239.00b.

Brandenstein, Manfred: See—
Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Neder, Gunter, 3,830,553.

Brandy, Ernest B. Plow. 3,830,312, Cl. 172-225.000.

Bratkowski, Yaroslav Russell. Rear projection screen. 3,830,556, Cl. 350-128.000.

Braukhoff, Ronald E.: See—
Slattery, Robert E.; and Braukhoff, Ronald E., 3,830,580.

Braun, Joerg P., to International Business Machines Corporation. Non-reproducible document. 3,831,007, Cl. 235-61.11e.

Bray, Douglas R.: See—
Porter, David H.; and Bray, Douglas R., 3,831,022.

Breifuss, Thomas K. Apparatus for installing underground pipelines. 3,830,606, Cl. 425-59.000.

Bridgestone Tire Company Limited: See—
Ohkawa, Shunjiro; Yatabe, Yoshihiro; Mizuno, Tetsuo; and Matsumura, Takeshi, 3,830,610.

Briggs, Kenneth: See—
Gardiner, William; and Briggs, Kenneth, 3,830,106.

Bright, Stephen A.; and Kress, Robert E. Adjustable device for improved clamping means. 3,830,484, Cl. 269-10.000.

Brightly, Charles F. Snowmobile stand. 3,830,455, Cl. 248-352.000.

Brill, Klaus; and Grothe, Wolfgang, to Bosch, Robert, GmbH. Electrographic tape recording medium. 3,831,179, Cl. 346-76.00r.

Brindle, Dale L., to Hennessy Products, Incorporated. Securing device for movable members. 3,830,537, Cl. 292-259.000.

Brindley, Richard B.; and Schroeder, Kenneth J., to La Crosse Cooler Company. Ice cube storage hopper and dispenser. 3,830,408, Cl. 222-168.000.

Bristol-Myers Company: See—
Brooks, Thomas J., Jr., 3,830,809.

British Gas Corporation: See—
Thompson, Brian Hoyle, 3,830,637.

British Oxygen Company Limited, The: See—
Cox, Lawrence Alfred, 3,830,256.

Brokl, Milan: See—
Duros, John D., Jr.; Brokl, Milan; and Kerst, Al F., 3,830,917.

Bronicki, Lucien Yehuda, to Ormat Furbin (1965) Ltd. Injector for furnishing liquid at a low pressure to a vessel at a higher pressure. 3,830,064, Cl. 60-667.000.

Brooks, Dean P.: See—
Garrison, Harold Keith; and Brooks, Dean P., 3,830,438.

Brooks, E. J., Company: See—
Moberg, Sigurd M., 3,830,538.

Brooks, Thomas J., Jr., to Bristol-Myers Company. Bis-dicyclohexylomine N-carbisobutoxy-cephalosporin C. 3,830,809, Cl. 260-243.00c.

Broughton, Sidney Hubert: See—
Vollum, Charles Howard; and Broughton, Sidney Hubert, 3,831,199.

Brown & Williamson Tobacco Corporation: See—
Horwell, Henry George; and Terry, Arthur John, 3,830,079.

Luke, John A., 3,830,244.

Brown, Charles Leslie Meredith: See—
Morrison, Alexander McKenzie; and Brown, Charles Leslie Meredith, 3,830,920.

Brown, Cicero C. Well control means. 3,830,306, Cl. 166-315.000.

Brown, Houston A., Jr., to International Telephone and Telephone Corporation. Telemetry receiver phase detector output signal processing circuit. 3,831,096, Cl. 325-321.000.

Brown, James L.; and Harris, Orval A., to Mallinckrodt Chemical Works. Method for preparing technetium-99m generators loaded with fission product molybdenum-99. 3,830,746, Cl. 252-301.10r.

Brown, Jerome D. Faucet and line cleaning apparatus. 3,830,248, Cl. 134-100.000.

Brown, Roy A., Jr.: See—
Haney, Eugene E.; La Tour, Harry; Brown, Roy A., Jr.; and Bagdal, Karl T., 3,830,716.

Browning Arms Company: See—
Browning, Bruce W., 3,830,000.

Browning, Bruce W., to Browning Arms Company. Cartridge expelling mechanism for firearms. 3,830,000, Cl. 42-23.000.

Bruet, Bernard C. Pipe smoker's tool. 3,830,243, Cl. 131-243.000.

Brundage, Richard B.; and Jost, Walter P., Jr., to Emerson Electric Co. Welding unit with improved transformer tap and switch construction. 3,831,125, Cl. 336-90.000.

Brunner, Donald A. Bed accessory. 3,829,907, Cl. 5-8.000.

Bruns, James A., to Goodyear Tire & Rubber Company, The. Transmission belt structure. 3,830,113, Cl. 74-231.00c.

Bryson, Frank J. Universal tool carrier. 3,830,311, Cl. 172-153.000.

Buchanan, John Gordon: See—
Truesdale, Robert Andrew; and Buchanan, John Gordon, 3,830,691.

Buchsteiner, Hans, deceased (by Buchsteiner, Renate, nee Fetzer; executrix; Bernhardt, Helga, nee Knobel; and Kowalski, Hubert), to Bernhardt, Bruno. Clamping ring. 3,830,477, Cl. 267-161.000.

Buchsteiner, Renate, nee Fetzer: See—
Buchsteiner, Hans, deceased, 3,830,477.

Bulger, Joseph J.: See—
Rempel, Robert H.; and Bulger, Joseph J., 3,831,158.

Bullock, David C.: See—
Epstein, David J.; and Bullock, David C., 3,831,154.

Bunker Ramo Corporation: See—
Pacecek, Vincent James, 3,829,955.

Woodcock, Brian R.; and Tansky, John L., 3,831,131.

Burbine, William G.: See—
Jordan, Merrill E.; Burbine, William G.; and Williams, Frank R., 3,830,774.

Burcher, Ray M.: See—
Anderson, William W., Jr.; and Burcher, Ray M., 3,831,140.

Burge, Donald G., to Parker-Hannifin Corporation. Coupling for flexible tubes. 3,830,531, Cl. 285-239.000.

Burke, James P. Meat timer. 3,830,191, Cl. 116-67.00r.

Burke, Michael J.; Hendrickson, Kenneth E.; Mattson, Gary L.; and McNeil, William D., to International Business Machines Corporation. Sector scanning control system. 3,831,076, Cl. 318-627.000.

Burleson, Louis J. Fingerprint reproduction means. 3,830,195, Cl. 118-31.500.

Burns, Bernard J.: See—
Diamond, Julius; Douglas, George H.; and Burns, Bernard J., 3,830,933.

Burny, Gilbert, to Ateliers de Constructions Electriques de Charleroi. Cockpit assembly for flight simulator. 3,829,988, Cl. 35-12.00p.

Burridge, Robert E.: See—
Flicker, Bernard; Burridge, Robert E.; and Low, Frank H., 3,830,896.

Burroughs Corporation: See—
Davis, Martin F.; Schwanauer, Francis J.; and Walker, Gary J., 3,831,195.

Job, Andre, 3,831,149.

Paulin, Howard Douglas, 3,830,677.

Bursel, Joseph S.: See—
Vasil, James Francis; and Bursel, Joseph S., 3,830,874.

Burton, Louis Lasseter, to Du Pont de Nemours, E. I., and Company. Reinforced polyamides containing fibrous alkali metal titanates. 3,830,777, Cl. 260-37.00n.

Bury, Allen J.: See—
Bowden, Wade R., Jr.; and Bury, Allen J., 3,831,132.

Busby, Donald Wayne; and Busby, Joseph L. Jr., to Subterranean Tools Inc. Excavating machine. 3,830,318, Cl. 175-122.000.

Busby, Joseph L. Jr.: See—
Busby, Donald Wayne; and Busby, Joseph L. Jr., 3,830,318.

Busch, Wolfram; and Mullner, Stefan, to Chemische Werke Albert Aktiengesellschaft. Thermo-setting moulding compositions and processes for their manufacture. 3,830,772, Cl. 260-40.00r.

Buschman, Edward M., to Display Corporation International. Digital display. 3,829,996, Cl. 40-28.000.

Byers, William L. Inertia-tilt switch. 3,831,163, Cl. 340-262.000.

Byk Gulden Lomberg Chemische Fabrik Gesellschaft mit beschränkter Haftung: See—
Hackmack, Gerhard; and Menge, Aumuehle Heinz Guenter, 3,830,818.

Byrns, Edson H.: See—
Miller, Charlie D.; and Byrns, Edson H., 3,829,948.

Bywood, Roy; Gallagher, Gerard; Sharma, Girijesh Kumar; and Walker, Derek, to Glaxo Laboratories Limited. Esterification of penicillin acids. 3,830,801, Cl. 260-239.100.

Cable, John A.; Cable, Stephen J.; and Falbo, Richard R., to United States Ceramic Tile Company. Method and apparatus for fast firing glazed ceramic tile trim pieces. 3,830,625, Cl. 432-236.000.

Cable, Stephen J.: See—
Cable, John A.; Cable, Stephen J.; and Falbo, Richard R., 3,830,625.

Cabot Corporation: See—
Jordan, Merrill E.; Burbine, William G.; and Williams, Frank R., 3,830,774.

Cade, Phillip J., to Electronics Corporation of America. Burner control system. 3,830,619, Cl. 431-78.000.

Calunited Company, The: See—
Evans, Raymond H.; Myers, David D.; and Hunt, Wilbur W., 3,830,639.

Cameron Iron Works, Inc.: See—
Allen, Herbert, 3,830,465.

Camp, David B.: See—
Baxendale, Kenneth C.; Bergemann, Werner E.; Camp, David B.; Evershed, John L.; Howlett, Mason M.; and Waasdorp, Robert A., 3,830,607.

Campbell, Charles R.; Danly, Donald E.; and Mueller, Werner H., to Monsanto Company. Process for hydrodimerizing olefinic compounds. 3,830,712, Cl. 204-73.00a.

Campbell, Francis J.: See—
Eisele, John A.; Campbell, Francis J.; Faraday, Bruce J.; and Stalter, Richard L., 3,830,663.

Campbell, James: See—
Becht, H. Allen; Campbell, James; Kerschner, James J.; and Krollman, Edward J., 3,830,583.

Candor, James T.: See—
Tassone, Joseph V.; and Candor, James T., 3,830,362.

Canevari, Roger: See—
Regnier, Gilbert; Canevari, Roger; and Laubie, Michel, 3,830,811.

Cannarozzo, Thomas Albert. Parachute pack. 3,830,453, Cl. 244-148.000.

Canon Kabushiki Kaisha: See—
Kato, Nori; and Momose, Katsumi, 3,830,592.

Tanikoshi, Kinji, 3,831,073.

Tanikoshi, Kinzi, 3,831,072.

- Canon Seiki Kabushiki Kaisha: See—
Tanikoshi, Kinji, 3,831,073.
Tanikoshi, Kinji, 3,831,072.
Capistrano Cover Corporation: See—
Dunn, John Malcolm, 3,830,422.
Capp, Clifford William: See—
Borwn, Peter John Nicholas; and Capp, Clifford William, 3,830,858.
Cappiello, Pierre, to L'Air Liquide, Societe Anonyme pour L'Etude et L'Exploitation des Procédes George Claude. Dissolving a volatile fraction in a liquefied gas. 3,830,073, Cl. 62-17.000.
Cappotto, Samuel D., to SCM Corporation. Typewriter ribbon cartridge for endless loop ribbon. 3,830,351, Cl. 197-168.000.
Capriellan, Leon Raymond. Wristwatch band. 3,830,414, Cl. 224-4.000.
Caputi, Renzo. Apparatus for controlling the movement of piece goods in dyeing and finishing machines. 3,830,084, Cl. 68-178.000.
Carlan, Alan J.: See—
Wislocky, Joseph; and Carlan, Alan J., 3,831,067.
Carlson, Jon R.; Banks, William P.; and Flood, Rodney L., to Continental Oil Company. Particulate fly ash beads. 3,830,776, Cl. 260-37.000.
Carlstedt, Sven Borje Fredrik, 1/2 to Sixten Englesson Teknisk Konsult AB. Control device with snap switch. 3,830,995, Cl. 200-67.000.
Carmien, Joseph Allen, to Nupla Corporation. Cutting attachment for fiberglass rods. 3,830,125, Cl. 83-212.000.
Carpenter, Charlie P.; and Zeller, Robert A., to Tappan Company, The. Motor mounting support. 3,830,595, Cl. 417-363.000.
Carpenter, George J., to American Optical Corporation. Method of making flexible fiberoptic bundles. 3,830,667, Cl. 156-155.000.
Carrico, John P.: See—
Wiley, William C.; and Carrico, John P., 3,831,025.
Carrier Corporation: See—
Davies, Stanton; and Kropiwnicki, Tadek M., 3,830,341.
Miller, Charlie D.; and Byrns, Edson H., 3,829,948.
Carstens, Dean H. W.: See—
Gruen, Dieter M.; Carstens, Dean H. W.; and Kozlowski, John F., 3,830,721.
Casper, Clarence, Jr.: See—
Games, John E.; Casper, Clarence, Jr.; and Kupersmith, Bertram, F., 3,831,010.
Cass, William F. Filler nozzle vapor seal and collector. 3,830,267, Cl. 141-287.000.
Cassello Farbwerke Mainkur Aktiengesellschaft: See—
Raabe, Thomas; Nitz, Rolf-Eberhard; and Scholtholt, Josef, 3,830,806.
Castaigne, Albert Rene, to Centre d'Etudes pour L'Industries Pharmaceutique. Process for the preparation of deethyleburnamones. 3,830,823, Cl. 260-293.530.
Castan, Joseph; and Fremont, Claude Francis Fernand Yves, to HER-FILCO. Dynamic proportional metering device for fluids. 3,830,403, Cl. 222-57.000.
Caterpillar Tractor Co.: See—
Hein, Allyn J.; Norick, William B.; Ruseff, Walter Z.; and Tribley, Gilber, 3,830,594.
Catomance Limited: See—
David, Joseph; Thomas, Keith; and Kishore, Nand, 3,830,851.
Caudill, Herman T., to Singer Company, The. Apparatus for shielding against electromagnetic interference. 3,830,954, Cl. 174-35.000.
Cavil, David T., to Outboard Marine Corporation. Cathodic protection system for marine propulsion unit. 3,830,719, Cl. 204-196.000.
Celanese Corporation: See—
Cohen, Stuart Lyle; and Stackman, Robert William (said Stackman assor. to), 3,830,771.
Centre d'Etudes pour L'Industries Pharmaceutique: See—
Castaigne, Albert Rene, 3,830,823.
Certain-Teed Products Corporation, mesne: See—
Jumentier, Claude; and Bonnet, Alain, 3,830,638.
Cervene, Stephen William; Orr, Albert Stanford; and Snyder, Richard N., to Reliance Electric Company. Brake and control therefor. 3,830,344, Cl. 188-171.000.
CFC Products, Inc.: See—
Cochran, Gary D.; Crosby, David A.; Franken, Peter A.; and Crabtree, Lloyd O., 3,830,128.
Cgee Alstom: See—
Debaigt, Jean, 3,830,454.
Chabal, Roger, to Etablissements BENNES MARREL. Hydraulic pumps with double axial pistons. 3,830,593, Cl. 417-203.000.
Chaffin, John H.; Ellis, William D.; Heist, Herbert E.; and Walters, Wayne L., to Honeywell Inc. Patient-specimen identification system using stored associated numbers. 3,831,006, Cl. 235-61.700.
Chakrabarti, Jiban Kumar; and Todd, Alec, to Lilly Industries Limited. Certain dihalo-s-triazines used as plant fungicides. 3,830,915, Cl. 424-249.000.
Chambers, Henry B., to Hydranautics. Transporter for heavy load. 3,830,324, Cl. 180-8.000.
Chance, A. B., Company: See—
Reimbold, James J., Jr.; and Kamberg, Willard C., 3,830,336.
Chance, Britton. Method and apparatus for observing rates of reaction of oxygen in living tissues. 3,830,222, Cl. 128-2.000.
Chapa, Hector. Patient positioning device for thyroid examination. 3,831,033, Cl. 250-491.000.
Chemie Grunenthal G.m.b.H.: See—
Flick, Kurt; and Frankus, Ernst, 3,830,934.
Chemische Fabrik Kalk GmbH: See—
Praetzel, Hans Eberhard; and Jenkner, Herbert, 3,830,766.
Chemische Werke Albert Aktiengesellschaft: See—
Busch, Wolfram; and Mullner, Stefan, 3,830,772.
Chen, Godfrey: See—
Abbott, Dominic C.; and Chen, Godfrey, 3,830,245.
Chen, Philip L., to Xerox Corporation. Image registration correction for non-impact printers. 3,830,646, Cl. 96-1.000.
Cheney, Stanley O. Trail grooming device. 3,829,991, Cl. 37-48.000.
Cheng, Chen-Yen: See—
Cheng, Sing-Wang; and Cheng, Chen-Yen, 3,830,075.
Cheng, Sing-Wang; and Cheng, Chen-Yen. Separation of fresh water from aqueous solutions by direct contact heat exchange. 3,830,075, Cl. 62-58.000.
Chester, John E., to Weck, Edward, & Company, Inc. Surgical headlamp. 3,830,230, Cl. 128-23.000.
Chevron Research Company: See—
Kluskdahl, Harris E.; and Wall, Robert G., 3,830,727.
Reed, Echol M., Jr.; and Bea, Donald A., 3,830,731.
Sagochi, Hilmi F., 3,831,136.
Chia, Enrique C.; and Schoerner, Roger J., to Southwire Company. Aluminum nickel alloy electrical conductor and method for making same. 3,830,635, Cl. 29-193.000.
Chiasson, William J.; and Russell, Ralph T., to Lilly, Eli, and Company. Method of removing fluoride from spent acid. 3,830,904, Cl. 423-531.000.
Chician, Jay S.; and Eden, Dayton D., to Advanced Technology Center Inc. Apparatus and method for affecting the contrast of thermochromic displays. 3,831,165, Cl. 340-324.000.
Chikanishi, Kunio: See—
Kato, Tetsuji; Izumi, Mikio; Chikanishi, Kunio; Handa, Ryoji; and Kobayashi, Jinpei, 3,830,878.
Childs, Lewis B.: See—
Randolph, Kendall B.; and Childs, Lewis B., 3,830,674.
Cho, Alfred Yi, to Bell Telephone Laboratories, Incorporated. Optical devices utilizing single crystal G₂P or G₂A₂ films epitaxially grown on C₂F₄ substrates and method of fabricating same. 3,830,654, Cl. 117-201.000.
Chore-Time Equipment, Inc.: See—
Kaiser, Steven A., 3,830,146.
Chow, Peter El Kwan: See—
Gruber, John Gerald; Chow, Peter El Kwan; and Houghton, Joseph Winston, 3,830,981.
Christensen, Wynn L., to Readx Inc. Position indicating apparatus and digital circuitry for it. 3,831,170, Cl. 340-347.000.
Christians, Ray. Rockable chair for an amusement toy. 3,830,491, Cl. 272-33.000.
Christiansen, Hans-Martin, to Siemens Aktiengesellschaft. Time division multiplex data transmission system having a monitoring signal. 3,830,982, Cl. 179-15.000.
Christiansen, Palle Hein: See—
Holt, Jorgen; Videmark, Christian; and Christiansen, Palle Hein, 3,830,145.
Christiansen, Soren B., to Smith, F. L. & Co. Cooler tube for rotary kiln. 3,830,623, Cl. 432-80.000.
Chrysler Corporation: See—
Gau, Leonard P., 3,830,104.
Chubb Industries Limited: See—
Markham, Michael H., 3,830,017.
Ciapetta, Frank G.: See—
Parthasarathy, R.; Warthen, John L.; and Ciapetta, Frank G., 3,830,847.
Ciba-Geigy AG: See—
Martin, Henry; Rohr, Otto; and Pissiotas, Georg, 3,830,849.
Seigrist, Adolf Emil, 3,830,848.
Ciba-Geigy Corporation: See—
Berrer, Dagmar; Kuhne, Manfred; and Vogel, Christian, 3,830,810.
Drabek, Jozef, 3,830,891.
Howarth, Graham Arton; and Hoyle, William, 3,830,926.
Posen, Melvin Harris, 3,830,916.
Rathgeb, Paul, 3,830,925.
Ciba-Geigy Corporation, mesne: See—
Eggensperger, Heinz; Franzen, Volker; Diehl, Karl-Heinz; and Kloss, Wilfried, 3,830,828.
Cincinnati Milacron Chemicals, Inc.: See—
Stapfer, Christian H.; and Racz, William B., 3,830,751.
Ciringione, Joseph L.: See—
Rubin, Edwin H.; and Ciringione, Joseph L., 3,830,102.
Cities Service Research and Development Co.: See—
Mounce, William, 3,830,728.
Ciullo, Rocco N.: See—
Massetti, Abraham; and Ciullo, Rocco N., 3,829,901.
Clark, John Colin: See—
O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, 3,830,700.
Clark, John Colin; Kennedy, James; and Long, Alan Gibson, to Glaxo Laboratories Limited. Cephalosporins having a thioetherified methyl group at the 3-position. 3,830,808, Cl. 260-243.000.
Clarke, Daniel J., to Stalker Corporation, The. Heat exchanger core and method of fabrication thereof. 3,830,286, Cl. 165-8.000.
Clarke, Robert L.: See—
Shaw, Philip E.; Daum, Sol J.; and Clarke, Robert L., 3,830,843.
Claus, Julius A., Jr.; Conley, Jack S.; and Lemon, Robert W., to Borg-Warner Corporation. Transmission. 3,830,082, Cl. 64-15.000.

- Clendenen, Ronald L.: See—
Schlaudi, Charles M.; Clendenen, Ronald L.; and Olson, Eugene E., 3,830,743.
Cleo Wrap Corporation: See—
Purdum, Clyde H.; Allum, Kenneth W.; and Shackelford, Harold D., 3,830,037.
Clerke, John A. Floated barrel rifle with metal stock for improved barrel action bedding. 3,830,003, Cl. 42-75.000.
Cleveland, James P.; and Martin, James C., to Eastman Kodak Company. Production of diacyl esters of succinic acid. 3,830,830, Cl. 260-485.000.
Coates, James C.: See—
Naifeh, Sam C.; and Coates, James C., 3,830,527.
Coates, Ronald Bell; Marsden, Ralph John Basil; Smith, Frederick Arthur; and Towle, Gerald, to Imperial Chemical Industries Limited. Melt spinning apparatus. 3,830,617, Cl. 425-464.000.
Cochran, Gary D.; Crosby, David A.; Franken, Peter A.; and Crabtree, Lloyd O., to CFC Products, Inc. Film cutter and viewer for dynamic tomography. 3,830,128, Cl. 83-451.000.
Cockrell, Darryl W., to Baker Oil Tools, Inc. Sub-surface safety valve with improved balancing valve means. 3,830,297, Cl. 166-244.000.
Codman & Shurtleff, Inc.: See—
McGrann, John V.; and Nalley, William M., 3,830,562.
Coffman, Moody L. Illuminating device. 3,831,023, Cl. 240-106.000.
Cohen, Stuart Lyle; and Stackman, Robert William, said Stackman assor. to Celanese Corporation and said Cohen assor. to Fiber Industries, Inc. Phosphorus-containing polyesters. 3,830,771, Cl. 260-40.000.
Coldren, Larry Allen, to Bell Telephone Laboratories, Incorporated. Acoustic surface waveguide with graded profile cross section. 3,831,115, Cl. 333-30.000.
Colgate-Palmolive Company: See—
Olson, Frank Wesley, Jr., 3,830,919.
Colinet, Rene D. Single arc electric welding with multiple pathways. 3,830,998, Cl. 219-137.000.
College, Michael A.: See—
McKenry, Robert J.; and College, Michael A., 3,830,321.
Collingbourne, Terence David, to Anglers Masterline Limited. Fishing lines. 3,830,009, Cl. 43-44.980.
Collins Radio Company: See—
Stover, Harris A., 3,831,094.
Colt Industries Operating Corporation: See—
Herman, Ronald E., 3,830,213.
Columbine Glass Company, Inc.: See—
Fogelberg, Clement V., 3,830,359.
Commercial Shearing Inc.: See—
Boop, John L.; and Rudinec, Joseph P., 3,830,602.
Commissariat a l'Energie Atomique: See—
Sauvage, Michel, 3,830,695.
Schoumaker, Henry; and Yerouchalmi, David, 3,830,950.
Compagnie Francaise de Raffinage: See—
Weisang, Joseph Edouard; and Engelhard, Philippe, 3,830,726.
Compagnie Generale de Radiologie: See—
Putod, Rene, 3,831,032.
Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie: See—
Boileau, Jacques, 3,830,273.
Lejeune, Daniel, 3,830,277.
Compteurs Schlumberger: See—
Joseph, Sauvignat Henri, 3,830,207.
Computer Science Corporation: See—
Trafton, Paul J., 3,831,143.
Concept, Inc.: See—
Staub, David E.; and Foltz, Carl L., 3,830,226.
Conch International Methane Limited: See—
Jackson, Robert G., 3,830,396.
Tomay, Edmund George, 3,830,181.
Condon, Nancy J., to Shell Oil Company. Block copolymer compositions. 3,830,767, Cl. 260-28.500.
Conley, Jack S.: See—
Claus, Julius A., Jr.; Conley, Jack S.; and Lemon, Robert W., 3,830,082.
Conrad, Jack R.: See—
Re, Carlo; Conrad, Jack R.; and Tasso, Joseph A., 3,830,687.
Conrad-Stork B.V.: See—
Van der Wijden, Franciscus Theodorus Maria, 3,830,319.
Van der Wijden, Franciscus Theodorus Maria, 3,830,320.
Conroy, Joseph E., Jr.: See—
Smithson, Harold R.; Conroy, Joseph E., Jr.; and Kardan, Cevat, 3,830,618.
Consoli, Nicholas R. Golf club for hazard surfaces. 3,830,503, Cl. 273-167.000.
Consumpak, Inc.: See—
Frazer, John S., 3,830,404.
Contemporary Products Inc.: See—
Polidori, Thomas P., 3,830,427.
Continental Oil Company: See—
Carlson, Jon R.; Banks, William P.; and Flood, Rodney L., 3,830,776.
Gordon, Ronnie D.; Johnson, Gary R.; Skinner, Joseph L.; and Leach, Bruce E., 3,830,859.
Tarter, James H., 3,830,325.
Contourpedic Corporation: See—
Flicker, Bernard; Burridge, Robert E.; and Low, Frank H., 3,830,896.
Control Data Corporation: See—
Tate, Donald P.; and Desmonds, Daniel J., 3,831,012.
Cook, Charles W., to Avco Corporation. Alarm signal channel control circuit for burglar and fire alarm system. 3,831,164, Cl. 340-276.000.
Cooper Industries, Inc.: See—
Boyd, H. Edward; and Curtiss, George R., 3,830,089.
Cooper, Jerry W.: See—
Haley, John S.; Cooper, Jerry W.; and Logan, Arthur D., 3,830,685.
Copenhefer, John E., to United States Gypsum Company. Compact air filter. 3,830,045, Cl. 55-501.000.
Corey, Robert W.: See—
Wright, Raymond W.; and Corey, Robert W., 3,830,163.
Cornell, Paul A.; and Latta, Lynn H., to Electro-Clamp Corporation. Cable clamp with non-shearing jaws. 3,831,134, Cl. 339-266.000.
Cornell Research Foundation, Inc.: See—
Eastman, Lester F., 3,831,110.
Cosden Oil Chemical Company: See—
Watson, James M., 3,830,861.
Cosmo, Nicola: See—
Ravera, Giovanni; and Cosmo, Nicola, 3,830,124.
Costa, Pasquale V. Speaker attachment for automobile radios and the like. 3,830,334, Cl. 181-31.000.
Cottrell, Arnold George, to Imperial Chemical Industries Limited. 3,830,738, Cl. Surface treatment of particula.
Coulbourn, John. Modular rest cage for animals. 3,830,201, Cl. 119-17.000.
Couper, Neale Sansome; and Deane, Norman Philip, to Covrad Limited. Corrugation-forming machines. 3,830,088, Cl. 72-196.000.
Covrad Limited: See—
Couper, Neale Sansome; and Deane, Norman Philip, 3,830,088.
Cox, Lawrence Alfred, to British Oxygen Company Limited, The. Fluid mixing. 3,830,256, Cl. 137-599.000.
Crabtree, Lloyd O.: See—
Cochran, Gary D.; Crosby, David A.; Franken, Peter A.; and Crabtree, Lloyd O., 3,830,128.
Cratz, Robert E.: See—
Wood, James E.; Strecker, Larry A.; and Cratz, Robert E., 3,830,953.
Crete, Richard C. Tripod shelf. 3,830,168, Cl. 108-50.000.
Crisci, Victor Eugene, to Mammoth Plastics Inc. Container and cover therefor. 3,830,395, Cl. 215-321.000.
Critchfield, Jack G., to Handy Button Machine Company. Button collet. 3,829,935, Cl. 24-90.000.
Critchlow, Philip R.; and Zeitlein, Bruce A., to Airco, Inc. Multi-filament composite superconductor with transposition of filaments and method of making same. 3,829,964, Cl. 29-599.000.
Cronin, Michael J.; and Vogt, George H., to General Electric Company. Voltage and current monitoring system. 3,831,160, Cl. 340-256.000.
Crosby, David A.: See—
Cochran, Gary D.; Crosby, David A.; Franken, Peter A.; and Crabtree, Lloyd O., 3,830,128.
Crowe, Talmadge L., to Baker Oil Tools, Inc. Tubing hanger apparatus. 3,830,295, Cl. 166-125.000.
Crown Zellerbach Corporation: See—
Romaine, Douglas J., 3,830,197.
Cummins, Alonzo E., to Halliburton Company. Wellhead isolation tool and method of use thereof. 3,830,304, Cl. 166-305.000.
Cunnebo Bruks Aktiebolag: See—
Hedlung, Per-Olof, 3,830,364.
Cunningham, Gerald R.: See—
Glaeser, John L.; Weisert, Wilson G., Jr.; and Cunningham, Gerald R., 3,830,370.
Cuomo, Frank W., to United States of America, Navy. Acousto-optic underwater detector. 3,831,137, Cl. 340008.000.
Curtis, Herbert E., to MB Associates. Gas weapon including cartridge case with plurality of gas containers therein. 3,830,214, Cl. 124-11.000.
Curtis, Little P.; Ying, Sui C.; and Dailey, George F., to Westinghouse Electric Corporation. Sealing device for discharge chamber of liquid cooled rotors for dynamoelectric apparatus. 3,831,046, Cl. 310-54.000.
Curtiss, George R.: See—
Boyd, H. Edward; and Curtiss, George R., 3,830,089.
Czypionka, Erik: See—
Rosenberger, Bjorn Jossi; and Czypionka, Erik, 3,830,626.
Dabby, Franklin Winston; and Destenbaum, Ami, to Western Electric Company, Incorporated. Periodic dielectric waveguide for backward parametric interactions. 3,831,038, Cl. 307-88.300.
Daeuble, Manfred; Oppenlaender, Knut; and Fikentscher, Rolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Dye bath with block copolymeric propylene and ethylene oxides as foam surpresants. 3,830,627, Cl. 8-92.000.
Daicel Ltd.: See—
Kageyama, Osamu; Kai, Manabu; Miho, Takuya; and Koga, Kunio, 3,830,707.
Dailey, George F.: See—
Curtis, Little P.; Ying, Sui C.; and Dailey, George F., 3,831,046.
Daines, Derrick Arthur, to Rotary Hoes Limited. Chain tensioner. 3,830,114, Cl. 74-242.11s.
D'Alessandro, Alfred F.; and Mitchell, Maurice M., Jr., to Atlantic Richfield Company. Process for the catalytic conversion of olefins to aromatics. 3,830,866, Cl. 260-673.000.

D'Alessio, Alfonso Joseph, to Bell Telephone Laboratories, Incorporated. Magnetic core apparatus. 3,831,124, Cl. 335-298.000.
 Dall'Asta, Gino; and Motroni, Giuseppe, to Montecatini Edison S.p.A. Copolyalkenamers having a sequential structure, and method for preparing same. 3,830,877, Cl. 260-875.000.
 Dalrymple, Donald D.: See—
 Blucher, Joseph T.; and Dalrymple, Donald D., 3,830,603.
 Daniel, James Walter, Jr., to RCA Corporation. Parametric amplifier having an idler circuit reducing spurious idler signal magnitude. 3,831,037, Cl. 307-88.300.
 Daniels, R. Gary; and Foltz, James Walter, to Motorola, Inc. Digital power control circuit for an electric wrist watch. 3,830,052, Cl. 58-23.00r.
 Danly, Donald E.: See—
 Campbell, Charles R.; Danly, Donald E.; and Mueller, Werner H., 3,830,712.
 Dannheisser, Elaine: See—
 Sprenger, Edwin, 3,830,136.
 Dannheisser, Werner: See—
 Sprenger, Edwin, 3,830,136.
 Dansk Industri Syndikat A/S: See—
 Gunnergaard, Marius, 3,830,283.
 Dart Industries, Inc.: See—
 Bernstein, Lawrence A., 3,829,999.
 Montesi, Edward N., 3,830,417.
 Schrage, Albert; and Readio, Philip D., 3,830,872.
 Date, Tasuku; and Yagi, Shizuo, to Honda Giken Kogyo Kaisha, Inc. Auxiliary chamber and torch nozzle for internal combustion engine. 3,830,205, Cl. 123-32.00r.
 Daum, Joachim; and Kieslich, Klaus, to Schering Aktiengesellschaft. Process for the preparation of 5-hydroxy-L-tryptophan. 3,830,696, Cl. 195-29.000.
 Daum, Sol J.: See—
 Shaw, Philip E.; Daum, Sol J.; and Clarke, Robert L., 3,830,843.
 David, Joseph; Thomas, Keith; and Kishore, Nand, to Catomance Limited. Process for preparing 1-aryloxy-2-propanols. 3,830,851, Cl. 260-613.00d.
 Davies, Stanton; and Kropiwnicki, Tadek M., to Carrier Corporation. Lubrication system for a motor compressor unit. 3,830,341, Cl. 184-6.160.
 Davis, Jerry P.: See—
 Morgan, Dean T.; and Davis, Jerry P., 3,830,062.
 Davis, Kuther, Jr.; and Holland, Melvin G., to Raytheon Company. Surface acoustic wave filter. 3,831,116, Cl. 333-72.000.
 Davis, Martin F.; Schwane, Francis J.; and Walker, Gary J., to Burroughs Corporation. Multi-mode clock recovery circuit for self-clocking encoded data. 3,831,195, Cl. 360-51.000.
 Davis, Ralph A.; and Tigner, Ronald G., to Dow Chemical Company. The. Phosphorus compounds containing stable halogen. 3,830,886, Cl. 260-953.000.
 Davis, Richard C. Bulletproof protective body armor. 3,829,899, Cl. 2-2.500.
 Davister, Armand, to Societe de Prayon. Method and device for washing a continuous filter with a horizontal filtration surface and cells. 3,830,658, Cl. 134-13.000.
 Davoli, Velmoro: See—
 Susa, Ermanno; Davoli, Velmoro; and Mayr, Adolfo, 3,830,787.
 Dawson, Bruce Edgar: See—
 Wolowoduik, Walter; Dawson, Bruce Edgar; and Anelli, John, 3,830,292.
 Day, Arnold; and Hartjens, Herman, to American Cyanamid Company. Mineral flotation with sulfosuccinamate and depressant. 3,830,366, Cl. 209-166.000.
 Day, Elaine Hilda: See—
 Williamson, William Robert Nigel; Hicks, Terence Alan; and Day, Elaine Hilda, 3,830,923.
 Dayco Corporation: See—
 Haley, John S.; Cooper, Jerry W.; and Logan, Arthur D., 3,830,685.
 Dazey Products Co.: See—
 McNair, Samuel L., 3,830,232.
 DCA Food Industries, Inc.: See—
 Fischer, Leonard G.; Sherain, Monroe B.; and Strum, Klemens, 3,830,948.
 De Felice, Stephen L. Carnitine and its use in the treatment of arrhythmia and impaired cardiac function. 3,830,931, Cl. 424-319.000.
 De La Mare, Harold E., to Shell Oil Company. Diene block copolymers. 3,830,880, Cl. 260-879.000.
 De Laittre, Earle W.; deceased (by Timberg, William P.; executor). Therapeutic pillow. 3,829,917, Cl. 5-338.000.
 De Nardo, Frank, to Rockwell International Corporation. Display character pattern. 3,831,166, Cl. 340-336.000.
 Deane, Norman Philip: See—
 Couper, Neale Sansome; and Deane, Norman Philip, 3,830,088.
 Dearmaley, Geoffrey; and Nelson, Richard Stuart, to United Kingdom Atomic Energy Authority. Formation of electrically insulating layers in semi-conducting materials. 3,830,668, Cl. 148-1.500.
 Debaigt, Jean, to Cgee Althom. Device for fixing an object on a wall. 3,830,454, Cl. 248-27.000.
 Debat, Jacques, to Institut de Recherches Chimiques et Biologiques Appliquees IRCEBA. 2-Benzylphenols. 3,830,852, Cl. 260-619.00r.
 Dechantreiter, Max J.; and Rau, Frederic W., to Harnischfeger Corporation. Automatic warehouse crane. 3,830,379, Cl. 214-16.40a.
 Dechaux, Claude, to Thomson-CSF. Speech-synthesizer. 3,830,977, Cl. 179-1.00a.

Deeg, Emil W.; and Graf, Robert E., to American Optical Corporation. Laser glasses with high damage threshold and method of making such glasses. 3,830,749, Cl. 252-301.40f.
 Deering Milliken Research Corporation: See—
 Hunter, Carl P.; and Kay, Charles W., 3,830,377.
 Deets, Gary L.; and Jacobs, Philip M., to Monsanto Company. Method of rendering styrene copolymer polyblends self-extinguishing. 3,830,889, Cl. 260-876.00r.
 Degginger, Edward R.; and Balquist, James M., to Allied Chemical Corporation. Substituted 5,8-dimethyl-5,6,7,8-tetrahydro-1-naphthols. 3,830,854, Cl. 260-622.00r.
 Deknatel Inc.: See—
 Kurtz, Leonard D.; and Bidwell, Robert E., 3,830,238.
 Delaney, Edward J. Tap with replaceable cutting insert. 3,829,921, Cl. 10-141.00r.
 Deleo, Louis: See—
 Gronner, Alfred D.; and Deleo, Louis, 3,831,168.
 Demeester, Gordon D.: See—
 Barrett, Harrison H.; Demeester, Gordon D.; and Wilson, David T., 3,831,031.
 Demetreeon, James. Oven rack operating mechanism. 3,830,220, Cl. 126-340.000.
 Demont, Michel: See—
 Moeller, Alfred H.; Demont, Michel; and Nickstadt, Albert G., 3,830,930.
 Demoute, Jean-Pierre: See—
 Perronet, Jacques; Poittevin, Andre; and Demoute, Jean-Pierre, 3,830,884.
 Denki Kagaku Kogyo Kaisha, Inc.: See—
 Yoshida, Shuji; and Iguchi, Tateo, 3,830,873.
 Desantis, Francis J., to Smyth Manufacturing Company, The. Book escapement mechanism. 3,830,358, Cl. 198-34.000.
 Deserno, Ulrich; and Haussuehl, Siegfried, to Siemens Aktiengesellschaft. Non-linear optical component. 3,830,558, Cl. 350-160.00r.
 Deshimaru, Osamu: See—
 Shigeno, Kunihiko; Deshimaru, Osamu; Aramaki, Takayuki; Kuroki, Katsunobu; and Kitaue, Kazuo, 3,830,937.
 Desmonds, Daniel J.: See—
 Tate, Donald P.; and Desmonds, Daniel J., 3,831,012.
 Destenbaum, Ami: See—
 Dabby, Franklin Winston; and Destenbaum, Ami, 3,831,038.
 Dethloff, Finn H.: See—
 Nielsen, Kjell; and Dethloff, Finn H., 3,830,043.
 Devear, Robert; and O'Brian, Joseph. Amusement slide adopted to be used simultaneously by two persons. 3,830,492, Cl. 272-56.50r.
 Dewegeli, Karl. Water distiller. 3,830,705, Cl. 202-189.000.
 Di Philippo, Joseph M.; and Holvoet, John E., to United States of America, Army. Initiator assembly. 3,830,158, Cl. 102-70.00r.
 Diagnostic Research, Inc.: See—
 Beckford, Orville A., 3,830,702.
 Beckford, Orville A., 3,830,703.
 Diamond, Julius; Douglas, George H.; and Burns, Bernard J., to Rorer, William H., Inc. 1-Substituted biguanides as anti-hypertensive agents. 3,830,933, Cl. 424-326.000.
 Diamondhead Corporation: See—
 Dunkin, Albert, 3,829,915.
 Diana, Guy D., to Sterling Drug Inc. Imidoyl ureas. 3,830,839, Cl. 260-553.00a.
 Dickens, James W., to United States of America, Agriculture. Hammer mill with integral subsampling portion. 3,830,436, Cl. 241-73.000.
 Diehl, Elmer Paul, to Babcock & Wilcox, Company, The, mesne. Controller having gain selectable independently. 3,831,099, Cl. 328-71.000.
 Diehl, Karl-Heinz: See—
 Eggersperger, Heinz; Franzen, Volker; Diehl, Karl-Heinz; and Kloss, Wilfried, 3,830,828.
 Dieling, Hans; and Schindehutte, Manfred, to Wegmann & Co. Motorized swivel truck for rail vehicles, especially streetcars. 3,830,166, Cl. 105-77.000.
 Diemart, John R.: See—
 Norbutas, Stanley R.; and Diemart, John R., 3,829,946.
 Diena, Alberto: See—
 Lancini, Giancarlo; Lazzari, Ettore; and Diena, Alberto, 3,830,837.
 Dietz, Raymond Louis: See—
 Minneman, Lester C.; Trease, Ralph E.; Wills, Lowell J.; and Dietz, Raymond Louis, 3,830,651.
 Dillon, Bernice P. Car locator key holder. 3,829,994, Cl. 40-2.00a.
 Dilo, Richard, to Oskar Dilo KG Maschinenfabrik. Needle punching machine. 3,829,939, Cl. 28-4.00r.
 Dimitriadis, George; and Alwood, Gloria Belle Dimitriadis. Sandwich package. 3,830,944, Cl. 426-113.000.
 Dischert, Robert Adams; and Monahan, John Francis, to RCA Corporation. Automatic centering control system for television apparatus. 3,830,959, Cl. 178-5.40m.
 Display Corporation International: See—
 Buschman, Edward M., 3,829,996.
 Dittrich, Gunter; and Kolb, Erich, to Bosch, Robert, GmbH. Windshield wiper arrangement. 3,829,924, Cl. 15-250.140.
 D.O., James P. Shinnick. Multiple purpose stopcock arrangement for suctioning, injection, oxygen cessory equipment. 3,830,225, Cl. 128-2.00b.
 Dodd, Edwin D., to Owens-Illinois, Inc. Countertop heating apparatus. 3,830,216, Cl. 126-39.00j.

Doe, Takao: See—
 Yoshizumi, Shuzo; Doe, Takao; Oku, Takeshi; and Matsumoto, Yoshimitsu, 3,830,999.
 Doland, George D.: See—
 United States of America, National Aeronautics and Space Administration, 3,831,142.
 Dolbear, Geoffrey E.; and Magee, John S., Jr., to Grace, W. R., & Co. Cracking hydrocarbons with catalysts containing nickel and magnesium exchanged zeolites. 3,830,725, Cl. 208-120.000.
 Domer, Wolfgang, to BBC Brown, Boveri & Co. Expansion joint for pipes. 3,830,529, Cl. 285-45.000.
 Dominguez, Ezekiel C.; Lynn, John D.; and Sundry, George J., to Bethlehem Steel Corporation. Refractory lining in a vertical shaft furnace. 3,830,481, Cl. 266-43.000.
 Dominion Engineering Works, Limited: See—
 Field, Michael Frank, 3,830,471.
 Donahue, Kenneth Joseph, to Stanadyne, Inc. Fuel pump and drive therefor. 3,830,597, Cl. 417-462.000.
 Donnard, Reed E.; Rosenbaum, Marvin; Gallaccio, Anthony; and Pealstein, Fred, to United States of America, Army. Cartridge case. 3,830,157, Cl. 102-43.00r.
 Dorsey, Denis Peter; and Rodda, William E., to RCA Corporation. Storage tube erase control. 3,831,054, Cl. 315-12.000.
 Dostoomian, Ashod S.: See—
 Vanzetti, Riccardo; and Dostoomian, Ashod S., 3,830,224.
 Double, Richard L. Coupling head adapter. 3,830,955, Cl. 174-65.00r.
 Douglas, George H.: See—
 Diamond, Julius; Douglas, George H.; and Burns, Bernard J., 3,830,933.
 Douros, John D., Jr.; Brokl, Milan; and Kerst, Al F., to Gates Rubber Company, The. Alloxan-5-thiosemicarbazone as an antifungal agent. 3,830,917, Cl. 424-251.000.
 Dow Chemical Company: See—
 Harter, Mark A., 3,830,870.
 Dow Chemical Company, The: See—
 Davis, Ralph A.; and Tigner, Ronald G., 3,830,886.
 Dow Corning Corporation: See—
 Bennett, Donald R.; and McHard, James A., 3,830,912.
 Stati, Wayne H.; and Boone, Jack L., 3,829,903.
 Dow-Mac Concrete Limited: See—
 Hamblin, Robert Paul John, 3,830,458.
 Dowd, Daniel J., Jr., to Westvaco Corporation. Method and apparatus for rewinding loose end portions of loosely wound spools. 3,830,143, Cl. 93-84.00f.
 Downing, Arthur C.: See—
 Gowdy, Harold W.; and Downing, Arthur C., 3,829,993.
 Dowrick, R. Lindsey. Toy boat conversion kit for an expanded container. 3,830,010, Cl. 46-11.000.
 Drabek, Jozef, to Ciba-Geigy Corporation. Nitro-phenyl phosphorus acid esters. 3,830,891, Cl. 260-954.000.
 Draper, Marshall D.: See—
 Klohs, Murl W.; Draper, Marshall D.; and Petrcek, Francis J., 3,830,803.
 Dreher, Karl D.; and Sydanski, Robert D., to Marathon Oil Company. Method for improving oil-water ratios in oil producing wells. 3,830,302, Cl. 166-294.000.
 Du Pont de Nemours, E. I., and Company: See—
 Arimoto, Fred S.; and Ford, Luke D., 3,830,845.
 Brake, Loren D., 3,830,800.
 Burton, Louis Lasseter, 3,830,777.
 Martinez, Boni Philip; and Pruckmayr, Gerfried, 3,830,768.
 Ribbons, Robert Clark, III, 3,830,770.
 Du Shane, Raymond N., Jr.: See—
 Read, George D.; Tintary, F. Raymond; and Du Shane, Raymond N., Jr., 3,830,535.
 Duemgen, Gerd; Heesemann, Guenther; Hohenschutz, Heinz; Kerber, Horst; Nagel, Otto; Rothe, Robert; and Walz, Helmut, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of aldehydes and alcohols by the oxo process. 3,830,846, Cl. 260-598.000.
 Dulux Australia Ltd.: See—
 Gillan, John; Lubbock, Frederick John; and Polgar, Livia, 3,830,763.
 Dunegan, Ronald G.: See—
 Grove, Marvin H.; and Dunegan, Ronald G., 3,830,092.
 Dunkin, Albert, to Diamondhead Corporation. Drive bracket connector for patient transfer apparatus. 3,829,915, Cl. 5-81.00r.
 Dunkley, Christopher Charles: See—
 Narozanski, John Stanley; and Dunkley, Christopher Charles, 3,830,710.
 Dunlop Limited: See—
 Evans, Philip J.; and Askam, John F., 3,830,679.
 Gaydecki, Jan, 3,830,483.
 Kirkland, John Henry; and Harvey, Samuel Eric, 3,829,925.
 Dunn, David S.: See—
 Patel, Ramesh S.; and Dunn, David S., 3,831,194.
 Dunn, John Malcolm, to Capistrano Cover Corporation. Package for special postal issues and method of making same. 3,830,422, Cl. 229-71.000.
 Dunn, Roland J., Jr.: See—
 Nemec, Frank A.; Thayer, Stuart W.; Eckert, William S.; Horn, Marion F.; and Dunn, Roland J., Jr., 3,830,177.
 Dupouy, Marcel. Video signal generator. 3,830,974, Cl. 178-8.30d.
 Durocher, Gideon A., to Essex International, Inc. Pressure sensitive mat switch construction. 3,830,991, Cl. 200-86.00r.

Durr, Helmut E.; and Haller, Albert H., to Western Electric Company Incorporated. Apparatus for drying pulp-insulated wire. 3,829,985, Cl. 34-154.000.
 Durst A.G. Fabrik Fototechnischer Apparate: See—
 Muhlogger, Leopold, 3,831,021.
 Dwyre, Charles: See—
 Fleenor, Richard P.; and Dwyre, Charles, 3,830,249.
 Dye, John F.; and Binard, William J., to Kendall Company, The, mesne. Vented adapter. 3,830,241, Cl. 128-349.00r.
 Dyna-Shield, Inc.: See—
 Re, Carlo; Conrad, Jack R.; and Tasso, Joseph A., 3,830,687.
 Dyos, Gordon Thomas, to Electricity Council, The. Plasma torches. 3,830,428, Cl. 239-11.000.
 Eastman Kodak Company: See—
 Albrecht, Richard Edmund, 3,830,591.
 Barbee, Robert B.; and Taylor, Edward C., 3,830,804.
 Barkey, Kenneth T., 3,830,759.
 Barkey, Kenneth T.; Gandy, Gerald C.; and May, Douglas C., 3,830,773.
 Benwood, Bruce R.; Morse, Theodore H.; and Siebenrock, Howard D., 3,830,401.
 Cleveland, James P.; and Martin, James C., 3,830,830.
 Webster, Frank G., 3,831,105.
 Eastman, Lester F., to Cornell Research Foundation, Inc. Multi-axis cavities for microwave semiconductors. 3,831,110, Cl. 331-107.00g.
 Eberle, Marcel K.; and Houlihan, William J., to Sandoz-Wander, Inc. Fused bi- and tri-cyclic, di-, tri- and thiodiaza compounds. 3,830,802, Cl. 260-239.30b.
 Ebert, Hans; Thummler, Ursus; and Werner, Hugo, to Knapsack Aktiengesellschaft. Process and apparatus for continuous work-up of phosphorus-containing residues. 3,830,039, Cl. 55-5.000.
 Eckert, William S.: See—
 Nemec, Frank A.; Thayer, Stuart W.; Eckert, William S.; Horn, Marion F.; and Dunn, Roland J., Jr., 3,830,177.
 Ecodye Corporation: See—
 Furlong, Donn B., 3,830,581.
 Econdyne Corporation, mesne: See—
 Furlong, Donn B.; Forchini, James F.; and Grotheer, Robert, 3,830,476.
 Eddy, John W.; and Puccini, Sergio E., to GTE Automatic Electric Laboratories Incorporated. Communication system interlock arrangement. 3,830,983, Cl. 179-18.00s.
 Eden, Dayton D.: See—
 Chician, Jay S.; and Eden, Dayton D., 3,831,165.
 Edgar Pickering (Blackburn) Limited: See—
 Mellor, Leslie, 3,830,174.
 EG&G, Inc.: See—
 Aldrich, Wilbert H.; and Beaudette, Charles G., 3,830,966.
 Beaudette, Charles G., 3,830,965.
 Spencer, David R., 3,830,964.
 Eggersperger, Heinz; Franzen, Volker; Diehl, Karl-Heinz; and Kloss, Wilfried, to Ciba-Geigy Corporation, mesne. Stabilizer for organic compounds. 3,830,828, Cl. 260-473.00s.
 Eisele, John A.; Campbell, Francis J.; Faraday, Bruce J.; and Statler, Richard L., to United States of America, Navy. Battery holder for satellite and method. 3,830,663, Cl. 136-166.000.
 Eisenstein, Albert, to Babcock & Wilcox Company, The. Rotor structure. 3,830,287, Cl. 165-10.000.
 Electricity Council, The: See—
 Dyos, Gordon Thomas, 3,830,428.
 Electro-Clamp Corporation: See—
 Cornell, Paul A.; and Latta, Lynn H., 3,831,134.
 Electronic Memories & Magnetics Corporation: See—
 Ambrosio, Biagio F., 3,831,119.
 Electronics Corporation of America: See—
 Cade, Phillip J., 3,830,619.
 Elek, Louis F.: See—
 Evnin, Anthony B.; Rabo, Jule A.; Elek, Louis F.; Risch, Alan P.; and Kavarnos, Spiro J., 3,830,757.
 Elkins, William, to Acurex Corporation. Process of making a contoured thermal device. 3,830,676, Cl. 156-289.000.
 Ellis, Leonard C.; and Kise, Mearl A., to Virginia Chemicals Inc. Groundwood pulp bleaching with sodium hydrosulfite in the presence of sodium salts of glucono-citrate complexes of polyaminoverenic acid. 3,830,690, Cl. 162-71.000.
 Ellis, William D.: See—
 Chaffin, John H.; Ellis, William D.; Heist, Herbert E.; and Walters, Wayne L., 3,831,006.
 Ellison, Jack R.: See—
 Ellison, Jack R., 3,830,268.
 Ellison, Jack R., to Ellison, Jack R. and William, Vanda Ray; d/b/a Future Machine Company. Loading multiple duplicating machines. 3,830,268, Cl. 42-4.000.
 Ellithorpe, Ernest Ralph; and Fletcher, Ronald Bruce. Apparatus for the solidification of molten sulphur. 3,830,291, Cl. 165-120.000.
 Emerson Electric Co.: See—
 Brundage, Richard B.; and Jost, Walter P., Jr., 3,831,125.
 Halfaker, Thomas C.; and Stahlhut, Leo G., 3,831,019.
 Emerson, Reginald Stanley, to Hartridge, Leslie, Limited. Apparatus for assessing the damping performance of vehicle suspension systems. 3,830,093, Cl. 73-11.000.
 Emhart Corporation: See—
 Gerlach, John R., 3,830,085.
 EMI Electrola Gesellschaft mit beschränkter Haftung: See—
 Strausfeld, Hermann, 3,830,459.

En, John, to Motorola, Inc. Multi-level error detection code. 3,831,144, Cl. 340-146.1a1.
 Enabnit, Robert S., to Goodyear Tire & Rubber Company, The. Fail-safe monitoring apparatus. 3,831,161, Cl. 340-259.000.
 Endicott, Donald L., to McDonnell Douglas Corporation. Shaft seal. 3,830,508, Cl. 277-142.000.
 Engelhard, Philippe: See—
 Weisang, Joseph Edouard; and Engelhard, Philippe, 3,830,726.
 Englar, Robert J.: See—
 Williams, Robert M.; and Englar, Robert J., 3,830,450.
 Eno, Frederick L., to United States of America, Navy. Raster display generator. 3,831,055, Cl. 315-27.0td.
 Enokida, Shizuo: See—
 Morikawa, Eiji; Kodama, Kenkichi; Tanaka, Tokuji; Fukatsu, Hisayoshi; and Enokida, Shizuo, 3,830,938.
 Enviroengineering, Inc.: See—
 Huppke, Glen P., 3,830,041.
 Epis, James J.; and Robles, F. Ernest, to GTE Sylvania Incorporated. Partial-radial-line antenna. 3,831,176, Cl. 343-756.000.
 Epstein, David J.; and Bullock, David C., to Massachusetts Institute of Technology. Single and polycrystalline semiconductors. 3,831,154, Cl. 340-174.0tf.
 Erdmann, Dietrich: See—
 Schneider, Gerhart; Lust, Sigmund; Niethammer, Konrad; Jacobi, Ernst; Erdmann, Dietrich; and Mohr, Gunther, 3,830,643.
 Erickson, Lloyd Arthur, to Illinois Tool Works Inc. Sealed expansion anchor. 3,830,134, Cl. 85-80.000.
 Ericson, John W.: See—
 Gross, T. A. O.; and Ericson, John W., 3,831,192.
 Erlund, Mark Nicholas, to Rolls-Royce (1971) Limited. Flame-out control in gas turbine engine. 3,830,055, Cl. 60-39.09r.
 Ervin, Jimmie D. Rotary cutter unit for grape harvesters. 3,830,048, Cl. 56-331.000.
 Essers, Wilhelmus Gerardus; Jelmorini, Gerardus; and Tichelaar, Gerrit Willem, to U.S. Philips Corporation. Method of and device for the thermal working and processing of high-melting-point materials. 3,830,997, Cl. 219-76.000.
 Essex International, Inc.: See—
 Durocher, Gideon A., 3,830,991.
 Esso Production Research Company: See—
 Garcia, Juan A., 3,830,371.
 Glaeser, John L.; Weisert, Wilson G., Jr.; and Cunningham, Gerald R., 3,830,370.
 Esso Research and Engineering Company: See—
 King, Laurence F., 3,830,888.
 Zaborsky, Oskar R., 3,830,699.
 Etablissements BENNES MARREL: See—
 Chabal, Roger, 3,830,593.
 Ethyl Corporation: See—
 Laran, Roy J.; Kobetz, Paul; and Johnson, Robert W., Jr., 3,830,906.
 Evans, Philip J.; and Askam, John F., to Dunlop Limited. Diaphragm. 3,830,679, Cl. 156-416.000.
 Evans, Raymond H.; Myers, David D.; and Hunt, Wilbur W., to Calumet Company, The. Manufacture of colored glass. 3,830,639, Cl. 65-19.000.
 Evans, Ronald Arthur: See—
 Boyd, Violet; Evans, Ronald Arthur; Holt, Kenneth Anthony; and Renfrew, Andrew Hunter Morris, 3,830,835.
 Everett, Peter Kenneth, to Mining Systems Limited, mesne. Sample pulverizing apparatus. 3,830,437, Cl. 241-137.000.
 Evershed, John L.: See—
 Baxendale, Kenneth C.; Bergemann, Werner E.; Camp, David B.; Evershed, John L.; Howlett, Mason M.; and Waasdorp, Robert A., 3,830,607.
 Evgrafov, Boris Ivanovich: See—
 Anisimov, Pavel Mikhailovich; Evgrafov, Boris Ivanovich; Kuppev, Jury Alexandrovich; Orlov, Boris Petrovich; Kotova, Antonina Nikolaevna; Turok, Galina Iosifovna; and Berman, Pavel Gdaliovich, 3,831,045.
 Evnin, Anthony B.; Rabo, Jule A.; Elek, Louis F.; Risch, Alan P.; and Kavarnos, Spiro J., to Union Carbide Corporation. Catalyst for the preparation of carbonyl-containing compositions. 3,830,757, Cl. 252-464.000.
 Ewert, Manfred; and Roggenbuck, Klaus, to Bildplatten, TED, AEG-Telefunken, teldec Aktiengesellschaft. Foil record carrier. 3,830,506, Cl. 274-39.00a.
 Ezell, Emory L., to Phillips Petroleum Company. Method for operating a compressor. 3,830,660, Cl. 134-23.000.
 Fabricant, Norman. Air impulse board game apparatus. 3,830,501, Cl. 273-134.00e.
 Factory Mutual Research Corporation: See—
 Livingston, William L., 3,830,308.
 Fader, John G.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., to Monroe Belgium N.V. Shock absorber and dirt shield therefor. 3,830,347, Cl. 188-322.000.
 Fail Safe Brake Corporation: See—
 Fontaine, John G., 3,830,330.
 Fontaine, John G., 3,830,332.
 Fakoury, Richard. License holder. 3,829,995, Cl. 40-16.000.
 Falbo, Richard R.: See—
 Cable, John A.; Cable, Stephen J.; and Falbo, Richard R., 3,830,625.
 Falkenberg, Dieter: See—
 Winkler, Josef; and Falkenberg, Dieter, 3,830,664.

Fansteel Inc.: See—
 Bartoszewicz, Joseph G.; Murphy, George H. Jr.; and Schmidt, Frederick W., 3,829,943.
 Faraday, Bruce J.: See—
 Eisele, John A.; Campbell, Francis J.; Faraday, Bruce J.; and Stalter, Richard L., 3,830,663.
 Farage, Fred. Method for treating roots about drain lines. 3,830,659, Cl. 134-22.00c.
 Farbenfabriken Bayer Aktiengesellschaft: See—
 Golker, Christian, 3,830,791.
 Rauenbusch, Erich; and Golker, Christian, 3,830,790.
 Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: See—
 Kronig, Walter; Roscher, Gunter; Schwerdtel, Wulf; and Sennewald, Kurt, 3,830,834.
 Millauer, Hans, 3,830,857.
 Farrar, Paul A., to International Business Machines Corporation. Method for making integrated circuit contact structure. 3,830,657, Cl. 117-217.000.
 Fast Heat Element Manufacturing Co., Inc.: See—
 Wallstrom, Ray, 3,831,004.
 Faulstich, George L. Free standing shelf support units and system. 3,830,170, Cl. 108-111.000.
 Fawcett, Colin Graham: See—
 Shaw, James Thomas; Fawcett, Colin Graham; and Lilley, Raymond Percy Arthur, 3,830,022.
 Feinieb, Morris: See—
 Rutherford, Sherman L.; and Feinieb, Morris, 3,830,648.
 Fejer, Kazmer, to Messrs. Color service GmbH. Polystyrene colouring granules. 3,830,765, Cl. 260-27.00r.
 Ferranti Limited: See—
 Ward, Ronald Douglas, 3,831,106.
 FIAT Societa per Azioni: See—
 Travaglio, Michele, 3,830,111.
 Fiber Industries, Inc.: See—
 Cohen, Stuart Lyle; and Stackman, Robert William (said Cohen assor. to), 3,830,771.
 Field, Michael Frank, to Dominion Engineering Works, Limited. Slab piling system. 3,830,471, Cl. 254-124.000.
 Fifth Dimension, Inc.: See—
 Bitko, Sheldon S., 3,831,118.
 Fikentscher, Rolf: See—
 Daeuble, Manfred; Oppenlaender, Knut; and Fikentscher, Rolf, 3,830,627.
 Filterwerk Mann & Hummel GmbH: See—
 Muller, Heinz; and Schonefeld, Paul, 3,830,210.
 Findeisen, Kurt; Wagner, Kuno; and Moller, Friedrich, to Bayer Aktiengesellschaft. Process for the production of basic polyamides and copolyamides. 3,830,786, Cl. 260-78.001.
 Fischbein, Irwin W.; Alexander, Ben H.; and Sastri, Aiyaswami S., to Gillette Company, The. Cutting tool with alloy coated sharpened edge. 3,829,969, Cl. 30-346.540.
 Fischer, Leonard G.; Sherain, Monroe B.; and Strum, Klemens, to DCA Food Industries, Inc. Method for improving shelf-life of baked goods. 3,830,948, Cl. 426-363.000.
 Fischer, Pierre, to Werkzeugmaschinenfabrik Oerlikon-Buhle AG. Shell with spherical-shaped projectiles, method for the fabrication thereof, and apparatus for the performance. 3,829,940, Cl. 29-121.0.
 Fisher, Jerald H. Garment supporting means using woven cane. 3,829,902, Cl. 2-338.000.
 Fisher, Walter, to Borg-Warner Corporation. Planetary differential for four wheel drive with automatic locking gear. 3,830,116, Cl. 74-711.000.
 Fishman, Dina Lvovna: See—
 Khcheian, Khachik Egorovich; Revenko, Olga Mikhailovna; Borisoglebskaya, Alla Viktorovna; and Fishman, Dina Lvovna, 3,830,853.
 Flax, William E. Three-dimensional decorative item. 3,829,998, Cl. 40-124.100.
 Flenor, Richard P.; and Dwyre, Charles. Tire inflator device. 3,830,249, Cl. 137-224.000.
 Fleetwood systems, Inc.: See—
 Mojdén, Wallace W., 3,830,353.
 Fletcher, J. H., & Co.: See—
 Fletcher, James Robert, 3,830,456.
 Fletcher, James C.; Shafer, John I.; and Simmons, George M. Preparing oxidizer coated metal fuel particles. 3,830,673, Cl. 149-17.000.
 Fletcher, James Robert, to Fletcher, J. H., & Co. Mining apparatus. 3,830,456, Cl. 248-354.00h.
 Fletcher, Ronald Bruce: See—
 Ellithorpe, Ernest Ralph; and Fletcher, Ronald Bruce, 3,830,291.
 Flexsteel Industries, Inc.: See—
 Quakenbush, Howard M., 3,829,912.
 Flick, Kurt; and Frankus, Ernst, to Chemie Grunenthal G.m.b.H. Analgesic and antitussive compositions and methods. 3,830,934, Cl. 424-330.000.
 Flicker, Bernard; Burridge, Robert E.; and Low, Frank H., to Contourpedic Corporation. Apparatus and process for forming contoured impressions of the human body. 3,830,896, Cl. 264-45.000.
 Flood, Rodney L.: See—
 Carlson, Jon R.; Banks, William P.; and Flood, Rodney L., 3,830,776.
 FMC Corporation: See—
 Billett, Ronald J.; and Niemann, Gary O., 3,830,264.

Freiheit, Frederick E., 3,830,255.
 Mezei, George A.; and Gibbons, Harold M., 3,830,533.
 Ramsey, Arthur Albert, 3,830,812.
 Volpp, Gert Paul, 3,830,641.
 Wilson, Donald C., 3,830,681.
 Foamex Protection Corporation: See—
 Ray, Charles A. (said Ray assor. to), 3,830,309.
 Foerster, Hans-Joachim, to Siemens Aktiengesellschaft. Circuit arrangement for the steady temperature control. 3,831,003, Cl. 219-499.000.
 Fogelberg, Clement V., to Columbine Glass Company, Inc. Method and apparatus for dividing articles. 3,830,359, Cl. 198-30.000.
 Follett, John L. Excess flow responsive shut-off valve. 3,830,252, Cl. 137-519.500.
 Foltz, Carl L.: See—
 Staub, David E.; and Foltz, Carl L., 3,830,226.
 Foltz, James Walter: See—
 Daniels, R. Gary; and Foltz, James Walter, 3,830,052.
 Foltz, Robert E.; Riser, Clarence B.; and Granzow, Kurt H., to Lawrence Brothers, Inc. Folding door hanger with emergency release. 3,829,929, Cl. 16-97.000.
 Foner, Max. Biophysiological information processing device. 3,830,228, Cl. 128-2.06r.
 Fontaine, John G., to Fail Safe Brake Corporation. Brake system for motor vehicles. 3,830,330, Cl. 180-101.000.
 Fontaine, John G., to Fail Safe Brake Corporation. Automatic door lock. 3,830,332, Cl. 180-113.000.
 Forchini, James F.: See—
 Furlong, Donn B.; Forchini, James F.; and Grotheer, Robert, 3,830,476.
 Ford, Luke D.: See—
 Arimoto, Fred S.; and Ford, Luke D., 3,830,845.
 Ford Motor Company: See—
 Roniewicz, Donald J.; and Uhl, Joseph E., 3,830,192.
 Forster, Karl-Heinz; Vetter, Lothar; Johnne, Hans; and Schanze, Klaus, to VEB Polygraph Leipzig Druckmaschinenwerk Planeta Radebeul. Pulse sequence control circuit. 3,831,100, Cl. 328-71.000.
 Fosness, John P., to Rockwell International Corporation. Aircraft control system. 3,830,451, Cl. 244-42.0cc.
 Foster, Ralph L.: See—
 Pray, Robert W.; and Foster, Ralph L., 3,829,982.
 Foster Wheeler Corporation: See—
 Jorgensen, Svend M., 3,830,397.
 Fowler, Richard C.: See—
 Hurley, Charles W.; and Fowler, Richard C., 3,830,970.
 Frager, Glenn E.; and Pfenninger, Bill J., to Krause Plow Corporation. Folding disc harrow. 3,830,313, Cl. 172-581.000.
 Frank, Kurt F., to Aerojet-General Corporation. Multiple effect evaporator system. 3,830,704, Cl. 202-174.000.
 Franke, Gunter. Doll with changeable face and belly portions. 3,830,012, Cl. 46-135.00r.
 Franken, Peter A.: See—
 Cochran, Gary D.; Crosby, David A.; Franken, Peter A.; and Crabtree, Lloyd O., 3,830,128.
 Frankus, Ernst: See—
 Flick, Kurt; and Frankus, Ernst, 3,830,934.
 Frant, Martin S.: See—
 Riseman, John H.; Krueger, John; and Frant, Martin S., 3,830,718.
 Franzen, Volker: See—
 Eggensperger, Heinz; Franzen, Volker; Diehl, Karl-Heinz; and Kloss, Wilfried, 3,830,828.
 Franzese, Douglas, to Morgan Yacht Corporation. Building structures. 3,830,028, Cl. 52-279.000.
 Frazer, John S., to Consupak, Inc. Simulated writing instrument aerosol container. 3,830,404, Cl. 222-78.000.
 Frederick-Willys, Inc.: See—
 Hill, Max E., 3,830,495.
 Freiheit, Frederick E., to FMC Corporation. Valve assembly. 3,830,255, Cl. 137-543.190.
 Fremont, Claude Francis Fernand Yves: See—
 Castan, Joseph; and Fremont, Claude Francis Fernand Yves, 3,830,403.
 Freund, Georg: See—
 Wurth, Hans-Jorg; and Freund, Georg, 3,830,137.
 Frey, Max. Device for measuring the vertical force required to release a ski boot from a ski heel clamp. 3,830,101, Cl. 73-133.00a.
 Frey, William G., to Thomas & Betts Corporation. Deflectable jumper strip. 3,831,129, Cl. 339-19.000.
 Friedlander, Rudolph. Necklace snap combination. 3,830,080, Cl. 63-2.000.
 Friedman, George; Kohn, Harold B.; and Weiner, Philip A., to Lummus Company, The. Packed expansion joint. 3,830,490, Cl. 277-102.000.
 Friedman, Robert H.; and Krause, Julianne D., to Getty Oil Company. Compositions and methods for stimulating wells by preferentially dissolving refractory organic materials. 3,830,737, Cl. 252-8.55b.
 Friedrichsen, Wilhelm: See—
 Reuter, Peter; and Friedrichsen, Wilhelm, 3,830,755.
 Frigitorics of Connecticut, Inc.: See—
 Stumpf, Joseph G.; and Andera, Joseph F., 3,830,239.
 Frisch, Erling; Andrews, Harry N.; and Haga, Phillip B., to Westinghouse Electric Corporation. Head closure mechanism. 3,830,536, Cl. 292-256.730.
 Fritsch, Robert A., to Harnischfeger Corporation. Telescopic jib and bearing means therefor. 3,830,376, Cl. 212-144.000.

Frolich, Karl-Werner: See—
 Schippers, Heinz; Bauer, Karl H.; and Frolich, Karl-Werner, 3,831,005.
 Frost, John R.: See—
 Harter, Mark A., 3,830,870.
 Fuji Denki Seizo Kabushiki Kaisha: See—
 Wakui, Toshio, 3,831,126.
 Fuji Electrochemical Co. Ltd.: See—
 Tsuchida, Takashi; Shinoda, Kenichi; Yamamoto, Kohei; Sakamoto, Noriaki; and Nishio, Mastatake, 3,830,661.
 Fuji Heavy Industries, Ltd.: See—
 Kodama, Masayuki; and Narumi, Nobuo, 3,830,117.
 Fuji Photo Film Co., Ltd.: See—
 Ari, Atsuki; Tsuji, Nobuo; and Okutsu, Toshimitsu, 3,830,778.
 Nakamura, Takeshi; Satoyoshi, Yasuhiko; and Shimoda, Noboru, 3,829,947.
 Tamai, Yasuo; and Miyatuka, Hajime, 3,830,741.
 Fujii, Tadashi: See—
 Saito, Masatoshi; Namiki, Ryoichi; Fujii, Tadashi; and Akamatsu, Hiroyuki, 3,830,199.
 Fujiki, Shun: See—
 Tsukuni, Hajime; Fujiki, Shun; Tsunoda, Teruo; and Ooba, Yoichi, 3,830,745.
 Fujisawa, Hideya: See—
 Miyake, Masataka; Fujisawa, Hideya; Ogawa, Oyuki; and Okada, Shigeichi, 3,830,433.
 Fukatsu, Hisayoshi: See—
 Morikawa, Eiji; Kodama, Kenkichi; Tanaka, Tokuji; Fukatsu, Hisayoshi; and Enokida, Shizuo, 3,830,938.
 Fundingsland, John O. Apparatus for intermittent feeding of strip. 3,830,565, Cl. 352-191.000.
 Furlong, Donn B.; Forchini, James F.; and Grotheer, Robert, to Econ-dyne Corporation, mesne. Cooling tower structure. 3,830,476, Cl. 261-111.000.
 Furlong, Donn B., to Ecodyne Corporation. Green wood joint. 3,830,581, Cl. 403-340.000.
 Fuse, Yuzo; Yamanaka, Seisuke; and Saito, Tsunenari, to Sony Corporation. Image enhancement apparatus utilizing variable velocity scan. 3,830,958, Cl. 178-5.40r.
 Gabrail, Sami Ibrahim, to General Electric Company. Hermetically sealed semiconductor device with corrosion inhibited ferrous metal portions. 3,831,066, Cl. 317-234.00r.
 Gach, Peter P., to Sunbeam Plastics Corporation. Safety closure for medicine bottles or the like. 3,830,390, Cl. 215-9.000.
 GAF Corporation: See—
 Bennett, Frank P., 3,830,566.
 Gahler, Charles C., to Smith, X. S., Inc. Plastic covered building structures. 3,830,033, Cl. 52-720.000.
 Gallaccio, Anthony: See—
 Donnard, Reed E.; Rosenbaum, Marvin; Gallaccio, Anthony; and Pealstein, Fred, 3,830,157.
 Gallagher, Gerard: See—
 Bywood, Roy; Gallagher, Gerard; Sharma, Girijesh Kumar; and Walker, Derek, 3,830,801.
 Games, John E.; Casper, Clarence, Jr.; and Kupersmith, Bertram, F., to United Aircraft Corporation. Area navigation computer. 3,831,010, Cl. 235-150.270.
 Gamon-Calmet Industries, Inc.: See—
 Seltzer, Daniel Arron, 3,831,171.
 Gandy, Gerald C.: See—
 Barkey, Kenneth T.; Gandy, Gerald C.; and May, Douglas C., 3,830,773.
 Garbolino, Henri. Closing ferrules for hollow rods and canes, notably for fishing rods. 3,830,006, Cl. 43-23.000.
 Garcia, Jose E., to International Business Machines Corporation. System for data compression by dual word coding having photosensitive memory and associated scanning mechanism. 3,830,963, Cl. 178-6.000.
 Garcia, Juan A., to Esso Production Research Company. Liquid-liquid separation. 3,830,371, Cl. 210-265.000.
 Gardel, Robert; and Gorsky, Egon, to Mattel, Inc. Automatic shifter accessory for bicycles. 3,830,521, Cl. 280-236.000.
 Gardiner, William; and Briggs, Kenneth, to Glaxo Laboratories Limited. Sampling device. 3,830,106, Cl. 73-421.00b.
 Gardner, Richard H., to Goodrich, B. F., Company, The. Disc brake with adjustable cam operator and thrust distributor. 3,830,343, Cl. 188-71.800.
 Garmaise, David Lyon: See—
 Prasad, Raj Nandan; and Garmaise, David Lyon, 3,830,795.
 Prasad, Raj Nandan; and Garmaise, David Lyon, 3,830,796.
 Garrett, Charles B., Jr.: See—
 Garrett, Roger L.; Garrett, Charles B., Jr.; and Rubin, Alan B., 3,830,789.
 Garrett, Roger L.; Garrett, Charles B., Jr.; and Rubin, Alan B., to Adams Laboratories, Inc. Soap stock reclamation process for producing fatty acids, glycerine and salts. 3,830,789, Cl. 260-97.600.
 Garrison, Elbert W. Pet pull toy. 3,830,202, Cl. 119-29.000.
 Garrison, Harold Keith; and Brooks, Dean P., to Hesston Corporation. Machine for feeding materials from a stack. 3,830,438, Cl. 241-283.000.
 Garth, Harold: See—
 Weber, Bernhard; and Pfaff, Alfred, 3,830,081.
 Gates Rubber Company, The: See—
 Douros, John D., Jr.; Brokl, Milan; and Kerst, Alf., 3,830,917.
 Kerst, Alf.; and Peterson, Allen K., 3,830,890.

Gatsis, John G., to Universal Oil Products Company. Solvent deasphalting process. 3,830,732, Cl. 208-309.000.
 Gau, Leonard P., to Chrysler Corporation. Vortex swirl flowmeter sensor probe. 3,830,104, Cl. 73-194.00b.
 Gaydecki, Jan, to Dunlop Limited. Springs. 3,830,483, Cl. 267-63.00a.
 Gazza, George E., to United States of America, Army. Hot pressed, high strength silicon nitride. 3,830,652, Cl. 106-55.000.
 Gebhardt, Richard A.: See—
 King, Donald L.; Goldberg, Gerald M.; Parke, Donald P.; Priester, Willis M.; and Gebhardt, Richard A., 3,831,174.
 General Electric Company: See—
 Cronin, Michael J.; and Vogt, George H., 3,831,160.
 Gabrail, Sami Ibrahim, 3,831,066.
 Gowdy, Harold W.; and Downing, Arthur C., 3,829,993.
 Gray, Richard Thurby, 3,830,990.
 Holcomb, Richard H.; and Young, Warren D., 3,831,053.
 Karras, Thomas W., 3,831,107.
 Lafferty, Edwin Carlton, 3,831,111.
 Laskaris, Evangelos T., 3,831,050.
 Lauer, Richard E.; and Pieper, Louis W., 3,829,953.
 Martin, Frederick J., 3,830,620.
 Mees, Robert D.; Mittermaier, Armin F.; and Wilcox, Albert F., 3,829,965.
 Peil, William, 3,831,078.
 Powell, David Barton; and Acampora, Vincent Paul, 3,831,120.
 Traver, Frank J., 3,830,744.
 Willis, Robert John, Jr.; Kalikow, Irving; Jordan, Harold John; and Jacobson, John William, 3,830,056.
 General Instrument Corporation: See—
 Miner, Carroll R., 3,829,956.
 General Mills Chemicals, Inc.: See—
 Werdouschegg, Fritz M., 3,830,736.
 General Motors Corporation: See—
 Schaefer, Ernest D.; and Naismith, Thomas D., 3,830,328.
 General Tire & Rubber Company, The: See—
 Meincke, Edmund R.; and Van Essen, Willem J., 3,830,875.
 Geochemical Services (Holdings) Limited: See—
 Reid, Neil George; and Stanley, Raymond Eric, 3,829,992.
 Gerber Garment Technology, Inc.: See—
 Pearl, David R., 3,830,122.
 Gerlach, John R., to Emhart Corporation. Lock device including stud locking U-shaped keeper. 3,830,085, Cl. 70-35.000.
 Gerson, Samuel L. Sectioning device for rounded food article. 3,830,151, Cl. 99-57.000.
 Getty Oil Company: See—
 Friedman, Robert H.; and Krause, Julianne D., 3,830,737.
 Gewerkschaft Eisenhütte Westfalen: See—
 Rosenberg, Harry E.; Wojaczek, Egon; Plevak, Lubomir; and Becker, Kunibert, 3,830,070.
 Gibbons, Harold M.: See—
 Mezei, George A.; and Gibbons, Harold M., 3,830,533.
 Gibbs, Fred E. Portable fireplace screen. 3,830,219, Cl. 126-202.000.
 Gibson, Esie B. Attachment for jack. 3,830,470, Cl. 254-133.000.
 Gilbert, Richard, to Stanley Tools Limited. Folding blade pocket knives. 3,829,967, Cl. 30-157.000.
 Gill, Raymond E.; and McMahon, Floyd J., to Westinghouse Air Brake Company. Position sensing apparatus. 3,831,024, Cl. 250-229.000.
 Gillan, John; Lubbock, Frederick John; and Polgar, Livia, to Dulux Australia Ltd. Autooxidizable maleic adducts of fatty acid esters of dipentaerythritol and tripeptaerythritol. 3,830,763, Cl. 260-22.00r.
 Gillette Company, The: See—
 Fischbein, Irwin W.; Alexander, Ben H.; and Sastri, Aiyaswami S., 3,829,969.
 Gilling, Barrie R. D. Fluoride impregnated dental floss. 3,830,246, Cl. 132-89.000.
 Ginsa General Inventors Sociedad Anonima: See—
 Piccioli, Dino; and Schmid, Christian, 3,830,899.
 Gittos, Maurice Ward; James, John William; and Verge, John Pomfret, to Aspro-Nicholas Limited. 1-Cyclopropylmethyleneamino-3,4-dihydroisoquinoline and acid addition salts thereof. 3,830,816, Cl. 260-286.00r.
 GKN Sankey Limited: See—
 Key, Ronald James; and Monk, Trevor, 3,830,378.
 Gladkikh, Anatoly Ivanovich: See—
 Makeev, Boris Anatolevich; Stepochkin, Lev Mikhailovich; Batozsky, Vadim Ivanovich; Korot, Garri Moiseevich; and Gladkikh, Anatoly Ivanovich, 3,830,121.
 Glaeser, John L.; Weisert, Wilson G., Jr.; and Cunningham, Gerald R., to Easo Production Research Company. Motion decoupled skimmer for removing oil from the surface of calm or disturbed water. 3,830,370, Cl. 210-242.000.
 Glaxo Laboratories Limited: See—
 Bywood, Roy; Gallagher, Gerard; Sharma, Girijesh Kumar; and Walker, Derek, 3,830,801.
 Clark, John Colin; Kennedy, James; and Long, Alan Gibson, 3,830,808.
 Gardiner, William; and Briggs, Kenneth, 3,830,106.
 O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, 3,830,700.
 Gleason Works, The: See—
 Baxendale, Kenneth C.; Bergemann, Werner E.; Camp, David B.; Evershed, John L.; Howlett, Mason M.; and Waasdorp, Robert A., 3,830,607.

Gloeckler, Walter, to GTE Automatic Electric Laboratories Incorporated. Automatic common control switching system. 3,830,984, Cl. 179-18.0ag.
 Glombitza, Klaus; Mutshler, Otto; and Gottschalk, Claus, to Staedtler, J. S. Tubular nib writing implement with an interchangeable nib. 3,830,574, Cl. 401-195.000.
 Glover, John Benjamin, to Hepworth Iron Company Limited, The. Pipe couplings. 3,830,530, Cl. 285-230.000.
 Gluth, Joachim: See—
 Redlich, Horst; Gluth, Joachim; and Kossak, Rolf, 3,830,968.
 Gogarty, William B.: See—
 Knight, Bruce L.; Rhudy, John S.; and Gogarty, William B., 3,830,298.
 Gold, David E., to International Business Machines Corporation. Double-head configuration for magnetic disk for maximum density recording. 3,831,191, Cl. 360-22.000.
 Goldberg, Albert I.: See—
 Ray-Chaudhuri, Dilip K.; Iovine, Carmine P.; and Goldberg, Albert I., 3,830,769.
 Goldberg, Gerald M.: See—
 King, Donald L.; Goldberg, Gerald M.; Parke, Donald P.; Priester, Willis M.; and Gebhardt, Richard A., 3,831,174.
 Golker, Christian: See—
 Rauenbusch, Erich; and Golker, Christian, 3,830,790.
 Golker, Christian, to Farbenfabriken Bayer Aktiengesellschaft. Purification of enzyme inhibitors by amphoteric ion exchange resins. 3,830,791, Cl. 260-112.500.
 Gomi, Shoshichiro. Grinding diamond wheel, and method of making same. 3,830,020, Cl. 51-206.00r.
 Goodfriend, Roger: See—
 Antonevich, John N.; and Goodfriend, Roger, 3,830,240.
 Goodrich, B. F., Company, The: See—
 Gardner, Richard H., 3,830,343.
 Kuts, Mathew, 3,829,950.
 Goodrich, Robert S.: See—
 Toomey, Thomas H.; and Goodrich, Robert S., 3,831,001.
 Goodyear Tire & Rubber Company, The: See—
 Bruns, James A., 3,830,113.
 Enabnit, Robert S., 3,831,161.
 Russell, Richard M., 3,830,275.
 Smithkey, John C., Jr., 3,830,276.
 Waser, Harold R., Jr., 3,830,274.
 Gordon, Ronnie D.; Johnson, Gary R.; Skinner, Joseph L.; and Leach, Bruce E., to Continental Oil Company. Purification of vinyl chloride. 3,830,859, Cl. 260-656.00r.
 Gorsky, Egon: See—
 Gardel, Robert; and Gorsky, Egon, 3,830,521.
 Goto, Jugo: See—
 Matsui, Yutaka; Kazama, Seiji; and Goto, Jugo, 3,830,785.
 Gottschalk, Claus: See—
 Glombitza, Klaus; Mutshler, Otto; and Gottschalk, Claus, 3,830,574.
 Gould Inc.: See—
 Knauert, William F., 3,830,333.
 Gowdy, Harold W.; and Downing, Arthur C., to General Electric Company. Spray iron. 3,829,993, Cl. 38-77.500.
 Grace, W. R., & Co.: See—
 Dolbear, Geoffrey E.; and Magee, John S., Jr., 3,830,725.
 Parthasarathy, R.; Warthen, John L.; and Ciapetta, Frank G., 3,830,847.
 Sanchez, Moises G.; Maselli, James M.; and Graham, James R., 3,830,756.
 Tsuk, Andrew T., 3,830,735.
 Gracia, Robert F.; Laughrey, Richard A.; and Tuohey, Paul F., to Itek Corporation. Metal photographic plate comprising a silver halide and process. 3,830,649, Cl. 96-86.00r.
 Graf, Robert E.: See—
 Deeg, Emil W.; and Graf, Robert E., 3,830,749.
 Graff, Lars U.; and Scott, William A., to Haskon Incorporated. Apparatus for transferring molded products to a trimming machine. 3,830,360, Cl. 198-20.000.
 Graham, James R.: See—
 Sanchez, Moises G.; Maselli, James M.; and Graham, James R., 3,830,756.
 Grain Processing Corporation: See—
 Luft, Leslie R.; and Murray, Daniel G., 3,830,941.
 Grant, Louis A., to United States Steel Corporation. Probe assembly. 3,830,480, Cl. 266-34.01m.
 Granzow, Kurt H.: See—
 Foltz, Robert E.; Riser, Clarence B.; and Granzow, Kurt H., 3,829,929.
 Graulus, Marcel J. R.: See—
 Fader, John G.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., 3,830,347.
 Gray Manufacturing Company: See—
 Paisley, John C.; and Miller, Maynard Guy, Jr., 3,830,027.
 Gray, Richard Thurby, to General Electric Company. Pantograph wearing strip support. 3,830,990, Cl. 191-55.000.
 Greatbatch, Wilson, to Medtronic, Inc., mesne. Rate controller and checker for a cardiac pacer pulse generator means. 3,830,242, Cl. 128-419.00p.
 Greefkes, Johannes Anton, to U.S. Philips Corporation. Transmitter for the transmission of signals by pulse code modulation. 3,831,092, Cl. 325-38.00b.

Green, Carl Donald, 25% to Greer, Harry D. Refuse container cart with improved lid-actuating handle. 3,830,514, Cl. 280-47.240.
 Green, Edward H. Aerosol valve and sprayhead. 3,830,412, Cl. 222-402.240.
 Green, Henry L. Hand-held cardiac sound tone diagnostic device and method. 3,830,227, Cl. 128-2.06r.
 Green, William J.; and Hepworth, Cloyd, said Green assor. to Morris, Grant I. Multiple outlet adjustable sprinkler head. 3,830,434, Cl. 239-562.000.
 Greenwald, Donald J.; and Holtey, Thomas O., to Honeywell Information Systems Inc. Nonexecute test apparatus. 3,831,148, Cl. 340-172.500.
 Greer, Harry D.: See—
 Green, Carl Donald, 3,830,514.
 Grew, Edward Leon; and Powles, David Jackson, to Mac Farlan Smith Limited. Manufacture of 1-dihydrocodine. 3,830,819, Cl. 260-285.000.
 Griss, Giuseppe, to Micarna AG, Fleischwarenfabrik. Apparatus for splitting carcasses of slaughtered animals. 3,829,932, Cl. 17-23.000.
 Grootzner, Kurt; Mayer, Rudolf; and Mayer, Siegfried, to Bosch, Robert, GmbH. Vehicle headlight testing method and apparatus. 3,830,570, Cl. 356-121.000.
 Grohe, Hans KG: See—
 Grohe, Klaus, 3,830,432.
 Grohe, Klaus, to Grohe, Hans KG. Shower construction. 3,830,432, Cl. 239-394.000.
 Gronner, Alfred D.; and Deleo, Louis, to Singer Company, The. Binary coded decimal-synchro converter. 3,831,168, Cl. 340-347.05y.
 Gross, T. A. O.; and Ericson, John W., to Polaroid Corporation. Frequency deviation compensation system. 3,831,192, Cl. 360-27.000.
 Grosz, Charles T., III: See—
 Abildgaard, William H.; and Grosz, Charles T., III, 3,830,524.
 Grothe, Wolfgang: See—
 Brill, Klaus; and Grothe, Wolfgang, 3,831,179.
 Grotheer, Robert: See—
 Furlong, Donn B.; Forchini, James F.; and Grotheer, Robert, 3,830,476.
 Grove, Marvin H.; and Dunegan, Ronald G., to M & J Valve Company. Meter proving apparatus. 3,830,092, Cl. 73-3.000.
 Gruber, John Gerald; Chow, Peter El Kwan; and Houghton, Joseph Winston, to Bell-Northern Research Ltd. Pulse stuffing control circuit for reducing jitter in TDM system. 3,830,981, Cl. 179-15.0af.
 Gruen, Dieter M.; Carstens, Dean H. W.; and Kozlowski, John F., to United States of America, Atomic Energy Commission. Hollow cathode sputtering device. 3,830,721, Cl. 204-298.000.
 Grundfest, Michael. Electrical connector with modular grooves. 3,831,133, Cl. 339-186.00m.
 GTE Automatic Electric Laboratories Incorporated: See—
 Eddy, John W.; and Puccini, Sergio E., 3,830,983.
 Gloeckler, Walter, 3,830,984.
 Jones, Leo V., Jr.; and Zelinski, Paul A., 3,831,151.
 Simonelic, Joseph J., 3,829,962.
 Troemel, Richard J.; and Uechi, Francis Y., 3,830,985.
 GTE Sylvania Incorporated: See—
 Aldrich, Floyd E.; and Hallett, Joseph L., 3,831,123.
 Armstrong, John E., 3,831,162.
 Epis, James J.; and Robles, F. Ernest, 3,831,176.
 Keelan, Joseph A., 3,830,960.
 Mehlichick, Emil J.; and Mathers, James E., 3,830,748.
 Rehkopf, Charles H.; and Speigel, Kenneth, 3,830,722.
 Guaglione, Giovanni Paolo, to I-T-E Imperial Corporation. Minimum oil interrupter in dead tank bulk oil power circuit breaker construction. 3,830,992, Cl. 200-150.00r.
 Guist, Le Roy R.: See—
 Jedlicka, James R.; Guist, Le Roy R.; and Beam, Richard M., 3,830,060.
 Gull Airborne Instruments, Inc.: See—
 Guller, Walter; and Rubel, Ira A., 3,830,090.
 Gullfiber AB: See—
 Korpela, Heikki, 3,830,604.
 Gunnergaard, Marius, to Dansk Industri Syndikat A/S. Apparatus for automatically producing mold parts. 3,830,283, Cl. 164-200.000.
 Gutman, Arnold D., to Stauffer Chemical Company. Certain phosphorus containing compounds used as insecticides and acaricides. 3,830,927, Cl. 424-212.000.
 Gutmann, Hugo: See—
 Bollag, Werner; Gutmann, Hugo; Hegedus, Balthasar; Kaiser, Ado; Langemann, Albert; Muller, Marcel; and Zeller, Paul, 3,830,840.
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 Litvinovich, Georgy Mikhailovich; Zhavoronkov, Leonid Andreevich; Stebelev, Nikolai Alexandrovich; Guzov, Konstantin Borisovich; and Lyagalv, Ivan Nikitovich, 3,830,109.
 Hackmack, Gerhard; and Menge, Aumuehle Heinz Guenter, to Byk Gulden Lomberg Chemische Fabrik Gesellschaft mit beschraenkter Haftung. Amino quino benzazepines. 3,830,818, Cl. 260-288.00r.
 Hadick, Theodor; and Muller, Karl-Heinz, to Uni-Cardan AG. Flexible protective housing for a universal joint and shaft. 3,830,083, Cl. 64-32.00f.

Haga, Phillip B.: See—
 Frisch, Erling; Arjrews, Harry N.; and Haga, Phillip B., 3,830,536.
 Hagert, Robert D.; and Sanderson, James L., to Bota of Boulder. Leather encased flask. 3,830,270, Cl. 150-52.00e.
 Hahn & Clay: See—
 Pechacek, Raymond E., 3,830,605.
 Haid, William R., to Bailey Meter Company, mesne. Analog computer circuit for performing multiplication, division and square root. 3,831,014, Cl. 235-195.000.
 Haley, John S.; Cooper, Jerry W.; and Logan, Arthur D., to Dayco Corporation. Polyurethanes reinforced by polyvinyl alcohol cord. 3,830,685, Cl. 161-88.000.
 Halfaker, Thomas C.; and Stahlhut, Leo G., to Emerson Electric Co. Ceiling modules with lamp housings. 3,831,019, Cl. 240-9.00r.
 Hall, Sture: See—
 Mickelson, Sven-Mikael; and Hall, Sture, 3,830,485.
 Haller, Albert H.: See—
 Durr, Helmut E.; and Haller, Albert H., 3,829,985.
 Hallett, Joseph L.: See—
 Aldrich, Floyd E.; and Hallett, Joseph L., 3,831,123.
 Halliburton Company: See—
 Cummins, Alonzo E., 3,830,304.
 Hulme, Jack R., 3,831,011.
 Hamana Iron Works Co., Ltd.: See—
 Ueda, Iwao, 3,830,050.
 Hamblin, Robert Paul John, to Dow-Mac Concrete Limited. Mold for casting concrete articles. 3,830,458, Cl. 249-50.000.
 Hamilton Digital Controls, Inc.: See—
 Pardee, Munson H., 3,830,402.
 Hamon, Maurice, to Societe Hamon-Sobelco S.A. Filling sheets for liquid-gas contact apparatus. 3,830,684, Cl. 161-68.000.
 Handa, Ryoji: See—
 Kato, Tetsuji; Izumi, Mikio; Chikanishi, Kunio; Handa, Ryoji; and Kobayashi, Jinpei, 3,830,878.
 Handy Button Machine Company: See—
 Critchfield, Jack G., 3,829,935.
 Haney, Eugene E.; La Tour, Harry; Brown, Roy A., Jr.; and Bagdal, Karl T., to Armo Steel Corporation. Electrocoating method and apparatus. 3,830,716, Cl. 204-181.000.
 Hanke, David E., to Kimberly-Clark Corporation. Applicator tube for inserting hygienic media. 3,830,236, Cl. 128-263.000.
 Hanke, Peter; Ludcke, Hans-Joachim; Martinetz, Heribert; and Ohlhorst, Rolf, to Blaupunkt-Werke GmbH. Blue lateral correction system for color television tubes. 3,831,122, Cl. 335-210.000.
 Hapgood, William H., to Raytheon Company. Oil heater protection system. 3,830,221, Cl. 126-374.000.
 Harbolt, Bruce A.: See—
 Young, Donald C.; and Harbolt, Bruce A., 3,830,631.
 Harbottle, William E., to Timken Company, The. Method and apparatus for adjusting tapered roller bearings and for assembling devices employing such bearings as journals. 3,830,633, Cl. 29-148.40a.
 Harich, Jakob, to Rush-Hampton, Inc. Antifungal and antibacterial grapefruit. 3,830,913, Cl. 424-195.000.
 Harkness, Kenneth A.; Kettunen, D. Mark; and Schirtzinger, Paul E., to Harkness, Kenneth A.; a/b/a IDEA namics. Grocery packaging machine. 3,830,036, Cl. 53-76.000.
 Harkness, Kenneth A.; a/b/a IDEA namics: See—
 Harkness, Kenneth A.; Kettunen, D. Mark; and Schirtzinger, Paul E., 3,830,036.
 Harnischfeger Corporation: See—
 Dechantsreiter, Max J.; and Rau, Frederic W., 3,830,379.
 Frisch, Robert A., 3,830,376.
 Harnish, Mark E.; and Peters, Merrit A., to International Minerals & Chemical Corporation. Refractory. 3,830,653, Cl. 106-59.000.
 Harrewijne, Arend; and Abrahams, Jacobus Hubertus, to U.S. Philip Corporation. Non-return valve. 3,830,254, Cl. 137-540.000.
 Harris, Halbert M.; and Modi, Bhogilal M., to Xerox Corporation. Sorter apparatus of printer system. 3,830,590, Cl. 355-14.000.
 Harris, Orval A.: See—
 Brown, James L.; and Harris, Orval A., 3,830,746.
 Harter, Jo Ann: See—
 Harter, Mark A., 3,830,870.
 Harter, Mark A.; deceased (by Harter, Jo Ann; executrix; Frost, John R.; and Stowe, Robert A.), to Dow Chemical Company. Method of isomerizing butene-1 to butene-2. 3,830,870, Cl. 260-683.200.
 Hartjens, Herman: See—
 Day, Arnold; and Hartjens, Herman, 3,830,366.
 Hartridge, Leslie, Limited: See—
 Emerson, Reginald Stanley, 3,830,093.
 Hartung, Raymond E. Gas turbine automotive machine. 3,830,326, Cl. 180-66.00b.
 Harvey, Samuel Eric: See—
 Kirkland, John Henry; and Harvey, Samuel Eric, 3,829,925.
 Haskon Incorporated: See—
 Graff, Lars U.; and Scott, William A., 3,830,360.
 Haug, Gerhard; and Werner, Frithjof, to Bosch, Robert, GmbH. Rectifier heat sink plates with alternate supporting tabs. 3,831,062, Cl. 317-100.000.
 Hauni-Werke Korber & Co., K.G.: See—
 Ringe, Werner, 3,830,126.
 Haussuehl, Siegfried: See—
 Deserno, Ulrich; and Haussuehl, Siegfried, 3,830,558.

- Hawkins, Carl J., to Rowe Industries; division of Coleman Cable & Wire Company. Means for molding articles of thermoplastic sheet materials. 3,830,616, Cl. 425-384.000.
- Hawley, Robert L., to Ralston Purina Company. Non-isoelectric protein. 3,830,942, Cl. 426-190.000.
- Hayakawa, Zenro, to Tokyo Standard Serums, Ltd. Method for the production of anti-australia antigen antiserum. 3,830,909, Cl. 424-12.000.
- Hayashi, Koichiro: See—
- Ito, Akihiko; Yoshida, Masaru; Nakase, Yoshiaki; Iwai, Tadashi; Hayashi, Koichiro; and Okamura, Seizo, 3,830,715.
- Hayashibara Company: See—
- Yoshida, Mikihiro; and Hirao, Mamoru, 3,830,697.
- Haynes, Benjamin O., to Mylee Digital Sciences, Inc. Data ordering systems. 3,831,150, Cl. 340-172.500.
- Haywood, Miner E., 20% to Lee, Raymond, Organization, Inc., The. Support stand for clock movements and the like. 3,830,487, Cl. 269-296.000.
- Hedlung, Per-Olof, to Cunnebo Bruks Aktiebolag. Carrier for nails for nail driving device. 3,830,364, Cl. 206-443.000.
- Heesemann, Guenther: See—
- Duembgen, Gerd; Heesemann, Guenther; Hohenschutz, Heinz; Kerber, Horst; Nagel, Otto; Rothe, Robert; and Walz, Helmut, 3,830,846.
- Hegedus, Balthasar: See—
- Bollag, Werner; Gutmann, Hugo; Hegedus, Balthasar; Kaiser, Ado; Langemann, Albert; Muller, Marcel; and Zeller, Paul, 3,830,840.
- Hegi, Nobumitsu; and Matsubara, Sueo, to Nippon Steel Corporation and Kabushiki Kaisha Saginomiya Seisakusho. High-speed printer. 3,830,154, Cl. 101-235.000.
- Heiberger, Francis E.: See—
- Ohlig, Karl P.; and Heiberger, Francis E., 3,830,584.
- Heier, Wilbur C., to United States of America, National Aeronautics and Space Administration. Molding apparatus. 3,830,609, Cl. 425-128.000.
- Hein, Allyn J.; Norick, William B.; Ruseff, Walter Z.; and Tribley, Gilbert, to Caterpillar Tractor Co. Variable displacement pump having pressure compensator control method. 3,830,594, Cl. 417-217.000.
- Heist, Herbert E.: See—
- Chaffin, John H.; Ellis, William D.; Heist, Herbert E.; and Walters, Wayne L., 3,831,006.
- Hendrickson, Kenneth E.: See—
- Burke, Michael J.; Hendrickson, Kenneth E.; Mattson, Gary L.; and McNeil, William D., 3,831,076.
- Hendrix, Lloyd T., to Vaporex. Vapor recovery system. 3,830,040, Cl. 55-32.000.
- Henfrey, Gerard Peter, to Spirax Sarco Limited. Valves. 3,830,462, Cl. 251-5.000.
- Hennessey, Thomas S. Ship's anchor drag indicator. 3,831,139, Cl. 340-29.000.
- Hennessy Products, Incorporated: See—
- Brindle, Dale L., 3,830,537.
- Henriksen, Gary L., to United States of America, Navy. Non-aqueous silver film formation. 3,830,650, Cl. 106-1.000.
- Henschel, John P., to Minnesota Mining and Manufacturing Company. Signal recognition circuitry. 3,831,039, Cl. 307-234.000.
- Hepworth, Cloyd: See—
- Green, William J.; and Hepworth, Cloyd, 3,830,434.
- Hepworth Iron Company Limited, The: See—
- Glover, John Benjamin, 3,830,530.
- Heraeus-Christ GmbH: See—
- Stallmann, Hans, 3,830,425.
- HERFILCO: See—
- Castan, Joseph; and Fremont, Claude Francis Fernand Yves, 3,830,403.
- Herman, Ronald E., to Colt Industries Operating Corporation. Throttle return spring redundancy system. 3,830,213, Cl. 123-198.0db.
- Herndon, Bobby A.; and Schneider, Eugene L., to Ralston Purina Company. Hydrolysis of ribonucleic acid containing material. 3,830,798, Cl. 260-211.50r.
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- Herzog, Ullrich: See—
- Thamasett, Eberhard; and Herzog, Ullrich, 3,830,290.
- Heston Corporation: See—
- Garrison, Harold Keith; and Brooks, Dean P., 3,830,438.
- Hewertson, Warren, to Imperial Chemical Industries Limited. Production of aromatic polyesters of improved colour. 3,830,775, Cl. 260-22.0ca.
- Hickman, Albert F., to Hickman Developments, Inc. Independent wheel shear rubber spring suspension for vehicles. 3,830,516, Cl. 280-124.00a.
- Hickman Developments, Inc.: See—
- Hickman, Albert F., 3,830,516.
- Hicks, Terence Alan: See—
- Williamson, William Robert Nigel; Hicks, Terence Alan; and Day, Elaine Hilda, 3,830,923.
- Hiemer, Armin Alexander; and Hippel, Ludwig Jakob, to Upjohn Company. The. Metering or injection element. 3,830,429, Cl. 239-88.000.
- Higgins, Wesley J.: See—
- Weber, Ronald J.; and Higgins, Wesley J., 3,830,147.
- Hilberg, Ronald P.: See—
- Hook, William R.; and Hilberg, Ronald P., 3,830,557.
- Hill, Brian, to International Nickel Company, Inc., The. Production of ceramic-metal composite powders and articles thereof. 3,830,435, Cl. 241-27.000.
- Hill, Frederick W. Container closure. 3,830,399, Cl. 220-52.00r.
- Hill, Howard A., to Hill Laboratories Company. Treatment table. 3,830,233, Cl. 128-71.000.
- Hill Laboratories Company: See—
- Hill, Howard A., 3,830,233.
- Hill, Max E., to Frederick-Willys, Inc. Collapsible game table. 3,830,495, Cl. 273-30.000.
- Hillb Bernhard, to U.S. Philips Corporation. Switching network for information channels, preferably in the optical frequency range. 3,831,035, Cl. 250-578.000.
- Hindenlang, Arthur W., to North American Mechanical Limited. Incinerator. 3,830,172, Cl. 110-7.00s.
- Hino, Seiichi: See—
- Inomata, Jihei; Hino, Seiichi; and Tani, Tatsuo, 3,830,855.
- Hippel, Ludwig Jakob: See—
- Hiemer, Armin Alexander; and Hippel, Ludwig Jakob, 3,830,429.
- Hirao, Mamoru: See—
- Yoshida, Mikihiro; and Hirao, Mamoru, 3,830,697.
- Hirao, Toshiro; and Ando, Eiichi, to Meidensha Electric Mfg., Co., Ltd. Load insensitive type fluid restrictor. 3,830,096, Cl. 73-37.500.
- Hitachi Chemical Company, Ltd.: See—
- Tsukuni, Hajime; Fujiki, Shun; Tsunoda, Teruo; and Ooba, Yoichi, 3,830,745.
- Hitachi, Ltd.: See—
- Tamamura, Takeo; Nemoto, Saburo; Tokunaga, Takeshi; and Nemoto, Tadashi, 3,830,054.
- Tsukuni, Hajime; Fujiki, Shun; Tsunoda, Teruo; and Ooba, Yoichi, 3,830,745.
- Hitachi Shipbuilding and Engineering Co., Ltd.: See—
- Watanabe, Seizo; Maeda, Minoru; and Yamaguchi, Masaru, 3,830,644.
- Hix, Velson Max; Simon, Warren J.; and Anderson, Donald Jay, to Rogers Brothers Company. Method for agglomerating dry food particles in a rotating drum. 3,830,943, Cl. 426-285.000.
- Hochberg Marvin S.; Welhart, Erwin K.; and Pousson, James H., to McDonnell Douglas Corporation. Self-sealing hollow body for containing fluids. 3,830,261, Cl. 138-127.000.
- Hoesch Aktiengesellschaft: See—
- Joneleit, Knut, 3,830,138.
- Hoff, Marclan E., Jr., to Intel Corporation. System for generating a multiplicity of frequencies from a single reference frequency. 3,831,015, Cl. 235-197.000.
- Hoffman-La Roche Inc.: See—
- Bollag, Werner; Gutmann, Hugo; Hegedus, Balthasar; Kaiser, Ado; Langemann, Albert; Muller, Marcel; and Zeller, Paul, 3,830,840.
- Uskokovic, Milan Radoje; and Williams, Thomas Henry, 3,830,831.
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- Hoffmann-La Roche Inc.: See—
- Kratavil, Allan Jerome, 3,831,085.
- Leimgruber, Willy; and Weigle, Manfred, 3,830,629.
- Surmatis, Joseph Donald; and Walser, Armin, 3,830,844.
- Hofstein, Steven R., to Princeton Electronic Products, Inc. System for detecting particulate matter. 3,830,969, Cl. 178-6.800.
- Hohenschutz, Heinz: See—
- Duembgen, Gerd; Heesemann, Guenther; Hohenschutz, Heinz; Kerber, Horst; Nagel, Otto; Rothe, Robert; and Walz, Helmut, 3,830,846.
- Holcomb, Richard H.; and Young, Warren D., to General Electric Company. Differential output lamp containing chlorine and hydrogen. 3,831,053, Cl. 313-222.000.
- Holland, Melvin G.: See—
- Davis, Kuther, Jr.; and Holland, Melvin G., 3,831,116.
- Hollins, Jesse R. Headlight control system. 3,830,327, Cl. 180-82.00r.
- Holm, Leroy W., to Union Oil Company of California. Miscible flooding process using methane-enriched soluble oil. 3,830,301, Cl. 166-274.000.
- Holt, Dana Rey: See—
- Krueger, Leland Ray; and Holt, Dana Rey, 3,830,365.
- Holt, Jorgen; Videmark, Christian; and Christiansen, Palle Hein, to Nordisk Ventilator Co. A/S. Ventilation system. 3,830,145, Cl. 98-33.000.
- Holt, Kenneth Anthony: See—
- Boyd, Violet; Evans, Ronald Arthur; Holt, Kenneth Anthony; and Renfrew, Andrew Hunter Morris, 3,830,835.
- Holtey, Thomas O.: See—
- Greenwald, Donald J.; and Holtey, Thomas O., 3,831,148.
- Holub, Frank, Brush Manufacturers: See—
- Holub, Frnak J., III; and Holub, Joseph F., 3,830,118.
- Holub, Frnak J., III; and Holub, Joseph F., to Holub, Frank, Brush Manufacturers. Carpet roller. 3,830,118, Cl. 81-3.00r.
- Holub, Joseph F.: See—
- Holub, Frnak J., III; and Holub, Joseph F., 3,830,118.
- Holvoet, John E.: See—
- Di Philippo, Joseph M.; and Holvoet, John E., 3,830,158.

- Homsy, Charles A. Pseudo-synovial plastic body fluids and method of preparing same. 3,830,910, Cl. 424-128.000.
- Honda Giken Kogyo Kabushiki Kaisha: See—
- Asaka, Urataro; and Tanaka, Yuji, 3,830,206.
- Date, Tasuku; and Yagi, Shizuo, 3,830,205.
- Suzuki, Keiji, 3,830,110.
- Honeywell Inc.: See—
- Chaffin, John H.; Ellis, William D.; Heist, Herbert E.; and Walters, Wayne L., 3,831,006.
- Honeywell Information Systems Inc.: See—
- Greenwald, Donald J.; and Holtey, Thomas O., 3,831,148.
- Patel, Ramesh S.; and Dunn, David S., 3,831,194.
- Hook, William R.; and Hilberg, Ronald P., to TRW Inc. Laser Q-switching. 3,830,557, Cl. 350-150.000.
- Hoover, Robert B., to Affiliated Hospital Products, Inc. Method of forming a sealed container arrangement. 3,830,035, Cl. 53-31.000.
- Horn, Marion F.: See—
- Nemec, Frank A.; Thayer, Stuart W.; Eckert, William S.; Horn, Marion F.; and Dunn, Roland J., Jr., 3,830,177.
- Horsch, Rudi, to Pfädl-Werke AG. Temperature measuring device for enamelled apparatus. 3,830,105, Cl. 73-362.0ar.
- Horsewell, Henry George; and Terry, Arthur John, to Brown & Williamson Tobacco Corporation. Packaging of liquids. 3,830,079, Cl. 62-322.000.
- Hosoi, Kazuo, to Japan Oxygen Co., Ltd. Method and apparatus for brazing aluminum metal and its alloys within a vacuum heat furnace. 3,830,622, Cl. 432-12.000.
- Houghton, Joseph Winston: See—
- Gruber, John Gerald; Chow, Peter El Kwan; and Houghton, Joseph Winston, 3,830,981.
- Houlihan, William J.: See—
- Eberle, Marcel K.; and Houlihan, William J., 3,830,802.
- Houlmiere, Emilien V. Pruning tool. 3,829,968, Cl. 30-190.000.
- Howarth, Graham Arton; and Hoyle, William, to Ciba-Geigy Corporation. Anti-microbial compositions and methods with 3-(5-nitro-2-furyl)-pyrazoles. 3,830,926, Cl. 424-373.000.
- Howlett, Mason M.: See—
- Baxendale, Kenneth C.; Bergemann, Werner E.; Camp, David B.; Evershed, John L.; Howlett, Mason M.; and Waasdorp, Robert A., 3,830,607.
- Hoyle, William: See—
- Howarth, Graham Arton; and Hoyle, William, 3,830,926.
- Hubble, David H.; and Lamont, John A., to United States Steel Corporation. Method of making a removable bottom for a steelmaking furnace from preformed refractory shapes. 3,829,960, Cl. 29-527.100.
- Hubble, David Henry; and Yount, Joseph George, Jr., to United States Steel Corporation. Tuyere formed by cementing a ceramic liner in a metal tube. 3,830,173, Cl. 110-182.500.
- Hubner, Otto. Hair dryer cap. 3,829,984, Cl. 34-99.000.
- Hudgin, Donald E., and Zawadzki, Thomas, to Princeton Polymer Laboratories, Inc. Degradable hydrocarbon polymers. 3,830,764, Cl. 260-23.00h.
- Hudson, Doyle R., to Olinkraft Inc. Drop-down fill spout for bag filling machine. 3,830,266, Cl. 141-10.000.
- Hudson, Paul S.: See—
- Zelinski, Robert P.; and Hudson, Paul S., 3,830,675.
- Hudson Products Corporation: See—
- Shipes, Kelly V.; and Monroe, Robert C., 3,830,587.
- Hughes Aircraft Company: See—
- King, Donald L.; Goldberg, Gerald M.; Parke, Donald P.; Priester, Willis M.; and Gebhardt, Richard A., 3,831,174.
- Knechtli, Ronald C., 3,831,052.
- Myer, Jon H., 3,831,156.
- Hughes, Henry S., to Bordner, Lee T. Method of forming housing structures. 3,830,897, Cl. 264-45.000.
- Hulme, Jack R., to Halliburton Company. Method and apparatus for compensating a manifestation of fluid flow for temperature and specific gravity. 3,831,011, Cl. 235-151.340.
- Humbert, Jack M. Adjustable handle structure for water skiing towline. 3,830,188, Cl. 115-6.100.
- Hunt, Jasper, to Lee, Raymond, Organization, Inc., The. Sled like unit for winter recreation. 3,830,513, Cl. 280-12.00k.
- Hunt, Wilbur W.: See—
- Evans, Raymond H.; Myers, David D.; and Hunt, Wilbur W., 3,830,639.
- Hunter, Carl P.; and Kay, Charles W., to Deering Millken Research Corporation. Loom doff truck. 3,830,377, Cl. 212-145.000.
- Hunziker, Werner. Conveying apparatus for conveying of objects having a given minimum dimension. 3,830,356, Cl. 198-127.00r.
- Huppke, Glen P., to Environeering, Inc. Foam breaker. 3,830,041, Cl. 55-178.000.
- Hurley, Charles W.; and Fowler, Richard C. Automatic intensity control for picture tube display systems. 3,830,970, Cl. 178-6.800.
- Hycel, Inc., mesne: See—
- Stussman, Gerald J.; Larsson, Karl H.; and Smeaton, John R., 3,830,701.
- Hydranautics: See—
- Chambers, Henry B., 3,830,324.
- Hydrotech International, Inc.: See—
- Mohr, Harvey O., 3,830,526.
- I-T-E Imperial Corporation: See—
- Guaglione, Giovanni Paolo, 3,830,992.
- Netzel, Philip C., 3,830,994.
- Ichikawa, Akihisa, to International Mechanical Vibration Laboratory, Inc. Electromagnetic vibrator having means for changing direction of vibrations. 3,830,099, Cl. 73-71.600.
- Ichikawa, Masaru; Kondo, Toshihiko; and Tamaru, Kenzi, to Sagami Chemical Research Center. Catalyst for ammonia synthesis and a process producing the catalyst. 3,830,753, Cl. 252-441.000.
- ICI America Inc.: See—
- Knight, Bruce L.; Rhudy, John S.; and Gogarty, William B., 3,830,298.
- Ideal Toy Corporation: See—
- Ventura, Frank D., 3,830,500.
- Iguchi, Taseo: See—
- Yoshida, Shuji; and Iguchi, Taseo, 3,830,873.
- IHC Holland-Letourneau Marine Corporation: See—
- Le Tourneau, Richard L., 3,830,071.
- Ikeda, Yoshiro: See—
- Kitano, Ichiro; Koizumi, Ken; Ikeda, Yoshiro; and Matsumura, Hiroyoshi, 3,830,640.
- Illinois Tool Works Inc.: See—
- Erickson, Lloyd Arthur, 3,830,134.
- Klygis, Mindaugas Julius, 3,830,361.
- Imai, Toshifumi; and Onogi, Kenji, to Nippon Kogaku K.K. Automatic focusing device also capable of photometry. 3,830,571, Cl. 356-123.000.
- Immatra AG: See—
- Riegl, Johannes, 3,830,567.
- Imperial Chemical Industries Limited: See—
- Barlow, Charles Brian; and Tomlin, Clive Dudley Spencer, 3,830,822.
- Bengtson, Olle, 3,830,760.
- Bowden, Roy Dennis; and Seaton, Thomas, 3,830,820.
- Boyd, Violet; Evans, Ronald Arthur; Holt, Kenneth Anthony; and Renfrew, Andrew Hunter Morris, 3,830,835.
- Coates, Ronald Bell; Marsden, Ralph John Basil; Smith, Frederick Arthur; and Towle, Gerald, 3,830,617.
- Cottrell, Arnold George, 3,830,738.
- Hewertson, Warren, 3,830,775.
- Job, Brian Ernest; and Medinger, Till, 3,830,788.
- Leslie, Victor Jeffrey; and Rose, John Brewster, 3,830,781.
- Imperial Metal Industries (Kynoch) Limited: See—
- McDougall, Ian Leitch; and Barber, Anthony Clifford, 3,829,963.
- Inada, Satoshi: See—
- Amagi, Yasuo; Noguchi, Kazuo; and Inada, Satoshi, 3,830,740.
- Industrial Materials Technology, Incorporated: See—
- Blucher, Joseph T.; and Dalrymple, Donald D., 3,830,603.
- Inmont Corporation: See—
- Wood, James E.; Strecker, Larry A.; and Cratz, Robert E., 3,830,953.
- Inomata, Jihei; Hino, Seiichi; and Tani, Tatsuo, to Mitsubishi Chemical Industries, Limited. Process for producing conjugated diene polymers. 3,830,855, Cl. 260-635.00e.
- Inoue, Kiyoshi; and Shimizu, Akihiko, to Inoue-Japax Research Incorporated. Apparatus for preparing a dental filling. 3,830,475, Cl. 259-72.000.
- Inoue-Japax Research Incorporated: See—
- Inoue, Kiyoshi; and Shimizu, Akihiko, 3,830,475.
- Institut de Recherches Chimiques et Biologiques Appliquees IRCEBA: See—
- Debat, Jacques, 3,830,852.
- Integrated Conversion Technology: See—
- Martin, Ricky; and Quinn, Paul, 3,831,065.
- Intel Corporation: See—
- Hoff, Marclan E., Jr., 3,831,015.
- International Business Machines Corporation: See—
- Beach, Laurence R.; Junge, Bjarne; and Zentgraf, Henry J., 3,831,197.
- Braun, Joerg P., 3,831,007.
- Burke, Michael J.; Hendrickson, Kenneth E.; Mattson, Gary L.; and McNeil, William D., 3,831,076.
- Farrar, Paul A., 3,830,657.
- Garcia, Jose E., 3,830,963.
- Gold, David E., 3,831,191.
- Kolpek, Robert A., 3,830,352.
- Rundle, Alfred T., 3,831,146.
- Silverling, Michael McHugh; and Wilson, Melvin George, 3,830,972.
- Thorpe, Allan Chester, 3,831,196.
- International Computers Limited: See—
- Wootton, Derek Sidney; and Osborne, Colin Sidney, 3,830,956.
- International Mechanical Vibration Laboratory, Inc.: See—
- Ichikawa, Akihisa, 3,830,099.
- International Minerals & Chemical Corporation: See—
- Harnish, Mark E.; and Peters, Meritt A., 3,830,653.
- International Nickel Company, Inc., The: See—
- Hill, Brian, 3,830,435.
- Narozanski, John Stanley; and Dunkley, Christopher Charles, 3,830,710.
- International Rectifier Corporation: See—
- Wislocky, Joseph; and Carlan, Alan J., 3,831,067.
- International Standard Electric Corporation: See—
- Taylor, Terrence Francis Edward, 3,830,976.
- International Telephone and Telephone Corporation: See—
- Brown, Houston A., Jr., 3,831,096.
- Iovine, Carmine P.: See—

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- Irwin, Jere F. Apparatus for matched-mold thermo-forming. 3,830,611, Cl. 425-144.000.
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Nakada, Hideo; and Ishikawa, Masao, 3,830,585.
- Itek Corporation: See—
Gracia, Robert F.; Laughrey, Richard A.; and Tuohy, Paul F., 3,830,649.
Oliver, Donald S.; and Vohl, Paul, 3,831,153.
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- Iversen, Edward. Sun dial plastic top or cap. 3,829,980, Cl. 33-270.000.
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Ito, Akihiko; Yoshida, Masaru; Nakase, Yoshiaki; Iwai, Tadashi; Hayashi, Koichiro; and Okamura, Seizo, 3,830,715.
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Kato, Tetsuji; Izumi, Mikio; Chikanishi, Kunio; Handa, Ryoji; and Kobayashi, Jinpei, 3,830,878.
- Jackson, Earl K.: See—
Kollmeyer, Willy D.; Pilgram, Kurt H. G.; and Jackson, Earl K., 3,830,838.
- Jackson, Ralph W.: See—
Pettie, Harry L.; and Jackson, Ralph W., 3,830,534.
- Jackson, Robert G., to Conch International Methane Limited. Containers for liquefied gases. 3,830,396, Cl. 220-9.01g.
- Jacobi, Ernst: See—
Schneider, Gerhart; Lust, Sigmund; Niethammer, Konrad; Jacobi, Ernst; Erdmann, Dietrich; and Mohr, Gunther, 3,830,643.
- Jacobs, Philip M.: See—
Deets, Gary L.; and Jacobs, Philip M., 3,830,889.
- Jacobson, Arthur F.: See—
Jacobson, Sidney I.; Jacobson, Harold D.; and Jacobson, Arthur F., 3,830,415.
- Jacobson, Charles L.: See—
Kantiz, Bruce R.; Koning, Virgil H.; and Jacobson, Charles L., 3,831,091.
- Jacobson, Harold D.: See—
Jacobson, Sidney I.; Jacobson, Harold D.; and Jacobson, Arthur F., 3,830,415.
- Jacobson, John William: See—
Willis, Robert John, Jr.; Kalikow, Irving; Jordan, Harold John; and Jacobson, John William, 3,830,056.
- Jacobson, S. I., Mfg. Co.: See—
Jacobson, Sidney I.; Jacobson, Harold D.; and Jacobson, Arthur F., 3,830,415.
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- Jaeger, Wilbert J., to Lincoln-Hall Research Company. Beverage dispensing apparatus for dispensing a predetermined quantity of fluid. 3,830,405, Cl. 222-129.300.
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Bechstein, Herbert; Jaenke, Hans-Jürgen; Muller, Rolf; Ritter, Ernst; and Staudt, Heinrich, 3,830,211.
- Jahn, Ulrich: See—
Molnar, Istvan; Wagner-Jauregg; and Jahn, Ulrich, 3,830,918.
- James, David Richard, to Mecanids Limited. Apparatus for handling disabled persons. 3,829,916, Cl. 5-86.000.
- James, John William: See—
Gittos, Maurice Ward; James, John William; and Verge, John Pomfret, 3,830,816.
- James, Urban E.; and Barton, Glen B. Wood cutting mitre saw. 3,830,127, Cl. 83-435.100.
- Janhsen, Jakobus; and Storz, Martin. Container for transporting, mixing or storing a flowable powdery or liquid substance. 3,830,472, Cl. 259-3.000.
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Jepsen, Kurt Friedrich; and Janzen, Wolfgang, 3,830,133.
- Jepsen, Kurt Friedrich; Stahl, Bernhard; and Janzen, Wolfgang, 3,830,486.
- Japan Atomic Energy Research Institute: See—
Ito, Akihiko; Yoshida, Masaru; Nakase, Yoshiaki; Iwai, Tadashi; Hayashi, Koichiro; and Okamura, Seizo, 3,830,715.
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- Jaross, Robert A., to United States of America, Atomic Energy Commission. Gas void detector for liquid metal. 3,830,095, Cl. 73-19.000.
- Jarvis Geochemical Limited: See—
Reid, Neil George; and Stanley, Raymond Eric, 3,829,992.
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Essers, Wilhelmus Gerardus; Jelmorini, Gerardus; and Tichelaar, Gerrit Willem, 3,830,997.
- Jenkinson, Bruce Ian, to S. I. Handling Systems, Incorporated. Controlling the supply of articles. 3,830,409, Cl. 221-236.000.
- Jenkner, Herbert: See—
Praetzel, Hans Eberhard; and Jenkner, Herbert, 3,830,766.
- Jepsen, Kurt Friedrich; and Janzen, Wolfgang, to Amsted-Siemag Kette G.m.b.H. Tightening nut. 3,830,133, Cl. 85-32.00r.
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- John-Manville Corporation: See—
Kubovich, Frank S.; and Terry, Rupert Douglas, 3,830,442.
- John, Hans: See—
Forster, Karl-Heinz; Vetter, Lothar; John, Hans; and Schanze, Klaus, 3,831,100.
- Johnson, Elmer R.; Reed, Walter T.; Tieman, Charles H.; and Soloway, Samuel B., to Shell Oil Company. Pyridine insecticides. 3,830,921, Cl. 424-263.000.
- Johnson, Gary R.: See—
Gordon, Ronnie D.; Johnson, Gary R.; Skinner, Joseph L.; and Leach, Bruce E., 3,830,859.
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- Johnson, Robert W., Jr.: See—
Laran, Roy J.; Kobetz, Paul; and Johnson, Robert W., Jr., 3,830,906.
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Ristvedt, Victor G.; and Johnson, Roy B., 3,830,142.
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- Jones, Richard B.: See—
Jones, Robert H., Jr.; and Jones, Richard B., 3,830,209.
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- Jordan, Harold John: See—
Willis, Robert John, Jr.; Kalikow, Irving; Jordan, Harold John; and Jacobson, John William, 3,830,056.
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- Jorgensen, Svend M., to Foster Wheeler Corporation. Closure assembly for pressure vessels. 3,830,397, Cl. 220-24.00r.
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Brundage, Richard B.; and Jost, Walter P., Jr., 3,831,125.
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- Junge, Bjarne: See—
Beach, Laurence R.; Junge, Bjarne; and Zentgraf, Henry J., 3,831,197.
- Jurovsky, Vladimir Solomonovich: See—

- Acharkan, Evgeny Adolfovich; Khaskin, Iliia Naumovich; Tstrulnikov, Isaak Meerovich; Povolotsky, Emil Lvovich; and Jurovsky, Vladimir Solomonovich, 3,830,097.
- Jutkevich, Valery Ivanovich: See—
Volovich, Vladimir Ruvimovich; Rabinov, Anatoly Isaakovich; Rutsky, Vladimir Vasilievich; and Jutkevich, Valery Ivanovich, 3,830,316.
- Juy, Lucien Charles Hippolyte. Guide sleeve for the control cables of cycles and similar vehicles. 3,830,115, Cl. 74-501.00r.
- JWI Ltd.: See—
Truesdale, Robert Andrew; and Buchanan, John Gordon, 3,830,691.
- K & K Manufacturing, Inc.: See—
Murphy, George W., 3,830,203.
- Kaartinen, Niilo H., to Packard Instrument Company, Inc. Sample preparation method and apparatus. 3,830,628, Cl. 23-230.0pc.
- Kabushiki Kaisha: See—
Nagamori, Yoshimasa, 3,830,382.
- Kabushiki Kaisha Morita Seisakusho: See—
Ota, Sadayasu; and Miyahara, Masato, 3,831,034.
- Kabushiki Kaisha Ricoh: See—
Saito, Masatoshi; Namiki, Ryoichi; Fujii, Tadashi; and Akamatsu, Hiroyuki, 3,830,199.
- Kabushiki Kaisha Saginomiya Seisakusho: See—
Hegi, Nobumitsu; and Matsubara, Sueo, 3,830,154.
- Kabushiki Kaisha Suwa Seikosha: See—
Mitsui, Yoshihiro, 3,831,071.
- Kafafian, Haig. Communication system for the handicapped. 3,831,147, Cl. 340-166.00r.
- Kageyama, Hiroo: See—
Asi, Soichiro; Yaita, Kenichi; Uzuki, Teruo; Kimura, Kouhei; and Kageyama, Hiroo, 3,830,836.
- Kageyama, Osamu; Kai, Manabu; Miho, Takuya; and Koga, Kunio, to Daicel Ltd. Process for the purification of acrylic acid. 3,830,707, Cl. 203-8.000.
- Kahle Engineering Co.: See—
Milana, Anthony A.; and Lehman, Jaime, 3,830,420.
- Kai, Manabu: See—
Kageyama, Osamu; Kai, Manabu; Miho, Takuya; and Koga, Kunio, 3,830,707.
- Kaiser, Ado: See—
Bollag, Werner; Gutmann, Hugo; Hegedus, Balthasar; Kaiser, Ado; Langemann, Albert; Muller, Marcel; and Zeller, Paul, 3,830,840.
- Kaiser, Rudolf: See—
Beser, Ali Ekber; Scholz, Wolfgang; Kaiser, Rudolf; and Pohlig, Norbert, 3,830,693.
- Kaiser, Steven A., to Chore-Time Equipment, Inc. Ventilator control system. 3,830,146, Cl. 98-41.0vs.
- Kalikow, Irving: See—
Willis, Robert John, Jr.; Kalikow, Irving; Jordan, Harold John; and Jacobson, John William, 3,830,056.
- Kaman Aerospace Corporation: See—
Seay, Samuel D., 3,830,452.
- Kamberg, Willard C.: See—
Reimbold, James J., Jr.; and Kamberg, Willard C., 3,830,336.
- Kamer, Donald, to Statham Instruments, Inc. Strain gauge transducer transient voltage protection. 3,830,100, Cl. 73-88.5sd.
- Kanitz, Bruce R.; Koning, Virgil H.; and Jacobson, Charles L., to Xerox Corporation. Data communication system. 3,831,091, Cl. 325-18.000.
- Kann, Shlomo: See—
Wachsmann, Mordechai; and Kann, Shlomo, 3,830,139.
- Kanzler, Hans Joachim; and Aupor, Hans, to Motoren-Werke Mannheim AG Vorm. Benz ABT. Stationärer Motorenbaue. Method of producing a heat exchanger. 3,829,945, Cl. 29-157.30d.
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- Karady, Sándor; Ly, Manuel G.; Pines, Seemon H.; and Slettinger, Meyer, to Merck & Company, Inc. L- α -hydrazino- α -substituted- β -(3,4-dihydroxy-phenyl)-propionic acid substantially free of the D isomer, the lower alkyl esters thereof, and the pharmaceutically acceptable salts thereof, wherein the substituent is lower alkyl. 3,830,827, Cl. 260-471.00a.
- Kardan, Cevat: See—
Smithson, Harold R.; Conroy, Joseph E., Jr.; and Kardan, Cevat, 3,830,618.
- Karhan, Terry L.; and Kaufman, Stephen, to Union Carbide Corporation. Process for the purification of phenol by azeotropic distillation with ethylene glycol. 3,830,708, Cl. 203-64.000.
- Karras, Thomas W., to General Electric Company. Cesium quenched copper laser. 3,831,107, Cl. 331-94.500.
- Kassimir, Seymour, to Levin Fixture Corporation. Strap peg board assembly for merchandise gondola. 3,830,374, Cl. 211-1.000.
- Kastner, Jacob: See—
Kerlman, Isadore B.; Strash, Alfred; and Kastner, Jacob, 3,831,028.
- Katagiri, Yoshiharu: See—
Ohgoshi, Akio; and Katagiri, Yoshiharu, 3,831,051.
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- Kato, Tetsuji; Izumi, Mikio; Chikanishi, Kunio; Handa, Ryoji; and Kobayashi, Jinpei, to Mitsubishi Rayon Co., Ltd. Weather-and impact-resistant resin composition comprising a graft copolymer containing multi-layer polymer particles and a rigid resin. 3,83,878, Cl. 260-876.00r.
- Kaufman, Samuel. Check valve arrangement for use in bottoms of swimming pools. 3,829,910, Cl. 4-172.000.
- Kaufman, Stephen: See—
Karhan, Terry L.; and Kaufman, Stephen, 3,830,708.
- Kaufman, Vern F., to United States of America, Agriculture. System for pasteurization. 3,830,149, Cl. 99-452.000.
- Kavarnos, Spiro J.: See—
Evnin, Anthony B.; Rabo, Jule A.; Elek, Louis F.; Risch, Alan P.; and Kavarnos, Spiro J., 3,830,757.
- Kawaguchi, Hiroshi: See—
Kito, Masahiro; and Kawaguchi, Hiroshi, 3,830,549.
- Kay, Charles W.: See—
Hunter, Carl P.; and Kay, Charles W., 3,830,377.
- Kazama, Seiji: See—
Matsui, Yutaka; Kazama, Seiji; and Goto, Jugo, 3,830,785.
- Kebe Anstalt für Vertrieb von Anlagen für Kehrlichtbeseitigung: See—
Rolli, Hans, 3,830,171.
- Kedward, Eric Charles; and Martin, James Graham, to Aerofet Limited. Electrodeposition of composite coatings. 3,830,711, Cl. 204-43.00t.
- Keelan, Joseph A., to GTE Sylvania Incorporated. Control circuit for controlling an apparatus. 3,830,960, Cl. 178-5.40r.
- Kegoshima-Ken: See—
Shigeno, Kunihiko; Deshimaru, Osamu; Aramaki, Takayuki; Kuroki, Katsunobu; and Kitaue, Kazuo, 3,830,937.
- Keijzer, Johan H.: See—
Fader, John G.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., 3,830,347.
- Keller, Roman, to Siemens Aktiengesellschaft. Locking bar arrangement for securing electronic assemblies. 3,831,064, Cl. 317-101.0cb.
- Kelly, John J. Combined mud flap and stabilizer therefor. 3,830,520, Cl. 280-154.50r.
- Kemp, Paul C., to Witco Chemical Corporation, mesne. Preparation of hyperbasic dispersions. 3,830,739, Cl. 252-33.400.
- Kempler, Fritz Erdmann; and Spoor, Herbert, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Modified melamine-formaldehyde resins. 3,830,782, Cl. 260-67.60r.
- Kendall Company, The, mesne: See—
Dye, John F.; and Binard, William J., 3,830,241.
- Kennametal Inc.: See—
Kniff, Thomas J., 3,830,546.
- McKenry, Robert J.; and College, Michael A., 3,830,321.
- Kennedy, James: See—
Clark, John Colin; Kennedy, James; and Long, Alan Gibson, 3,830,808.
- O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, 3,830,700.
- Keough, Laurence J., to Texas Instruments, Incorporated. Keyboard electronic apparatus and method of making. 3,831,063, Cl. 317-101.00d.
- Kerber, Horst: See—
Duembgen, Gerd; Heesemann, Guenther; Hohenschulz, Heinz; Kerber, Horst; Nagel, Otto; Rothe, Robert; and Walz, Helmut, 3,830,846.
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- Kerr-McGee Chemical Corporation: See—
Rennick, Robert Dexter; and Reed, Homer Charles, 3,830,905.
- Kerschner, James J.: See—
Becht, H. Allen; Campbell, James; Kerschner, James J.; and Krollman, Edward J., 3,830,583.
- Kerst, Al F.: See—
Duros, John D., Jr.; Brokl, Milan; and Kerst, Al F., 3,830,917.
- Kerst, Al F.; and Peterson, Allen K., to Gates Rubber Company, The. Method of making esters of 1,4 diphosphonyl butene. 3,830,890, Cl. 290-932.000.
- Kessler, Gerald: See—
Kessler, Gerald; and Libman, Max L. (said Libman assor. to said), 3,830,392.
- Kessler, Gerald; and Libman, Max L., said Libman assor. to said Kessler, Gerald. Plastic self-reclosing safety cap with elastic spring. 3,830,392, Cl. 215-9.000.
- Kessler, Hans-Joachim: See—
Strehle, Peter; Schroder, Eberhard; and Kessler, Hans-Joachim, 3,830,826.
- Kettunen, D. Mark: See—
Harkness, Kenneth A.; Kettunen, D. Mark; and Schirtzinger, Paul E., 3,830,036.
- Kettunen, Jyrki: See—
Rautalahti, Pentti; Kettunen, Jyrki; and Sonni, Olavi, 3,830,689.
- Key, Ronald James; and Monk, Trevor, to GKN Sankey Limited. Container handling apparatus. 3,830,378, Cl. 214-1.00q.
- Khaskin, Iliia Naumovich: See—
Acharkan, Evgeny Adolfovich; Khaskin, Iliia Naumovich; Tstrulnikov, Isaak Meerovich; Povolotsky, Emil Lvovich; and Jurovsky, Vladimir Solomonovich, 3,830,097.
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- Kieronski, John P.; and Williams, Francis N., to Whittin Machine Works, Inc. Bobbin ejecting mechanism for doffing machine. 3,830,049, Cl. 57-53.000.
- Kieslich, Klaus: See—
Daum, Joachim; and Kieslich, Klaus, 3,830,696.
- Kihara, Nobutoshi; and Nakagawa, Takashi, to Sony Corporation. Magnetic recording and/or reproducing apparatus. 3,831,198, Cl. 360-85.000.
- Kikkoman Shoyu Co., Ltd.: See—
Sakasai, Toshio; and Yuasa, Katsumi, 3,830,939.
- Kilpper, Gerhard: See—
Armbrust, Herbert; Kilpper, Gerhard; Quadbeckseeger, Hans-Juergen; Sturm, Hans-Juergen; Koehler, Waldemar; and Schecker, Hans-Georg, 3,830,863.
- Kimberly-Clark Corporation: See—
Bernardin, Leo J.; and Radl, Michael D., 3,830,237.
Hanke, David E., 3,830,236.
- Kimbrough, Clyde H. Lure remover. 3,830,005, Cl. 43-17.200.
- Kimura, Kouhei: See—
Asi, Soichiro; Yaita, Kenichi; Uzuki, Teruo; Kimura, Kouhei; and Kageyama, Hiroo, 3,830,836.
- King, Donald L.; Goldberg, Gerald M.; Parke, Donald P.; Priester, Wilis M.; and Gebhardt, Richard A., to Hughes Aircraft Company. Automatic target acquisition in MTI radar system. 3,831,174, Cl. 343-7.00a.
- King, Geo. W., Limited: See—
Turner, John, 3,830,165.
- King, Laurence F., to Esso Research and Engineering Company. Compositions comprising a blend of a vinyl resin and grafted olefin polymer. 3,830,888, Cl. 260-876.000.
- King, Leslie Frederick, to Woodall-Duckham Limited. Charging of horizontal coke oven. 3,830,729, Cl. 202-263.000.
- Kinsey, Lewis R. Method of recharging a storage battery with exchangeable elements. 3,830,662, Cl. 136-165.000.
- Kirby, Susan Mary: See—
O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, 3,830,700.
- Kirk, Nellie: See—
Love, Charles E., 3,830,315.
- Kirkland, John Henry; and Harvey, Samuel Eric, to Dunlop Limited. Oscillatory output devices. 3,829,925, Cl. 15-250.170.
- Kisaki, Hisashi: See—
Mabuchi, Shunsuke; and Kisaki, Hisashi, 3,830,833.
- Kise, Mearl A.: See—
Ellis, Leonard C.; and Kise, Mearl A., 3,830,690.
- Kishore, Nand: See—
David, Joseph; Thomas, Keith; and Kishore, Nand, 3,830,851.
- Kitano, Ichiro; Koizumi, Ken; Ikeda, Yoshiro; and Matsumura, Hiroyoshi, to Nippon Selfoc Kabushiki Kaisha (a/k/a Nippon Selfoc Co., Ltd.). Production of light-conducting glass structures with index gradient. 3,830,640, Cl. 65-30.000.
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Shigeno, Kunihiko; Deshimaru, Osamu; Aramaki, Takayuki; Kuroki, Katsunobu; and Kitaue, Kazuo, 3,830,937.
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- Kleebaru, Karl: See—
Sokol, Gunter; and Kleebaru, Karl, 3,831,047.
- Klein, Ludwig, 20% to Lee, Raymond Organization, Inc., The. Anti-stress and anti-tension scale like apparatus. 3,830,231, Cl. 128-25.00r.
- Kleiss, Louis D., to Phillips Petroleum Company. Method and apparatus for controlling the temperature in a fractionation column. 3,830,698, Cl. 203-2.000.
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- Kline, Arthur J.: See—
United States of America, National Aeronautics and Space Administration, 3,831,117.
- Klippel, Allen P.: See—
Klippel, Allen P.; and Margraf, Harry W., 3,830,908.
Margraf, Harry W., 3,830,824.
Margraf, Harry W., 3,830,825.
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Wurth, Hans-Jorg; and Freund, Georg, 3,830,137.
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Kato, Tetsuji; Izumi, Mikio; Chikanishi, Kunio; Handa, Ryoji; and Kobayashi, Jinpei, 3,830,878.
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Laran, Roy J.; Kobetz, Paul; and Johnson, Robert W., Jr., 3,830,906.
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Morikawa, Eiji; Kodama, Kenkichi; Tanaka, Tokuji; Fukatsu, Hisayoshi; and Enokida, Shizuo, 3,830,938.
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Armbrust, Herbert; Kilpper, Gerhard; Quadbeckseeger, Hans-Juergen; Sturm, Hans-Juergen; Koehler, Waldemar; and Schecker, Hans-Georg, 3,830,863.
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Kageyama, Osamu; Kai, Manabu; Miho, Takuya; and Koga, Kunio, 3,830,707.
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Liska, Manfred; Kuhnlein, Hans; and Kogler, Georg, 3,831,075.
- Koh-I-Noor Rapidograph, Inc., mesne: See—
Lorenz, Ewald, 3,830,575.
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Friedman, George; Kohn, Harold B.; and Weiner, Philip A., 3,830,490.
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Kitano, Ichiro; Koizumi, Ken; Ikeda, Yoshiro; and Matsumura, Hiroyoshi, 3,830,640.
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Matsuoka, Takashi; and Kojima, Masayasu, 3,830,669.
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Dittrich, Gunter; and Kolb, Erich, 3,829,924.
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- Kolpek, Robert A., to International Business Machines Corporation. Articulated typewriter frame. 3,830,352, Cl. 197-186.00a.
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Komarek, Karl R., 3,830,612.
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Ichikawa, Masaru; Kondo, Toshihiko; and Tamaru, Kenzi, 3,830,753.
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- Koning, Virgil H.: See—
Kantiz, Bruce R.; Koning, Virgil H.; and Jacobson, Charles L., 3,831,091.
- Koo, Bonny B. Golf practice device. 3,830,504, Cl. 273-185.00c.
- Koopman, Simon O. M.: See—
Skippon, Robert T.; Robinson, Charles M.; Tinney, David C.; and Koopman, Simon O. M., 3,830,383.
- Kopp, Klaus F., to Vital Assists, Inc. Dialysis control system and method. 3,830,234, Cl. 128-214.00r.
- Koppers Company, Inc.: See—
Williams, Charles H., 3,830,349.
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Korotenko, Boris Evdolimovich; Korotenko, Vitaly Borisovich; and Sh-tepa, Pavel Korneevich, 3,831,049.
- Korpela, Heikki, to Gullfiber AB. Apparatus for producing continuous strands of thermoplastic material. 3,830,604, Cl. 425-4.00c.
- Kossak, Rolf: See—
Redlich, Horst; Gluth, Joachim; and Kossak, Rolf, 3,830,968.
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Anisimov, Pavel Mikhailovich; Evgrafov, Boris Ivanovich; Kuppev, Yuri Alexandrovich; Orlov, Boris Petrovich; Kotova, Antonina Nikolaevna; Turok, Galina Iosifovna; and Berman, Pavel Gdaliyevich, 3,831,045.
- Kowalski, Hubert: See—
Buchsteiner, Hans, deceased, 3,830,477.
- Kozlowski, John F.: See—
Gruen, Dieter M.; Carstens, Dean H. W.; and Kozlowski, John F., 3,830,721.
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Friedman, Robert H.; and Krause, Julianne D., 3,830,737.
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Frager, Glenn E.; and Pfenninger, Bill J., 3,830,313.
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Bright, Stephen A.; and Kress, Robert E., 3,830,484.
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Becht, H. Allen; Campbell, James; Kerschner, James J.; and Krollman, Edward J., 3,830,583.
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Davies, Stanton; and Kropiwnicki, Tadek M., 3,830,341.
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Riseman, John H.; Krueger, John; and Frant, Martin S., 3,830,718.
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Beser, Ali Ekber; Scholz, Wolfgang; Kaiser, Rudolf; and Pohlig, Norbert, 3,830,693.
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Sperring, Richard Lawrence; Stansfield, Stephen Raymond; and Kubba, Mohamed Hassan, 3,830,624.
- Kubovich, Frank S.; and Terry, Rupert Douglas, to John-Manville Corporation. Winding mandrel for strip products. 3,830,442, Cl. 242-68.000.
- Kuckertz, Willi: See—
Uerlichs, Johannes; Muller, Rudolf; and Kuckertz, Willi, 3,830,251.
- Kuckhermann, Gustav; and Schulz, Rudolf, to Windmoller & Holscher. Apparatus for forming and conveying stacks of flat workpieces. 3,830,144, Cl. 93-93.0dp.
- Kuhne, Manfred: See—
Berrer, Dagmar; Kuhne, Manfred; and Vogel, Christian, 3,830,810.
- Kuhnlein, Hans: See—
Liska, Manfred; Kuhnlein, Hans; and Kogler, Georg, 3,831,075.
- Kuipers, Hendricus Maria: See—
Ruigrok, Hendricus Cornelius Maria; and Kuipers, Hendricus Maria, 3,829,986.
- Kupeev, Yuri Alexandrovich: See—
Anisimov, Pavel Mikhailovich; Evgrafov, Boris Ivanovich; Kuppev, Yuri Alexandrovich; Orlov, Boris Petrovich; Kotova, Antonina Nikolaevna; Turok, Galina Iosifovna; and Berman, Pavel Gdaliyevich, 3,831,045.
- Kupersmit, Julius B. Wire clip means for cleated collapsible containers. 3,830,034, Cl. 52-754.000.
- Kupersmith, Bertram, F.: See—
Games, John E.; Casper, Clarence, Jr.; and Kupersmith, Bertram, F., 3,831,010.
- Kureha Kagaku Kogyo Kabushiki Kaisha: See—
Amagi, Yasuo; Noguchi, Kazuo; and Inada, Satoshi, 3,830,740.
- Kurochkin, Anatoly Petrovich: See—
Basin, Naum Genrikhovich; Vysotsky, Alexei Viktorovich; Kurochkin, Anatoly Petrovich; and Okun, Ura Julievna, 3,829,978.
- Kuroda, Koichi: See—
Koide, Hideo; Kuroda, Koichi; and Ito, Takeshi, 3,830,053.
- Kuroki, Katsunobu: See—
Shigeno, Kunihiko; Deshimaru, Osamu; Aramaki, Takayuki; Kuroki, Katsunobu; and Kitaue, Kazuo, 3,830,937.
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- Kuts, Mathew, to Goodrich, B. F., Company, The. Deicer. 3,829,950, Cl. 29-203.00d.
- La Claire, Pal Andre, to Bell & Howell Company. Temperature compensation circuit for sensor of physical variables such as temperature and pressure. 3,831,042, Cl. 307-310.000.
- La Crosse Cooler Company: See—
Brindley, Richard B.; and Schroeder, Kenneth J., 3,830,408.
- La Fave, Veryl L.; and Rivenes, Ronald D. Remotely operable vehicular mirror. 3,830,561, Cl. 350-289.000.
- La Marre, David A.; Battista, Albert D.; and Smith, Donald A., to American Optical Corporation. Laser transmitter. 3,831,104, Cl. 331-94.500.
- La Tour, Harry: See—
Haney, Eugene E.; La Tour, Harry; Brown, Roy A., Jr.; and Bag-dal, Karl T., 3,830,716.
- Lablance, Jean, to Benne Marrel. Movable tailgate for a truck. 3,830,542, Cl. 296-56.000.
- Laboratorios Made, S.A.: See—
Roldan, Cristobal Martinez, 3,830,821.
- Ladeur, Peter; and Van Gooswilligen, Gerrit, to Shell Oil Company. Process for preparing HVI lubricating oil by hydrocracking a wax. 3,830,723, Cl. 208-108.000.
- Ladouceur, Harold A.: See—
Pouch, Thomas M.; and Ladouceur, Harold A., 3,829,957.
- Lafferty, Edwin Carlton, to General Electric Company. Temperature compensator for a crystal oscillator. 3,831,111, Cl. 331-116.00r.
- Lago, Ernest T., to Aeroquip Corporation. Article for soldering aluminum to copper. 3,830,262, Cl. 138-143.000.
- Lai, Clifford Y. C.: See—
Wilger, John F.; Lai, Clifford Y. C.; and Nakano, Gregory S., 3,830,488.
- Laing, Nikolaus. Insulating casting for storage heaters. 3,830,288, Cl. 165-32.000.
- L'Air Liquide, Societe Anonyme pour L'Etude et L'Exploitation des Procédes George Claude: See—
Cappiello, Pierre, 3,830,073.
- Lambert, William O., to McDonnell Douglas Corporation. Bearing check gage. 3,829,977, Cl. 33-174.00e.
- Lambert, William R. Method and apparatus for eviscerating scallops. 3,829,933, Cl. 17-53.000.
- Lamont, John A.: See—
Hubble, David H.; and Lamont, John A., 3,829,960.
- Lancini, Giancarlo; Lazzari, Ettore; and Diana, Alberto. Antibiotic substances. 3,830,837, Cl. 260-534.000.
- Landis Tool Company: See—
Mann, Freeman W., 3,830,019.
- Lang, Thomas G., to United States of America, Navy. Semisubmerged ship with hull extensions. 3,830,178, Cl. 114-61.000.
- Langemann, Albert: See—
Bollag, Werner; Gutmann, Hugo; Hegedus, Balthasar; Kaiser, Ado; Langemann, Albert; Muller, Marcel; and Zeller, Paul, 3,830,840.
- Lapp, John; and Weiler, Norbert R., to McGraw-Edison Company. Machine for winding an electrical capacitor. 3,829,941, Cl. 29-25.420.
- Laran, Roy J.; Kobetz, Paul; and Johnson, Robert W., Jr., to Ethyl Corporation. Two step process for producing beryllium hydride from a beryllium halide. 3,830,906, Cl. 423-645.000.
- Large, George B.; and Pitt, Leland S., to Stauffer Chemical Company. O,O-Diloweralkyl-O-(1-methyl-2-phenyl vinyl) thiophosphates. 3,830,887, Cl. 260-957.000.
- Larsen, Earl I., to Mallory, P. R., & Co., Inc. Rare earth fluoride lubricant for die casting components. 3,830,280, Cl. 164-72.000.
- Larsen, Ole Fjord. Apparatus and system for producing and protecting deposits of sedimentary material on floors of bodies of water. 3,830,066, Cl. 61-3.000.
- Larson, Charles O., to Larson, Chas. O., Co. Display stand. 3,830,375, Cl. 211-59.000.
- Larson, Chas. O., Co.: See—
Larson, Charles O., 3,830,375.
- Larson, Clive: See—
Aiken, John Kempton; Larson, Clive; and Sanderson, Graham, 3,830,713.
- Larsson, Karl H.: See—

- Stussman, Gerald J.; Larsson, Karl H.; and Smeaton, John R., 3,830,701.
- Laskaris, Evangelos T., to General Electric Company. Rotor for a dynamoelectric machine. 3,831,050, Cl. 310-270.000.
- Latta, Lynn H.: *See—*
- Cornell, Paul A.; and Latta, Lynn H., 3,831,134.
- Laubie, Michel: *See—*
- Regnier, Gilbert; Canevari, Roger; and Laubie, Michel, 3,830,811.
- Lauer, Richard E.; and Pieper, Louis W., to General Electric Company. Apparatus and method for forming insulators and apparatus and method for inserting coil turn portions or insulators into the slots of a magnetic core. 3,829,953, Cl. 29-205.00e.
- Laughman, George J.: *See—*
- Blum, Raymond T.; and Laughman, George J., 3,830,021.
- Laughrey, Richard A.: *See—*
- Gracia, Robert F.; Laughrey, Richard A.; and Tuohy, Paul F., 3,830,649.
- Laurent, Daniel, to Merlin Gerin. Composite conductor for sliding current collectors. 3,830,989, Cl. 191-29.0dm.
- Lauzon, Armand E. Bifunctional magnetic sphere with resilient tether. 3,830,498, Cl. 273-95.00a.
- Lawrence Brothers, Inc.: *See—*
- Foltz, Robert E.; Riser, Clarence B.; and Granzow, Kurt H., 3,829,929.
- McNinch, Delmar D., 3,829,930.
- Lazzari, Ettore: *See—*
- Lancini, Giancarlo; Lazzari, Ettore; and Diena, Alberto, 3,830,837.
- Le Floch, Albert, to Agence Nationale de Valorisation de la Recherche Anvar. Method of frequency and intensity stabilization of the radiation emitted by a high-power gas laser and a gas laser for the application of said method. 3,831,108, Cl. 331-94.500.
- Le Tourneau, Richard L., to IHC Holland-Letourneau Marine Corporation. Jack-up drilling platform. 3,830,071, Cl. 61-46.500.
- Leach, Bruce E.: *See—*
- Gordon, Ronnie D.; Johnson, Gary R.; Skinner, Joseph L.; and Leach, Bruce E., 3,830,859.
- Leach, Michael Ernest Humphrey, to Borg-Warner Limited. Transmission control mechanism. 3,830,258, Cl. 137-625.480.
- Lectro-Static Magnetic Corporation: *See—*
- Miller, Doyle H., 3,830,621.
- Ledoyen, Jose: *See—*
- Bouille, Jean Bernard; Ledoyen, Jose; and Warmont, Georges, 3,831,070.
- Lee, Alan John Clive: *See—*
- Ling, Robin Sydney Mackwood; and Lee, Alan John Clive, 3,829,904.
- Lee, Conrad E., to Pako Corporation. Tapered roller transport mechanism for web of photographic materials and the like. 3,830,419, Cl. 226-184.000.
- Lee, Raymond, Organization, Inc.: *See—*
- Haywood, Miner E., 3,830,487.
- Hunt, Jasper, 3,830,513.
- Klein, Ludwig, 3,830,231.
- Leesona Corporation: *See—*
- Bense, William Malcolm, 3,830,440.
- Leger, Lubert J., to United States of America, National Aeronautics and Space Administration. Method and device for detection of surface discontinuities or defects. 3,830,094, Cl. 73-15.400.
- Lehman, Jaime: *See—*
- Milana, Anthony A.; and Lehman, Jaime, 3,830,420.
- Lehrer, William I. Photomasks and method of fabrication thereof. 3,830,686, Cl. 161-6.000.
- Leiby, Robert Frank, to Litton Systems, Inc. Temperature-compensated voltage-tunable gunn diode oscillator. 3,831,109, Cl. 331-107.00g.
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- Lemon, Robert W.: *See—*
- Clauss, Julius A., Jr.; Conley, Jack S.; and Lemon, Robert W., 3,830,082.
- Lerney, William Edward, to Air Products and Chemicals, Inc. Vinyl chloride-ethylene-vinyl acetate resin binders. 3,830,761, Cl. 260-8.000.
- Lerner, Robert M., to Massachusetts Institute of Technology. Ground radar system. 3,831,173, Cl. 343-5.00r.
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- Leslie, Victor Jeffrey; and Rose, John Brewster, to Imperial Chemical Industries Limited. 4-Hydroxy-3,3',4'-trichlorodiphenyl sulphone. 3,830,781, Cl. 260-49.000.
- Lestaevl, Pierre J. Locking device for containers. 3,830,394, Cl. 215-9.000.
- Levin Fixture Corporation: *See—*
- Kassimir, Seymour, 3,830,374.
- Levine, Nathan, to Babcock-Davis Associates Inc. Latch mechanism for hatchway leaf. 3,830,016, Cl. 49-8.000.
- Levor, Henry. Sewing machines. 3,830,175, Cl. 112-121.120.
- Lewis, Donald Joseph, to Allied Chemical Corporation. Fiber reinforced inflatable restraining band for vehicles. 3,830,519, Cl. 280-150.0ab.
- Liber, Michel, to Seilib. Apparatus box, more particularly intended to contain cassettes comprising magnetic tapes. 3,830,363, Cl. 206-387.000.
- Libman, Max L.: *See—*
- Kessler, Gerald; and Libman, Max L., 3,830,392.
- Licentia Patent-Verwaltungs-G.m.b.H.: *See—*
- Acher, Heinz, 3,830,694.
- Meyer, Klaus, 3,831,057.
- Schulz, Jurgen; and Nitsche, Hans-Jurgen, 3,831,087.
- Lichtenstein, Bernard: *See—*
- Beretsky, Irwin; and Lichtenstein, Bernard, 3,830,223.
- Liebert, Richard Bently: *See—*
- Singer, Barry M.; and Liebert, Richard Bently, 3,830,717.
- Liedtke, Ronald R.: *See—*
- Waters, Robert S.; and Liedtke, Ronald R., 3,831,000.
- Lieferman, Harry A.; Ryan, Rufus E.; and Pehler, James R., to Standard Brands Incorporated. Starch paste apparatus. 3,830,473, Cl. 259-8.000.
- Lilley, Raymond Percy Arthur: *See—*
- Shaw, James Thomas; Fawcett, Colin Graham; and Lilley, Raymond Percy Arthur, 3,830,022.
- Lilly, Eli, and Company: *See—*
- Chiasson, William J.; and Russell, Ralph T., 3,830,904.
- Tilak, Monohar A., 3,830,792.
- Lilly Industries Limited: *See—*
- Chakrabarti, Jiban Kumar; and Todd, Alec, 3,830,915.
- Williamson, William Robert Nigel; Hicks, Terence Alan; and Day, Elaine Hilda, 3,830,923.
- Lin, Ping-Wha. Novel method for constructing subjacent foundation. 3,830,069, Cl. 61-36.00a.
- Lincoln-Hall Research Company: *See—*
- Jaeger, Wilbert J., 3,830,405.
- Linden-Alimak AB: *See—*
- Svensson, Torbjorn, 3,830,338.
- Lindsey, Reed S., Jr.: *See—*
- United States of America, National Aeronautics and Space Administration, 3,831,098.
- Ling, Robin Sydney Mackwood; and Lee, Alan John Clive, to National Research Development Corporation. Hip joint prostheses. 3,829,904, Cl. 3-1.000.
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- Little, James L.: *See—*
- Willen, Harold A.; and Little, James L., 3,830,077.
- Little, Lawrence L., to Battelle Development Corporation. The Preparation of creamed cottage cheese. 3,830,947, Cl. 426-361.000.
- Litton Business Systems, Inc.: *See—*
- McSweeney, William; and Stas, Stefan J., 3,831,193.
- Litton Systems, Inc.: *See—*
- Bolton, Harold B., 3,830,180.
- Leiby, Robert Frank, 3,831,109.
- Litvinovich, Georgy Mikhailovich; Zhavoronkov, Leonid Andreevich; Stebelev, Nikolai Alexandrovich; Guzov, Konstantin Borisovich; and Lyagal, Ivan Nikitovich. Device for dynamic balancing of rotors. 3,830,109, Cl. 73-455.000.
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- Lo Nigro, Antonio. Time interval lighting system. 3,831,059, Cl. 315-320.000.
- Lockett, William L.: *See—*
- Mysicka, James C.; and Lockett, William L., 3,831,002.
- Logan, Arthur D.: *See—*
- Haley, John S.; Cooper, Jerry W.; and Logan, Arthur D., 3,830,685.
- Loiseau, Gerard Paul Marie Henri: *See—*
- Nordmann, Joseph; Mattioda, Georges Dominique; Antoine, Robert Alexandre; and Loiseau, Gerard Paul Marie Henri, 3,830,929.
- Long, Alan Gibson: *See—*
- Clark, John Colin; Kennedy, James; and Long, Alan Gibson, 3,830,808.
- O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, 3,830,700.
- Long, John H.: *See—*
- Smith, John W.; and Long, John H., 3,831,178.
- Long, John H., to Muirhead, Inc. Apparatus for half tone marking electrostatic paper. 3,830,967, Cl. 178-6.60a.
- Loop A. Line, Inc.: *See—*
- McGahee, Welbourne D., 3,830,187.
- Lord Corporation: *See—*
- Manino, Louie G.; and Sexsmith, Frederick H., 3,830,784.

- Lorenz, Ewald, to Koh-I-Noor Rapidograph, Inc., mesne. Tube writing pen. 3,830,575, Cl. 401-259.000.
- Love, Charles E., to Wiley, Sandra Lee and Kirk, Nellie. Apparatus for implantation of subterranean screw anchors. 3,830,315, Cl. 173-26.000.
- Low, Frank H.: *See—*
- Flicker, Bernard; Burridge, Robert E.; and Low, Frank H., 3,830,896.
- Lowe, Charles Thomas. Tuning peg. 3,830,132, Cl. 84-304.000.
- Loy, George W., to Scio Cabinet Company, Inc. Heating apparatus. 3,830,680, Cl. 156-480.000.
- Lubbock, Frederick John: *See—*
- Gillan, John; Lubbock, Frederick John; and Polgar, Livia, 3,830,763.
- Ludcke, Hans-Joachim: *See—*
- Hanke, Peter; Ludcke, Hans-Joachim; Martinetz, Heribert; and Ohlhorst, Rolf, 3,831,122.
- Lueck, Arthur M., to Quantum Sensing, Incorporated. Optical sensor system. 3,830,572, Cl. 356-156.000.
- Luft, Leslie R.; and Murray, Daniel G., to Grain Processing Corporation. Food coating composition and process using same. 3,830,941, Cl. 426-177.000.
- Luke, John A., to Brown & Williamson Tobacco Corporation. Tobacco-smoke filters. 3,830,244, Cl. 131-261.00b.
- Lumms Company, The: *See—*
- Friedman, George; Kohn, Harold B.; and Weiner, Philip A., 3,830,490.
- Lust, Sigmund: *See—*
- Schneider, Gerhart; Lust, Sigmund; Niethammer, Konrad; Jacobi, Ernst; Erdmann, Dietrich; and Mohr, Gunther, 3,830,643.
- Ly, Manuel G.: *See—*
- Karady, Sander; Ly, Manuel G.; Pines, Seemon H.; and Slettinger, Meyer, 3,830,827.
- Lyagal, Ivan Nikitovich: *See—*
- Litvinovich, Georgy Mikhailovich; Zhavoronkov, Leonid Andreevich; Stebelev, Nikolai Alexandrovich; Guzov, Konstantin Borisovich; and Lyagal, Ivan Nikitovich, 3,830,109.
- Lykes Bros. Steamship Co., Inc.: *See—*
- Nemec, Frank A.; Thayer, Stuart W.; Eckert, William S.; Horn, Marion F.; and Dunn, Roland J., Jr., 3,830,177.
- Lynn, John D.: *See—*
- Dominguez, Ezekiel C.; Lynn, John D.; and Sundry, George J., 3,830,481.
- M & J Valve Company: *See—*
- Grove, Marvin H.; and Dunegan, Ronald G., 3,830,092.
- Maag Gear Wheel & Machine Company Limited: *See—*
- Bartosek, Milan, 3,830,215.
- Mabo, Stanley: *See—*
- Quenot, Michel, 3,830,443.
- Mabuchi, Shunsuke; and Kisaki, Hisashi, to Toyo Soda Manufacturing Co., Ltd. Process for isomerizing allylic esters of carboxylic acid. 3,830,833, Cl. 260-491.000.
- Mac Farlan Smith Limited: *See—*
- Grew, Edward Leon; and Powles, David Jackson, 3,830,819.
- Macaluso, Anthony, Sr.: *See—*
- Powers, William J., III; and Macaluso, Anthony, Sr., 3,830,867.
- MacDonnell, Robert W., to Allied Filter Engineering, Inc. Rectangular filter bag. 3,830,042, Cl. 55-341.000.
- Mackuth, Manfred: *See—*
- Hoffmann, Rudolf; Mackuth, Manfred; Mattuschka, Werner; and Schoefer, Franz, 3,831,043.
- MacLaren, Richard O.: *See—*
- Iwanciov, Bernard L.; and MacLaren, Richard O., 3,830,057.
- MacLeay, Ronald Edward; and Sheppard, Chester Stephen, to Pennwalt Corporation. Tertiary-aliphatic-(peracyl)azo compounds. 3,830,797, Cl. 260-192.000.
- Madey, Marion J., to Poster Products, Inc. Display table. 3,830,169, Cl. 108-61.000.
- Maeda, Minoru: *See—*
- Watanabe, Seizo; Maeda, Minoru; and Yamaguchi, Masaru, 3,830,644.
- Maeyashiki Isamu: *See—*
- Suzuki, Katsumi; Maeyashiki Isamu; Akihiro; Murai, Asao; Shio, Tsuyoshio; and Okumura, Shinji, 3,830,832.
- Magee, John S., Jr.: *See—*
- Dolbear, Geoffrey E.; and Magee, John S., Jr., 3,830,725.
- Magna Tek Systems, Inc.: *See—*
- Oster, Eugene L., 3,831,121.
- Magrath, Joseph M.: *See—*
- Magrath, Joseph M.; and Martin, William J. (said Martin assor. to said), 3,830,410.
- Magrath, Joseph M.; and Martin, William J., said Martin assor. to said Magrath, Joseph M. Liquid dispenser of the metering type. 3,830,410, Cl. 222-309.000.
- Maillart, Gilles: *See—*
- Moussaian, Gregoire; and Maillart, Gilles, 3,830,554.
- Mailloux, Louis D., to Xerox Corporation. Graphical data processor interface. 3,830,962, Cl. 178-6.000.
- Maison, Richard L., to Rohr Industries, Inc. Turntable for trackless air bearing vehicles. 3,830,160, Cl. 104-46.000.
- Makeev, Boris Anatolevich; Stepanchik, Lev Mikhailovich; Batovsky, Vadim Ivanovich; Korot, Garri Moiseevich; and Gladkikh, Anatoly Ivanovich. Installation for cutting rolled sheets. 3,830,121, Cl. 83-81.000.
- Mallet & Co., Inc.: *See—*
- Sebastian, Anthony, 3,830,608.
- Mallinckrodt Chemical Works: *See—*
- Brown, James L.; and Harris, Orval A., 3,830,746.
- Mallory, P. R., & Co., Inc.: *See—*
- Larsen, Earl I., 3,830,280.
- Malte, Ashok M.: *See—*
- Meyers, Cal Yale; Matthews, Walter Sidney, III; and Malte, Ashok M., 3,830,862.
- Mammoth Plastics Inc.: *See—*
- Crisci, Victor Eugene, 3,830,395.
- Manco Mfg. Co.: *See—*
- Valente, Raymond L., 3,830,129.
- Maness, George S.; and Stanton, John R., to Pepper Mill, Inc. Fireplace construction and method with flaming water hearth. 3,830,217, Cl. 126-120.000.
- Manino, Louie G.; and Sexsmith, Frederick H., to Lord Corporation. Shelf-stable adhesive compositions for laminating elastomers to metal and textile substrates and such laminates. 3,830,784, Cl. 260-77.50r.
- Manjikian, Serop. Reverse osmosis system adaptable for manual operation. 3,830,372, Cl. 210-321.000.
- Mann, Freeman W., to Landis Tool Company. Grinding machine with a safety housing. 3,830,019, Cl. 51-103.00c.
- Mannbro, Nils Viktor, to Skogsagarnas Industri Aktiebolag. Method of reducing the discharge of waste products from pulp mills. 3,830,688, Cl. 162-29.000.
- Mansanto Company: *See—*
- Olin, John F., 3,830,829.
- Mantle, Peter J., to United States of America, Navy. Variable geometry marine propulsor. 3,830,190, Cl. 115-34.00r.
- Marangoni, Roy D., to Mine Safety Appliances Company. Safety hat energy absorbing liner. 3,829,900, Cl. 2-3.00r.
- Marathon Oil Company: *See—*
- Dreher, Karl D.; and Sydansk, Robert D., 3,830,302.
- Margraf, Harry W.: *See—*
- Klippel, Allen P.; and Margraf, Harry W., 3,830,908.
- Margraf, Harry W., 1/3 to Klippel, Allen P. Physiological organic acid silver allantoates. 3,830,824, Cl. 260-299.000.
- Margraf, Harry W., 1/3 to Klippel, Allen P. Zinc sulf-hydroxy allantoate. 3,830,825, Cl. 260-299.000.
- Markham, Michael H., to Chubb Industries Limited. Jail locking mechanism. 3,830,017, Cl. 49-18.000.
- Marsan, Arthur E. Disposable irrigator drain with stoma cone for ostomy patients. 3,830,235, Cl. 128-227.000.
- Marsden, Ralph John Basil: *See—*
- Coates, Ronald Bell; Marsden, Ralph John Basil; Smith, Frederick Arthur; and Towle, Gerald, 3,830,617.
- Marsh, Paul G., to Black Clawson Fibreclaim, Inc., mesne. Fuel by-products of municipal refuse. 3,830,636, Cl. 44-1.00d.
- Marten, Fritz, to Siemens Aktiengesellschaft. Switching arrangement for a conveyance bound to a guide structure such as a suspension railway or the like. 3,830,162, Cl. 104-105.000.
- Martens, Gerhard: *See—*
- Schippers, Heinz; Bauer, Karl H.; and Frolich, Karl-Werner, 3,831,005.
- Martin, Donald E., to Aurora Products Corporation. Motor vehicle race track. 3,830,426, Cl. 238-10.00e.
- Martin, Frederick J., to General Electric Company. Gas burner for heat-recovery steam generator. 3,830,620, Cl. 431-350.000.
- Martin, Henry; Rohr, Otto; and Pissiotas, Georg, to Ciba-Geigy AG. Propargyl ethers. 3,830,849, Cl. 260-612.00d.
- Martin, James C.: *See—*
- Cleveland, James P.; and Martin, James C., 3,830,830.
- Martin, James Graham: *See—*
- Kedward, Eric Charles; and Martin, James Graham, 3,830,711.
- Martin, Ricky; and Quinn, Paul, to Integrated Conversion Technology. Electronic push button combination lock. 3,831,065, Cl. 317-134.000.
- Martin, William J.: *See—*
- Magrath, Joseph M.; and Martin, William J., 3,830,410.
- Martinetz, Heribert: *See—*
- Hanke, Peter; Ludcke, Hans-Joachim; Martinetz, Heribert; and Ohlhorst, Rolf, 3,831,122.
- Martinez, Boni Philip; and Pruckmayr, Gerfried, to Du Pont de Nemours, E. I., and Company. Ethylene copolymer dispersions containing a halogenated alkyl phosphate. 3,830,768, Cl. 260-29.60h.
- Maruyama, Hiroshi: *See—*
- Mukaiyama, Teruaki; Ueki, Masaaki; Matsueda, Rei; and Maruyama, Hiroshi, 3,830,794.
- Masaki, Kunihiko: *See—*
- Yoshie, Koichi; Masaki, Kunihiko; and Sakamoto, Masaji, 3,830,539.
- Masaka, Yutaka; and Nakai, Masao, to Yamaha Hatsudoki Kabushiki Kaisha. Endless track belt for a small track-laying vehicle. 3,830,551, Cl. 305-35.00r.
- Maselli, James M.: *See—*
- Sanchez, Moises G.; Maselli, James M.; and Graham, James R., 3,830,756.
- Mason, Paul B.: *See—*
- Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,830,563.
- Masonry Systems International, Inc., mesne: *See—*
- Behunin, Gage B., 3,830,678.
- Mass, Thomas R.: *See—*

Woods, Martin W.; and Mass, Thomas R., 3,830,881.
 Massachusetts Institute of Technology: See—
 Epstein, David J.; and Bullock, David C., 3,831,154.
 Lerner, Robert M., 3,831,173.
 Massetti, Abraham; and Ciullo, Rocco N., to U.S. Industries, Inc. Method for fabrication of lined wearing apparel. 3,829,901, Cl. 2-97.000.
 Massey-Ferguson (Australia) Limited: See—
 Rollett, George A., 3,830,046.
 Masuhara, Eiichi; Tarumi, Nirou; Nakabayashi, Nobuo; Baba, Masahiro; Tanaka, Shinsuke; and Mochida, Ei, to Mochida Seiyaku Kabushiki Kaisha. Dental and surgical bonding-filling material. 3,829,973, Cl. 32-15.000.
 Masuko, Fujio: See—
 Nagase, Tsuneyuki; and Masuko, Fujio, 3,830,860.
 Matejek, John Michael, to American Can Company. Method and apparatus for filling a container. 3,830,265, Cl. 141-6.000.
 Mathae, Edwin G. Buoy. 3,829,919, Cl. 9-8.00r.
 Mathers, James E.: See—
 Mehlichick, Emil J.; and Mathers, James E., 3,830,748.
 Matsubara, Masaki, to Olympus Optical Company Limited. Super-wide-angle lens systems for photographic cameras. 3,830,559, Cl. 350-214.000.
 Matsubara, Suet: See—
 Hagi, Nobumitsu; and Matsubara, Suet, 3,830,154.
 Matsueda, Rei: See—
 Mukaiyama, Teruaki; Ueki, Masaaki; Matsueda, Rei; and Maruyama, Hiroshi, 3,830,794.
 Matsui, Yutaka; Kazama, Seiji; and Goto, Jugo, to Takeda Chemical Industries, Ltd. Thermosetting polyurethane coatings based on blocked cyclo-aliphatic diisocyanates. 3,830,785, Cl. 260-77.5tb.
 Matsumoto, Yoshimitsu: See—
 Yoshizumi, Shuzo; Doe, Takao; Oku, Takeshi; and Matsumoto, Yoshimitsu, 3,830,999.
 Matsumura, Hiroyoshi: See—
 Kitano, Ichiro; Koizumi, Ken; Ikeda, Yoshiro; and Matsumura, Hiroyoshi, 3,830,640.
 Matsumura, Takeshi: See—
 Ohkawa, Shunjiro; Yatabe, Yoshihiro; Mizuno, Tetsuo; and Matsumura, Takeshi, 3,830,610.
 Matsuoka, Takashi; and Kojima, Masayasu, to Sumitomo Metal Industries Ltd. Process for manufacturing a cold-rolled high strength steel sheet. 3,830,669, Cl. 148-12.000.
 Matsushita Electric Industrial Co. Ltd.: See—
 Nishida, Masamitsu; and Ouchi, Hiromu, 3,830,742.
 Odagi, Kanji, 3,830,978.
 Yoshizumi, Shuzo; Doe, Takao; Oku, Takeshi; and Matsumoto, Yoshimitsu, 3,830,999.
 Mattei, Silvano: See—
 Ullmann, Werner; Sieg, Arno; Mattei, Silvano; and Schumacher, Bernd, 3,830,996.
 Mattel, Inc.: See—
 Gardel, Robert; and Gorsky, Egon, 3,830,521.
 Matthews, Walter Sidney, III: See—
 Meyers, Cal Yale; Matthews, Walter Sidney, III; and Malte, Ashok M., 3,830,862.
 Mattioda, Georges Dominique: See—
 Nordmann, Joseph; Mattioda, Georges Dominique; Antoine, Robert Alexandre; and Loiseau, Gerard Paul Marie Henri, 3,830,929.
 Mattson, Gary L.: See—
 Burke, Michael J.; Hendrickson, Kenneth E.; Mattson, Gary L.; and McNeil, William D., 3,831,076.
 Matuschka, Werner: See—
 Hoffmann, Rudolf; Mackuth, Manfred; Matuschka, Werner; and Schoefer, Franz, 3,831,043.
 Matyssek, John J. Teaching machine. 3,829,987, Cl. 35-9.00a.
 May, Douglas C.: See—
 Barkey, Kenneth T.; Gandy, Gerald C.; and May, Douglas C., 3,830,773.
 Mayer, Ivan; Siskin, Michael; and Otchy, Thomas G. Removal of a metal pentafluoride from hydrocarbons. 3,830,871, Cl. 260-683.680.
 Mayer, Rudolf: See—
 Grotzner, Kurt; Mayer, Rudolf; and Mayer, Siegfried, 3,830,570.
 Mayer, Siegfried: See—
 Grotzner, Kurt; Mayer, Rudolf; and Mayer, Siegfried, 3,830,570.
 Mayr, Adolfo: See—
 Susa, Ermanno; Davoli, Velmore; and Mayr, Adolfo, 3,830,787.
 Mazalas, Anthony P., to Sound Technology, Inc. Multichannel remote control system. 3,831,175, Cl. 343-228.000.
 Mazzagatti, Roy P., to Texaco Inc. Magnetic susceptibility mud log. 3,831,082, Cl. 324-5.000.
 Mazzoleni, Giorgio: See—
 Vargiu, Silvio; Mazzoleni, Giorgio; and Nistri, Ugo, 3,830,783.
 MB Associates: See—
 Curtis, Herbert E., 3,830,214.
 McAlister, Roy E. Vapor pressurized hydrostatic drive. 3,830,065, Cl. 60-670.000.
 McAlister, Roy E. Fuel injection-spark ignition system for an internal combustion engine. 3,830,204, Cl. 123-32.000.
 McArdle, Gordon D., to American Metal Climax, Inc. Thermally ignitable zirconium-plastic composition. 3,830,671, Cl. 149-2.000.
 McDiarmid, James: See—
 Benzing, Walter C.; and McDiarmid, James, 3,830,194.

McDonnell Douglas Corporation: See—
 Endicott, Donald L., 3,830,508.
 Hochberg Marvin S.; Welhart, Erwin K.; and Pousson, James H., 3,830,261.
 Lambert, William O., 3,829,977.
 McDougall, Ian Leitch; and Barber, Anthony Clifford, to Imperial Metal Industries (Kynoch) Limited. Method of fabricating a composite superconductor including a superconductive Intermetallic compound. 3,829,963, Cl. 29-599.000.
 McGahee, Welbourne D., to Loop A. Line, Inc. Line-post coupling and marine mooring-towing devices. 3,830,187, Cl. 114-235.00a.
 McGrann, John V.; and Nalley, William M., to Codman & Shurtleff, Inc. Slit lamp having combination slit and lamp intensity control device. 3,830,562, Cl. 351-14.000.
 McGraw-Edison Company: See—
 Lapp, John; and Weiler, Norbert R., 3,829,941.
 McHard, James A.: See—
 Bennett, Donald R.; and McHard, James A., 3,830,912.
 McIntosh, Alex, to Tone Commander Systems, Inc. Telephone handset amplifier. 3,830,979, Cl. 179-1.00a.
 McKenry, Robert J.; and College, Michael A., to Kennametal Inc. Excavating tool and a bit for use therewith. 3,830,321, Cl. 275-332.000.
 McMahon, Floyd J.: See—
 Gill, Raymond E.; and McMahon, Floyd J., 3,831,024.
 McMillin, John V., to Westinghouse Learning Corporation. Timing system for optically scanned documents. 3,831,009, Cl. 235-61.11e.
 McNab, Incorporated: See—
 Teass, Horace A., Jr.; and Smith-Veniz, William Reid, 3,831,083.
 McNair, Samuel L., to Dazey Products Co. Foot operated foot massager. 3,830,232, Cl. 128-33.000.
 McNeil, William D.: See—
 Burke, Michael J.; Hendrickson, Kenneth E.; Mattson, Gary L.; and McNeil, William D., 3,831,076.
 McNeill, Neill E. Motorcycle rear spring suspension device. 3,830,517, Cl. 280-124.00r.
 McNinch, Delmar D., to Lawrence Brothers, Inc. Slidable door hanger device. 3,829,930, Cl. 16-105.000.
 McPhee, John L., to Aluminum Plumbing Fixture Corporation. Hospital patient care unit. 3,829,906, Cl. 4-10.000.
 McQuiston, H. Robert. Method of installation of thermal building insulation and stretchers therefor. 3,830,441, Cl. 242-67.10r.
 McRobert, Leon R. Bin dumper. 3,830,386, Cl. 214-313.000.
 McShirley, Robert C. Electrical dental mallet. 3,829,974, Cl. 32-53.000.
 McSweeney, William; and Stas, Stefan J., to Litton Business Systems, Inc. Bi-directional scanning of a phase encoded magnetic message. 3,831,193, Cl. 360-42.000.
 Mead, Theodore C.; Odell, Norman R.; and Benson, Robert F., to Texaco Inc. Viscosity index improvement of lubricating oil fractions. 3,830,730, Cl. 208-144.000.
 Mecanoids Limited: See—
 James, David Richard, 3,829,916.
 Mecklenburg, Paul; Pehlert, William King, Jr.; and Sullivan, Daniel David, to Bell Telephone Laboratories, Incorporated. Multilevel data transmission systems. 3,831,145, Cl. 340-146.10r.
 Medal, Richard J., to Rauland-Borg Corporation. Push-pull audio amplifier. 3,831,102, Cl. 330-15.000.
 Medinger, Till: See—
 Job, Brian Ernest; and Medinger, Till, 3,830,788.
 Medtronic, Inc., mesne: See—
 Greatbatch, Wilson, 3,830,242.
 Mees, Robert D.; Mittermaier, Armin F.; and Wilcox, Albert F., to General Electric Company. Method and machine for forming self locking cores. 3,829,965, Cl. 29-606.000.
 Mehlichick, Emil J.; and Mathers, James E., to GTE Sylvania Incorporated. Method of increasing the brightness of rare earth oxide phosphors. 3,830,748, Cl. 252-301.40r.
 Meidensha Electric Mfg. Co., Ltd.: See—
 Hirao, Toshiro; and Ando, Eiichi, 3,830,096.
 Meincke, Edmund R.; and Van Essen, Willem J., to General Tire & Rubber Company, The. Method of improving paint adhesion to low-shrink polyester-based resins. 3,830,875, Cl. 260-862.000.
 Melcor Electronics Corporation: See—
 Weiss, Stuart L., 3,831,081.
 Mellor, Leslie, to Edgar Pickering (Blackburn) Limited. Tufting machines. 3,830,174, Cl. 112-79.00r.
 Menegus, Robert L. Sailboat steering aid. 3,830,183, Cl. 114-144.00c.
 Menge, Aumuehle Heinz Guenter: See—
 Hackmack, Gerhard; and Menge, Aumuehle Heinz Guenter, 3,830,818.
 Mercier, Jacques H. Pressure vessel. 3,830,259, Cl. 138-30.000.
 Merck & Co., Inc.: See—
 Mrozik, Helmut H., 3,830,928.
 Witzel, Bruce E., 3,830,922.
 Merck & Company, Inc.: See—
 Karady, Sandor; Ly, Manuel G.; Pines, Seemon H.; and Slettinger, Meyer, 3,830,827.
 Merck Patent Gesellschaft mit beschränkter Haftung: See—
 Schneider, Gerhart; Lust, Sigmund; Niethammer, Konrad; Jacobi, Ernst; Erdmann, Dietrich; and Mohr, Gunther, 3,830,643.
 Meric, Jean-Paul. Process and apparatus for counting biological particles. 3,830,569, Cl. 356-39.000.
 Merlin Gerin: See—
 Laurent, Daniel, 3,830,989.

Merrell, Kenneth C.; and Petersen, Oscar J., to Robertshaw Controls Company. Miniature capacitance level detector. 3,831,069, Cl. 317-246.000.
 Messrs. Color service GmbH: See—
 Fejer, Kazmer, 3,830,765.
 Metivier, Robert, to Societe Minerve S.A. Air-gas mixture metering device, notably for respiratory mask. 3,830,257, Cl. 137-625.410.
 Metropolitan Chicago Baptist Association, S.B.C.: See—
 Spencer, Owen C., 3,830,380.
 Metsalaiton Selluloosa Oy: See—
 Rautalahti, Pentti; Kettunen, Jyrki; and Sonni, Olavi, 3,830,689.
 Metysova, Jirina: See—
 Jilek, Jiri; Protiva, Miroslav; Metysova, Jirina; and Pomykacek, Josef, 3,830,814.
 Metzler, Allan R., to Preformed Line Products Company. Appliance for linear bodies. 3,829,937, Cl. 24-122.600.
 Meyer, Klaus, to Licentia Patent-Verwaltungs-GmbH. Circuit arrangement for generating a beam current in a cathode-ray tube. 3,831,057, Cl. 315-30.000.
 Meyers, Cal Yale; Matthews, Walter Sidney, III; and Malte, Ashok M., to Southern Illinois University Foundation. Reactions involving carbon tetrahalides with sulfones. 3,830,862, Cl. 260-668.00c.
 Mezei, George A.; and Gibbons, Harold M., to FMC Corporation. Pipe coupling with rotary clamps. 3,830,533, Cl. 285-364.000.
 Micarna AG, Fleischwarenfabrik: See—
 Griss, Giuseppe, 3,829,932.
 Michigan Chemical Corporation: See—
 Anderson, Arnold L., 3,830,779.
 Mickelson, Grant A., to Union Oil Company of California. Hydrocarbon conversion catalysts. 3,830,752, Cl. 252-435.000.
 Mickelson, Sven-Mikael; and Hall, Sture. Work table for machine tools. 3,830,485, Cl. 269-25.000.
 Miho, Takuya: See—
 Kageyama, Osamu; Kai, Manabu; Miho, Takuya; and Koga, Kunio, 3,830,707.
 Milana, Anthony A.; and Lehman, Jaime, to Kahle Engineering Co. Automatic brazing wire feeder. 3,830,420, Cl. 228-9.000.
 Millauer, Hans, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of fluoroalkyl iodides. 3,830,857, Cl. 260-653.700.
 Miller, Charlie D.; and Byrns, Edson H., to Carrier Corporation. Apparatus for expanding heat exchanger tubes in tube support sheets. 3,829,948, Cl. 29-202.00d.
 Miller, Doyle H., to Lectro-Static Magnetic Corporation. Process and apparatus for effecting efficient combustion. 3,830,621, Cl. 431-356.000.
 Miller, Gerald C. Hand exercising device. 3,830,493, Cl. 272-67.000.
 Miller, Maynard Guy, Jr.: See—
 Paisley, John C.; and Miller, Maynard Guy, Jr., 3,830,027.
 Miller, Richard W.; and Beroza, Morton, to United States of America, Agriculture. Micro-encapsulated insecticide feed-additive for control of fly larvae in cow manure. 3,830,914, Cl. 424-219.000.
 Mills, Archie W. Postal scale ruler. 3,830,322, Cl. 177-246.000.
 Milwaukee Electric Tool Corporation: See—
 Anderson, Martin P., 3,829,970.
 Mindock, John R. Blow tube with removable flange. 3,830,284, Cl. 164-200.000.
 Mine Safety Appliances Company: See—
 Marangoni, Roy D., 3,829,900.
 Miner, Carroll R., to General Instrument Corporation. 'Method of making mechanical information storage device'. 3,829,956, Cl. 29-412.000.
 Mining Systems Limited, mesne: See—
 Everett, Peter Kenneth, 3,830,437.
 Minneman, Lester C.; Trease, Ralph E.; Wills, Lowell J.; and Dietz, Raymond Louis, to Owens-Illinois, Inc. Fine line electronic micro-circuitry printing pastes. 3,830,651, Cl. 106-1.000.
 Minnesota Mining and Manufacturing Company: See—
 Henschel, John P., 3,831,039.
 Richeson, William E., Jr., 3,831,077.
 Shevlin, Thomas S., 3,830,148.
 Minolta Camera Kabushiki Kaisha: See—
 Nanba, Yasuhiro; and Sahara, Masayoshi, 3,831,040.
 Tsujimoto, Kayoshi, 3,831,180.
 Misaki, Takeshi: See—
 Mizutani, Yoshihisa; Ohba, Isao; Misaki, Takeshi; and Satoh, Harumi, 3,830,720.
 Mitchell, Maurice M., Jr.: See—
 D'Alessandro, Alfred F.; and Mitchell, Maurice M., Jr., 3,830,866.
 Mitsubishi Chemical Industries, Limited: See—
 Inomata, Jihei; Hino, Seiichi; and Tani, Tatsuo, 3,830,855.
 Mitsubishi Jukogyo Kabushiki Kaisha: See—
 Miyake, Masataka; Fujisawa, Hideya; Ogawa, Oyuki; and Okada, Shigeichi, 3,830,433.
 Mitsubishi Rayon Co., Ltd.: See—
 Kato, Tetsuji; Izumi, Mikio; Chikanishi, Kunio; Handa, Ryoji; and Kobayashi, Jinpei, 3,830,878.
 Mitsubishi Jukogyo Kabushiki Kaisha: See—
 Arita, Yukio; Ninomiya, Katsuya; and Miwa, Eiichi, 3,830,176.
 Mitsui, Yoshihiro, to Kabushiki Kaisha Suwa Seikosha. Brushless direct current motor and control therefor. 3,831,071, Cl. 318-254.000.
 Mittermaier, Armin F.: See—
 Mees, Robert D.; Mittermaier, Armin F.; and Wilcox, Albert F., 3,829,965.
 Miura, Teizo: See—

Takamizawa, Noboru; and Miura, Teizo, 3,829,954.
 Miwa, Eiichi: See—
 Arita, Yukio; Ninomiya, Katsuya; and Miwa, Eiichi, 3,830,176.
 Miyagawa, Fumihiko, to Ricoh Co. Ltd. Data superimposing device for use with camera. 3,831,183, Cl. 354-209.000.
 Miyahara, Masato: See—
 Ota, Sadayasu; and Miyahara, Masato, 3,831,034.
 Miyake, Masataka; Fujisawa, Hideya; Ogawa, Oyuki; and Okada, Shigeichi, to Mitsubishi Jukogyo Kabushiki Kaisha. Fuel injection nozzle. 3,830,433, Cl. 239-533.000.
 Miyatuka, Hajime: See—
 Tamai, Yasuo; and Miyatuka, Hajime, 3,830,741.
 Mizuno, Tetsuo: See—
 Ohkawa, Shunjiro; Yatabe, Yoshihiro; Mizuno, Tetsuo; and Matsumura, Takeshi, 3,830,610.
 Mizutani, Masashi: See—
 Seino, Tetsuya; and Mizutani, Masashi, 3,830,212.
 Mizutani, Yoshihisa; Ohba, Isao; Misaki, Takeshi; and Satoh, Harumi, to Nippon Yakin Kohyo Company Limited. Material for preventing crevice corrosion. 3,830,720, Cl. 204-197.000.
 Moberg, Sigurd M., to Brooks, E. J., Company. Seal. 3,830,538, Cl. 292-322.000.
 Mochida, Ei: See—
 Masuhara, Eiichi; Tarumi, Nirou; Nakabayashi, Nobuo; Baba, Masahiro; Tanaka, Shinsuke; and Mochida, Ei, 3,829,973.
 Mochida Seiyaku Kabushiki Kaisha: See—
 Masuhara, Eiichi; Tarumi, Nirou; Nakabayashi, Nobuo; Baba, Masahiro; Tanaka, Shinsuke; and Mochida, Ei, 3,829,973.
 Modi, Bhogilal M.: See—
 Harris, Halbert M.; and Modi, Bhogilal M., 3,830,590.
 Modutec Incorporated: See—
 Woolner, Henry R., 3,831,090.
 Moeller, Alfred H.; Demont, Michel; and Nickstadt, Albert G., to Nickstadt-Moeller, Inc. Labial compositions containing menthyl keto esters. 3,830,930, Cl. 424-308.000.
 Mohr, Gunther: See—
 Schneider, Gerhart; Lust, Sigmund; Niethammer, Konrad; Jacobi, Ernst; Erdmann, Dietrich; and Mohr, Gunther, 3,830,643.
 Mohr, Harvey O., to Hydrotech International, Inc. Apparatus and method for making sub-sea connections. 3,830,526, Cl. 285-18.000.
 Mojen, Wallace W., to Fleetwood systems, Inc. Method and apparatus for effecting article transfer through the use of magnetic fields. 3,830,353, Cl. 198-20.00r.
 Mol, Hans Cornelis; Biswas, Ranjit; and Klock, Bernard Frank, to Roanwell Corporation. Noise canceling transmitter. 3,830,988, Cl. 179-187.000.
 Molex Incorporated: See—
 Bowden, Wade R., Jr.; and Bury, Allen J., 3,831,132.
 Moller, Friedrich: See—
 Findeisen, Kurt; Wagner, Kuno; and Moller, Friedrich, 3,830,786.
 Molnar, Istvan; Wagner-Jauregg, and Jahn, Ulrich, to Siegfried Aktiengesellschaft. Method of treating parkinsonism and parkinsonoid syndromes. 3,830,918, Cl. 424-257.000.
 Momose, Katsumi: See—
 Kato, Nori; and Momose, Katsumi, 3,830,592.
 Monahan, John Francis: See—
 Dischert, Robert Adams; and Monahan, John Francis, 3,830,959.
 Monk, Trevor: See—
 Key, Ronald James; and Monk, Trevor, 3,830,378.
 Monocab, Inc.: See—
 Wright, Raymond W.; and Corey, Robert W., 3,830,163.
 Monogram Industries, Inc.: See—
 Rod, Robert L.; and Woltanski, Theodore M., 3,829,909.
 Monroe Belgium N.V.: See—
 Fader, John G.; Keijzer, Johan H.; Graulus, Marcel J. R.; and Beets, Roland H. C., 3,830,347.
 Monroe, Robert C.: See—
 Shipes, Kelly V.; and Monroe, Robert C., 3,830,587.
 Monsanto Company: See—
 Campbell, Charles R.; Danly, Donald E.; and Mueller, Werner H., 3,830,712.
 Deets, Gary L.; and Jacobs, Philip M., 3,830,889.
 Ratts, Kenneth Wayne, 3,830,841.
 Steingiser, Samuel, 3,830,893.
 Montecatini Edison S.p.A.: See—
 Dall'Asta, Gino; and Motroni, Giuseppe, 3,830,877.
 Susa, Ermanno; Davoli, Velmore; and Mayr, Adolfo, 3,830,787.
 Montesi, Edward N., to Dart Industries, Inc. Condiment receptacle caddy. 3,830,417, Cl. 224-45.00r.
 Monzini, Renato. Tire reinforcing structure. 3,830,272, Cl. 152-201.000.
 Moon, Malcolm W., to Upjohn Company, The. Method for controlling weeds with 1'-formyl-1'-halobenzenesazomethanes and formulations therefor. 3,830,642, Cl. 71-17.000.
 Moore, Arthur Ronald. Metering device for indicating the length of flat flexible material. 3,829,976, Cl. 33-134.00r.
 Moore, Harold E. Guide for portable power saws. 3,830,130, Cl. 83-745.000.
 Moore, Joseph E. Reel with spring thread. 3,830,445, Cl. 242-118.400.
 Moore, Warren A.: See—
 Schuller, Fredrick T.; and Moore, Warren A., 3,830,552.
 Morgan, Dean T.; and Davis, Jerry P., to Thermo Electron Corporation. Rankine cycle bottoming plant. 3,830,062, Cl. 60-618.000.

Morgan, Dean Thomas, to Thermo Electron Corporation. Energy storage and removal methods for rankine cycle systems. 3,830,063, Cl. 60645.000.

Morgan Yacht Corporation: *See—*
Franzese, Douglas, 3,830,028.

Morichetto, Martin, to Slapvagnskopplingar AB. Semi-trailer coupling. 3,830,523, Cl. 280-434.000.

Morikawa, Eiji; Kodama, Kenkichi; Tanaka, Tokuji; Fukatsu, Hisayoshi; and Enokida, Shizuo, to Sankyo Company Limited. Method of making bread of high sugar content. 3,830,938, Cl. 426-18.000.

Morris, Allan: *See—*
O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, 3,830,700.

Morris, Grant I.: *See—*
Green, William J.; and Hepworth, Cloyd (said Green assor. to), 3,830,434.

Morrison, Alexander McKenzie; and Brown, Charles Leslie Meredith, to Wigglesworth Limited. Bactericidal veterinary compositions. 3,830,920, Cl. 424-258.000.

Morse, Glenn B. Cutting rotor assembly. 3,830,269, Cl. 144-230.000.

Morse, John B., to Polaroid Corporation. Self-timer attachment for camera. 3,831,184, Cl. 354-240.000.

Morse, Theodore H.: *See—*
Benwood, Bruce R.; Morse, Theodore H.; and Siebenrock, Howard D., 3,830,401.

Mosler Safe Company, The: *See—*
Ruddre, Joel; and Weissmuller, Adam, 3,830,446.

Motoren-Werke Mannheim AG Vorm. Benz ABT. Stationärer Motorenbau: *See—*
Kanzler, Hans Joachim; and Aupor, Hans, 3,829,945.

Motorola, Inc.: *See—*
Daniels, R. Gary; and Foltz, James Walter, 3,830,052.
En, John, 3,831,144.
Roman, William Clair; and Wilson, Larry Ray, 3,830,665.

Motroni, Giuseppe: *See—*
Dall'Asta, Gino; and Motroni, Giuseppe, 3,830,877.

Mott, Daniel Badelier. Wheel manipulator. 3,830,388, Cl. 214-333.000.

Mounce, George R. Receiver system having multiple contributing channels. 3,831,095, Cl. 325-302.000.

Mounce, William, to Cities Service Research and Development Co. Hydrocracking and hydrosulfurization process. 3,830,728, Cl. 208-59.000.

Mount, James C.: *See—*
Ranalli, Nicholas J.; and Mount, James C., 3,830,159.

Moussaian, Gregoire; and Maillart, Gilles, to Singer Company, The. Locking device for sewing machine cabinet support platforms. 3,830,554, Cl. 312-30.000.

Mrozik, Helmut H., to Merck & Co., Inc. Substituted phenyltetrazoles as coccidiostats. 3,830,928, Cl. 424-269.000.

Mueller, Werner H.: *See—*
Campbell, Charles R.; Danly, Donald E.; and Mueller, Werner H., 3,830,712.

Muessdoerffer, Johann Nikolaus; and Niederprum, Hans, to Bayer Aktiengesellschaft. Preparation of vinylidene fluoride. 3,830,856, Cl. 260-653.500.

Muhlogger, Leopold, to Durst A.G. Fabrik Fototechnischer Apparate. Illuminating device, particularly for photographic enlarging apparatus. 3,831,021, Cl. 240-41.00r.

Muirhead, Inc.: *See—*
Long, John H., 3,830,967.
Smith, John W.; and Long, John H., 3,831,178.

Mukaiyama, Teruaki; Ueki, Masaaki; Matsueda, Rei; and Maruyama, Hiroshi, to Sankyo Company Limited. Process for the preparation of a carboxylic acid amide. 3,830,794, Cl. 260-112.500.

Muller, Heinz; and Schonefeld, Paul, to Filterwerk Mann & Hummel GmbH. Air intake system with temperature-controlled warm air valve. 3,830,210, Cl. 123-122.00d.

Muller, Karl-Heinz: *See—*
Hadick, Theodor; and Muller, Karl-Heinz, 3,830,083.

Muller, Marcel: *See—*
Bollag, Werner; Gutmann, Hugo; Hegedus, Balthasar; Kaiser, Ado; Langemann, Albert; Muller, Marcel; and Zeller, Paul, 3,830,840.

Muller, Rolf: *See—*
Bechstein, Herbert; Jaenke, Hans-Jurgen; Muller, Rolf; Ritter, Ernst; and Staudt, Heinrich, 3,830,211.

Muller, Rudolf: *See—*
Uerlichs, Johannes; Muller, Rudolf; and Kuckertz, Willi, 3,830,251.

Mullner, Stefan: *See—*
Busch, Wolfgang; and Mullner, Stefan, 3,830,772.

Multifastener Corporation: *See—*
Pouch, Thomas M.; and Ladouceur, Harold A., 3,829,957.

Murai, Asao: *See—*
Suzuki, Katsumi; Maeyashiki Isamu; Akihiro; Murai, Asao; Shiio, Tsuyoshio; and Okumura, Shinji, 3,830,832.

Murphy, George H. Jr.: *See—*
Bartoszewicz, Joseph G.; Murphy, George H. Jr.; and Schmidt, Frederick W., 3,829,943.

Murphy, George W., to K & K Manufacturing, Inc. Suckling animal feeder. 3,830,203, Cl. 119-51.110.

Murray, Daniel G.: *See—*
Luft, Leslie R.; and Murray, Daniel G., 3,830,941.

Mutshler, Otto: *See—*
Glombitza, Klaus; Mutshler, Otto; and Gottschalk, Claus, 3,830,574.

Myer, Jon H., to Hughes Aircraft Company. Biasing apparatus for magnetic domain stores. 3,831,156, Cl. 340-174.01f.

Myers, David D.: *See—*
Evans, Raymond H.; Myers, David D.; and Hunt, Wilbur W., 3,830,639.

Mylee Digital Sciences, Inc.: *See—*
Haynes, Benjamin O., 3,831,150.

Mysicka, James C.; and Lockett, William L., to Sunbeam Corporation. Frypan with removable handles and heat shield. 3,831,002, Cl. 219-432.000.

Nagamori, Yoshimasa, to Kabushiki Kaisha. Article handling apparatus with spring-assisted pantograph raising mechanism. 3,830,382, Cl. 214-1.00b.

Nagase, Tsuneyuki; and Masuko, Fujio, to Sumitomo Chemical Company, Ltd. Stabilization of norbornenes. 3,830,860, Cl. 260-666.500.

Nagayama, Kazuo, to Seiken Kogyo Kabushiki-Kaisha. Wire stripper. 3,829,951, Cl. 29-203.00d.

Nagel, Otto: *See—*
Duembgen, Gerd; Heesemann, Guenther; Hohenschutz, Heinz; Kerber, Horst; Nagel, Otto; Rothe, Robert; and Walz, Helmut, 3,830,846.

Nagler Aircraft Corporation: *See—*
Nagler, Bruno A., 3,830,588.

Nagler, Bruno A., to Nagler Aircraft Corporation. Helicopter rotor plenum chamber. 3,830,588, Cl. 416-20.000.

Naifeh, Sam C.; and Coates, James C., to Phillips Petroleum Company. Aligning apparatus. 3,830,527, Cl. 285-31.000.

Naismith, Thomas D.: *See—*
Schaefer, Ernest D.; and Naismith, Thomas D., 3,830,328.

Nakabayashi, Nobuo: *See—*
Masuhara, Eiichi; Tarumi, Nirou; Nakabayashi, Nobuo; Baba, Masahiro; Tanaka, Shinsuke; and Mochida, Ei, 3,829,973.

Nakada, Hideo; and Ishikawa, Masao, to Toyo Kogyo Co., Ltd. Drill jig for rotor of rotary mechanism. 3,830,585, Cl. 408-79.000.

Nakagawa, Takashi: *See—*
Kihara, Nobutoshi; and Nakagawa, Takashi, 3,831,198.

Nakai, Masao: *See—*
Masaoka, Yutaka; and Nakai, Masao, 3,830,551.

Nakamura, Hisashi; and Tanaka, Masatoshi, to Sumitomo Metal Industries Limited. Method of making a cross-rifled vapor generating tube. 3,830,087, Cl. 72-77.000.

Nakamura, Masahiro: *See—*
Arai, Hiroshi; Yunuki, Morio; and Nakamura, Masahiro, 3,830,018.

Nakamura, Takeshi; Satoyoshi, Yasuhiko; and Shimoda, Noboru, to Fuji Photo Film Co., Ltd. Means for opening the cover of a cassette. 3,829,947, Cl. 29-200.00d.

Nakano, Gregory S.: *See—*
Wilger, John F.; Lai, Clifford Y. C.; and Nakano, Gregory S., 3,830,488.

Nakase, Yoshiaki: *See—*
Ito, Akihiko; Yoshida, Masaru; Nakase, Yoshiaki; Iwai, Tadashi; Hayashi, Koichiro; and Okamura, Seizo, 3,830,715.

Nalley, William M.: *See—*
McGrann, John V.; and Nalley, William M., 3,830,562.

Namiki, Ryoichi: *See—*
Saito, Masatoshi; Namiki, Ryoichi; Fujii, Tadashi; and Akamatsu, Hiroyuki, 3,830,199.

Nanba, Yasuhiro; and Sahara, Masayoshi, to Minolta Camera Kabushiki Kaisha. Temperature-dependent current supplier. 3,831,040, Cl. 307-296.000.

Narahara, Hisaaki, to Sony Corporation. Magnetic recording and reproducing system. 3,830,961, Cl. 178-5.4cd.

Narayanan, Venkatachala L., to Squibb, E. R. & Sons, Inc. 1-Aziridinylcarbonyl-quinoline carboxylic acid derivatives. 3,830,817, Cl. 260-287.00r.

Narozanski, John Stanley; and Dunkley, Christopher Charles, to International Nickel Company, Inc., The. Masked electrode structure and process for electrolytic deposition of metals. 3,830,710, Cl. 204-12.000.

Narumi, Nobuo: *See—*
Kodama, Masayuki; and Narumi, Nobuo, 3,830,117.

Nathan, Amos. Function interpolator. 3,831,016, Cl. 235-197.000.

National Cash Register Company, The: *See—*
Wingard, Michael G.; Werkmeister, Dennis W.; Thies, Curt; and Anthony, William B., 3,830,734.

National Research Development Corporation: *See—*
Aiken, John Kempton; Larson, Clive; and Sanderson, Graham, 3,830,713.

Ling, Robin Sydney Mackwood; and Lee, Alan John Clive, 3,829,904.

National Starch and Chemical Corporation: *See—*
Ray-Chaudhuri, Dilip K.; Iovine, Carmine P.; and Goldberg, Albert I., 3,830,769.

National Steel Corporation: *See—*
Guttman, Earnest C.; Suchy, William J.; and Berardinelli, Vincent J., 3,830,196.

Neder, Gunter: *See—*
Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Neder, Gunter, 3,830,553.

Neilson, John Manning Savidge, to RCA Corporation. Thyristor having capacitively coupled control electrode. 3,831,187, Cl. 357-38.000.

Nelson, James: *See—*
Wilson, James; Nelson, James; and Shield, Douglas, 3,830,544.

Nelson, Richard Stuart: *See—*
Dearnaley, Geoffrey; and Nelson, Richard Stuart, 3,830,668.

Nemec, Frank A.; Thayer, Stuart W.; Eckert, William S.; Horn, Marion F.; and Dunn, Roland J., Jr., to Lykes Bros. Steamship Co., Inc. Barge with releasable supports. 3,830,177, Cl. 114-26.000.

Nemoto, Saburo: *See—*
Tamamura, Takeo; Nemoto, Saburo; Tokunaga, Takeshi; and Nemoto, Tadashi, 3,830,054.

Nemoto, Tadashi: *See—*
Tamamura, Takeo; Nemoto, Saburo; Tokunaga, Takeshi; and Nemoto, Tadashi, 3,830,054.

Netzel, Philip C., to I-T-E Imperial Corporation. Double break high voltage disconnect switch. 3,830,994, Cl. 200-48.00r.

Neuf, Donald, to RHG Electronics Laboratory, Inc. Image recovery receiver. 3,831,097, Cl. 325-446.000.

New Brunswick Scientific Co., Inc.: *See—*
Tannenbaum, Myron, 3,830,474.

New England Merchant National Bank: *See—*
Worthen, Eugene P., 3,830,350.

New Hermes Company; a partnership consisting of Schimmel, Norbert: *See—*
Sprenger, Edwin, 3,830,136.

Newell, E. Package carrier. 3,830,418, Cl. 224-48.00d.

Newport General Corporation: *See—*
Krueger, I. eland Ray; and Holt, Dana Rey, 3,830,365.

Nichols, Richard A.: *See—*
Bragg, Kenneth R.; and Nichols, Richard A., 3,830,307.

Nichols, Richard A., to Parker-Hannifin Corporation. Vapor recovery system. 3,830,074, Cl. 62-54.000.

Nickstadt, Albert G.: *See—*
Moeller, Alfred H.; Demont, Michel; and Nickstadt, Albert G., 3,830,930.

Nickstadt-Moeller, Inc.: *See—*
Moeller, Alfred H.; Demont, Michel; and Nickstadt, Albert G., 3,830,930.

Niederprum, Hans: *See—*
Muessdoerffer, Johann Nikolaus; and Niederprum, Hans, 3,830,856.

Nielsen, Kjell; and Dethloff, Finn H., to A/S Ardal og Sunndal Verk. Clamp device for detachable fastening of a supporting unit, for example a venturi tube unit, for a bag in a bag filter. 3,830,043, Cl. 55-378.000.

Niemann, Gary O.: *See—*
Billett, Ronald J.; and Niemann, Gary O., 3,830,264.

Niethammer, Konrad: *See—*
Schneider, Gerhart; Lust, Sigmund; Niethammer, Konrad; Jacobi, Ernst; Erdmann, Dietrich; and Mohr, Gunther, 3,830,643.

Ninomiya, Katsuya: *See—*
Arita, Yukio; Ninomiya, Katsuya; and Miwa, Eiichi, 3,830,176.

Nippon Kogaku K.K.: *See—*
Imai, Toshifumi; and Onogi, Kenji, 3,830,571.

Shimizu, Terushige, 3,831,182.

Nippon Selfoc Kabushiki Kaisha (a/k/a Nippon Selfoc Co., Ltd.): *See—*
Kitano, Ichiro; Koizumi, Ken; Ikeda, Yoshiro; and Matsumura, Hiroyoshi, 3,830,640.

Nippon Steel Corporation: *See—*
Hegi, Nobumitsu; and Matsubara, Sueo, 3,830,154.

Nippon Yakin Kohyo Company Limited: *See—*
Mizutani, Yoshihisa; Ohba, Isao; Misaki, Takeshi; and Satoh, Harumi, 3,830,720.

Nishida, Masamitsu; and Ouchi, Hiromu, to Matsushita Electric Industrial Co. Ltd. Piezoelectric ceramic compositions. 3,830,742, Cl. 252-62.900.

Nishio, Mastatake: *See—*
Tsuchida, Takashi; Shinoda, Kenichi; Yamamoto, Kohei; Sakamoto, Noriaki; and Nishio, Mastatake, 3,830,661.

Nistri, Ugo: *See—*
Vargiu, Silvio; Mazzoleni, Giorgio; and Nistri, Ugo, 3,830,783.

Nitsche, Hans-Jurgen: *See—*
Schulz, Jurgen; and Nitsche, Hans-Jurgen, 3,831,087.

Nitz, Rolf-Eberhard: *See—*
Raabe, Thomas; Nitz, Rolf-Eberhard; and Scholtholt, Josef, 3,830,806.

Nitzsche, Siegfried; Spork, Helmut; and Strasser, Rudolf, to Wacker-Chemie GmbH. Process for the condensation of organosilicon compounds with Si-bonded hydroxyl groups. 3,830,780, Cl. 260-46.50r.

Noguchi, Kazuo: *See—*
Amagi, Yasuo; Noguchi, Kazuo; and Inada, Satoshi, 3,830,740.

Nojima, Isao: *See—*
Tamaru, Keikichi; Nojima, Isao; and Uchida, Yukimasa, 3,831,155.

Norbutas, Stanley R.; and Diemart, John R., to Signode Corporation. Paper feed mechanism for brick stacking machines. 3,829,946, Cl. 29-200.00a.

Nordischer Maschinenbau Rud. Baader: *See—*
Suerbaum, Eberhard, 3,829,931.

Nordisk Ventilator Co. A/S: *See—*
Holt, Jorgen; Videmark, Christian; and Christiansen, Palle Hein, 3,830,145.

Nordmann, Joseph; Mattioda, Georges Dominique; Antoine, Robert Alexandre; and Loiseau, Gerard Paul Marie Henri, to Produits Chimiques Ugine Kuhlmann. Process for the treatment of hyperuricemia. 3,830,929, Cl. 424-285.000.

Norick, William B.: *See—*
Hein, Allyn J.; Norick, William B.; Ruseff, Walter Z.; and Tribley, Gilber, 3,830,594.

Norris, Kenneth Edward. Adjustable coil spring lifter. 3,830,482, Cl. 267-61.00r.

North American Mechanical Limited: *See—*
Hindenlang, Arthur W., 3,830,172.

North American Philips Corporation: *See—*
Singer, Barry M.; and Liebert, Richard Bently, 3,830,717.

North Derbyshire Engineering Company Limited: *See—*
Wragg, Ronald, 3,830,515.

Nozawa, Shozo, to Ricoh Co. Ltd. Device for controlling diaphragm in lens of single-lens reflex camera. 3,831,181, Cl. 354-45.000.

Nupla Corporation: *See—*
Carmien, Joseph Allen, 3,830,125.

Nutting Truck and Caster Company: *See—*
Biessener, Richard M., 3,830,164.

Oaks, John P., Jr. Tire spreader device. 3,830,469, Cl. 254-50.300.

Oberdiar, Robert C., to Amex Systems, Inc. Grouding device for shielded electrical cable. 3,830,957, Cl. 174-78.000.

O'Brian, Joseph: *See—*
Devear, Robert; and O'Brian, Joseph, 3,830,492.

O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, to Glaxo Laboratories Limited. Test for -lactamase activity using chromogenic cephalosporin compound. 3,830,700, Cl. 195-103.50r.

Ochrymowich, Steven. Deformable tubular rods with deformable sheet material connectors. 3,830,011, Cl. 46-29.000.

Odagi, Kanji, to Matsushita Electric Industrial Co., Ltd. Circuit for mixing four audio input signals to produce four audio output signals. 3,830,978, Cl. 179-1.00g.

Odell, Norman R.: *See—*
Mead, Theodore C.; Odell, Norman R.; and Benson, Robert F., 3,830,730.

Oeckl, Otto. Method for producing tubular bodies from two shells. 3,829,959, Cl. 29-471.100.

Ogawa, Oyuki: *See—*
Miyake, Masataka; Fujisawa, Hideya; Ogawa, Oyuki; and Okada, Shigeichi, 3,830,433.

Ohba, Isao: *See—*
Mizutani, Yoshihisa; Ohba, Isao; Misaki, Takeshi; and Satoh, Harumi, 3,830,720.

Ohgoshi, Akio; and Katagiri, Yoshiharu, to Sony Corporation. Color picture tube with deflection center control. 3,831,051, Cl. 313-75.000.

Ohkawa, Shunjiro; Yatabe, Yoshihiro; Mizuno, Tetsuo; and Matsumura, Takeshi, to Bridgestone Tire Company Limited. Apparatus for forming rubber products such as a tread rubber by extrusion. 3,830,610, Cl. 425-141.000.

Ohlhorst, Rolf: *See—*
Hanke, Peter; Ludcke, Hans-Joachim; Martinetz, Heribert; and Ohlhorst, Rolf, 3,831,122.

Ohlig, Karl P.; and Heiberger, Francis E., to Onsrud Machine Works, Inc. Turret system for machine tool. 3,830,584, Cl. 408-35.000.

Ohyama, Matsusuke. Collapsible luggage. 3,830,348, Cl. 190-43.000.

Okada, Shigeichi: *See—*
Miyake, Masataka; Fujisawa, Hideya; Ogawa, Oyuki; and Okada, Shigeichi, 3,830,433.

Okamura, Seizo: *See—*
Ito, Akihiko; Yoshida, Masaru; Nakase, Yoshiaki; Iwai, Tadashi; Hayashi, Koichiro; and Okamura, Seizo, 3,830,715.

Okiyama, Toshiaki: *See—*
Takenaka, Haruo; and Okiyama, Toshiaki, 3,830,656.

Oku, Takeshi: *See—*
Yoshizumi, Shuzo; Doe, Takao; Oku, Takeshi; and Matsumoto, Yoshimitsu, 3,830,999.

Okumura, Shinji: *See—*
Suzuki, Katsumi; Maeyashiki Isamu; Akihiro; Murai, Asao; Shiio, Tsuyoshio; and Okumura, Shinji, 3,830,832.

Okun, Ura Julieva: *See—*
Basin, Naum Genrikhovich; Vysotsky, Alexei Viktorovich; Kurochkin, Anatoly Petrovich; and Okun, Ura Julieva, 3,829,978.

Okutsu, Toshimitsu: *See—*
Ari, Atsuki; Tsuji, Nobuo; and Okutsu, Toshimitsu, 3,830,778.

Olin, John F., to Mansanto Company. Chlorophenoxyalkyl anilides. 3,830,829, Cl. 260-473.00g.

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Hudson, Doyle R., 3,830,266.

Oliver, Donald S.; and Vohl, Paul, to Ittek Corporation. Method for quasi continuous operation of an electro-optic image converter. 3,831,153, Cl. 340-173.01s.

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Ravera, Giovanni; and Cosmo, Nicola, 3,830,124.

Zabert, Alessandro; and Bettin, Edoardo, 3,831,080.

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Olson, Eugene E.: *See—*

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Matsubara, Masaki, 3,830,559.
- Onanian, Richard A. Microscope apparatus. 3,830,560, Cl. 350-238.000.
- Onogi, Kenji: See—
Imai, Toshifumi; and Onogi, Kenji, 3,830,571.
- Onsrud Machine Works, Inc.: See—
Ohlig, Karl P.; and Heiberger, Francis E., 3,830,584.
- Ooba, Yoichi: See—
Tsukuni, Hajime; Fujiki, Shun; Tsunoda, Teruo; and Ooba, Yoichi, 3,830,745.
- Oppenlaender, Knut: See—
Daeuble, Manfred; Oppenlaender, Knut; and Fikentscher, Rolf, 3,830,627.
- Orion Industries, Inc., mesne: See—
Shanklin, Donald J., 3,830,398.
- Orion Research Incorporated: See—
Krueger, John A.; and Ross, James W., 3,830,709.
- Riseman, John H.; Krueger, John; and Frant, Martin S., 3,830,718.
- Orlov, Boris Petrovich: See—
Anisimov, Pavel Mikhailovich; Evgrafov, Boris Ivanovich; Kuppev, Jury Alexandrovich; Orlov, Boris Petrovich; Kotova, Antonina Nikolaevna; Turok, Galina Iosifovna; and Berman, Pavel Gdaliyevich, 3,831,045.
- Ormat Furbin (1965) Ltd.: See—
Bronicki, Lucien Yehuda, 3,830,064.
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Cervenec, Stephen William; Orr, Albert Stanford; and Snyder, Richard N., 3,830,344.
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- Osborne, Colin Sidney: See—
Wootton, Derek Sidney; and Osborne, Colin Sidney, 3,830,956.
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Dilo, Richard, 3,829,939.
- Oster, Eugene L., to Magna Tek Systems, Inc. Focusing magnet. 3,831,121, Cl. 335-210.000.
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Mayer, Ivan; Siskin, Michael; and Otchy, Thomas G., 3,830,871.
- Ouchi, Hiromu: See—
Nishida, Masamitsu; and Ouchi, Hiromu, 3,830,742.
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Cavil, David T., 3,830,719.
- Poehlmann, Arthur G., 3,830,599.
- Ward, Harry M., 3,830,112.
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Dodd, Edwin D., 3,830,216.
- Minneman, Lester C.; Trease, Ralph E.; Wills, Lowell J.; and Dietz, Raymond Louis, 3,830,651.
- Oxy-Catalyst, Inc.: See—
Smithson, Harold R.; Conroy, Joseph E., Jr.; and Kardan, Cevat, 3,830,618.
- Oy Nokia Ab: See—
Valtonen, Rainer Iikka Tapio, 3,831,130.
- Packard Instrument Company, Inc.: See—
Kaartinen, Niilo H., 3,830,628.
- Packer, Lester. Canvas stretcher. 3,830,278, Cl. 160-378.000.
- Paglione, Robert Wayne, to RCA Corporation. Encapsulated microstrip circulator with mode elimination means. 3,831,114, Cl. 333-1.100.
- Paisley, John C.; and Miller, Maynard Guy, Jr., to Gray Manufacturing Company. Panel construction. 3,830,027, Cl. 52-204.000.
- Pako Corporation: See—
Lee, Conrad E., 3,830,419.
- Palecek, Vincent James, to Bunker Ramo Corporation. One piece free standing terminal. 3,829,955, Cl. 29-401.000.
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Veltjes, Helmut, 3,830,051.
- Paluch, Edward S., to Reliable Electric Company. Rotatable terminal block. 3,831,128, Cl. 339-18.00b.
- Parady, Victor G., Jr.: See—
Bodenheimer, Bert A.; and Parady, Victor G., Jr., 3,830,381.
- Pardee, Munson H., to Hamilton Digital Controls, Inc. Control system for liquid dispensers. 3,830,402, Cl. 222-2.00d.
- Parke, Davis & Company: See—
Williams, David C., 3,830,076.
- Parke, Donald P.: See—
King, Donald L.; Goldberg, Gerald M.; Parke, Donald P.; Priester, Willis M.; and Gebhardt, Richard A., 3,831,174.
- Parker, Robert W., to Reed International Limited. Taps and valves. 3,830,464, Cl. 251-269.000.
- Parker-Hannifin Corporation: See—
Bragg, Kenneth R.; and Nichols, Richard A., 3,830,307.
- Burge, Donald G., 3,830,531.
- Nichols, Richard A., 3,830,074.
- Parsons, Ward H. High level and low level alarm for bins and hoppers. 3,831,159, Cl. 340-246.000.
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- Pasqualini, Tullio: See—
Pasqualini, Ugo; Pasqualini, Tullio; and Zambelli, Celestino, 3,829,972.
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- Patterson, Carol M., to Research Equipment Company, Inc. Research cage apparatus with improved filter clamping means. 3,830,200, Cl. 119-15.000.
- Pattison, John B., III. Automatically releasable jib hank and method of use. 3,830,182, Cl. 114-114.000.
- Paulin, Howard Douglas, to Burroughs Corporation. Apparatus for stripping coaxial cable. 3,830,677, Cl. 156-345.000.
- Paulson, Ralph E. Simulated beam light fixture. 3,831,020, Cl. 240-10.00r.
- Pealstein, Fred: See—
Donnard, Reed E.; Rosenbaum, Marvin; Gallaccio, Anthony; and Pealstein, Fred, 3,830,157.
- Pearce, George. Continuity tester. 3,831,089, Cl. 324-122.000.
- Pearl, David R., to Gerber Garment Technology, Inc. Apparatus for dispensing a liquid onto a tool. 3,830,122, Cl. 83-169.000.
- Pechacek, Raymond E., to Hahn & Clay. Vulcanizing device. 3,830,605, Cl. 425-28.00r.
- Pecoraro, Anthony. Educational clock toy. 3,829,989, Cl. 35-39.000.
- Pehlert, William King, Jr.: See—
Mecklenburg, Paul; Pehlert, William King, Jr.; and Sullivan, Daniel David, 3,831,145.
- Peil, William, to General Electric Company. Transistor switching network with reduced dissipation. 3,831,078, Cl. 321-2.000.
- Pelabon, Andre E., to ANF-Frangeco S.A. Safety cut-off system for a circuit supplied by two alternators. 3,831,036, Cl. 307-64.000.
- Pennwalt Corporation: See—
MacLeay, Ronald Edward; and Sheppard, Chester Stephen, 3,830,797.
- Schaefer, Robert Bey, 3,830,393.
- Pentel Kabushiki Kaisha: See—
Awazi, Yoshiharu; and Yamada, Norio, 3,830,547.
- Kohn, Tadashi; and Watanabe, Tsuguo, 3,830,576.
- Pepper Mill, Inc.: See—
Maness, George S.; and Stanton, John R., 3,830,217.
- Perkins, Thomas K., to Atlantic Richfield Company. Method of well completion in permafrost. 3,830,303, Cl. 166-297.000.
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- Peters, David L., to Singer Company, The. Cathode ray tube display of a motion picture film. 3,830,973, Cl. 178-7.200.
- Peters, Merrit A.: See—
Harnish, Mark E.; and Peters, Merrit A., 3,830,653.
- Petersen, Harro, to Badische Anilin & Soda-Fabrik Aktiengesellschaft. Dialkyl N, N-dialkoxymethyl-carbamylphosphonates. 3,830,885, Cl. 260-943.000.
- Petersen, Oscar J.: See—
Merrell, Kenneth C.; and Petersen, Oscar J., 3,831,069.
- Peterson, Allen K.: See—
Kerst, A.F.; and Peterson, Allen K., 3,830,890.
- Peterson, Harold Severin, to Applied Power Industries Inc. Tire cutter apparatus. 3,830,120, Cl. 82-54.000.
- Peterson, Richard. Miniature baseball game. 3,830,497, Cl. 273-89.000.
- Petracek, Francis J.: See—
Klohs, Murlie W.; Draper, Marshall D.; and Petracek, Francis J., 3,830,803.
- Petrolite Corporation: See—
Redmore, Derek, 3,830,815.
- Petrie, Harry L.; and Jackson, Ralph W. Lock for a sliding glass door. 3,830,534, Cl. 292-162.000.
- Pfadenhauer, Ernest H. High pressure gradient chamber for liquid chromatography. 3,830,369, Cl. 210-198.00c.
- Pfaff, Alfred: See—

- Weber, Bernhard; and Pfaff, Alfred, 3,830,081.
- Pfandler-Werke AG: See—
Horsch, Rudi, 3,830,105.
- Pfenninger, Bill J.: See—
Frager, Glenn E.; and Pfenninger, Bill J., 3,830,313.
- Phillips, Kevin John, to RCA Corporation. Active nutation damping in dual-spin spacecraft. 3,830,447, Cl. 244-1.0sa.
- Phillips Petroleum Company: See—
Ezell, Emory L., 3,830,660.
- Kleiss, Louis D., 3,830,698.
- Naifeh, Sam C.; and Coates, James C., 3,830,527.
- Pitzer, Emory W., 3,830,869.
- Stratton, Charles A., 3,830,850.
- Walker, Darrell W., 3,830,868.
- White, Newell J., 3,829,983.
- Zelinski, Robert P.; and Hudson, Paul S., 3,830,675.
- Physics International Company: See—
Benford, James Nelson; Putnam, Sidney Darwin; and Stallings, Charles Henry, 3,831,101.
- Piazza, James Thomas. Automotive inertia battery disconnect device. 3,830,331, Cl. 180-103.000.
- Piccioli, Dino; and Schmid, Christian, to Ginsa General Inventors Societa Anonima. Process for the manufacture of artifacts comprising a supporting structure of reinforced thermosetting plastics. 3,830,899, Cl. 264-47.000.
- Piezza, Henry J., to WSF Industries, Inc. Warning device for high pressure vessels. 3,830,400, Cl. 220-55.300.
- Piehler, James R.: See—
Lieferman, Harry A.; Ryan, Rufus E.; and Piehler, James R., 3,830,473.
- Pieper, Louis W.: See—
Lauer, Richard E.; and Pieper, Louis W., 3,829,953.
- Pietroni, Piero, to Technofil S.p.A. Continuous metal wire annealing furnace. 3,830,478, Cl. 266-3.00r.
- Pilgram, Kurt H., to Shell Oil Company. Control of unwanted plants using 1-benzylideneamino-2-hydantoins. 3,830,805, Cl. 260-240.00f.
- Pilgram, Kurt H. G.: See—
Kollmeyer, Willy D.; Pilgram, Kurt H. G.; and Jackson, Earl K., 3,830,838.
- Pinedo, Abraham Mejia. Portable imprinting device for embossed cards. 3,830,155, Cl. 101-269.000.
- Pines, Seemon H.: See—
Karady, Sandor; Ly, Manuel G.; Pines, Seemon H.; and Slettinger, Meyer, 3,830,827.
- Pioneer Electronic Corporation: See—
Yamamoto, Isao, 3,830,986.
- Pipe Machinery Company, The: See—
Theuerkauf, Fred, 3,829,920.
- Pissiotas, Georg: See—
Martin, Henry; Rohr, Otto; and Pissiotas, Georg, 3,830,849.
- Pitney-Bowes, Inc.: See—
Zweig, Gilbert, 3,830,645.
- Pitt, Leland S.: See—
Large, George B.; and Pitt, Leland S., 3,830,887.
- Pittman, Charles D. Mailbox with sight signal. 3,830,424, Cl. 232-35.000.
- Pitzer, Emory W., to Phillips Petroleum Company. Oxidative dehydrogenation process. 3,830,869, Cl. 260-680.00e.
- Pizzurro, Rina M. Drapery hook. 3,829,928, Cl. 16-87.200.
- Plevak, Lubomir: See—
Rosenberg, Harry E.; Wojaczek, Egon; Plevak, Lubomir; and Becker, Kunibert, 3,830,070.
- P.M.L. Precision Mechanisms Ltd.: See—
Wachsmann, Mordechai; and Kann, Shlomo, 3,830,139.
- Poehlmann, Arthur G., to Outboard Marine Corporation. Rotor and gear assembly for rotary mechanisms. 3,830,599, Cl. 418-61.00a.
- Pohlig, Norbert: See—
Beser, Ali Ekber; Scholz, Wolfgang; Kaiser, Rudolf; and Pohlig, Norbert, 3,830,693.
- Poirot, Eugene M. Fishing net. 3,830,004, Cl. 43-4.500.
- Poittevin, Andre: See—
Perronnet, Jacques; Poittevin, Andre; and Demoute, Jean-Pierre, 3,830,884.
- Polanek, Edward L.: See—
Olliges, William E.; and Polanek, Edward L., 3,831,172.
- Polar Metal Plast: See—
Vuolevi, Heikki Arvid, 3,830,323.
- Polaroid Corporation: See—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,830,563.
- Batter, John F., Jr., 3,830,564.
- Gross, T. A. O.; and Ericson, John W., 3,831,192.
- Morse, John B., 3,831,184.
- Shenk, Edwin K.; and Wilson, Stewart W., 3,831,189.
- Polgar, Livia: See—
Gillan, John; Lubbock, Frederick John; and Polgar, Livia, 3,830,763.
- Polidori, Thomas P., to Contemporary Products Inc. Railway conductor bonding clamp. 3,830,427, Cl. 238-14.140.
- Pollet, Robert Joseph: See—
Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poot, Albert Lucien; and Pollet, Robert Joseph, 3,830,647.
- Polymers, Inc.: See—
Shaw, Gilbert; and Thompson, Martin Vesper, 3,829,923.
- Pomykacek, Josef: See—
Jilek, Jiri; Protiva, Miroslav; Metysova, Jirina; and Pomykacek, Josef, 3,830,814.
- Poot, Albert Lucien: See—
Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poot, Albert Lucien; and Pollet, Robert Joseph, 3,830,647.
- Porter, David H.; and Bray, Douglas R., to Thomas Industries, Inc. Collapsible chandelier. 3,831,022, Cl. 240-78.00f.
- Porter, William D., to Zinser-Textilmaschinen GmbH. Strand or thread winding apparatus. 3,830,439, Cl. 242-18.00d.
- Posen, Melvin Harris, to Ciba-Geigy Corporation. Polycyclic piperazino pontanone compositions. 3,830,916, Cl. 424-250.000.
- Positrol, Inc.: See—
Weber, Jonathan T., 3,830,509.
- Poster Products, Inc.: See—
Madey, Marion J., 3,830,169.
- Potter, John T. Facsimile dot printing system with skew. 3,830,975, Cl. 178-30.000.
- Pouch, Thomas M.; and Ladouceur, Harold A., to Multifastener Corporation. Method of assembling a self-fastening not and a panel. 3,829,957, Cl. 29-445.000.
- Pousson, James H.: See—
Hochberg Marvin S.; Welhart, Erwin K.; and Pousson, James H., 3,830,261.
- Povolotsky, Emil Lvovich: See—
Acharkan, Evgeny Adolfovich; Khaskin, Ilia Naumovich; Tstrulnikov, Isaak Meerovich; Povolotsky, Emil Lvovich; and Jurovsky, Vladimir Solomonovich, 3,830,097.
- Powell, David Barton; and Acampora, Vincent Paul, to General Electric Company. Trip unit having improved trip adjustment indicator and circuit breaker incorporating same. 3,831,120, Cl. 335-176.000.
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- Powers, William J., III; and Macaluso, Anthony, Sr., to Texaco Inc. Solvent extraction of dienes. 3,830,867, Cl. 260-677.00a.
- Powles, David Jackson: See—
Grew, Edward Leon; and Powles, David Jackson, 3,830,819.
- PPG Industries, Inc.: See—
Sperry, Lowell L., 3,830,540.
- Praetzel, Hans Eberhard; and Jenkner, Herbert, to Chemische Fabrik Kalk GmbH. Self-extinguishing moulding composition. 3,830,766, Cl. 260-28.50b.
- Prasad, Raj Nandan, to Abbott Laboratories. N'-Oxides of adenosine-5-carboxylates. 3,830,793, Cl. 260-211.50r.
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- Pray, Robert W.; and Foster, Ralph L., to Thermogenics of New York Inc. Ink curing and drying apparatus. 3,829,982, Cl. 34-4.000.
- Preformed Line Products Company: See—
Metzler, Allan R., 3,829,937.
- Prescott, Beatrice M. Disposable pet excreta container. 3,830,423, Cl. 229-53.000.
- Price, Harold M.: See—
Linzer, Frederick D.; and Price, Harold M., 3,830,107.
- Priester, Willis M.: See—
King, Donald L.; Goldberg, Gerald M.; Parke, Donald P.; Priester, Willis M.; and Gebhardt, Richard A., 3,831,174.
- Princeton Electronic Products, Inc.: See—
Hofstein, Steven R., 3,830,969.
- Princeton Polymer Laboratories, Inc.: See—
Hudgin, Donald E.; and Zawadzki, Thomas, 3,830,764.
- Produits Chimiques Ugine Kuhlmann: See—
Nordmann, Joseph; Mattioda, Georges Dominique; Antoine, Robert Alexandre; and Loiseau, Gerard Paul Marie Henri, 3,830,929.
- Propst, James P., to Ventura Manufacturing Company. Automatic bag pickup, opening and placement machine. 3,830,038, Cl. 53-190.000.
- Protiva, Miroslav: See—
Jilek, Jiri; Protiva, Miroslav; Metysova, Jirina; and Pomykacek, Josef, 3,830,814.
- Proudian, Andrew P.; and Scott, Paul B., to Xonics, Inc. Imaging gas for improved resolution in imaging chamber of electron radiography system. 3,831,027, Cl. 250-315.00a.
- Proximity Devices, Incorporated: See—
Walton, Charles A., 3,831,112.
- Pruckmayr, Gerfried: See—
Martinez, Boni Philip; and Pruckmayr, Gerfried, 3,830,768.
- Przybylinski, Phillip G.: See—
Tamborski, Robert S.; and Przybylinski, Phillip G., 3,830,167.
- Puccini, Sergio E.: See—
Eddy, John W.; and Puccini, Sergio E., 3,830,983.
- Pullman Incorporated: See—
Tamborski, Robert S.; and Przybylinski, Phillip G., 3,830,167.
- Purdum, Clyde H.; Allum, Kenneth W.; and Shackelford, Harold D., to Cleo Wrap Corporation. Packaging machine. 3,830,037, Cl. 53-124.00d.
- Purdy, Michael Leonard, to Bell-Northern Research Ltd. Quick disconnect conduit clamp. 3,830,528, Cl. 285-38.000.
- Pursell, Robert F., to Ranco Controls Limited. Control switch units. 3,831,127, Cl. 337-321.000.
- Putnam, Sidney Darwin: See—

Benford, James Nelson; Putnam, Sidney Darwin; and Stallings, Charles Henry, 3,831,101.

Putod, Rene, to Compagnie Generale de Radiologie. Tomographic X-ray diagnostic apparatus for pediatric examination. 3,831,032, Cl. 250-447.000.

Quadbeckseeger, Hans-Juergen: See—
Armbrust, Herbert; Kilpper, Gerhard; Quadbeckseeger, Hans-Juergen; Sturm, Hans-Juergen; Koehler, Waldemar; and Schecker, Hans-Georg, 3,830,863.

Quakenbush, Howard M., to Flexsteel Industries, Inc. Retractable bed assemblies. 3,829,912, Cl. 5-10.00b.

Quantum Sensing, Incorporated: See—
Lueck, Arthur M., 3,830,572.

Quenot, Michel, to Mabo, Stanley. Linear measuring instrument with incorporated braking device. 3,830,443, Cl. 242-84.800.

Quinn, Paul: See—
Martin, Ricky; and Quinn, Paul, 3,831,065.

Raabe, Thomas; Nitz, Rolf-Eberhard; and Scholtholt, Josef, to Cassello Farbwerke Mainkur Aktiengesellschaft. Derivatives of 1-phenoxy-3-amino-propan-2-ol. 3,830,806, Cl. 260-240.0j.

Rabinov, Anatoly Isaakovich: See—
Volovich, Vladimir Ruvimovich; Rabinov, Anatoly Isaakovich; Rutsky, Vladimir Vasilievich; and Jutkevich, Valery Ivanovich, 3,830,316.

Rabinov, Jacob. Vertical stabilizer for phonograph arms. 3,830,505, Cl. 274-1.00r.

Rabo, Jule A.: See—
Evin, Anthony B.; Rabo, Jule A.; Elek, Louis F.; Risch, Alan P.; and Kavarnos, Spiro J., 3,830,757.

Racz, William B.: See—
Stapfer, Christian H.; and Racz, William B., 3,830,751.

Radl, Michael D.: See—
Bernardini, Leo J.; and Radl, Michael D., 3,830,237.

Ralston Purina Company: See—
Hawley, Robert L., 3,830,942.

Herndon, Bobby A.; and Schneider, Eugene L., 3,830,798.

Retrum, Rowland, 3,830,150.

Rammner, Rudolf. Apparatus for transmitting data from a hole drilled in the earth. 3,831,138, Cl. 340-18.01d.

Rampe, John W.; and Rampe, W. Charles, to Rampe Research. Method and means for connecting an apertured part to a shaft. 3,830,577, Cl. 403-378.000.

Rampe Research: See—
Rampe, John W.; and Rampe, W. Charles, 3,830,577.

Rampe, W. Charles: See—
Rampe, John W.; and Rampe, W. Charles, 3,830,577.

Ramsey, Arthur Albert, to FMC Corporation. Herbicidal and growth-regulant compositions based on novel pyrimido (4,5-D)pyrimidinones. 3,830,812, Cl. 260-256.40f.

Ranalli, Nicholas J.; and Mount, James C., to United States of America, Army. Mechanism. 3,830,159, Cl. 102-78.000.

Ranco Controls Limited: See—
Pursell, Robert F., 3,831,127.

Randolph, Kendall B.; and Childs, Lewis B., to United States of America, Navy. Mesne. Propellant composition containing beryllium and an energetic difluoramine containing binder. 3,830,674, Cl. 149-19.300.

Ransford, Herbert E., III. Tension limiting clamping device. 3,830,525, Cl. 285-2.000.

Rappold, Hermann, & Co., GmbH: See—
Uerlich, Johannes; Muller, Rudolf; and Kuckertz, Willi, 3,830,251.

Raser, William H. Opaque-vane analog to digital converter. 3,831,169, Cl. 340-347.00p.

Rasmussen, Carl M.: See—
Rasmussen, Reed; and Rasmussen, Carl M., 3,830,466.

Rasmussen, Reed; and Rasmussen, Carl M. Camper support method. 3,830,466, Cl. 254-1.000.

Rathgeb, Paul, to Ciba-Geigy Corporation. Nematocidal and fungicidal agents. 3,830,925, Cl. 424-270.000.

Ratts, Kenneth Wayne, to Monsanto Company. Herbicidal anilides. 3,830,841, Cl. 260-557.00r.

Rau, Frederic W.: See—
Dechantsreiter, Max J.; and Rau, Frederic W., 3,830,379.

Rauenbusch, Erich; and Golker, Christian, to Farbenfabriken Bayer Aktiengesellschaft. Separation and purification of kallikrein-trypsin inhibitor. 3,830,790, Cl. 260-112.500.

Rauland-Borg Corporation: See—
Medal, Richard J., 3,831,102.

Rausch, John J.: See—
Van Thyme, Ray J.; and Rausch, John J., 3,830,670.

Rausing, Gad Anders; Stark, Sven Olof Soren; and Sevrill, Sven Gosta Uno, to Tetra Pak Development SA. Method of making packaging containers. 3,830,140, Cl. 93-36.600.

Rautalahti, Pentti; Kettunen, Jyrki; and Sonni, Olavi, to Metsaliiton Selluloosa Oy. Separate impregnation and common digestion of different wooden raw materials. 3,830,689, Cl. 162-61.000.

Ravera, Giovanni; and Cosmo, Nicola, to Olivetti, Ing., C., & C., S.p.A. Copying machine particularly of the desk-top electrostatic type. 3,830,124, Cl. 83-205.000.

Ray, Charles A., said Ray assor. to Foamex Protection Corporation. Fire extinguishing apparatus. 3,830,309, Cl. 169-65.000.

Ray-Chaudhuri, Dilip K.; Iovine, Carmine P.; and Goldberg, Albert I., to National Starch and Chemical Corporation. Fire retardant polymers. 3,830,769, Cl. 260-29.60r.

Raymond Corporation, The: See—
Allen, Ralph E., 3,830,342.

Raytheon Company: See—
Barrett, Harrison H.; Demeester, Gordon D.; and Wilson, David T., 3,831,031.

Davis, Kuther, Jr.; and Holland, Melvin G., 3,831,116.

Hapgood, William H., 3,830,221.

Scharfman, Howard, 3,830,945.

RCA Corporation: See—
Ahmed, Adel Abdel Aziz, 3,831,113.

Bazin, Lucas John, 3,831,056.

Daniel, James Walter, Jr., 3,831,037.

Dischert, Robert Adams; and Monahan, John Francis, 3,830,959.

Dorsey, Denis Peter; and Rodda, William E., 3,831,054.

Neilson, John Manning Savidge, 3,831,187.

Paglione, Robert Wayne, 3,831,114.

Phillips, Kevin John, 3,830,447.

Smalser, Paul Joseph, 3,831,074.

Re, Carlo; Conrad, Jack R.; and Tasso, Joseph A., to Dyna-Shield, Inc. Flame retardant and fire resistant roofing material. 3,830,687, Cl. 151-168.000.

Read, George D.; Tintary, F. Raymond; and Du Shane, Raymond N., Jr., to Ajax Hardware Corporation. Closure. 3,830,535, Cl. 292-170.000.

Read, Wendell S., to United States of America, Air Force. Anti-frost apparatus. 3,830,078, Cl. 62-282.000.

Readio, Philip D.: See—
Schrage, Albert; and Readio, Philip D., 3,830,872.

Readx Inc.: See—
Christensen, Wynn L., 3,831,170.

Redlich, Horst; Gluth, Joachim; and Kossak, Rolf, to TED Bildplatten Aktiengesellschaft AEG-Telefunken-Teldec. Recording of audio and video signals in the same track. 3,830,968, Cl. 178-6.60a.

Redmore, Derek, to Petrolite Corporation. Dialkyl 1,2, dihydro quinoline and 1,2, dihydro isoquinoline phosphonates. 3,830,815, Cl. 260-283.00p.

Reed, Echol M., Jr.; and Bea, Donald A., to Chevron Research Company. Vacuum residuum and vacuum gas oil desulfurization. 3,830,731, Cl. 208-211.000.

Reed, Frank E., to Rogers Brothers Company. Onion topper and slicer. 3,830,152, Cl. 99-643.000.

Reed, Homer Charles: See—
Rennick, Robert Dexter; and Reed, Homer Charles, 3,830,905.

Reed International Limited: See—
Parker, Robert W., 3,830,464.

Reed, Walter T.: See—
Johnson, Elmer R.; Reed, Walter T.; Tieman, Charles H.; and Soloway, Samuel B., 3,830,921.

Reflex Corporation of Canada Limited: See—
Birrell, Stewart H., 3,830,413.

Regnier, Gilbert; Canevari, Roger; and Laubie, Michel. 2,6-Bis al-lylamine pyrimidinyl piperazines. 3,830,811, Cl. 260-256.40n.

Rehkopf, Charles H.; and Speigel, Kenneth, to GTE Sylvania Incorporated. Apparatus for fabricating a cathode ray tube screen structure. 3,830,722, Cl. 204-299.000.

Reid, Neil George; and Stanley, Raymond Eric, to Jarvis Geochemical Limited and Geochemical Services (Holdings) Limited. Alignment system for the operating conduits of a grab. 3,829,992, Cl. 37-103.000.

Reimbold, James J., Jr.; and Kamberg, Willard C., to Chance, A. B., Company. Personnel bucket brake for hydraulic cranes. 3,830,336, Cl. 182-2.000.

Reizer, Robert F., to AMF Incorporated. Bat. 3,830,496, Cl. 273-72.00r.

Reliable Electric Company: See—
Paluch, Edward S., 3,831,128.

Reliance Electric Company: See—
Cervene, Stephen William; Orr, Albert Stanford; and Snyder, Richard N., 3,830,344.

Rempel, Robert H.; and Bulger, Joseph J. Self-levelling motion detecting device and alarm system incorporating the same. 3,831,158, Cl. 340-224.000.

Renfrew, Andrew Hunter Morris: See—
Boyd, Violet; Evans, Ronald Arthur; Holt, Kenneth Anthony; and Renfrew, Andrew Hunter Morris, 3,830,835.

Rennick, Robert Dexter; and Reed, Homer Charles, to Kerr-McGee Chemical Corporation. Oxidation of ferric chloride. 3,830,905, Cl. 423-633.000.

Research Equipment Company, Inc.: See—
Patterson, Carol M., 3,830,200.

Retrum, Rowland, to Ralston Purina Company. Feather crusher compactor. 3,830,150, Cl. 99-467.000.

Reuter, Peter; and Friedrichsen, Wilhelm, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Supported catalysis containing vanadium pentoxide and zirconium dioxide. 3,830,755, Cl. 252-456.000.

Reuter, Wolfgang: See—
Woitun, Eberhard; and Reuter, Wolfgang, 3,830,813.

Revel, Maurice J.: See—
Peron, Roger J.; and Revel, Maurice J., 3,830,980.

Revenko, Olga Mikhailovna: See—
Khcheian, Khachik Egorovich; Revenko, Olga Mikhailovna; Borisoglebskaya, Alla Viktorovna; and Fishman, Dina Lvovna, 3,830,853.

RHG Electronics Laboratory, Inc.: See—
Neuf, Donald, 3,831,097.

Rhudy, John S.: See—
Knight, Bruce L.; Rhudy, John S.; and Gogarty, William B., 3,830,298.

Rhythm Watch Company, Limited: See—
Koide, Hideo; Kuroda, Koichi; and Ito, Takeshi, 3,830,053.

Ribbans, Robert Clark, III, to Du Pont de Nemours, E. I., and Company. Storage stable filler-containing aqueous dispersion of tetrafluoroethylene polymer. 3,830,770, Cl. 260-29.60f.

Richeson, William E., Jr., to Minnesota Mining and Manufacturing Company. Regulated, controlled-rectifier power supply. 3,831,077, Cl. 321-2.000.

Ricoh Co. Ltd.: See—
Miyagawa, Fumihiko, 3,831,183.

Nozawa, Shozo, 3,831,181.

Riegl, Johannes, to Immatra AG. Method and apparatus for distance measurement. 3,830,567, Cl. 356-5.000.

Riker Laboratories, Inc.: See—
Klohs, Murle W.; Draper, Marshall D.; and Petraček, Francis J., 3,830,803.

Riley, Victor R.: See—
Robinsky, Eli I.; Timusk, John; and Riley, Victor R., 3,830,903.

Ringe, Werner, to Hauni-Werke Korber & Co., K.G. Apparatus for severing wrapped tobacco filler rods or the like. 3,830,126, Cl. 83-310.000.

Risch, Alan P.: See—
Evin, Anthony B.; Rabo, Jule A.; Elek, Louis F.; Risch, Alan P.; and Kavarnos, Spiro J., 3,830,757.

Riseman, John H.; Krueger, John; and Frant, Martin S., to Orion Research Incorporated. Ammonia sensor. 3,830,718, Cl. 204-195.00p.

Riser, Clarence B.: See—
Foltz, Robert E.; Riser, Clarence B.; and Granzow, Kurt H., 3,829,929.

Ristvedt, Victor G.; and Johnson, Roy B. Coin wrapper forming apparatus. 3,830,142, Cl. 93-81.0mt.

Ritter, Ernst: See—
Bechstein, Herbert; Jaenke, Hans-Juergen; Muller, Rolf; Ritter, Ernst; and Staudt, Heinrich, 3,830,211.

Rivenes, Ronald D.: See—
La Fave, Veryl L.; and Rivenes, Ronald D., 3,830,561.

Roach, Jerome C.: See—
Speich, Carl F.; and Roach, Jerome C., 3,830,253.

Roanwell Corporation: See—
Mol, Hans Cornelis; Biswas, Ranjit; and Kloeck, Bernard Frank, 3,830,988.

Robb, Maurice R. Refrigerator dispensing container array. 3,830,406, Cl. 222-143.000.

Robb, Wayne F., to T-Products Corporation. Mesh chair for concrete reinforcement. 3,830,032, Cl. 52-687.000.

Robbins Company, The: See—
Sugden, David B., 3,830,545.

Roberts, Arnold E., to Aeroquip Corporation. Compression type tube end connection. 3,830,532, Cl. 285-341.000.

Robertshaw Controls Company: See—
Merrell, Kenneth C.; and Petersen, Oscar J., 3,831,069.

Robinsky, Eli I.; Timusk, John; and Riley, Victor R. Carbonization of expanded natural grains. 3,830,903, Cl. 423-449.000.

Robinson, Charles C.: See—
Shaw, Robert R.; and Robinson, Charles C., 3,830,747.

Robinson, Charles M.: See—
Skippon, Robert T.; Robinson, Charles M.; Tinney, David C.; and Koopman, Simon O. M., 3,830,383.

Robles, F. Ernest: See—
Epis, James J.; and Robles, F. Ernest, 3,831,176.

Rockwell International Corporation: See—
De Nardo, Frank, 3,831,166.

Fosness, John P., 3,830,451.

Sarring, Ernest J., 3,830,354.

Schrader, Carl N., Jr., 3,830,285.

Rod, Robert L.; and Woltanski, Theodore M., to Monogram Industries, Inc. Recirculating toilet. 3,829,909, Cl. 4-10.000.

Rodda, William E.: See—
Dorsey, Denis Peter; and Rodda, William E., 3,831,054.

Rodgers, Grover. Lotto type game. 3,830,502, Cl. 273-135.00b.

Roe, Donald Cyril, to Amalgamated Dental Company Limited, The. Couplings. 3,830,579, Cl. 403-24.000.

Rogel, Albert F.: See—
Scalese, Joseph J.; and Rogel, Albert F., 3,831,084.

Rogers Brothers Company: See—
Hix, Velson Max; Simon, Warren J.; and Anderson, Donald Jay, 3,830,943.

Reed, Frank E., 3,830,152.

Rogers, Kenneth L. Liquid filter. 3,830,368, Cl. 210-94.000.

Roggenbuck, Klaus: See—
Ewert, Manfred; and Roggenbuck, Klaus, 3,830,506.

Rohr Industries, Inc.: See—
Maison, Richard L., 3,830,160.

Rohr, Otto: See—
Martin, Henry; Rohr, Otto; and Pisiotas, Georg, 3,830,849.

Roldan, Cristobal Martinez, to Laboratorios Made, S.A. Pyridoxal al-pha-ketoglutarate and pyridoxamine al-pha-keto glutarate. 3,830,821, Cl. 260-295.0vb.

Roll, William D., to University of Toledo, The. Methods and N itro-benzamide compositions for producing tranquilizing and hupoten-sive activity. 3,830,932, Cl. 424-324.000.

Rolli, Hans, to Kebe Anstalt fur Vertrieb von Anlagen fur Kehrlicht-beseitigung. Rotary tubular furnaces. 3,830,171, Cl. 110-14.000.

Rollitt, George A., to Massey-Ferguson (Australia) Limited. Cane har-vesters. 3,830,046, Cl. 56-16.500.

Rolls-Royce (1971) Limited: See—
Erlund, Mark Nicholas, 3,830,055.

Romaine, Douglas J., to Crown Zellerbach Corporation. Apparatus for simultaneously applying alternate fluid coatings to a traveling sheet material. 3,830,197, Cl. 118-104.000.

Roman, William Clair; and Wilson, Larry Ray, to Motorola, Inc. Method for delineating semiconductor junctions. 3,830,665, Cl. 156-7.000.

Ronewicz, Donald J.; and Uhl, Joseph E., to Ford Motor Company. Automatic transmission ratio indicator for use in the instrument cluster of an automotive vehicle. 3,830,192, Cl. 116-124.00r.

Root, Wayne N.: See—
Borre, Henry C.; and Root, Wayne N., 3,830,864.

Rorer, William H., Inc.: See—
Diamond, Julius; Douglas, George H.; and Burns, Bernard J., 3,830,933.

Roscher, Gunter: See—
Kronig, Walter; Roscher, Gunter; Schwerdtel, Wulf; and Sen-ne-wald, Kurt, 3,830,834.

Rose, John Brewster: See—
Leslie, Victor Jeffrey; and Rose, John Brewster, 3,830,781.

Roseby, Maurice, to Tamco Limited. Method of making gear shift lever. 3,829,958, Cl. 29-460.000.

Rosen, Jacob J.: See—
Johnson, Richard Bruce; and Winn, George, 3,830,898.

Rosenbaum, Marvin: See—
Donnard, Reed E.; Rosenbaum, Marvin; Gallaccio, Anthony; and Pealstein, Fred, 3,830,157.

Rosenberg, Harry E.; Wojaczek, Egon; Plevak, Lubomir; and Becker, Kunibert, to Gewerkschaft Eisenhutte Westfalen, Mine roof support assemblies. 3,830,070, Cl. 61-45.00d.

Rosenberger, Bjorn Jossi; and Cypionka, Erik. Contrast dyeing of articles manufactured from plasticized polyvinyl chloride homopolymers and copolymers. 3,830,626, Cl. 8-4.000.

Ross, James W.: See—
Krueger, John A.; and Ross, James W., 3,830,709.

Rotary Hoes Limited: See—
Daines, Derrick Arthur, 3,830,114.

Rothe, Robert: See—
Duembgen, Gerd; Heesemann, Guenther; Hohenschutz, Heinz; Kerber, Horst; Nagel, Otto; Rothe, Robert; and Walz, Helmut, 3,830,846.

Rothwell, Eric; and Smalley, Graham, to Allied Colloids Manufac-turing Company Limited. Conductive papers. 3,830,655, Cl. 117-201.000.

Roussel Uclaf: See—
Perronet, Jacques; Poittevin, Andre; and Demoute, Jean-Pierre, 3,830,884.

Rowe Industries; division of Coleman Cable & Wire Company: See—
Hawkins, Carl J., 3,830,616.

Rowland Development Corporation: See—
Rowland, William P., 3,830,682.

Rowland, William P., to Rowland Development Corporation. Retroreflecting signs and the like with novel day-night coloration. 3,830,682, Cl. 161-2.000.

Rubel, Ira A.: See—
Hersch, Walter; and Rubel, Ira A., 3,830,090.

Rubin, Alan B.: See—
Garrett, Roger L.; Garrett, Charles B., Jr.; and Rubin, Alan B., 3,830,789.

Rubin, Edwin H.; and Ciringione, Joseph L., to United States of Amer-ica, Navy. High velocity water ring apparatus. 3,830,102, Cl. 73-148.000.

Ruddre, Joel; and Weissmuller, Adam, to Mosler Safe Company, The. Terminal for pneumatic tube dispatch system. 3,830,446, Cl. 243-19.000.

Rudinec, Joseph P.: See—
Boop, John L.; and Rudinec, Joseph P., 3,830,602.

Rudinsky, Julius A. Method for the control of the Douglas Fir beetle. 3,830,935, Cl. 424-331.000.

Ruegg, Frank A.; and Silva, Lawrence M., to Beckman Instruments, Inc. Active filter circuit. 3,831,103, Cl. 330-109.000.

Ruf, Max, to Audi Nsu Auto Union Aktiengesellschaft and Wankel G.m.b.H. Housing for rotary combustion engines. 3,830,598, Cl. 418-60.000.

Ruhdorfer, Alois. Process for the production of frittaten. 3,830,946, Cl. 426-347.000.

Ruigrok, Hendricus Cornelius Maria: See—
Ruigrok, Hendricus Cornelius Maria; and Kuipers, Hendricus Maria (said Kuipers assor. to said), 3,829,986.

Ruigrok, Hendricus Cornelius Maria; and Kuipers, Hendricus Maria, said Kuipers assor. to said Ruigrok, Hendricus Cornelius Maria. Forage dryer. 3,829,986, Cl. 34-216.000.

Rumstein, Melvin. Traffic controller training aid. 3,830,951, Cl. 35-10.400.

Rundle, Alfred T., to International Business Machines Corporation. Optimum scan angle determining means. 3,831,146, Cl. 340-146.30h.

Ruseff, Walter Z.: See—
Hein, Allyn J.; Norick, William B.; Ruseff, Walter Z.; and Tribley, Gilber, 3,830,594.

- Rush-Hampton, Inc.: See—
Harich, Jakob, 3,830,913.
- Russell, Ralph T.: See—
Chiasson, William J.; and Russell, Ralph T., 3,830,904.
- Russell, Richard M., to Goodyear Tire & Rubber Company, The. Treads, pneumatic tires and a process for improving tire performance. 3,830,275, Cl. 152-357.000.
- Rutherford, Sherman L.; and Feinlieb, Morris, to Varian Associates. Photoconductor-glass binder plate with insulating resin in pores. 3,830,648, Cl. 96-1.500.
- Rutsky, Vladimir Vasilievich: See—
Volovich, Vladimir Ruvimovich; Rabinov, Anatoly Isaakovich; Rutsky, Vladimir Vasilievich; and Jutkevich, Valery Ivanovich, 3,830,316.
- Ryan, Rufus E.: See—
Lieferman, Harry A.; Ryan, Rufus E.; and Piehler, James R., 3,830,473.
- S. I. Handling Systems, Incorporated: See—
Jenkinson, Bruce Ian, 3,830,409.
- Sagami Chemical Research Center: See—
Ichikawa, Masaru; Kondo, Toshihiko; and Tamaru, Kenzi, 3,830,753.
- Saginaw Products Corporation: See—
Young, Richard S., 3,830,385.
- Sagochi, Hilmi F., to Chevron Research Company. Method of initiating and collecting seismic data related to strata underlying bodies of water using a continuously moving seismic exploration system located on a single boat. 3,831,136, Cl. 340-7.00r.
- Sahara, Masayoshi: See—
Nanba, Yasuhiro; and Sahara, Masayoshi, 3,831,040.
- Saito, Masatoshi; Namiki, Ryoichi; Fujii, Tadashi; and Akamatsu, Hiroyuki, to Kabushiki Kaisha Ricoh. Device for developing an electrostatic image with a developing fluid. 3,830,199, Cl. 118-637.000.
- Saito, Tsunenari: See—
Fuse, Yuzo; Yamanaka, Seisuke; and Saito, Tsunenari, 3,830,958.
- Sakamoto, Masaji: See—
Yoshie, Koichi; Masaki, Kunihiko; and Sakamoto, Masaji, 3,830,539.
- Sakamoto, Minoru. Height extender. 3,829,990, Cl. 36-7.800.
- Sakamoto, Noriaki: See—
Tsuchida, Takashi; Shinoda, Kenichi; Yamamoto, Kohei; Sakamoto, Noriaki; and Nishio, Mastatake, 3,830,661.
- Sakasai, Toshio; and Yuasa, Katsumi, to Kikkoman Shoyu Co., Ltd. Process for producing soy sauces. 3,830,939, Cl. 426-46.000.
- Salladay, Mack, to Action Industries, Inc. Paint bucket. 3,829,926, Cl. 15-257.060.
- Salmon, Kurt, Associates, Inc.: See—
Theodorsen, Theodore E., 3,830,895.
- Sanchez, Moises G.; Maselli, James M.; and Graham, James R., to Grace, W. R., & Co. Noble metal catalysts 242/462.000, 3,830,756, Cl. 1.
- Sanderson, Graham: See—
Aiken, John Kempton; Larson, Clive; and Sanderson, Graham, 3,830,713.
- Sanderson, James L.: See—
Hagert, Robert D.; and Sanderson, James L., 3,830,270.
- Sandoz-Wander, Inc.: See—
Eberle, Marcel K.; and Houlihan, William J., 3,830,802.
- Sankyo Company Limited: See—
Morikawa, Eiji; Kodama, Kenkichi; Tanaka, Tokuji; Fukatsu, Hisayoshi; and Enokida, Shizuo, 3,830,938.
- Mukaiyama, Teruaki; Ueki, Masaaki; Matsueda, Rei; and Maruyama, Hiroshi, 3,830,794.
- Sargeant, Archibald, to Wingard Limited. Safety seat belt assemblies. 3,830,444, Cl. 242-107.400.
- Sarring, Ernest J., to Rockwell International Corporation. Feed, transport and delivery mechanism for book trimmers and the like. 3,830,354, Cl. 198-165.000.
- Sastri, Aiyaswami S.: See—
Fischbein, Irwin W.; Alexander, Ben H.; and Sastri, Aiyaswami S., 3,829,969.
- Satoh, Harumi: See—
Mizutani, Yoshihisa; Ohba, Isao; Misaki, Takeshi; and Satoh, Harumi, 3,830,720.
- Satoyoshi, Yasuhiko: See—
Nakamura, Takeshi; Satoyoshi, Yasuhiko; and Shimoda, Noboru, 3,829,947.
- Sauvage, Michel, to Commissariat a l'Energie Atomique. Nuclear reactor. 3,830,695, Cl. 176-38.000.
- Scalese, Joseph J.; and Rogel, Albert F. Eddy current probe with means for selectively permitting a stationary or a helical scan. 3,831,084, Cl. 324-40.000.
- Schaefer, Ernest D.; and Naismith, Thomas D., to General Motors Corporation. Parking brake apply mechanism. 3,830,328, Cl. 180-82.00b.
- Schaefer, Robert Bey, to Pennwalt Corporation. Snap-on safety closure for flexible containers. 3,830,393, Cl. 215-9.000.
- Schaffel, Walter. Clamping stand. 3,830,340, Cl. 182-226.000.
- Schanze, Klaus: See—
Forster, Karl-Heinz; Vetter, Lothar; Johnne, Hans; and Schanze, Klaus, 3,831,100.
- Scharfman, Howard, to Raytheon Company. Method and apparatus for processing eggs with microwave energy. 3,830,945, Cl. 426-243.000.
- Schecker, Hans-Georg: See—
Armbrust, Herbert; Kilpper, Gerhard; Quadbeckseeger, Hans-Juergen; Sturm, Hans-Juergen; Koehler, Waldemar; and Schecker, Hans-Georg, 3,830,863.
- Schering Aktiengesellschaft: See—
Daum, Joachim; and Kieslich, Klaus, 3,830,696.
- Strehlke, Peter; Schroder, Eberhard; and Kessler, Hans-Joachim, 3,830,826.
- Schimmel, Stephen: See—
Sprenger, Edwin, 3,830,136.
- Schindehutte, Manfred: See—
Dieling, Hans; and Schindehutte, Manfred, 3,830,166.
- Schippers, Heinz; Bauer, Karl H.; and Frolich, Karl-Werner, to Martens, Gerhard and Barmag Barmer Maschinenfabrik Aktien-gesellschaft. Textile machine. 3,831,005, Cl. 235-61.60r.
- Schirtzinger, Paul E.: See—
Harkness, Kenneth A.; Kettunen, D. Mark; and Schirtzinger, Paul E., 3,830,036.
- Schlaudi, Charles M.; Clendenen, Ronald L.; and Olson, Eugene E., to Shell Oil Company. Ceramic permanent magnet. 3,830,743, Cl. 252-52.630.
- Schmid, Christian: See—
Piccioli, Dino; and Schmid, Christian, 3,830,899.
- Schmidt, Frederick W.: See—
Bartoszewicz, Joseph G.; Murphy, George H. Jr.; and Schmidt, Frederick W., 3,829,943.
- Schneider, Eugene L.: See—
Herndon, Bobby A.; and Schneider, Eugene L., 3,830,798.
- Schneider, Frank H., to United States of America, Army. Insulation application. 3,830,666, Cl. 156-84.000.
- Schneider, Gerhart; Lust, Sigmund; Niethammer, Konrad; Jacobi, Ernst; Erdmann, Dietrich; and Mohr, Gunther, to Merck Patent Gesellschaft mit beschränkter Haftung. Regulation of flower and fruit set in cultured plants. 3,830,643, Cl. 71-107.000.
- Schoefer, Franz: See—
Hoffmann, Rudolf; Mackuth, Manfred; Mattuschka, Werner; and Schoefer, Franz, 3,831,043.
- Schoerner, Roger J.: See—
Chia, Enrique C.; and Schoerner, Roger J., 3,830,635.
- Schoffmann, Friedrich. Airfoil wing for aircraft. 3,830,449, Cl. 244-35.00r.
- Scholtholt, Josef: See—
Raabe, Thomas; Nitz, Rolf-Eberhard; and Scholtholt, Josef, 3,830,806.
- Scholz, Wolfgang: See—
Beser, Ali Ekber; Scholz, Wolfgang; Kaiser, Rudolf; and Pohlig, Norbert, 3,830,693.
- Schonefeld, Paul: See—
Muller, Heinz; and Schonefeld, Paul, 3,830,210.
- Schottel-Werft Josef Becker KG: See—
Krautkremer, Franz, 3,830,184.
- Schoumaker, Henry; and Yerouchalmi, David, to Commissariat a l'Energie Atomique. Rotary furnaces of the plasma-arc heating type. 3,830,950, Cl. 13-9.000.
- Schrader, Carl N., Jr., to Rockwell International Corporation. Adjustable casting pattern. 3,830,285, Cl. 164-249.000.
- Schrage, Albert; and Readio, Philip D., to Dart Industries Inc. Use of xylene in controlling melt flow of modified polyolefin compositions. 3,830,872, Cl. 260-827.000.
- Schroder, Eberhard: See—
Strehlke, Peter; Schroder, Eberhard; and Kessler, Hans-Joachim, 3,830,826.
- Schroeder, Kenneth J.: See—
Brindley, Richard B.; and Schroeder, Kenneth J., 3,830,408.
- Schuchman, Frederick E. Keeper for cuff links and tie tacks. 3,829,936, Cl. 24-97.000.
- Schuller, Fredrick T.; and Moore, Warren A., to United States of America, National Aeronautics and Space Administration. Journal bearings. 3,830,552, Cl. 308-121.000.
- Schultz, Ronald G., to United States Steel Corporation. System for feedback control of casting speed. 3,830,282, Cl. 164-155.000.
- Schulz, Jurgen; and Nitsche, Hans-Jurgen, to Licentia Patent-Verwaltungs-G.m.b.H. Biological cell analysis. 3,831,087, Cl. 324-71.0cp.
- Schulz, Rudolf: See—
Kuckhermann, Gustav; and Schulz, Rudolf, 3,830,144.
- Schulze-Berge, Karl J., to AMF Incorporated. Multi-circuit cycle timer and modular construction. 3,830,993, Cl. 200-35.00r.
- Schumacher, Bernd: See—
Ullmann, Werner; Sieg, Arno; Mattei, Silvano; and Schumacher, Bernd, 3,830,996.
- Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Neder, Gunter, to SKF Industrial Trading and Development Company B.V. Apparatus for mounting rotary drums. 3,830,553, Cl. 308-230.000.
- Schutt, Hans U., to Shell Oil Company. Hydrocracking process. 3,830,724, Cl. 208-111.000.
- Schwanauer, Francis J.: See—
Davis, Martin F.; Schwanauer, Francis J.; and Walker, Gary J., 3,831,195.
- Schwartz, Ira R., to United States of America, National Aeronautics and Space Administration. Abating exhaust noises in jet engines. 3,830,431, Cl. 239-265.110.
- Schwartzman, Gilbert. Striping applicator. 3,830,573, Cl. 401-193.000.
- Schweizerische Aluminium AG: See—
Arbenz, Heinz; and Baumgartner, Werner, 3,830,279.

- Schwerdtel, Wulf: See—
Kronig, Walter; Roscher, Gunter; Schwerdtel, Wulf; and Sennewald, Kurt, 3,830,834.
- Scio Cabinet Company, Inc.: See—
Loy, George W., 3,830,680.
- SCM Corporation: See—
Cappotto, Samuel D., 3,830,351.
- Scott, David Bradshaw, to Stanley Tools Limited. Cutting and/or abrading tool. 3,829,942, Cl. 29-78.000.
- Scott, Frederick M., to AMF Incorporated. Bailer for boats. 3,830,185, Cl. 114-183.00r.
- Scott, Paul B.: See—
Proudian, Andrew P.; and Scott, Paul B., 3,831,027.
- Scott, William A.: See—
Graff, Lars U.; and Scott, William A., 3,830,360.
- Sea-Land Service, Inc.: See—
Bodenheimer, Bert A.; and Parady, Victor G., Jr., 3,830,381.
- Searle, G. D., & Co.: See—
Short, George E., 3,830,907.
- Seaton, Thomas: See—
Bowden, Roy Dennis; and Seaton, Thomas, 3,830,820.
- Seay, Samuel D., to Kaman Aerospace Corporation. Monorail traverse system. 3,830,452, Cl. 244-116.000.
- Sebastian, Anthony, to Mallet & Co., Inc. Automatic machine for greasing bakery pans and depositing batter therein. 3,830,608, Cl. 425-103.000.
- See, Gary G.: See—
Zupancic, Anton Z.; and See, Gary G., 3,831,188.
- Sefried, Harry M., II, to Sturm, Ruger, & Co., Inc. Revolver cylinder pin and retaining means therefor. 3,830,001, Cl. 42-59.000.
- Seigrist, Adolf Emil, to Ciba-Geigy AG. Diphenyl derivatives. 3,830,848, Cl. 260-607.00a.
- Seiken Kogyo Kabushiki-Kaisha: See—
Nagayama, Kazuo, 3,829,951.
- Seilieb: See—
Liber, Michel, 3,830,363.
- Seino, Tetsuya; and Mizutani, Masashi, to Yamaha Hatsudoki Kabushiki Kaisha. Chain-sprocket transmission means in piston-crank mechanism. 3,830,212, Cl. 123-192.00b.
- Selas Corporation of America: See—
Turner, Charles A., 3,830,023.
- Seltzer, Daniel Arron, to Gamon-Calmel Industries, Inc. Remote visual readout. 3,831,171, Cl. 340-347.0dd.
- Sem, Bjarne. Container for transport by means of compressed air of granular or sluggishly flowing material. 3,830,548, Cl. 302-47.000.
- Sennewald, Kurt: See—
Kronig, Walter; Roscher, Gunter; Schwerdtel, Wulf; and Sennewald, Kurt, 3,830,834.
- Severinsson, Lars Mattis, to Svenska Aktiebolaget Bromsregulator. Force-transmitting device. 3,830,061, Cl. 60-533.000.
- Sevrell, Sven Gosta Uno: See—
Rausing, Gad Anders; Stark, Sven Olof Soren; and Sevrell, Sven Gosta Uno, 3,830,140.
- Sewell, Robert G. S.; and Austin, Carl F. Explosive line cutting device. 3,830,156, Cl. 102-22.000.
- Sexsmith, Frederick H.: See—
Manino, Louie G.; and Sexsmith, Frederick H., 3,830,784.
- Shackelford, Harold D.: See—
Purdum, Clyde H.; Allum, Kenneth W.; and Shackelford, Harold D., 3,830,037.
- Shafer, John I.: See—
Fletcher, James C.; Shafer, John I.; and Simmons, George M., 3,830,673.
- Shanklin, Donald J., to Orion Industries, Inc., mesne. Pressure relief radiator cap. 3,830,398, Cl. 220-40.00s.
- Sharma, Girijesh Kumar: See—
Bywood, Roy; Gallagher, Gerard; Sharma, Girijesh Kumar; and Walker, Derek, 3,830,801.
- Shatila, Mounir A., to American Potato Company. Process for converting retrograded amylose contained within cells of a dehydrated potato product to soluble amylose. 3,830,949, Cl. 426-456.000.
- Shaw, Gilbert; and Thompson, Martin Vesper, to Polymers, Inc.. Sweeping elements. 3,829,923, Cl. 15-159.00a.
- Shaw, James Thomas; Fawcett, Colin Graham; and Lilley, Raymond Percy Arthur, to Baker Perkins Limited. Clamping mechanism. 3,830,022, Cl. 51-217.000.
- Shaw, Norman: See—
Jones, Gordon Robert; Shaw, Norman; and Vere, Anthony Wor-
swick, 3,831,029.
- Shaw, Philip E.; Daum, Sol J.; and Clarke, Robert L., to Sterling Drug Inc. Polyhydrophenanthrene derivatives. 3,830,843, Cl. 260-564.00f.
- Shaw, Robert R.; and Robinson, Charles C., to American Optical Corporation. Neodymium glass laser having room temperature output at wavelengths shorter than 1060 NM. 3,830,747, Cl. 252-301.40f.
- Shell Oil Company: See—
Condon, Nancy J., 3,830,767.
- De La Mare, Harold E., 3,830,880.
- Johnson, Elmer R.; Reed, Walter T.; Tieman, Charles H.; and Soloway, Samuel B., 3,830,921.
- Kollmeyer, Willy D.; Pilgram, Kurt H. G.; and Jackson, Earl K., 3,830,838.
- Ladeur, Peter; and Van Gooswilligen, Gerrit, 3,830,723.
- Pilgram, Kurt H., 3,830,805.
- Schlaudi, Charles M.; Clendenen, Ronald L.; and Olson, Eugene E., 3,830,743.
- Schutt, Hans U., 3,830,724.
- Thomeer, Johannes H., 3,830,299.
- Shelton, Russell S. Fireplace grate. 3,830,218, Cl. 126-164.000.
- Shenk, Edwin K.; and Wilson, Stewart W., to Polaroid Corporation. Wideband frequency compensation system. 3,831,189, Cl. 360-8.000.
- Sheppard, Chester Stephen: See—
MacLeay, Ronald Edward; and Sheppard, Chester Stephen, 3,830,797.
- Sherain, Monroe B.: See—
Fischer, Leonard G.; Sherain, Monroe B.; and Strum, Klemens, 3,830,948.
- Shevlin, Thomas S., to Minnesota Mining and Manufacturing Company. Device and method for storing and cooking food. 3,830,148, Cl. 99-359.000.
- Shield, Douglas: See—
Wilson, James; Nelson, James; and Shield, Douglas, 3,830,544.
- Shigeno, Kunihiko; Deshimaru, Osamu; Aramaki, Takayuki; Kuroki, Katsunobu; and Kitaue, Kazuo, to Kegoshima-Ken. Balanced amino acid feed composition for prawns. 3,830,937, Cl. 426-2.000.
- Shiio, Tsuyoshio: See—
Suzuki, Katsumi; Maeyashiki Isamu; Akihiro; Murai, Asao; Shiio, Tsuyoshio; and Okumura, Shinji, 3,830,832.
- Shimizu, Akihiko: See—
Inoue, Kiyoshi; and Shimizu, Akihiko, 3,830,475.
- Shimizu, Terushige, to Nippon Kogaku K.K. Water-proof camera construction. 3,831,182, Cl. 354-64.000.
- Shimoda, Noboru: See—
Nakamura, Takeshi; Satoyoshi, Yasuhiko; and Shimoda, Noboru, 3,829,947.
- Shimoji, Masaharu; and Shiraishi, Hideo, to Toyo Kogyo Co. Ltd. Rotary piston sealing arrangement. 3,830,600, Cl. 418-113.000.
- Shingler, Anthony Harold: See—
O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, 3,830,700.
- Shinoda, Kenichi: See—
Tsuchida, Takashi; Shinoda, Kenichi; Yamamoto, Kohei; Sakamoto, Noriaki; and Nishio, Mastatake, 3,830,661.
- Shipes, Kelly V.; and Monroe, Robert C., to Hudson Products Corporation. Axial flow fan assembly. 3,830,587, Cl. 415-130.000.
- Shiraishi, Hideo: See—
Shimoji, Masaharu; and Shiraishi, Hideo, 3,830,600.
- Shirley, Billie J. Safety valve for use in wells. 3,830,296, Cl. 166-191.000.
- Short, George E., to Searle, G. D., & Co. Compositions for the sustained release of 17a-ethyl 19-nortestosterone. 3,830,907, Cl. 424-19.000.
- Shroder Machine & Tool, Inc.: See—
Trevarrow, David J., 3,830,586.
- Shtepa, Pavel Korneevich: See—
Korotenko, Boris Evdolimovich; Korotenko, Vitaly Borisovich; and Shtepa, Pavel Korneevich, 3,831,049.
- Siebenrock, Howard D.: See—
Benwood, Bruce R.; Morse, Theodore H.; and Siebenrock, Howard D., 3,830,401.
- Sieg, Arno: See—
Ullmann, Werner; Sieg, Arno; Mattei, Silvano; and Schumacher, Bernd, 3,830,996.
- Siegfried Aktiengesellschaft: See—
Molnar, Istvan; Wagner-Jauregg; and Jahn, Ulrich, 3,830,918.
- Siemens Aktiengesellschaft: See—
Bauerlein, Rudolf; and Uhl, Dieter, 3,829,961.
- Christiansen, Hans-Martin, 3,830,982.
- Deserno, Ulrich; and Haussuehl, Siegfried, 3,830,558.
- Foerster, Hans-Joachim, 3,831,003.
- Hoffmann, Rudolf; Mackuth, Manfred; Mattuschka, Werner; and Schoefer, Franz, 3,831,043.
- Keller, Roman, 3,831,064.
- Kniepkamp, Hermann, 3,831,068.
- Liska, Manfred; Kuhnlein, Hans; and Kogler, Georg, 3,831,075.
- Marten, Fritz, 3,830,162.
- Winkler, Josef; and Falkenberg, Dieter, 3,830,664.
- Signode Corporation: See—
Norbutas, Stanley R.; and Diemart, John R., 3,829,946.
- Sikra, John F.: See—
Andrejkovics, Richard S.; and Sikra, John F., 3,830,103.
- Silber, Terence Brian. Seat belt actuating means. 3,830,518, Cl. 280-150.0sb.
- Silva, Lawrence M.: See—
Ruegg, Frank A.; and Silva, Lawrence M., 3,831,103.
- Simmons, George M.: See—
Fletcher, James C.; Shafer, John I.; and Simmons, George M., 3,830,673.
- Simon Engineering Dudley Limited: See—
Ashworth, Denis Henry, 3,830,339.
- Simon, Warren J.: See—
Hix, Velson Max; Simon, Warren J.; and Anderson, Donald Jay, 3,830,943.
- Simonelec, Joseph J., to GTE Automatic Electric Laboratories Incorporated. Active trimming of film deposited oscillators. 3,829,962, Cl. 29-593.000.

- Singer, Barry M.; and Liebert, Richard Bently, to North American Philips Corporation. Semiconductor camera tube target. 3,830,717, Cl. 204-192.000.
- Singer Company, The: See—
Caudill, Herman T., 3,830,954.
Gronner, Alfred D.; and Deleo, Louis, 3,831,168.
Moussaiian, Gregoire; and Maillart, Gilles, 3,830,554.
Peters, David L., 3,830,973.
Wagner, Robert W., 3,831,048.
- Singer, Karl. Changeable message sign removable cassette. 3,829,997, Cl. 40-86.000.
- Sinsky, Joel A., to United States of America, Navy. Accelerometer comparator. 3,830,091, Cl. 73-1.00d.
- Siskin, Michael: See—
Mayer, Ivan; Siskin, Michael; and Otchy, Thomas G., 3,830,871.
- Siverling, Michael McHugh; and Wilson, Melvin George, to International Business Machines Corporation. Sensitivity compensation for a self scanned photodiode array. 3,830,972, Cl. 178-7.100.
- Sivetz, Michael. Preparation of aqueous beverage concentrate of coffee. 3,830,940, Cl. 426-148.000.
- Sixt, Marty E., to Advanced Drainage Systems, Inc. Corrugated drainage tube with restraining screen. 3,830,373, Cl. 210-489.000.
- Sixten Engleson Teknisk Konsult AB: See—
Carlstedt, Sven Borje Fredrik, 3,830,995.
- SKF Industrial Trading and Development Company B.V.: See—
Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Neder, Gunter, 3,830,553.
- Skinner, Joseph L.: See—
Gordon, Ronnie D.; Johnson, Gary R.; Skinner, Joseph L.; and Leach, Bruce E., 3,830,859.
- Skippon, Robert T.; Robinson, Charles M.; Tinney, David C.; and Koopman, Simon O. M. Unloader. 3,830,383, Cl. 214-17.0db.
- Skogsagarnas Industri Aktiebolag: See—
Mannbro, Nils Viktor, 3,830,688.
- Slapvagnskoppling AB: See—
Morichetto, Martin, 3,830,523.
- Slattery, Robert E.; and Braukhoff, Ronald E., to Atwood Vacuum Machine Co. Coupler. 3,830,580, Cl. 403-122.000.
- Slettinger, Meyer: See—
Karady, Sander; Ly, Manuel G.; Pines, Seemon H.; and Slettinger, Meyer, 3,830,827.
- Slusarchyk, William A.; and Wesenborn, Frank Lee, to Squibb, E. R., & Sons, Inc. Diumycin A and B and salts thereof. 3,830,936, Cl. 424-116.000.
- Smalley, Graham: See—
Rothwell, Eric; and Smalley, Graham, 3,830,655.
- Smalser, Paul Joseph, to RCA Corporation. Rotator system including a remote drive motor and a local indicator-control motor. 3,831,074, Cl. 318-265.000.
- Smeaton, John R.: See—
Stussman, Gerald J.; Larsson, Karl H.; and Smeaton, John R., 3,830,701.
- Smedley, Richard W. Ski lock and carrier. 3,830,416, Cl. 224-45.00s.
- Smith, F. L. & Co.: See—
Christiansen, Soren B., 3,830,623.
- Smith, Donald A.: See—
La Marre, David A.; Battista, Albert D.; and Smith, Donald A., 3,831,104.
- Smith, Frederick Arthur: See—
Coates, Ronald Bell; Marsden, Ralph John Basil; Smith, Frederick Arthur; and Towle, Gerald, 3,830,617.
- Smith, John W.; and Long, John H., to Muirhead, Inc. Electrostatic marking system with a load stabilized power supply. 3,831,178, Cl. 346-74.0es.
- Smith, Robert McKee: See—
Perneski, Anthony John; and Smith, Robert McKee, 3,831,152.
- Smith, Roy A., to TRW Inc. Optical imaging of sound fields by heterodyning. 3,831,135, Cl. 340-3.00r.
- Smith, William Arthur, to Babcock & Wilcox Limited. 3,830,250, Cl. Valve proving system.
- Smith, X. S., Inc.: See—
Gahler, Charles C., 3,830,033.
- Smith-Veniz, William Reid: See—
Teass, Horace A., Jr.; and Smith-Veniz, William Reid, 3,831,083.
- Smithkey, John C., Jr., to Goodyear Tire & Rubber Company, The. Tire with folded breaker belt splicing. 3,830,276, Cl. 152-361.0fp.
- Smithson, Harold R.; Conroy, Joseph E., Jr.; and Kardan, Cevat, to Oxy-Catalyst, Inc. Apparatus and method for increasing the temperature of an effluent burner. 3,830,618, Cl. 431-5.000.
- Smorenburg, Johannes Jacobus, to Stork Amsterdam N.V. Apparatus for liquid extraction from liquid-containing material with an adjustable discharge opening. 3,830,153, Cl. 100-121.000.
- Smyth Manufacturing Company, The: See—
Desantis, Francis J., 3,830,358.
- Sneathor, Adrianus Cornelis Josephus Maria; and Sonneveld, Abraham, to U.S. Philips Corporation. Method of manufacturing electrically conducting material having a positive temperature coefficient of the resistance, and conductor manufactured of this material. 3,830,758, Cl. 252-521.000.
- Snider, James Roy, to Alcan Research and Development Limited. Method of continuously casting aluminum for simultaneous production of plural ingots. 3,830,281, Cl. 164-82.000.
- Snyder, Richard N.: See—
Cervenec, Stephen William; Orr, Albert Stanford; and Snyder, Richard N., 3,830,344.
- Sobrinho, Leonardo Pricoli. Air shock wave generator for any frequency. 3,830,193, Cl. 116-137.00a.
- Sochaczewer, Eliahou: See—
Alkalay, Esther; and Sochaczewer, Eliahou, 3,830,692.
- Societa' Italiane Resine S.I.R. S.p.A.: See—
Vargiu, Silvio; Mazzoleni, Giorgio; and Nistri, Ugo, 3,830,783.
- Societe Airborne S.A.: See—
Bernard, Charles, 3,829,913.
- Societe Anonyme des Etablissements Neu: See—
Ueu, Henri, 3,829,934.
- Societe de Prayon: See—
Davister, Armand, 3,830,658.
- Societe Hamon-Sobelco S.A.: See—
Hamon, Maurice, 3,830,684.
- Societe Minerve S.A.: See—
Metivier, Robert, 3,830,257.
- Soisson, Gerard Charles Jean. Three-dimensional depolyable and collapsible structures. 3,830,031, Cl. 52-645.000.
- Sokol, Gunter; and Kleebaru, Karl, to Bosch, Robert, GmbH. Constructions in AC generators. 3,831,047, Cl. 310-68.000.
- Soloway, Samuel B.: See—
Johnson, Elmer R.; Reed, Walter T.; Tieman, Charles H.; and Soloway, Samuel B., 3,830,921.
- Sonneveld, Abraham: See—
Sneathor, Adrianus Cornelis Josephus Maria; and Sonneveld, Abraham, 3,830,758.
- Sonni, Olavi: See—
Rautalahti, Pentti; Kettunen, Jyrki; and Sonni, Olavi, 3,830,689.
- Sony Corporation: See—
Fuse, Yuzo; Yamanaka, Seisuke; and Saito, Tsunenari, 3,830,958.
Kihara, Nobutoshi; and Nakagawa, Takashi, 3,831,198.
Narahara, Hisaaki, 3,830,961.
Ohgoshi, Akio; and Katagiri, Yoshiharu, 3,831,051.
- Soong, An-Hwa, to United Aircraft Corporation. Exponential aperture distribution horn antenna. 3,831,177, Cl. 343-776.000.
- Soubitez, Pierre. Device for fixing a shaft to a member. 3,830,271, Cl. 151-28.000.
- Sound Technology, Inc.: See—
Mazalas, Anthony P., 3,831,175.
- Southern Illinois University Foundation: See—
Meyers, Cal Yale; Matthews, Walter Sidney, III; and Malte, Ashok M., 3,830,862.
- Southwire Company: See—
Chia, Enrique C.; and Schoerner, Roger J., 3,830,635.
- Speich, Carl F.; and Roach, Jerome C., to Trane Company, The. Compressor valve apparatus. 3,830,253, Cl. 137-525.000.
- Speigel, Kenneth: See—
Rehkopf, Charles H.; and Speigel, Kenneth, 3,830,722.
- Speiser, Jeffrey M., to United States of America, Navy. Coded grating transducer. 3,831,044, Cl. 310-9.800.
- Spencer, David R., to EG&G, Inc. Apparatus and method for transmitting a bandwidth compressed digital signal representation of a visible image. 3,830,964, Cl. 178-6.000.
- Spencer, Davis. Pin forming and inserting machine. 3,829,949, Cl. 29-203.00b.
- Spencer, Owen C., to Metropolitan Chicago Baptist Association, S.B.C. Apparatus for carrying construction materials. 3,830,380, Cl. 214-10.50e.
- Spengler, Walter. Corona discharge device. 3,831,060, Cl. 317-2.00f.
- Sperring, Richard Lawrence; Stansfield, Stephen Raymond; and Kubba, Mohamed Hassan. Oven. 3,830,624, Cl. 432-145.000.
- Sperry, Lowell L., to PPG Industries, Inc. Treating glass sheets. 3,830,540, Cl. 294-118.000.
- Sperry Rand Corporation: See—
Kroger, Harry; and Wegener, Horst A. R., 3,831,185.
Kroger, Harry, 3,831,186.
- Spiegel, Bernt, to Vereinigte Bauboschlagfabriken Gretsche & Co GmbH. Braking sail for skiers. 3,830,512, Cl. 12-27-72.
- Spirax Sarco Limited: See—
Henfrey, Gerard Peter, 3,830,462.
- Spivack, Mark A.; Stewart, Donald D.; and Tittman, Frederick R., to Union Carbide Corporation. Diffusion membranes of controlled permeability, apparatus and process. 3,830,733, Cl. 210-22.000.
- SPOFA, United Pharmaceutical Works: See—
Jilek, Jiri; Protiva, Miroslav; Metysova, Jirina; and Pomykacek, Josef, 3,830,814.
- Spong, Frederick W. Pipetting device. 3,830,108, Cl. 73-425.600.
- Spoor, Herbert: See—
Kempter, Fritz Erdmann; and Spoor, Herbert, 3,830,782.
- Spork, Helmut: See—
Nitzsche, Siegfried; Spork, Helmut; and Strasser, Rudolf, 3,830,780.
- Spracklen, Stanford B.: See—
Kiefer, Michael E.; and Spracklen, Stanford B., 3,830,630.
- Sprague, Hallie W.; and Sprague, James R. Tool for adjustably repositioning a camber/caster adjusting bar. 3,830,467, Cl. 254-1.000.
- Sprague, James R.: See—
Sprague, Hallie W.; and Sprague, James R., 3,830,467.
- Sprenger, Edwin, to New Hermes Company, a partnership consisting of Schimmel, Norbert, Schimmel, Stephen, Dannheisser, Werner, and Dannheisser, Elaine. Curved surface engraver. 3,830,136, Cl. 90-13.100.

- Spriggs, James O. Heat engine. 3,830,059, Cl. 60-520.000.
- Squibb, E. R. & Sons, Inc.: See—
Narayanan, Venkatachala L., 3,830,817.
Slusarchyk, William A.; and Wesenborn, Frank Lee, 3,830,936.
Yale, Harry Louis, 3,830,842.
- Stach, Leonard J., to Velsicol Chemical Corporation. Semicarbazono phosphorus compounds. 3,830,882, Cl. 260-923.000.
- Stackman, Robert William: See—
Cohen, Stuart Lyle; and Stackman, Robert William, 3,830,771.
- Staedtler, J. S.: See—
Glombitza, Klaus; Mutshler, Otto; and Gottschalk, Claus, 3,830,574.
- Stahl, Bernhard: See—
Jepsen, Kurt Friedrich; Stahl, Bernhard; and Janzen, Wolfgang, 3,830,486.
- Stahlhut, Leo G.: See—
Halfaker, Thomas C.; and Stahlhut, Leo G., 3,831,019.
- Stalker Corporation, The: See—
Clarke, Daniel J., 3,830,286.
- Stallings, Charles Henry: See—
Benford, James Nelson; Putnam, Sidney Darwin; and Stallings, Charles Henry, 3,831,101.
- Stallmann, Hans, to Heraeus-Christ GmbH. Centrifuging holder for deformable bags, particularly for blood containers. 3,830,425, Cl. 233-26.000.
- Stamberger, Paul. Means for increasing the air pressure within self-inflated hollow bodies for use as cushions and for like purposes. 3,829,918, Cl. 5-348.00r.
- Stanadyne, Inc.: See—
Donahue, Kenneth Joseph, 3,830,597.
- Standard Brands Incorporated: See—
Lieferman, Harry A.; Ryan, Rufus E.; and Piehler, James R., 3,830,473.
- Stanley, Raymond Eric: See—
Reid, Neil George; and Stanley, Raymond Eric, 3,829,992.
- Stanley, Robert K., to Textured Yarn Co., Inc., mesne. Strand treatment apparatus. 3,830,421, Cl. 226-97.000.
- Stanley Tools Limited: See—
Gilbert, Richard, 3,829,967.
- Scott, David Bradshaw, 3,829,942.
- Stansfield, Stephen Raymond: See—
Sperring, Richard Lawrence; Stansfield, Stephen Raymond; and Kubba, Mohamed Hassan, 3,830,624.
- Stanton, John R.: See—
Maness, George S.; and Stanton, John R., 3,830,217.
- Stapfer, Christian H.; and Racz, William B., to Cincinnati Milacron Chemicals, Inc. Novel silicate containing stabilizers and rigid halogen-containing resin compositions stabilized therewith. 3,830,751, Cl. 252-400.00r.
- Stark, Ronald E., to Uniroyal, Inc. Polyblend comprising graft copolymer and resinous terpolymer. 3,830,879, Cl. 260-876.00r.
- Stark, Sven Olof Soren: See—
Rausing, Gad Anders; Stark, Sven Olof Soren; and Sevrell, Sven Gosta Uno, 3,830,140.
- Stas, Stefan J.: See—
McSweeney, William; and Stas, Stefan J., 3,831,193.
- Statham Instruments, Inc.: See—
Kamer, Donald, 3,830,100.
- Stati, Wayne H.; and Boone, Jack L., to Dow Corning Corporation. Method of inhibiting blood clot on silicone rubber medical devices. 3,829,903, Cl. 3-1.000.
- Statler, Richard L.: See—
Eisele, John A.; Campbell, Francis J.; Faraday, Bruce J.; and Statler, Richard L., 3,830,663.
- Staub, David E.; and Foltz, Carl L., to Concept, Inc. Variable output nerve locator. 3,830,226, Cl. 128-2.10r.
- Staudt, Heinrich: See—
Bechstein, Herbert; Jaenke, Hans-Jurgen; Muller, Rolf; Ritter, Ernst; and Staudt, Heinrich, 3,830,211.
- Stauffer Chemical Company: See—
Large, George B.; and Pitt, Leland S., 3,830,887.
- Stauffer Chemical Company: See—
Gutman, Arnold D., 3,830,927.
- Stauffer, Rudolf, to Wyss, Samuel. Releasable heel hold down mechanism for ski bindings. 3,830,510, Cl. 280-11.351.
- Stebelev, Nikolai Alexandrovich: See—
Litvinovich, Georgy Mikhailovich; Zhavoronkov, Leonid Andreevich; Stebelev, Nikolai Alexandrovich; Guzov, Konstantin Borisovich; and Lyagal, Ivan Nikitovich, 3,830,109.
- Steidinger, Donald J., to Wallace Business Forms, Inc. Method of producing a stuffed sealed envelope assembly. 3,830,141, Cl. 93-63.00m.
- Steingiser, Samuel, to Monsanto Company. Method of processing high nitrile preforms. 3,830,893, Cl. 264-25.000.
- Stella, Joseph A.: See—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,830,563.
- Stepochkin, Lev Mikhailovich: See—
Makeev, Boris Anatolevich; Stepochkin, Lev Mikhailovich; Batozsky, Vadim Ivanovich; Korot, Garri Moiseevich; and Gladkikh, Anatoly Ivanovich, 3,830,121.
- Sterling Drug Inc.: See—
Diana, Guy D., 3,830,839.
Shaw, Philip E.; Daum, Sol J.; and Clarke, Robert L., 3,830,843.
- Stewart, Donald D.: See—
Spivack, Mark A.; Stewart, Donald D.; and Tittman, Frederick R., 3,830,733.
- Stewart, Douglas John. Valve clearance measuring apparatus. 3,829,979, Cl. 33-180.0at.
- Stewart, Ned L. Anchoring apparatus. 3,830,457, Cl. 248-361.00a.
- Stichting Waterbouwkundig Laboratorium: See—
Vlasblom, Adriaan, 3,829,981.
- Stone, W. J. Dennis. High intensity wet magnetic separators. 3,830,367, Cl. 209-223.000.
- Stork Amsterdam N.V.: See—
Smorenburg, Johannes Jacobus, 3,830,153.
- Storz, Martin: See—
Janhsen, Jakobus; and Storz, Martin, 3,830,472.
- Stover, Harris A., to Collins Radio Company. Means to prevent coincidental phase modulation in an amplitude modulation transmitter. 3,831,094, Cl. 325-159.000.
- Stowe, Robert A.: See—
Harter, Mark A., 3,830,870.
- Strain, Robert Joseph: See—
Krambeck, Robert Harold; and Strain, Robert Joseph, 3,831,041.
- Strash, Alfred: See—
Kerlman, Isadore B.; Strash, Alfred; and Kastner, Jacob, 3,831,028.
- Strasser, Rudolf: See—
Nitzsche, Siegfried; Spork, Helmut; and Strasser, Rudolf, 3,830,780.
- Stratton, Charles A., to Phillips Petroleum Company. Ethoxylated condensation product of a phenol and formaldehyde. 3,830,850, Cl. 260-613.00b.
- Strausfeld, Hermann, to EMI Electrola Gesellschaft mit beschränkter Haftung. Record presses. 3,830,459, Cl. 249-79.000.
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Wood, James E.; Strecker, Larry A.; and Cratz, Robert E., 3,830,953.
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- Strong, Kline D. Convertible folder. 3,830,578, Cl. 402-14.000.
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Fischer, Leonard G.; Sherain, Monroe B.; and Strum, Klemens, 3,830,948.
- Stumpf, Joseph G.; and Andera, Joseph F., to Frigintronics of Connecticut, Inc. Cryosurgical device. 3,830,239, Cl. 128-303.100.
- Sturm, Hans-Jurgen: See—
Armbrust, Herbert; Kilpper, Gerhard; Quadbeckseeger, Hans-Jurgen; Sturm, Hans-Jurgen; Koehler, Waldemar; and Schecker, Hans-Georg, 3,830,863.
- Sturm, Ruger, & Co., Inc.: See—
Sefried, Harry M., II, 3,830,001.
- Sturt, Alan Charles, to BP Chemicals Limited. Polymerisation process. 3,830,883, Cl. 260-92.80w.
- Stussman, Gerald J.; Larsson, Karl H.; and Smeaton, John R., to Hycel, Inc., mesne. Automatic petri dish streaking methods and apparatus. 3,830,701, Cl. 195-120.000.
- Subterranean Tools Inc.: See—
Busby, Donald Wayne; and Busby, Joseph L. Jr., 3,830,318.
- Suchy, William J.: See—
Guttman, Earney C.; Suchy, William J.; and Berardinelli, Vincent J., 3,830,196.
- Suerbaum, Eberhard, to Nordischer Maschinenbau Rud. Baader. Machine for recovering meat. 3,829,931, Cl. 17-16.000.
- Sugden, David B., to Robbins Company, The. Shield tunneling machine with orbiting cutterhead. 3,830,545, Cl. 299-33.000.
- Sullivan, Daniel David: See—
Mecklenburg, Paul; Pehlert, William King, Jr.; and Sullivan, Daniel David, 3,831,145.
- Sullivan, Francis. Milling machine tool holder. 3,830,135, Cl. 90-11.00a.
- Sumid, Sizu, to Toyo Kogyo Company Limited. Crash sensor. 3,830,329, Cl. 180-91.000.
- Sumitomo Chemical Company, Ltd.: See—
Nagase, Tsuneyuki; and Masuko, Fujio, 3,830,860.
- Sumitomo Metal Industries Limited: See—
Nakamura, Hisashi; and Tanaka, Masatoshi, 3,830,087.
- Sumitomo Metal Industries Ltd.: See—
Matsuoka, Takashi; and Kojima, Masayasu, 3,830,669.
- Sunbeam Corporation: See—
Mysicka, James C.; and Lockett, William L., 3,831,002.
Waters, Robert S.; and Liedtke, Ronald R., 3,831,000.
- Sunbeam Plastics Corporation: See—
Gach, Peter P., 3,830,390.
- Sundy, George J.: See—
Dominguez, Ezekiel C.; Lynn, John D.; and Sundy, George J., 3,830,481.
- Surface Technology Corporation: See—
Van Thine, Ray J.; and Rausch, John J., 3,830,670.
- Surmatinc, Joseph Donald; and Walser, Armin, to Hoffmann-La Roche, Inc. Method for synthesizing rhodoxanthin. 3,830,844, Cl. 260-586.00r.
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- Svenska Aktiebolaget Bromsregulator: See—
Severinsson, Lars Mattis, 3,830,061.
- Svensson, Torbjorn, to Linden-Alimak AB. Lift for raise driving apparatus. 3,830,338, Cl. 182-82.000.
- Swanson, Roy E. Jr., to Baker Oil Tools, Inc. Pulsing gravel pack tool. 3,830,294, Cl. 166-51.000.
- Sweden Freezer Manufacturing Company: See—
Wierlo, Edward, 3,830,407.
- Sweeney, B. K., Manufacturing Co.: See—
Travis, Leo V., 3,830,119.
- Swyers, Stinson R.: See—
Ort, Eldon L.; and Swyers, Stinson R., 3,831,088.
- Sydansk, Robert D.: See—
Dreher, Karl D.; and Sydansk, Robert D., 3,830,302.
- Syntax Corporation: See—
Kracklauer, John J., 3,830,876.
- T-Products Corporation: See—
Robb, Wayne F., 3,830,032.
- Takamizawa, Noboru; and Miura, Teizo, to Adac Company Limited. Automatic clip dispenser. 3,829,954, Cl. 29-212.00p.
- Takeda Chemical Industries, Ltd.: See—
Matsui, Yutaka; Kazama, Seiji; and Goto, Jugo, 3,830,785.
- Wada, Takeo, 3,830,892.
- Takenaka, Haruo; and Okiyama, Toshiaki. Resistor film. 3,830,656, Cl. 117-212.000.
- Tamai, Yasuo; and Miyatuka, Hajime, to Fuji Photo Film Co., Ltd. Process for producing liquid developer for use in electrophotography. 3,830,741, Cl. 252-62.100.
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- Tamaru, Keikichi; Nojima, Isao; and Uchida, Yukimasa, to Tokyo Shibaura Electric Co., Ltd. Nonvolatile semiconductor shift register. 3,831,155, Cl. 340-173.00r.
- Tamaru, Kenzi: See—
Ichikawa, Masaru; Kondo, Toshihiko; and Tamaru, Kenzi, 3,830,753.
- Tamborski, Robert S.; and Przybylinski, Phillip G., to Pullman Incorporated. Water drain structure for railway car door arrangement. 3,830,167, Cl. 105-378.000.
- Tamco Limited: See—
Roseby, Maurice, 3,829,958.
- Tanaka, Masatoshi: See—
Nakamura, Hisashi; and Tanaka, Masatoshi, 3,830,087.
- Tanaka, Shinsuke: See—
Masuhara, Eiichi; Tarumi, Nirou; Nakabayashi, Nobuo; Baba, Masahiro; Tanaka, Shinsuke; and Mochida, Ei, 3,829,973.
- Tanaka, Tokuji: See—
Morikawa, Eiji; Kodama, Kenkichi; Tanaka, Tokuji; Fukatsu, Hisayoshi; and Enokida, Shizuo, 3,830,938.
- Tanaka, Yuji: See—
Asaka, Urataro; and Tanaka, Yuji, 3,830,206.
- Tani, Tatsuo: See—
Inomata, Jihei; Hino, Seiichi; and Tani, Tatsuo, 3,830,855.
- Tanikoshi, Kinji, to Canon Kabushiki Kaisha and Canon Seiki Kabushiki Kaisha. Control system for synchronous drive of DC motor. 3,831,073, Cl. 318-354.000.
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- Tannenbaum, Myron, to New Brunswick Scientific Co., Inc. Reciprocating shaker. 3,830,474, Cl. 259-59.000.
- Tansky, John L.: See—
Woodcock, Brian R.; and Tansky, John L., 3,831,131.
- Tappan Company, The: See—
Carpenter, Charlie P.; and Zeller, Robert A., 3,830,595.
- Tarter, James H., to Continental Oil Company. Vehicle and vehicle control system. 3,830,325, Cl. 180-14.00a.
- Tarumi, Nirou: See—
Masuhara, Eiichi; Tarumi, Nirou; Nakabayashi, Nobuo; Baba, Masahiro; Tanaka, Shinsuke; and Mochida, Ei, 3,829,973.
- Tasso, Joseph A.: See—
Re, Carlo; Conrad, Jack R.; and Tasso, Joseph A., 3,830,687.
- Tassone, Joseph V.; and Candor, James T. Package construction for baseball tee, bat and ball. 3,830,362, Cl. 206-223.000.
- Tate, Donald P.; and Desmonds, Daniel J., to Control Data Corporation. Normalize shift count network. 3,831,012, Cl. 235-164.000.
- Taylor, Edward C.: See—
Barbee, Robert B.; and Taylor, Edward C., 3,830,804.
- Taylor, Terrence Francis Edward, to International Standard Electric Corporation. Printing telegraph mechanism. 3,830,976, Cl. 178-30.000.
- Teasa, Horace A., Jr.; and Smith-Veniz, William Reid, to McNab, Incorporated. Conductivity and specific resistance measuring system. 3,831,083, Cl. 324-30.00r.
- Technicon Instruments Corporation: See—
Beretsky, Irwin; and Lichtenstein, Bernard, 3,830,223.
- Technofil S.p.A.: See—
Pietroni, Piero, 3,830,478.
- TED Bildplatten Aktiengesellschaft AEG-Telefunken-Teldec: See—
Redlich, Horst; Gluth, Joachim; and Kossak, Rolf, 3,830,968.
- Tektronix, Inc.: See—
Vollum, Charles Howard; and Broughton, Sidney Hubert, 3,831,199.
- Temco Products, Inc.: See—
Thomas, Morton I., 3,829,908.
- Terry, Arthur John: See—
Horsewell, Henry George; and Terry, Arthur John, 3,830,079.
- Terry, Rupert Douglas: See—
Kubovich, Frank S.; and Terry, Rupert Douglas, 3,830,442.
- Tetra Pak Development SA: See—
Rausing, Gad Anders; Stark, Sven Olof Soren; and Sevrell, Sven Gosta Uno, 3,830,140.
- Tewksbury, Stuart Keene, to Bell Telephone Laboratories, Incorporated. Digital-to-analog conversion using multiple decoders. 3,831,167, Cl. 340-347.00a.
- Texaco Inc.: See—
Allen, Joseph C., 3,830,300.
- Mazzagatti, Roy P., 3,831,082.
- Mead, Theodore C.; Odell, Norman R.; and Benson, Robert F., 3,830,730.
- Powers, William J., III; and Macaluso, Anthony, Sr., 3,830,867.
- Texas Instruments Incorporated: See—
Allen, John B., 3,830,568.
- Keough, Laurence J., 3,831,063.
- Wrobel, Joseph S.; and Bate, Robert Thomas, 3,831,030.
- Textured Yarn Co., Inc., mesne: See—
Stanley, Robert K., 3,830,421.
- Thamasett, Eberhard; and Herzog, Ullrich, to Wieland-Werke AG. Heat transfer pipe with leakage indicator. 3,830,290, Cl. 165-70.000.
- Thayer, Stuart W.: See—
Nemec, Frank A.; Thayer, Stuart W.; Eckert, William S.; Horn, Marion F.; and Dunn, Roland J., Jr., 3,830,177.
- Theodorsen, Theodore E., to Salmon, Kurt, Associates, Inc. Method for encapsulating an article in molded polyurethane. 3,830,895, Cl. 264-45.000.
- Thermo Electron Corporation: See—
Morgan, Dean T.; and Davis, Jerry P., 3,830,062.
- Morgan, Dean Thomas, 3,830,063.
- Thermogenics of New York Inc.: See—
Pray, Robert W.; and Foster, Ralph L., 3,829,982.
- Theftford Corporation: See—
Vanden Broek, Christiaan J. H., 3,829,905.
- Theuerkauf, Fred, to Pipe Machinery Company, The. Tool head with multiple tools and common oscillatable recede and collapse cam mechanism. 3,829,920, Cl. 10-96.00t.
- Thies, Curt: See—
Wingard, Michael G.; Werkmeister, Dennis W.; Thies, Curt; and Anthony, William B., 3,830,734.
- Thomas & Betts Corporation: See—
Frey, William G., 3,831,129.
- Thomas Industries, Inc.: See—
Porter, David H.; and Bray, Douglas R., 3,831,022.
- Thomas, Keith: See—
David, Joseph; Thomas, Keith; and Kishore, Nand, 3,830,851.
- Thomas, Morton I., to Temco Products, Inc. Knock-down commode device. 3,829,908, Cl. 4-1.000.
- Thomas, Paul W., Jr.: See—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,830,563.
- Thomeer, Johannes H., to Shell Oil Company. Shallow plugging selective re-entry well treatment. 3,830,299, Cl. 166-250.000.
- Thompson, Brian Hoyle, to British Gas Corporation. Fluidised bed hydrogenation. 3,830,637, Cl. 48-213.000.
- Thompson, Martin Vesper: See—
Shaw, Gilbert; and Thompson, Martin Vesper, 3,829,923.
- Thomson-CSF: See—
Dechaux, Claude, 3,830,977.
- Thorpe, Allan Chester, to International Business Machines Corporation. Magnetic tape recording method and apparatus. 3,831,196, Cl. 360-52.000.
- Thummler, Ursus: See—
Ebert, Hans; Thummler, Ursus; and Werner, Hugo, 3,830,039.
- Tichelaar, Gerrit Willem: See—
Essers, Wilhelmus Gerardus; Jelmorini, Gerardus; and Tichelaar, Gerrit Willem, 3,830,997.
- Tieman, Charles H.: See—
Johnson, Elmer R.; Reed, Walter T.; Tieman, Charles H.; and Soloway, Samuel B., 3,830,921.
- Tigner, Ronald G.: See—
Davis, Ralph A.; and Tigner, Ronald G., 3,830,886.
- Tilak, Monohar A., to Lilly, Eli, and Company. Method for synthesizing peptides using an excess of an unsymmetrical acid anhydride. 3,830,792, Cl. 260-112.500.
- Timberg, William P.: See—
De Laitre, Earle W., 3,829,917.
- Timken Company, The: See—
Harbottle, William E., 3,830,633.
- Timusk, John: See—
Robinsky, Eli I.; Timusk, John; and Riley, Victor R., 3,830,903.
- Tinney, David C.: See—
Skippon, Robert T.; Robinson, Charles M.; Tinney, David C.; and Koopman, Simon O. M., 3,830,383.
- Tintary, F. Raymond: See—

- Read, George D.; Tintary, F. Raymond; and Du Shane, Raymond N., Jr., 3,830,535.
- Tittman, Frederick R.: See—
Spivack, Mark A.; Stewart, Donald D.; and Tittman, Frederick R., 3,830,733.
- Todd, Alec: See—
Chakrabarti, Jiban Kumar; and Todd, Alec, 3,830,915.
- Todd, George Mack. Portable entrance unit for mobile homes. 3,830,337, Cl. 182-46.000.
- Tokunaga, Takeshi: See—
Tamamura, Takeo; Nemoto, Saburo; Tokunaga, Takeshi; and Nemoto, Tadashi, 3,830,054.
- Tokyo Shibaura Electric Co., Ltd.: See—
Tamaru, Keikichi; Nojima, Isao; and Uchida, Yukimasa, 3,831,155.
- Tokyo Standard Serams, Ltd.: See—
Hayakawa, Zenro, 3,830,909.
- Toku Sharyo Siezo Kabushiki Kaisha: See—
Tominaga, Hiroshi, 3,830,086.
- Tominaga, Hiroshi, to Tokyu Sharyo Siezo Kabushiki Kaisha. Impact hydraulic pressure generator. 3,830,086, Cl. 72-54.000.
- Tomlin, Clive Dudley Spencer: See—
Barlow, Charles Brian; and Tomlin, Clive Dudley Spencer, 3,830,822.
- Tone Commander Systems, Inc.: See—
McIntosh, Alex, 3,830,979.
- Toomey, Thomas H.; and Goodrich, Robert S. Golf ball heating device. 3,831,001, Cl. 219-386.000.
- Tornay, Edmund George, to Conch International Methane Limited. Stabilization means for tank mounting. 3,830,181, Cl. 114-74.00a.
- Towle, Gerald: See—
Coates, Ronald Bell; Marsden, Ralph John Basil; Smith, Frederick Arthur; and Towle, Gerald, 3,830,617.
- Toyo Kogyo Co., Ltd.: See—
Nakada, Hideo; and Ishikawa, Masao, 3,830,585.
- Shimoji, Masaharu; and Shiraiishi, Hideo, 3,830,600.
- Yamazaki, Ryuchi, 3,830,601.
- Toyo Kogyo Company Limited: See—
Sumid, Sizu, 3,830,329.
- Toyo Soda Manufacturing Co., Ltd.: See—
Mabuchi, Shunsuke; and Kisaki, Hisashi, 3,830,833.
- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
Arai, Hiroshi; Yunuki, Morio; and Nakamura, Masahiro, 3,830,018.
- Kito, Masahiro; and Kawaguchi, Hiroshi, 3,830,549.
- Yoshie, Koichi; Masaki, Kunihiko; and Sakamoto, Masaji, 3,830,539.
- Trafton, Paul J., to Computer Science Corporation. Concatenated burst-trapping codes. 3,831,143, Cl. 340-146.1al.
- Trane Company, The: See—
Speich, Carl F.; and Roach, Jerome C., 3,830,253.
- Trask, Donald R., to Union Carbide Corporation. Apparatus for forming a cylinder and inserting it into a battery can. 3,829,952, Cl. 29-204.000.
- Travaglio, Michele, to FIAT Societa per Azioni. Gearbox having a power take-off shaft and automatic gear selector therefor. 3,830,111, Cl. 74-15.400.
- Traver, Frank J., to General Electric Company. Silicone acetate brake fluid. 3,830,744, Cl. 252-78.000.
- Travis, Leo V., to Sweeney, B. K., Manufacturing Co. Shear-off output shaft for torque multiplier. 3,830,119, Cl. 81-52.40r.
- Trease, Ralph E.: See—
Minneman, Lester C.; Trease, Ralph E.; Wills, Lowell J.; and Dietz, Raymond Louis, 3,830,651.
- Treat, Clara A. Patient positioning device. 3,829,914, Cl. 5-81.00r.
- Trebichavsky, Ctibor: See—
Zubak, Jan; Trebichavsky, Ctibor; and Augustin, Jan, 3,830,714.
- Trevarrow, David J., to Shroder Machine & Tool, Inc. Tool adjustment capsule. 3,830,586, Cl. 408-153.000.
- Tribley, Gilbert: See—
Hein, Allyn J.; Norick, William B.; Ruseff, Walter Z.; and Tribley, Gilbert, 3,830,594.
- Trienco, Inc.: See—
Kiefer, Michael E.; and Spracklen, Stanford B., 3,830,630.
- Troemel, Richard J.; and Uechi, Francis Y., to GTE Automatic Electric Laboratories Incorporated. Calling party control circuit. 3,830,985, Cl. 179-81.00r.
- Truesdale, Robert Andrew; and Buchanan, John Gordon, to JWI Ltd. Spreader shower for fabric belts of paper making apparatus. 3,830,691, Cl. 162-273.000.
- TRW Inc.: See—
Hook, William R.; and Hilberg, Ronald P., 3,830,557.
- Smith, Roy A., 3,831,135.
- Tstrulnikov, Isak Meerovich: See—
Acharkan, Evgeny Adolfovich; Khaskin, Ilia Naumovich; Tstrulnikov, Isak Meerovich; Povolotsky, Emil Lvovich; and Jurovsky, Vladimir Solomonovich, 3,830,097.
- Tsuchida, Takashi; Shinoda, Kenichi; Yamamoto, Kohei; Sakamoto, Noriaki; and Nishio, Mastatake, to Fuji Electrochemical Co. Ltd. Process for preparation of cathode mix for alkaline cell. 3,830,661, Cl. 136-120.00r.
- Tsuji, Nobuo: See—
Ari, Atsuki; Tsuji, Nobuo; and Okutsu, Toshimitsu, 3,830,778.
- Tsujimoto, Kayoshi, to Minolta Camera Kabushiki Kaisha. Electrical exposure control device for single lens reflex cameras. 3,831,180, Cl. 354-51.000.
- Tsuk, Andrew T., to Grace, W. R., & Co. Demulsification using cationic polyvinyl alcohols. 3,830,735, Cl. 210-43.000.
- Tsukuni, Hajime; Fujiki, Shun; Tsunoda, Teruo; and Ooba, Yoichi, to Hitachi Chemical Company, Ltd. and Hitachi, Ltd. Detergent composition. 3,830,745, Cl. 252-89.000.
- Tsunoda, Teruo: See—
Tsukuni, Hajime; Fujiki, Shun; Tsunoda, Teruo; and Ooba, Yoichi, 3,830,745.
- Tuohey, Paul F.: See—
Gracia, Robert F.; Laughrey, Richard A.; and Tuohey, Paul F., 3,830,649.
- Turbo Power and Marine Systems, Inc., mesne: See—
Worthen, Eugene P., 3,830,350.
- Turner, Charles A., to Selas Corporation of America. Dry descaling. 3,830,023, Cl. 51-322.000.
- Turner, John, to King, Geo. W., Limited. Conveyor systems. 3,830,165, Cl. 104-172.00s.
- Turner, William F., 49% to Boaz, Fred. Vee engine. 3,830,208, Cl. 123-43.00a.
- Turok, Galina Isosifovna: See—
Anisimov, Pavel Mikhailovich; Evgrafov, Boris Ivanovich; Kuppev, Jury Alexandrovich; Orlov, Boris Petrovich; Kotova, Antonina Nikolaevna; Turok, Galina Isosifovna; and Berman, Pavel Gdaliyevich, 3,831,045.
- Tylius, Adolfo, to Alvic Development Corporation. Staircase. 3,830,026, Cl. 52-185.000.
- Uchida, Yukimasa: See—
Tamaru, Keikichi; Nojima, Isao; and Uchida, Yukimasa, 3,831,155.
- Uechi, Francis Y.: See—
Troemel, Richard J.; and Uechi, Francis Y., 3,830,985.
- Ueda, Iwao, to Hamana Iron Works Co., Ltd. Wire stranding machine. 3,830,050, Cl. 57-58.340.
- Ueki, Masaaki: See—
Mukaiyama, Teruaki; Ueki, Masaaki; Matsueda, Rei; and Maruyama, Hiroshi, 3,830,794.
- Uerlichs, Johannes; Muller, Rudolf; and Kuckertz, Willi, to Rappold, Hermann, & Co., GmbH. Hot blast valve. 3,830,251, Cl. 137-340.000.
- Ueu, Henri, to Societe Anonyme des Etablissements Neu. Method and apparatus for homogenizing, teasing out and cleaning mixed fibrous materials. 3,829,934, Cl. 19-202.000.
- Uhl, Dieter: See—
Bauerlein, Rudolf; and Uhl, Dieter, 3,829,961.
- Uhl, Joseph E.: See—
Ronewicz, Donald J.; and Uhl, Joseph E., 3,830,192.
- Uhlig, Gerhardt E. Safety closure container. 3,830,391, Cl. 215-9.000.
- Ullmann, Werner; Sieg, Arno; Mattei, Silvano; and Schumacher, Bernd, to A.G. fur industrielle Elektronik AGIE. Superimposed motion elector-erosion electrode drive. 3,830,996, Cl. 219-69.00v.
- Underground Mining Machinery Limited: See—
Wilson, James; Nelson, James; and Shield, Douglas, 3,830,544.
- Unger, Paul. Releasable heel hold-down device. 3,830,511, Cl. 280-11.35t.
- Uni-Cardan AG: See—
Hadick, Theodor; and Muller, Karl-Heinz, 3,830,083.
- Union Carbide Corporation: See—
Evvin, Anthony B.; Rabo, Jule A.; Elek, Louis F.; Risch, Alan P.; and Kavamos, Spiro J., 3,830,757.
- Karhan, Terry L.; and Kaufman, Stephen, 3,830,708.
- Spivack, Mark A.; Stewart, Donald D.; and Tittman, Frederick R., 3,830,733.
- Trask, Donald R., 3,829,952.
- Union Oil Company of California: See—
Holm, Leroy W., 3,830,301.
- Mickelson, Grant A., 3,830,752.
- Young, Donald C.; and Harbolt, Bruce A., 3,830,631.
- Uniroyal, Inc.: See—
Stark, Ronald E., 3,830,879.
- United Aircraft Corporation: See—
Games, John E.; Casper, Clarence, Jr.; and Kupersmith, Bertram, F., 3,831,010.
- Iwanciw, Bernard L.; and MacLaren, Richard O., 3,830,057.
- Soong, An-Hwa, 3,831,177.
- United Kingdom Atomic Energy Authority: See—
Dearnaley, Geoffrey; and Nelson, Richard Stuart, 3,830,668.
- United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the: See—
Jones, Gordon Robert; Shaw, Norman; and Vere, Anthony Worwick, 3,831,029.
- United States Ceramic Tile Company: See—
Cable, John A.; Cable, Stephen J.; and Falbo, Richard R., 3,830,625.
- United States Gypsum Company: See—
Copenhaver, John E., 3,830,045.
- United States National Bank: See—
Adams, John R., deceased, 3,830,489.
- United States of America
Agriculture: See—
Abbott, Thomas P., 3,830,762.

- Dickens, James W., 3,830,436.
 Kaufman, Vern F., 3,830,149.
 Miller, Richard W.; and Beroza, Morton, 3,830,914.
 Air Force: See—
 Read, Wendell S., 3,830,078.
 Army: See—
 Andrejkovics, Richard S.; and Sikra, John F., 3,830,103.
 Di Philippo, Joseph M.; and Holvoet, John E., 3,830,158.
 Donnard, Reed E.; Rosenbaum, Marvin; Gallaccio, Anthony; and Pealstein, Fred, 3,830,157.
 Gazza, George E., 3,830,652.
 Ranalli, Nicholas J.; and Mount, James C., 3,830,159.
 Schneider, Frank H., 3,830,666.
 Atomic Energy Commission: See—
 Gruen, Dieter M.; Carstens, Dean H. W.; and Kozlowski, John F., 3,830,721.
 Jaross, Robert A., 3,830,095.
 Kerlman, Isadore B.; Strash, Alfred; and Kastner, Jacob, 3,831,028.
 Wolowoduik, Walter; Dawson, Bruce Edgar; and Anelli, John, 3,830,292.
 National Aeronautics and Space Administration: See—
 Heier, Wilbur C., 3,830,609.
 Jedlicka, James R.; Guist, Le Roy R.; and Beam, Richard M., 3,830,060.
 Leger, Lubert J., 3,830,094.
 Schuller, Fredrick T.; and Moore, Warren A., 3,830,552.
 Schwartz, Ira R., 3,830,431.
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 Eisele, John A.; Campbell, Francis J.; Faraday, Bruce J.; and Statler, Richard L., 3,830,663.
 Eno, Frederick L., 3,831,055.
 Henriksen, Gary L., 3,830,650.
 Lang, Thomas G., 3,830,178.
 Mantle, Peter J., 3,830,190.
 Ort, Eldon L.; and Swyers, Stinson R., 3,831,088.
 Rubin, Edwin H.; and Ciringione, Joseph L., 3,830,102.
 Sinsky, Joel A., 3,830,091.
 Speiser, Jeffrey M., 3,831,044.
 Wilger, John F.; Lai, Clifford Y. C.; and Nakano, Gregory S., 3,830,488.
 Williams, Robert M.; and Englar, Robert J., 3,830,450.
 Navy, mesne: See—
 Randolph, Kendall B.; and Childs, Lewis B., 3,830,674.
 United States Steel Corporation: See—
 Grant, Louis A., 3,830,480.
 Hubble, David H.; and Lamont, John A., 3,829,960.
 Hubble, David Henry; and Yount, Joseph George, Jr., 3,830,173.
 Schultz, Ronald G., 3,830,282.
 Universal Oil Products Company: See—
 Anderson, Robert F., 3,830,865.
 Borre, Henry C.; and Root, Wayne N., 3,830,864.
 Gatsis, John G., 3,830,732.
 Universal Research Laboratories, Incorporated: See—
 Olliges, William E.; and Polanek, Edward L., 3,831,172.
 University of Toledo, The: See—
 Roll, William D., 3,830,932.
 Upjohn Company, The: See—
 Hiemer, Armin Alexander; and Hippel, Ludwig Jakob, 3,830,429.
 Moon, Malcolm W., 3,830,642.
 U.S. Industries, Inc.: See—
 Massetti, Abraham; and Ciullo, Rocco N., 3,829,901.
 U.S. Philip Corporation: See—
 Harrewijne, Arend; and Abrahams, Jacobus Hubertus, 3,830,254.
 U.S. Philips Corporation: See—
 Essers, Wilhelmus Gerardus; Jelmorini, Gérardus; and Tichelaar, Gerrit Willem, 3,830,997.
 Greefkes, Johannes Anton, 3,831,092.
 Hillb Bernhard, 3,831,035.
 Snethorst, Adrianus Cornelis Josephus Maria; and Sonneveld, Abraham, 3,830,758.
 Van de Polder, Leenert Johan, 3,830,971.
 Van Roosmalen, Johannes H. T., 3,831,058.
 Usines Decoufle: See—
 Verjux, Jean, 3,830,355.
 Uskokovic, Milan Radoje; and Williams, Thomas Henry, to Hoffman-La Roche Inc. II-Substituted-desa-pregnanes and derivatives thereof. 3,830,831, Cl. 260-488.00b.
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 Meincke, Edmund R.; and Van Essen, Willem J., 3,830,875.
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 Vanden Broek, Christiaan J. H., to Thetford Corporation. Toilet improvements. 3,829,905, Cl. 4-1.000.
 Vanheertum, Johannes Josephus: See—
 Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poot, Albert Lucien; and Pollet, Robert Joseph, 3,830,647.
 Vanzetti, Riccardo; and Dostoomian, Ashod S. Means for detecting changes in the temperature of the skin. 3,830,224, Cl. 128-2.00h.
 Vaporex: See—
 Hendrix, Lloyd T., 3,830,040.
 Vargiu, Silvio; Mazzoleni, Giorgio; and Nistri, Ugo, to Societa' Italian Resine S.I.R. S.p.A. Process for the preparation of resins from urea, formaldehyde, methanol and formic acid using three stages. 3,830,783, Cl. 260-70.00a.
 Varian Associates: See—
 Rutherford, Sherman L.; and Feinleib, Morris, 3,830,648.
 Vasil, James Francis; and Bursel, Joseph S., to American Cyanamid Company. Epoxy-amine adhesives of superior toughness. 3,830,874, Cl. 260-830.00r.
 VEB Polygraph Leipzig Druckmaschinenwerk Planeta Radebeul: See—
 Forster, Karl-Heinz; Vetter, Lothar; Johnne, Hans; and Schanze, Klaus, 3,831,100.
 Velo-Bind, Inc.: See—
 Abildgaard, William H.; and Groswith, Charles T., III, 3,830,524.
 Velsicol Chemical Corporation: See—
 Stach, Leonard J., 3,830,882.
 Veltges, Helmut, to Palitex Project-Company GmbH. Yarn guiding flyer mechanism for a textile yarn processing machine. 3,830,051, Cl. 57-58.830.
 Ventura, Frank D., to Ideal Toy Corporation. Ball-firing device. 3,830,500, Cl. 273-129.000.
 Ventura Manufacturing Company: See—
 Propst, James P., 3,830,038.
 Vere, Anthony Worswick: See—
 Jones, Gordon Robert; Shaw, Norman; and Vere, Anthony Worswick, 3,831,029.
 Vereinigte Bauboschlagfabriken Gretsche & Co GmbH: See—
 Spiegel, Bernd, 3,830,512.
 Verge, John Pomfret: See—
 Gittos, Maurice Ward; James, John William; and Verge, John Pomfret, 3,830,816.
 Verjux, Jean, to Usines Decoufle. Method and device for separating cigarettes from a continuous line. 3,830,355, Cl. 198-127.00r.
 Vetter, Lothar: See—
 Forster, Karl-Heinz; Vetter, Lothar; Johnne, Hans; and Schanze, Klaus, 3,831,100.
 Vick, W. M., mesne: See—
 Bowman, Richard J., 3,831,141.
 Vickers Limited: See—
 Boyland, Albert Henry John, 3,829,927.
 Videmark, Christian: See—
 Holt, Jorgen; Videmark, Christian; and Christiansen, Palle Hein, 3,830,145.
 Virginia Chemicals Inc.: See—
 Ellis, Leonard C.; and Kise, Mearl A., 3,830,690.
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 Vital Assists, Inc.: See—
 Kopp, Klaus F., 3,830,234.
 Vlasblom, Adriaan, to Stichting Waterbouwkundig Laboratorium. Clinometer for determining the orientation of a body driven or to be driven into the earth. 3,829,981, Cl. 33-312.000.
 Vogel, Christian: See—

- Berrer, Dagmar; Kuhne, Manfred; and Vogel, Christian, 3,830,810.
 Vogt, George H.: See—
 Cronin, Michael J.; and Vogt, George H., 3,831,160.
 Vohl, Paul: See—
 Oliver, Donald S.; and Vohl, Paul, 3,831,153.
 Volkmar, Willi, to Walther, Carl Sportwaffenfabrik. Firing pin safety device for firearms. 3,830,002, Cl. 42-70.00f.
 Vollum, Charles Howard; and Broughton, Sidney Hubert, to Tektronix, Inc. Common transport for magnetic tape cartridge or magnetic card cartridge. 3,831,199, Cl. 360-94.000.
 Volovich, Vladimir Ruvimovich; Rabinov, Anatoly Isaakovich; Rutsky, Vladimir Vasilievich; and Jutkevich, Valery Ivanovich. Impact rotary wrench. 3,830,316, Cl. 173-93.000.
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 Vuolevi, Heikki Arvid, to Polar Metal Plast. Motor sleigh drive track arrangement. 3,830,323, Cl. 180-5.00r.
 Vyskumnyy ustav mehanizatsii i avtomatizatsii: See—
 Zubak, Jan; Trebichavsky, Ctibor; and Augustin, Jan, 3,830,714.
 Vysotsky, Alexei Viktorovich: See—
 Basin, Naum Genrikhovich; Vysotsky, Alexei Viktorovich; Kurochkin, Anatoly Petrovich; and Okun, Ura Iulievna, 3,829,978.
 Waasdorp, Robert A.: See—
 Baxendale, Kenneth C.; Bergemann, Werner E.; Camp, David B.; Evershed, John L.; Howlett, Mason M.; and Waasdorp, Robert A., 3,830,607.
 Wachsman, Mordechai; and Kann, Shlomo, to P.M.L. Precision Mechanisms Ltd. Pneumatic actuator. 3,830,139, Cl. 92-9.000.
 Wacker-Chemie GmbH: See—
 Nitzsche, Siegfried; Spork, Helmut; and Strasser, Rudolf, 3,830,780.
 Wada, Takeo, to Takeda Chemical Industries, Ltd. Method for manufacturing a molded article of expanded vermiculite. 3,830,892, Cl. 264-25.000.
 Wagner, Kuno: See—
 Findeisen, Kurt; Wagner, Kuno; and Moller, Friedrich, 3,830,786.
 Wagner, Robert W., to Singer Company, The. Bearing assembly for power tools. 3,831,048, Cl. 310-90.000.
 Wagner-Jauregg: See—
 Molnar, Istvan; Wagner-Jauregg; and Jahn, Ulrich, 3,830,918.
 Wainshal, Harouzi. Building modules. 3,830,025, Cl. 52-79.000.
 Wakui, Toshio, to Fuji Denki Seizo Kabushiki Kaisha. Cylindrical fuse and production thereof. 3,831,126, Cl. 337-231.000.
 Walchuetter, Ulrico. Press, particularly for the manufacture of ceramic and refractory articles. 3,830,615, Cl. 425-344.000.
 Walker, Darrell W., to Phillips Petroleum Company. Processes for the oxidative dehydrogenation of hydrocarbons. 3,830,868, Cl. 260-680.00e.
 Walker, Derek: See—
 Bywood, Roy; Gallagher, Gerard; Sharma, Girijesh Kumar; and Walker, Derek, 3,830,801.
 Walker, Edward Hugh, to Bell Telephone Laboratories, Incorporated. Signal-to-noise ratio detector for automatic gain controlled receivers. 3,831,093, Cl. 325-56.000.
 Walker, Gary J.: See—
 Davis, Martin F.; Schwanauer, Francis J.; and Walker, Gary J., 3,831,195.
 Wall, Robert G.: See—
 Kluksdahl, Harris E.; and Wall, Robert G., 3,830,727.
 Wallace Business Forms, Inc.: See—
 Steidinger, Donald J., 3,830,141.
 Wallstrom, Ray, to Fast Heat Element Manufacturing Co., Inc. Electric heater. 3,831,004, Cl. 219-535.000.
 Walser, Armin: See—
 Surmatis, Joseph Donald; and Walser, Armin, 3,830,844.
 Walter, Lothar: See—
 Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Neder, Gunter, 3,830,553.
 Walters, Wayne L.: See—
 Chaffin, John H.; Ellis, William D.; Heist, Herbert E.; and Walters, Wayne L., 3,831,006.
 Walther, Carl Sportwaffenfabrik: See—
 Volkmar, Willi, 3,830,002.
 Walton, Charles A., to Proximity Devices, Incorporated. Voltage controlled sweep oscillator. 3,831,112, Cl. 331-108.00b.
 Walz, Helmut: See—
 Duembgen, Gerd; Heesemann, Guenther; Hohenschutz, Heinz; Kerber, Horst; Nagel, Otto; Rothe, Robert; and Walz, Helmut, 3,830,846.
 Wankel G.m.b.H.: See—
 Ruf, Max, 3,830,598.
 Ward, Donald H., to Borg-Warner Corporation. System for production of recording. 3,831,190, Cl. 360-12.000.
 Ward, Harry M., to Outboard Marine Corporation. Combined crankshaft and flywheel assembly for variable speed power transmission. 3,830,112, Cl. 74-230.17e.
 Ward, Ronald Douglas, to Ferranti Limited. Q switched lasers. 3,831,106, Cl. 331-94.50q.
 Warmont, Georges: See—
 Bouille, Jean Bernard; Ledoyen, Jose; and Warmont, Georges, 3,831,070.
 Warn-Key, Inc.: See—
 Warnke, George E., 3,830,024.
- Warner, John. Nonreciprocal waveguide mode converter. 3,830,555, Cl. 350-96.0wg.
 Warnke, George E., to Warn-Key, Inc. Stabilizing and anchoring device for mobile homes and similar structures. 3,830,024, Cl. 52-23.000.
 Warthen, John L.: See—
 Parthasarathy, R.; Warthen, John L.; and Ciapetta, Frank G., 3,830,847.
 Waser, Harold R., Jr., to Goodyear Tire & Rubber Company, The. Elastomer blends and tire sidewalls prepared therefrom. 3,830,274, Cl. 152-355.000.
 Watanabe, Seizo; Maeda, Minoru; and Yamaguchi, Masaru, to Hitachi Shipbuilding and Engineering Co., Ltd. Copper alloy for plastic-working molds. 3,830,644, Cl. 75-153.000.
 Watanabe, Tsuguo: See—
 Kohn, Tadashi; and Watanabe, Tsuguo, 3,830,576.
 Waters, Robert S.; and Liedtke, Ronald R., to Sunbeam Corporation. Portable hair dryer. 3,831,000, Cl. 219-368.000.
 Watson, James M., to Cosden Oil Chemical Company. Manufacture of dialkynyl aryl compounds. 3,830,861, Cl. 260-668.00r.
 Watts, Robert H. Safety brake. 3,830,346, Cl. 188-188.000.
 Wausau Metals Corporation: See—
 Weber, Ronald J.; and Higgins, Wesley J., 3,830,147.
 Weber, Bernard R., to Wesbar Corporation. Multi-purpose vehicle lamp having side light emitting lens. 3,831,018, Cl. 240-8.200.
 Weber, Bernhard; and Pfaff, Alfred, to Garth, Harold. Clutch. 3,830,081, Cl. 64-14.000.
 Weber, Jonathan T., to Positrol, Inc. Hydraulically controlled holding device. 3,830,509, Cl. 279-2.000.
 Weber, Ronald J.; and Higgins, Wesley J., to Wausau Metals Corporation. Ventilating unit. 3,830,147, Cl. 98-99.00r.
 Webster, Frank G., to Eastman Kodak Company. Cyanine dye infrared lasers. 3,831,105, Cl. 331-94.501.
 Weck, Edward, & Company, Inc.: See—
 Chester, John E., 3,830,230.
 Wegener, Horst A. R.: See—
 Kroger, Harry; and Wegener, Horst A. R., 3,831,185.
 Wegmann & Co.: See—
 Dieling, Hans; and Schindehutte, Manfred, 3,830,166.
 Weigele, Manfred: See—
 Leimgruber, Willy; and Weigele, Manfred, 3,830,629.
 Weiler, Norbert R.: See—
 Lapp, John; and Weiler, Norbert R., 3,829,941.
 Weiner, Philip A.: See—
 Friedman, George; Kohn, Harold B.; and Weiner, Philip A., 3,830,490.
 Weir, Niall Galbraith: See—
 O'Callaghan, Cynthia Hilda; Clark, John Colin; Kennedy, James; Kirby, Susan Mary; Long, Alan Gibson; Morris, Allan; Shingler, Anthony Harold; and Weir, Niall Galbraith, 3,830,700.
 Weisang, Joseph Edouard; and Engelhard, Philippe, to Compagnie Francaise de Raffinage. Reforming with a trimetallic catalyst. 3,830,726, Cl. 208-138.000.
 Weisert, Wilson G., Jr.: See—
 Glaeser, John L.; Weisert, Wilson G., Jr.; and Cunningham, Gerald R., 3,830,370.
 Weiss, Stuart L., to Melcor Electronics Corporation. Miniature calculator having push-button on-off switch. 3,831,081, Cl. 323-22.00t.
 Weissenborn, Gustav: See—
 Janssen, Hans Georg; and Weissenborn, Gustav, 3,830,186.
 Weissenfels, Franz: See—
 Juenger, Hans; and Weissenfels, Franz, 3,830,894.
 Weissmuller, Adam: See—
 Ruddle, Joel; and Weissmuller, Adam, 3,830,446.
 Welhart, Erwin K.: See—
 Hochberg Marvin S.; Welhart, Erwin K.; and Pousson, James H., 3,830,261.
 Wellman, Russel E., to Xerox Corporation. Encapsulating substantially soluble portion of core material in substantially soluble shell material of different solubility. 3,830,750, Cl. 252-316.000.
 Wells, Lane T., to Wells, W. F., & Sons, Inc. Horizontal band saw blade guard structure. 3,830,131, Cl. 83-820.000.
 Wells, W. F., and Sons, Inc.: See—
 Wells, Lane T., 3,830,131.
 Werdouschegg, Fritz Mk, to General Mills Chemicals, Inc. Water clarification. 3,830,736, Cl. 210-53.000.
 Werkmeister, Dennis W.: See—
 Wingard, Michael G.; Werkmeister, Dennis W.; Thies, Curt; and Anthony, William B., 3,830,734.
 Werkzeugmaschinenfabrik Oerlikon-Buhrle AG: See—
 Fischer, Pierre, 3,829,940.
 Werner, Frithjof: See—
 Haug, Gerhard; and Werner, Frithjof, 3,831,062.
 Werner, Hugo: See—
 Ebert, Hans; Thummler, Ursus; and Werner, Hugo, 3,830,039.
 Wesbar Corporation: See—
 Weber, Bernard R., 3,831,018.
 Wesenborn, Frank Lee: See—
 Slusarchyk, William A.; and Wesenborn, Frank Lee, 3,830,936.
 West, Clinton L.; and West, Leon M., to Yuba City Steel Products Co. Article receiving and handling system. 3,830,357, Cl. 198-54.000.
 West Electric Co. Ltd.: See—
 Iwata, Hiroshi, 3,831,079.
 West, Leon M.: See—
 West, Clinton L.; and West, Leon M., 3,830,357.

Western Electric Company, Incorporated: *See*—
Dabby, Franklin Winston; and Destenbaum, Ami, 3,831,038.
Durr, Helmut E.; and Haller, Albert H., 3,829,985.
Westinghouse Air Brake Company: *See*—
Gill, Raymond E.; and McMahon, Floyd J., 3,831,024.
Westinghouse Electric Corporation: *See*—
Curtis, Little P.; Ying, Sui C.; and Dailey, George F., 3,831,046.
Frisch, Erling; Andrews, Harry N.; and Haga, Phillip B., 3,830,536.
Westinghouse Learning Corporation: *See*—
McMillin, John V., 3,831,009.
Westvaco Corporation: *See*—
Dowd, Daniel J., Jr., 3,830,143.
Wetteborn, Wilhelm, to Klockner-Humboldt-Deutz Aktiengesellschaft. Device for separating drops of liquid from a flowing gaseous medium. 3,830,044, Cl. 55-440.000.
White, Newell J., to Phillips Petroleum Company. Grid plate. 3,829,983, Cl. 34-57.00a.
Whitehouse, Harper John: *See*—
Alsop, James M.; and Whitehouse, Harper John, 3,831,013.
Whitin Machine Works, Inc.: *See*—
Kieronski, John P.; and Williams, Francis N., 3,830,049.
Wiegand, John R. Spring loaded power source for intrusion alarm. 3,831,157, Cl. 340-224.000.
Wieland-Werke AG: *See*—
Thamasett, Eberhard; and Herzog, Ullrich, 3,830,290.
Wierlo, Edward, to Sweden Freezer Manufacturing Company. Blender for multi-flavored milkshake mixing. 3,830,407, Cl. 222-145.000.
Wigglesworth Limited: *See*—
Morrison, Alexander McKenzie; and Brown, Charles Leslie Meredith, 3,830,920.
Wilcox, Albert F.: *See*—
Mees, Robert D.; Mittermaier, Armin F.; and Wilcox, Albert F., 3,829,965.
Wiley, Sandra Lee: *See*—
Love, Charles E., 3,830,315.
Wiley, William C.; and Carrico, John P., to Bendix Corporation. The ion source for providing a supply of charged particles having a controlled kinetic energy distribution. 3,831,025, Cl. 250-292.000.
Wilger, John F.; Lai, Clifford Y. C.; and Nakano, Gregory S., to United States of America, Navy. Propeller manipulating and work stand. 3,830,488, Cl. 269-296.000.
Wilgus, James L. Plastic cutting arrangement. 3,830,123, Cl. 83-171.000.
Willen, Harold A.: *See*—
Willen, Harold A.; and Little, James L. (said Little assor. to said), 3,830,077.
Willen, Harold A.; and Little, James L., said Little assor. to said Willen, Harold A. Heat exchanger for connection in evaporator-to-compressor line of air conditioner. 3,830,077, Cl. 62-238.000.
William, Vanda Ray; d/b/a Future Machine Company: *See*—
Ellison, Jack R., 3,830,268.
Williams, Charles H., to Koppers Company, Inc. Method and apparatus for engaging coacting propulsion systems. 3,830,349, Cl. 192-103.00f.
Williams, Chester I. Inner tie rod for securing wall forms. 3,830,461, Cl. 249-213.000.
Williams, David C., to Parke, Davis & Company. Dispensing process. 3,830,076, Cl. 62-60.000.
Williams, Francis N.: *See*—
Kieronski, John P.; and Williams, Francis N., 3,830,049.
Williams, Frank R.: *See*—
Jordan, Merrill E.; Burbine, William G.; and Williams, Frank R., 3,830,774.
Williams, Richard R. Aerator device. 3,830,310, Cl. 172-22.000.
Williams, Robert M.; and Englar, Robert J., to United States of America, Navy. Dual purpose circulation control airfoil. 3,830,450, Cl. 244-42.00d.
Williams, Thomas Henry: *See*—
Uskokovic, Milan Radoje; and Williams, Thomas Henry, 3,830,831.
Williamson, William Robert Nigel; Hicks, Terence Alan; and Day, Elaine Hilda, to Lilly Industries, Limited. Phenyl alkyl amine derivatives to treat inflammation. 3,830,923, Cl. 424-267.000.
Willis, Ivra T.: *See*—
Witchurch, William H.; and Willis, Ivra T., 3,830,468.
Willis, Robert John, Jr.; Kalikow, Irving; Jordan, Harold John; and Jacobson, John William, to General Electric Company. Conversion means for a gas turbine engine. 3,830,056, Cl. 60-39.16s.
Willmark Products Company: *See*—
Auer, William F., 3,831,017.
Wills, Lowell J.: *See*—
Minneman, Lester C.; Trease, Ralph E.; Wills, Lowell J.; and Dietz, Raymond Louis, 3,830,651.
Wilmsers, Gottlieb, to Audi NSU Auto Union Aktiengesellschaft and Wankel G.m.b.H. Rotor for rotary combustion engine and method of making the same. 3,829,944, Cl. 29-156.40r.
Wilson, David T.: *See*—
Barrett, Harrison H.; Demeester, Gordon D.; and Wilson, David T., 3,831,031.
Wilson, Donald C., to FMC Corporation. Package sealing in steam atmosphere. 3,830,681, Cl. 156-583.000.
Wilson, James; Nelson, James; and Shield, Douglas, to Underground Mining Machinery Limited. Anchorage for conveyor guiding long-wall planer and method. 3,830,544, Cl. 299-18.000.

Wilson, Larry Ray: *See*—
Roman, William Clair; and Wilson, Larry Ray, 3,830,665.
Wilson, Melvin George: *See*—
Siverling, Michael McHugh; and Wilson, Melvin George, 3,830,972.
Wilson, Stewart W.: *See*—
Shenk, Edwin K.; and Wilson, Stewart W., 3,831,189.
Windmoller & Holscher: *See*—
Kuckhermann, Gustav; and Schulz, Rudolf, 3,830,144.
Wingard Limited: *See*—
Sargeant, Archibald, 3,830,444.
Wingard, Michael G.; Werkmeister, Dennis W.; Thies, Curt; and Anthony, William B., to National Cash Register Company. The capsule columns for liquid-liquid extraction. 3,830,734, Cl. 210-22.000.
Winkler, Josef; and Falkenberg, Dieter, to Siemens Aktiengesellschaft. Thermoelectric generator. 3,830,664, Cl. 136-202.000.
Winn, George: *See*—
Johnson, Richard Bruce; and Winn, George, 3,830,898.
Winstead, Thomas W. Method of forming foamed plastic sheets. 3,830,900, Cl. 264-51.000.
Winstead, Thomas W. Continuous process for extruding cellular thermoplastics. 3,830,901, Cl. 264-51.000.
Wislocky, Joseph; and Carlan, Alan J., to International Rectifier Corporation. Semiconductor device with pressure connection electrodes and with headers cemented to insulation ring. 3,831,067, Cl. 317-234.00r.
Witchurch, William H.; and Willis, Ivra T. Trailer jack. 3,830,468, Cl. 254-98.000.
Witco Chemical Corporation, mesne: *See*—
Kemp, Paul C., 3,830,739.
Witzel, Bruce E., to Merck & Co., Inc. Thiopiperidone antiinflammatory agents. 3,830,922, Cl. 424-267.000.
Woitun, Eberhard; and Reuter, Wolfgang, to Boehringer Ingelheim GmbH. 2-(5'-Nitro-2'-furyl)-thieno(2,3-D)pyridines and salts thereof. 3,830,813, Cl. 260-256.50r.
Wojaczek, Egon: *See*—
Rosenberg, Harry E.; Wojaczek, Egon; Plevak, Lubomir; and Becker, Kunibert, 3,830,070.
Wolowoduik, Walter; Dawson, Bruce Edgar; and Anelli, John, to United States of America, Atomic Energy Commission. Flow distribution for heat exchangers. 3,830,292, Cl. 165-161.000.
Woltanski, Theodore M.: *See*—
Rod, Robert L.; and Woltanski, Theodore M., 3,829,909.
Wood, James E.; Strecker, Larry A.; and Cratz, Robert E., to Inmont Corporation. Cable sealant. 3,830,953, Cl. 174-23.00c.
Woodall-Duckham Limited: *See*—
King, Leslie Frederick, 3,830,729.
Woodcock, Brian R.; and Tansky, John L., to Bunker Ramo Corporation. Integrated circuit package connectors. 3,831,131, Cl. 339-95.00r.
Woods, Martin W.; and Mass, Thomas R., to B. F. Goodrich Company. The Vulcanizates of epdm and diene rubber blends. 3,830,881, Cl. 260-889.000.
Woolner, Henry R., to Modutex Incorporated. Control meter. 3,831,090, Cl. 324-157.000.
Wootton, Derek Sidney; and Osborne, Colin Sidney, to International Computers Limited. Multilayer printed circuit board with test pads. 3,830,956, Cl. 174-68.500.
Worthen, Eugene P.; deceased (by New England Merchant National Bank; executor), to Turbo Power and Marine Systems, Inc., mesne. Marine reversible reduction gearing with brake. 3,830,350, Cl. 192-4.00c.
Worthington-Cei, Incorporated: *See*—
Klessig, Ernest F., 3,830,463.
Wragg, Ronald, to North Derbyshire Engineering Company Limited. Vehicle suspension systems. 3,830,515, Cl. 280-104.50r.
Wright, Joseph H.: *See*—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,830,563.
Wright, Raymond W.; and Corey, Robert W., to Monocab, Inc. Monorail vehicle switching arrangement. 3,830,163, Cl. 104-105.000.
Wrobel, Joseph S.; and Bate, Robert Thomas, to Texas Instruments Incorporated. Laser-operated system for spectroscopic analysis. 3,831,030, Cl. 250-339.000.
WSF Industries, Inc.: *See*—
Piegza, Henry J., 3,830,400.
Wurth, Hans-Jorg; and Freund, Georg, to Knorr-Bremse GmbH. Safety control system for a pneumatic or hydraulic control circuit. 3,830,137, Cl. 91-1.000.
Wyss, Samuel: *See*—
Stauffer, Rudolf, 3,830,510.
Xerox Corporation: *See*—
Allen, Walter C., 3,830,589.
Chen, Philip L., 3,830,646.
Harris, Halbert M.; and Modi, Bhogilal M., 3,830,590.
Kanitz, Bruce R.; Koning, Virgil H.; and Jacobson, Charles L., 3,831,091.
Mailloux, Louis D., 3,830,962.
Wellman, Russel E., 3,830,750.
Xonics, Inc.: *See*—
Proudian, Andrew P.; and Scott, Paul B., 3,831,027.
Yagi, Shizuo: *See*—
Date, Tasuku; and Yagi, Shizuo, 3,830,205.

Yale, Harry Louis, to Squibb, E. R., & Sons, Inc. $\alpha, \alpha, \alpha, \alpha$ -[1, α^1, α^1 -Hexafluorodimethylamine derivatives. 3,830,842, Cl. 260-562.00p.
Yamada, Norio: *See*—
Awazi, Yoshiharu; and Yamada, Norio, 3,830,547.
Yamaguchi, Masaru: *See*—
Watanabe, Seizo; Maeda, Minoru; and Yamaguchi, Masaru, 3,830,644.
Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Masaoka, Yutaka; and Nakai, Masao, 3,830,551.
Seino, Tetsuya; and Mizutani, Masashi, 3,830,212.
Yamamoto, Kohei: *See*—
Tsuchida, Takashi; Shinoda, Kenichi; Yamamoto, Kohei; Sakamoto, Noriaki; and Nishio, Mastatake, 3,830,661.
Yamamoto, Isao, to Pioneer Electronic Corporation. Magnetic circuit for an electro-acoustic converter. 3,830,986, Cl. 179-115.50r.
Yamanaka, Seisuke: *See*—
Fuse, Yuzo; Yamanaka, Seisuke; and Saito, Tsunenari, 3,830,958.
Yamanaka, Senya. Propelling apparatus. 3,830,189, Cl. 115-31.000.
Yamazaki, Ryuchi, to Toyo Kogyo Co., Ltd. and Yoshiwa Kogyo K.K. Apex sealing member for rotary piston engine. 3,830,601, Cl. 418-113.000.
Yarita, Kenichi: *See*—
Asi, Soichiro; Yarita, Kenichi; Uzuki, Teruo; Kimura, Kouhei; and Kagayama, Hiroo, 3,830,836.
Yatabe, Yoshihiro: *See*—
Ohkawa, Shunjiro; Yatabe, Yoshihiro; Mizuno, Tetsuo; and Matsumura, Takeshi, 3,830,610.
Yerouchalmi, David: *See*—
Schoumaker, Henry; and Yerouchalmi, David, 3,830,950.
Ying, Sui C.: *See*—
Curtis, Little P.; Ying, Sui C.; and Dailey, George F., 3,831,046.
Yissum Research Development Company: *See*—
Alkalay, Esther; and Sochaczewer, Eliahou, 3,830,692.
Yoshida, Masaru: *See*—
Ito, Akihiko; Yoshida, Masaru; Nakase, Yoshiaki; Iwai, Tadashi; Hayashi, Koichiro; and Okamura, Seizo, 3,830,715.
Yoshida, Mikihiko; and Hirao, Mamoru, to Hayashibara Company. Process for producing amyloses. 3,830,697, Cl. 195-31.00r.
Yoshida, Shuji; and Iguchi, Tateo, to Denki Kagaku Kogyo Kabushiki Kaisha. Thermoplastic resin graft polyblend compositions. 3,830,873, Cl. 260-829.000.
Yoshida, Tsukasa. Device for detachably coupling furniture or building materials. 3,830,030, Cl. 52-584.000.
Yoshie, Koichi; Masaki, Kunihiko; and Sakamoto, Masaji, to Toyota Jidosha Kogyo Kabushiki Kaisha. Impact energy absorbing bumper for vehicle. 3,830,539, Cl. 293-75.000.
Yoshiwa Kogyo K.K.: *See*—
Yamazaki, Ryuchi, 3,830,601.
Yoshizumi, Shuzo; Doe, Takao; Oku, Takeshi; and Matsumoto, Yoshimitsu, to Matsushita Electric Industrial Co., Ltd. Method of welding, fusing or heating workpiece utilizing energy of light. 3,830,999, Cl. 219-137.000.
Young, Donald C.; and Harbolt, Bruce A., to Union Oil Company of California. Apparatus for the preparation of porous, particulate sulfur. 3,830,631, Cl. 23-252.00r.
Young, Richard S., to Saginaw Products Corporation. Baggage cart. 3,830,385, Cl. 214-84.000.

Young, Warren D.: *See*—
Holcomb, Richard H.; and Young, Warren D., 3,831,053.
Yount, Joseph George, Jr.: *See*—
Hubble, David Henry; and Yount, Joseph George, Jr., 3,830,173.
Yuasa, Katsumi: *See*—
Sakasai, Toshio; and Yuasa, Katsumi, 3,830,939.
Yuba City Steel Products Co.: *See*—
West, Clinton L.; and West, Leon M., 3,830,357.
Yunuki, Morio: *See*—
Arai, Hiroshi; Yunuki, Morio; and Nakamura, Masahiro, 3,830,018.
Zabert, Alessandro; and Bettin, Edoardo, to Olivetti, Ing. C., & C. S.p.A. Electric power supply for electronic equipment. 3,831,080, Cl. 321-18.000.
Zaborsky, Oskar R., to Esso Research and Engineering Company. Insolubilized enzymes. 3,830,699, Cl. 195-63.000.
Zambelli, Celestino: *See*—
Pasqualini, Ugo; Pasqualini, Tullio; and Zambelli, Celestino, 3,829,972.
Zaremski, Donald R.; and Beigay, Jack M., to Allegheny Ludlum Industries, Inc. Trim members and production thereof. 3,830,634, Cl. 29-191.600.
Zawadzki, Thomas: *See*—
Hudgin, Donald E.; and Zawadzki, Thomas, 3,830,764.
Zeitlein, Bruce A.: *See*—
Critchlow, Philip R.; and Zeitlein, Bruce A., 3,829,964.
Zelinski, Paul A.: *See*—
Jones, Leo V., Jr.; and Zelinski, Paul A., 3,831,151.
Zelinski, Robert P.; and Hudson, Paul S., to Phillips Petroleum Company. Solid composite propellants containing copolymers of conjugated. 3,830,675, Cl. 149-19.900.
Zeller, Paul: *See*—
Bollag, Werner; Gutmann, Hugo; Hegedus, Balthasar; Kaiser, Ado; Langemann, Albert; Muller, Marcel; and Zeller, Paul, 3,830,840.
Zeller, Robert A.: *See*—
Carpenter, Charlie P.; and Zeller, Robert A., 3,830,595.
Zentgraf, Henry J.: *See*—
Beach, Laurence R.; Junge, Bjarne; and Zentgraf, Henry J., 3,831,197.
Zhavoronkov, Leonid Andreevich: *See*—
Litvinovich, Georgy Mikhailovich; Zhavoronkov, Leonid Andreevich; Stebelev, Nikolai Alexandrovich; Guzov, Konstantin Borisovich; and Lyagalv, Ivan Nikitovich, 3,830,109.
Zinser-Textilmaschinen GmbH: *See*—
Porter, William D., 3,830,439.
Zorunski, William E., to United States of America, National Aeronautics and Space Administration. Noise suppressor. 3,830,335, Cl. 181-33.00f.
Zubak, Jan; Trebichavsky, Ctibor; and Augustin, Jan, to Vyskumny ustav mechanizacie a automatizacie. Electrochemical working of electrically conductive materials. 3,830,714, Cl. 204-129.600.
Zupancic, Anton Z.; and See, Gary G., to Addressograph-Multigraph Corporation. Mounting and drive assembly for magnetic strip reading head. 3,831,188, Cl. 360-2.000.
Zweig, Gilbert, to Pitney-Bowes, Inc. Method and apparatus for creating an electrostatic latent image by charge modulation. 3,830,645, Cl. 96-1.00r.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 20TH DAY OF AUGUST, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AMP Inc.: See—
Busler, Willard L., Folk, and Phillips. Re. 28,119.
Andreasen, Norman H.: See—
Dahlstrom, Arvid. Re. 28,122.
Baker Oil Tools, Inc.: See—
Leutwyler, Kurt. Re. 28,131.
Belanger, Inc.: See—
Belanger, James A. Re. 28,118.
Belanger, James A., to Belanger, Inc. Finishing wheels. Re. 28,118, 8-20-74, Cl. 51—337.
Busler, Willard L., F. K. Folk, and C. Phillips, to AMP Inc. and Guy F. Atkinson, Co. Method and apparatus for inserting contact members into insulating blocks. Re. 28,119, 8-20-74, Cl. 29—625.
Dahlstrom, Arvid, 1/2 interest to Norman A. Andreasen. Speed reducing mechanism. Re. 28,122, 8-20-74, Cl. 74—125.
Derry, William C. Soil sampler device. Re. 28,127, 8-20-74, Cl. 175—51.
Di Carlo, Carlton M. Drafting pen. Re. 28,123, 8-20-74, Cl. 401—258.
Dow Corning Corp.: See—
Rakus, Joseph A., and Sharpe. Re. 28,129.
Etablissements Proner, S.A.: See—
Poinet, Roger. Re. 28,126.
Folk, Kenneth F.: See—
Busler, Willard L., Folk, and Phillips. Re. 28,119.
Fueslein, John R., E. C. Roper, deceased, by Mueller Brass Co., assignee. Method of sealing tubing. Re. 28,124, 8-20-74, Cl. 53—22.
Gulley, John M., deceased by M. F. Harris, to Polygon Industries Ltd. Self-guiding tooling systems. Re. 28,121, 8-20-74, Cl. 173—52.
Hardesty, Donald E., and T. A. Rodgers, to Shell Oil Co. Molten salt hydroconversion process. Re. 28,128, 8-20-74, Cl. 203—108.
Harris, Michael F.: See—
Gulley, John M., and Harris. Re. 28,121.
Hudall Corp.: See—
Hudson, Rose M. Re. 28,130.
Hudson, Rose M., to Hudall Corp. Self-contained internal hydrotherapy apparatus. Re. 28,130, 8-20-74, Cl. 128—227.
Johnson Welding & Equipment Co., Inc.: See—
Quinn, John N., and Johnson. Re. 28,125.
Leutwyler, Kurt, to Baker Oil Tools, Inc. Ball valve with resilient seal. Re. 28,131, 8-20-74, Cl. 137—629.
Mueller Brass Co.: See—
Fueslein, John R., Roper, and Mueller. Re. 28,124.
Phillips, Charles: See—
Busler, Willard L., Polk, Phillips, and Ross. Re. 28,119.
Plumer, Lawrence H., to Rutland Fire Clay Co. Shut-off nozzle for caulking cartridge. Re. 28,120, 8-20-74, Cl. 222—326.
Poinet, Roger, to Etablissements Proner, S.A. Insulating protector for clips used in electrical connections. Re. 28,126, 8-20-74, Cl. 339—59.
Polygon Industries Limited: See—
Gulley, John M. Re. 28,121.
Quinn, John N., by Johnson Welding & Equipment Co., Inc. Portable crushing plant. Re. 28,125, 8-20-74, Cl. 241—76.
Rakus, Joseph A., and J. G. Sharpe, to Dow Chemical Corp. Method of preparing mercapto-alkylalkoxy silanes. Re. 28,129, 8-20-74, Cl. 260—448.80.
Rodgers, Thomas A.: See—
Hardesty, Donald E., and Rodgers. Re. 28,128.
Roper, Edward C.: See—
Fueslein, John R., and Roper. Re. 28,124.
Ross, Dean: See—
Busler, Willard L., Folk, Phillips, and Ross. Re. 28,119.
Rutland Fire Clay Co.: See—
Plumer, Lawrence H. Re. 28,120.
Sharpe, James G.: See—
Rakus, Joseph A., and Sharpe. Re. 28,129.
Shell Oil Co.: See—
Hardesty, Donald E., and Rodgers. Re. 28,128.

LIST OF PLANT PATENTEEES

- Barberet, Alexandre, to Laboratoire de Physiologie Vegetale de la Londe. Carnation plant. 3,593, 8-20-74, Cl. 73.
Duffett, William E.: See—
Jessel, Walter H., Jr., and Duffett. 3,594.
Jessel, Walter H., Jr., and Duffett. 3,597.
Jessel, Walter H., Jr., and Duffett. 3,598.
Jackson & Perkins Co.: See—
Warriner, William A. 3,595.
Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,594, 8-20-74, Cl. 78.
Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,597, 8-20-74, Cl. 74.
Jessel, Walter H., Jr., and W. E. Duffett, to Yoder Brothers, Inc. Chrysanthemum plant. 3,598, 8-20-74, Cl. 74.
Laboratoire de Physiologie Vegetale de la Londe: See—
Barberet Alexandre. 3,593.
Math, Tantau: See—
Van Engelen, Floor A. G. 3,596.
Van Engelen, Floor A. G., to Math. Tantau. Rose plant. 3,596, 8-20-74, Cl. 24.
Warriner, William A., to Jackson & Perkins Co. Rose plant. 3,595, 8-20-74, Cl. 29.
Yoder Brothers, Inc.: See—
Jessel, Walter H., Jr., and Duffett. 3,594.
Jessel, Walter H., Jr., and Duffett. 3,597.
Jessel, Walter H., Jr., and Duffett. 3,598.

LIST OF DESIGN PATENTEEES

- American Seating Co.: See—
Barecki, Chester J. 232,492.
Andersson, Bo Hjalmar. Power measuring device. 232,448, 8-20-74, Cl. D34—5.
Ashida Onkyo Kabushiki Kaisha (Ashida Sound Co., Ltd.): See—
Yanagawa, Haruo. 232,440.
Atwell, Walter E. Statuette. 232,442, 8-20-74, Cl. D29—23.
Aurora Products Corp.: See—
Moe, Walter. 232,445.
Barecki, Chester J., to American Seating Co. Carrying case. 232,492, 8-20-74, Cl. D87—1.
Bartram, Nial C.: See—
Waters, Robert S., Doyle, Rogers, and Bartram. 232,490.
Batesville Casket Co., Inc.: See—
Winburn, Charles F., and Sun. 232,443.
Baughn, Daniel L.: See—
Kimball, David V., and Baughn. 232,431.
Bennett, Richard H., to D. N. Lambert. Ultraviolet water purifier for aquariums or the like. 232,435, 8-20-74, Cl. D23—3.
Bialek, Norman. Game die. 232,453, 8-20-74, Cl. D34—5.
Bila Cup AB: See—
Persson, Karl R. 232,422.
Blaschke, James. Horizontally mounted rack for a plurality of lawn chairs or the like. 232,400, 8-20-74, Cl. D6—113.
Bonny Products Inc.: See—
Steiner, Fred S. 232,413.
Burrell, Alfred A. Display stand. 232,406, 8-20-74, Cl. D6—159.
Camposso, Peter R. Badge. 232,441, 8-20-74, Cl. D20—2.
Carl Zeiss-Stiftung: See—
Hornschu, Joachim, and Donn. 232,478.
Jung, Arthur, and Hornschu. 232,479.
Chrest, Louis R., D. L. Kerkenbush, P. D. Pook, and M. C. Gillespie, to South Bend Toy Mfg. Co., Inc. Tennis racket. 232,450, 8-20-74, Cl. D34—5.
Clary, Henry J. Hub cap. 232,430, 8-20-74, Cl. D12—204.
Clary, Henry J. Automobile wheel. 232,432, 8-20-74, Cl. D12—209.
Dikoff, Joseph K. Signature writer. 232,486, 8-20-74, Cl. D64—11.
Doman, Donald W.: See—
Douglas, Kenneth M., Rau, and Doman. 232,411.
Donn, Volker: See—
Hornschu, Joachim, and Donn. 232,478.
Douglas, Kenneth M., G. A. Rau, and D. W. Doman, to Flambeau Products Corp. Carafe. 232,411, 8-20-74, Cl. D7—65.
Doyle, Edward J.: See—
Waters, Robert S., Doyle, Rogers, and Bartram. 232,490.
Du Breuil, Philip D.: See—
Kilroy, Eugene J., Leistikow, and Du Breuil. 232,459.

LIST OF DESIGN PATENTEEES

PI 41

- Eastman Kodak Co.: See—
Laughon, Thomas C. 232,480.
McClare, Andrew V. 232,481.
Vigna, Ralph M. 232,482.
Edwards, Bryant, to Illinois Tool Works Inc. Preform container or the like. 232,421, 8-20-74, Cl. D9—171.
Felske, Arthur M., to General Electric Co. Clock or similar article. 232,423, 8-20-74, Cl. D10—25.
Felske, Arthur M., to General Electric Co. Clock or similar article. 232,424, 8-20-74, Cl. D10—28.
Finley, Arthur L.: See—
Hinkel, Walter W., and Finley. 232,428.
Flambeau Products Corp.: See—
Douglas, Kenneth M., Rau, and Doman. 232,411.
Fogg, Walter K. Sewing guide attachable to a sewing machine. 232,487, 8-20-74, Cl. D70—2.
Fuji Photo Film Co., Ltd.: See—
Fukuda, Masahiro. 232,483.
Fukuda, Masahiro, to Fuji Photo Film Co., Ltd. Motion picture camera. 232,483, 8-20-74, Cl. D61—1.
Funahashi, Takaji. Pocket hand stamp. 232,485, 8-20-74, Cl. D64—10.
Game Time, Inc.: See—
Wormser, Robert S. 232,451.
Wormser, Robert S. 232,452.
Wormser, Robert S. 232,454.
Wormser, Robert S. 232,455.
Wormser, Robert S. 232,456.
Gazda, Doris M.: See—
Gazda, Edward F., and D.M. 232,416.
Gazda, Edward F., and D. M. Ski lock. 232,416, 8-20-74, Cl. D8—109.
General Electric Co.: See—
Felske, Arthur M. 232,423.
Felske, Arthur M. 232,424.
Gillespie, Monte C.: See—
Chrest, Louis R., Jr., Kerkenbush, Pook, and Gillespie. 232,450.
Gillette Co., The: See—
Winter, Virginia A., and Hatch. 232,488.
Goodale, William R., and R. E. Loosen, to MSI Data Corp. Portable data recorder. 232,436, 8-20-74, Cl. D26—5.
Goodale, William R., and R. E. Loosen, to MSI Data Corp. Data transmitter. 232,437, 8-20-74, Cl. D26—5.
Goodale, William R., and R. E. Loosen, to MSI Data Corp. Data transmitter. 232,438, 8-20-74, Cl. D26—5.
Goodyear Tire & Rubber Co., The: See—
Hinkel, Walter W. 232,429.
Hinkel, Walter W., and Finley. 232,428.
Hatch, Thomas E., Jr.: See—
Winter, Virginia A., and Hatch. 232,488.
Hawker Siddeley Aviation Ltd.: See—
Szenkier, Tadeusz K. 232,426.
Szenkier, Tadeusz K. 232,427.
Henderson, Richard E., and G. D. Jenkins, Jr., to Mattel, Inc. Audible toy. 232,457, 8-20-74, Cl. D34—15.
Herring, Arthur L. Golf club carrier. 232,449, 8-20-74, Cl. D34—5.
Hille-Rom Co., Inc.: See—
Turner, Donald W., and Schultze. 232,404.
Hinkel, Walter W., and A. L. Finley, to The Goodyear Tire & Rubber Co. Tire. 232,428, 8-20-74, Cl. D12—141.
Hinkel, Walter W., to The Goodyear Tire & Rubber Co. Tire. 232,429, 8-20-74, Cl. D12—142.
Hornschu, Joachim: See—
Jung, Arthur, and Hornschu. 232,479.
Hornschu, Joachim, and V. Donn, to Carl Zeiss-Stiftung. Binoculars. 232,478, 8-20-74, Cl. D57—1.
Ideal Toy Corp.: See—
Van Buren, Abigail. 232,447.
Illinois Tool Works Inc.: See—
Edwards, Bryant. 232,421.
Ing. C. Olivetti & C. S.p.A.: See—
Sottsass, Ettore, Jr. 232,398.
Interlake, Inc.: See—
Petersen, Warren D. 232,407.
Jenkins, Gale D. Jr.: See—
Henderson, Richard E., and Jenkins. 232,457.
Johnson, Andrew E. Belt buckle. 232,397, 8-20-74, Cl. D2—427.
Johnson, S. C., & Sons, Inc.: See—
Luedtke, Warren J. 232,419.
Joyce, Robert D., to Reichton International Corp. Jewelry display rack. 232,401, 8-20-74, Cl. D6—139.
Joyce, Robert D., to Reichton International Corp. Jewelry display rack. 232,402, 8-20-74, Cl. D6—139.
Jung, Arthur, and J. Hornschu, to Carl Zeiss-Stiftung. Binoculars. 232,479, 8-20-74, Cl. D57—1.
Karney, Bernice G. Beach towel. 232,408, 8-20-74, Cl. D6—265.
Karney, Bernice G. Textile fabric. 232,409, 8-20-74, Cl. D6—265.
Kerkenbush, Darle L.: See—
Chrest, Louis R., Jr., Kerkenbush, Pook, and Gillespie. 232,450.
Kilroy, Eugene J. G. K. Leistikow and P. D. Du Breuil, to Mattel, Inc. Gilder. 232,459, 8-20-74, Cl. D34—15.
Kimball, David V., and D. L. Baughn. Wheel. 232,431, 8-20-74, Cl. D12—205.
Korzeniewski, Robert. Gun sight. 232,434, 8-20-74, Cl. D22—8.
Lake Center Switch Co.: See—
Moon, Howard R. 232,477.
Lambert, Douglas N.: See—
Bennett, Richard H., and Lambert. 232,435.
Lane, Leslie L., to U.S. Phillips Corp. Dry shaver or similar article. 232,495, 8-20-74, Cl. D95—3.
Laughon, Thomas C., to Eastman Kodak Co. Computer output microfilm. 232,480, 8-20-74, Cl. D61—1.
Leikarts, Aldis J., and L. R. Miller, to Litton Business Systems, Inc. Display shelf. 232,405, 8-20-74, Cl. D6—181.
Leistikow, Gerard K.: See—
Kilroy, Eugene J., Leistikow, and Du Breuil. 232,459.
Little Rascals, Inc., The: See—
Miles, Erle W., Jr. 232,399.
Litton Business Systems, Inc.: See—
Leikarts, Aldis J., and Miller. 232,405.
Long, Douglas G., to Sunbeam Corp. Casing for hand held hair dryer. 232,489, 8-20-74, Cl. D86—10.
Loosen, Ronald E.: See—
Goodale, William R., and Loosen. 232,436.
Goodale, William R., and Loosen. 232,437.
Goodale, William R., and Loosen. 232,438.
Luedtke, Warren J., to S. C. Johnson & Sons, Inc. Bottle. 232,419, 8-20-74, Cl. D9—42.
MSI Data Corp.: See—
Goodale, William R., and Loosen. 232,436.
Goodale, William R., and Loosen. 232,437.
Goodale, William R., and Loosen. 232,438.
Macko, Stefan, to Miller Brewing Co. Bottle. 232,417, 8-20-74, Cl. D9—1.
Marriner, John E. Workboat. 232,425, 8-20-74, Cl. D12—66.
Martinelli, Arnold C. Stack table. 232,403, 8-20-74, Cl. D6—146.
Martuch, Leon L., to Scientific Anglers, Inc. Combined retaining and dispensing cord for a coiled fishing line. 232,420, 8-20-74, Cl. D9—171.
Matsumoto, Haruo. Ring-style cap opener. 232,415, 8-20-74, Cl. D8—40.
Mattel, Inc.: See—
Henderson, R. E., and Jenkins. 232,457.
Kilroy, Eugene J., Leistikow, and Du Breuil. 232,459.
McClare, Andrew V., to Eastman Kodak Co. Photographic film processor. 232,481, 8-20-74, Cl. D61—1.
Michels, Heinz-Gunter, to The National Cash Register Co. Hand stamp knob or similar article. 232,484, 8-20-74, Cl. D64—10.
Miles, Erle W., Jr., to The Little Rascals, Inc. Carpet display unit. 232,399, 8-20-74, Cl. D6—85.
Miller Brewing Co.: See—
Macko, Stefan. 232,417.
Miller, Larry R.: See—
Leikarts, Aldis J., and Miller. 232,405.
Moe, Walter, to Aurora Products Corp. Tethered ball bowling game board. 232,445, 8-20-74, Cl. D34—5.
Moon, Howard R., to Lake Center Switch Co. and Guy F. Atkinson Co. Porch light for motor homes. 232,477, 8-20-74, Cl. D48—32.
National Cash Register Co., The: See—
Michels, Heinz-Gunter. 232,484.
North American Phillips Corp.: See—
Rakocy, William J. 232,410.
Rakocy, William J. 232,414.
Persson, Karl R., to Bila Cup AB. Combined packaging and serving tray. 232,422, 8-20-74, Cl. D9—185.
Petersen, Warren D., to Interlake, Inc. Chair back. 232,407, 8-20-74, Cl. D6—197.
Pook, Peter D.: See—
Chrest, Louis R., Jr., Kerkenbush, Pook, and Gillespie. 232,450.
Putz, James D.: See—
Van Vranken, George A., and Putz. 232,458.
Rakocy, William J., to North American Phillips Corp. Electric coffee maker. 232,410, 8-20-74, Cl. D7—62.
Rakocy, William J., to North American Phillips Corp. Travel iron. 232,414, 8-20-74, Cl. D7—202.
Rau, Gerald A.: See—
Douglas, Kenneth M., Rau, and Doman. 232,411.
Reichton International Corp.: See—
Joyce, Robert D. 232,401.
Joyce, Robert D. 232,402.
Rogers, Meyric K.: See—
Waters, Robert S., Doyle, Rogers, and Bartram. 232,490.
Sandstrom, Ake. Grinding disc segment. 232,460, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,461, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,462, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,463, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,464, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,465, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,466, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,467, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,468, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,469, 8-20-74, Cl. D37—1.
Sandstrom, Ake. Grinding disc segment. 232,470, 8-20-74, Cl. D37—1.
Schlek, Inc.: See—
Waters, Robert S., Doyle, Rogers, and Bartram. 232,490.

Schmitt, Paul C. Casserole or similar article. 232,412, 8-20-74, Cl. D7-97.	Townsend Engineering Co.; See—
Schultz, John R.; See—	Townsend, Ray T. 232,446.
Turner, Donald W., and Schultz. 232,404.	Townsend, Ray T., to Townsend Engineering Co. Threadmill. 232,446, 8-20-74, Cl. D34-5.
Scientific Anglers, Inc.; See—	Turner, Donald W., and J. R. Schultz, to Hile-Rom Co., Inc. Cabinet design. 232,404, 8-20-74, Cl. D6-158.
Martuch, Leon L. 232,420.	U.S. Phillips Corp.; See—
Scourtes, Chris. Swimming pool coping. 232,433, 8-20-74, Cl. D13-6.	Lane, Leslie L. 232,495.
Scully, James C., to Styme, Inc. Golf game putting target. 232,444, 8-20-74, Cl. D34-5.	Van Lelyveld, Maarten W. 232,493.
Seddon, Robert M., to Unitex Ltd. Wet suit. 232,396, 8-20-74, Cl. D2-40.	Van Lelyveld, Maarten W. 232,494.
Snow, Virginia C. Hair curler. 232,491, 8-20-74, Cl. D86-10.	Unitex Ltd.; See—
Sottsass, Ettore, Jr., to Ing. C. Olivetti & C. S.p.A. Chair. 232,398, 8-20-74, Cl. D6-30.	Seddon, Robert M. 232,396.
South Bend Toy Mfg. Co., Inc.; See—	Van Buren, Abigail, to Ideal Toy Corp. Game scorekeeping board. 232,447, 8-20-74, Cl. D34-5.
Christ, Louis R., Jr., Kerkenbush, Pook, and Gillespie. 232,450.	Van Lelyveld, Maarten W., to U.S. Philips Corp. Dry shaver. 232,493, 8-20-74, Cl. D95-3.
Steiner, Fred S., to Bonny Products Inc. Food cutter. 232,413, 8-20-74, Cl. D7-106.	Van Lelyveld, Maarten W., to U.S. Philips Corp. Dry shaver. 232,494, 8-20-74, Cl. D95-3.
Styme, Inc.; See—	Van Vranken, George A., and J. D. Putz. Noise-making top. 232,458, 8-20-74, Cl. D34-15.
Scully, James C. 232,444.	Vigna, Ralph M., to Eastman Kodak Co. Photographic film processor. 232,482, 8-20-74, Cl. D61-1.
Sun, Herbert K. Y.; See—	Waters, Robert S., E. J. Doyle, M. K. Rogers, and N. C. Bartram, to Schick Inc. Hair dryer. 232,490, 8-20-74, Cl. D86-10.
Winburn, Charles F., and Sun. 232,443.	Winburn, Charles F., and H. K. Y. Sun, to Batesville Casket Co., Inc. Combined casket handles and brackets. 232,443, 8-20-74, Cl. D31-11.
Sunbeam Corp.; See—	Winter, Virginia A., and T. E. Hatch, Jr., to The Gillette Co. Douche appliance. 232,488, 8-20-74, Cl. D83-1.
Long, Douglas G. 232,489.	Wormser, Robert S., to Game Time, Inc. Playground climber representing a flower. 232,451, 8-20-74, Cl. D34-5.
Szlenkier, Tadeusz K., to Hawker Siddeley Aviation Ltd. V/stol aircraft. 232,426, 8-20-74, Cl. D12-79.	Wormser, Robert S., to Game Time, Inc. Playground climber representing a snail. 232,452, 8-20-74, Cl. D34-5.
Szlenkier, Tadeusz K., to Hawker Siddeley Aviation Ltd. V/stol aircraft. 232,427, 8-20-74, Cl. D12-79.	Wormser, Robert S., to Game Time, Inc. Bee-shaped seat for playground apparatus. 232,454, 8-20-74, Cl. D34-15.
Thomson, Norman L. Loudspeaker-stand combination. 232,439, 8-20-74, Cl. D26-14.	Wormser, Robert S., to Game Time, Inc. Frog-shaped seat for playground apparatus. 232,455, 8-20-74, Cl. D34-15.
Toscano, Catherine M. Crochet fabric. 232,472, 8-20-74, Cl. D47-2.	Wormser, Robert S., to Game Time, Inc. Bird-shaped seat for playground apparatus. 232,456, 8-20-74, Cl. D34-15.
Toscano, Catherine M. Crochet fabric. 232,473, 8-20-74, Cl. D47-2.	Yanagawa, Haruo, to Ashida Onkyo Kabushiki Kaisha (Ashida Sound Co., Ltd.). Horn-speaker. 232,440, 8-20-74, Cl. D26-14.
Toscano, Catherine M. Crochet fabric. 232,474, 8-20-74, Cl. D47-2.	
Toscano, Catherine M. Crochet fabric. 232,475, 8-20-74, Cl. D47-2.	
Toscano, Catherine M. Crochet fabric. 232,476, 8-20-74, Cl. D47-2.	

CLASSIFICATION OF PATENTS

ISSUED AUGUST 20, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	445	3,829,957	206R	3,830,020	CLASS 70	1.5	3,830,647	17	3,830,201		
2.5	3,829,899	460	3,829,958	216LP	3,830,021		3,830,648	29	3,830,202		
3R	3,829,900	471.1	3,829,959	217	3,830,022	CLASS 71	86R	3,830,649	51.11	3,830,203	
97	3,829,901	527.1	3,829,960	322	3,830,023	90	3,830,641	CLASS 98			
338	3,829,902	585	3,829,961	337	Re.28,118	107	3,830,642	33	3,830,145	CLASS 123	
		593	3,829,962				3,830,643	41SV	3,830,146	32AE	3,830,204
CLASS 3		599	3,829,963	23	3,830,024	CLASS 72		99R	3,830,147	32EA	3,830,207
1	3,829,903		3,829,964	79	3,830,025	54	3,830,086	CLASS 99		32ST	3,830,205
	3,829,904	606	3,829,965	185	3,830,026	77	3,830,087	359	3,830,148	41.82A	3,830,209
CLASS 4		625	Re.28,119	204	3,830,027	196	3,830,088	452	3,830,149	43A	3,830,208
10	3,829,905			279	3,830,028	407	3,830,089	467	3,830,150	122D	3,830,210
	3,829,906	43.6	3,829,966	395	3,830,029	CLASS 73		537	3,830,151	140R	3,830,211
172	3,829,907	157	3,829,967	584	3,830,030	1D	3,830,091	643	3,830,152	192B	3,830,212
172.17	3,829,910	190	3,829,968	645	3,830,031	1R	3,830,090	CLASS 100		198DB	3,830,213
	3,829,911	346.54	3,829,969	687	3,830,032	3	3,830,092	121	3,830,153	CLASS 124	
CLASS 5		380	3,829,970	720	3,830,033	11	3,830,093	CLASS 101		11R	3,830,214
8	3,829,907	383	3,829,971	754	3,830,034	15.4	3,830,094	235	3,830,154	CLASS 125	
10B	3,829,912					19	3,830,095	269	3,830,155	11T	3,830,215
46	3,829,913	10A	3,829,972	22R	Re.28,124	37.5	3,830,096	CLASS 102		CLASS 126	
81R	3,829,914	15	3,829,973	31	3,830,035		3,830,097	22	3,830,156	39J	3,830,216
	3,829,915	53	3,829,974	76	3,830,036	67.2	3,830,098	43	3,830,157	120	3,830,217
86	3,829,916	63	3,829,975	124D	3,830,037	71.6	3,830,099	70R	3,830,158	164	3,830,218
338	3,829,917			190	3,830,038	88.5SD	3,830,100	78	3,830,159	202	3,830,219
348R	3,829,918	134R	3,829,976			133A	3,830,101	CLASS 104		340	3,830,220
		174TA	3,829,978	5	3,830,039	148	3,830,102	46	3,830,160	374	3,830,221
4	3,830,626	174E	3,829,977	32	3,830,040	170	3,830,103	70	3,830,161	CLASS 128	
92	3,830,627	180AT	3,829,979	178	3,830,041	194B	3,830,104	105	3,830,162	2A	3,830,222
CLASS 9		270	3,829,980	341	3,830,042	362AR	3,830,105		3,830,163	2B	3,830,225
8R	3,829,919	312	3,829,981	378	3,830,043	421B	3,830,106	170	3,830,164	2H	3,830,224
CLASS 10				440	3,830,044	421	3,830,107	172S	3,830,165	2V	3,830,223
96T	3,829,920	4	3,829,982	501	3,830,045	425.6	3,830,108	CLASS 105		2.06E	3,830,229
141R	3,829,921	57A	3,829,983	16.5	3,830,046	455	3,830,109	77	3,830,166	2.06R	3,830,227
CLASS 13		99	3,829,984	53	3,830,047	CLASS 74		378	3,830,167		
9	3,830,950	216	3,829,986	331	3,830,048	6	3,830,110	CLASS 106		2.1R	3,830,226
CLASS 15						15.4	3,830,111	1	3,830,650	23	3,830,230
23	3,829,922	9A	3,829,987	53	3,830,049	125.5	Re.28,122	58	3,830,651	25R	3,830,231
159A	3,829,923	10.4	3,830,951	58.34	3,830,050	230.17E	3,830,112	59	3,830,652	33	3,830,232
250.14	3,829,924	12P	3,829,988	58.83	3,830,051	242.11S	3,830,114		3,830,653	71	3,830,233
250.17	3,829,925	39	3,829,989			501R	3,830,115	CLASS 108		214R	3,830,234
257.06	3,829,926			23R	3,830,052	711	3,830,116	50	3,830,168	227	Re.28,130
301	3,829,927	7.8	3,829,990	125C	3,830,053	763	3,830,117	61	3,830,169	263	3,830,235
CLASS 16				84	3,830,054	CLASS 75		111	3,830,170	270	3,830,236
87.2	3,829,928	48	3,829,991			153	3,830,644	CLASS 110		275	3,830,237
97	3,829,929	103	3,829,992	39.09R	3,830,055	CLASS 81		75	3,830,172	303.1	3,830,238
105	3,829,930			39.16R	3,830,056	3R	3,830,118	14	3,830,171	328	3,830,240
CLASS 17				219	3,830,057	52.4R	3,830,119	182.5	3,830,173	349R	3,830,241
1G	3,829,931	77.5	3,829,993	226R	3,830,058			79R	3,830,174	419P	3,830,242
23	3,829,932	2A	3,829,994	520	3,830,059	CLASS 82		121.12	3,830,175	243	3,830,243
53	3,829,933	16	3,829,995	527	3,830,060	54	3,830,120	CLASS 112		261B	3,830,244
CLASS 19		28	3,829,996	533	3,830,061	81	3,830,121	79R	3,830,176	243	3,830,243
202	3,829,934	86	3,829,997	618	3,830,062	169	3,830,122	121.12	3,830,177	261B	3,830,244
CLASS 23		124.1	3,829,998	645	3,830,063	171	3,830,123	5D	3,830,176	CLASS 132	
230PC	3,830,628	125H	3,829,999	667	3,830,064	205	3,830,124	26	3,830,177	5	3,830,245
230R	3,830,629			670	3,830,065	212	3,830,125	61	3,830,178	89	3,830,246
232E	3,830,630	23	3,830,000			310	3,830,126	67R	3,830,179	90	3,830,247
252R	3,830,631	59	3,830,001	CLASS 61		435.1	3,830,127	74A	3,830,180	CLASS 134	
284	3,830,632	70F	3,830,002	3	3,830,066	451	3,830,128		3,830,181	13	3,830,658
CLASS 24		75C	3,830,003	12	3,830,067	552	3,830,129	114	3,830,182	22C	3,830,659
90B	3,829,935			34	3,830,068	745	3,830,130	144C	3,830,183	23	3,830,660
97	3,829,936	4.5	3,830,004	36A	3,830,069	820	3,830,131	148	3,830,184	100	3,830,248
122.6	3,829,937	17.2	3,830,005	45D	3,830,070			183R	3,830,185	CLASS 136	
201C	3,829,938	18R	3,830,008	53.6	3,830,072	CLASS 84		235A	3,830,186	120R	3,830,661
CLASS 28		23	3,830,006			1.24	3,830,952		3,830,187	165	3,830,662
4R	3,829,939	25	3,830,007	17	3,830,073	304	3,830,132	CLASS 115		166	3,830,663
CLASS 29		44.98	3,830,009	54	3,830,074			6.1	3,830,188	202	3,830,664
1.21	3,829,940			58	3,830,075	CLASS 85		31	3,830,189	CLASS 137	
25.42	3,829,941	CLASS 44		60	3,830,076	32R	3,830,133	34R	3,830,190	224	3,830,249
78	3,829,942	1D	3,830,636	238	3,830,077	80	3,830,134			312	3,830,250
97	3,829,943	CLASS 46		282	3,830,078	11A	3,830,135	67R	3,830,191	340	3,830,251
148.4A	3,830,633	11	3,830,010	322	3,830,079	13.1	3,830,136	124R	3,830,192	519.5	3,830,252
156.4R	3,829,944	29	3,830,011			84FF	3,830,143	137A	3,830,193	525	3,830,253
157.3D	3,829,945	135R	3,830,012	CLASS 63		CLASS 91				540	3,830,254
191.6	3,830,634			2	3,830,080	1	3,830,137	201	3,830,654	543.19	3,830,255
193	3,830,635	CLASS 47		14	3,830,081	35	3,830,138		3,830,655	599	3,830,256
200A	3,829,946	1.2	3,830,013	15C	3,830,082	9	3,830,139	CLASS 92		625.41	3,830,257
200D	3,829,947	1.7	3,830,014	32F	3,830,083	CLASS 93		217	3,830,657	625.48	3,830,258
202D	3,829,948	37	3,830,015			CLASS 99				629	Re.28,131
203DT	3,829,951	213	3,830,637	14	3,830,638	36.6	3,830,140	9	3,830,194	CLASS 138	
203B	3,829,949	8	3,830,016	19	3,830,639	63M	3,830,141	31.5	3,830,195	30	3,830,259
203D	3,829,950	18	3,830,017	30	3,830,640	81MT	3,830,142	70	3,830,196	97	3,830,260
204	3,829,952	28	3,830,018			93DP	3,830,144	506	3,830,198	127	3,830,261
205E	3,829,953			CLASS 65		CLASS 96		637	3,830,199	143	3,830,262
212P	3,829,954			178	3,830,084	1R	3,830,645	CLASS 119		93.2	3,830,263
401	3,829,955	103C	3,830,019				3,830,646	15	3,830,200		
412	3,829,956										

CLASSIFICATION OF PATENTS

1	CLASS 141	3,830,264	23C	CLASS 174	3,830,953	186A	3,830,352	368	3,831,000	42CC	3,830,451	192	3,830,797
6	3,830,265	35MS	3,830,954	20R	3,830,353	CLASS 198	3,830,353	386	3,831,001	42CD	3,830,450	211.5R	3,830,793
10	3,830,266	65R	3,830,955	20	3,830,360	20R	3,830,353	432	3,831,002	116	3,830,452		3,830,795
287	3,830,267	68.5	3,830,956	30	3,830,359	30	3,830,359	499	3,831,003	148	3,830,453		3,830,796
	CLASS 142	78	3,830,957	34	3,830,358	34	3,830,358	535	3,831,004		3,830,454	213	3,830,799
4	3,830,268	51	CLASS 175	54	3,830,357	54	3,830,357			CLASS 248	3,830,454	239B	3,830,800
230	3,830,269	72	Re.28,127	127R	3,830,317	127R	3,830,317	27	3,830,396	27	3,830,455	239.03B	3,830,803
	CLASS 148	215	3,830,318	165	3,830,356	165	3,830,356	352	3,830,397	352H	3,830,456	239.1	3,830,801
1.5	3,830,668	238	3,830,319	35R	3,830,993	35R	3,830,993	361A	3,830,398	361A	3,830,457	239.3B	3,830,802
12	3,830,669	332	3,830,320	48R	3,830,994	48R	3,830,994	50	3,830,399	50	3,830,458	240D	3,830,804
31.5	3,830,670	67DA	3,830,321	150R	3,830,995	150R	3,830,995	240F	3,830,400	240F	3,830,459	240J	3,830,805
	CLASS 149	18	3,830,693	86R	3,830,991	86R	3,830,991	242	3,830,401	242	3,830,460	243C	3,830,806
2	3,830,671	36R	3,830,694	174	3,830,992	174	3,830,992	213	3,830,402	213	3,830,461		3,830,807
7	3,830,672	38	3,830,695	20	3,830,402	20	3,830,402	229	3,830,403	229	3,830,462		3,830,808
17	3,830,673	246	CLASS 177	57	3,830,403	57	3,830,403	292	3,830,404	292	3,830,463		3,830,809
19.3	3,830,674	174	3,830,322	78	3,830,404	78	3,830,404	296	3,830,405	296	3,830,464		3,830,810
19.9	3,830,675	263	CLASS 178	129.3	3,830,405	129.3	3,830,405	299	3,830,406	299	3,830,465		3,830,811
	CLASS 150	5.4CD	3,830,961	143	3,830,407	143	3,830,407	336	3,830,408	336	3,830,466		3,830,812
52E	3,830,270	5.4M	3,830,959	168	3,830,409	168	3,830,409	339	3,830,410	339	3,830,467		3,830,813
	CLASS 151	5.4R	3,830,958	309	3,830,410	309	3,830,410	363	3,830,411	363	3,830,468		3,830,814
28	3,830,271	6	3,830,960	326	Re.28,120	326	Re.28,120	366	3,830,412	366	3,830,469		3,830,815
	CLASS 152	6	3,830,962	402.24	3,830,411	402.24	3,830,411	369	3,830,413	369	3,830,470		3,830,816
201	3,830,272		3,830,963	563	3,830,412	563	3,830,412	370	3,830,414	370	3,830,471		3,830,817
352	3,830,273		3,830,964	4D	3,830,413	4D	3,830,413	371	3,830,415	371	3,830,472		3,830,818
355	3,830,274		3,830,965	5C	3,830,414	5C	3,830,414	372	3,830,416	372	3,830,473		3,830,819
357	3,830,275		3,830,966	45R	3,830,415	45R	3,830,415	373	3,830,417	373	3,830,474		3,830,820
361FP	3,830,276	6.6A	3,830,967	45S	3,830,416	45S	3,830,416	374	3,830,418	374	3,830,475		3,830,821
427	3,830,277	6.8	3,830,968	85D	3,830,417	85D	3,830,417	375	3,830,419	375	3,830,476		3,830,822
	CLASS 156		3,830,969		3,830,418		3,830,418	376	3,830,420	376	3,830,477		3,830,823
7	3,830,665		3,830,970		3,830,419		3,830,419	377	3,830,421	377	3,830,478		3,830,824
84	3,830,666		3,830,971		3,830,420		3,830,420	378	3,830,422	378	3,830,479		3,830,825
155	3,830,667	7.1	3,830,972		3,830,421		3,830,421	379	3,830,423	379	3,830,480		3,830,826
289	3,830,668	7.2	3,830,973		3,830,422		3,830,422	380	3,830,424	380	3,830,481		3,830,827
345	3,830,669	7.3D	3,830,974		3,830,423		3,830,423	381	3,830,425	381	3,830,482		3,830,828
349	3,830,670	30	3,830,975		3,830,424		3,830,424	382	3,830,426	382	3,830,483		3,830,829
416	3,830,671		3,830,976		3,830,425		3,830,425	383	3,830,427	383	3,830,484		3,830,830
480	3,830,680		3,830,977		3,830,426		3,830,426	384	3,830,428	384	3,830,485		3,830,831
583	3,830,681	1GQ	3,830,978		3,830,427		3,830,427	385	3,830,429	385	3,830,486		3,830,832
	CLASS 160	1A	3,830,979		3,830,428		3,830,428	386	3,830,430	386	3,830,487		3,830,833
378	3,830,278	15AE	3,830,980		3,830,429		3,830,429	387	3,830,431	387	3,830,488		3,830,834
	CLASS 161	15AF	3,830,981		3,830,430		3,830,430	388	3,830,432	388	3,830,489		3,830,835
2	3,830,682	15B	3,830,982		3,830,431		3,830,431	389	3,830,433	389	3,830,490		3,830,836
6	3,830,683	18AG	3,830,983		3,830,432		3,830,432	390	3,830,434	390	3,830,491		3,830,837
66	3,830,684	18ES	3,830,984		3,830,433		3,830,433	391	3,830,435	391	3,830,492		3,830,838
68	3,830,685	81R	3,830,985		3,830,434		3,830,434	392	3,830,436	392	3,830,493		3,830,839
88	3,830,686	115.5R	3,830,986		3,830,435		3,830,435	393	3,830,437	393	3,830,494		3,830,840
168	3,830,687	157	3,830,987		3,830,436		3,830,436	394	3,830,438	394	3,830,495		3,830,841
	CLASS 162	187	3,830,988		3,830,437		3,830,437	395	3,830,439	395	3,830,496		3,830,842
29	3,830,688		3,830,989		3,830,438		3,830,438	396	3,830,440	396	3,830,497		3,830,843
61	3,830,689	5R	3,830,323		3,830,439		3,830,439	397	3,830,441	397	3,830,498		3,830,844
71	3,830,690	8C	3,830,324		3,830,440		3,830,440	398	3,830,442	398	3,830,499		3,830,845
273	3,830,691	14A	3,830,325		3,830,441		3,830,441	399	3,830,443	399	3,830,500		3,830,846
383	3,830,692	66B	3,830,326		3,830,442		3,830,442	400	3,830,444	400	3,830,501		3,830,847
	CLASS 164	82B	3,830,327		3,830,443		3,830,443	401	3,830,445	401	3,830,502		3,830,848
7	3,830,279	82R	3,830,328		3,830,444		3,830,444	402	3,830,446	402	3,830,503		3,830,849
72	3,830,280	91	3,830,329		3,830,445		3,830,445	403	3,830,447	403	3,830,504		3,830,850
82	3,830,281	101	3,830,330		3,830,446		3,830,446	404	3,830,448	404	3,830,505		3,830,851
155	3,830,282	103	3,830,331		3,830,447		3,830,447	405	3,830,449	405	3,830,506		3,830,852
200	3,830,283	113	3,830,332		3,830,448		3,830,448	406	3,830,450	406	3,830,507		3,830,853
249	3,830,284		3,830,333		3,830,449		3,830,449	407	3,830,451	407	3,830,508		3,830,854
	CLASS 165	31B	3,830,334		3,830,450		3,830,450	408	3,830,452	408	3,830,509		3,830,855
8	3,830,286	33F	3,830,335		3,830,451		3,830,451	409	3,830,453	409	3,830,510		3,830,856
10	3,830,287		3,830,336		3,830,452		3,830,452	410	3,830,454	410	3,830,511		3,830,857
32	3,830,288	2	3,830,337		3,830,453		3,830,453	411	3,830,455	411	3,830,512		3,830,858
51	3,830,289	46	3,830,338		3,830,454		3,830,454	412	3,830,456	412	3,830,513		3,830,859
70	3,830,290	82	3,830,339		3,830,455		3,830,455	413	3,830,457	413	3,830,514		3,830,860
120	3,830,291	129	3,830,340		3,830,456		3,830,456	414	3,830,458	414	3,830,515		3,830,861
161	3,830,292	226	3,830,341		3,830,457		3,830,457	415	3,830,459	415	3,830,516		3,830,862
174	3,830,293		3,830,342		3,830,458		3,830,458	416	3,830,460	416	3,830,517		3,830,863
	CLASS 166	6.16	3,830,343		3,830,459		3,830,459	417	3,830,461	417	3,830,518		3,830,864
51	3,830,294		3,830,344		3,830,460		3,830,460	418	3,830,462	418	3,830,519		3,830,865
125	3,830,295	9	3,830,345		3,830,461		3,830,461	419	3,830,463	419	3,830,520		3,830,866
191	3,830,296		3,830,346		3,830,462		3,830,462	420	3,830,464	420	3,830,521		3,830,867
224S	3,830,297	71.6	3,830,347		3,830,463		3,830,463	421	3,830,465	421	3,830,522		3,830,868
247	3,830,298	71.8	3,830,348		3,830,464		3,830,464	422	3,830,466	422	3,830,523		3,830,869
250	3,830,299	171	3,830,349		3,830,465		3,830,465	423	3,830,467	423	3,830,524		3,830,870
261	3,830,300	188	3,830,350		3,830,466		3,830,466	424	3,830,468	424	3,830,525		3,830,871
274	3,830,301	322	3,830,351		3,830,467		3,830,467	425	3,830,469	425	3,830,526		3,830,872
294	3,830,302		3,830,352		3,830,468		3,830,468	426	3,830,470	426	3,830,527		3,830,873
297	3,830,303		3,830,353		3,830,469		3,830,469	427	3,830,471	427	3,830,528		3,830,874
305R	3,830,304	43	3,830,354		3,830,470		3,830,470	428	3,830,472	428	3,830,529		3,830,875
314	3,830,305		3,830,355		3,830,471		3,830,471	429	3,830,473	429	3,830,530		3,830,876
315	3,830,306	29DM	3,830,356		3,830,472		3,830,472	430	3,830,474	430	3,		

P. —	24	3,596	P. —	29	3,595	P. —	73	3,593	P. —	74	3,597	P. —	3,598	P. —	78	3,594
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GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama.....	1	Kentucky.....	21	Oregon.....	41
Alaska.....	2	Louisiana.....	22	Pennsylvania.....	42
American Samoa.....	3	Maine.....	23	Puerto Rico.....	43
Arizona.....	4	Maryland.....	24	Rhode Island.....	44
Arkansas.....	5	Massachusetts.....	25	South Carolina.....	45
California.....	6	Michigan.....	26	South Dakota.....	46
Canal Zone.....	7	Minnesota.....	27	Tennessee.....	47
Colorado.....	8	Mississippi.....	28	Texas.....	48
Connecticut.....	9	Missouri.....	29	Utah.....	49
Delaware.....	10	Montana.....	30	Vermont.....	50
District of Columbia.....	11	Nebraska.....	31	Virginia.....	51
Florida.....	12	Nevada.....	32	Virgin Islands.....	52
Georgia.....	13	New Hampshire.....	33	Washington.....	53
Guam.....	14	New Jersey.....	34	West Virginia.....	54
Hawaii.....	15	New Mexico.....	35	Wisconsin.....	55
Idaho.....	16	New York.....	36	Wyoming.....	56
Illinois.....	17	North Carolina.....	37	U.S. Air Force.....	57
Indiana.....	18	North Dakota.....	38	U.S. Army.....	58
Iowa.....	19	Ohio.....	39	U.S. Navy.....	59
Kansas.....	20	Oklahoma.....	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1	3,830,005	3,830,298	3,830,927	9	3,829,915	3,830,913	3,830,864
	3,831,159	3,830,301	3,830,944		3,829,943	3,830,077	3,830,865
	3,831,164	3,830,307	3,830,955		3,830,001	3,830,532	3,830,882
4	3,830,052	3,830,324	3,830,957		3,830,013	3,830,635	3,830,907
	3,830,065	3,830,357	3,830,992		3,830,058	3,830,691	3,830,983
	3,830,202	3,830,365	3,831,001		3,830,122	3,829,990	3,830,984
	3,830,204	3,830,369	3,831,013		3,830,185	3,830,488	3,831,000
	3,830,243	3,830,370	3,831,015		3,830,230	3,830,943	3,831,002
	3,830,588	3,830,372	3,831,020		3,830,358	3,830,949	3,831,004
	3,830,659	3,830,384	3,831,027		3,830,366	Re.28,122	3,831,017
	3,830,662	3,830,398	3,831,042		3,830,381	3,829,921	3,831,024
	3,830,665	3,830,405	3,831,044		3,830,452	3,829,929	3,831,102
5	3,831,117	3,830,418	3,831,052		3,830,460	3,829,930	3,831,128
	3,831,140	3,830,422	3,831,058		3,830,498	3,829,935	3,831,144
6	3,829,906	3,830,431	3,831,065		3,830,597	3,829,946	3,831,151
	3,829,909	3,830,476	3,831,067		3,830,645	3,829,955	3,831,172
	3,829,974	3,830,496	3,831,069		3,830,682	3,829,962	3,831,190
	3,829,977	3,830,499	3,831,084		3,830,701	3,829,989	3,829,953
	3,829,986	3,830,502	3,831,096		3,830,749	3,830,042	3,829,965
	3,829,993	3,830,504	3,831,101		3,830,879	3,830,095	3,829,976
	3,829,998	3,830,508	3,831,103		3,830,893	3,830,112	3,830,069
	3,830,003	3,830,517	3,831,109		3,830,988	3,830,116	3,830,146
	3,830,040	3,830,524	3,831,112		3,831,010	3,830,118	3,830,167
	3,830,048	3,830,533	3,831,119		3,831,055	3,830,129	3,830,280
	3,830,057	3,830,535	3,831,121		3,831,104	3,830,134	3,830,312
	3,830,060	3,830,557	3,831,135		3,831,120	3,830,141	3,830,390
	3,830,068	3,830,581	3,831,139		3,831,132	3,830,169	3,830,469
	3,830,074	3,830,606	3,831,156		3,831,175	3,830,241	3,830,534
	3,830,078	3,830,614	3,831,162		3,831,177	3,830,322	3,830,541
	3,830,085	3,830,631	3,831,166	10	3,830,151	3,830,353	3,830,792
	3,830,100	3,830,646	3,831,169		3,830,770	3,830,354	3,830,904
	3,830,108	3,830,648	3,831,170		3,830,777	3,830,361	3,831,077
	3,830,125	3,830,666	3,831,174		3,830,800	3,830,375	Re.28,127
	3,830,130	3,830,672	3,831,176	11	Re.28,130	3,830,380	3,829,911
	3,830,135	3,830,673	3,831,191		3,830,026	3,830,412	3,830,008
	3,830,149	3,830,676	3,831,195		3,830,394	3,830,415	3,830,179
	3,830,156	3,830,681	3,830,678		3,831,143	3,830,416	3,830,373
	3,830,160	3,830,686	3,830,032		3,831,147	3,830,455	3,830,376
	3,830,161	3,830,687	3,830,119	12	3,829,920	3,830,493	3,830,448
	3,830,168	3,830,704	3,830,170		3,830,014	3,830,497	3,830,473
	3,830,175	3,830,727	3,830,270		3,830,025	3,830,566	3,830,491
	3,830,178	3,830,731	3,830,302		3,830,028	3,830,580	3,830,941
	3,830,180	3,830,743	3,830,318		3,830,041	3,830,584	3,831,009
	3,830,182	3,830,752	3,830,359		3,830,187	3,830,594	3,830,075
	3,830,191	3,830,767	3,830,482		3,830,226	3,830,612	3,830,192
	3,830,194	3,830,805	3,830,487		3,830,330	3,830,632	3,830,195
	3,830,214	3,830,838	3,830,565		3,830,332	3,830,670	3,830,232
	3,830,248	3,830,887	3,830,876		3,830,345	3,830,721	3,830,309
	3,830,249	3,830,897	3,830,890		3,830,386	3,830,732	3,830,313
	3,830,264	3,830,905	3,830,917		3,830,712	3,830,762	3,830,336
	3,830,289	3,830,921	3,831,197		3,830,843	3,830,862	3,830,411

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

21	3,830,438	3,830,132	3,830,699	3,830,717	3,830,470	3,830,294
	3,830,045	3,830,213	3,830,708	3,830,722	3,830,739	3,830,295
	3,830,284	3,830,227	3,830,728	3,830,744	3,830,776	3,830,297
	3,830,352	3,830,255	3,830,733	3,830,750	3,830,850	3,830,299
	3,830,963	3,830,262	3,830,761	3,830,757	3,830,859	3,830,300
22	3,829,966	3,830,269	3,830,764	3,830,759	3,830,868	3,830,303
	3,830,177	3,830,285	3,830,769	3,830,773	3,830,869	3,830,305
	3,830,266	3,830,286	3,830,802	3,830,797	3,831,011	3,830,306
	3,830,906	3,830,325	3,830,807	3,830,809	3,831,023	3,830,311
23	3,831,163	3,830,360	3,830,817	3,830,812	3,830,101	3,830,317
24	3,829,910	3,830,461	3,830,827	3,830,839	3,830,489	3,830,371
	3,829,918	3,830,494	3,830,831	3,830,895	3,830,935	3,830,424
	3,830,019	3,830,519	3,830,842	3,830,896	3,830,940	3,830,457
	3,830,059	3,830,522	3,830,844	3,830,898	3,830,987	3,830,465
	3,830,091	3,830,531	3,830,845	3,830,902	3,831,199	3,830,467
	3,830,406	3,830,586	3,830,854	3,830,948	Re.28,119	3,830,526
	3,830,505	3,830,642	3,830,871	3,830,951	3,829,900	3,830,527
	3,830,650	3,830,779	3,830,872	3,830,962	3,829,901	3,830,568
	3,830,663	3,830,870	3,830,916	3,830,969	3,829,907	3,830,587
	3,830,674	3,830,886	3,830,919	3,830,973	3,829,926	3,830,605
	3,830,725	3,830,912	3,830,922	3,830,975	3,829,936	3,830,621
	3,830,735	3,830,991	3,830,924	3,831,050	3,829,960	3,830,660
	3,830,756	3,831,141	3,830,928	3,831,066	3,829,975	3,830,698
	3,830,847	3,829,917	3,830,930	3,831,078	3,829,995	3,830,724
	3,830,874	3,829,968	3,830,931	3,831,081	3,830,010	3,830,730
	3,830,900	3,830,148	3,830,936	3,831,083	3,830,023	3,830,737
	3,830,901	3,830,164	3,830,959	3,831,091	3,830,029	3,830,861
	3,830,914	3,830,203	3,830,967	3,831,097	3,830,107	3,830,867
	3,830,952	3,830,209	3,831,037	3,831,105	3,830,157	3,830,880
	3,830,954	3,830,253	3,831,038	3,831,110	3,830,158	3,830,910
	3,830,970	3,830,326	3,831,041	3,831,123	3,830,159	3,831,030
	3,831,007	3,830,419	3,831,056	3,831,133	3,830,173	3,831,033
25	3,829,949	3,830,495	3,831,074	3,831,146	3,830,196	3,831,082
	3,829,956	3,830,543	3,831,085	3,831,157	3,830,201	3,831,098
	3,829,969	3,830,736	3,831,093	3,831,168	3,830,222	3,831,136
	3,830,016	3,830,803	3,831,113	3,831,178	3,830,233	3,831,142
	3,830,056	3,830,972	3,831,114	3,829,933	3,830,245	3,831,165
	3,830,062	3,831,006	3,831,115	3,830,049	3,830,263	3,830,000
	3,830,063	3,831,012	3,831,118	3,830,268	3,830,321	3,830,152
	3,830,198	3,831,039	3,831,124	3,830,377	3,830,349	3,830,434
	3,830,221	3,831,076	3,831,129	3,830,436	3,830,393	3,830,434
	3,830,224	3,830,127	3,831,145	3,830,439	3,830,421	3,830,466
	3,830,267	3,829,919	3,831,152	3,830,630	3,830,430	3,830,578
	3,830,308	3,829,928	3,831,187	3,830,685	3,830,441	3,830,705
	3,830,334	3,830,004	3,831,193	3,830,771	3,830,480	Re.28,120
	3,830,350	3,830,150	3,829,902	3,831,086	3,830,481	3,829,923
	3,830,560	3,830,220	3,829,908	3,831,196	3,830,503	3,830,657
	3,830,562	3,830,261	3,829,914	3,830,120	3,830,525	3,829,987
	3,830,563	3,830,582	3,829,938	3,829,937	3,830,536	3,830,027
	3,830,564	3,830,746	3,829,948	3,829,950	3,830,537	3,830,143
	3,830,603	3,830,798	3,829,980	3,829,952	3,830,540	3,830,275
	3,830,619	3,830,815	3,829,982	3,830,035	3,830,546	3,830,335
	3,830,649	3,830,824	3,829,996	3,830,036	3,830,608	3,830,423
	3,830,652	3,830,825	3,830,015	3,830,089	3,830,618	3,830,450
	3,830,667	3,830,829	3,830,021	3,830,216	3,830,634	3,830,555
	3,830,709	3,830,841	3,830,034	3,830,274	3,830,639	3,830,609
	3,830,718	3,830,908	3,830,067	3,830,276	3,830,653	3,830,690
	3,830,747	3,830,942	3,830,080	3,830,282	3,830,677	3,830,789
	3,830,774	3,830,947	3,830,090	3,830,287	3,830,683	3,831,094
	3,830,889	3,830,953	3,830,098	3,830,328	3,830,748	3,831,111
	3,830,945	3,831,019	3,830,181	3,830,343	3,830,751	3,829,922
	3,830,960	3,831,125	3,830,223	3,830,344	3,830,768	3,829,971
	3,830,964	3,831,150	3,830,238	3,830,346	3,830,784	3,830,188
	3,830,965	3,830,520	3,830,240	3,830,389	3,830,866	3,830,190
	3,830,966	3,830,113	3,830,242	3,830,391	3,830,933	3,830,197
	3,831,014	3,830,310	3,830,252	3,830,392	3,830,990	3,830,229
	3,831,031	3,830,410	3,830,260	3,830,400	3,830,994	3,830,407
	3,831,059	3,830,445	3,830,278	3,830,442	3,830,998	3,830,453
	3,831,063	3,830,217	3,830,292	3,830,451	3,831,025	3,830,514
	3,831,089	3,829,991	3,830,327	3,830,484	3,831,046	3,830,611
	3,831,099	3,831,090	3,830,331	3,830,509	3,831,054	3,830,979
	3,831,116	3,831,148	3,830,333	3,830,552	3,831,088	3,830,395
	3,831,153	Re.28,123	3,830,341	3,830,577	3,831,107	3,830,399
	3,831,154	3,829,985	3,830,342	3,830,595	3,831,131	3,830,456
	3,831,160	3,830,007	3,830,351	3,830,602	3,830,414	Re.28,125
	3,831,173	3,830,033	3,830,362	3,830,616	3,830,417	3,829,912
	3,831,184	3,830,102	3,830,374	3,830,625	3,830,440	3,829,941
	3,831,185	3,830,103	3,830,385	3,830,633	3,831,137	3,829,970
	3,831,186	3,830,123	3,830,401	3,830,636	3,830,337	3,830,147
	3,831,189	3,830,183	3,830,402	3,830,651	3,831,048	3,830,236
	3,831,192	3,830,218	3,830,426	3,830,680	3,829,999	3,830,237
	3,831,194	3,830,225	3,830,500	3,830,716	3,830,037	3,830,368
26	Re.28,118	3,830,265	3,830,501	3,830,734	3,830,142	3,830,379
	Re.28,124	3,830,297	3,830,513	3,830,875	3,830,228	3,830,387
	Re.28,129	3,830,404	3,830,516	3,830,881	3,830,804	3,830,408
	3,829,899	3,830,420	3,830,521	3,830,932	3,830,830	3,830,463
	3,829,903	3,830,427	3,830,572	3,831,008	Re.28,128	3,830,599
	3,829,905	3,830,435	3,830,573	3,831,053	Re.28,131	3,830,675
	3,829,957	3,830,435	3,830,583	3,831,161	3,829,983	3,830,719
	3,829,958	3,830,446	3,830,589	3,831,167	3,830,038	3,830,985
	3,829,997	3,830,447	3,830,590	3,831,171	3,830,071	3,830,993
	3,830,024	3,830,474	3,830,591	3,831,188	3,830,092	3,831,018
	3,830,076	3,830,490	3,830,607	3,829,994	3,830,094	3,831,022
	3,830,082	3,830,538	3,830,620	3,830,296	3,830,163	3,831,061
	3,830,104	3,830,629	3,830,671	3,830,304	3,830,200	3,830,219
	3,830,128	3,830,641	3,830,702	3,830,315	3,830,208	
	3,830,131	3,830,654	3,830,703	3,830,468	3,830,235	3,830,561

DESIGN PATENTS

6	232,425	232,473	17	232,407	26	232,487	36	232,414	42	232,443
	232,430	232,474		232,418		232,420		232,408		232,490
	232,431	232,475		232,421		232,433		232,409	44	232,401
	232,432	232,476		232,442		232,451		232,413		232,402
	232,436	232,486		232,488		232,452		232,444	48	232,434
	232,437	232,423	9	232,489		232,454		232,445	53	232,491
	232,438	232,424		232,404	18	232,455		232,480	55	232,397
	232,439	232,441		232,405		232,456		232,481		232,411
	232,457	232,453		232,450		232,492		232,482		232,417
	232,458	232,400	12	232,446	19	232,447	39	232,428		232,419
	232,459	232,435		232,416	25	232,410		232,429		232,477
	232,472	232,399	13	232,449						

PLANT PATENTS

6	3,595	39	3,594	3,597	3,598		
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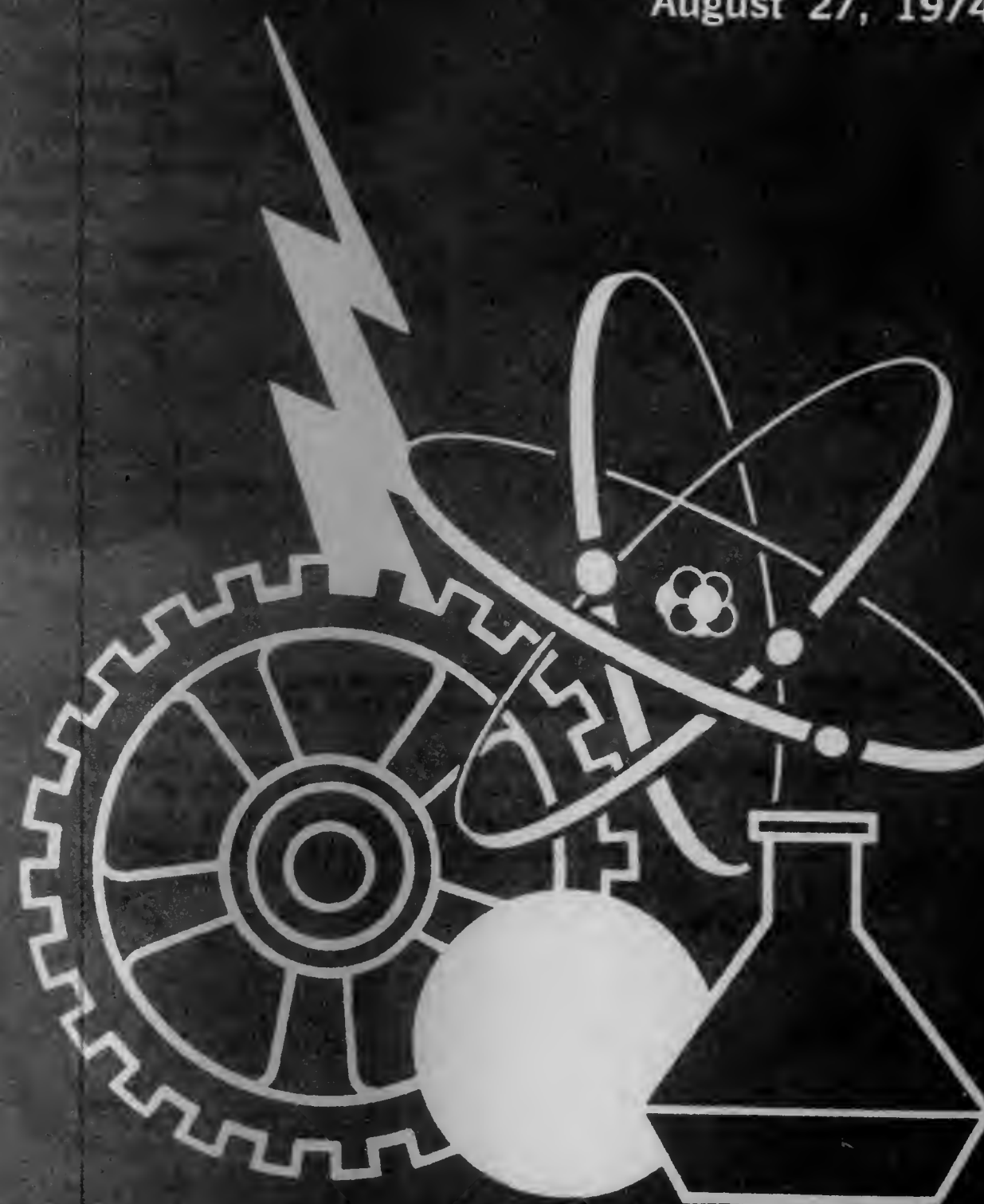
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OFFICIAL GAZETTE

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UNITED STATES PATENT OFFICE

PATENTS

August 27, 1974



PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

A UNITED STATES
DEPARTMENT OF
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U.S. DEPARTMENT OF COMMERCE
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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

August 27, 1974

Volume 925

Number 4

CONTENTS

	Page
Patent and Trademark Notices	
Use of Metric System Measurements in Patent Applications	1084
Calculation of Issue Fees	1084
Registration to Practice	1084
Patent Suits	1084
Patent Notices	
Certificates of Correction for the Week of August 27, 1974	1086
Dedications	1086
Disclaimers	1086
Disclaimers and Dedications	1087
Condition of Patent Applications	1088
Reissue Patents Granted (28,132)	1089
Plant Patents Granted (3,599)	1092
Patents Granted	
General and Mechanical (3,831,200)	1093
Chemical (3,832,130)	1341
Electrical (3,832,476)	1407
Design Patents Granted (232,496)	1479
Index of Patentees	PI 1
Indices of Reissues, Plants and Designs	PI 47
Classification of	
Patents (Including Reissues)	PI 51
Designs and Plants	PI 54
Geographical Index of Residence of Inventors	
Patents (Including Reissues)	PI 55
Designs and Plants	PI 57

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PATENT OFFICE NOTICES

Use of Metric System of Measurements in Patent Applications

In order to minimize the necessity in the future for converting dimensions given in the English system of measurements to the metric system of measurements when using printed patents as research and prior art search documents, all patent applications are strongly encouraged to use either (1) only metric (S.I.) units, or (2) English units together with their metric system equivalents, when describing their inventions in the specifications of patent applications. This practice, however, is not being made mandatory at this time.

The initials S.I. stand for "Système International d'Unités," the French name for the International System of Units, a modernized metric system adopted in 1960 by the International General Conference of Weights and Measures based on precise unit measurements made possible by modern technology.

This request is made as part of the long-range program for conversion to metric units currently being conducted by the Federal Government.

Publications dealing with the metric system are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 and the American National Standards Institute, 1430 Broadway, New York, N.Y. 10018.

C. MARSHALL DANN,
Commissioner of Patents.

July 1, 1974.

Calculation of Issue Fees

Effective October 1, 1974, the Patent Office in calculating the balance of issue fee due, after payment of the Base Issue Fee specified by the Notice of Allowance, shall charge at the rate of \$10 a page, as provided in 35 USC 41, for each printed page of specification (including claims) for which payment has not theretofore been received. As the Base Issue Fee includes a \$10 charge for one printed page of specification, a balance of fee will be due for each patent which consists of more than one printed page. A "page" consists of one side of a printed sheet containing any amount of specification (including claims). A notification of the Balance of Issue Fee Due will be mailed in each such case along with the original patent grant.

The notice of February 4, 1970 published in the OFFICIAL GAZETTE [872 O.G. 1] and reproduced in the current "Consolidated Listing of Recent Official Gazette Notices . . ." [Item 53] is rescinded as of close of business September 30, 1974.

WILLIAM I. MERKIN,

Aug. 1, 1974. Assistant Commissioner for Administration.

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent Office. Information tending to affect the eligibility of said applicants on moral, ethical, or other grounds, should be furnished the Commissioner of Patents on or before Sept. 23, 1974.

Capozzi, Louis Joseph, 39-A Meadow Green Circle, Englishtown, N.J. 07720
Flint, Cort Ray, Jr., 114 Westchester Drive, Greenville, S.C. 29601
Gottman, James F., 310 N. Village Drive, Centerville, Ohio 45459
Guida, Antonio F., 6539 Little Falls Road, Arlington, Va. 22213
Langer, Thomas, 90 Laurel Hill Terrace, #4G, New York, N.Y. 10033
Marcus, Irving, 8411 Spencer Court, Chevy Chase, Md. 20015
Overholser, J. Spencer, P.O. Box 106, Olex, Pa. 19547
Saalbach, Herman K., 6019 Brunswick St., Springfield, Va. 22150

LUTRELLE F. PARKER,
Chairman, Committee on Enrollment.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,561,489, Bioch and Hansen, METHOD AND MEANS FOR CHEMICAL ANALYSIS BY NUCLEAR INDUCTIONS, filed June 4, 1971, D.C., S.D.N.Y., Doc. 71-C-2506, *Varian Associates v. Brucker Scientific, Inc.* Filed stipulation and order of dismissal with prejudice, Mar. 1, 1974.

2,729,551, C. C. Cohn, SURFACE TREATMENT OF ALUMINUM AND ITS ALLOYS, filed Feb. 8, 1974, D.C. Min. (Minneapolis), Doc. C-4-74-71, *Hayes-Albion Corporation v. Samuel L. Cohn and Charles C. Cohn, doing business as Colonial Alloys Company.*

2,800,631, Suess, Trenkler, Hattman and Rinesch, METHOD OF CARRYING OUT MELTING PROCESSES, filed Mar. 4, 1974, D.C. Del. (Wilmington), Doc. 74-35, *Kaiser Industries Corp. et al. v. Interlake, Inc.* Same, filed Mar. 4, 1974, D.C. N.D. Ind. (Hammond), Doc. 74-63, *Kaiser Industries Corp. et al. v. Youngstown Sheet & Tube Co.* Same, filed Mar. 4, 1974, D.C., W.D. Pa. (Pittsburgh), Doc. 74-214, *Kaiser Industries Corp., Vereinigte Oesterreichische Eisenund Stahl Werke-Alpine Montan Aktiengesellschaft and Brassert Oxygen Technik Co. v. Crucible Inc.* Same, filed Mar. 5, 1974, D.C., W.D. Pa. (Pittsburgh), Doc. 74-217, *Kaiser Industries Corporation, Vereinigte Oesterreichische Eisenund, Stahlwerke-Alpine Montan Aktiengesellschaft and Brassert Oxygen Technik AG v. Jones and Laughlin Steel Corp.*

2,841,686, E. M. Williams, AUTOMATIC CONTROL SYSTEM FOR THE ELECTRODE OF A SPARK-CUTTING APPARATUS; 2,979,739, Williams and Porterfield, PILOT PULSE SPARK MACHINING METHODS AND APPARATUS; 3,018,411, R. S. Webb, PER PULSE CUT-OFF CIRCUIT; 3,257,580, same, FAULT DETECTION AND CUT-OFF CIRCUIT FOR ELECTRICAL DISCHARGE MACHINING APPARATUS; 3,548,142, K. H. Sennowltz, GAP SHORT CIRCUIT CONTROL SYSTEM FOR ELECTRICAL DISCHARGE MACHINING APPARATUS; 3,767,886, same, ELECTRICAL DISCHARGE MACHINING POWER SUPPLY WITH PROTECTIVE SYSTEM FOR OUTPUT SWITCH FAILURE; Re. 24,733, J. V. Erwin, DRUM HEAD AND LIKE ASSEMBLIES, filed Feb. 7, 1974, D.C., E.D. Mich. (Detroit), Doc. 4-71092, *Colt Industries Operating Corp. (Eloz Division) v. Easco Sparacatron, Inc. and Hayes Engineers (Leeds) Ltd.*

2,875,282, E. M. Reiback, BINAURAL PHONOGRAPH PICKUP, filed Feb. 26, 1973, D.C., N.D. Ohio (Cleveland), Doc. C-73-213, *Empire Scientific Corp. v. Audio-Technica U.S. Inc.* Stipulation and order dismissing action with prejudice, Mar. 7, 1974.

2,919,300, Dublin and White, BACTERIOSTATIC PLASTIC, filed Apr. 11, 1973, D.C., E.D. Mo. (St. Louis), Doc. 73C214 (1), *Maurice T. Dublin and James M. White v. Owens-Corning Fiberglas Corp. and Schnarr's True Value.* Case dismissed with prejudice, Feb. 6, 1974.

2,979,639. (See 2,841,686.)

2,981,032, F. S. Cornell, ARTIFICIAL FIREPLACE APPARATUS, filed Feb. 25, 1974, D.C. Conn. (Bridgeport), Doc. B-74-60, *Rustic Crafts Co., Inc. v. Brickote, Inc.*

3,018,411. (See 2,841,686.)

3,144,085, M. M. Hasha, POWER SPINNER UNIT FOR WELL SWIVELS, filed Mar. 1, 1974, D.C., W.D. La. (Shreveport), Doc. 74-225-L, *Malvern M. Hasha and International Tool Co., Inc. v. The Red Fox Machine & Supply Company.*

3,158,317, I. H. Alexander, CONTROL DEVICE; 3,187,321, S. L. Kameny, OPERATION COMPUTER COMMUNICATION CONSOLE; 3,226,689, Amdahl, Brian, Jr., Scarbrough and Schneberger; 3,226,692, Fuller, Koerner and Schneberger, MODULAR COMPUTER SYSTEM; 3,258,748, Schneberger, Scarbrough, Blenhoff and Connolly, STORED LOGIC COMPUTER; 3,275,991, E. J. Schneberger, MEMORY SYSTEM; 3,341,817, J. C. Smeltzer, MEMORY TRANSFER APPARATUS, filed Mar. 1, 1974, D.C., N.D. Ill. (Chicago), Doc. 74c580, *Bunker Ramo Corporation v. International Business Machines Corporation.*

3,187,321. (See 3,158,317.)

AUGUST 27, 1974

3,226,689. (See 3,158,317.)

3,257,580. (See 2,841,686.)

3,258,748. (See 3,158,317.)

3,275,991. (See 3,158,317.)

3,336,546, V. E. DeLuca, VACUUM RELAY FOR RADIO FREQUENCY SIGNALS, filed Nov. 29, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-2778-WMB, *Torr Laboratories, Inc. v. Kilovac Corporation.* Filed consent judgment and order that claims 1, 2, and 3 of plaintiff's patent are declared invalid, plaintiff's complaint for infringement of claims 4, 5, 6 and 7 is dismissed with prejudice. Plaintiff's complaint for infringement of claims 1-4 is dismissed with prejudice. Defendant's counterclaim is dismissed without prejudice, entered Feb. 28, 1974.

3,341,817. (See 3,158,317.)

3,351,148, S. M. Solomon, SELF-OPERABLE DETACHABLE POWER UNIT ATTACHMENT FOR WHEEL CHAIRS AND POWER CONTROL UNIT THEREFOR; 3,720,281, J. B. Mandie, APPARATUS FOR MEASURING AND DIGITALLY INDICATING LINER DISPLACEMENT BETWEEN TWO RELATIVELY MOVABLE MEMBERS, filed May 25, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73-1185-HP, *Hewson Control Devices, Inc. v. James E. Lease et al.* Filed order of dismissal without prejudice to reopen the action if settlement is not consummated within 120 days, entered Mar. 1, 1974.

3,368,280, Friedman and Richman, DENTAL TOOL; 3,375,583, Blank and Richman, ULTRASONIC DENTAL TOOL, filed Feb. 28, 1974, D.C., W.D.N.Y. (Buffalo), Doc. C-74-99, *Litton Medical Products, Inc. v. Sybron Corporation.*

3,375,583. (See 3,368,280.)

3,402,657, Potter, Foley and Antonucci, HIGH SPEED BELT PRINTER WITH PRINTING SLUG SUPPORTING MEANS; Re. 26,240, C. I. Wasserman, HIGH SPEED PRINTERS WITH COLUMN SPANNING HAMMERS, filed Mar. 8, 1974, Ct. of Appeals, First Circuit, Mass. (Boston), Doc. 74-1081, *Potter Instrument Company, Inc. v. Odec Computer Systems, Inc.*

3,443,459, Mackey and Mackey, DRILL; 3,521,405, Mackey, Jr. and Naureckas, DRILL GRINDING APPARATUS; 3,592,555, B. A. Mackey, Sr., DRILL WITH DISCONTINUOUS CUTTING LIPS; 3,656,264, Mackey, Jr. and Naureckas, METHOD OF GRINDING DRILLS, filed Feb. 25, 1974, D.C., N.D. Ill. (Chicago), Doc. 74c521, *International Carbide Corporation et al. v. Donald H. Geiger.*

3,501,861, Goldfarb and Soriano, GAME APPARATUS AND TIME-DELAY ACTION UNIT; 3,526,991, same, DELAY ACTION PLAY UNIT, filed Mar. 4, 1974, D.C., C.D. Calif. (Los Angeles), Doc. 74-554-WMB, *Imperial Toy Corp. v. A. Eddy Goldfarb & Associates and Ideal Toy Corp.*

3,521,405. (See 3,443,459.)

3,526,991. (See 3,501,861.)

3,548,142. (See 2,841,686.)

3,583,340, Dahl and Robler, PATTERN MEANS, PATTERN-FOLLOWING MEANS, AND SERVO MEANS CONTROLLED THEREBY, filed Feb. 21, 1974, D.C., C.D. Calif. (Los Angeles), Doc. 74-473-R, *Frank L. Dahl v. Kirach Co. et al.*

3,592,555. (See 3,443,459.)

U. S. PATENT OFFICE

1085

3,622,029, G. K. Ware, ELECTRICAL OUTLET BOX, filed June 6, 1972, D.C., N.D. Ind. (South Bend), Doc. 72-S-116, *Ware Fuse Corporation v. Southeastern Mobile Home and Supply.* Cause dismissed with prejudice by stipulation, Nov. 6, 1972.

3,644,051, A. H. Shapiro, TURBO-MOLECULAR AND STATOR PUMP HAVING IMPROVED ROTOR CONSTRUCTION, filed Mar. 8, 1974, D.C., W.D. Pa. (Pittsburgh), Doc. 74-233, *Sargent-Welch Scientific Company v. Leybold-Heraeus GmbH & Co., KG and Leybold-Heraeus Inc.*

3,656,264. (See 3,443,459.)

3,665,318, S. J. Hoffman, RADIO RECEIVER; 3,714,585, R. C. Koch, SCANNING RADIO HAVING RAPID CHANNEL SKIPPING CAPABILITY, filed Apr. 6, 1973, D.C., E.D. Mich. (Detroit), Doc. 39931, *Regency Electronics, Inc. v. Crandall Wholesale Company.*

3,675,247, J. O. Ferrell, METHOD FOR FABRICATING PANTY HOSE, filed Mar. 7, 1974, D.C.N.C. (Statesville), Doc. ST-C-74-6, *Tights, Inc. v. Ridgeview Hosiery Mill Company.*

3,714,585. (See 3,665,318.)

3,720,281. (See 3,351,148.)

3,724,696, C. G. Leeper, TRUSS TRANSPORTING BODY, filed Jan. 3, 1974; D.C., E.D. Tenn. (Greenville), Doc. C-2-74-2, *Charles G. Leeper v. Kilby & Wine Inc.* Order of dismissal filed. Cause has been compromised and settled, Mar. 7, 1974.

3,766,460, Hentz and Burroughs, MANUAL CONTROL SYSTEM FOR NUMERICALLY CONTROLLED MACHINE, filed Feb. 26, 1974, D.C.N.J. (Newark), Doc. C-74-262, *H.E.S. Machine Tool, Inc. v. Le Blond, Inc.*

3,767,886. (See 2,841,686.)

Re. 24,733. (See 2,841,686.)

Re. 26,240. (See 3,402,657.)

D. 227,722, M. A. Mendlin, COMBINED BED AND STORAGE UNIT; D. 227,723, same; D. 227,724, same; D. 227,725, same, filed Feb. 25, 1974, D.C.N.J. (Trenton), Doc. C-74-257, *Bunk Trunk Distributors v. Janus Corp.*

D. 227,723. (See D. 227,722.)

D. 227,724. (See D. 227,722.)

D. 227,725. (See D. 227,722.)

Plant Pat. 1,550, W. A. Law, APPLE TREE; Plant Pat. 1,565, R. A. Blisbee, same, filed Mar. 1, 1974, D.C., M.D. Pa. (Scranton), Doc. C-74-184, *Stark Brothers Nurseries and Orchards Company v. Adams County Nursery and Fruit Farms.*

Plant Pat. 1,565. (See Plant Pat. 1,550.)

Erratum

In the OFFICIAL GAZETTE of Mar. 12, 1974, volume 920, page 286, the entire paragraph beginning with "3,738,836" should be deleted.

Certificates of Correction for the Week of Aug. 27, 1974

Re. 27,826	3,750,088	3,765,049	3,789,187
Re. 27,951	3,750,848	3,765,393	3,789,983
3,617,188	3,751,281	3,765,750	3,795,931
3,646,049	3,751,637	3,765,974	3,797,566
3,652,556	3,752,407	3,766,408	3,797,713
3,654,620	3,752,798	3,766,771	3,798,376
3,677,364	3,752,826	3,767,208	3,798,509
3,712,804	3,753,998	3,767,323	3,799,903
3,713,098	3,755,656	3,767,960	3,800,338
3,718,694	3,756,533	3,768,036	3,802,261
3,721,201	3,757,103	3,768,989	3,802,431
3,734,801	3,759,126	3,770,731	3,803,333
3,736,132	3,759,862	3,770,749	3,803,631
3,737,534	3,760,139	3,770,998	3,803,640
3,738,985	3,761,144	3,771,020	3,803,765
3,739,883	3,761,273	3,772,507	3,805,790
3,740,307	3,761,595	3,775,118	3,806,941
3,741,593	3,762,231	3,775,410	3,807,042
3,743,335	3,763,047	3,777,743	3,807,204
3,744,363	3,763,447	3,778,413	3,807,274
3,744,726	3,763,475	3,778,450	3,807,319
3,745,611	3,764,125	3,780,985	3,807,431
3,746,874	3,764,181	3,782,941	3,807,603
3,748,149	3,764,417	3,783,771	3,807,728
3,748,373	3,764,615	3,784,654	3,807,907
3,748,394	3,764,738	3,785,255	3,807,993
3,748,593	3,764,803	3,785,861	3,808,535
3,748,756	3,764,975	3,787,535	

Dedications

3,412,903.—*William P. Van Riper, Jr. and Thomas A. Stevens*, Cincinnati, Ohio. APPARATUS FOR HEATING AND DISPENSING VISCOUS MATERIALS. Patent dated Nov. 26, 1968. Dedication filed Jan. 17, 1974, by the assignee *Inmont Corporation*.

Hereby dedicates to the Public the entire remaining term of said patent.

3,486,192.—*Gene Le Roy*, Charleston, W. Va. APPARATUS FOR EXTRUSION OF THERMOPLASTICS. Patent dated Dec. 30, 1969. Dedication filed Mar. 13, 1974, by the assignee *Union Carbide Corporation*.

Hereby dedicates to the Public the remaining term of said patent.

3,620,943.—*John D. White*, Little Falls, N.J. BLACK ANTI-FOULING COATING COMPOSITIONS. Patent dated Nov. 16, 1971. Dedication filed May 6, 1974, by the assignee, *Celanese Coatings Company*.

Hereby dedicates to the Public the remaining term of said patent.

3,695,643.—*John D. Schmunk*, Findlay, Ohio. CORRUGATED TUBE COUPLING MEANS. Patent dated Oct. 3, 1972. Dedication filed May 23, 1974, by the assignee, *The Hancock Brick & Tile Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

Disclaimers

3,445,295.—*Holley R. Smith*, North Wales, and *Bernard P. Sykes*, West Chester, Pa. AMMONIA BATTERY. Patent dated May 20, 1969. Disclaimer filed May 24, 1974, by the assignee, *Honeywell Inc.*

Hereby enters this disclaimer to claims 1 through 5 of said patent.

3,502,408.—*Ivor Brodie*, Palo Alto, Calif. ELECTROPHOTOGRAPHY EMPLOYING A FILM HAVING A THIN CHARGE RETENTIVE COATING ON A CONDUCTIVE WEB. Patent dated Mar. 24, 1970. Disclaimer filed Feb. 11, 1974, by the assignee, *Varian Associates*.

Hereby enters this disclaimer to all claims of said patent.

3,504,971.—*Ellsworth Jacob McCune*, Webster, N.Y. EXPOSURE CONTROL FOR COLOR PRINTERS. Patent dated Apr. 7, 1970. Disclaimer filed Jan. 31, 1974, by the assignee, *Eastman Kodak Company*.

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

3,524,067.—*Donald Lee West*, Lexington, Ky. COMPACT LINE GRATING POSITION SENSING DEVICE. Patent dated Aug. 11, 1970. Disclaimer filed Jan. 17, 1974, by the assignee, *International Business Machines Corporation*.

Hereby enters this disclaimer to claim 1 of said patent.

3,553,251.—*Hartmut Hauth*, Riehen, and *Dietrich Stauffacher*, Reinach, Basel, Switzerland. ALICYCLIC COMPOUNDS. Patent dated Jan. 5, 1971. Disclaimer filed Oct. 10, 1973, by the assignee, *Sandoz Ltd. (also known as Sandoz A.G.)*.

Hereby enters this disclaimer to claims 27, 28, 29 and 47 of said patent.

3,570,748.—*James Warren Coyle*, Montville, N.J. and *Louis John Marsella*, Leominster, Mass. COMPOSITE FILM AND METHOD. Patent dated Mar. 16, 1971. Disclaimer filed Jan. 28, 1974, by the assignee, *Standard Packaging Corporation*.

Hereby enters this disclaimer to claims 1-42 of said patent.

3,588,998.—*Vincent A. Corsaro*, Haverhill, Mass. METHOD FOR TREATING ARTICLES WITH A LIQUID. Patent dated June 29, 1971. Disclaimer filed Feb. 22, 1974, by the assignee, *Western Electric Company, Incorporated*.

Hereby enters this disclaimer to all claims of said patent.

3,616,708.—*Charles S. Davis*, New York, N.Y. ROTARY POWER TRANSMISSION ASSEMBLY. Patent dated Nov. 2, 1971. Disclaimer filed June 24, 1974, by the assignee, *Curtiss-Wright Corporation*.

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,643,142.—*Lyle E. McBride, Jr.*, Norton, Mass. A.C. MOTOR CONTROL SYSTEM UTILIZING A SELECTIVELY ENERGIZABLE SEMICONDUCTOR SWITCH MEANS. Patent dated Feb. 15, 1972. Disclaimer filed Feb. 25, 1974, by the assignee, *Texas Instruments Incorporated*.

Hereby enters this disclaimer to claims 1 and 9 of said patent.

3,647,433.—*Lawrence Edward Contois*, Webster, N.Y. DINI-TROARYLMETHINE DYES AS SENSITIZERS IN ELECTROPHOTOGRAPHIC LAYERS. Patent dated Mar. 7, 1972. Disclaimer filed Feb. 13, 1974, by the assignee, *Eastman Kodak Company*.

Hereby enters this disclaimer to all claims of said patent.

3,654,254.—*Brian Ernest Job*, *Alexander Joseph Peter Piotti*, and *Till Medinger*, Runcorn, England. POLYMERIZATION PROCESS. Patent dated Apr. 4, 1972. Disclaimer filed May 6, 1974, by the assignee, *Imperial Chemical Industries Limited*.

Hereby enters this disclaimer to claims 1-8, inclusive, of said patent.

3,656,266.—*Adolfo Tylus*, Washington, D.C. BUILDINGS. Patent dated Apr. 18, 1972. Disclaimer filed Feb. 15, 1974, by the assignee, *Alvic Development Corporation*.

Hereby enters this disclaimer to claims 1, 4 and 5 of said patent.

3,682,981.—*Frank Lee Weisenborn*, Somerset, *Joseph Edward Dolfini*, North Brunswick, *Georges Gustav Bach*, Hightstown, and *Jack Bernstein*, New Brunswick, N.J. 2-AMINO-2-(1,4-CYCLOHEXADIENYL) ACETIC ACID. Patent dated Aug. 8, 1972. Disclaimer filed May 28, 1974, by the assignee, *E. R. Squibb & Sons, Inc.*

Hereby enters this disclaimer to claim 1 of said patent.

3,718,673.—*William Charles Ripka*, Wilmington, Del. PROCESS FOR THE PREPARATION OF 21-CHLORO-6,8,9-ALPHA-TRIFLUORO-11BETA, ALPHA, 17ALPHA-TRIHYDROXY-1,4-PREGNADIEN-3,20-DIONE 16,17-KETALS AND SELECTED INTERMEDIATES. Patent dated Feb. 27, 1973. Disclaimer filed Mar. 1, 1974, by the assignee, *E. I. du Pont de Nemours and Company*.

Hereby enters this disclaimer to claims 5 and 7 of said patent.

3,721,379.—*Vincent A. Corsaro*, Haverhill, Mass. APPARATUS FOR TREATING ARTICLES WITH A LIQUID. Patent dated Mar. 20, 1973. Disclaimer filed Feb. 22, 1974, by the assignee, *Western Electric Company, Incorporated*.

Hereby enters this disclaimer to all claims of said patent.

3,802,661.—*Wilbur R. Leopold, Jr.*, Decatur, and *William L. Haufe*, Warrensburg, Ill. ROTARY VALVE WITH ANTI-CORROSION AND TORQUE CONTROLLING MEANS. Patent dated Apr. 9, 1974. Disclaimer filed Apr. 25, 1974, by the assignee, *Mueller Co.*

Hereby disclaims the portion of the term of the patent subsequent to Mar. 26, 1991.

Disclaimers and Dedications

3,619,970.—*Seymour Zelnick*, Orange, N.J. AUTOMATIC METHOD AND APPARATUS FOR THE WRAPPING OF ARTICLES. Patent dated Nov. 16, 1971. Disclaimer and dedication filed Apr. 24, 1974, by the assignee, *Weldotrom Corporation*.

Hereby disclaims and dedicates to the Public the entire term of said patent.

3,782,454.—*Raymond S. Slaasted* and *Edward D. Smith*, Racine, Wis. HEAT EXCHANGER. Patent dated Jan. 1, 1974. Dedication filed Apr. 26, 1974, by the assignee, *Modine Manufacturing Company*.

Hereby disclaims and dedicates to the Public the entire remaining term of said patent.

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF AUGUST 3, 1974

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... 9-25-73
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.

GENERAL ORGANIC CHEMISTRY, GROUP 120—R. F. BURNETT, Acting Director..... 8-1-73
Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.

HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director..... 11-16-74
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.

COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director..... 9-17-74
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.

SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director.. 8-15-73
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.

ELECTRICAL EXAMINING GROUPS

INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—W. L. CARSON, Director..... 12-26-73
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.

SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director..... 3-1-73
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.

INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... 11-1-73
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.

RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—N. ANSHER, Director..... 6-27-73
Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.

ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—L. FORMAN, Director..... 12-10-73
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.

DESIGNS, GROUP 290—C. D. QUARFORTH, Director..... 3-26-73
Industrial Arts; Household, Personal and Fine Arts.

MECHANICAL EXAMINING GROUPS

HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director..... 1-3-74
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.

MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... 10-29-73
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.

AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director..... 11-2-73
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.

HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B. R. GAY, Director..... 9-26-73
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gear; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.

GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director..... 11-20-73
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.

Expiration of patents: The patents within the range of numbers indicated below expire during August 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,801,414 to 2,804,619, inclusive
Plant Patents..... Numbers 1,626 to 1,637, inclusive

REISSUES

AUGUST 27, 1974

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

28,132

CIRCUIT ARRANGEMENT INCLUDING A COLOUR DISPLAY CATHODE-RAY TUBE OF THE INDEX TYPE

Kenneth George Freeman, Reigate, and Michael Compton French, Great Bookham, England, assignors to U.S. Philips Corporation, New York, N.Y.

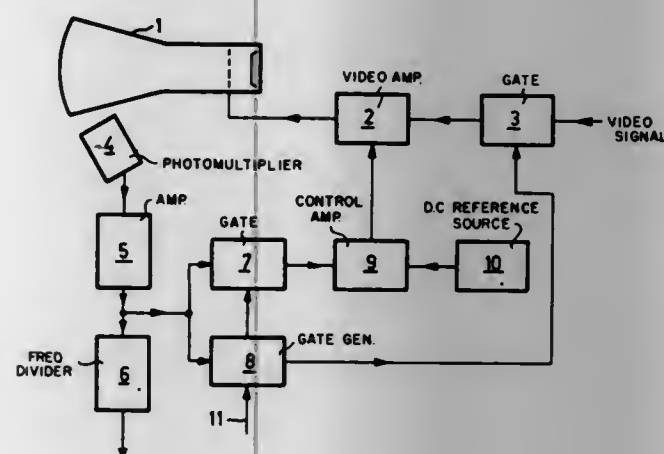
Original No. 3,562,409, dated Feb. 9, 1971, Ser. No. 736,712, June 13, 1968. Application for reissue Feb. 5, 1973, Ser. No. 329,550

Claims priority, application Great Britain, June 16, 1967, 27,918/67

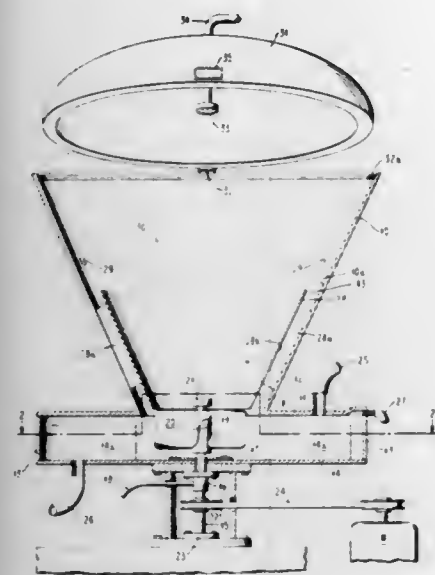
Int. Cl. H04n 5/68, 9/16

U.S. Cl. 178—5.4 F

10 Claims



frusto-conical casings mounted one inside the other on the top surface of the reservoir. A wash fluid impeller is arranged within the reservoir with the body thereof substantially below the liquid level of the wash fluid therein and in vertical alignment with the relatively narrow end of the inner casing. The article to be washed is suspended above the relatively wide end of the inner



casing. When activated, the impeller moves the wash fluid upwardly within the inner casing in a spiraling rotary pattern to flow outwardly over the surface of the article being washed. On leaving the peripheral edge of the article being washed, the fluid continues to move outwardly until it contacts the inner side wall of the outer casing whereupon it drains back into the fluid reservoir through a chamber formed between the casings.

28,136

COMFORT CONDITIONING SYSTEM

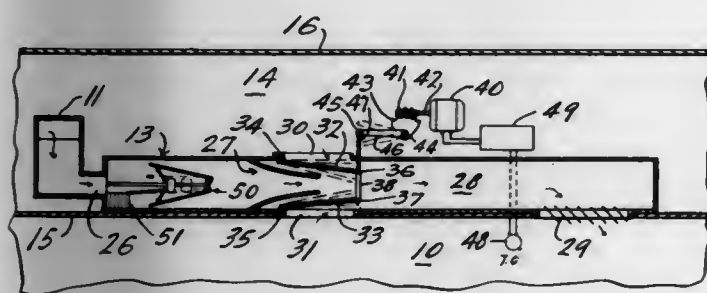
Gershon Meckler, Atlanta, Ga., assignor to National Service Industries, Inc.

Original No. 3,390,720, dated July 2, 1968, Ser. No. 563,228, July 6, 1966. Application for reissue June 11, 1973, Ser. No. 368,776

Int. Cl. F25b 27/00

U.S. Cl. 165—39

15 Claims



For supplying conditioned air to a room, a system having a box for mixing conditioned air with either room air or heated air from a plenum, or both. The mixing box, which is mounted flush in a dropped ceiling, has two opposed openings in its surfaces; one opening leads to the room and the other leads to the plenum. Two spaced apart faces are pivotally mounted over the openings such that at extreme positions one of the openings is covered and the other is uncovered and at intermediate positions

both openings are uncovered in varying degrees. Conditioned air passes through a nozzle to increase its velocity, mixes with secondary air from the uncovered openings, and enters the room. Room temperature is regulated by a controlled motor which operates the two pivotally mounted faces.

28,137

OLEFIN PREPARATION

Leonard Turner, Woking, Christopher Patrick Cadman Bradshaw, Sunbury-on-Thames, and Eric James Howman, Crowthorne, England, by The British Petroleum Company Limited, London, England, assignee

No Drawing. Original No. 3,526,676, dated Sept. 1, 1970, Ser. No. 507,675, Nov. 15, 1965. Application for reissue Mar. 1, 1972, Ser. No. 231,035

Claims priority, application Great Britain, Nov. 19, 1964, 47,053/64

Int. Cl. C07c 3/62, 15/10

U.S. Cl. 260—683 D

16 Claims

A process for preparing olefins is provided which comprises reacting an initial mixture consisting essentially of two dissimilar acyclic olefins having the formulas $R(R_1)C=C(R_2)R_3$ and $R_4(R_5)C=C(R_6)R_7$ respectively, in the presence of an olefin disproportionation catalyst, the R substituents of the feed olefins representing hydrogen atoms or alkyl or aryl groups with the proviso that not more than two of the groupings $R(R_1)C<$,

 $R_3(R_2)C<$, $R_4(R_5)C<$ or $R_7(R_6)C<$ are the same.

28,138

VOTING MACHINE WITH CARD PUNCH ATTACHMENT

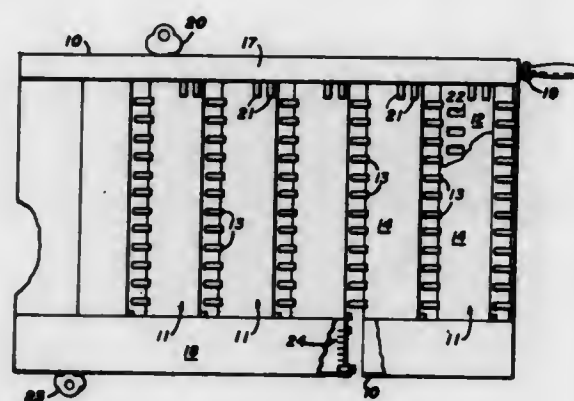
Cothburn M. O'Neal, Arlington, Tex., assignor to Riverside Press, Inc., Dallas, Tex.

Original No. 3,524,969, dated Aug. 18, 1970, Ser. No. 740,415, May 27, 1968. Application for reissue June 16, 1972, Ser. No. 263,635

Int. Cl. G07c 13/00

U.S. Cl. 235—54 R

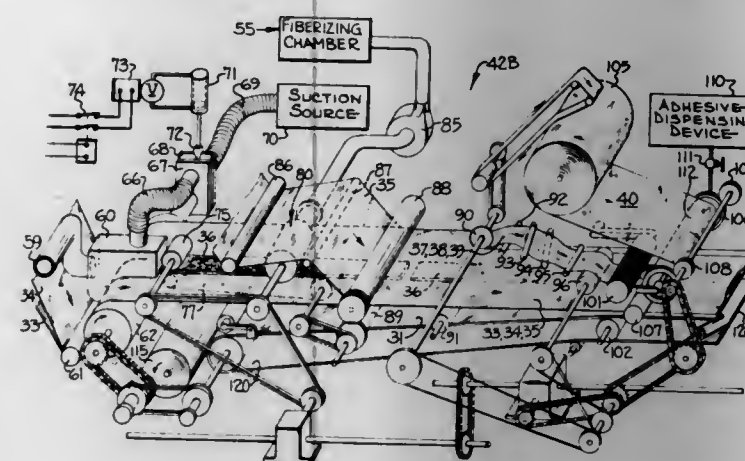
11 Claims



A compact, lightweight, manually operated voting machine with provisions for straight ticket, selective and write-in voting, and for choosing two or more candidates from a list of several running at large; with provision for recording each voter's choice on a punch card for computer counting, and including a mechanical counter automatically totalling the votes for each candidate for confirmation of the punch card count.

28,139
APPARATUS FOR SUCCESSIVELY FORMING DISPOSABLE DIAPERS
Graves T. Gore, Aiken, S.C., assignor to Riegel Textile Corporation, Ware Shoals, S.C.
Original No. 3,661,680, dated May 9, 1972, Ser. No. 17,594, Mar. 9, 1970. Application for reissue Nov. 30, 1972, Ser. No. 310,851
Int. Cl. B31f 7/00
U.S. Cl. 156—467

17 Claims



An apparatus for successively forming disposable diapers including means for supplying an elongate moisture absorbent pad and for feeding it along a predetermined longitudinal path of travel, means for supplying and positioning an elongate fluid permeable front cover sheet in superimposed relation to one side of the pad and means for supplying and positioning an elongate backing sheet in superimposed relation to the other side of the pad. Means are provided for receiving and feeding the superimposed front cover sheet, pad and backing sheet along a predetermined longitudinal path of travel, while additional means cooperate therewith for longitudinally sealing the side portions of the superimposed components, for transversely sealing the superimposed components at predetermined longitudinally spaced intervals to form successively interconnected diapers and for severing the

same along successive transverse seals to form individual diapers.

28,140
SEMICONDUCTOR EPITAXIAL GROWTH FROM SOLUTION

Arpad Albert Bergh, Murray Hill, Ralph Paola, Westfield, and Robert H. Saul, Scotch Plains, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Original No. 3,690,965, dated Sept. 12, 1972, Ser. No. 202,837, Nov. 29, 1971. Application for reissue Jan. 22, 1973, Ser. No. 325,637
Int. Cl. H01l 7/38

U.S. Cl. 148—172

16 Claims

Crystalline layers of Group III-V semiconductor materials are grown epitaxially from solution by a method which includes the isolation of small equal portions of solution from a solution reservoir. The portions in contact with the crystal substrate are constrained in a direction perpendicular to the substrate to be less than 3 millimeters thick before crystal growth is initiated by lowering the temperature of the substrate and its contacting solution. At the termination of growth, the depleted solution is removed from the grown layer leaving a surface sufficiently perfect to allow further processing without an intervening grinding or polishing operation.

28,141
COMPOSITION CONTAINING 1-SUBSTITUTED-3-DI-SUBSTITUTED METHYLENE PYRROLIDINES AND METHODS OF TREATING DEPRESSION
Carl D. Lunsford, Richmond, Va., Grover C. Helsley, Pottersville, N.J., and John A. Richman, Jr., Silver Spring, Md., assignors to A. H. Robins Co., Incorporated, Richmond, Va.

No Drawing. Original No. 3,458,635, dated July 29, 1969, Ser. No. 570,717, Aug. 8, 1966. Application for reissue Apr. 12, 1973, Ser. No. 350,488
Int. Cl. A61k 27/00

U.S. Cl. 424—274

7 Claims

The treatment of emotional and like disorders associated with depression and compositions therefor [therefore] comprising 1-substituted-3-di-substituted methylene pyrrolidines.

PLANT PATENTS

GRANTED AUGUST 27, 1974

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,599

PEAR TREE

William H. Griggs, Davis, and Ben T. Iwakiri, Sacramento, Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Filed June 4, 1973, Ser. No. 367,048
Int. Cl. A01h 5/03

U.S. Cl. Plt.—36

1 Claim

1. The new and distinct variety of pear tree herein described and illustrated and characterized by its medium to large size, rapid vigorous growth and spreading shape; said tree coming into bloom one to three days earlier than Bartlett and being an early, regular and productive bearer of medium to large size fruit; said fruit becoming hard or picking ripe approximately the same time as Bartlett and colored a light green ground or under color in its shaded areas and a dark red over color dotted with conspicuous green lenticels on its sun exposed areas when ripe; said undercolor becoming yellow and the over color changing to bright red speckled with yellow lenticels while the fruit is ripening; said fruit resembling the fruit of Comice in form, flavor, soluble solids content, season and storage life, but differing therefrom by its poignant aroma, freedom from russet, and highly attractive peach-like beauty imparted by its bright red exposed side contrasted with the glistening yellows of its shaded areas.

3,600

CARNATION PLANT

Louis Grasso, Lingostiere, Route de Grenoble, 06 Nice, France

Filed Apr. 24, 1973, Ser. No. 354,147

Claims priority, application France, Apr. 24, 1972, 95
Int. Cl. A01h 5/00

U.S. Cl. Plt.—70

1 Claim

1. The new and distinct variety of carnation plant as described and illustrated.

3,601

MINIATURE ROSE PLANT

Ralph S. Moore, 2519 E. Noble Ave., Visalia, Calif. 93277

Filed Apr. 23, 1973, Ser. No. 353,776
Int. Cl. A01h 5/00

U.S. Cl. Plt.—7

1 Claim

1. A new and distinct variety of miniature rose plant of hardy, dwarf, rounded, much branched, bush type,

as illustrated and described characterized by buds and flowers resembling the Toy Clown miniature rose (Plant Pat. 2,909) in general form but with more petals and of a unique red and white color combination, resembling also in this respect Toy Clown miniature rose, the general color effect of the freshly opened flower being white with all petals edged red or deep pink (the colors tending to be more sharply contrasting than in Toy Clown) and further characterized by a plant of modest yet vigorous and compact growth, easy to propagate from hardwood and softwood cuttings, with small dark green glossy foliage, an abundance of bloom borne almost continuously throughout the growing season with flowers borne singly and in loose clusters.

3,602

CARNATION PLANT

Alexandre Barberet and Henri Blanc, La Londe, France, assignors to Laboratoire de Physiologie Vegetale de La Londe Barberet & Blanc, La Londe, France

Filed Mar. 30, 1973, Ser. No. 346,717

Claims priority, application Italy, Dec. 22, 1972, 33,459/72

Int. Cl. A01h 5/00

U.S. Cl. Plt.—72

1 Claim

A new variety of carnation plant suitable for greenhouse culture for the production of cut flowers, particularly distinguished by the more homogeneous size of its relatively large flowers, its very long floral stems, and the deeper pink coloring of its blooms.

3,603

PEACH TREE

Lewis B. Sherrill, Rte. 2, Box 536, Bakersfield, Calif. 93307

Filed July 12, 1973, Ser. No. 378,781
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

A peach tree of medium size, medium vigor, spreading growth, vase-form, hardy for California peach producing areas, abundantly foliated with large, uniform, lanceolate, deep-green leaves having a crenate margin and reniform glands, medium in blooming period with light pink showy flowers, and a regular and productive bearer of large, uniform, globose, freestone fruit having yellow skin substantially overspread with red, yellow flesh, and a red pit cavity with the red streaked into the flesh.

PATENTS

GRANTED AUGUST 27, 1974

GENERAL AND MECHANICAL

3,831,200

TECHNIQUE FOR ELIMINATING PILLING IN SHIRT COLLARS

George Weiss, 520 Magnolia Blvd., Long Beach, N.Y. 11561
Filed Feb. 24, 1972, Ser. No. 229,114

Claims priority, application Great Britain, July 20, 1971, 33873/71

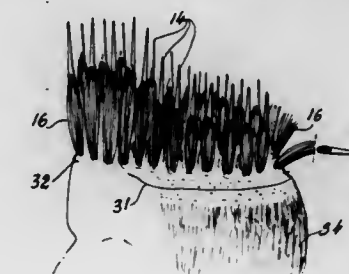
Int. Cl. A41b 3/00

U.S. Cl. 2—143

1 Claim

To eliminate a condition in fabric which contributes to pilling thereof, a method of treatment which includes subjecting the fabric, while it is not restrained against contracting, to an elevated temperature at which the fabric does, in fact, contract and, in so doing, assumes a related condition which minimizes pilling of the fibers or yarns of said fabric.

of hair through the needle hole. Each tuft of hair is knotted or otherwise sewn at its inner end so as to be secured from pulling entirely out of the plastic base and the scalp. When



3,831,201

CLIP FOR FORMING SIMULATED SLIPKNOT

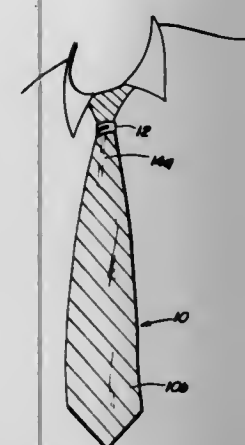
Camille J. Burny, Jr., 820 Lathrop Ave., River Forest, Ill. 60305

Filed Mar. 1, 1973, Ser. No. 337,095

Claims priority, application Italy, Oct. 20, 1972, 30766/72
Int. Cl. A41d 25/02

U.S. Cl. 2—150

2 Claims



A clip construction for simulating a slipknot in a necktie and of generally U-shaped configuration is provided which comprises an ornamental item of jewelry. The clip has opposed arms extending from a central curved portion and a central projection extending in the direction of the arms which projects into the interval between the arms.

3,831,202

HAIR IMPLANT AND PROCESS

Wayne D. Hulsen, 15342 79th St., Howard Beach, N.Y. 11414
Filed Oct. 6, 1972, Ser. No. 295,546

Int. Cl. A61f 1/24

U.S. Cl. 3—1

9 Claims

A base member, which may be a thin, flexible formed plastic sheet, is provided with a plurality of needles to each of which is attached a tuft of hair. In a surgical procedure, a section of a patient's scalp is lifted. The base is inserted on the scalp and the section of lifted scalp is replaced to cover the base. In replacing the section of scalp, the plurality of needles pierce the scalp section and project therefrom. Each needle may then be withdrawn from the base and scalp, pulling its tuft

3,831,203

IMPLANTABLE BLOOD PUMPING SYSTEM

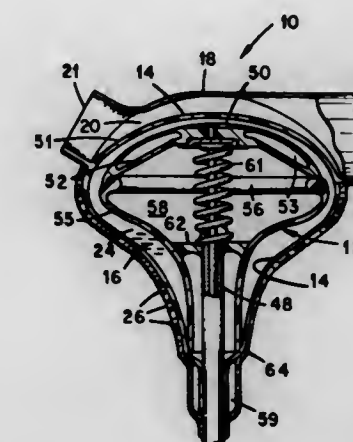
Malcolm G. Ridgway, Huntington Beach, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Sept. 28, 1973, Ser. No. 401,730

Int. Cl. A61f 1/24

U.S. Cl. 3—1

10 Claims



A mechanically driven and automatically controlled artificial blood pump for replacement of a ventricle of a natural heart, including an expandable piston mounted within a flexible membrane but separated therefrom by means of a protective liquid. Both the membrane and piston are mounted within a housing having an upper chamber in which blood is pumped by the piston through actuation of the membrane from an inlet port to an outlet port and a lower chamber that is provided with perforations to expose the lower part of the membrane to body fluids that normally surround a heart and which are at ambient body pressure. A central part of the membrane is sealed to the housing to separate the upper and lower chambers. The piston is driven at a constant rate of reciprocation over a fixed-length stroke by means of an electric motor through a cylindrical groove cam. Since there is a natural change in venous pressure during diastole in response to bodily demands, there is a corresponding change in the pressure at the inlet valve of the blood pump and in the upper chamber. Automatic control is achieved by using a reciprocating drive of fixed rate and displacement in conjunction with a liquid reservoir referenced to ambient body tissue pressure which al-

lows power assisted filling while precluding negative pressures at the inflow blood vessel. This particular arrangement ensures that the volume of blood admitted to the upper chamber during diastole is an accurate function of the blood demand of the body at all times, irrespective of the inflow valve impedance, since any differential space between maximum piston displacement and demanded blood volume is filled by the body fluids at ambient pressure. The pump can therefore be mechanically actuated by a relatively simple driving unit while automatically providing the required blood flow rate and maintaining diastolic pressure in the upper chamber very close to normal pressure.

3,831,204

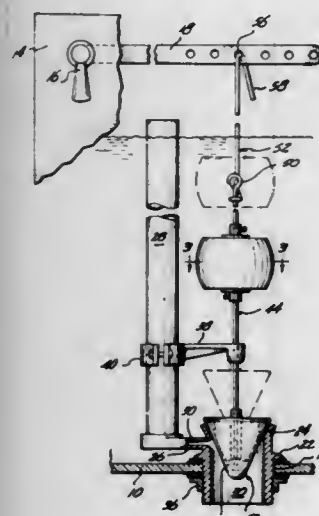
TOILET FLUSH APPARATUS

John W. Cook, 1512 S. 11th St., Mount Vernon, Wash. 98273
Filed Feb. 28, 1973, Ser. No. 336,610

Int. Cl. E03d 1/34, 1/14

U.S. Cl. 4-57 R

2 Claims



Apparatus for controlling the retention and selectively controlling the full or partial discharge of water from a toilet tank is disclosed wherein there is a non-buoyant valve cup associated with the usual discharge outlet seat and buoyancy is provided by a float adjustably located in spaced relation above said valve cup.

3,831,205

AUTOMATIC DISPENSING APPARATUS

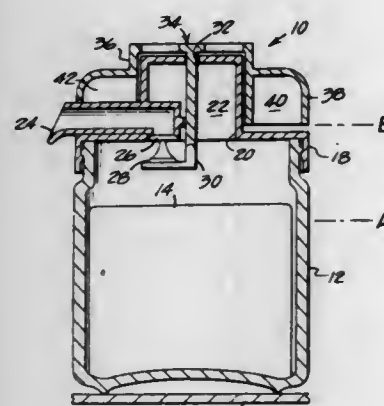
Lary L. Foley, San Francisco, Calif., assignor to The Clorox Company, Oakland, Calif.

Filed Apr. 3, 1972, Ser. No. 240,530

Int. Cl. E03d 9/02

U.S. Cl. 4-228

9 Claims



There is disclosed an automatic dispensing apparatus for dispensing a solution formed from a solid material into a process stream when the liquid level of the process stream

drops below a pre-determined level. The apparatus is particularly adaptable to use in a toilet flush tank and comprises a float valve operative to dispense a metered amount of solution into the flush tank at the end of the flush cycle.

3,831,206

SLEEPING BAG

Riley R. Geary, 6202 No. Ivar, Temple City, Calif. 91780

Filed Dec. 17, 1973, Ser. No. 425,161

Int. Cl. A47g 9/00

U.S. Cl. 5-343

13 Claims



A sleeping bag structure including a mattress-like base section with an upper head supporting portion and central body supporting portion and a lower leg supporting portion, a quilt-like cover section with an upper body covering portion, a central leg covering portion and a lower foot covering portion and dual connecting means releasably connecting adjacent edges of the section together to define a closed draft proof bag. Said connecting means including outer primary zipper type primary fastening means at and along related edges of the sections and inner secondary releasable fastening means between the adjacent edge portions of the sections inward of and parallel with the primary fastening means and holding said adjacent portions of the sections in draft and heat sealing engagement with each other. Said upper body portion of the cover section having a pair of laterally spaced extensions with interconnecting means at the free ends to define an upwardly and laterally extending arch supported on the head portion of the base section and defining a head accommodating hood.

3,831,207

MULTIPURPOSE PLIERS

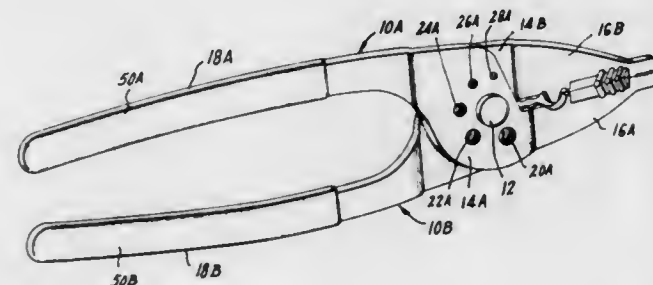
Alfred Z. Boyajian, Manhattan Beach, Calif., assignor to The Stanley Works, New Britain, Conn.

Filed Dec. 18, 1970, Ser. No. 99,353

Int. Cl. B25b 7/22

U.S. Cl. 7-5.5

6 Claims



A multipurpose plier has pivotally connected operating members with apertures therein for shearing of bolts therebetween. Disposed at one end of the operating members are jaws with crimping, wire cutting, wire stripping, and gripping portions. The other ends of the operating members provide handles for operation thereof.

3,831,208

COMBINATION CAMPER AND BOAT

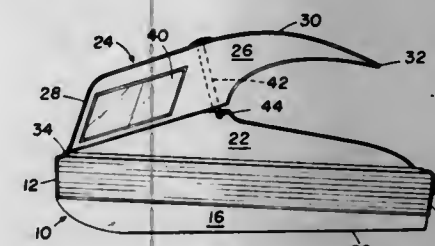
Erdis L. Smith, 110 Wesley Dr. N.W., Cedar Rapids, Iowa 52405

Filed Jan. 10, 1972, Ser. No. 216,585

Int. Cl. B63c 13/00; B60f 3/00; B60p 3/34

U.S. Cl. 9-1 R

6 Claims



A compact self-contained unit which can be towed over the road and used as either a boat or a camper, the unit having complete living facilities. The unit has a hard top that can be raised to increase the head room when the unit is used either as a boat or as a camper, or the unit can be used with the top lowered as it normally is during transportation.

3,831,209

CONTAINER SUPPORT

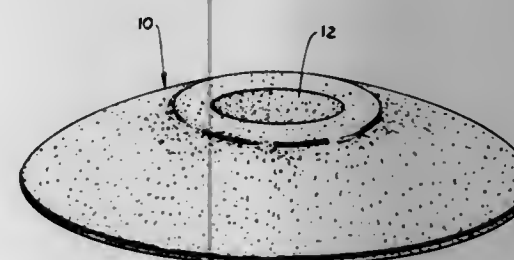
David R. Clingman, 3202 Mathieson Dr., N.E., Atlanta, Ga. 30305

Filed Aug. 14, 1973, Ser. No. 388,106

Int. Cl. B63b 35/02; A47g 29/00

U.S. Cl. 9-1 A

3 Claims



A buoyant beverage container support for retaining and supporting a beverage container in a vertical non-tilting and non-capsizing position on the surface of water. The beverage container comprises a piece of buoyant material of suitable size and shape containing a recessed portion therein for receiving the beverage container.

3,831,210

RETRACTABLE WHEEL ASSEMBLY

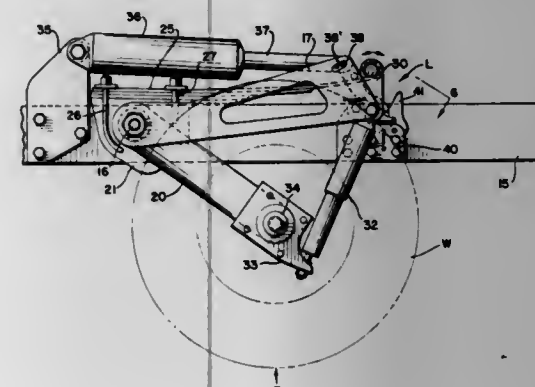
Gordon Y. W. Ow, 1604 Ihiloa Loop, Honolulu, Hawaii 96821

Filed Aug. 15, 1973, Ser. No. 388,492

Int. Cl. B63c 13/00

U.S. Cl. 9-1 T

10 Claims



A wheel assembly to be mounted on a framework of a vehicle is disclosed wherein the action lever supporting the wheel

is pivotally mounted on a fixed pivot, and adjacent to said pivot the base for one end of a leaf spring is integrally connected. The spring forms the main upper structural support of the assembly thereby simplifying the design and providing a controlled or tuned springing action for a smoother ride. The second end of the leaf spring is attached to a pivotal link that is supported on a pivot pin carried on a supplemental upper support arm, said arm extending generally parallel to the spring. The pivot pin is engaged by a latch to lock the wheel in the ground engaging or traveling position. The latch includes a pivotal yoke and cap latch element mounted on a single bracket on the framework. A reactive means, in the form of a shock absorber, is connected between the pivot pin and the free end of the action lever supporting the wheel. An actuating cylinder is provided to raise and lower the wheel assembly. The latch is automatically released by the initial movement of the actuating cylinder through a release finger when the wheel is retracted.

3,831,211

LIGHTWEIGHT BOAT MOVING DEVICE

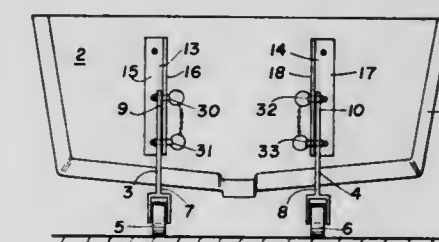
Sebastian R. Bustamante, Carson, Calif., assignor to The Raymond Lee Organization, Inc., New York, N.Y.

Filed Mar. 12, 1973, Ser. No. 340,570

Int. Cl. B60p 3/10; B62b 1/10

U.S. Cl. 9-1 T

2 Claims



A lightweight boat moving device for a boat having a substantially planar stern comprises a pair of legs each having a wheel rotatably mounted at one end thereof. Fastening devices affixed to the stern of the boat secure the legs in spaced parallel relation in a first position in which the legs extend below the stern of the boat in a manner whereby the wheels are a predetermined distance below the bottom of the boat and a selected second position in which the legs extend above the stern of the boat in a manner whereby the wheels are a predetermined distance above the stern of the boat.

3,831,212

DOUBLE-HULLED BOATS

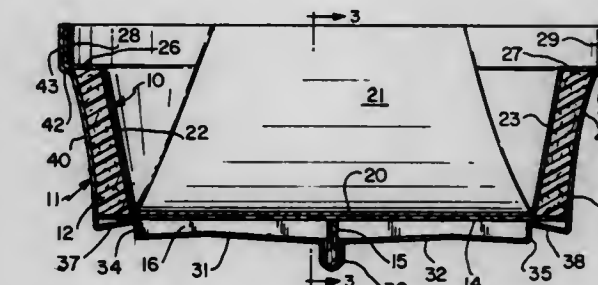
Richard L. Moore; Vaughn Moore, and Warren N. Moore, all of Highway 80, East Bossier City, La. 71010

Filed Aug. 3, 1973, Ser. No. 385,272

Int. Cl. B63b 5/24

U.S. Cl. 9-6

2 Claims



A double-hulled boat with flotation material is disclosed. An inner hull constitutes a complete floatable shell and has integrally formed bottom, side and end walls with a flange extending laterally outwardly at the upper edges of the side walls. The outer hull is similarly integrally formed and has a bottom, side and end walls, the side walls having a flange of

smaller lateral dimensions than the inner hull so that the flanges are nestably mating and can be bonded together to define a flotation material-containing cavity therebetween. In the method of the invention the flotation material is sprayed on the exterior side walls of the inner hull before assembly. The inner and outer hulls are made of fiberglass. A plywood inner floor is sandwiched between the bottoms of the inner and outer hulls with a keel and skeletal rib structure disposed beneath the inner floor. The bottom of the outer hull is shaped to receive and retain the keel and rib structure. The keel, rib structure, inner floor and bottom portions of the two hulls are bonded and cured together as are the flanges to form a watertight, buoyant and durable structure.

3,831,213

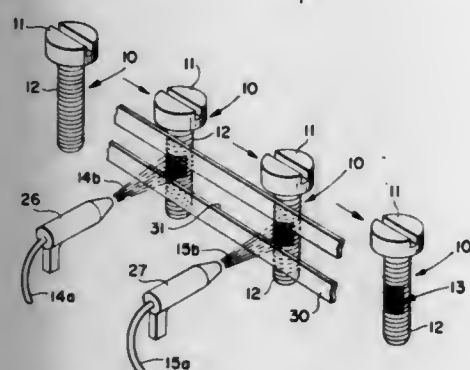
COMPOSITE SELF-LOCKING FASTENER

Ram D. Bedi, 3011 Pleasant Trl., Southfield, Mich. 48076
Continuation of Ser. No. 121,644, March 8, 1971. This application Sept. 7, 1972, Ser. No. 287,206

Int. Cl. B23g 9/00

U.S. Cl. 10-10 P

9 Claims



Self-locking fasteners, and methods of making same; for example, metal fasteners wherein the self-locking characteristic is derived from a composite patch comprising metals or metal alloys selectively bonded to the surface of the metal fastener by multiple molten spraying operations.

3,831,214

THREAD CUTTING APPARATUS

Uno Allan Alfredeen, Osmo, Sweden, assignor to Scandinavian Paper Converting AB, Osmo, Sweden

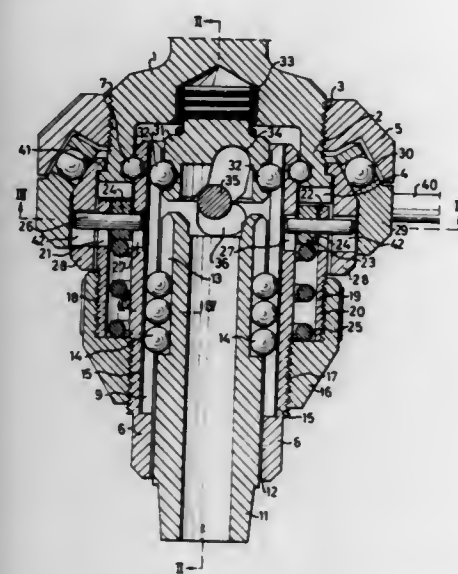
Filed Mar. 21, 1973, Ser. No. 343,530

Claims priority, application Sweden, Mar. 29, 1972, 4083/72

Int. Cl. B23g 3/00

U.S. Cl. 10-89 H

8 Claims



A thread cutting apparatus includes a driving member, a driven member, connecting means driving the driven member in one direction and having a bolt which is movable axially and is rotatable relatively to the driving member, and a sleeve carrying the driven member and extending axially to the driving member, the bolt engaging by spring action in a recess pro-

vided in the driving member and extending to L-shaped slots provided in the sleeve. When a resistance of the driven member is exceeded, the bolt is forced out of the recess, so that it is disengaged from the driving member, thus disengaging the driving member from the driven member. The bolt is also adapted to engage a bearing connected with the driven member and having a roller path. A bearing ring has a second roller path, whereby the driven member is caused to rotate in a direction opposite to that of the driving member.

3,831,215

METHOD OF SHOE LASTING

Frank Gordon Bailey, Kettering, England, assignor to C.I.C. Ralphs Ltd., Bath, Somerset, England

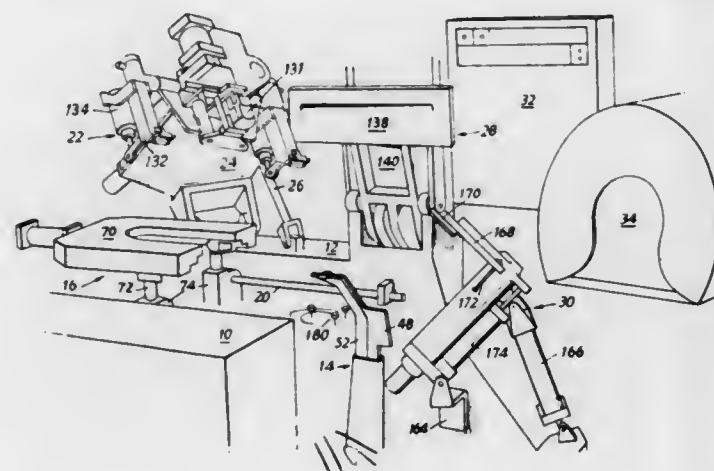
Filed Aug. 30, 1972, Ser. No. 284,970

Claims priority, application Great Britain, Sept. 21, 1972, 41100/72

Int. Cl. A43d 29/00

U.S. Cl. 12-145

5 Claims



In the lasting of a fore part of a shoe, an upper is loosely disposed about a last, and the upper is clamped against the periphery of the sole part of the last. The upper is then subjected to mechanical stresses in order to bring it into its required shape, and following the shaping of the upper, the lasting margin is turned over and secured to the insole.

3,831,216

METHOD AND MACHINE FOR CEMENT LASTING

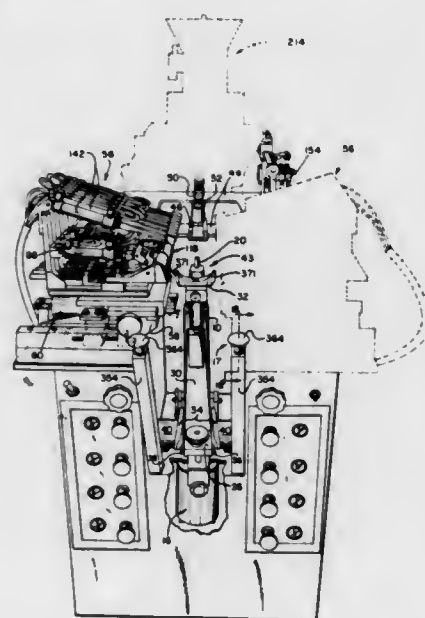
Walter Vornberger, Tewksbury, Mass., assignor to International Shoe Machine Corporation, Nashua, N.H.

Filed Aug. 6, 1973, Ser. No. 386,129

Int. Cl. A43d 21/00

U.S. Cl. 12-145

14 Claims



A lasting machine that applies cement into the corner between a portion of the margin of an upper mounted on a last

and an insole located on the last bottom and that wipes the margin portion against the insole so as to cementatiously attach the wiped margin portion to the insole.

3,831,217

AUTOMATIC SHOE POLISHING MACHINE

Tsugumu Odawara, Hiroshima-ken, Japan, assignor to Fuji Kikai Kogyo Kabushiki Kaisha, Hiroshima-ken, Japan

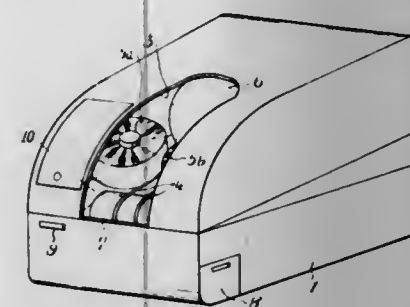
Filed Feb. 16, 1973, Ser. No. 333,226

Claims priority, application Japan, Apr. 18, 1972, 47-45007

Int. Cl. A47I 23/02

U.S. Cl. 15-34

1 Claim



An automatic shoe polishing machine with a housing having an end opening for the insertion of a shoe to be polished by a pair of side brushes and a horizontal brush positioned at the corners of an isosceles triangle and driven on flexible shafts, a driven sand removing brush below said side brushes and a slideable plate below said side and front brushes for supporting said shoe and operating a switch for the drive for said brushes.

3,831,218

BRUSH CONSTRUCTION

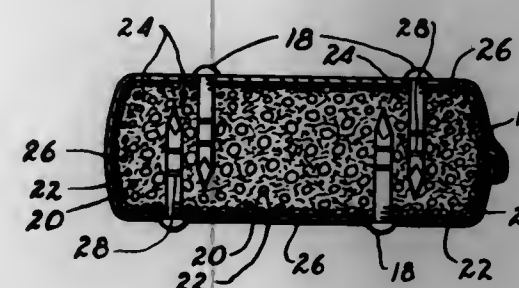
Ronald Kaplan, 104 Fairway Ave., Verona, N.J. 07044

Filed Feb. 27, 1973, Ser. No. 336,184

Int. Cl. A46b 3/02

U.S. Cl. 15-192

6 Claims



An improved brush construction wherein the bristled head is secured to the handle by means of a band and fastening means inserted therethrough, the improvement comprising a handle being prepared from a foamed fiber reinforced thermoplastic resin.

3,831,219

WINDSCREEN WIPER

Hans-Christian Deutscher, Ludwigsburg, and Kurt Bauer, Kleiningersheim, both of Germany, assignors to SWF Spezialfabrik Fur Autozubehor Gustav Rau GmbH

Filed June 29, 1972, Ser. No. 267,606

Claims priority, application Germany, June 30, 1971, 2132496

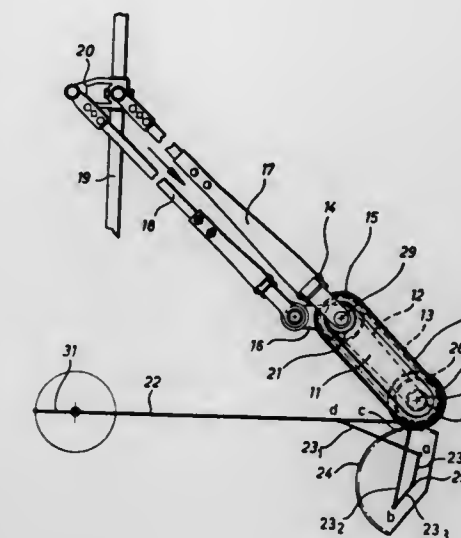
Int. Cl. A47I 1/00; B60s 1/02

U.S. Cl. 15-250.21

5 Claims

A windscreen wiper for obtaining a rectangular wiping area, comprising a wiper blade, a wiper arm, a guide arm and an

oscillatory drive, the wiper blade being rotatably connected to one end of the wiper arm and being mounted, by means of a pivot member, on one end of the guide arm, wherein an axle is non-rotatably connected to a pivot arm, a double bearing being provided on the free end of the pivot arm, the wiper arm being non-rotatably connected to one part of the double bearing



ing and the guide arm being rotatably connected to an intermediate lever which is non-rotatably connected to the other part of the double bearing, the two parts of the double bearing being driveable by separate toothed belt or chain drives, each drive comprising a driving wheel which is located concentrically with the axle but is non-rotatable therewith.

3,831,220

WINDSHIELD WIPER SYSTEM FOR VEHICLES

Gunter Gmeiner, Erwin Koller, both of Sindelfingen, and Rudolf Binder, Schonaich, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

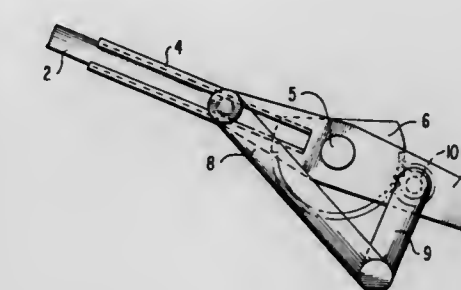
Filed Mar. 28, 1973, Ser. No. 345,495

Claims priority, application Germany, Mar. 29, 1972, 2215307

Int. Cl. B60s 1/02

U.S. Cl. 15-250.21

5 Claims



A windshield wiper installation for vehicles, especially for motor vehicles, with a wiper arm adjustable in its effective length which is supported displaceable in its longitudinal axis within a guide member adapted to be set into to and fro pivot movement by the wiper motor; the guide member is rotatably connected with the vehicle while a toothed segment coaxial with the pivotal connection of the guide member is rigidly connected with the vehicle; two levers are thereby provided which are pivotally connected with each other at one end while the free end of one lever is pivotally secured at the wiper arm and the free end of the other lever is pivotally secured at the guide member and carries a pinion non-rotatably secured thereto which meshes with the toothed segment.

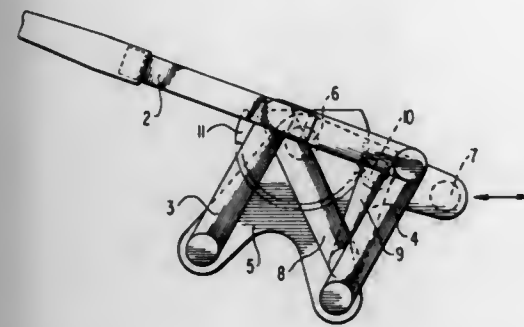
3,831,221

WINDSHIELD WIPER INSTALLATION FOR VEHICLES
Gunter Gmeiner; Erwin Kollé, both of Sindelfingen, and Rudolf Binder, Schönaich, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany
Filed Mar. 28, 1973, Ser. No. 345,496

Claims priority, application Germany, Mar. 29, 1972, 2215335

Int. Cl. B60s 1/26

U.S. Cl. 15—250.21



A windshield wiper installation for vehicles, especially for motor vehicles, with a wiper arm adjustable in its effective length which is connected with a control plate pivotally secured at the vehicle by way of two levers forming a link quadrangle while the control plate is adapted to be set into to and fro pivot movements about its pivot axis by the wiper motor; two further levers are provided which are pivotally connected with each other for the control of the effective length of the wiper arm whereby the free end of one lever is pivotally secured at the wiper arm and the free end of the other lever is pivotally secured at the control plate; the free end of the other lever at the same time carries a pinion non-rotatably secured thereto which meshes with a toothed segment non-rotatably secured at the vehicle and coaxial with the control plate.

3,831,222

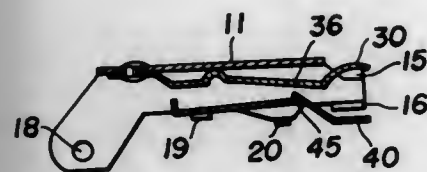
MEANS FOR COUPLING A BLADE TO AN ARM OF WINDSHIELD WIPER FOR AUTOMOBILES

Tadao Kushida, Odahara, Japan, assignor to Ichiko Industries, Limited, Shinagawa-ku, Japan

Filed Mar. 28, 1973, Ser. No. 345,789

Int. Cl. B60s 1/40

U.S. Cl. 15—250.32



Means for coupling a blade to an arm of windshield wiper for automobiles comprising (1) a housing having a top wall and two side walls cooperatively defining a channel for the insertion of the arm and (2) an arm nipping means fixed within the housing and including an upper resilient member and a lower resilient member. Each of the side walls of the housing has an upper and a lower horizontal flange at its one end to define an arm introducing inlet. The upper resilient member has a receiving hole to engage a projection of the arm. The lower resilient member has a projection to be inserted into the through-hole or a recess of the arm. Because of this structure of the coupling means, the latter is capable of firmly holding any one of the arms of the type having a projection and a recess and of a type having only a through-hole. The free outer end of the upper resilient member fixed within the housing is exposed outwardly from one end of the channel, whereas the free outer end of the lower resilient member is exposed from

the longitudinal elongated opening formed on the lower side of the channel. Thus, by holding the exposed portions of these two resilient members away from each other, the attachment and the detachment of the arm can be performed very easily without damaging the arm and these resilient members.

3,831,223

CARPET AND UPHOLSTERY CLEANING APPARATUS WITH IMPROVED NOISE MUFFLING FEATURE

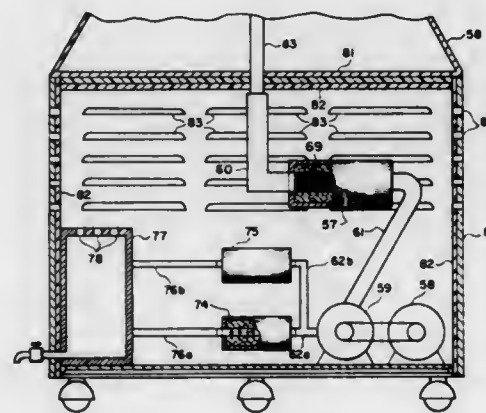
James G. Colt, Belmont, and Ronald W. Emus, Jr., Billerica, both of Mass., assignors to Carpetech Corp., Natick, Mass.

Filed Jan. 31, 1972, Ser. No. 222,000

Int. Cl. A471 7/00

U.S. Cl. 15—321

9 Claims



There is disclosed apparatus for cleaning carpets, upholstery and the like utilizing a meter driven separate reservoir system for supplying a cleaning solution to a remote cleaning head adapted to apply the cleaning solution to the material being cleaned, and a separate motor driven vacuum pick-up system for storing cleaning solution and entrained dirt picked up via the cleaning head. The reservoir system may typically include in combination with a reservoir tank a cleaning fluid pumping circuit comprising fluid heating means, a fluid pump for supplying fluid from the reservoir tank to the heating means, pressure regulator valve means for returning heated cleaning fluid to the reservoir tank when the fluid circuit to the cleaning head is closed, and flow sensitive means disposed between the reservoir tank and the fluid pump effective to disconnect the pump drive motor and shut down the fluid pump and heater when the supply of cleaning fluid in the reservoir tank is exhausted. The vacuum system includes a vacuum tank supported by a base housing, and in the base housing a motor driven vacuum pump for maintaining a partial vacuum in the vacuum tank, muffler means coupled to the vacuum pump and exhausting into a plenum chamber vented to the interior of the base housing, and high density material disposed on at least the inner side walls of the housing, together with a plurality of exhaust vents in the side walls of the housing.

3,831,224

TOGGLE LATCH WITH YOKE

Edward MacMaster, New Milford, and Paul R. Gley, Hillsdale, both of N.J., assignors to Rexnord, Inc., Milwaukee, Wis.

Filed Apr. 2, 1973, Ser. No. 346,829

Int. Cl. E05c 5/04

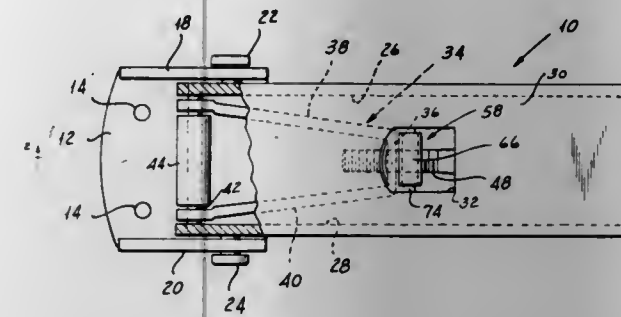
U.S. Cl. 24—68 T

11 Claims

A versatile toggle latch in which a yoke comprises a cross-piece which threadably receives the shank of a draw hook and a pair of slightly diverging legs the ends of which are pivoted on a handle at a location remote from a location at which the handle is pivoted on a mounting bracket, and in which an ele-

ment carried by a portion of the draw hook shank between the yoke legs prevents accidental rotation of the draw hook. The

slidably mounted to the base and between the elongated cylindrical member and a portion of the base, so that it may be gripped therebetween. A spring is included for urging the



handle and crosspiece may be provided with interengageable secondary lock means or with a hasp on the draw hook shank adapted to extend through an opening in the handle.

3,831,225

SPRING FASTENER

Sigurd W. Bengtsson, Göteborg, Sweden

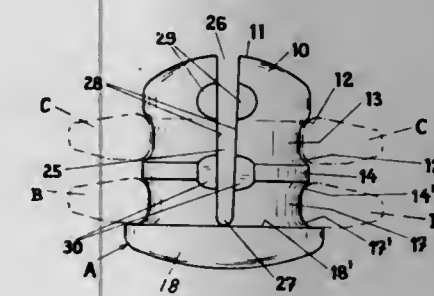
Continuation of Ser. No. 227,198, Feb. 17, 1972, abandoned.

This application June 5, 1973, Ser. No. 367,163

Int. Cl. F16b 5/00; A44b 21/00

U.S. Cl. 24—73 P

3 Claims



A spring fastener for connecting together separate layers of flexible sheet material, each of which is provided with a rigid annular eyelet. The spring fastener includes a plug-like body having a head at one end, a stop flange at the other end, and an intermediate flange therebetween. At each side of the intermediate flange there is a circumferential groove, a diametral slot extending axially from the head end to the stop flange. The fastener is molded from resilient plastic material and holds the eyelet in the groove adjacent to the stop flange with somewhat greater force than the eyelet in the other groove.

3,831,226

SEAT BELT SLACK ADJUSTER MECHANISM

Nels S. Nelson, and Harlow H. Piper, both of Decatur, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

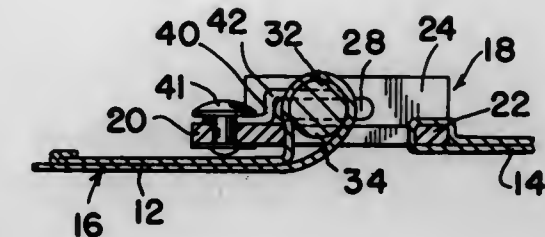
Filed Dec. 11, 1972, Ser. No. 314,151

Int. Cl. A44b 11/10

U.S. Cl. 24—196

7 Claims

Apparatus for adjusting the length of a safety belt includes a base into which the end of a first safety belt portion and the end of a second safety belt portion are fed. The first safety belt portion is fed inward, around an elongated cylindrical member



3,831,227

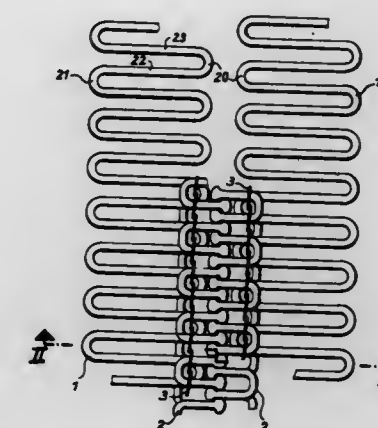
SLIDE FASTENER STRINGER

Eduard Beitter, Koppenhoferweg 8, 7 Stuttgart 80, Germany
Filed May 15, 1972, Ser. No. 253,301

Int. Cl. A44b 19/10

U.S. Cl. 24—205.16 C

9 Claims



The carrier tape in an otherwise conventional slide fastener stringer having coupling elements formed from a continuous length of a plastic filament is replaced by another length of plastic filament bent into repeating units having each the shape of a meander, a figure-eight, and the like. Each unit has two bend portions and two connecting portions of which one connects the bend portions, and the other one connects the unit to an adjacent unit. The bend portions are arranged in two rows parallel to the row of coupling elements, one or two coupling elements being fastened to an adjacent bend portion by sewing stitches, by adhesive, or by welding. The carrier of plastic filament is more durable than any tape and is readily shaped to hold the coupling elements in an arcuate row of small radius of curvature.

3,831,228

SLIDE FASTENER CHAIN

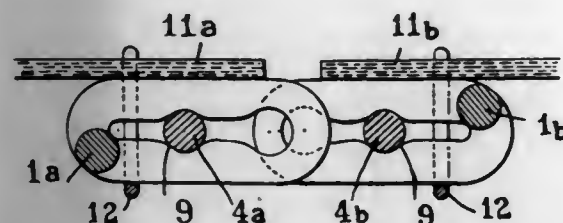
Horst Jakob, Choisy-le-Roi, France, assignor to Societe Financiere Francaise De Licences Et Brevets, Choisy-le-Roi, France

Division of Ser. No. 204,593, Dec. 3, 1971, Pat. No. 3,750,260. This application May 11, 1973, Ser. No. 359,402

Int. Cl. A44b 19/12

U.S. Cl. 24—205.1 C

1 Claim



The invention provides a continuous chain of two rows of linking components for the making of slide fasteners out of two rows each consisting of a thread shaped into a spiral inside the whorls of which a longitudinal cord or strand is positioned, the improvement being that the said cord or strand is placed in an intermediate position in the width of each row by assembling the two corresponding rows while causing the linking components of each row to penetrate more deeply between the whorls of the other, in order to push back the length-ways inside cord or strand in the latter row, thereafter these two rows are fixed onto two supporting tapes by means of lines of stitching, the stitches of said lines being inserted inside the free spaces between the cord or strand inside each row and the portions connecting the successive whorls thereof.

3,831,229

ENVIRONMENT FREE SNAP HOOK

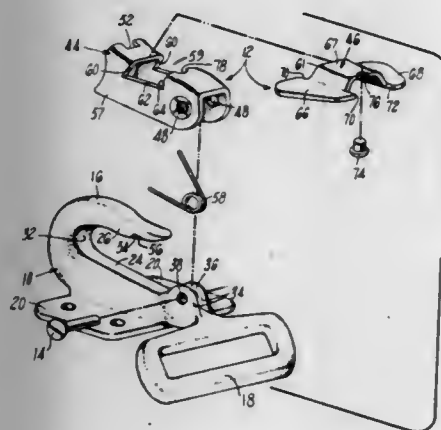
Wilbur J. Craven, Glastonbury, Conn., assignor to Stanadyne, Inc., Windsor, Conn.

Filed Feb. 20, 1973, Ser. No. 333,963

Int. Cl. A44b 13/02

U.S. Cl. 24—235

5 Claims



A forged snap hook is provided with an integral base plate for attachment to a parachute harness. A resiliently biased high strength corrosion treated guard is pivoted on the hook and has a hollow crown with slotted depending sidewalls. A winged finger piece is shaped to form an interlocked dovetail joint with the guard and the wings of the fingerplate overlap the slot of the guard and extend laterally therefrom adjacent the crown to reinforce the guard.

3,831,230

INTERIOR CAP LINER

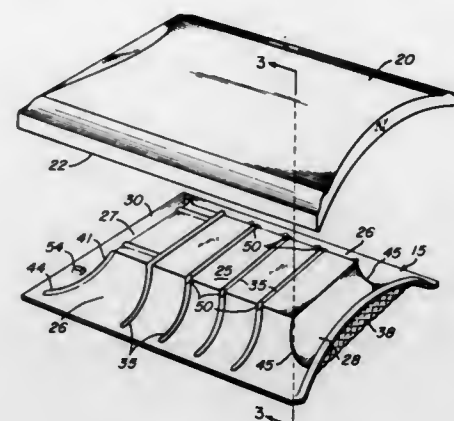
Clifford Max Rawlings, c/o Rawlings Mfg. Co. Inc., Box 126, Lasantville, Ind. 47354

Filed Nov. 30, 1972, Ser. No. 310,828

Int. Cl. A61g 17/04

U.S. Cl. 27—19

6 Claims



An interior cap liner for a casket is formed as a single, flexible, unitary, self-supporting and self-sustaining member. Structural reinforcing ribs are integrally formed in the liner to reinforce and rigidify it for self-support. The liner may easily be flexed for insertion into the casket cap, but is still strong and rigid enough to support decorative cover means attached exclusively to the liner inner surface. Within the cap, the peripheral edge of the liner rests in an unstressed condition on the casket cap's inwardly directed peripheral flange.

3,831,231

METHOD FOR PRODUCING A YARN HAVING LATENT BULKING CHARACTERISTICS

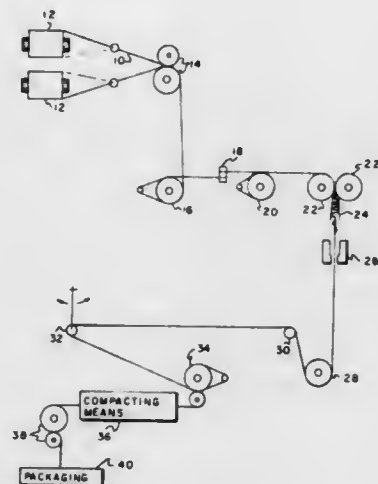
Jack C. Binford; Frederick A. Ethridge, and James R. Talbot, all of Charlotte, N.C., assignors to Fiber Industries, Inc., Charlotte, N.C.

Division of Ser. No. 848,549, Aug. 8, 1969, Pat. No. 3,654,677. This application Nov. 1, 1971, Ser. No. 194,597

Int. Cl. D02g 1/12, 1/14

U.S. Cl. 28—72.14

16 Claims



A method for producing a yarn having latent bulking characteristics and the apparatus therefor is described. The yarn is composed of multifilament synthetic fibers which have been crimped and subjected to a constant tensioning process. The process involves subjecting a drawn yarn, preferably freshly drawn, to a crimping process which can be any of a number of crimping methods including stuffer box crimping, gear crimping, steam jet crimping and the like. The yarn is withdrawn from the crimping step under a low, substantially uniform tension, tensioning the yarn under a higher constant tension to at least partially extend the crimps, entangling or

twisting the yarn and taking the yarn up on a package. The bulk characteristics of the yarn are preferably developed after incorporation into the end product such as a carpet by subjecting to heat and moisture.

3,831,232

METHOD OF PRODUCING PATTERNED BLOCKS OF PILE YARNS IN MAKING PATTERNED PILE FABRICS

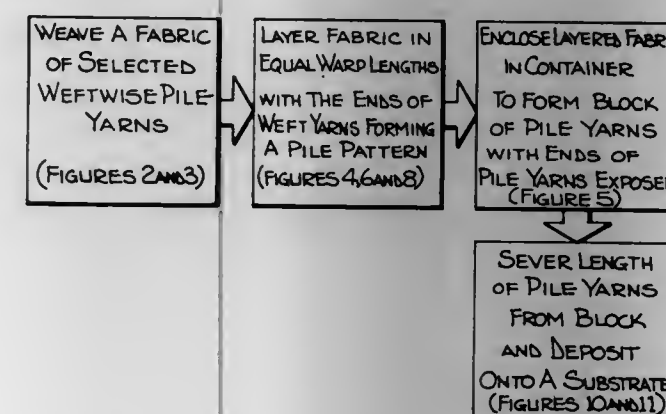
Emanuele Bondi, Milan, Italy, assignor to Fieldcrest Mills, Inc., Eden, N.C.

Continuation-in-part of Ser. No. 34,756, May 5, 1970, abandoned. This application Dec. 20, 1972, Ser. No. 316,740 Claims priority, application Italy, May 10, 1969, 16675/69

Int. Cl. D04h 11/00

U.S. Cl. 28—72 R

13 Claims



A method of producing blocks of pile yarns in making patterned pile fabrics, such as carpets, rugs and the like, whose patterns may be of many different colors or kinds of pile yarns and of simple or highly intricate configurations. According to the method, a fabric is woven from pile yarns of relatively different appearance; e.g., color, texture, etc., which serve as the wefts of the fabric and are selectively arranged in a predetermined patterned order and bound together by sparsely spaced binder warp yarns. Identifying weft yarns are positioned at substantially equally spaced locations in the fabric for determining successive fabric sections thereof, and the fabric is moved back and forth while being folded along the identifying weft yarns to form a compact stack of superposed fabric layers. The stack is positioned in an open-ended container with the ends of the pile yarns exposed so that they may be severed to form successive slices of patterned pile tufts therefrom which may be secured to a suitable substrate to form a pile fabric therefrom.

3,831,233

PROCESS FOR HEAT TREATING MULTI-COMPONENT YARNS

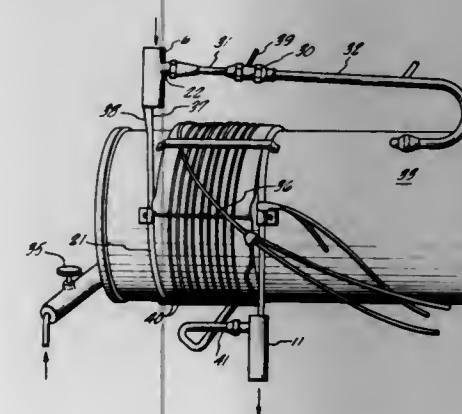
John L. Rendall; William Q. Rhyne, and Arthur Williams, all of Greenville, S.C., assignors to The Richen Co., Inc., Greenville, S.C.

Filed Feb. 9, 1972, Ser. No. 224,764

Int. Cl. D02j 1/22

U.S. Cl. 28—72.17

11 Claims



A process is disclosed for heat treating multi-component yarns which have fibers with dissimilar shrinkage properties.

The multi-component yarn is heated in the absence of substantial tension on the yarn to a temperature above the shrinkage temperature of at least one component. The heated yarn is permitted to shrink without substantial yarn tension, and the yarn is subsequently cooled to set the same. The components of the yarn are rearranged within the structure of the set yarn, with the fibers possessing the greatest shrinkage rate being concentrated at the core of the yarn.

3,831,234

METHOD OF MANUFACTURING AN ELECTRICAL CAPACITOR

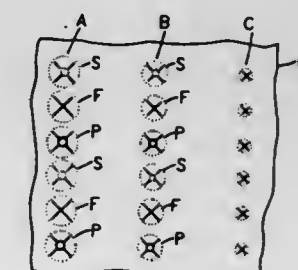
John Lapp, Franklin, and Norbert R. Weller, Greendale, both of Wis., assignors to McGraw-Edison Company, Elgin, Ill.

Division of Ser. No. 255,156, March 10, 1972, Pat. No. 3,746,953. This application Apr. 6, 1973, Ser. No. 348,656

Int. Cl. H01g 13/00

U.S. Cl. 29—25.42

26 Claims



A power factor correction capacitor is constructed of several capacitor packs, each having convolutely wound layers of aluminum foil and polypropylene film with two layers of polypropylene film between the layers of foil. The several capacitor packs are assembled into a case and impregnated with trichlorodiphenyl with a bis (3, 4-epoxy-6-methyl-cyclohexylmethyl) adipate as an additive. During the winding process the foil is deformed by a deforming roller rolled against the roll of foil as it is wound into the capacitor pack.

3,831,235

FILE FOR SHARPENING SKI-EDGES

Peter Weninger, Karl-Schönherstr. 1, 6410 Telfs, Austria

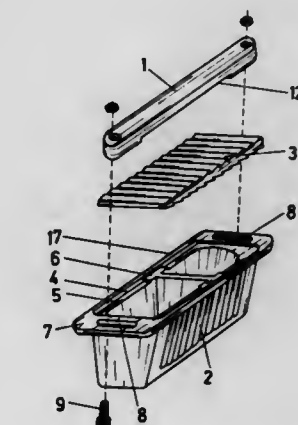
Filed Nov. 28, 1972, Ser. No. 309,975

Claims priority, application Austria, Nov. 29, 1971, 10230/71

Int. Cl. B23d 71/00

U.S. Cl. 29—78

10 Claims



A file for sharpening ski-edges consisting of a hand held body member with a file plate mounted therein. The file plate is provided with a cutting surface that projects outwardly from said body member and a guiding ledge secured to said body member overlies said file plate for holding it in the body member with portions of the cutting surface of the file plate being disposed on opposite sides of the guiding ledge.

3,831,236

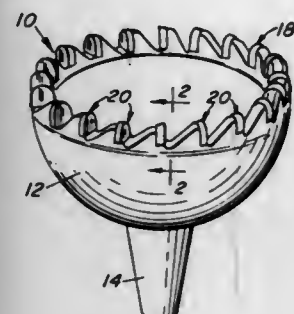
CUP-SHAPED CUTTING TOOL HAVING CUTTING TEETH

Orin W. Coburn, and Joe D. Stith, both of Muskogee, Okla., assignors to Coburn Optical Industries, Inc., Muskogee, Okla.

Filed Jan. 7, 1972, Ser. No. 216,166
Int. Cl. B26d 1/12, 1/00

U.S. Cl. 29—103 R

8 Claims



A cup-shaped tool for generating lens surfaces on a plastic lens blank wherein said tool has a plurality of spaced teeth along the cutting surface thereof.

3,831,237

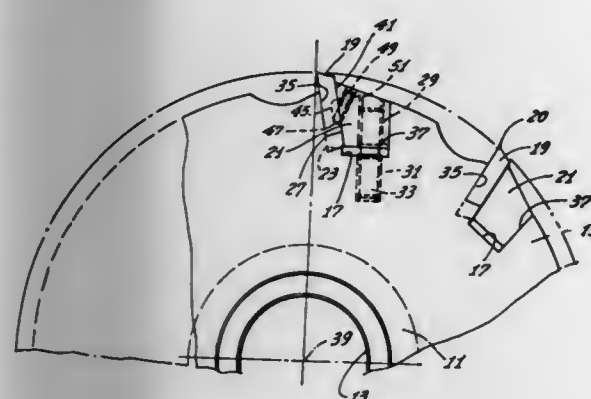
MOUNTING APPARATUS FOR INDEXABLE CUTTING INSERTS

Claude A. Gunsalus, 19349 E. Tudor St., Covina, Calif. 91722

Filed July 20, 1972, Ser. No. 273,357
Int. Cl. B26d 1/12

U.S. Cl. 29—105 R

11 Claims



A rotatable milling cutter in which indexable milling inserts are positively retained within cavities at the end of the cutter body by a positive retention apparatus which may be embodied by a setscrew passing through a wedge to abut the side and/or bottom of a recess or pocket in one surface of the insert.

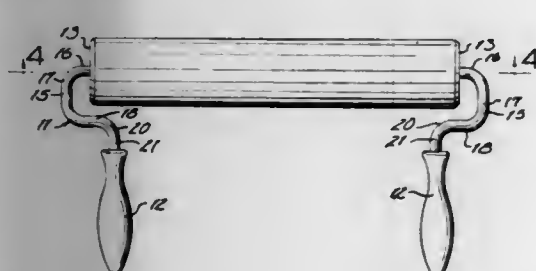
3,831,238
ROLLING PIN

J. Henry Adams, 64 Onyx Ave., Walla Walla, Wash. 99326

Filed Mar. 26, 1973, Ser. No. 344,984
Int. Cl. B05c 1/08

U.S. Cl. 29—110.5

1 Claim



A rolling pin comprised of a roller, a shaft extending through the roller, and a pair of handles mounted to the ends

of the shaft perpendicularly to the longitudinal axis of the roller. The roller includes a central bore of passageway which loosely receives a straight portion of the shaft and is freely rotatable thereon. The shaft is bent at its ends to position the handles inward of the ends of the roller.

3,831,239

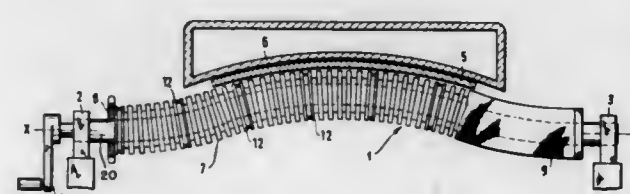
APPARATUS FOR BENDING GLASS

Karl Heinz Hoff, Uebach-Palenberg; Peter Kupper, Alsdorf; Joseph Meyer, Stolberg; Werner Pagel, Merksteins; Heinz Schmitt, Aachen, all of Germany, and Maurice Nedelec, Versailles, France, assignors to Saint-Gobain Industries, Neuilly-sur-Seine, France

Filed June 22, 1973, Ser. No. 372,627
Claims priority, application France, June 23, 1972, 72.22800
Int. Cl. B21b 31/08

U.S. Cl. 29—125

5 Claims



In glass bending apparatus employing an array of curved rods to define a cylindrical surface over which glass sheets heated to plasticity are traversed in order to conform them to that surface, the invention provides a roller construction which includes for each roller a corrugated tube engaged over a curved rod and caused to rotate and to flex with respect to the rod by suitable driving mechanism, the tube having a plurality of bearing rings affixed inside thereof between adjacent inwardly directed corrugations of the tube and disposed radially inwardly of an outwardly extending corrugation of reduced diameter at which annular sections of the tube are assembled as by welding at a circumferential seam. At each such seam a split ring is assembled over the seam to restore the outwardly extending corrugation of the tube to full diameter.

3,831,240

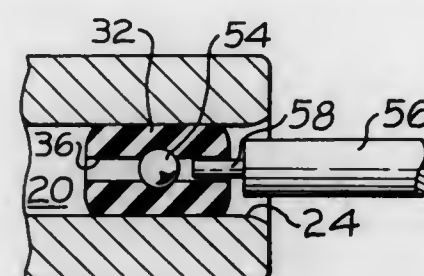
METHOD OF INSTALLING VENTED PLUGS IN PIN BORES

Roger L. Boggs; David John Balzer, both of East Peoria, and Glenn Melvin Haslett, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 130,664, April 2, 1971, Pat. No. 3,762,778. This application Apr. 6, 1973, Ser. No. 348,340
Int. Cl. B21h 7/00; B21k 19/00

U.S. Cl. 29—148.3

2 Claims



An improved method and apparatus are provided for sealing hollow pins which are commonly used as lubricant reservoirs in, e.g., track chain assemblies of crawler tractors, and linkage joints of earthmoving vehicles. One embodiment of the invention comprises a plug of elastomer material which has a lubricant passage axially therethrough, which passage receives an auxiliary plug means for the purpose of obturating the passage as well as causing radial expansion of the

elastomer plug into positive engagement with a receiving axial bore in a hollow pin. The auxiliary expansion means takes the form of a screw, a spherical ball, or a headless plug employing a plurality of annular serrations. Another embodiment comprises a spherical ball which is received in a stepped, axial bore of a hollow pin and is retained therein by a Belleville washer. The invention facilitates refilling in the field of the lubricant reservoir contained within the pin.

3,831,241

RADIAL AND THRUST BEARING AND METHOD OF MAKING SAME

J. Russell Elmore, New Hartford, and Carl F. Benson, Torrington, both of Conn., assignors to The Torrington Company, Torrington, Conn.

Division of Ser. No. 311,302, Dec. 1, 1972, Pat. No. 3,795,960.
This application Nov. 29, 1973, Ser. No. 420,055
Int. Cl. B21k 1/04

U.S. Cl. 29—148.4 R

2 Claims



A bearing is disclosed comprising a rotatable shaft and a coaxial unitary member. The shaft is shaped to provide a ball inner race and at least one roller inner race. The coaxial member has an inside annular protrusion extending toward the shaft. The protrusion has a curved shoulder on one side and a straight shoulder on the other side. The curved shoulder will support a high axial thrust along one direction of the shaft; the straight shoulder will support a relatively low axial thrust applied along the shaft in the opposite direction.

The outer unitary member is made by cold-forming a low carbon-steel tube with a die, carburizing, and then heating the thus-formed outer race in an inert atmosphere, sizing, and which after quenching, provides a hard outer race.

The shaft is made by rolling the ball inner race and at least one roller race into a rod which has been carburized and then heated in an inert atmosphere.

3,831,242

ROLLING MILL WORK ROLL ASSEMBLIES

Roy Ronald Oxlade, London, England, assignor to The British Iron and Steel Research Association, London, England

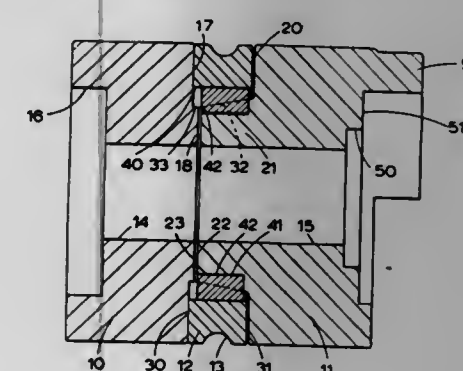
Division of Ser. No. 881,801, Dec. 3, 1969. This application Sept. 6, 1973, Ser. No. 394,882

Claims priority, application Great Britain, Dec. 10, 1968, 58650/68

Int. Cl. B23p 11/00; B21d 39/00

U.S. Cl. 29—148.4 D

4 Claims



A method of manufacturing a rolling mill work roll assembly which comprises a work roll held in position on a hol-

low shaft member by the shaft member being in a stressed condition to exert radial loading and preferably also axial loading on the work roll. The grip is sufficient to transmit normal driving torque. The method comprises axially stretching the shaft by hydraulic pressure means acting within the hollow, and this causes reduction of the diameter of the hollow shaft to permit insertion and removal of the shaft into and from the work roll bore. The hollow shaft has a larger diameter than the work roll bore when not so stretched. After insertion the hydraulic pressure is removed and the shaft assumes the above stressed condition.

3,831,243

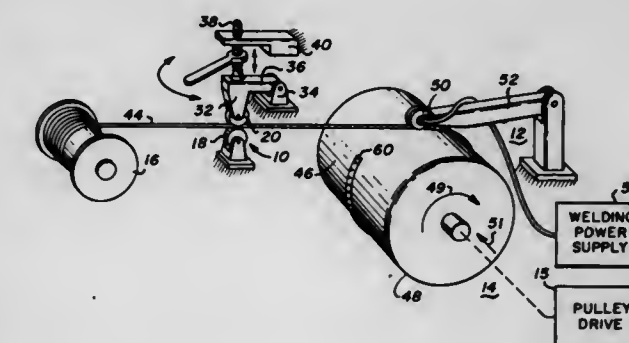
METHOD FOR MAKING SELF-CENTERING PULLEYS

Rene Conrad, San Mateo, Calif., assignor to Dynaloc Corporation, San Mateo, Calif.

Filed Sept. 24, 1973, Ser. No. 400,425
Int. Cl. B21h 1/14; B21k 1/02

U.S. Cl. 29—148.4 D

5 Claims



A method and apparatus for making self-centering pulleys wherein strips of half-round wire are tapered over their lengths so as to have a half-round configuration at one end and a substantially flattened configuration at the opposite end and are then spirally wrapped about a cylindrical drum and affixed thereto by spot welding. The apparatus includes a knurling and wire deforming device for effecting the tapering of the wire strips as the strips are fed onto the cylindrical drum, and a welding device for spot welding the wire strips to the drum surface as they are spirally wound thereabout.

3,831,244

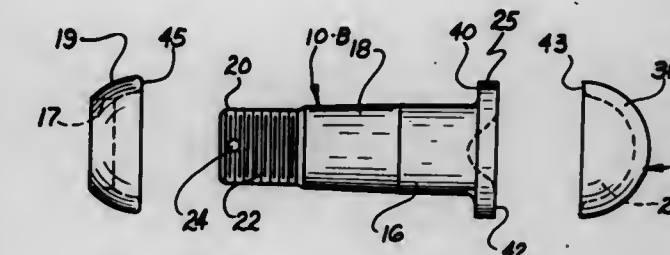
METHOD OF PRODUCING BALL JOINTS

James J. Amos, Delaware, Ohio, assignor to The Columbus Auto Parts Company, Columbus, Ohio

Filed Mar. 1, 1973, Ser. No. 337,154
Int. Cl. B21d 53/10; B23p 11/00

U.S. Cl. 29—149.5 B

4 Claims



A method of producing ball joints of the type that include a ball and stem member pivotally mounted in a housing, the method comprising forming the ball stud or pivoted member by heading a work-piece to provide an enlarged head portion that forms a first section of the spherical bearing surface of the ball stud, and by next forming additional head portions from work-pieces that provide additional sections of the spherical bearing surface of the ball stud. The formed work-pieces are

next welded together at confronting surfaces to provide fused junctions and the junctions and spherical surface is next machined to provide the finished bearing head of spherical contour.

3,831,245

METHOD OF PRODUCING BALL JOINTS

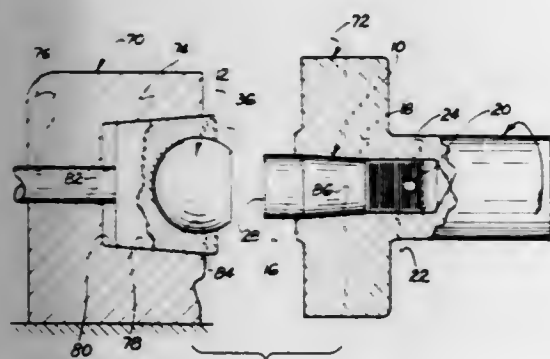
James J. Amos, Delaware, Ohio, assignor to The Columbus Auto Parts Company, Columbus, Ohio

Filed Mar. 1, 1973, Ser. No. 337,187

Int. Cl. B21d 53/10; B23k 27/00

U.S. Cl. 29—149.5 B

6 Claims



A method of producing ball joints of the type that include a ball and stem member pivotally mounted in a housing, the method comprising forming separate stem portions and ball portions and joining the portions at welded junctions with frictionally impored heat to provide pivot members of composite construction. Such pivot members are characterized by relatively large ball diameters as compared to the shank diameters so as to provide a high degree of angularity of movement.

3,831,246

METHOD OF FABRICATING A METAL TUBULAR HEAT EXCHANGER HAVING INTERNAL PASSAGES THEREIN

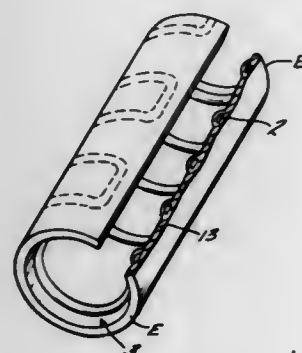
Jack Morris, Fort Lauderdale, Fla., assignor to Olin Corporation, New Haven, Conn.

Filed Mar. 22, 1973, Ser. No. 343,740

Int. Cl. B21d 53/02; B23p 15/26

U.S. Cl. 29—157.3 V

10 Claims



A heat exchanger tube, and a method and apparatus for forming a heat exchanger tube are disclosed. The tube is formed from a metal strip having inflatable passages. The passages are inflated after the tube is formed. In use, one fluid flows through the tube and at least one fluid flows through the wall passages. Another fluid, contacting the exterior of the tube, may be employed.

3,831,247

METHOD OF METALLURGICALLY BONDING AN INTERNALLY FINNED HEAT EXCHANGE STRUCTURE

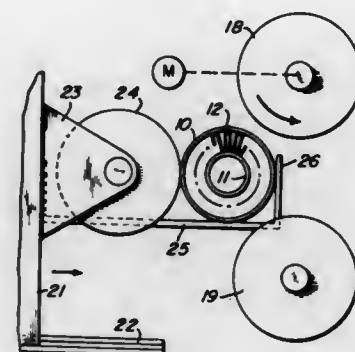
Raymond S. Degroote, Centerville, Ohio, assignor to United Aircraft Products, Inc., Dayton, Ohio

Filed Nov. 22, 1971, Ser. No. 201,003

Int. Cl. B21d 53/02

U.S. Cl. 29—157.3 A

8 Claims



A method of achieving good thermal interchange between a tube wall and a tube installed fin annulus, providing secondary heat transfer surface, wherein fin corrugations are metallurgically bonded to the tube wall by a method inhibiting the bonding material from flowing to and blocking flow paths between the fin corrugations. A new fin material is used which maintains open flow paths through the fin material even when the material in strip form is rolled to a circular or arcuate configuration.

3,831,248

NUCLEAR REACTOR FUEL ROD SPLITTER

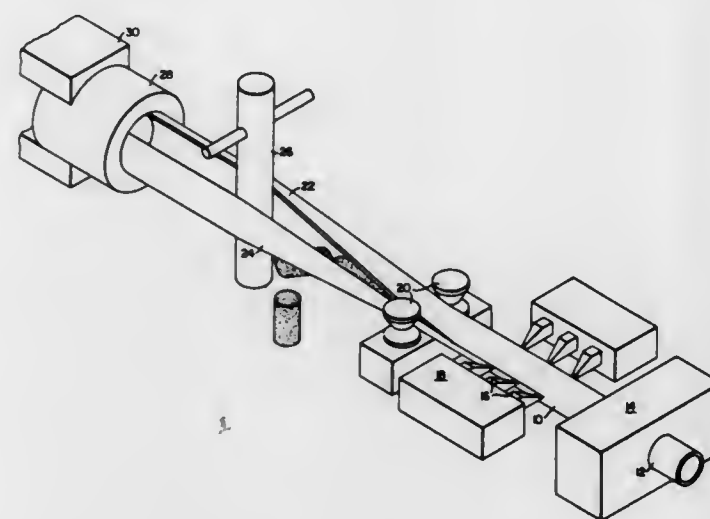
Robert Duncan, and Francis Cellier, both of Columbia, S.C., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 31, 1972, Ser. No. 258,332

Int. Cl. B23p 19/00, 17/00

U.S. Cl. 29—200 D

13 Claims



Apparatus for recovering fuel pellets from a fuel rod by cutting the rod lengthwise into two separate halves to allow fuel pellets therein to drop out of the rod cavity. A fuel rod is positioned in axial alignment with a stationary set of cutters on a table and a winch on the other end of the table pulls the rod through the cutters and in so doing, cuts a groove almost through the opposite sides of the rod. As the machine continues pulling the rod, it is caused to spread open and drop fuel rod pellets into a receptacle for later disposition. The split halves of the fuel rod are then of a size and configuration convenient for efficient handling and disposal.

3,831,249

APPARATUS FOR ASSEMBLING ROLLER BEARING REMOTE CONTROL CABLES

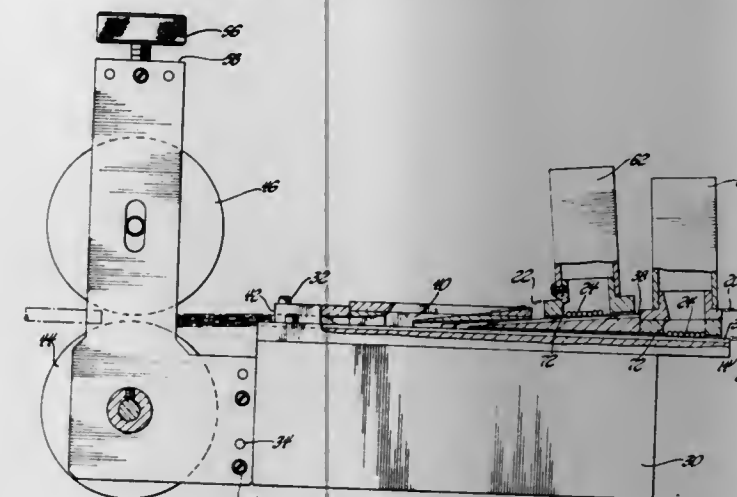
Sheldon E. Perlman, Wyncote, and John C. Ion, Doylestown, both of Pa., assignors to Teleflex Incorporated, North Wales, Pa.

Filed Apr. 5, 1973, Ser. No. 348,411

Int. Cl. B23p 19/04

U.S. Cl. 29—201 R

12 Claims



An apparatus is provided for assembling the components of a roller bearing remote control cable. Three confluent passages of the apparatus are fed, respectively, a first outer bearing race overlaid by a first elongated ball separator strip, a center core overlaid by a second elongated ball separator strip, and a second outer bearing race. First and second gravity feed ball bearing hoppers having converging wall portions provide a line of ball bearings respectively aligned with each of the passages carrying an elongated ball separator strip. As the elongated ball separator strips pass these lines of ball bearings, balls load the elongated ball separator strips. The first outer bearing race, the first elongated ball separator strip loaded with balls, the center core, the second elongated ball separator strip loaded with balls, and the second outer bearing race pass through a common passageway to a pair of wheels which frictionally engage the assembled components for alignment with and insertion into an outer sheath thereby completing the assembly of the roller bearing remote control cable.

3,831,250

METHOD AND APPARATUS FOR ASSEMBLING PRINTED CIRCUIT BOARDS

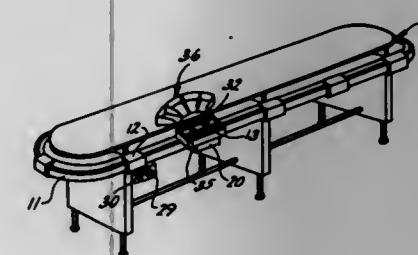
William G. Holaday, Overland Park, Kans., assignor to King Radio Corporation, Olathe, Kans.

Filed June 21, 1971, Ser. No. 154,880

Int. Cl. H05k 13/04

U.S. Cl. 29—203 B

1 Claim



The method of assembling circuit components on printed circuit boards includes the steps of aligning an apertured printed circuit board with a similarly apertured template, color coding the apertures in said template, illuminating said color coded apertures in said template, viewing said illuminated colors through said apertures in said printed circuit board, and

placing said circuit component parts on said printed circuit board in accordance with the color appearing through the apertures in said printed circuit board.

A light station has a high intensity light source attached to the upper portion of an assembly station or dolly with a white Plexiglas panel located on the upper portion thereof. The end portions of the Plexiglas panel are provided with magnetic strips and the entire structure is located interiorly of a frame support. The side wall portions of the frame support are appropriately formed to locate a frame containing a printed circuit board in spaced relation with respect to the Plexiglas panel and to provide for the location of a suitably apertured generally opaque template. The template has matching magnetic strips thereon to facilitate the position of the template with respect to both the printed circuit frame and the Plexiglas panel. Circuitry is provided for the safe energization of the light source when utilized with a programmed line.

3,831,251

MACHINE FOR PRODUCTION OF HIGH VOLTAGE FUSES WITHOUT INSULATING CHAPLET AND WITH MELTING ELEMENTS OF DIFFERENT CROSS SECTION

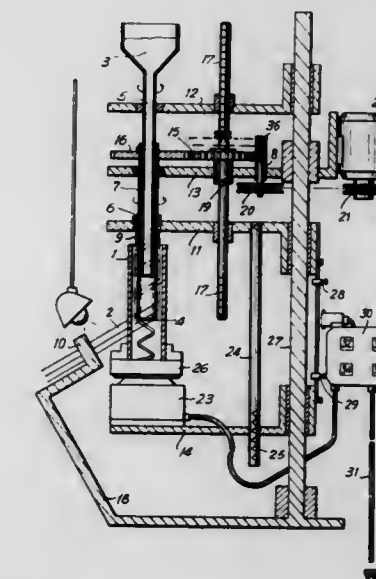
Manolov Aleksandar, Marjana Baruna 47, and Karisik Mustafa, Bratsva i Jedinstva, both of Sarajevo, Yugoslavia

Filed Jan. 29, 1973, Ser. No. 327,850

Int. Cl. H05k 13/00

U.S. Cl. 29—203 R

9 Claims



A machine for production of high voltage fuses without holders for the fuse elements comprising a clamping device for supporting a hollow fuse body below a hopper which is adapted for introducing sand into the fuse body. A platform supports the hopper and is adapted for raising and lowering the hopper so as to introduce and retract the same into and from the fuse body. Melting material which is to form the fuse element is coiled into the fuse body and the fuse body is filled with sand which is compacted therein around the coiled melting material. As a consequence, the melting material is supported within the fuse body in the sand without need for a holder for the fuse element.

3,831,252

ASSEMBLING AND SECURING MACHINE

Charles Frederick Miller, 2165 N. Glassell, Orange, Calif. 92667

Filed Apr. 16, 1973, Ser. No. 351,226

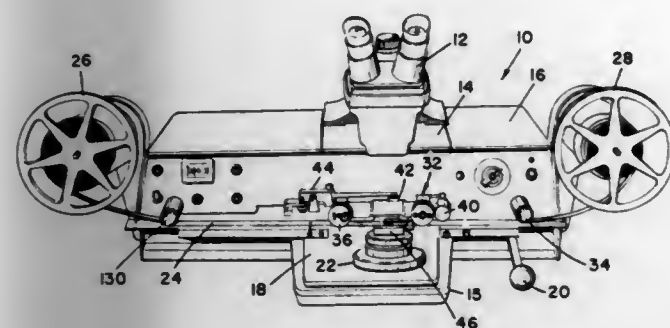
Int. Cl. H05k 13/00

U.S. Cl. 29—203 B

17 Claims

An assembling and securing machine is disclosed which is capable of positioning a tape, such as a strip of film on which circuit runs are imprinted. The tape is positioned relative to a component to be bonded to those circuit runs and to a work

tool by which the bonding is completed. There is a need to align the tool, circuit run, and component to compensate for



manufacturing variations in their positions and dimensions and the instrument is arranged so that compension for those variables are possible and easily accomplished.

3,831,253

APPARATUS FOR MAKING MEMORY STORAGE MATRICES

Jury Alexandrovich Burkin, Tsvetnoi proezd, 29, kv. 24, and Jury Emelyanovich Seleznev, Vesenny proezd 4a, k.v. 16, both of Novosibirsk, U.S.S.R.

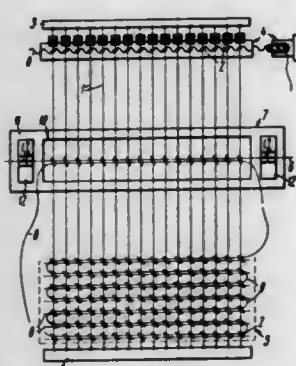
Filed June 15, 1973, Ser. No. 370,468

Claims priority, application U.S.S.R., Apr. 27, 1972, 1776225; June 16, 1972, 1797282

Int. Cl. H05k 13/04

U.S. Cl. 29—203 MM

9 Claims



An apparatus for making memory storage matrices comprises Y coordinate drive wires strung through cores, wire fastening assemblies, a threading member for threading matrices with X coordinate drive wires, a threading mechanism for wiring a digit winding through the matrix cores, which includes a movable positioning mechanism connected with threaded bushings and disposed at an angle to the X wires, and tension devices with clamps, the positioning mechanism being made as a moving roll split into sections with handles having one longitudinal slot and grooves receiving the Y wires, the grooves for the Y wires being in the form of a spiral. The positioning mechanism can also be a vertically movable support positioned at an angle to the X wires and fitted with a means for forcing the Y-wire bundles closer together, comprising two members moving towards each other having teeth secured thereupon. The means for forcing the Y-wire bundles closer together may also be made as tension springs disposed against each Y-wire bundle.

3,831,254 APPARATUS FOR ASSEMBLING INSULATED TERMINALS

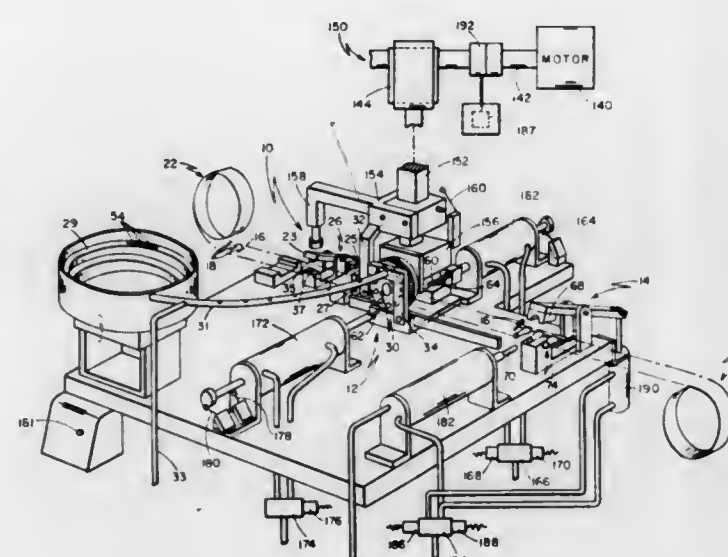
Donald R. Weber, Walpole; Harry Vincent Leaf, Marshfield, and Charles Joseph Daly, Quincy, all of Mass., assignors to Ark-Les Switch Corporation, Watertown, Mass.

Filed June 20, 1973, Ser. No. 371,682

Int. Cl. H01r 43/04; B23p 19/04

U.S. Cl. 29—203 D

8 Claims



Apparatus for assembling sleeve insulators to a succession of terminals comprising a plurality of insulator retaining means, indexing means successively to place each insulator retaining means in first and second operative positions, insulator feed means to place an insulator within an insulator retaining means, and forming means for forming the insulator in the insulator retaining means in the first operative position. Feed means is provided for advancing the succession of terminals to place a terminal adjacent the second operative position insulator retaining means, and support means internally supports the adjacent terminal. The apparatus further includes assembly means for assembling the formed insulator in a second operative position insulator retaining means onto an adjacent terminal responsive to the operation of the forming means and support means; the feed means and indexing means are operative responsive to operation of the assembly means to advance the succession of terminals and to index the insulator retaining means.

3,831,255

APPARATUS AND METHOD FOR FORMING SHAPED INSULATORS

Dallas F. Smith, and Richard B. Arnold, both of Fort Wayne, Ind., assignors to General Electric Company, Fort Wayne, Ind.

Division of Ser. No. 119,618, March 1, 1971, Pat. No. 3,742,596. This application June 25, 1973, Ser. No. 373,129

Int. Cl. H02k 15/00

U.S. Cl. 29—205 E

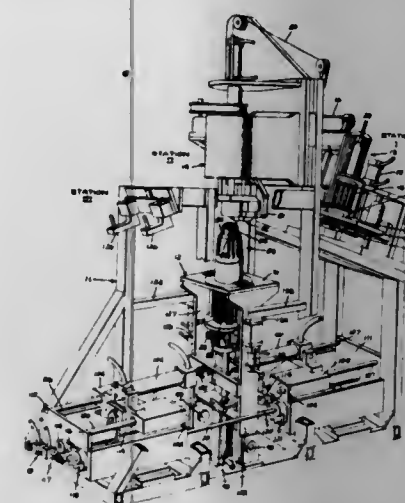
4 Claims

Method and apparatus for forming shaped insulators and for developing coil turns into coil groups and inserting the insulators and coils into preselected slots of a magnetic core. The insulators are automatically formed at an insulator-forming station by an assembly including control mechanism for providing a series of insulators corresponding to predetermined slots of the core. Insulator and coil insertion tooling is movable between the insulator-forming station, to receive formed insulators; the turn-forming station, to receive coil turns; and an insertion station, at which insulators and coil turns are inserted from the insertion tooling into the magnetic core.

The insulator and coil insertion tooling is mounted for pivotal movement about a horizontal axis so that it swings through a generally vertical plane. The insulator-forming sta-

tion, the turn-forming station and the insertion station intersect this plane. The turn-forming assembly and the tooling are aligned during coil turn generation and some previously generated turns are received in the tooling as other turns are generated. Also the tooling is rotatable, relative to the coil turn-forming assembly, so that turns for each electric phase

supported in a suitable fixture and welding guns are supported for movement in a circular path approximating the circumference of a track pin which is to be secured at its ends to respective track links. Additional means initially align the welding guns with the track pins, operation of the welding guns being regulated by suitable control means. The welding



3,831,256

PLASTIC PIPE ASSEMBLY TOOL

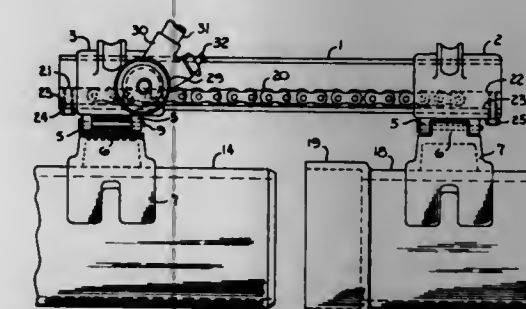
Bengt G. Bjälme, and Thomas G. Brown, both of Erie, Pa., assignors to Reed Manufacturing Company, Erie, Pa.

Filed Apr. 26, 1973, Ser. No. 354,891

Int. Cl. B23p 19/04

U.S. Cl. 29—237

8 Claims



A tool for assembling telescoping sections of plastic pipes or fittings having an axially extending beam over which are telescoped a pair of axially extending brackets, one of which is fixed to the beam and the other of which is slidable on the beam. Pipe engaging shoes are mounted on the brackets by interengaging knuckles and pins and have semicylindrical surfaces clamped to the pipe by link chains. The movable bracket is reciprocated by a rack and pinion drive which in a preferred form consists of a link chain fixed to the beam and a sprocket journaled in the movable bracket and rotated by a ratchet drive.

3,831,257

METHOD AND APPARATUS FOR ASSEMBLING WELDED TRACK HINGE JOINTS

Roger L. Boggs, and Duane L. Burk, both of East Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

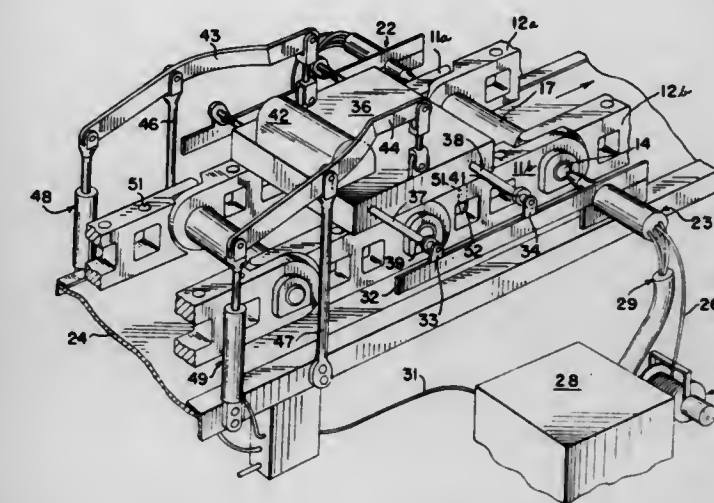
Filed Apr. 11, 1973, Ser. No. 349,922

Int. Cl. B23p 7/00; B211 9/06

U.S. Cl. 29—401

5 Claims

A method and apparatus for rapidly and efficiently welding track hinge joints wherein the assembled track hinge joint is



3,831,258 REINFORCED POROUS METAL STRUCTURE AND MANUFACTURE THEREOF

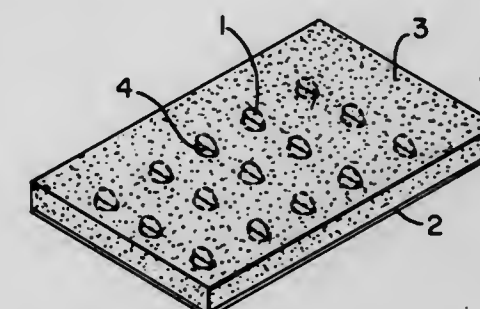
Raymond J. Elbert, Middleburg Heights, and Ernest G. Farrier, Parma, both of Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Filed Dec. 20, 1971, Ser. No. 209,820

Int. Cl. B22f 7/04

U.S. Cl. 29—420

10 Claims



A reinforced porous metal structure, and manufacture thereof, comprising a porous metal material secured to a backing sheet having on at least a portion of its surface projected segments formed from the surface and being imbedded in the porous metal material. The reinforced porous metal structure substantially reduces spalling, tearing, and the delamination of the porous metal material when it is used in such applications as abrasible seals, bearings and bearing retainers, and brake liners.

3,831,259

A METHOD OF PROVIDING A SOLID GALL PREVENTER IN A PIN AND BOX JOINT

Bobbie D. Goulas, Lafayette, La., assignor to BG & F Inc., Lafayette, La.

Filed Apr. 13, 1972, Ser. No. 243,774

Int. Cl. B23p 19/00

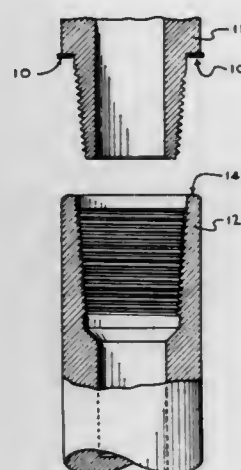
U.S. Cl. 29—428

3 Claims

A solid thin hydrocarbon plastic gasket, preferably of polytetrafluoroethylene ("Teflon"), in the form of a round

thin ring of approximately one-thirty-seconds inch (1/32 inch) thickness and a predetermined diameter acting as a gall preventor for pin and box connections of tool joints primarily used in rotary oil well drilling. The thin ring has an inner and outer diameter (before it is compressed) which coincides ($\pm 1/32$ of an inch) with the outer and exterior diameters of the particular pin joint on which it is used.

Initially the pin and box joint is "broken out" (if not already separated) and the Teflon ring is placed upon the surface of the pin's face. The pin connection is then engaged with the



box connection and screwed together or "made up". As pin and box joint are screwed together the faces of the two connections will compress the thin ring forcing some of the material into the counter bore of the box connection while simultaneously some of the material is forced from the faces to extend on the outside of both connections. A solid, thin, gall preventing film of approximately two-thousandths of an inch (2/1000 inch) thickness remains between the faces, thereby protecting the tool joint faces from the deleterious effects of galling while permitting them to seal properly.

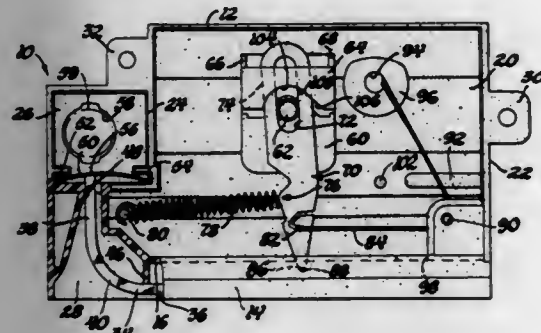
3,831,260 METHOD OF ASSEMBLING SHIFT INDICATOR ARRANGEMENT

Robert E. Gilbert, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 4, 1973, Ser. No. 394,150
Int. Cl. B23p 19/00

U.S. Cl. 29—434

4 Claims



The drawings illustrate a shift indicator arrangement including a housing and means for mounting and operatively retaining an indicator member therein without benefit of any screws or fasteners as have been required heretofore.

3,831,261 MANDREL ASSEMBLY FOR PATTERN DISC PREPARATION MACHINES

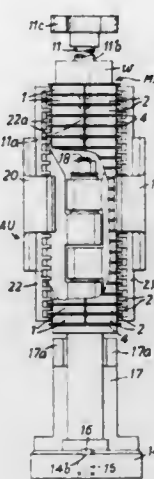
Dennis Gell, Leicester, England, assignor to Stibbe-Monk Developments Limited, Leicester, England

Filed Jan. 22, 1973, Ser. No. 325,746

Int. Cl. B23q 3/00

U.S. Cl. 29—467

16 Claims



An assembly comprising a mandrel having thereon spaced pattern discs and intervening split mandrel spacers each comprising two complementary parts in contact with the mandrel, these discs and spacers being clamped together facially. The assembly is used in a pattern disc preparation machine for breaking teeth of pattern discs of knitting machine pattern units.

The complementary mandrel spacer parts are either separate and unconnected or connected but readily separable for disengagement from the mandrel. The sides of such parts may be recessed to receive pattern unit spacers of smaller diameter.

The invention includes an upright assembling unit to facilitate assembly of disc and spacers on to a mandrel. It also includes a transfer unit for enabling the pattern discs and pattern unit spacers, on a mandrel from which the parts of the split mandrel spacers have previously been released and allowed to fall away, to be slid off the mandrel on to an aligned pattern unit spindle.

3,831,262 METHOD OF BONDING METAL PARTS BY FRICTION

Penelope Jane Vesey Luc, 18, rue Fourcroy, Paris 17e, France

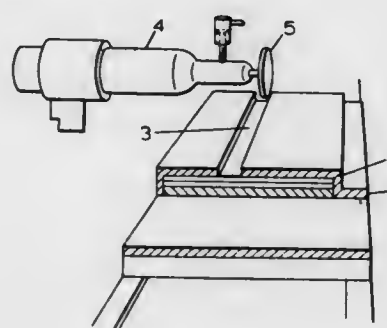
Continuation-in-part of Ser. No. 830,831, June 6, 1969, abandoned. This application Mar. 3, 1972, Ser. No. 231,703

Claims priority, application Great Britain, Mar. 9, 1971, 6344/71

Int. Cl. B23k 21/00

U.S. Cl. 29—470.1

13 Claims



Two or more metal parts are joined by a frictional process in which the parts are held in intimate contact while a rapidly rotating wheel is applied to one of them. The frictional process may produce vibrational energy in a wide band of sonic and

ultrasonic frequencies and an intense, very short, pulse of thermal energy at the interface. Joints may be produced without apparent indications of fusion at the interface.

3,831,263 METHOD OF SOLDERING

Stanley F. Dzerski, Arnold, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Aug. 11, 1972, Ser. No. 279,826

Int. Cl. B23k 31/02, 35/12

U.S. Cl. 29—503

9 Claims

An improved method of soldering aluminum members employs a solder consisting essentially of zinc, aluminum, and beryllium. The method uses dip or immersion soldering techniques, especially those involving ultrasonically energized baths.

3,831,264 METHOD OF CONNECTING SUBSTANTIAL SIMILAR METAL PARTS

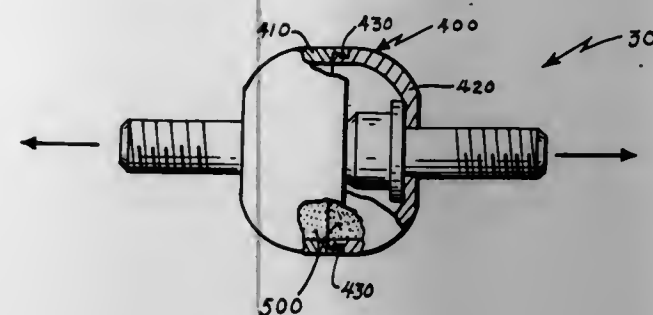
Olney B. Terrell, Richmond, Ind., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 22, 1973, Ser. No. 334,793

Int. Cl. B21d 39/00

U.S. Cl. 29—517

2 Claims



Two substantially similar metal parts are connected by forming a male configuration at the end of the first metal part forming a complementary female configuration at the end of the second substantially similar metal part; flaring the female configured end of the first part to accept the male configured end of the second part; positioning the two parts so that they are axially aligned; inserting the male configured end of the first part into the female configured end of the second part, while maintaining axial alignment of the parts, whereby the two configured ends are releasably engaged; and, squeezing the flared female end, whereby the two configured ends are mated. As a result, a positive, permanent, and interlocking joint is formed, and the two substantially similar metal parts are permanently and reliably connected inexpensively, simply, and quickly. This method is exceptionally well-suited for use during the manufacture of a spherical bomblet, which comprises two similar metal hemispheres which are filled with explosive, in connecting the respective free and open end of each of the two similar and explosive-filled metal hemispheres, and thereby preventing the pinching, and the subsequent inadvertent and unintended detonating, of the explosive.

3,831,265 METHOD OF PACKAGING AN ELECTRICAL DEVICE

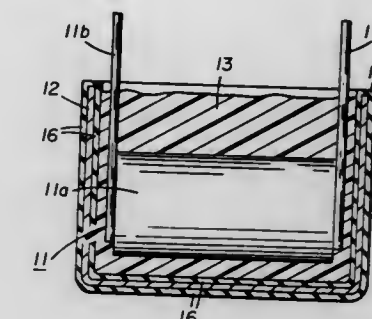
Theodore J. Louzon, Bolingbrook, Ill.; William McMahon, Summit, N.J., and John J. Mellon, Westchester, Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J., by said McMahon and Western Electric Company, Incorporated, New York, N.Y., by said Louzon and Mellon

Filed Jan. 23, 1973, Ser. No. 325,987

Int. Cl. H01g 1/02, 13/00

U.S. Cl. 29—592

7 Claims



An electrical device having a pair of projecting leads, such as a capacitor, is packaged in an aluminum container by first chemically etching the inner and outer surfaces of the container and then chemically oxidizing the surfaces with an ammonium hydroxide solution to form a film layer of various aluminum compounds thereon. The container then is heat treated to break down and convert a substantial portion of the formed aluminum compounds to aluminum oxide (Al₂O₃), and to further oxidize the surfaces of the container, with the ammonia being driven off in the form of a gas so as to leave no contaminating residue, thus producing a dielectric film layer comprised primarily of aluminum oxide (Al₂O₃) and having a substantially increased d.c. voltage breakdown strength in comparison to the d.c. voltage breakdown strength of the initially formed layer. The electrical device then is placed in the container with its leads projecting therefrom, and a dielectric potting material is introduced into the container to form a substantially fluid-impervious bond with the inner aluminum oxide surfaces. In the alternative, the container may be subjected to additional oxidizing by an ammonium hydroxide solution and heat-dried, to further increase the d.c. voltage breakdown strength of the dielectric film layer, prior to encapsulating the electrical device in the container.

3,831,266 METHOD FOR MAKING AN INFORMATION STORAGE DEVICE HAVING PHOTOCHROMIC AREAS OF 3,5 DICHLOROSALICYLIDENE 2,4,6 TRICHLOROANILINE

Maurine M. Schiffmann, Minneapolis, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

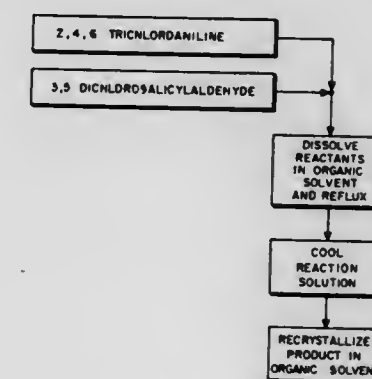
Continuation of Ser. No. 884,650, Dec. 12, 1969, abandoned.

This application Apr. 27, 1972, Ser. No. 248,171

Int. Cl. H01s 4/00

U.S. Cl. 29—592

2 Claims



A method for preparing a highly photochromic anil of 3,5 dichlorosalicylidene 2,4,6 trichloroaniline which comprises

preparing a reactant mixture of 2,4,6 trichloroaniline and 3,5 dichlorosalicylaldehyde, heating the reactants, preferably while in a solvent solution of amyl alcohol, to a temperature in the range of between about 135°-145°C. and maintaining this temperature until the reaction forming 3,5 dichlorosalicylidene 2,4,6 trichloroaniline is substantially complete, and thereafter isolating the reaction product from the reactant mass by recrystallization techniques.

3,831,267

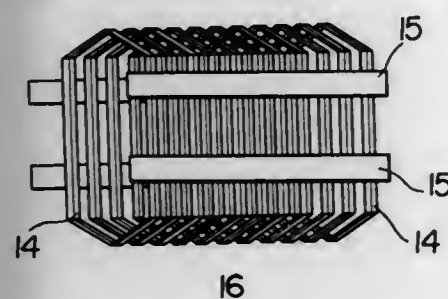
METHOD OF MANUFACTURING A SLEEVE ARMATURE
Kazuo Onishi, Seizi Yamashita, and Mikio Sato, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 9, 1973, Ser. No. 339,918

Claims priority, application Japan, Mar. 10, 1972, 47-24020

Int. Cl. H02k 15/02

U.S. Cl. 29—598

4 Claims



A sleeve armature and a method of manufacturing the same in which a number of component coils composing the winding are uniformly mounted flatly and in a partly superimposed manner on the circumference of an inner mold, and after the coils are impregnated with a thermosetting resin, the coils mounted on the inner mold are enclosed with a thermocontracting coating, and then the structure is heated. The thermocontracting coating contracts and applies a uniform pressing force to the coils and the thermosetting resin, and at the same time the thermosetting resin is set.

3,831,268

METHOD OF MAKING AN ELECTRIC MOTOR ARMATURE CORE

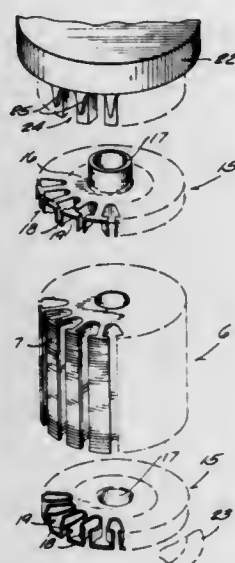
Edward A. Boyd, Sussex, and Joseph R. Harkness, Germantown, both of Wis., assignors to Briggs Stratton Corporation, Wauwatosa, Wis.

Filed Dec. 3, 1973, Ser. No. 420,940

Int. Cl. H02k 15/02

U.S. Cl. 29—598

10 Claims



An armature core assembly in which the heads of the circumferentially spaced T-shaped teeth that form the peripheral portion of the laminated coil-receiving core have their opposite

end portions taperingly deformed to widen the entrances to the reentrant coil receiving spaces or slots between the T-shaped teeth at opposite ends of the core. A preformed plastic shield or cap of the same size and shape as the laminations which comprise the core, completely covers each end of the core and has protective flanges that embrace the ends of its T-shaped teeth, including the head, the taperingly reduced width of the end portions of the head providing space for those portions of the protective flanges that embrace the heads, so that the presence of these protective flanges does not objectionably reduce the width of the entrances to the wire receiving slots.

3,831,269

METHOD OF MAKING THIN FILM THERMISTOR
Alfred Sommer, Teaneck, N.J., assignor to Ceramic Magnetics Inc., Fairfield, N.J.

Filed Aug. 2, 1973, Ser. No. 384,949

Int. Cl. H01c 7/04

U.S. Cl. 29—612

10 Claims

A method of manufacturing a thin film thermistor in which the reagent grade materials are dissolved in water and allowed to intimately mix therein after which the mixture is spray-dried under pressure to obtain a fine powder which is the true thermistor composition desired. After oxidation at high temperatures for a long period of time to remove sulphites etc., the resulting oxides are mixed in a bone milling process with a plastic binder which is then poured on to a glass plate and spread to a predetermined thickness and allowed to dry, after which the material is placed on a ceramic plate and fired to bond the plastic and ceramic and burn out portions of the plastic whereupon electrodes are attached to the final thermistor.

3,831,270

ELECTRICAL CONDUCTING MEANS AND METHOD OF MAKING SAME

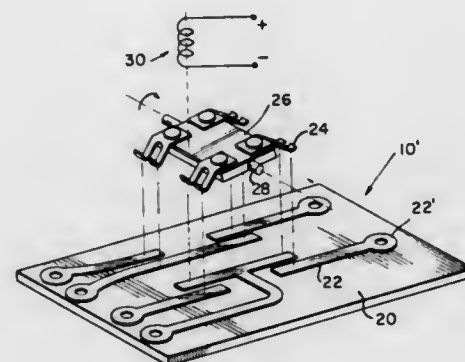
Robert F. Huddleston, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Continuation of Ser. No. 76,261, Sept. 28, 1970, abandoned, which is a division of Ser. No. 830,248, June 4, 1969, abandoned. This application Aug. 21, 1972, Ser. No. 282,258

Int. Cl. H05k 3/02, 3/10

U.S. Cl. 29—625

14 Claims



Electrical conducting paths of a rolled metallic composite, which includes an electrically conductive material and a refractory metal, are formed on an insulative base in a predetermined pattern to provide a printed circuit board.

3,831,271

BATTERY TERMINAL

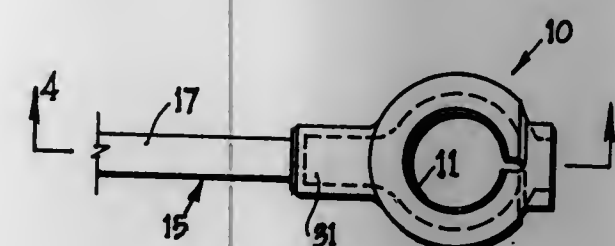
Richard John Pedler, Camden Park, Australia, assignor to Camelec Limited, Camden Park, South Australia, Australia
Filed Oct. 5, 1972, Ser. No. 295,171

Claims priority, application Australia, Oct. 14, 1971, 6635/71

Int. Cl. H02g 15/00

U.S. Cl. 29—628

3 Claims U.S. Cl. 30—43.92



A battery terminal connector for connecting to a battery of the type having a frusto conical battery terminal post, the connector having a part circular bifurcate ring with a resin based plastics outer casing which is also of bifurcate shape but has overlapping lugs the ends of which, when moved towards one another, spread the arms of the connector, the casing comprising resilient means for retaining the connector to the battery terminal post.

3,831,272

METHOD OF MAKING SELECTIVE SWITCH CONTACTS

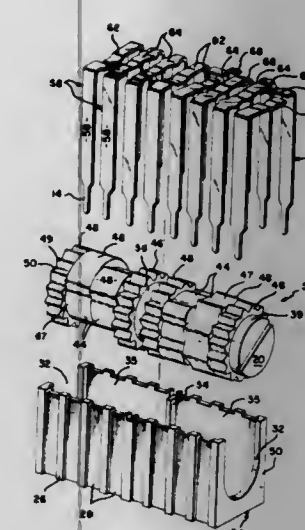
Harold Lawrence Purdy, Hummelstown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 306,113, Nov. 13, 1972, Pat. No. 3,792,206. This application Sept. 18, 1973, Ser. No. 398,505

Int. Cl. H01r 9/00

U.S. Cl. 29—630 R

4 Claims



This invention relates to a switch having four parts including the housing. More particularly the invention relates to a frame which has 16 positions which can be binary coded. The sixteen positions consist of four single pole-double throw contacts all of which are made by stamping and forming a single sheet of metal. The movable contacts are switched from one fixed contact to another by lobes on a rotatable camshaft.

3,831,273

ELECTRIC SHAVERS

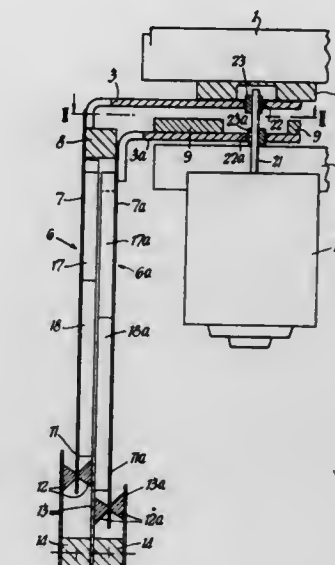
Roger Paul Wellinger, Neuchatel, Switzerland, assignor to The Gillette Company, Boston, Mass.

Filed July 20, 1972, Ser. No. 273,478

Claims priority, application Great Britain, July 27, 1971, 35176/71

Int. Cl. B26b 19/02

7 Claims



A dry shaver comprising a cutter guided for reciprocating movement along a substantially linear path by means of at least two resilient members extending generally perpendicular to said path, each resilient member comprising a stem and at least two legs projecting from one end of the stem in continuation thereof, the free end of at least one leg being secured to the cutter and the free end of at least one other leg being secured to a fixed part of the shaver, and the free end of the stem being restrained against vibration in the direction parallel to the path of reciprocation of the cutter.

3,831,274

JACKET STRIPPER

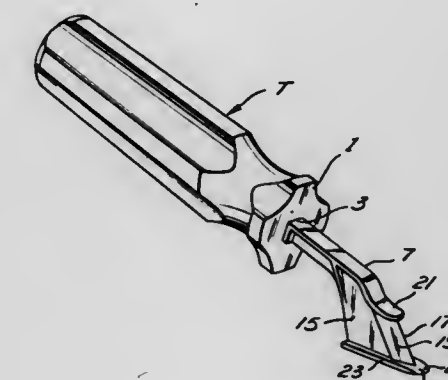
Raymond G. Horrocks, Parkview, Ohio, assignor to The Scott & Fetzer Company, Cleveland, Ohio

Filed Dec. 28, 1973, Ser. No. 429,049

Int. Cl. B21f 13/00

U.S. Cl. 30—90.4

1 Claim



A tool for use in stripping an insulating jacket from an electrically conductive cable includes a plastic handle and a cast high speed steel stripper. The stripper includes a shank embedded in the handle, a blade having a cutting edge, a foot and a guard.

3,831,275

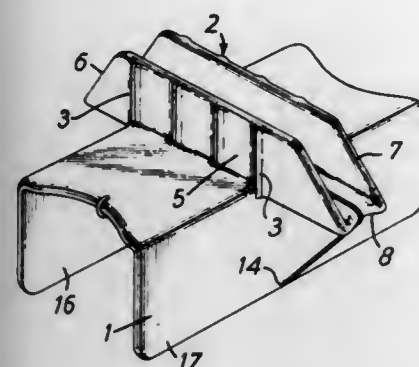
CUTTER FOR CUTTING MITRED EDGES

Rene Jordache, 42 Laurier Rd., London, England
Filed Dec. 29, 1972, Ser. No. 319,874

Claims priority, application Great Britain, June 1, 1972,
25641/72

Int. Cl. A21c 5/00

U.S. Cl. 30—116



A cutter for cutting mitred edges on clay tile. The cutter has a flange for guiding it along the edge. The cutting of the mitre is effected by a taut wire extending between the flange and a bridge mounted at right angles to the guide.

3,831,276

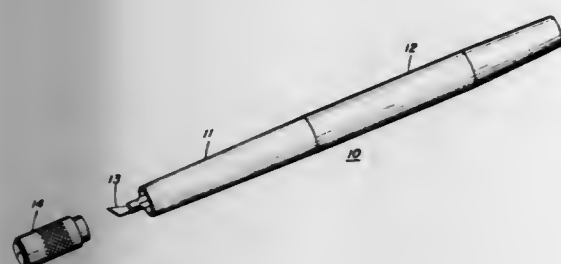
CONVERTIBLE SWIVEL KNIFE WHICH ILLUMINATES WORK AREA

William S. Dalton, Box 27, Chesterfield, Md. 01012, and Franklin G. Umholtz, Locks Pond Rd., Shutesbury, Mass. 01072
Filed July 31, 1973, Ser. No. 384,191

Int. Cl. B26b 1/04

U.S. Cl. 30—123 R

7 Claims



A convertible swivel knife which includes first and second sub-assemblies. The first sub-assembly comprises a first tubular housing having front and rear ends. A light-transmissive tube is rigidly fitted within the first housing, the tube having exposed edges at both the front and rear ends of the first housing. An elongated generally cylindrical stem is mounted within the tube, the stem being normally rotatable with respect to the tube. The stem has a blade-holding end which protrudes from the front end of the first housing. An adjustable means is provided for rigidly coupling the stem to the inner surface of the tube. The second tubular housing has front and rear ends, the front end of the second housing being removably mounted to the rear end of the first housing. Light generating means are mounted within the second housing and oriented to project light through the front end of the second housing. In operation, the generated light is transmitted by the light tube to the front end of the first housing to illuminate the areas surrounding the blade-holding end of the stem. Using the adjustable means, the craftsman can lock the stem so that it does not swivel with respect to the housing during applications where a rigid blade is desirable.

3,831,277

COMBINATION SCISSORS FOR BOTH HAIR-CUTTING AND HAIR-THINNING

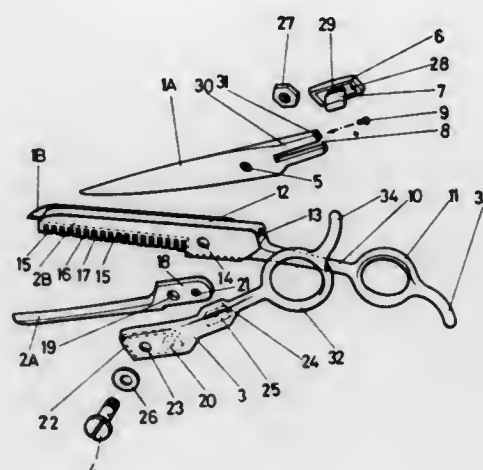
Masamichi Nagata, Seki City, Japan, assignor to Kabushiki Kaisha Hasegawa Hamono Seisakusho, Seki City, Gifu Prefecture, Japan

Filed July 23, 1973, Ser. No. 381,564

Claims priority, application Japan, Aug. 11, 1972, 47-94983
Int. Cl. B26b 19/22

U.S. Cl. 30—195

3 Claims



The present invention relates to a pair of scissors which has a combined use wherein it could perform an operation for both cutting and thinning of hair. One handle operates and is fixed to a thinning blade and is releasably secured by a shifting piece to another cutting blade. Thus the scissors is capable of cutting or thinning or cutting and thinning simultaneously.

3,831,278

GRASS TRIMMER

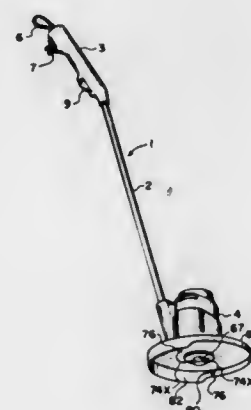
Harry M. Voglesonger, Riverton, Conn., assignor to Dynamics Corporation of America, New York, N.Y.

Filed Aug. 3, 1972, Ser. No. 277,658

Int. Cl. B26b 27/00

U.S. Cl. 30—276

10 Claims



A pair of stress oriented radially disposed plastic filaments or strands rotated at high speed is employed as the cutting or slicing elements for a manually manipulated grass trimmer including a motor drive, a shroud plate and supporting handle. A convenient form of cutter having an integral hub with diametrically oriented radial strands extending therefrom is disclosed. In one embodiment the molded strands are stress oriented by stretching longitudinally to the extent of their elasticity to increase their strength and reduce the diameter.

3,831,279

STRAP CUTTER FOR LEATHER AND LIKE MATERIAL

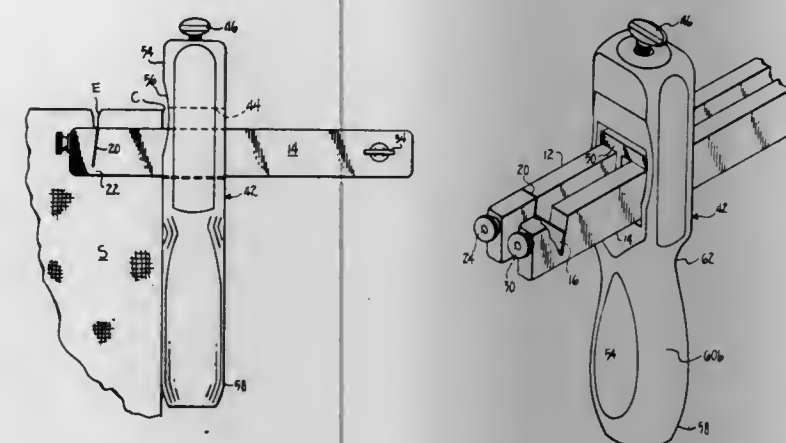
Brian N. Burns, 1263 Stanford Ave., Palo Alto, Calif. 94306

Filed June 8, 1973, Ser. No. 368,322

Int. Cl. B26b 3/03

U.S. Cl. 30—280

13 Claims



A tool for cutting a strap from the edge margin of a piece of leather or like material. Two rigid bars that are supported in spaced apart relation by a cutting blade at one end and an adjustable spacer at the other end. Blade clamps on each bar support both ends of the blade. A handle having an opening in which the bars are clamped and a guide surface to engage the edge of the leather sheet. The handle has a releasable clamp to permit adjustment of the distance between the blade and the guide surface. The opening in the handle is sufficiently large that angular adjustment of the blade relative to the guide surface is possible.

3,831,280

STRAPPING SEVERING TOOL

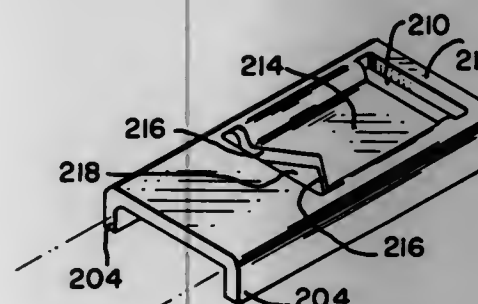
Jack Brothers, 806 Tuxedo Dr., Wright, Fla. 32548, and Walter J. Fuzia, 3 Richard Dr., West, Mount Arlington, N.J. 07856

Division of Ser. No. 256,155, May 23, 1972, Pat. No. 3,791,031, which is a continuation-in-part of Ser. No. 124,822, March 16, 1971, abandoned. This application Nov. 26, 1973, Ser. No. 418,828

Int. Cl. B26b 11/00

U.S. Cl. 30—296 R

10 Claims



A simple longitudinally extending body defines the tool, the body having enveloping surfaces for engaging strapping banding and to accommodate the travel of the tool with a strapping banded item. One or more of the surfaces defines a severing edge for severing the banding, i.e., the strapping, upon the terminal-end handle of the tool being raised or moved transverse to the strapping. In some embodiments, the tool further defines means for clamping and securing juxtaposed terminal ends of strapping, that the strapping might be secured about the item — shipping crate, or whatever.

3,831,281

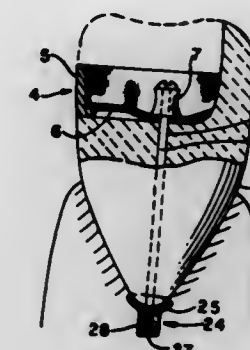
METHOD AND APPARATUS FOR TOOTH RESTORATION

Alfred E. Edelman, 2723 Federal St., Camden, N.J. 08105
Division of Ser. No. 116,038, Feb. 17, 1971. This application Oct. 26, 1972, Ser. No. 301,135

Int. Cl. A61c 13/00

U.S. Cl. 32—2

3 Claims



A stabilizing device for a loose tooth and a restoration for a tooth having a cavity left in the tooth by the breaking away of a relatively large portion of the tooth from the incisal and side wall surfaces thereof comprising a side wall forming plate inset in the cavity adjacent the base thereof and conforming to the normal side wall contour of the tooth portion that has broken away, a reinforcing mesh secured to the bottom of the side wall forming plate and extending inwardly forming a lining over at least a portion of the cavity, a load distributing anchor extending through the mesh and fastened to the tooth, and a dental filling of hardened plastic material filling the remainder of said cavity and shaped to conform to the normal contour of the natural tooth portion which it occupies.

3,831,282

TUBULAR KEY DECODER

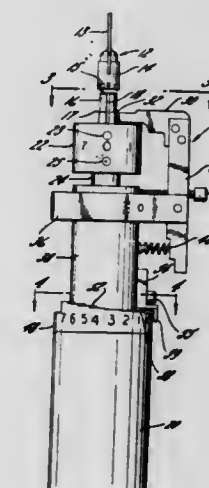
Morris Falk, Palm Springs, Calif., assignor to Fort Lock Corporation, Chicago, Ill.

Filed Jan. 22, 1973, Ser. No. 325,239

Int. Cl. G01b 3/28

U.S. Cl. 33—169 B

12 Claims



Apparatus for determining and decoding the length of axially directed cuts about the periphery of tubular keys for axial pin tumbler locks wherein the key to be decoded is held on a rotatable spindle which may be moved to the corresponding positions of the key cuts and an axially shiftable radially directed probe is set at the upper end of the cut to be determined. A handle portion is rotated relative to the probe and key with cooperating incrementally spaced abutments and a stop providing both a visual and positive indication of the axial length of cut being measured.

3,831,283

PRECISION MEASURING APPARATUS WITH GUIDES IN PNEUMOSTATIC BEARINGS

Ello Pagella, and Carlo Guerri, both of Ivrea, Italy, assignors to Ing. C. Olivetti & Co., S.p.A., Ivrea (Torino), Italy

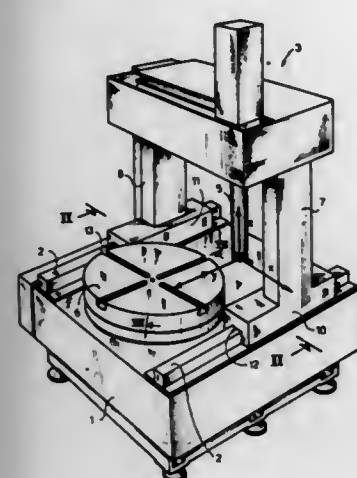
Filed July 7, 1972, Ser. No. 269,908

Claims priority, application Italy, July 9, 1971, 69339/71

Int. Cl. G01b 5/00

U.S. Cl. 33—174 R

10 Claims



A measuring apparatus comprises a portal formed by uprights spanned by a cross-piece and slidable on guides of a base by means of pneumostatically supported bearings, a slide carrying a feeler and slidable on guides of the cross-piece by means of pneumostatically supported bearings, at least one pressure regulator arranged to regulate the pressure of the air passing through it to one or more bearings and co-operating with a cam to produce a relative movement of the regulator with respect to the cam during the shifting of the slide or the uprights with respect to the cross-piece or the base.

The feeler is carried by an arm slidable in the slide, substantially in the form of an isosceles trapezoid, pneumostatically supported bearings being arranged between the slide and the larger face and between the slide and the inclined faces of the arm.

3,831,284

METHOD AND ARRANGEMENT FOR STRIPPING TEXT AND ILLUSTRATION FOILS

Hartvig Soe, Alvsjö, Sweden, assignor to Misomex Aktiebolag, Hagersten, Sweden

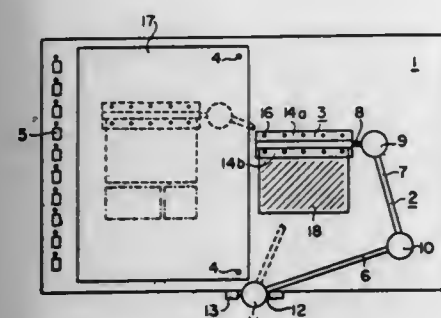
Filed Oct. 8, 1970, Ser. No. 79,175

Claims priority, application Sweden, Oct. 24, 1969, 14612/69

Int. Cl. B41b 1/00

U.S. Cl. 33—184.5

7 Claims



An apparatus is provided for mounting text or illustration film foils, and, in particular, part-color film foils of color separated color pictures, onto a number of strip foils so that various part-color film foils of the same picture accurately register with one another. The apparatus includes a mounting table on which the strip foil is precisely positioned and mounting arm for mounting a film foil to be attached to the strip foil

in a desired position thereon. The mounting arm is universally movable in a horizontal plane, lockable in a position in that plane, and pivotable with respect to the table, such that a further film foil can be mounted in precisely the same position on the strip foil as the previous film foil.

3,831,285

LENS COVER AND OPERATING BUTTON ASSEMBLY

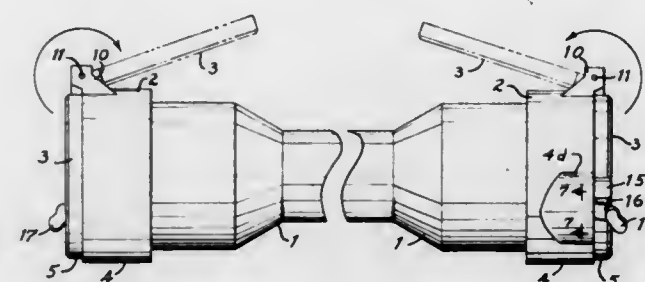
Ellin D. Vissing, Idaho Falls, Idaho, assignor to Butler Creek Company, Jackson, Wyo.

Filed Feb. 23, 1973, Ser. No. 335,242

Int. Cl. G02b 23/16; F41g 11/00

U.S. Cl. 33—244

2 Claims



A lens cover for the lens of a telescope embodies a collar of polyethylene having a high degree of flexibility which is mounted over the end of the telescope. The collar has a melting point of about 300° F. The collar has ears integral therewith and a pivot pin on which a stiff lid is pivoted. The collar has an interior annular shoulder, an exterior shoulder, and a shallow annular extension beyond the exterior shoulder over which the lid snaps, the extension and shoulder having a cooperating rib and groove to hold the lid closed. The collar has a thickened portion spaced circumferentially of the collar from the ears. An operating button and lever unit of another synthetic resin product (DuPont Zytel 101) having a melting point of 700° F is coated with a mold release material and molded in the thickened portion of the collar and has an extension projecting above the exterior shoulder for operating the lever. The material of the enlargement fills into a central aperture of the lever to provide a pivot for it.

3,831,286

NAVIGATIONAL APPARATUS

David Eustace Conibear, Crowthorne, and Maurice Vernon Halls, Wokingham, both of England, assignors to Sperry Rand Limited, London, England

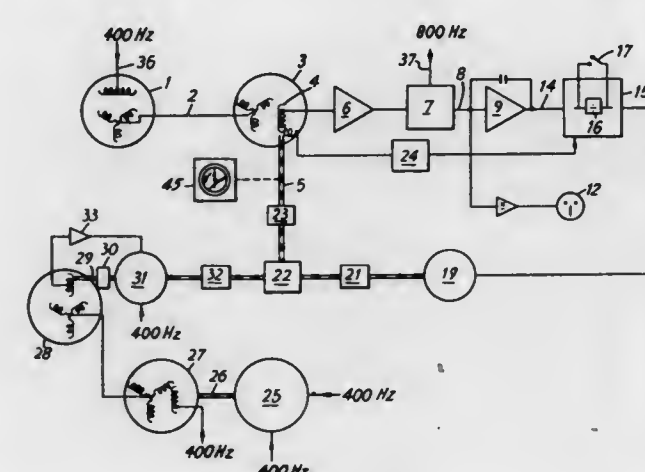
Filed June 11, 1973, Ser. No. 368,894

Claims priority, application Great Britain, June 15, 1972, 28166/72

Int. Cl. G08g 5/00

U.S. Cl. 33—317 R

11 Claims



The invention provides navigational apparatus in which the power supply for a detector measuring the magnetic heading

3,831,288

DRYING AND STERILISING APPARATUS

John Brian Stribling, Sutton Coldfield, and Robert Arthur Booth, Stone, both of England, assignors to Lucas Furnace Development Limited, Wednesbury, Stafford, England

Filed Nov. 23, 1971, Ser. No. 201,377

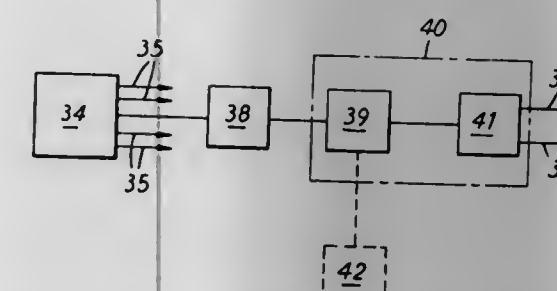
Claims priority, application Great Britain, Nov. 24, 1970, 55708/70; Jan. 2, 1971, 190/71

Int. Cl. F26b 3/34

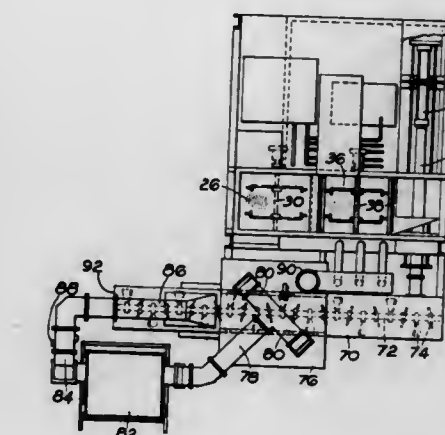
U.S. Cl. 34—1

5 Claims

of the vehicle to which the apparatus is fitted, is effectively isolated from the power supply for other components of the apparatus and is stabilised with the result that the overall accuracy of the apparatus is improved considerably even though the power supply for said other components may be relatively unstable. A preferred arrangement comprises gyroscopic means operable to detect changes in heading of the vehicle and produce an electrical output signal in accordance therewith, drive means operable to drive a shaft of a heading indicator in response to the output signal from the gyroscopic means, a detector operable to measure the magnetic heading of the vehicle and to produce an A.C. output signal in ac-



cordance therewith, a demodulator operable to produce a D.C. output signal from the A.C. output signal of the detector, logic circuitry to produce a pulsed output signal in response to the D.C. output signal from the demodulator, and a stepper motor to which is applied the pulsed output signal from the logic circuitry and which drives the shaft of the heading indicator to compensate the latter for changes in the magnetic heading of the vehicle, electrical power for the detector and the demodulator being derived from a first stabilized A.C. supply which is effectively voltage and frequency independent of a second A.C. supply for at least the gyroscopic device and the drive means.



The invention is concerned with processing chicken etc. excreta to make cattle food or fertiliser. The excreta is mixed with water to produce a slurry and even out variations in the material utilised, and the slurry is thickened to a sludge and then to a solid, which is fragmented and passed through a micro-wave radiation dryer and steriliser: the liquid expressed in thickening is recycled, and steam evolved in sterilising is likewise recycled.

3,831,287

APPARATUS WITH ADJUSTABLE PERIOD FOR MEASURING SMALL DEVIATIONS FROM A TRUE HORIZONTAL PLANE

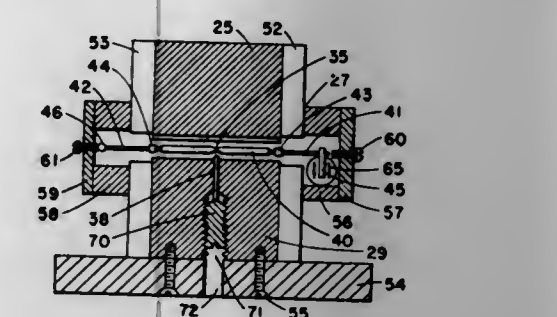
Richard M. Sawdo, Stow, and Ivan Simon, Belmont, both of Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed Feb. 26, 1973, Ser. No. 335,557

Int. Cl. G01c 9/00

U.S. Cl. 33—344

8 Claims



An apparatus adapted continuously to measure and record small deviations from a true horizontal plane such as those deviations which may occur continuously or recurrently as a result of ground motion and the like. The apparatus comprises a diamagnetic body suspended in a magnetic field of a configuration which constrains the body radially but permits it to move axially within certain limits. The amount of axial movement is used as a measure of horizontal deviation. The suspension is frictionless, and the apparatus may be made to be relatively rugged and stable over extended periods of time. Adjustable magnetic force restoring means are provided to change and control the natural period of the instrument to optimize its performance over a wide range of applied force.

925 O.G.—43

3,831,289

INK DRYING REFLECTOR SYSTEM

Ronald Edward Knight, Maidenhead, England, assignor to Hanovia Lamps Limited, Buckinghamshire, England

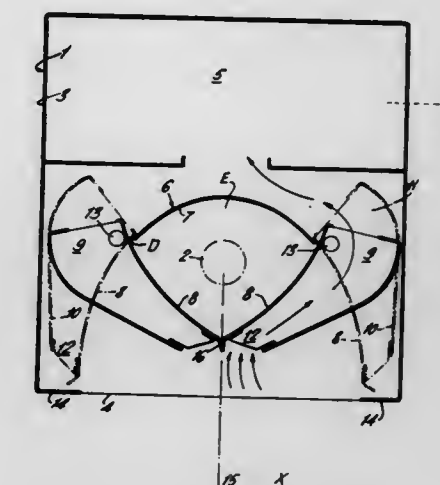
Filed July 17, 1972, Ser. No. 272,644

Claims priority, application Great Britain, July 16, 1971, 33500/71

Int. Cl. F26b 3/28

U.S. Cl. 34—4

10 Claims



The invention relates to a radiator in which there is an elliptical reflector, part of which is formed by two spaced apart plates forming ducting, the ducting being pivotable from a first, open, position to a second position in which the radiation from the radiator is cut-off, cooling fluid being drawn through the ducting to cool the reflector.

3,831,290

METHOD AND APPARATUS FOR PROCESSING HIGH NITRILE POLYMERS

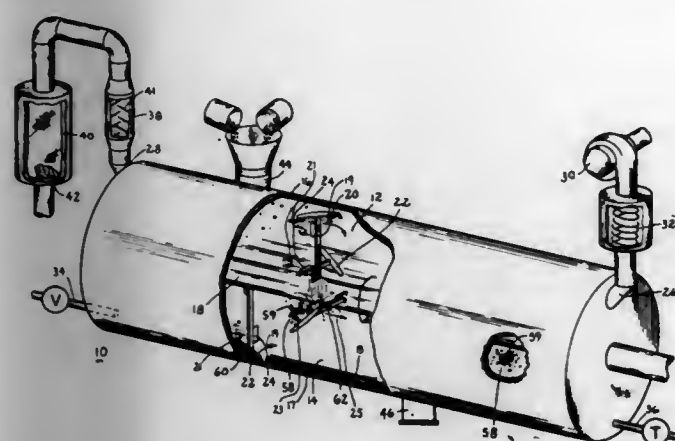
I. Luis Gomez, Longmeadow, Mass., and Samuel Steingiser, Bloomfield, Conn., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 11, 1971, Ser. No. 197,766

Int. Cl. F26b 7/00

U.S. Cl. 34-12

8 Claims



A method of preparing a high nitrile molding resin for conversion into articles for packaging environmentally sensitive materials which involves mixing a moisture-containing batch of such resin having a relatively broad particle size distribution range within a stationary, heated processing chamber without mastication and without subjecting the particles to any substantial back pressure, the major constituent of such resin being a polymerized monomer selected from the group consisting of acrylonitrile, methacrylonitrile and mixtures thereof, and forcing low pressure gas through the chamber while the mixing continues, to purge the vaporized moisture and entrain a fines portion of the particles out of the chamber. In a preferred form of mixing, continuously rotating plows force portions of the particles upwardly along and in contact with the heated chamber surface in a converging mixing pattern while other portions are diverted out of such a pattern by means of plates rotating with the plows so as to increase the exposed surface area of individual particles.

3,831,291

METHOD AND APPARATUS FOR TREATMENT OF PARTICULATE MATERIAL

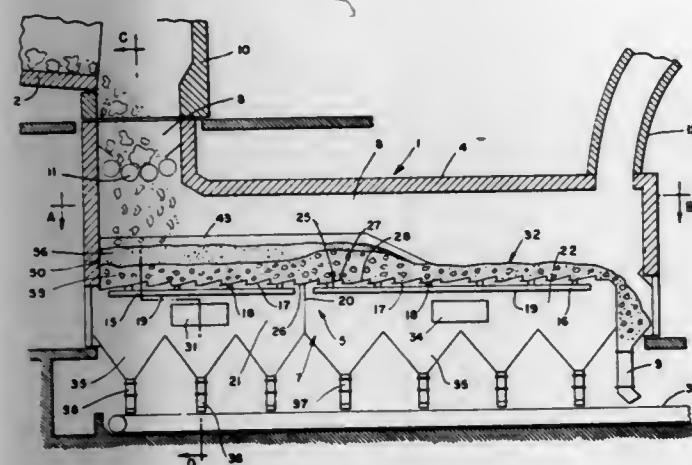
Karl-Heinz Kayatz, Hamburg-Niestedten, Germany, assignor to Fuller Company, Catasauqua, Pa.

Continuation-in-part of Ser. No. 281,088, Aug. 16, 1972, abandoned. This application Nov. 3, 1972, Ser. No. 303,669

Int. Cl. F26b 7/00

U.S. Cl. 34-20

5 Claims



A method and apparatus for heat treating particulate materials such as the cooling of cement clinker discharged

from a rotary kiln. The cooler includes a hot material inlet and a cool material outlet with a reciprocating grate conveyor for supporting a bed of material within the cooler and transporting the material from the inlet to the outlet. A plenum chamber is defined below the conveyor and air is supplied to the chamber for passage through the conveyor and bed of material to cool the material. The cooler includes a first, narrow section which establishes a deep bed of material. High pressure air is passed through this deep bed of material so that a lower layer of coarse material and an upper layer of fine material is established. The first section is followed by a transition section through which no air is passed. The transition section is followed by a second, wider section through which low pressure air is passed. In the second section, a shallow bed of material is established.

3,831,292

CONDENSER APPARATUS

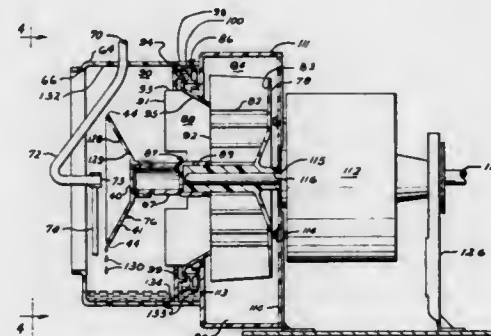
Laddie A. DePas, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 31, 1973, Ser. No. 411,363

Int. Cl. F26b 21/06

U.S. Cl. 34-75

8 Claims



Condenser apparatus for removing moisture from the air including a housing for the condenser apparatus, which housing has both a cooling liquid inlet and an air inlet at one end. Within the housing is a rotatable disc spaced inwardly from the liquid inlet so that when the disc is rotated and liquid is impinged upon the disc a cooling liquid droplet cloud is produced. At the opposite end of the condenser housing from the inlet is an air outlet and a concentrically positioned rotatable blower. Located between the blower and the rotatable disc is a rotatable liquid droplet interceptor wheel for collecting entrained liquid droplets before they pass into the blower. Circumferentially around the interceptor wheel is a tangential turbine liquid pump that removes liquid from the condenser apparatus. An electric motor is utilized for rotatably driving all of the rotating elements. The condenser apparatus is utilized particularly in an automatic clothes dryer wherein hot moisture-laden air that has been passed over the fabrics to be dried is introduced into the condenser apparatus which reduces the temperature of the air to condense moisture therefrom and then recirculating the air again through the clothes dryer.

3,831,293

STACKED TRAY PROCESSING AND FREEZING SYSTEM

Charles E. Ingram, Freeland; Roger J. Gendron, Bridgeport; Vern V. Cronk, Hemlock, and Harry J. Keefe, Saginaw, all of Mich., assignors to Baker Perkins Inc., Saginaw, Mich.

Filed Sept. 15, 1972, Ser. No. 289,241

Int. Cl. F26b 19/00

U.S. Cl. 34-236

20 Claims

A system for processing products such as food products, and more particularly comprising apparatus for loading food products into trays and for stacking the food carrying trays in vertically nested, individual stacks. The system includes ap-

3,831,295

POINT-VECTOR CONCEPT ASSESSMENT METHOD AND APPARATUS

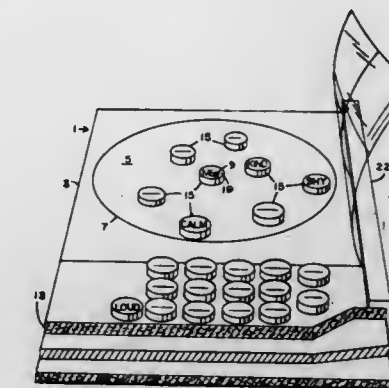
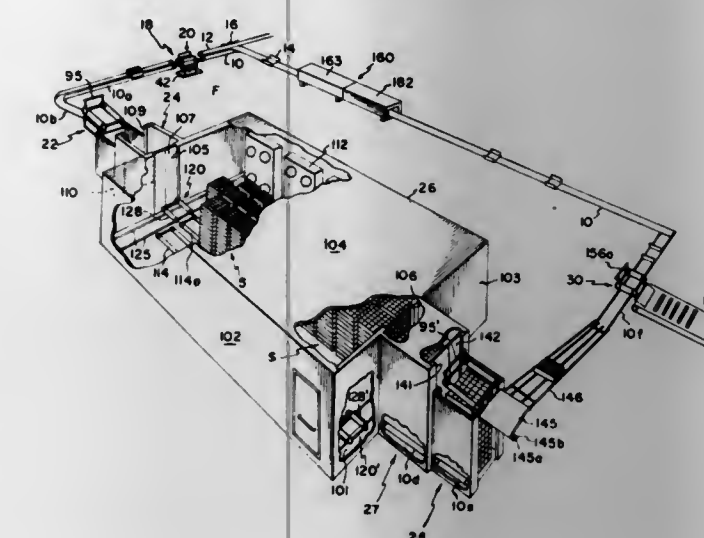
George R. MacKay, 575 Holly Ln., Paradise, Calif. 95969

Filed Oct. 4, 1971, Ser. No. 186,071

Int. Cl. G09b 1/08

U.S. Cl. 35-22 R

3 Claims



paratus for moving the stacks through a temperature controlled anteroom into a freezing chamber and a plurality of individually operable conveyor beds in the freezing chamber are provided for selectively receiving the stacks, storing the stacks for different selected processing times, and discharging the stacks. Apparatus is provided for receiving a stack of trays from any selected conveyor bed and removing it from the

A point-vector morphogenic method and apparatus for the objective recording and assessment of verbal and non-verbal mental processes and concepts. The apparatus includes a plurality of open system semantic vehicles and containment field adapted for the assessment of concepts and their infinite combinations relative to a given concept and each other. The open system principle permits the subject or the assessor to personalize a program by adding new relevant semantic vehicles of his choice within the field at select positions. The containment field structure includes a central reference point or nucleus representative of the concept to be examined and is adapted to receive said semantic vehicles relative to said central point. Each of the said semantic vehicles carries a defining concept. The semantic vehicles are adapted for placement within said containment field at any point relative to said nucleus as selected by the subject such that said markers individually and in combination establish a point-vector pattern. The apparatus is so adapted that all possible program assessments may be performed by the subject individual within the bounds of the containment field in relationship to the central nucleus.

3,831,294

MEANS FOR CONTROLLING THE DRYING OF TEXTILES AND RECLAIMING THE LIQUID THEREFROM

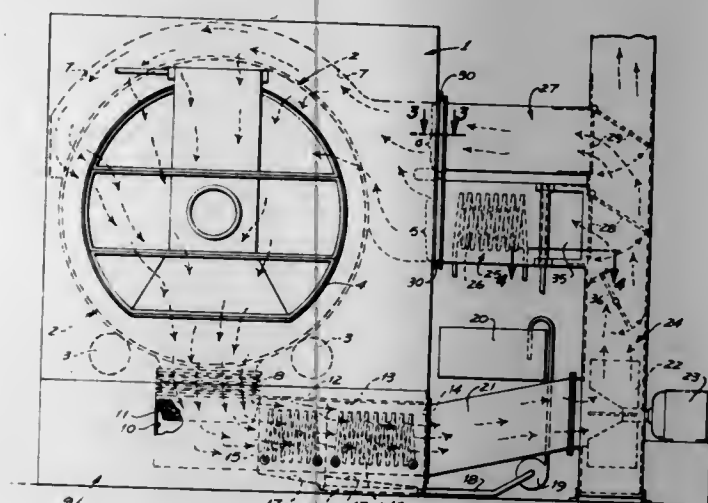
Benjamin H. Freze, Garden Grove, Calif., assignor to Challenge-Cook Bros., Incorporated, Industry, Calif.

Filed Sept. 11, 1972, Ser. No. 287,688

Int. Cl. F26b 11/02

U.S. Cl. 34-131

5 Claims



A means for controlling the drying of textiles which contains a cleaning solvent or a mixture of cleaning solvent and water, the textiles being placed in a rotatable tumbling drum, then subjected to air maintained below atmospheric pressure, the air passing through the drum and subsequently through cooling units which condense the vapor removed by the air. Means are provided for varying the drying procedure such as heating the air; recirculating and reheating a preselected portion of the air; recirculating selected portions of the air without heating; introducing ambient air; and controlling the total volume of the air.

3,831,296

ALPHANUMERIC TACTILE INFORMATION COMMUNICATION SYSTEM

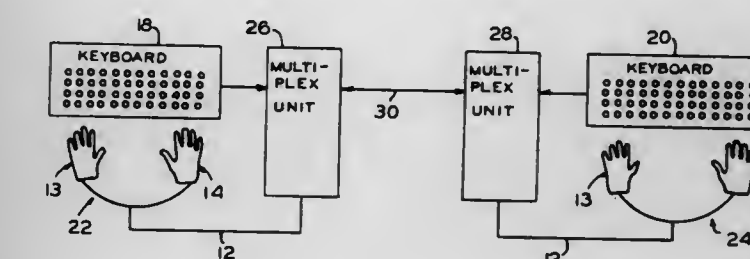
Edward D. Hagle, 2338 Agate St., Eugene, Oreg. 97403

Filed Aug. 2, 1972, Ser. No. 277,384

Int. Cl. G09b 21/04

U.S. Cl. 35-35 A

5 Claims



A method and system for communicating with the blind and deaf person produces a sequence of electrical impulses corresponding to the characters on a typewriter keyboard. The impulses are employed to selectively actuate corresponding stimulators positioned on a surface areas of the handicapped person's body and arranged generally in the pattern of such keyboard. Each stimulator, upon being actuated, stimulates a portion of such area of skin corresponding to the character of

the keyboard. A specific example of apparatus employed in the above method and system includes a typewriter terminal connected to a pair of gloves having a plurality of stimulators embedded therein.

3,831,297 REPLACEABLE CUTTING EDGE ASSEMBLY WITH WEDGE MEANS

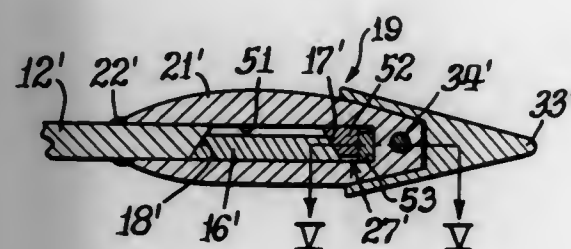
William E. Lanz, and Eugene M. Wilson, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed June 27, 1973, Ser. No. 373,999

Int. Cl. E02f 9/28

U.S. Cl. 37—141 R

7 Claims



A cutting edge assembly including an elongated member with a cutting edge arranged upon a leading edge of a material handling implement, the elongated member being firmly secured in place by a plurality of retainers, each of the retainers including an adapter secured to the implement, the adapter having a surface spaced apart from the cutting edge with two embodiments of wedge assemblies being disclosed for arrangement in the space between the adapter surface and cutting edge to secure the elongated member against the leading edge of the implement.

3,831,298 EXPANDABLE RETAINING PIN FOR TELESCOPIC PARTS

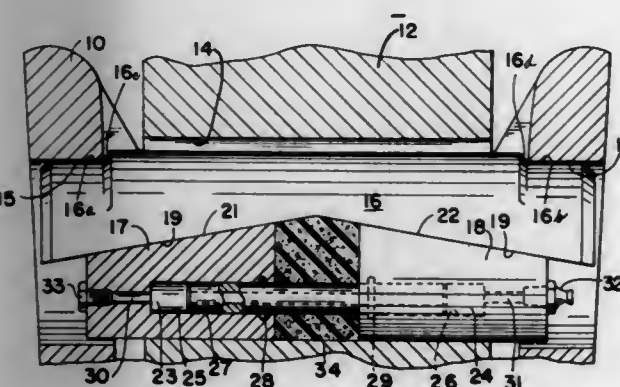
Eugene L. Helton, and Loyal O. Watts, both of Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed May 23, 1973, Ser. No. 362,916

Int. Cl. E02f 9/28

U.S. Cl. 37—142 A

7 Claims



An expandable retaining pin to fit within coaxial bores formed through two telescopic members, comprising a cylindrical element provided with a chamber for receiving pressurized fluid and means responsive to the pressurized fluid for expanding the pin radially and urging it into tight engagement with opposite walls of the respective bores.

3,831,299 CABLE LAYING PLOW EQUIPPED WITH A CUTTING CHAIN

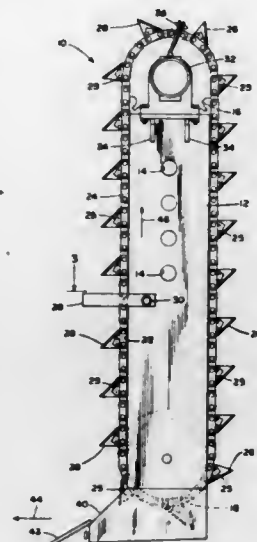
Leon O. Kelley, P.O. Box 488, Stamford, Tex. 79553

Filed Sept. 28, 1972, Ser. No. 292,898

Int. Cl. E02f 3/10, 5/06

U.S. Cl. 37—191 A

1 Claim



A cable laying plow includes a plow shank having a vertically extending forward edge. Sprockets are positioned at the upper and lower ends of the plow shank and a roller chain is supported on the sprockets for movement around a course including a portion extending along the forward edge of the plow shank. Knife blades are mounted at spaced intervals on the chain, and a stationary cutter bar extends forwardly from the plow shank for cooperation with the knife blades on the chain to effect cutting. A hydraulic motor is mounted on the upper end of the plow shank and drives the chain through the upper sprocket. A plow toe is mounted at the lower end of the plow shank and surrounds the lower sprocket for the protection thereof. The plow toe extends forwardly to a detachable point located substantially forwardly of the forward edge of the plow shank.

3,831,300 DISPLAY CARD

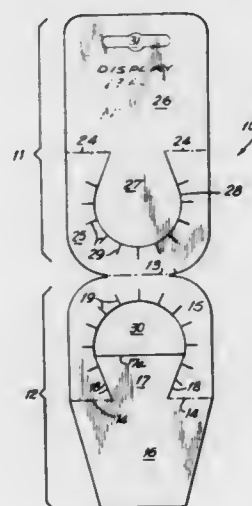
Thomas W. Berkhouse, Cincinnati, Ohio, assignor to International Paper Company, New York, N.Y.

Filed Apr. 23, 1973, Ser. No. 353,396

Int. Cl. G09f 3/14

U.S. Cl. 40—21 B

9 Claims



Disclosed is an interlocking display card for mounting on the neck of a bottle and the blank therefor.

3,831,301 PHOTOGRAPH ALBUM PAGE

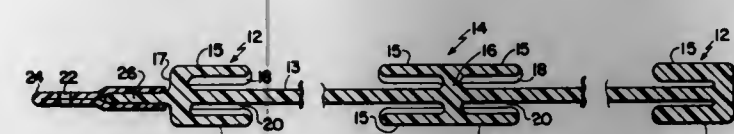
John M. Reynard, Framingham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 29, 1972, Ser. No. 319,227

Int. Cl. B42f 9/00; G09f 1/12

U.S. Cl. 40—104.18

4 Claims



A photograph album page providing rails containing passages to slidably receive photographic prints, a constriction in the passages positioning and releasably retaining the photographic prints mounted on the page.

3,831,302 ILLUMINATION DEVICE WITH GLITTERING EFFECT FOR ADVERTIZING AND DECORATIVE PURPOSES

Augusto Gentilini, 36 Via dei Mille, Rome, Italy

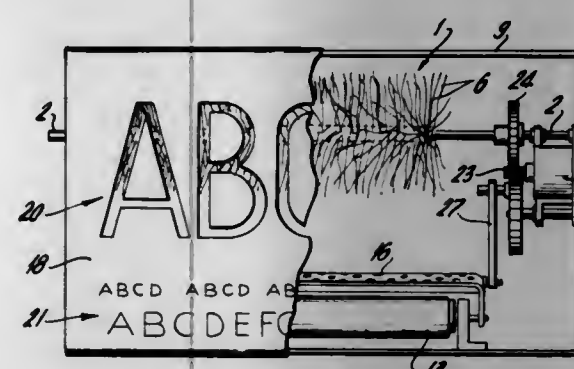
Filed July 25, 1972, Ser. No. 274,889

Claims priority, application Italy, July 29, 1971, 51985/71

Int. Cl. G09f 13/36

U.S. Cl. 40—106.52

9 Claims



An illumination device comprises a housing having a front viewing wall of transparent or semi-transparent material and having an interior wall with a reflective surface behind a light source. A rotatable member is mounted adjacent to the light source and it includes a plurality of radially extending light deviating members such as metallic laminar, which receives light from the light source and reflects at least a portion thereof to the front face of the device. A screen is mounted between the light source and the rotatable member and it is oscillated backwardly and forwardly by the same motor which drives the rotatable member in order to produce various lighting effects on the rotatable light deviating members and the front viewing wall.

3,831,303 SYMBOL INDICATION DEVICE

Takashi Funaki, Nagano, Japan, assignor to Kabushiki Kaisha Sankyo Seiki Selsakusho, Suwa-gun, Nagano-ken, Japan

Filed Aug. 31, 1972, Ser. No. 285,433

Claims priority, application Japan, Nov. 18, 1971, 46-91904; Dec. 25, 1971, 47-1066; Jan. 14, 1972, 47-5863; Jan. 14, 1972, 47-5864; Jan. 28, 1972, 47-9803; Sept. 2, 1971, 46-78885

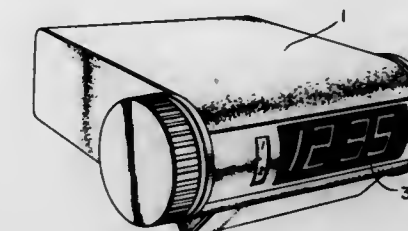
Int. Cl. G09f 11/00

U.S. Cl. 40—28 C

11 Claims

A device comprising a mask plate having formed therein at least one symbol indication window comprising at least one relatively narrow and elongated quadrilateral slot or slit and

having an inclined base line, a symbol indicator having at least one series of symbol patterns printed or otherwise superposed thereon, and symbol indicator drive means. The symbol indicator drive means intermittently drives and moves the sym-



bol indicator in such manner that the latter is moved a distance corresponding to one half the length of each symbol pattern each time it is driven, whereby one symbol after another can be indicated through the symbol indication window.

3,831,304 POLE BANNER SIGN CONSTRUCTION

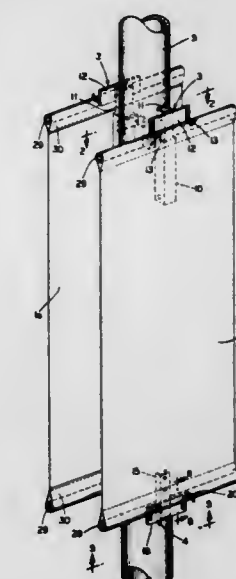
Wendell V. Miller, and Thomas Friedrichsen, both of Massillon, Ohio, assignors to The Massillon-Cleveland Akron Sign Company, Massillon, Ohio

Filed Aug. 24, 1972, Ser. No. 283,565

Int. Cl. G09f 07/18, 17/00

U.S. Cl. 40—125 G

3 Claims



A pole banner sign construction which has rugged permanent hardware for supporting a flexible banner generally in a fixed position on a pole. The hardware all may be mounted permanently on the pole or all hardware except simple mounting plates at the upper and lower ends of the banner may be removed from the pole. A simple rectangular flexible banner is supported under tension on the hardware and is adapted to be folded into a small package for shipment in an envelope. Rigid pull rods are located in the hems at the upper and lower edges of the flexible banner. The hardware support means at the upper and lower ends of the flexible banner holds the pull rods in parallelism and maintains longitudinal tensional pull on the flexible banner between the rigid parallel pull rods. The hardware in maintaining the pull rod parallelism under tension also holds the pull rods against pivotal movement on, or twisting and turning movement about, the pole. The flexible banner conceals the hardware behind the banner when the banner is mounted on the pole. A pair of flexible banners may be mounted in the same way on opposite sides of the pole, any banner may be changed from time to time without the use of any tools merely by unhooking several hooks from banner engagement, then transferring pull rods from an initial banner to a replacement banner, and then hooking the replacement banner in place.

3,831,305

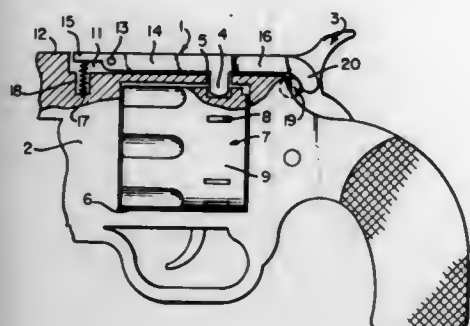
REVOLVER CYLINDER LOCK

Richard J. Casull, 3270 Del Mar Dr., Salt Lake City, Utah 84109

Filed May 31, 1973, Ser. No. 365,638

Int. Cl. F41c 1/00

U.S. Cl. 42-67



A lock bar is pivotally attached to the revolver frame and includes a finger normally spring-urged into locking engagement within a detent in the revolver cylinder. Actuating means on the hammer provides a pair of camming surfaces alternately engageable with the lock bar whereby, upon cocking of the hammer, a first camming surface vertically displaces the lock bar to momentarily extract the finger from the cylinder detent and when the hammer returns to its forwardmost position, a second camming surface laterally deflects the lock bar to allow passage of the actuating means without disturbing the finger engaged within the cylinder detent.

3,831,306

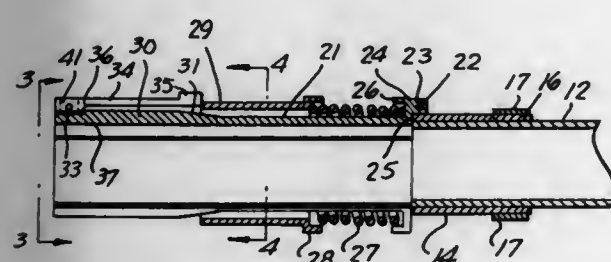
AUTOMATIC SHOTGUN CHOKE

Woodrow W. Gregg, 55 Magnolia Ave., Jersey City, N.J. 07306

Filed June 29, 1973, Ser. No. 375,127

Int. Cl. F41c 21/18

U.S. Cl. 42-79



A choke attachment for a shotgun barrel to automatically provide an extension of the bore of the barrel upon firing the first round from the shotgun. The attachment consists of a collar clamped on the shotgun barrel and having pivoted barrel segments with outer cam surfaces engageable by a camming sleeve surrounding the segments and urged forwardly by a coiled spring. The camming sleeve is normally held in a rearward position against the force of the coiled spring by detent arms pivoted to the segments which are triggered outwardly by the expansive force produced by the first round fired by the shotgun. The spring then acts on the camming sleeve to force the segments inwardly to define an extension of the shotgun bore and thus provide the desired choke action for subsequent shots.

3,831,307

FISH LURE WITH FISH ATTRACTING RATTLE

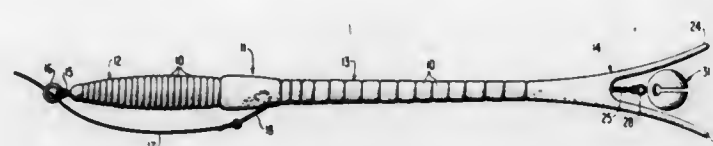
Gloucester R. Pittman, 623 N. Stone Mountain-Lithonia Rd., Rt. 3, Stone Mountain, Ga. 30083

Filed July 17, 1973, Ser. No. 379,992

Int. Cl. A01k 85/00

U.S. Cl. 43-42.31

10 Claims



A fish lure for attracting fish by emitted sound wherein the sound comes from a rattle mechanism attached to the artificial bait body. The rattle is either a hard hollow container having loosely disposed balls therein to effect the noise, or it may be a conventional bell with a clacker. Anchor means are attached within the bait body to maintain the rattle firmly attached. Other parts of the lure are also attached by the disclosed anchor means.

3,831,308

FISHING LINE ATTACHMENT

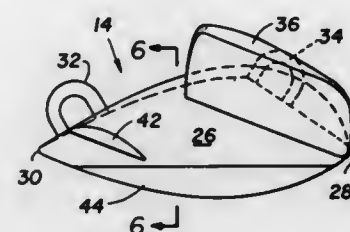
Avey Shaw, 52 Leed St., Huntington Station, N.Y. 11746

Filed Sept. 7, 1972, Ser. No. 286,580

Int. Cl. A01k 91/02, 95/00

U.S. Cl. 43-43.13

5 Claims



A fishing line attachment having a longitudinally extending body and which in one orientation causes surfacing movement and an opposite orientation diving movement. The attachment is thus selectively advantageously used during trolling and casting to properly position the terminal or fishing end of the line during said fishing activities. It also has utility as a lure and sinker. The body has two pairs of spaced-apart wings mounted thereon which extend outward from and beyond opposite sides of the body. Each wing has first and second edge portions which cause the reversible motion in response to line tension.

3,831,309

FISHING LEADER

Leon L. Martuch, Midland, Mich., assignor to Scientific Anglers, Inc., Midland, Mich.

Filed June 1, 1972, Ser. No. 258,631

Int. Cl. A01k 91/00

U.S. Cl. 43-44.98

10 Claims



A fly fishing leader having a loop at the tippet end of the butt section on which different diameter tippet sections can be tied.

3,831,310

LIVE BAIT BUCKET

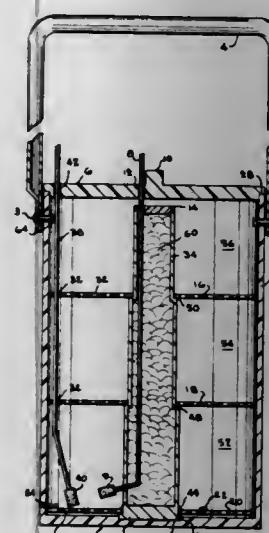
George C. Frangulie, P.O. Box 950, Port Lavaca, Tex. 77979

Filed Mar. 8, 1973, Ser. No. 339,312

Int. Cl. A01k 97/04

U.S. Cl. 43-56

5 Claims



To keep live bait from clustering together and thus shortening their lives, the bait bucket is divided into a number of bait storage compartments by means of spacers or partitions. The spacers preferably are perforated with a number of fluid-flow passages which are large enough to permit the flow of water, but are too small to permit the bait itself from passing between compartments. In addition, the bucket preferably includes a thermal compartment to provide some control over the temperature of the water in which the live bait is carried, a compartment that may be filled with ice in hot weather when the ambient temperature is low. An optional feature is an air stone or aerator in the bottom of the bait compartments, together with appropriate air tubing or passageways adapted for connection to a source of air.

3,831,311

APPARATUS FOR USE IN HAULING TRAPS AND THE LIKE

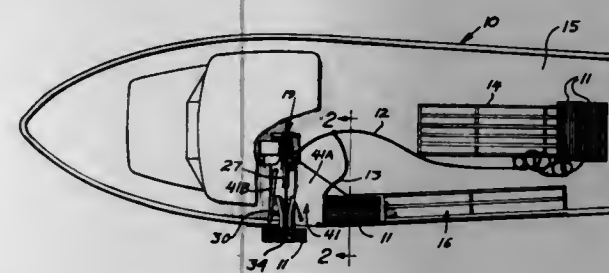
Lloyd C. Cushing, 5 Chester Ave., Falmouth, Maine 04105

Filed Dec. 13, 1972, Ser. No. 314,592

Int. Cl. A01k 81/04

U.S. Cl. 43-6.5

11 Claims



Apparatus is disclosed for use in hauling lobster traps and includes a platform mounted in the ship between a trap line hauler and the side of the ship over which the traps are to be lifted. The platform has fore and aft sections spaced to provide a pathway for a pivoted lifting arm swung by a ram between first and second positions. The arm has a sheave over which the trap line is trained. In the first position of the arm, the sheave is outboard so that a trap hauled to the surface is lifted over the side as the ram swings the arm towards its second position as the line is pulled by the hauler until the trap is deposited on the platform. In the second position of the arm, it is below the platform and the trap is free of its sheave. The platform is a ramp downwardly inclined so that a freed trap can slide or be easily moved to a service station located aft of the apparatus.

3,831,312

FISH LURE

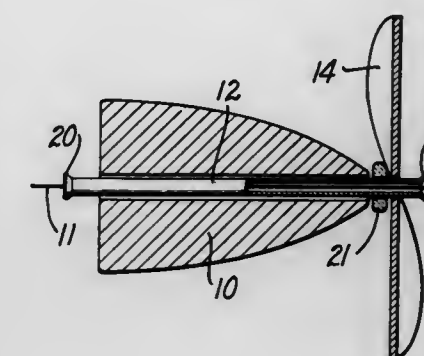
John E. Pope, Wilmington, and Jack H. Main, Santa Monica, both of Calif., assignors to Pope Manufacturing, Inc., Valencia, Calif.

Filed Mar. 24, 1972, Ser. No. 237,623

Int. Cl. A01k 85/00

U.S. Cl. 43-42.17

6 Claims



A fish lure having one or more attractor elements movably attached on a sliding body such as a sinker. An attractor element is positioned on a mounting tube substantially coaxial with the sliding body for rotary, pivotal, and/or vibratory movement relative to the sliding body without interfering with the longitudinal motion of the sliding body along a fishing line.

3,831,313

STUFFED DOLL AND COIN BANK

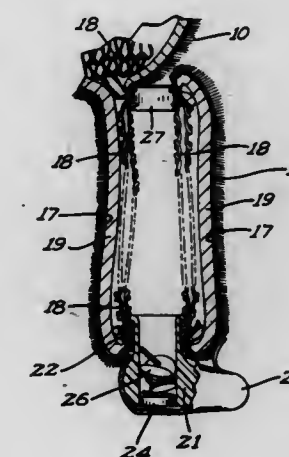
Helen J. Cichy, 2616 Huntington Ave., Minneapolis, Minn. 55416

Filed Apr. 13, 1972, Ser. No. 243,566

Int. Cl. A63h 3/02

U.S. Cl. 46-2

1 Claim



A doll stuffed with relatively stiff fibers or filaments formed into mesh or net like material that is yielding but also has some stiffness. Two layers of the net or mesh formed into a tube will hold an extremity of the doll in shape while leaving the center of the limb open to serve as a bank.

3,831,314

PNEUMATIC TOY STOVE ACCESSORY

Sidney Bass, Los Angeles, and Hubert A. Rich, Westminster, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Sept. 26, 1973, Ser. No. 400,771

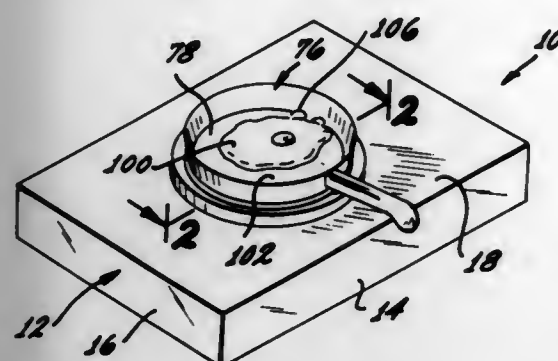
Int. Cl. A63h 33/30

U.S. Cl. 46-14

5 Claims

Air is directed up through a sparger ring in a pan having a thin, flexible food-simulating member lying on the sparger ring

and having its edges sealed with water. Air is trapped under food-simulating member until fluid pressure overcomes the



seal and a bubble escapes. Seal is then reestablished until next bubble escapes. Escaping bubbles agitate the food-simulating member and water to simulate frying food in cooking oil.

3,831,315

TOY ROCKET LAUNCHING SYSTEM

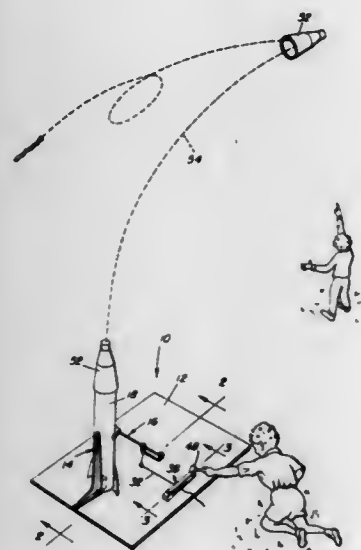
Bertram C. Gilbert, 4535 Butler St., Fort Meade, Md. 20755

Filed Aug. 10, 1973, Ser. No. 387,302

Int. Cl. A63h 27/00

U.S. Cl. 46—74 B

13 Claims



An elongated balloon is inflated and the open end is twisted and positioned over an upstanding peg fixedly secured to a flat launching platform. A lever, attached for pivotal movement to the platform, is pressed into engagement with an intermediate portion of one side of the balloon and held in this position. This presses the opposite side of the intermediate portion of the balloon against a back support which is secured to and extends upwardly from the platform to thereby capture and hold the balloon in an upright position. A plastic space capsule is positioned over the upper end of the held balloon and the lever is released. The pressurized air escapes from the open end of the balloon forcing it upwardly from the launching platform, ultimately the balloon deflates and separates from the launched capsule.

3,831,316

MULTI-FIGURE ZIPPER TOY BAG

Elizabeth N. Weistrop, 505 Dolores Ave., Half Moon Bay, Calif.

Filed June 14, 1973, Ser. No. 370,130

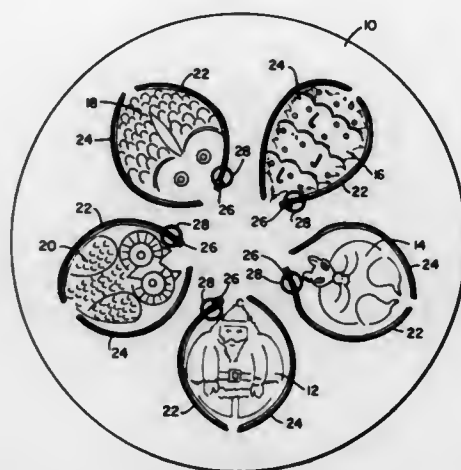
Int. Cl. A63h 3/12

U.S. Cl. 46—153

8 Claims

A children's toy comprising a plurality of selectably interchangeable figure images disposed on a common piece of fabric or similar pliant material. Each of the figure images has

at least one pair of mating zipper tracks disposed along opposite portions of the image periphery. Any one of the available figure images may be developed into a corresponding three-dimensional figure form by gathering the material exterior of the selected image so as to be enveloped within the selected image and capturing it therein by engagement of the



confronting zipper tracks to form a bag with the selected image on the exterior surface. Figures having more complex shapes can be formed by using multiple zippers and preformed body members attached to the base material. The available figure images may be chosen so that the sequence of figure formation by the child may correspond, for example, to the development of a story or to some natural phenomenon.

3,831,317

AGRICULTURAL SUBSTRATES

Pierre Porte, Sainte-Foy-Les-Lyon, France, assignor to Societe Rhodiacta, Paris, France

Continuation-in-part of Ser. No. 86,294, Nov. 2, 1970, abandoned. This application Mar. 29, 1973, Ser. No. 346,149 Claims priority, application France, Nov. 14, 1969, 69.39182

Int. Cl. A01g 9/00, 31/00

U.S. Cl. 47—58

7 Claims

A synthetic culture medium comprising a polymeric material having an apparent density of 0.01 and 0.5 and a specific surface area of between 2 and 25 m²/g, the polymeric material being in the form of an amorphous fibril. Such polymeric materials include thermoplastic polymers such as film-forming linear super polyamides, film-forming polyesters, vinyl polymers, acrylonitrile base polymers, and polyolefins, the fibrils being suitable for use as a culture medium either alone or in combination with soil, sand and the like so as to provide a more readily aeratable mixture. Plant growth is improved by a process utilizing such synthetic culture medium.

3,831,318

EXPLOSION DETECTION AND SUPPRESSION METHOD AND APPARATUS

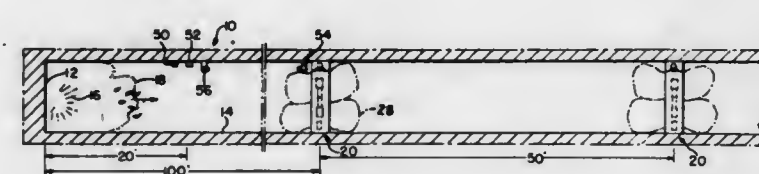
J. Kenneth Richmond, Pittsburgh, Pa., assignor to Rocket Research Corporation, Redmond, Wash.

Filed May 8, 1972, Ser. No. 251,079

Int. Cl. E05f 15/20

U.S. Cl. 49—31

20 Claims



In a coal mine passage, a plurality of stored bags which can be rapidly inflated with an inflating medium having a com-

bustion suppressing agent to form a barrier to the propagation of a combustion reaction of a fuel-air mixture, such as a mixture of coal dust and/or methane and air. To detect an incipient propagating combustion reaction, there is a radiation sensor, a static pressure sensor and a dynamic pressure sensor. There is a data analysis computer comprising a discriminator which determines a condition where radiation is above a certain predetermined level, and static and dynamic pressure are below a predetermined level within an initial short time period (e.g. 0.15 seconds) of sensing such increased radiation. When such a condition exists, the discriminating means arms an activating means which inflates the barrier bags in response to a predetermined level of increase of any one of the following five values: static pressure, dynamic pressure, rate of dynamic air pressure increase, rate of static pressure increase, and rate of radiation increase. Thus the apparatus discriminates between an actual condition of a possible rapidly propagating combustion reaction and such other disturbances as a stationary flame, electrical spark or a blast wave that do not result in such reaction. By initially containing the combustion suppressing medium in an inflatable, a more effective barrier is formed.

3,831,319

AWNING-STORM SHUTTER AND SPRING CLIP ATTACHMENT MEANS

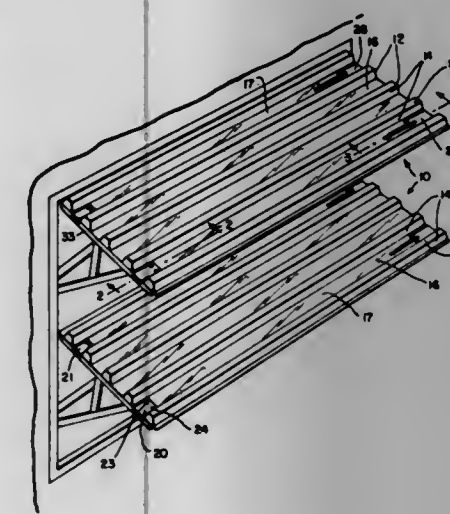
Frederick Eugene Warner, 990 N.W. 13th Ter., Fort Lauderdale, Fla. 33311

Filed Apr. 10, 1973, Ser. No. 349,688

Int. Cl. E06b 1/34, 3/30

U.S. Cl. 49—62

11 Claims



An anti-glare translucent weather shield for awning type windows provided with quick attachable clip means. The shield being made of corrugated plastic sheet and when attached by the clip means to the window units serving as an awning when the window is open or as a storm shutter when the window is closed. Also, the shield is molded with glass fibers for reinforcement and tested on each side to support predetermined loads imposed on it during hurricanes and the like when attached to a window as a storm shutter.

3,831,320

APPARATUS FOR CONNECTING THE GUIDE TUBE OF A CABLE WINDOW WINDER TO A CENTRAL GUIDE RAIL

Hans Dauernheim, Sprendlingen, and Horst Jander, Heusenstamm, both of Germany, assignors to H. T. Golde GmbH, Frankfurt(Main), Germany

Filed Apr. 18, 1973, Ser. No. 352,222

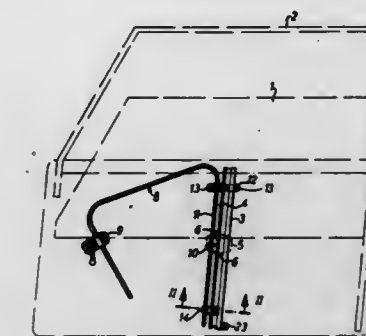
Claims priority, application Germany, Apr. 28, 1972, 2220986

Int. Cl. F05f 11/40; B27b 9/02

U.S. Cl. 49—352

10 Claims

In a slidable window of the type used in automobiles, the window is guided in the open position partially by the window



is fixed to the guide rail and its other end is displaceably secured to the guide rail, preferably by a flexible thermoplastic member, so that errors in parallelism or deviations in curvature between the guide rail and the guide tube portion can be compensated.

3,831,321

AIR CONDITIONER COVERS

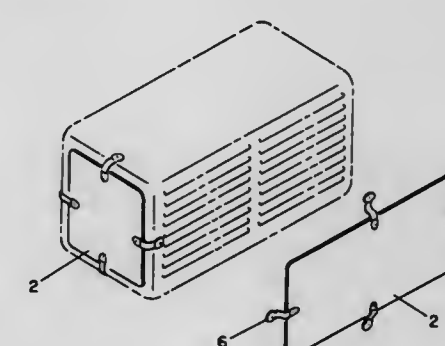
Tage George Johnson, 2442 Meadowbrook Dr., Denver, Colo.

Filed Mar. 5, 1973, Ser. No. 338,077

Int. Cl. E06b 3/32

U.S. Cl. 49—465

4 Claims



A novel and practical means of providing air conditioner units with a protective cover device, is disclosed herein.

The air conditioner covers, which can be furnished in a wide variety of sizes to accommodate units of varying dimensions, are easily and quickly installed, and serve to provide the respective unit with a weather-tight protective cover, during winter months or when the unit is out of service for extended periods.

3,831,322

CONTINUOUS FEED VIBRATORY FINISHING MACHINE WITH DISCHARGE RATE CONTROLLED BY OPERATION OF TUB DISCHARGE CLOSURE

John F. Rampe, Mayfield Heights, Ohio, assignor to Rampe Research, Cleveland, Ohio

Continuation-in-part of Ser. No. 8,815, Feb. 5, 1970, Pat. No. 3,685,213. This application July 11, 1972, Ser. No. 270,700

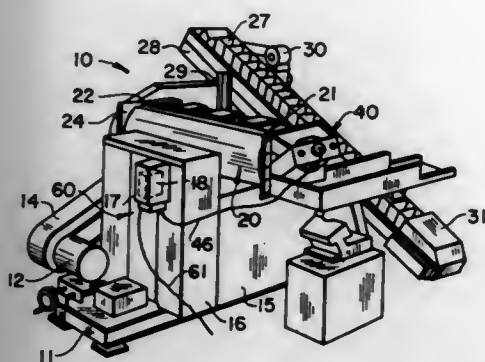
Int. Cl. B24b 31/06

U.S. Cl. 51—163

19 Claims

A vibratory finishing machine including a supporting frame, a processing tub, and a tub-vibrating mechanism interposed between the frame and the tub. A continuous feed finishing operation is provided by charging the workpieces and media into one end of the tub and discharging them through an opening in the opposite end of the tub. The bottom of the discharge opening extends substantially level with the bottom of the tub thereby providing no obstruction which will cause liquids or other materials to be retained for excessive times within the

tub. A power-operated closure is mounted on the tub for selectively closing and opening the discharge opening. The closure is movable toward and away from the discharge open-



ing along a path generally perpendicular to the opening to control the discharge of materials from the tub, thereby controlling the retention time of the materials in the tub.

3,831,323

SPERICAL PERMANENT DIAMOND LAP AND METHOD OF USE

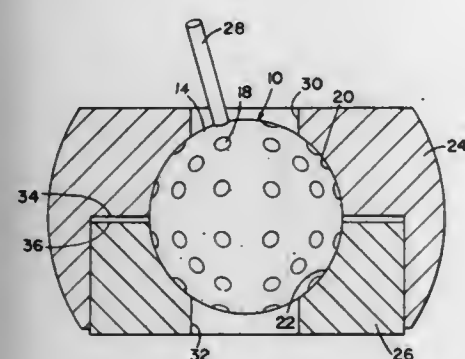
Rayburn K. Widner, Arab, and Aubrey Rodgers, Huntsville, both of Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 6, 1973, Ser. No. 413,407

Int. Cl. B24d 15/02

U.S. Cl. 51—204

5 Claims



A spherical diamond lap for producing spherical cavities of gas bearing quality for gyros in which the spherical diamond lap has diamond particles bonded to the outer surface thereof to perform the cutting action of the spherical cavities within the gas bearing gyro. The spherical diamond lap is rotated through particular strokes to cut precision cavities.

3,831,324

ADJUSTABLE WORK PIECE HOLDER

John Wain, 28 Althea Rd. M6S2P2, Toronto, Ontario, Canada

Filed July 5, 1973, Ser. No. 376,417

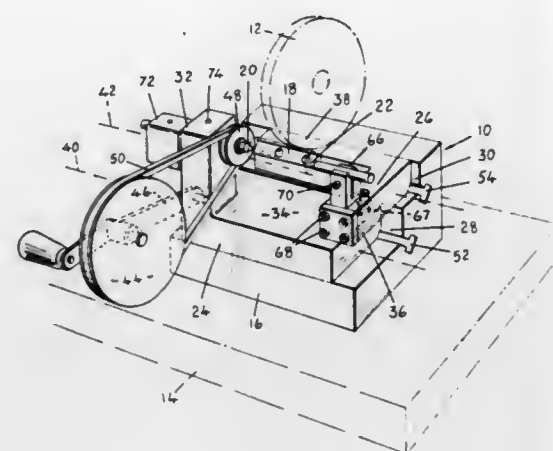
Int. Cl. B24b 41/06

U.S. Cl. 51—237 R

7 Claims

This invention relates to a work piece holder for holding work pieces of variable lengths during grinding or other operations. A head block carrying a head center and a tail block carrying a tail center are adjustably slidably positioned on a base plate to hold the work piece. The base plate is secured in a conventional manner to a work table to provide for reciprocating motion of the work piece relative to a grinding wheel. The head block and tail block each have a body portion which are respectively located in first and second longitudinally extending steps in the base plate. The head block and tail block are releasably fixed relative to the base plate by anchor bolts which pass through their respective body portions to threadably engage mating anchor nuts located in

parallel longitudinally extending slots in the steps of the base plate. The base plate and head and tail blocks are constructed to allow the body portions to laterally pass each other during adjustment to permit a portion of the head and tail blocks to



extend beyond the ends of the base plate to hold longer work pieces without requiring a longer base plate. The head center is spring loaded and the tail center is vertically adjustable by a setscrew to permit the workpiece to be ground parallel or tapered.

3,831,325

SHARPENING MECHANISM PARTICULARLY IN COMBINATION WITH A FORAGE CHOPPER OR THE LIKE

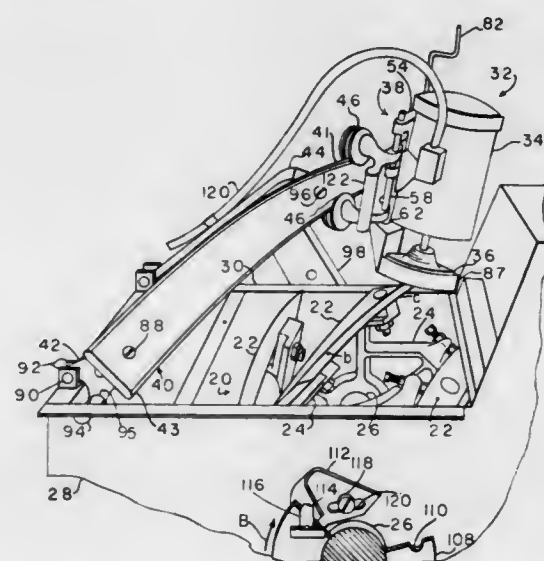
Marvin L. Joray; Nathan L. Blake, both of Coldwater, and Gerald F. Richards, Celina, all of Ohio, assignors to AVCO Corporation, Coldwater, Ohio

Filed July 2, 1973, Ser. No. 376,054

Int. Cl. B24b 19/00, 3/00, 5/18

U.S. Cl. 51—249

16 Claims



A forage chopper, including a rotary cutter, is provided with a mechanism for sharpening the knives of the cutter. A grinding stone is mounted on a slide which is guided by a helical bar. The helical knives of the cutter are successively locked in a sharpening position in which the grinding stone uniformly removes material from bevel surfaces thereof as the slide is traversed along the helical guide bar to sharpen their helical cutting edges. The grinding stone may be adjusted to vary the amount of material removed from the bevel surfaces of the knives and the guide bar has an extension on which the grinding stone slide is locked in a storage position during normal operation of the forage chopper. A motor spring is connected to the slide to assist an operator in moving the slide along the guide bar.

3,831,326

ABRASION OF CAKING

Gundorph Albertus, Copenhagen-Valby, Denmark, assignor to F. L. Smidth & Co., New York, N.Y.

Division of Ser. No. 807,852, March 17, 1969, Pat. No.

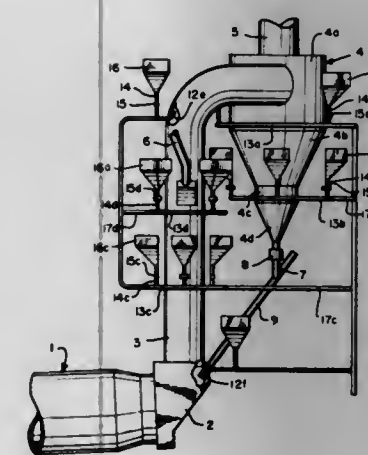
3,726,045. This application Oct. 25, 1972, Ser. No. 300,457

Claims priority, application Great Britain, Mar. 20, 1968, 13455/68

Int. Cl. B24c 1/00

U.S. Cl. 51—320

3 Claims U.S. Cl. 52—145



In a system for the manufacture of cement having a preheater for preheating raw material fed to a heated rotary kiln, a method is disclosed for removing caked raw material from internal wall areas of the preheater which are likely to build up such caked material. The method relates to suspending cement clinker particles in a gas moving at a high velocity and causing the gas and particles to impinge upon the wall areas which are normally subject to caking at sufficient velocity to dislodge the caking.

3,831,327

SERVICE CORE INSTALLATION SYSTEM

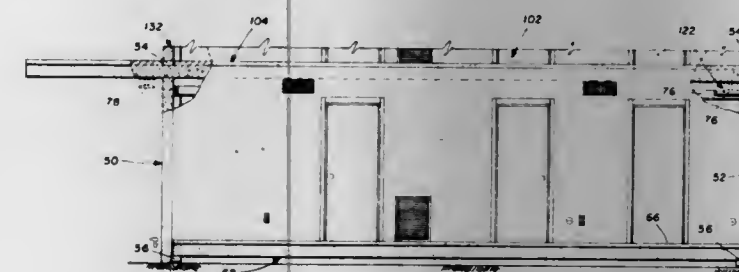
Raymond Lee McCrillis, Littleton; Richard Hill Dixon, Lakewood, and John Francis Oldani, Littleton, all of Colo., assignors to Marcor Housing Systems, Incorporated, Denver, Colo.

Filed Mar. 1, 1972, Ser. No. 230,832

Int. Cl. E04b 1/35

U.S. Cl. 52—79

9 Claims



In a dwelling construction system, a multi-story, multi-family building comprises prestressed concrete pallets which are supported between load bearing walls to form the floors and the ceilings of individual dwellings. Each dwelling includes a service core comprising an enclosure formed on one of the pallets and complete mechanicals for the dwelling. The service cores are fabricated by mass production techniques and are subsequently transported to the building site for installation. In some instances the service core comprises a complete dwelling, in which case the enclosure of the service core may form the exterior walls and the roof of the dwelling.

3,831,328

STRUCTURAL UNIT FOR FRAME CONSTRUCTION

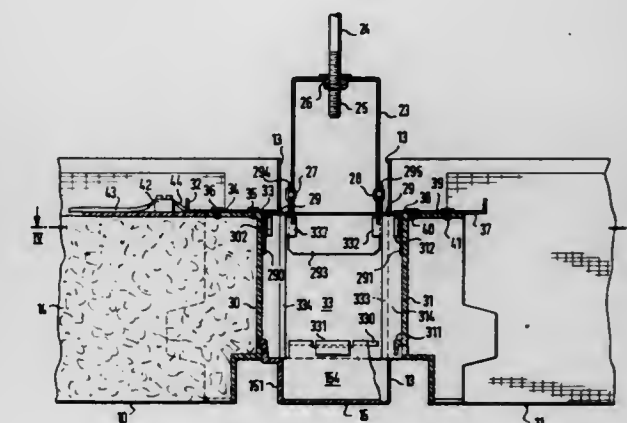
Hans Mohr, Paderborn; Peter Weigel, Borchon, and Kurt Metzl, Paderborn, all of Germany, assignors to Nixdorf Computer AG, Paderborn, Germany

Filed Aug. 3, 1973, Ser. No. 385,328

Claims priority, application Germany, Aug. 5, 1972, 2238707

Int. Cl. E04b 5/52

15 Claims



A framing system for supporting false ceilings includes a vertically adjustable suspension member carrying a bracket. Means are provided to mount cross members to the bracket by pushing the cross members from below up into coating locking means formed on the bracket and the cross members and then moving an arm outwardly from the end of the cross member to rest upon a horizontal bearing surface of the bracket to thereby suspend the cross members from the hanger.

3,831,329

BUILDING CONSTRUCTION SYSTEM

Donald S. Lear, Concord, Calif., assignor to Glen-Crete Products Co., Pleasant Hill, Calif.

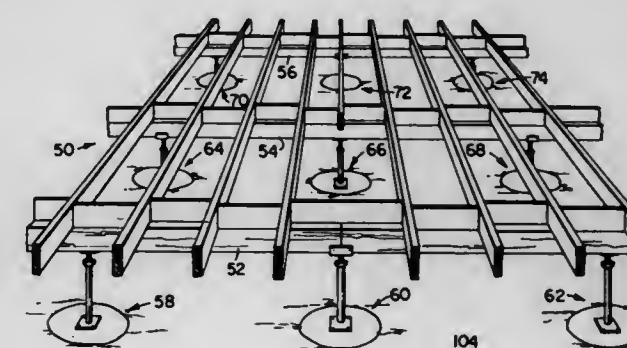
Continuation of Ser. No. 799,297, Feb. 14, 1969, abandoned.

This application Dec. 30, 1970, Ser. No. 102,940

Int. Cl. E04c 15/00

U.S. Cl. 52—126

9 Claims



Steel piers are fixed to concrete footings supported by the ground. These piers extend upward from the footings to support the girders of the frame of a house. The piers are adjustable in height so that they may be set to support the girders at proper distance above the ground. Each pier includes a top plate which is nailed to the supported girder. Each pier may be easily adjusted, if necessary, to compensate for subsequent heaving of the ground by readjusting the height of the pier. Selective locking of the adjusting mechanism against accidental retraction by vibration is provided without impeding extensibility under heaving stress.

3,831,330

PANEL SYSTEM

William H. Tacke, Wyoming; Robert B. Ormiston, Grandville, and Robert H. McKay, Grand Rapids, all of Mich., assignors to Steelcase Inc., Grand Rapids, Mich.

Division of Ser. No. 234,492, March 14, 1972, Pat. No. 3,802,146. This application July 9, 1973, Ser. No. 377,273
Int. Cl. E04c 2/52

U.S. Cl. 52-220

11 Claims



A partition system including a frame to which different types of covering panels can be readily hooked into place. Vertical wiring channels are provided at the end elements of the frame and covers are provided which simultaneously cover the wiring channels and mask the edges of the panel. Brackets for supporting superstructure can be secured to the end elements of the frame in channels which are defined by an end trim piece on one side and by a wall of the wiring channel on the other side. Adjacent partitions can be secured together angularly by means of a single link at the top and a single link at the bottom thereof. They can be secured in alignment by a pair of adjacent links at the top and at the bottom. Vertically spaced platforms can be mounted on feet at the bottom of the partitions to define space wiring channels. Telescoping end caps are provided for covering the ends of the wiring channels and the top portion of each end cap can be telescoped downwardly to allow access to the connecting links at the bottom of the partition. The wiring channels can be covered on either side by a molding which is releasably securable to the bottom of the partitions. In the case of wiring which must pass from one partition to another where the partitions are to be disposed at an angle, a telescoping corner cap is provided. Finally, special connector brackets are provided for connecting partitions of different heights to one another at various angles.

3,831,331

ARTICULATED HOLD-DOWN ANCHOR DEVICE FOR THE EMBEDDED CABLES OF A PRESTRESSED CONCRETE GIRDER

Joseph J. Colado, Addison, Ill., assignor to Superior Concrete Accessories, Inc., Franklin Park, Ill.

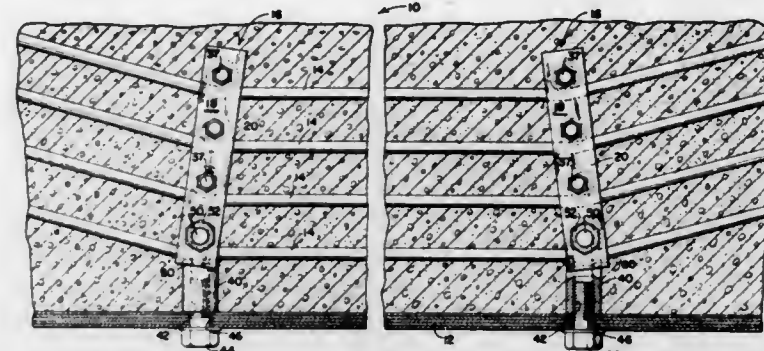
Filed Jan. 29, 1973, Ser. No. 327,813
Int. Cl. E04c 5/08, 5/16

U.S. Cl. 52-225

1 Claim

An articulated hold-down anchor device for the embedded cables of a prestressed concrete girder, wherein the frame

which supports the usual hold-down rollers for the various tiers of tensioned cables is of a special free floating nature so that it readily bisects the direction-change angle which it creates in the cables as they are undergoing tensioning. In this



manner, lateral stresses on the frame are equalized so that no bending forces are applied to the anchor bolt which serves to connect the device to the concrete form in which the girder is produced by pouring wet concrete into the form and around the prestressed cables.

3,831,332

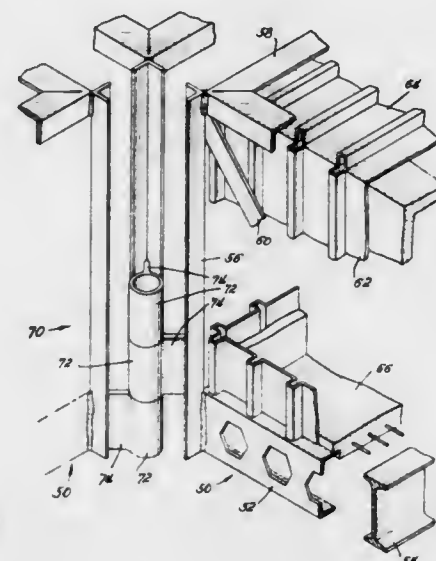
MODULAR BUILDING CONSTRUCTION SYSTEM USING SEGMENTED COLUMN ASSEMBLY

Harry M. Weese, 10 W. Hubbard St., Chicago, Ill. 60610

Filed Aug. 18, 1972, Ser. No. 281,706
Int. Cl. E04h 1/04, 9/06

U.S. Cl. 52-236

9 Claims



The present invention relates to a system of constructing floors of a building by joining together a plurality of box-shaped modular room units horizontally and vertically. The modular units are interconnected by means of assembling together a plurality of column segment attached to the modular units. A tubular body portion of the column segments are assembled together in a vertical stacked aligned relationship and thereafter the tubular body portions are coupled together by using a tension bar threaded through their axial opening.

3,831,333

CRIMPED END LOAD BEARING MEMBER AND ASSEMBLY THEREOF

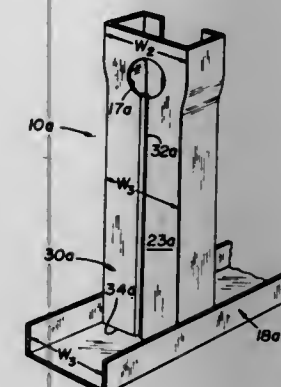
Nels Nelsson, Des Plaines; Maurice J. Marchello, Hickory Hills, and Frederick A. Thulin, Jr., Mt. Prospect, all of Ill., assignors to United States Gypsum Company, Chicago, Ill.

Filed Nov. 11, 1971, Ser. No. 197,746

Int. Cl. E04b 2/58

U.S. Cl. 52-241

19 Claims



Load bearing members the ends of which are tapered and stiffened by means of a rib in the central web of the member. Build-up of runner tracks into which the members are inserted is eliminated.

3,831,334

PLASTIC WALL TRIM

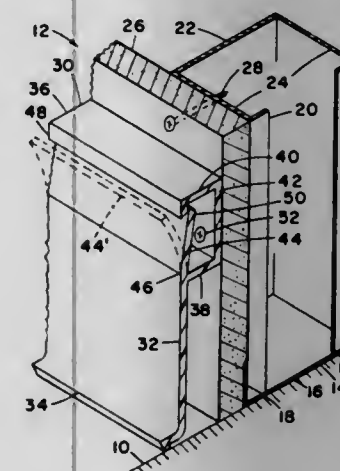
Edward J. Rutkowski; Jack A. Dawdy, both of Kenmore; Robert F. Hause, Tonawanda, and Irvine G. Reinig, II, Williamsburg, all of N.Y., assignors to National Gypsum Company, Buffalo, N.Y.

Filed Dec. 4, 1970, Ser. No. 95,114

Int. Cl. E04f 19/04

U.S. Cl. 52-287

7 Claims



A unitary elongate wall trim member formed of plastic including a closable and lockable cover formed to cover the means, such as screws, used to affix the trim member in place.

3,831,335

PREFABRICATED CAST REINFORCED FRAMED CONCRETE WALL SECTION WITH CLIPS TO ATTACH THE FRAME TO THE REINFORCING

Thomas L. Ary, 1916 Underwood Rd., Holtville, Calif. 92250

Filed Nov. 15, 1972, Ser. No. 306,525

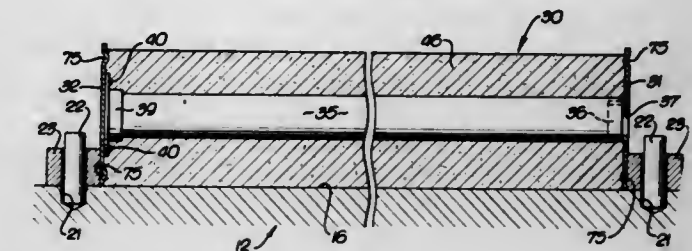
Int. Cl. E04c 2/04, 5/18

U.S. Cl. 52-601

1 Claim

A prefabricated building includes prefabricated wall, ceiling, roof and gable sections, stringer members, partition beams and various arrangements for interconnecting the

abovementioned parts to form an assembled structure. An adjustable molding table is provided for use in manufacturing the aforementioned prefabricated sections. In constructing a building, the prefabricated sections are transported to a build-



ing site and there mounted and assembled on a foundation. During assembly, various steps are performed to provide a finished structure. Strongbacks are provided for moving the prefabricated sections about at the manufacturing and building sites.

3,831,336

FRAME TO ASSEMBLE AFTER UNITIZED CONSTRUCTION

Bodo Diemer, Schulzenstrasse 22, D-7470 Ebdingen, Germany

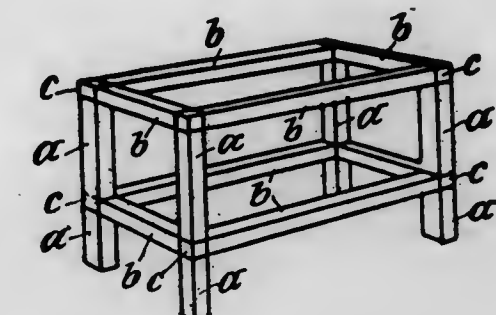
Filed Mar. 6, 1969, Ser. No. 804,763

The portion of the term of this patent subsequent to Jan. 27, 1989, has been disclaimed.

Int. Cl. E04h 12/00; A47f 5/00

U.S. Cl. 52-648

12 Claims



To lock tubular frame members together, such as chair legs, shelf units and the like, a structural element has projecting ends which are profiled to fit within the tubular frame member. The ends are drilled transversely and tapped, and a counter sink is formed at one end of the tapped bore, into which a screw is inserted having a head which preferably has approximately the same diameter as the internal size of the tubular frame member. The drilled end, with the screw completely tightened into the counter sink, is inserted into the frame member which is formed with a small hole to permit access, for example by an Allen head wrench to the screw which is then screwed outwardly, so that the head will bear from the inside against the frame member, and clamp the other side of the insert projection against the opposite inside face of the frame member. To interconnect chair legs, frame members and the like, structural elements having three or more projecting ends may be used.

3,831,337

METHOD OF ERECTING FOLDABLE BUILDING STRUCTURES

Delp W. Johnson, 240 Oakview Dr., San Carlos, Calif. 94070

Filed Aug. 2, 1972, Ser. No. 277,445

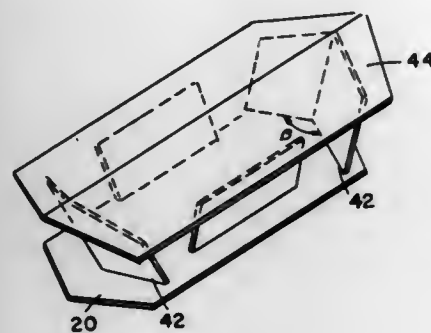
Int. Cl. E04g 2/114

U.S. Cl. 52-745

5 Claims

A building having a roof constructed of a plurality of initially flat, side by side, hinged together roof sections. Beneath

the roof are two opposing end walls each constructed of a like plurality of wall panels that are hinged together. Each wall panel is further hinged to a corresponding roof section. The hinge lines are arranged so that every set of two roof sections and corresponding two wall panels has hinge lines that originate from a common point. The angle between the hinge axes connecting corresponding sets of roof sections and wall panels is other than 180° and such that the sum of the angles between the hinge axes of a given set of two wall panels equals



the sum of the angles between the hinge axes of a corresponding set of two roof sections. When lifting the roof the panels pivot downwardly with respect to the roof sections into relative angular inclination with each other. Simultaneously there with the roof sections are pivoted out of their common plane into relative angular positions. The relative angularity is a function of the relative positioning of the hinge axes and can be varied as desired to construct buildings having a wide variety of shapes and sizes.

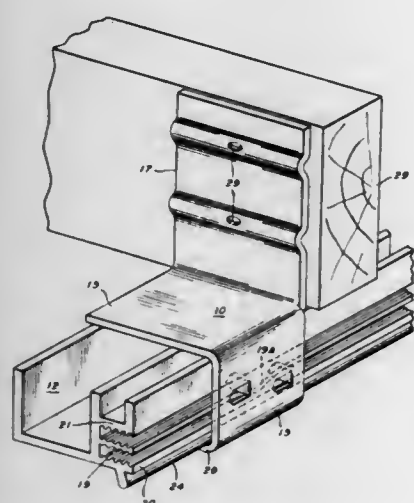
3,831,338

CONNECTING BRACKET FOR BUILDING STRUCTURE
James D. Klingensmith, Apollo, and George J. Latkey, New Kensington, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed July 6, 1972, Ser. No. 269,491
Int. Cl. F16b 7/00

U.S. Cl. 52-752

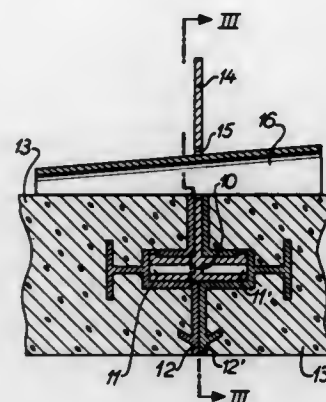
4 Claims



A building structure combination in which a bracket is attached to an elongated structural member by a fastening means that engages an integral, transversely extending web portion at at least two spaced apart locations therealong, and on opposed sides thereof, with a force sufficient to deform the web and thereby provide an interference fit between the web and the fastening means.

3,831,339
READILY RELEASABLE CLAMPED SPLINE JOINT
Louis Piralli, 1800-Vevey-Fenil, Switzerland
Filed Dec. 13, 1971, Ser. No. 207,165
Claims priority, application Switzerland, Dec. 17, 1970, 18697/70; Dec. 1, 1971, 17454/71
Int. Cl. F16b 5/06
U.S. Cl. 52-758 D

6 Claims



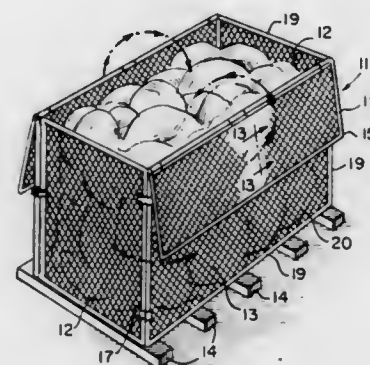
Two plaster panels with peripheral grooved frames are assembled by a tongue member comprising two pairs of resilient flanges extending from opposite sides of an elongate web, one of the flanges of each pair having an outer lateral protuberance resiliently engaging in a corresponding recess in the respective groove. The web may be extended by a lateral wing passing between and protruding from the surfaces of the adjacent panels, and the structure reinforced by a wedge-shaped key member passing through an aperture in the wing and bearing against the adjacent surfaces of the panels.

3,831,340
METHOD FOR COMPACTING THERMOPLASTIC FILM MATERIAL AND APPARATUS THEREFOR
Martin J. Tulkoff, 1020 East Lomard St., Baltimore, Md. 21202

Filed Mar. 26, 1973, Ser. No. 344,624
Int. Cl. B65b 1/24

U.S. Cl. 53-24

4 Claims



There is disclosed a method for compacting thermoplastic film material usually waste film material presenting a rather bulky appearance due to incorporation of air pockets. The waste film is oftentimes in the form of thermoplastic bags of fairly heavy gauge and of fairly large size. The bag is usually the result of use as a means to enclose a stack of a plurality of boxes which have been positioned on a pallet. The bag has been removed and discarded. It is accumulated in a receptacle of relatively large size. The receptacle is constructed of open mesh work on all sides and bottom and possesses a size approximating an area dimension of a pallet and a conventional height of a stack of boxes on such a pallet. The receptacle when loaded with a plurality of the bags is subjected to a heat treatment in an oven which surrounds the receptacle along its

sides and top while the receptacle is on the floor, for instance. The oven employed is essentially a housing having an open bottom with a plurality of electric heating elements positioned internally with respect to the inner walls thereof. The oven is relatively movable to encompass the bag containing receptacle. The bags are melted or fused within the receptacle during its dwell time in the confines of the oven. To prevent sticking of the bags to any of the surfaces of the receptacle, at least the inside of the receptacle is given a coating treatment with a plastic release material for instance.

3,831,341

METHOD FOR FILLING CONTAINERS

John Harry Gauntlett, Mayfield, 7 Kingsdene, Tadworth, England

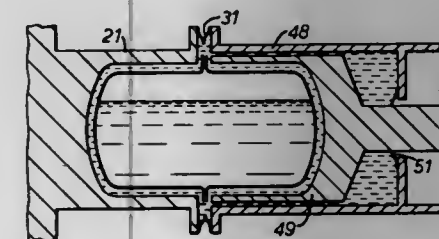
Filed Mar. 31, 1972, Ser. No. 240,021

Claims priority, application Great Britain, Apr. 3, 1971, 8613/71

Int. Cl. B65b 3/04, 3/18; B67b 5/00

U.S. Cl. 53-22 R

15 Claims



A container for a carbonated beverage is made by bringing two container halves close together and pumping the beverage into the interior through the remaining gap around a major part of the periphery of the container. Then the gap is closed and co-operating flanges welded together.

3,831,342

METHOD AND APPARATUS FOR FORMING SIFT PROOF GLUED FLAP SEALS FOR CARTONS

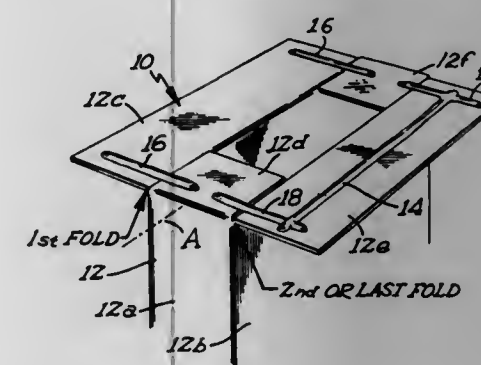
Jack J. Rejsa, Minneapolis, Minn., assignor to The Pillsbury Company, Minneapolis, Minn.

Filed Jan. 22, 1973, Ser. No. 325,276

Int. Cl. B65b 7/20

U.S. Cl. 53-47

6 Claims



An adhesive applicator is described which includes five adhesive applying nozzles for placing beads of fluid adhesive on a line of moving cartons. Four of the nozzles are moved diagonally with respect to the path along which cartons are moved beneath the adhesive applicator. One nozzle is stationary and is used to produce a straight line of adhesive paralleling the path of motion. The moving nozzles are mounted just above the flaps of the carton which are held in a horizontal position. Each moving nozzle is mounted on a pivot axis positioned above the nozzle opening and oriented at an angle of approximately 30° to the direction of carton motion so that relative movement between the carton and nozzle is at right angles to the main axis of the carton producing a bead across

the flaps which is positioned perpendicular to the direction of carton travel. In this manner, an adhesive bead of considerable thickness and of just the desired pattern is applied to the flaps while the cartons move continuously below the glue nozzles. When the flaps are folded inwardly one after the other, the pressure on the adhesive beads causes a squeezing out of adhesive into all the voids of the flap contact area thereby producing a sift proof seal.

3,831,343

DEVICE FOR AUTOMATICALLY FINISHING AND GROUPING PACKAGING CONTAINERS

Antonio Dominici, Perugia, Italy, assignor to Quepor S.A., Feibourg, Switzerland

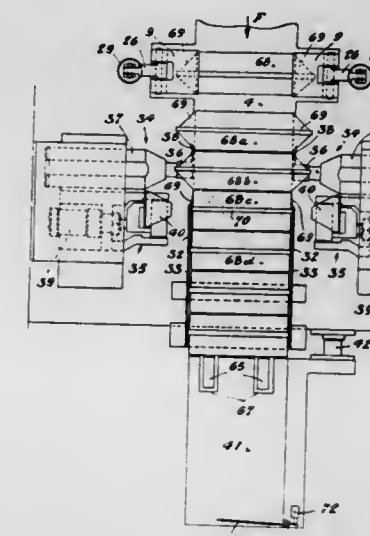
Filed June 19, 1973, Ser. No. 371,535

Claims priority, application Italy, July 10, 1972, 51445/72

Int. Cl. B65b 57/00

U.S. Cl. 53-61

10 Claims



A device for automatically folding and fastening the four ears of prismatic containers, as they issue from a forming machine, upon two opposite lateral faces thereof, and for grouping together the so finished containers, including a stationary table having a container receiving and a container discharging end; a movable plate reciprocable relatively to the table between feed strokes directed from the receiving towards the discharging end and oppositely directed return strokes; preparatory units rigid with the stationary table to prepare the opposite lateral surfaces for the fastening of the ears thereupon; folding and fastening units rigid with the table to fold and fasten the ears upon the faces; rows of pawl means on the movable plate to transfer in succession during the feed stroke the containers on the stationary table stepwise towards the preparatory units, thence to the folding and fastening units and therefrom to the discharge end of said table and to release them at the beginning of each return stroke; and gripping means on said movable plate, located correspondingly to the receiving end of said table, to grip the four ears of each incoming container and transfer it during said feed strokes within reach of the first pawls of said rows and release them before the beginning of said return strokes.

3,831,344

CONTAINER SUPPORT IN A CAPPING MACHINE
David J. Over, Richmond, Ind., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 26, 1973, Ser. No. 326,767

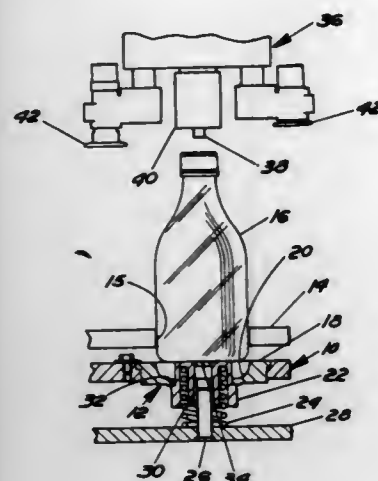
Int. Cl. B67b 3/08

U.S. Cl. 53-329

1 Claim

A container support is provided in a capping machine including a platform having an upwardly open recessed seat in it and a spring supported depressible pedestal in the seat, which

in its raised position has its top surface substantially coplanar with the upper surface of the platform so that the container can be moved laterally into and out of position on the plat-



form, and in its depressed position permits seating of the container in the seat for support of the lower peripheral portions of the container during capping.

3,831,345

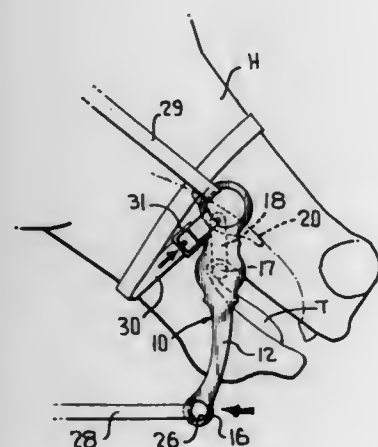
ANIMAL BRIDLE

Maurice Stubblefield, Clancy, Mont. 59634

Filed Apr. 3, 1973, Ser. No. 347,386

Int. Cl. B68b 1/04, 1/06

U.S. Cl. 54-6



This disclosure relates to an animal bridle which includes a nose and chin strap attached to cheek pieces and adapted to be wrapped at least once entirely about the animal's nose and chin whereby the strap will tighten equally when the bridle is rotated by reining in, the bridle being composed of a pair of spaced cheek pieces joined intermediate opposite ends thereof by a bit, a bar carried by the bit and a mouth roof engaging plate carried by the bar which is preferably pivotally mounted thereupon to provide positive action when in use.

3,831,346

METHOD FOR DEHYDRATION OF WET GASES

Shelby P. Sharp, and Lamar F. Sudduth, both of Tulsa, Okla., assignors to Amoco Production Company, Tulsa, Okla.

Filed May 9, 1973, Ser. No. 358,785

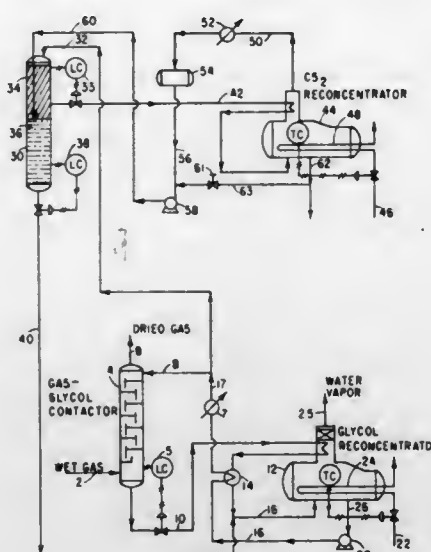
Int. Cl. B01d 53/4; C07c 29/24

U.S. Cl. 55-32

12 Claims

Absorbent solutions used to dehydrate wet gases tend to accumulate objectionable amounts of heavy hydrocarbons that cannot be removed by usual regeneration methods. Ultimately

the absorbent becomes ineffective for water removal. This invention employs a selective solvent such as CS_2 or CCl_4 to



remove hydrocarbons from the absorbent and the latter can then be recirculated to the dehydration system as an effective drying agent.

3,831,347

PROCESS FOR SCRUBBING A REACTION BY-PRODUCT VAPOR

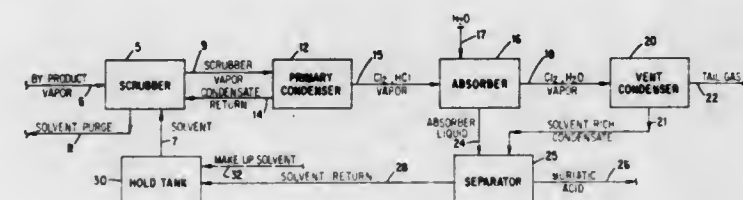
Emmett J. Ferretti, Birmingham, Ala., assignor to Diamond Shamrock Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 124,300, March 15, 1971, abandoned. This application Feb. 5, 1973, Ser. No. 329,387

Int. Cl. B01d 53/14

U.S. Cl. 55-48

11 Claims



In the reaction of hydrocarbons that may be solid at normal temperature and pressure, or yield products, by-products and/or intermediates that are solid under the same conditions, reaction by-product vapor further contains potential solids-forming material. The by-product vapor evolved from the reaction zone is solvent scrubbed, thereby eliminating plugging problem otherwise occurring downstream. In particular, chlorination reaction by-product vapor may be scrubbed and processed and the hydrogen chloride portion used for its hydrochlorination value. Such by-product can be continuously fed into a water-containing absorption zone from which muriatic acid may be obtained. Scrubber liquid can be in part recovered and recycled, e.g., to the reactor zone.

3,831,348

REMOVAL OF SULFUR COMPOUNDS FROM GLYCOLIC AND ALCOHOLIC COMPOUNDS BY SOLVENT EXTRACTION

Geza Pap, Irvington, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

Filed July 9, 1971, Ser. No. 161,036

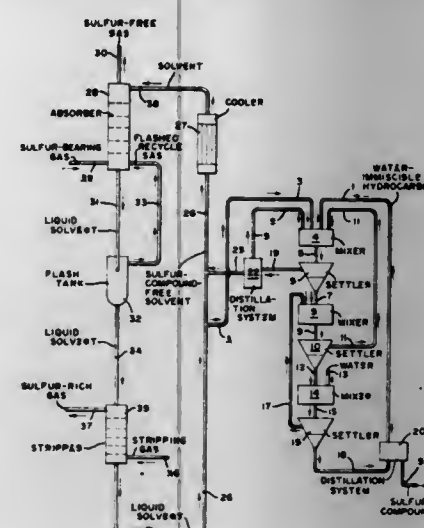
Int. Cl. B01d 11/04

U.S. Cl. 55-73

10 Claims

A solvent extraction process for separating sulfur-bearing compounds from solutions thereof in solvents such as glycolic compounds, alcoholic compounds, or mixtures thereof, e.g., dialkyl ethers of polyalkylene glycols. The solvent extraction process involves the use of an extracting solvent consisting of (1) a water-immiscible liquid hydrocarbon compound which

has a boiling temperature in the range of 50°F to 500°F and which is relatively highly miscible with sulfur-bearing compounds and (2) water. Specific water-immiscible hydrocarbons include chlorinated saturated or unsaturated hydrocarbon, aromatic hydrocarbon, chlorinated aromatic hydrocarbon, unsaturated oxygen-containing cyclic hydrocarbon, or



mixtures thereof, e.g., trichloroethylene, benzene, toluene, furan, and monochlorobenzene. The sulfur-bearing solution is subjected to the extracting solvent within any solvent extraction system such that there exists the capabilities of lowering the sulfur content in the sulfur solution to a level substantially below 1 percent by weight of the solution.

3,831,349

GAS CLEANERS

Olle Lennart Siwersson, and Karl Gunnar Tell, both of Helsingborg, Sweden, assignors to AB S.T. Miljoteknik, Helsingborg, Sweden

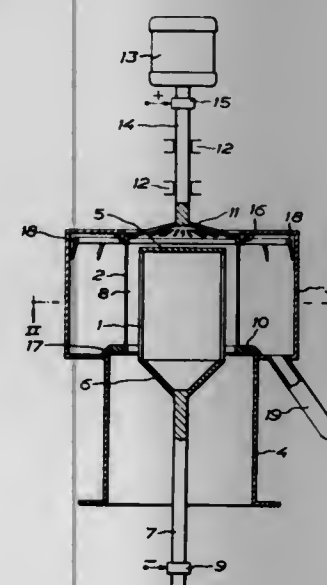
Filed July 27, 1973, Ser. No. 383,313

Claims priority, application Sweden, Aug. 10, 1972, 10421/72

Int. Cl. B03c 3/10

U.S. Cl. 55-113

2 Claims



An electrostatic filter-type gas cleaner having relatively electrically insulated discharge and collecting electrodes between which the gas to be cleaned is passed. The collecting electrodes are mounted concentrically around the discharge electrodes and are rotatable relative to them so that particles separating from the gas and depositing on the collecting electrodes are almost immediately thrown away from these electrodes. A casing surrounds the collecting electrodes and serves to collect and carry away the particles separated from the gas. The interior space of the casing is not influenced by the gas flow between the discharge and collecting electrodes.

3,831,350

FLUID DISTRIBUTOR

Helmut Gilles, Bergen-Enkheim; Otto Gupner, Offenbach, and Karl Haselmayer, Dornheim, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt/Main, Germany

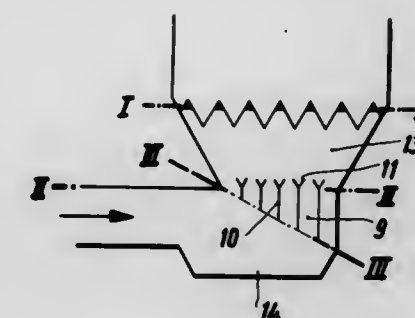
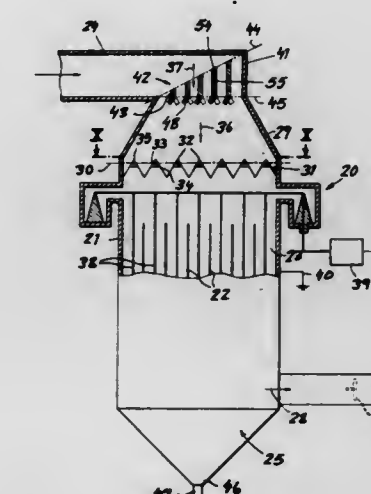
Filed June 19, 1972, Ser. No. 264,279

Claims priority, application Germany, June 22, 1971, 2130826

Int. Cl. B03c 3/36

U.S. Cl. 55-128

9 Claims



A fluid distributor, especially for an electrostatic precipitator or the like, in which the fluid stream passes from a conduit of small cross-section into a region of larger cross-section, as in a diffuser, and the throttle and guide devices include a distributor plane in which V-section throttle elements are provided with a direction of convergence facing toward a source of dust or other particles and substantially independent of the gas-flow direction. The flanks of the V-section distributor are slotted alternately and the closeness or spread of the V-section member can be adjusted to suit distribution requirements. Below the distributor plane is an array of deflector blades of generally Y-shaped cross-section with shanks in stepped relationship along the gas-flow path.

3,831,351

ELECTROSTATIC PRECIPITATOR

Everett Ralph Gibbs, Phoenix, and William Howard Tully, Cockeysville, both of Md., assignors to Koppers Company, Inc., Pittsburgh, Pa.

Filed May 22, 1973, Ser. No. 362,834

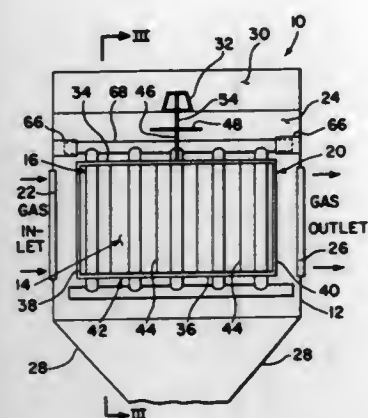
Int. Cl. B03c 3/08, 3/41, 3/47

U.S. Cl. 55-147

15 Claims

An electrostatic precipitator for collecting acidic elements in an acid-laden gas passing therethrough comprising: a shell; a plurality of substantially flat lead plates which form collector electrodes within the shell and define gas passages between adjacent ones of the collector electrodes for collecting the

acidic elements thereon; and at least one acid-resistant discharge electrode in each of the gas passage between adjacent collector electrodes for ionizing the acidic elements in the gas for causing collection of the acidic elements by the collector electrodes.



3,831,352

DRILLING FLUID DEGASSING

Delbert Arthur Parcels, Calgary, Alberta, Canada, assignor to Keen Industries Ltd., Edmonton, Alberta, Canada

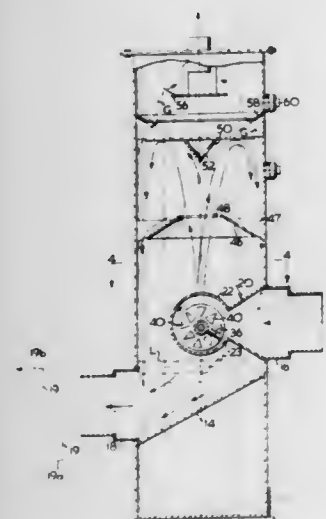
Filed July 14, 1972, Ser. No. 272,062

Claims priority, application Canada, Mar. 20, 1972, 137,507

Int. Cl. B01d 19/00

U.S. Cl. 55—193

10 Claims



A drilling mud degasifier includes a chamber within which a sub-atmospheric pressure is maintained. Gasified mud enters the chamber and encounters a rotating impeller which agitates the mud and flings it into the chamber interior where such mud strikes a plurality of baffles thus exposing a large surface area of mud to the low pressures within said chamber and effecting degasification of same.

3,831,353

FUEL VAPOR CONTROL DEVICE

Robert L. Toth, Allen Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 4, 1972, Ser. No. 295,047

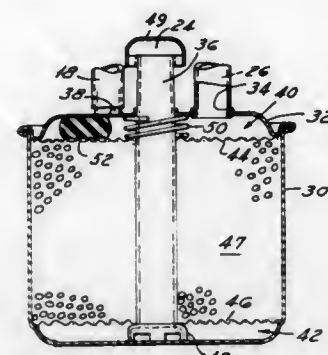
Int. Cl. B01d 53/00

U.S. Cl. 55—387

6 Claims

A canister containing a fuel vapor adsorbent has a fuel vapor inlet, a fresh air inlet and a purge vapor outlet. It additionally contains a baffle between the vapor inlet and purge outlet to prevent direct communication of fuel vapors to the

outlet to prevent direct communication of fuel vapors to the



purge outlet while forcing the flow of fuel vapors through the adsorbent.

3,831,354

DUST COLLECTOR INCLUDING DIFFUSER ASSEMBLY

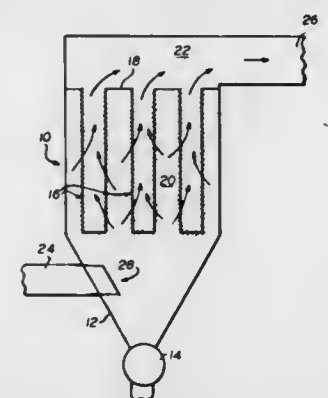
Even Bakke, New Providence, N.J., assignor to The Slick Corporation, New York, N.Y.

Filed Feb. 14, 1972, Ser. No. 225,909

Int. Cl. B01d 46/02

U.S. Cl. 55—418

7 Claims



A diffuser assembly for dust collectors and like apparatus for converting a high velocity stream of particulate bearing gaseous carrier of relatively small cross-sectional area by aerodynamic diffusion into a low velocity stream of much larger cross-sectional area having said particulates uniformly distributed therein.

3,831,355

AIR FILTER ASSEMBLY

Charles C. Mugford, Hermosa Beach, Calif., assignor to Farr Company, El Segundo, Calif.

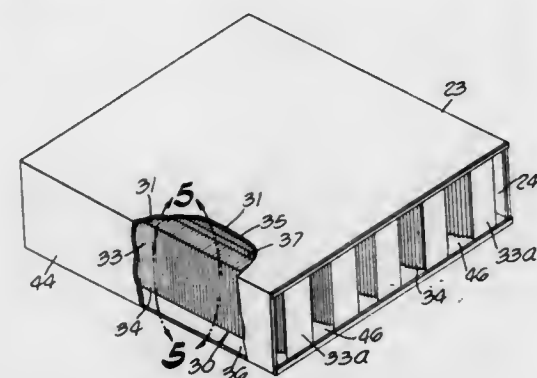
Continuation-in-part of Ser. No. 120,079, March 2, 1971, Pat. No. 3,802,169. This application Feb. 18, 1972, Ser. No. 227,442

The portion of the term of this patent subsequent to Sept., 1991, has been disclaimed.

Int. Cl. B01d 27/06

U.S. Cl. 55—484

12 Claims



A compact filter assembly for providing a large filter area in a relatively small and inaccessible space, the assembly in-

cludes a housing having an air inlet and air outlet means with a plurality of filter elements in the housing separating the air inlet and air outlet means. Each filter element includes a pair of pleated filter media panels which converge at each end to form a rigid hollow column member. The column member is sealably secured at each end to the housing, with the interior of each hollow column member encircling the air outlet means. Thus, air entering the air inlet of the housing flows radially inward through the panels of filter media into the interior of the column members and axially therefrom through the air outlet means.

3,831,356

DRIVE MECHANISM FOR CORN HEADER GATHERING UNIT

Arved Maiste, Brantford, Ontario, and Walter F. Seton, Galt, Ontario, both of Canada, assignors to White Motor Corporation of Canada Limited, Brantford, Ontario, Canada

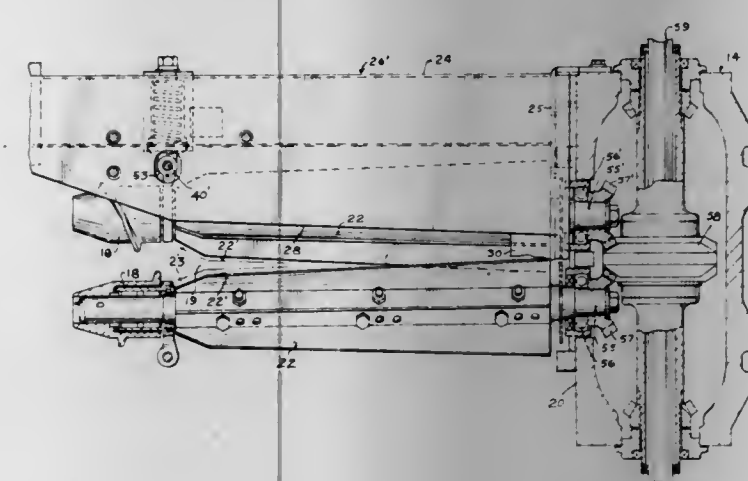
Filed Mar. 21, 1973, Ser. No. 343,432

Claims priority, application Canada, Mar. 20, 1972, 137511

Int. Cl. A01d 45/02

U.S. Cl. 56—10.3

12 Claims



A drive mechanism for corn header gathering unit which is housed in a gear box designed so as to serve as an integral mounting member between the gathering unit and the main frame of a combine on which the unit is adapted to be mounted. The mechanism incorporates a single power input-output shaft assembly for a multi-row gathering unit which includes bevel gear drives for stalk rolls and gathering chains and a safety clutch, with all the gear components submerged in a lubricant and the safety clutch in a separate lubricant containing compartment and with a readily removable cover plate on the gear box which provides easy access for servicing.

3,831,357

RELEASABLE BLADE HOLDER FOR FLAIL MOWER

Bernard C. Mathews, P.O. Box 70, Crystal Lake, Ill. 60014

Continuation-in-part of Ser. No. 383,996, July 30, 1973. This application Sept. 14, 1973, Ser. No. 397,412

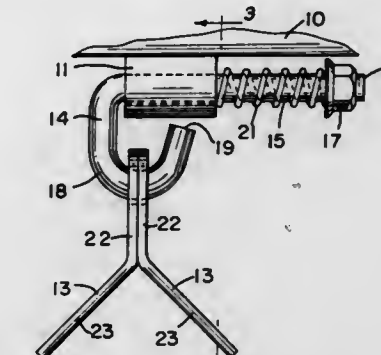
Int. Cl. A01d 55/22

U.S. Cl. 56—294

6 Claims

The rotor drum has sleeve type mounts secured to its surface. A blade hanger connects the blades to each sleeve type mount. The blade hanger has a long straight shank received within the sleeve and a partially closed link portion terminating in a free end. The link shank slides within the sleeve between a normal position and a release position. In the normal position, the free end is closely spaced from the outer surface of the sleeve to prevent removal of a blade from the link

portion. In the release position, the free end is laterally offset from the sleeve to permit blade removal. A coil spring sur-



3,831,358

BELT AND CONNECTING MEANS THEREFOR

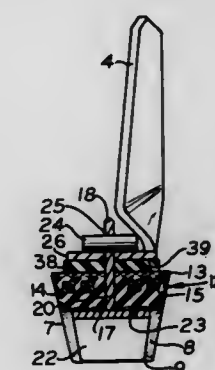
Richard L. Marsh, and Roy E. Semin, both of Lincoln, Nebr., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed May 4, 1972, Ser. No. 250,262

Int. Cl. A01d 55/24

U.S. Cl. 56—291

22 Claims



An improved combination of a belt and connecting means for the belt for securing accessory attachments thereto. The belt includes a body of flexible resilient material having one or more grooves of arcuate configuration extending into and across one surface of the belt. The connecting means includes a connector member extending through and projecting beyond the portion of the belt adjacent the arcuate surface of the groove and a bearing member attached to one end of the connector member. The bearing member engages the groove and has an arcuate portion substantially conforming to at least a portion of the arcuate surface of the groove to provide for a substantially uniform distribution of stresses over the arcuate surface of the groove as the belt flexes during use. Accessory elements such as cutting blades, rake fingers, pick-up hooks and the like may be attached to the connector member to be carried by the belt as it travels around spaced pulleys.

3,831,359

BLADE ASSEMBLY FOR FLAIL MOWER

Bernard C. Mathews, Box 70, Crystal Lake, Crystal Lake, Ill. 60014

Filed July 30, 1973, Ser. No. 383,996

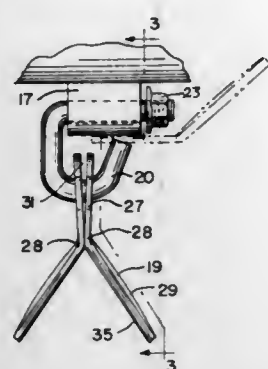
Int. Cl. A01d 55/22

U.S. Cl. 56—294

3 Claims

A blade assembly for a loop type blade mount of a flail rotor comprises two side slicer blades and a common supporting link. The link has a straight shank portion which is received in the loop type blade mount and removably secured therein by a

clinch nut. It also has a curved portion which provides a partially closed loop on which the blades are mounted. The clearance between the free end of the curved portion and the mount surface is less than the blade thickness to prevent



removal of either blade unless the link is first withdrawn from the blade mount. The side slicer blades are widest at the bend to provide a protruding edge which prevents grass stems from wedging in the crevice between the blade shanks.

3,831,360

TEXTURIZED STAPLE FIBER STRUCTURES

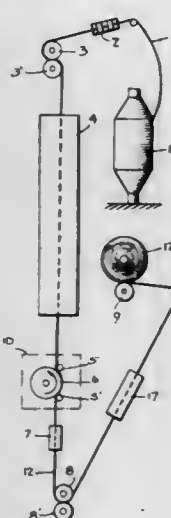
Lajos Horvath, Wallisellen, Switzerland, assignor to Heberlein & Co. AG, St. Gall, Switzerland

Filed Nov. 2, 1972, Ser. No. 303,002

Claims priority, application Switzerland, Nov. 5, 1971, 16105/71; Mar. 9, 1972, 3472/72

Int. Cl. D02g 1/02, 3/00, 3/34

U.S. Cl. 57-2



Method and means for forming continuously by high-twisting a bundle of endless filaments, and grinding or cutting same while in the high-twisted state. The high-twisted bundle may be heat set before or after the grinding or cutting action, or not at all.

3,831,361

MACHINE FOR THE MANUFACTURE OF CORDS AND ROPES

Martin Ullmann, CH-9030 Abtwil, Switzerland

Filed Apr. 11, 1973, Ser. No. 350,248

Claims priority, application Switzerland, Apr. 11, 1972, 5329/72

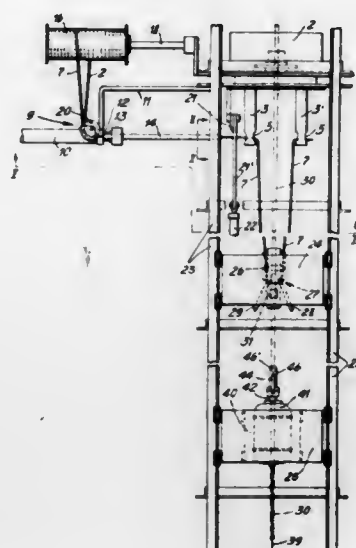
Int. Cl. D07b 3/00

U.S. Cl. 57-25

8 Claims

A machine for the manufacture of cords and ropes, comprises motor-driven roving cylinders, strand clamps for said cylinders, a strand conveyor with strand feeders for feeding said cylinders, a travelling guide trolley having means for feeding strands drawn out from said roving cylinders in lengthwise

loops and combining them with a rotating laying device of a laying trolley which is continuously under the effect of a tension device said tension device being adapted to be drawn forward during the laying process by the entry of the strands or



cords up to adjustable stops which determine the hardness of the strand or cord, whereby the cord can be manufactured entirely automatically with simultaneous determination of hardness and length.

3,831,362

METHOD AND APPARATUS FOR PRODUCING TEXTURED YARN

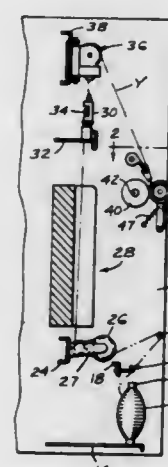
Chester J. Dudzik, Warwick, R.I., assignor to Leeson Corporation, Warwick, R.I.

Filed July 31, 1967, Ser. No. 657,288

Int. Cl. D02g 1/02; B65h 54/42

U.S. Cl. 57-34 HS

18 Claims



Method and apparatus for producing yarn, especially textured thermoplastic yarn, including winding the yarn up into a soft package suitable for reprocessing, as by autoclaving, to yield set yarn.

3,831,363

APPARATUS AND PROCESS FOR AIR TEXTURIZING OF YARNS

Herbert J. Pike, Martinsville, N.J., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

Continuation-in-part of Ser. No. 213,274, Dec. 29, 1971, abandoned. This application Dec. 11, 1972, Ser. No. 314,070

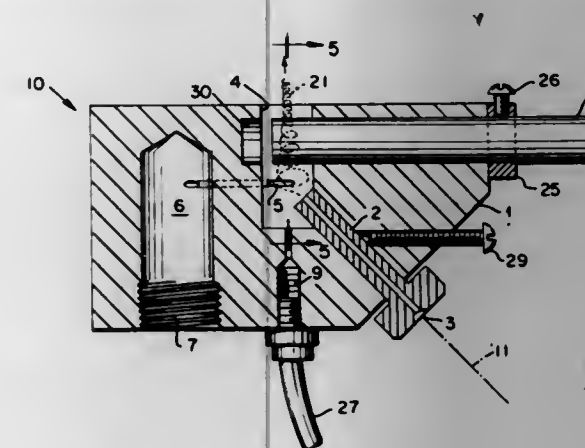
Int. Cl. D02g 1/16

U.S. Cl. 57-34 B

7 Claims

A jet texturizing or twisting apparatus having a texturized chamber with an adjustable direction changing rod extending across the chamber at right angles to yarn travel and having an

axis offset with respect to the axis of the chamber, means for introducing yarn to be texturized, plied or both at an acute angle into a zone in which compressed air is introduced tangentially, causing a vortex which spins a loop or crank-shaped portion of the yarn, imparting to it a false twist. There can be either one yarn inlet at an angle or there may be two inlets. After the false twist, if it is desired to texturize, the direction of the yarn is changed by the adjustable rod and the yarn partially untwists as it moves across the rod, thus changing its direction. If there are two yarn inlets and hence two yarns introduced and the rod can be withdrawn to the point where



there is no change in direction, then instead of texturizing, plying of the two yarns takes place. By introducing the rod part way, plying and partial texturizing can be effected. A process modification is also described in which the yarn before entering the apparatus is moistened. Heat may be also applied, either to the wet yarn before it enters the exit of the texturizer or after leaving the texturizer or both. This results in a partial setting of the loops where the rod has been introduced sufficiently to effect change of direction and hence texturizing. The process is usable even with very fine denier yarn of synthetic thermoplastic, and high operating speeds and, therefore, large outputs are obtained.

3,831,364

SPINNING MACHINES HAVING SPINDLE RAILS MOVABLE FOR TUBE EXCHANGING

Hajime Kawakami, Tokyo, and Fumihiko Yamamoto, Ichikawa, both of Japan, assignors to The Nippon Keori Co., Ltd., Kyogo-ken, Japan

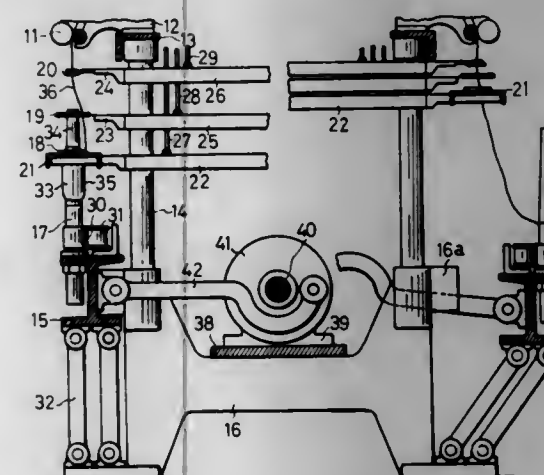
Filed Oct. 11, 1973, Ser. No. 405,287

Claims priority, application Japan, Nov. 6, 1972, 47-110984

Int. Cl. D01h 9/04, 9/14

U.S. Cl. 57-54

19 Claims



Improvements in ring spinning machines of the type having spindle rails selectively translatable between an initial position, for the spinning operation, and a second position spaced outwardly from the initial position, in order to provide a very substantial clearance over the spindles for tube doffing and

donning operations. The spindle rails can be tightly held against the fixed part of the machine during spinning with the identical linkage device serving for translation of the spindle rails between the initial and outward positions, without any other locking means. A tangential belt spindle drive system is arranged in a manner that there is a transmission path from the motor mounted on the fixed end portion of the machine to the spindles carried on the translatable spindle rails irrespective of the position of the spindle rail and that the spindles are always engaged by the tangential belt, with the result that the spindles will be prevented from rotating during tube exchanging, provided the motor is stopped.

3,831,365

METHOD AND APPARATUS FOR APPLYING A FALSE TWIST TO YARNS

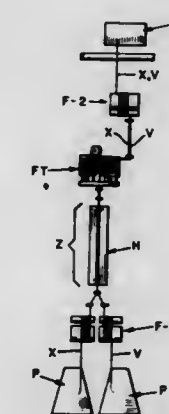
Joseph F. Smith, 1407 Hobbs Rd., Greensboro, N.C. 27410

Filed Oct. 26, 1973, Ser. No. 410,230

Int. Cl. D01h 7/92; D02g 1/04

U.S. Cl. 57-77.4

13 Claims



A false twist is applied to a continuously advancing yarn by tangential contact of a first run of the yarn with a series of yarn flights that intersect and rotate the first run of yarn by frictional contact therewith. The yarn passes around a plurality of freely rotatable rollers and forms a series of yarn flights which intersect and frictionally contact the first run of yarn to apply a false twist thereto.

3,831,366

DEVICE FOR FALSE-TWIST TEXTURING OF TEXTILE YARNS

Josef Raschle, Butschwil, Switzerland, assignor to Heberlein & Co. AG, Wattwil, Switzerland

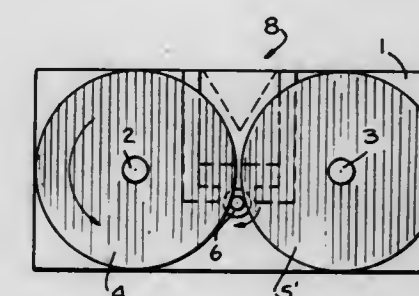
Filed Nov. 1, 1973, Ser. No. 411,799

Claims priority, application Switzerland, Nov. 16, 1972, 16717/72

Int. Cl. D02g 1/04; D01h 7/92

U.S. Cl. 57-77.45

16 Claims



A device for false-twist texturing of textile yarns has two axially parallel rotatable rollers for supporting at least one twist tube in a conical throat between the rollers and in tangential contact with the roller rims, and a magnet for pressing the

same against the rollers, the magnet consisting of at least one axially polarized magnet element and pole pieces connected with same and the same arranged and shaped so that it does not extend beyond the contours of the rollers.

3,831,367

SPINNING AND TWISTING RING CONSTRUCTION

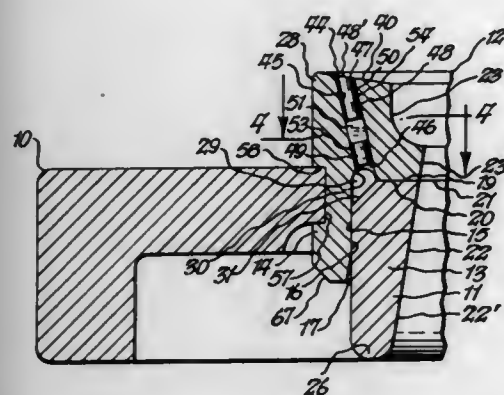
Hyatt B. Atwood, Buffalo, and James N. McLean, Tonawanda, both of N.Y., assignors to Herr Manufacturing Company, Inc., Tonawanda, N.Y.

Filed Apr. 10, 1972, Ser. No. 242,691

Int. Cl. D01h 7/62

U.S. Cl. 57—120

9 Claims



A spinning and twisting ring comprising an upper annular portion and a lower annular portion pressed into engagement therewith with an interference fit, first and second contiguous surfaces on said upper and lower annular portions for defining a seam, a bearing surface formed by said first and second annular portions, a lubricant groove formed by adjacent portions of said upper and lower annular portions, and slot means formed in said seam, said slot means having one end in communication with said lubricant groove and the opposite end terminating at said bearing surface for conducting lubricant to said bearing surface, a second bearing surface on said upper annular ring portion, and a plurality of spot lubrication conduits extending between said lubricant groove and said second surface, said spot lubrication conduits each including a bore in said upper annular ring portion, a pin mounted within said bore and retained therein with an interference fit, and a clearance between said pin and said bore for defining a lubricant channel between said lubricant groove and said second bearing surface.

3,831,368

SELF-CRIMPED YARN AND METHOD OF PRODUCING THE SAME

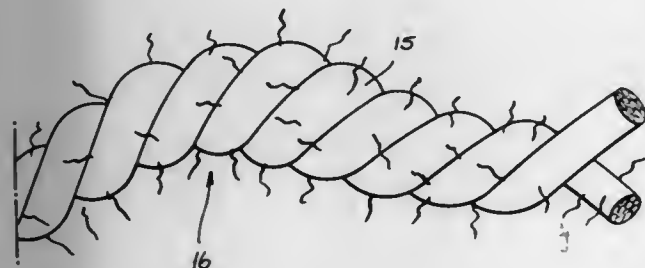
Anthony S. Glowacki, Columbia, S.C., assignor to Uniroyal, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 215,014, Jan. 3, 1971, abandoned. This application May 11, 1973, Ser. No. 359,523

Int. Cl. D02g 1/18, 3/04

U.S. Cl. 57—140 BY

14 Claims



A high bulk, self-crimped plied yarn for use in carpets is disclosed. The composite yarn includes at least two or more component yarn ends, of which at least one must be a prebulk filament yarn of a heat-shrinkable synthetic fiber, while the

remaining ones are spun staple fiber yarns. The starting yarn ends are individually twisted in the same sense, although the magnitudes of the twists may be different, and are plied with a twist in the opposite sense. Upon exposure of the plied yarn to heat, the filament yarn component shrinks, but such shrinkage is restricted by the spun staple fiber yarn component. This results in the formation of a relatively large crimp or "kink" in the composite yarn which is then heat-set therein and imparts thereto bulk properties simulative of Murchie or stuffer box crimped yarns. The component yarns may have different dye affinities to permit production of multi-colored yarn. This abstract is not to be taken either as a complete exposition or as a limitation of the present invention, however, the full nature and extent of the invention being discernible only by reference to and from the entire disclosure.

3,831,369

YARN STRUCTURE AND METHOD OF MAKING SAME

Francis B. Northup, and Donald R. Hart, both of Sanford, N.C., assignors to Spanco Yarns, Inc., Sanford, N.C.

Filed Aug. 11, 1972, Ser. No. 279,944

Int. Cl. D02g 3/04, 3/32

U.S. Cl. 57—144

5 Claims



A yarn and method of making same formed from a roving having a plurality of substantially parallel untwisted discontinuous textile fibers and a single continuous yarn strand wrapped about said roving forming spaced-apart helices having uniform directions.

3,831,370

SAFETY BELT SYSTEM

William J. Gilmore, Manitou Beach, Mich., assignor to American Chain & Cable Company, Inc., New York, N.Y.

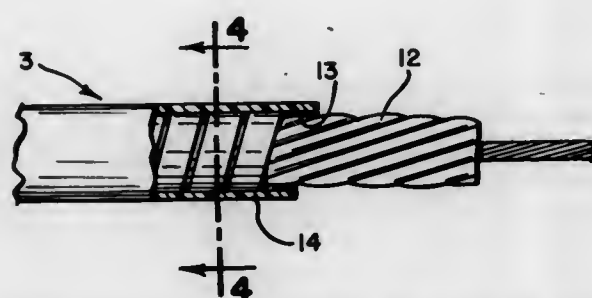
Division of Ser. No. 203,685, Dec. 1, 1971, Pat. No. 3,785,701.

This application May 31, 1973, Ser. No. 365,540

Int. Cl. D07b 1/08

U.S. Cl. 57—145

6 Claims



A safety belt system using a bendable cable section having a self-sustaining shape and a flexible strap section. The cable section is fixed on one side of the seat for positioning at the side of the occupant of the seat. The flexible strap section is fixed at the other side of the seat for extending across the seat and the occupant. Fastening means connected to the free ends of the cable and belt are provided for attaching the end of the belt to the cable at the one side of the occupant.

3,831,371

FLUID CLOCK MECHANISM

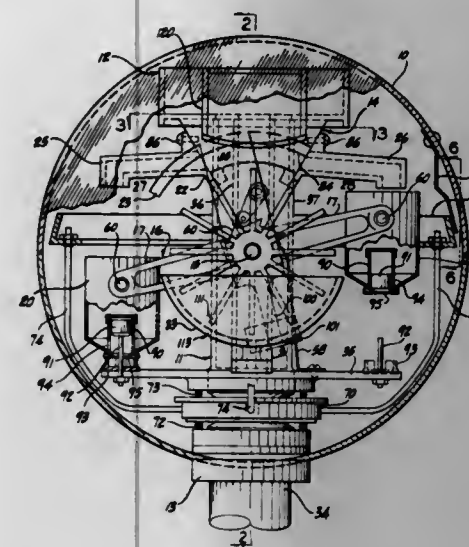
Oskar F. Vatterott, St. Louis, Mo., assignor to Jackson J. Shinkle, St. Louis, Mo.

Filed Aug. 21, 1973, Ser. No. 390,313

Int. Cl. G04b 45/00

U.S. Cl. 58—2

11 Claims



This fluid clock includes an oscillating pallet arm assembly rotatively mounted to a base and carrying buckets at each end. A reservoir is mounted to the base and fluid is supplied to the buckets alternately through a valve controlled conduit system. The valve is provided with an apertured sliding member of arcuate configuration, which oscillates with the pallet arm assembly and selectively opens and closes the conduit system. The buckets are charged in an ascended position and automatically discharged in a descended position. The pallet assembly is mounted to a ratchet controlled shaft, which forms part of a drive mechanism rotating a circular time indicator. A timing mechanism is provided by a shaft-mounted rotor adjustably immersed within a second reservoir.

3,831,372

WATERTIGHT WATCHCASE

Shoji Isono, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

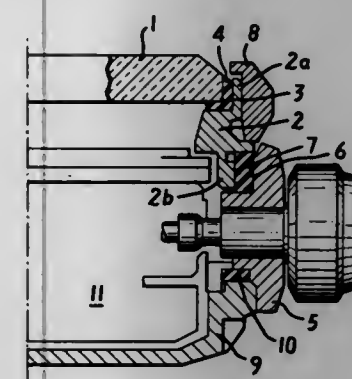
Filed Dec. 5, 1973, Ser. No. 421,853

Claims priority, application Japan, Dec. 8, 1972, 47-140386

Int. Cl. G04b 37/08

U.S. Cl. 58—90 R

6 Claims



A watertight watchcase having a watertight first elastic ring seal without adhesive between a watch crystal and a watch crystal ring circumferentially of the ring seal and watch crystal. The watch crystal ring is provided with two flange surfaces remote from the first ring seal and lying in two planes normal to each other. A second elastic ring seal is received against these two surfaces and compressed thereagainst by a circumferential shoulder on a watchcase band effecting a second watertight seal without adhesive between the watch crystal ring and the watchcase band.

3,831,373

PUMPED AIR STORAGE PEAKING POWER SYSTEM USING A SINGLE SHAFT GAS TURBINE-GENERATOR UNIT

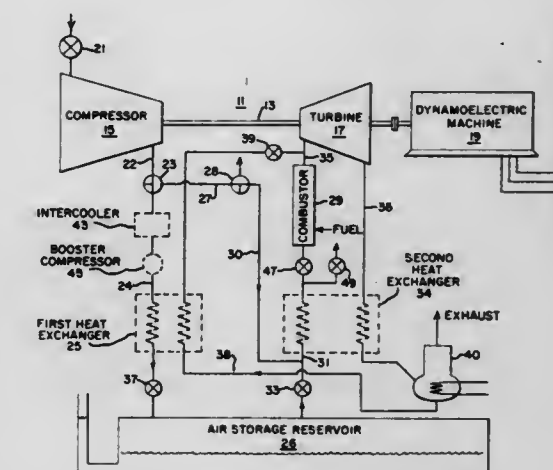
Frank V. Flynt, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 8, 1973, Ser. No. 330,604

Int. Cl. F02c 3/12

U.S. Cl. 60—39.33

5 Claims



A pumped air storage peaking power system is disclosed which comprises a standard single shaft gas turbine-generator unit used in conjunction with a system of valves. The system may be operated in pumping mode for air storage, in peaking mode as an extra-power gas turbine operating with stored compressed air, or as a conventional gas turbine operating with ambient air, all through appropriate valve settings.

3,831,374

GAS TURBINE ENGINE AND COUNTERFLOW HEAT EXCHANGER WITH OUTER AIR PASSAGEWAY

John Nicita, El Cajon, Calif., assignor to Power Technology Corporation, Bloomfield Hills, Mich.

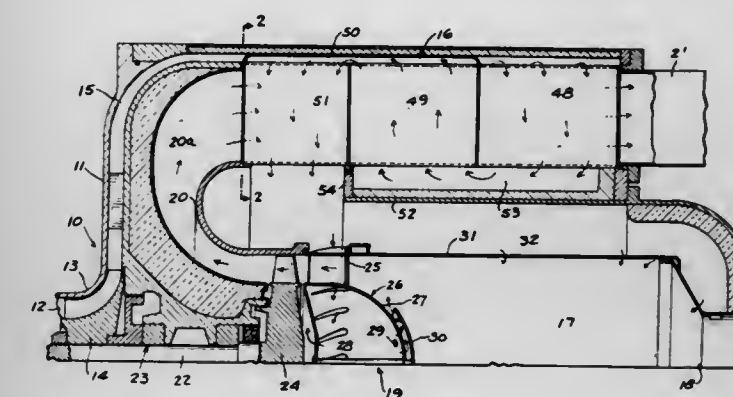
Continuation of Ser. No. 175,819, Aug. 30, 1971, abandoned.

This application June 28, 1973, Ser. No. 374,800

Int. Cl. F02c 7/10; F28f 3/00

U.S. Cl. 60—39.51 R

8 Claims



A gas turbine engine comprising a compressor, a turbine, and a burner. The turbine is interposed between the compressor and the burner. The exhaust gases of combustion from the turbine are reversed and moved axially while the air from the compressor is moved in a sinuous path in heat exchange relationship to the movement of the exhaust gases axially.

3,831,375

PILOTING FLAMEHOLDER FOR JET ENGINE

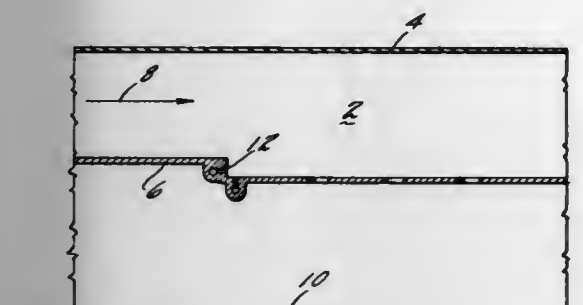
Clyde C. Richard, Vernon, and Alexander Vranos, Rockville, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Apr. 7, 1967, Ser. No. 632,143

Int. Cl. F02g 1/00

U.S. Cl. 60—39.72

3 Claims



An annular duct for use primarily in jet propulsion devices in which igniting and flameholding means are incorporated to form a combustion space. This is accomplished by providing an annular wall within the air stream, the wall containing a downstream facing stepped formation. The stepped formation provides a combustion space and additionally contains means for supplying a fuel and oxidant to the combustion space thereby providing a pilot flame.

3,831,376

THRUST REVERSER

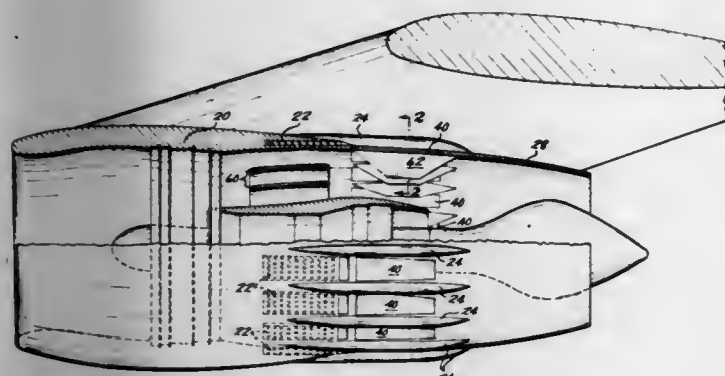
James R. Moorehead, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash. and Aeritalia S.p.A., Napoli, Italy

Filed Feb. 5, 1973, Ser. No. 329,770

Int. Cl. F02k 3/06

U.S. Cl. 60—226 A

8 Claims



A fan air thrust reverser for a high by-pass ratio turbofan aircraft engine wherein the fan air exit duct wall is constructed as a thin wall or single thickness panel to achieve a low boat-tail angle nacelle and the reverser assembly comprises a circumferential series of plug type doors inwardly retractable from the duct wall for forming transverse openings through which the exhaust flow can be directed for thrust reversal, provided that thrust reverser cascade panels, normally stowed upstream of the transverse openings, are translated aft into a position over the transverse openings; and the plug type doors are further actuated to rotate inwardly for flow blockage from their trail or idling position parallel to the fan airstream. Safety features being in first translating the blocker door through a parallelogram linkage arrangement to a fan flow trail position, which, if accidentally happened at high speed, would not reverse thrust without further application of signal and power. Also, at high speed (or any speed where reversing was not desired in flight), the cascades must be positioned over the

openings or only lateral thrust would result all around the nacelle. The reverser system is thus armed by first placing the cascades over the door openings during take off and just prior to touchdown-landing.

3,831,377

METHOD OF AND APPARATUS FOR REDUCING POLLUTION CAUSED BY EXHAUST GASES OF AN INTERNAL COMBUSTION ENGINE

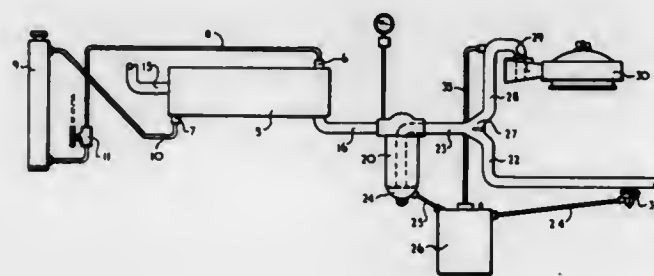
Albert Z. Morin, 973 Ann St., North Bay, Ontario, Canada

Filed July 24, 1972, Ser. No. 274,804

Int. Cl. F02m 25/06; F01n 3/02

U.S. Cl. 60—274

3 Claims



A method and apparatus for treating the exhaust emissions of an internal combustion engine to reduce the pollution of the atmosphere caused thereby that employs a closed circuit cooling system to substantially reduce the temperature of the exhaust contracting its volume, condensing gaseous vapours to liquid form; drains off the liquid, filters the dewatered gases to remove solids; stratifies the filtered gas and conveys the lighter more volatile gases to the engine fuel intake, discharging the residual fraction of cooled, contracted, dewatered and filtered heavier gases to the atmosphere. Additionally, any volatile fumes rising off the liquids collected from the exhaust flow may also be fed to the engine fuel intake. The closed circuit cooling system includes a radiator separate from the engine's usual radiator and an engine operated pump for driving the coolant in the system.

3,831,378

HYDROKINETIC COUPLING SLEEVE SEAL

Warren G. Bopp, Farmington, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed June 25, 1973, Ser. No. 373,201

Int. Cl. F16h 41/04

U.S. Cl. 60—353

9 Claims

A hydrokinetic coupling of the toroidal fluid flow type having an impeller member and a turbine member. The impeller member has a radially inwardly facing trough positioned radially outward of the turbine member which has a radially outwardly facing trough. The troughs together form a toroid of substantially elliptical cross section. A plurality of mutually facing stepped blades circumferentially disposed in the impeller and turbine member troughs define a stepped annular gap between the members. The gap is generally Z-shaped and includes two gap portions parallel to the rotational axis of the members radially offset by a third gap portion transverse to the rotational axis. An annular core guide ring is disposed in the transverse gap portion and secured to the impeller blades; this ring cooperates with a cylindrical sleeve, which is selec-

3,831,380

HOT-GAS ENGINE

Anton Marie Nederlof, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

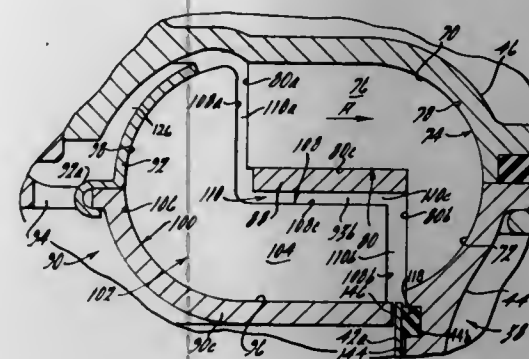
Filed Dec. 29, 1972, Ser. No. 319,542

Claims priority, application Netherlands, Jan. 13, 1972, 7200483

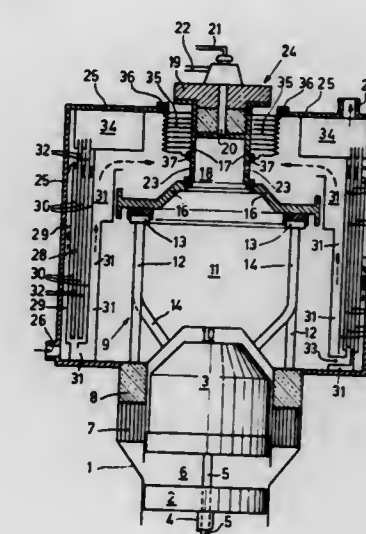
Int. Cl. F23k 5/00

U.S. Cl. 60—524

2 Claims



cooperates with the cylindrical sleeve to prevent fluid leakage from the impeller when the cylindrical sleeve is fully inserted into the offset gap and seated against the core guide ring.



3,831,379

CONTROL APPARATUS FOR A HYDRAULIC MACHINE

Manfred Lixenfeld, Ludwigsburg, and Karl Reiff, Sersheim, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

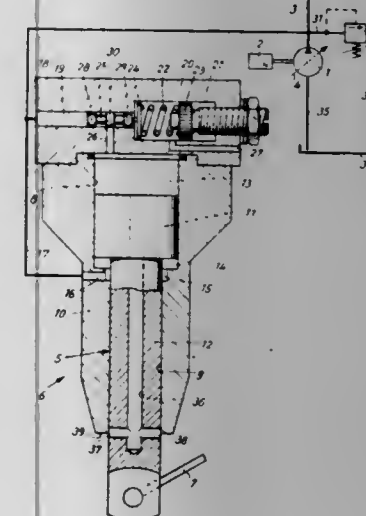
Filed June 7, 1971, Ser. No. 150,695

Claims priority, application Germany, June 13, 1970, 2029239

Int. Cl. F15b 15/22, 15/17; F16h 39/46

U.S. Cl. 60—446

7 Claims



The normal regulation of a pump is effected under the control of a differential piston forming in a cylinder, an annular chamber directly communicating with a pressure conduit of the pump, and a cylinder chamber connected by a pressure-responsive valve with the pressure conduit. The piston has a conduit connecting the cylindrical chamber with a port cooperating with a control edge of the cylinder. At very high pressure in the pressure conduit of the pump, the piston moves to a position in which the port is uncovered by the control edge, and the pressure fluid from the cylinder chamber is discharged through the port so that the piston is resiliently stopped by the pressure fluid in the annular chamber, and then moved back.

3,831,381

LUBRICATING AND SEALING SYSTEM FOR A ROTARY POWER PLANT

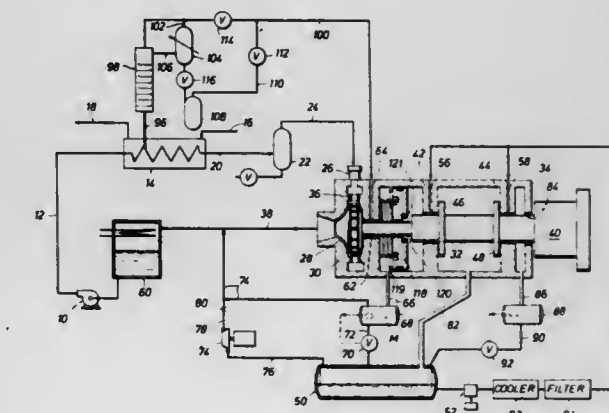
Judson S. Swearingen, 2235 Carmelina Ave., Los Angeles, Calif. 90064

Filed May 2, 1973, Ser. No. 356,580

Int. Cl. F01m 9/00

U.S. Cl. 60—657

19 Claims



In a power system including a shaft driven by expanding a working fluid in a turboexpander and a housing surrounding the shaft and the rotor of the turboexpander, a seal is provided between a process zone containing the rotor and a lubricant zone by injecting a seal fluid into the housing between the two zones at a relatively high pressure. The seal fluid is preferably comprised of the lightest constituent of the working fluid, and the system includes means for recovering the seal fluid from the lubricant and from the working fluid and recycling it.

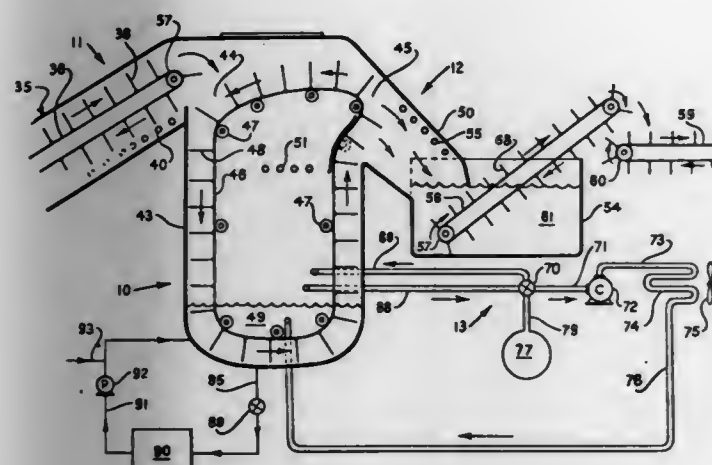
3,831,389

COOLING FOOD PRODUCTS

Samuel P. Lipona, P.O. Box 1064, Delano, Calif. 93215
Continuation-in-part of Ser. No. 190,373, Oct. 18, 1971, and a
continuation-in-part of Ser. No. 188,857, Oct. 13, 1971, Pat.
No. 3,793,937. This application Dec. 1, 1971, Ser. No. 203,698
Int. Cl. F25d 13/06

U.S. Cl. 62-63

6 Claims



Food products, e.g., freshly killed poultry, meat products, freshly harvested vegetables, etc., are cooled by passing through or dipping in a refrigerant liquid such as a low boiling fluorocarbon. Preferably the apparatus has an inlet liquid seal and an outlet liquid seal to prevent escape of fluorocarbon vapor.

3,831,390

METHOD AND APPARATUS FOR CONTROLLING REFRIGERANT TEMPERATURES OF ABSORPTION REFRIGERATION SYSTEMS

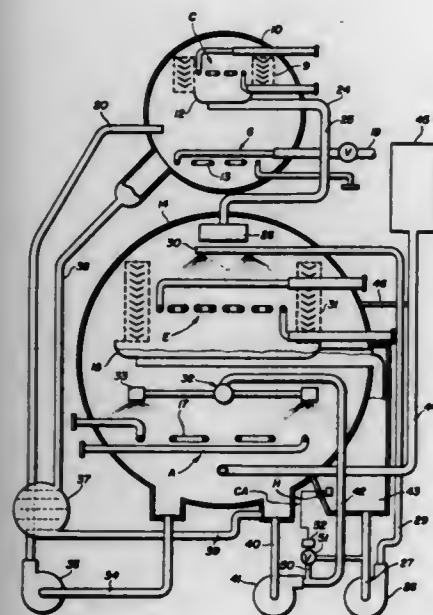
Neil E. Hopkins, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Dec. 4, 1972, Ser. No. 312,171

Int. Cl. F25b 15/06

U.S. Cl. 62-101

3 Claims



A method and apparatus for producing and controlling hygroscopic salt content in the water refrigerant circuit of an absorption refrigeration system by introducing absorbent solution from the solution circuit to the refrigerant circuit and providing a controlled, predetermined percentage of salt concentration in the refrigerant circuit to lower the freezing point of the water refrigerant.

3,831,391

APPARATUS FOR TESTING THE OPERATION OF THE DEFROST SWITCH IN AN AIR CONDITIONING UNIT

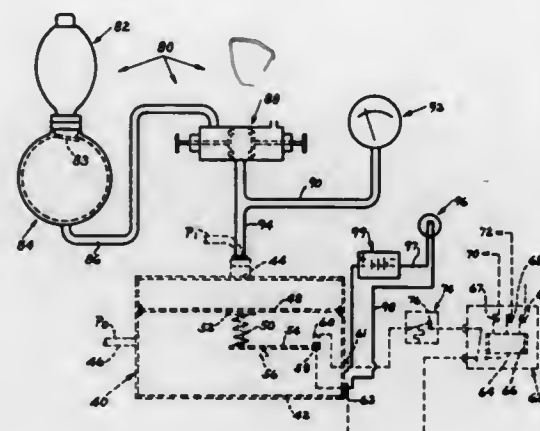
Paul R. Blomstrand, St. Louis County, Mo., assignor to ACF Industries Incorporated, New York, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,820

Int. Cl. F25b 49/00

U.S. Cl. 62-125

24 Claims



The present invention is an improvement in air conditioning system and comprises apparatus for testing the defrost switch in the air conditioning system. The apparatus comprises a pressure reservoir, means for filling the reservoir with fluid pressure, a pressure gauge, conduit means connecting the reservoir with the pressure gauge and with the defrost switch, and means such as a light or horn indicating successful operation of the defrost switch. Successful operation of the switch is clearly indicated by the light or horn even in noisy environments, and the pressure at which the switch operates can be read on the pressure gauge.

3,831,392

AIR CONDITIONER WITH AIR FLOW SENSOR

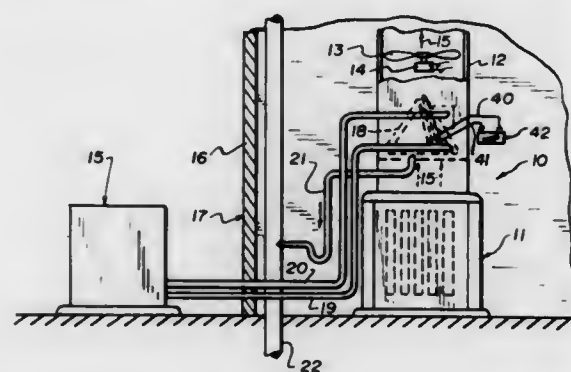
Robert O. Hafner, Franklin, and Richard M. Anderson, Smyrna, both of Tenn., assignors to Heil Quaker Corporation, Lewisburg, Tenn.

Filed May 21, 1973, Ser. No. 362,388

Int. Cl. F25d 21/02

U.S. Cl. 62-140

9 Claims



An air conditioning system comprising an air duct for a stream of air flowing therethrough, an air permeable refrigerant evaporator in the duct for chilling the air and an air pressure differential sensor in communication simultaneously with opposite sides of the evaporator for sensing the pressure drop of air passing through the evaporator with the sensor being mounted entirely on the evaporator and supported only thereby. The disclosure also includes the system in which the evaporator is an A-coil and with the sensor being a U-tube with spaced taps therealong located at the apex of the coil with one tube part being on the inside of the A-coil and the other on the outside.

3,831,393

CONTROL ARRANGEMENT FOR ABSORPTION REFRIGERATION SYSTEM

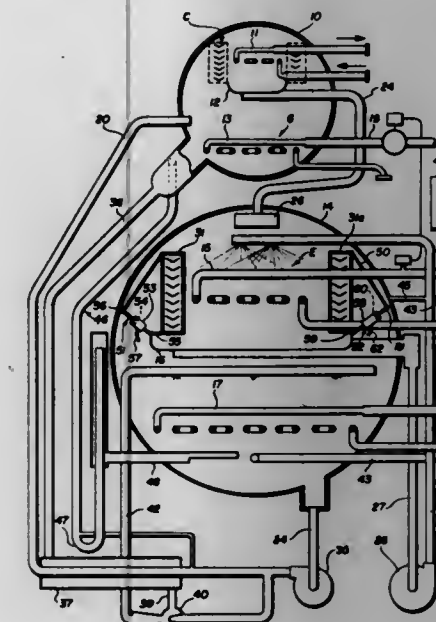
Paul W. Muench, Medford Lakes, N.J., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Dec. 26, 1972, Ser. No. 318,133

Int. Cl. F25b 15/06

U.S. Cl. 62-141

10 Claims



An absorption refrigeration system featuring a damper device between the evaporator and the absorber and controlling the pressure drop of fluid flowing from the evaporator to the absorber.

3,831,394

HEADER DISTRIBUTION SYSTEM FOR ICE RINKS

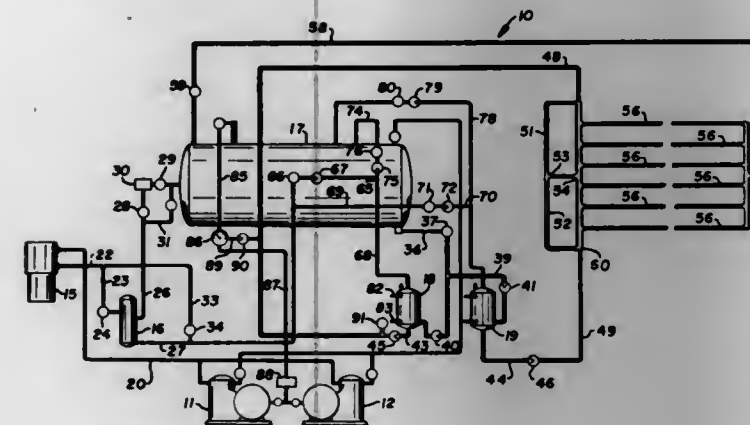
Richard B. Holmsten, 2127 Dudley Ave., St. Paul, Minn. 55108

Filed Apr. 9, 1973, Ser. No. 349,071

Int. Cl. A63c 19/10

U.S. Cl. 62-235

3 Claims



A system for providing a refrigerant to an ice rink, the system including a compressor means for compressing a refrigerant, means for delivering the compressed refrigerant to a low pressure receiver vessel, and means for passing refrigerant condensate from said low pressure vessel to a pair of pumper drum vessels. The rink is provided with a plurality of refrigerant transmitting conduits extending from one end thereof to the other, and with a high pressure header extending across one end of the rink and a low pressure header extending across the opposed end of the rink. The high pressure header is provided with a balance header which couples the opposite free ends of this header element together, and an intermediate line or conduit is also provided which couples the central or mid-portions of the high pressure header and the balance header together.

3,831,395

AIR CONDITIONER

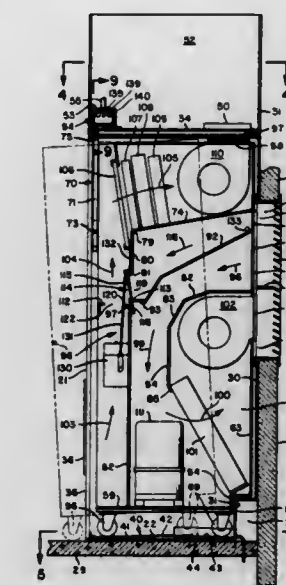
Hans F. Levy, Old Cuthbert and Deer Rds., Cherry Hill, N.J. 08034

Filed May 30, 1973, Ser. No. 365,173

Int. Cl. F25d 23/12

U.S. Cl. 62-263

13 Claims



An air conditioner including a cabinet located in a building space to be conditioned adjacent to a building wall having an opening, the cabinet having a pair of outside air inlets and an outlet communicating through the wall opening, and inferiorly located condenser in the cabinet in a path of cooling air between one inlet and the outlet, the cabinet having a room air inlet and a conditioned air outlet, and a superiorly located evaporator interposed in the path of fluid movement between the room air inlet and conditioned air outlet. The installation is uniquely advantageous for use in existing buildings without altering structure.

3,831,396

SELF-REGULATING THERMAL PROTECTION SYSTEM FOR HEATED SURFACES

Coleman Dup. Donaldson, Princeton, and Richard S. Snedeker, Cransbury, both of N.J., assignors to Aeronautical Research Associates of Princeton, Incorporated, Princeton, N.J.

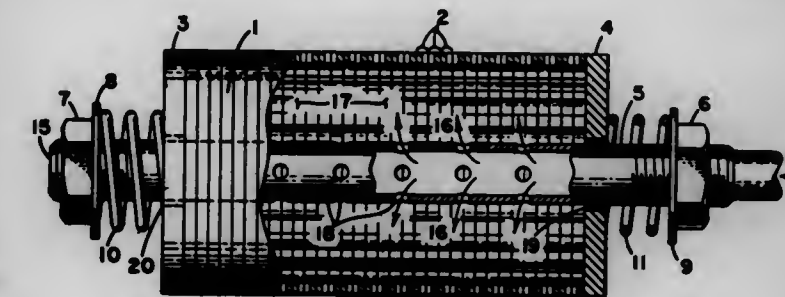
Continuation-in-part of Ser. No. 173,151, Aug. 19, 1971,

abandoned. This application July 25, 1972, Ser. No. 275,059

Int. Cl. F25b 19/00

U.S. Cl. 62-467

35 Claims



A system for providing protective cooling for machine surfaces which, in the absence of such cooling, would otherwise be damaged on exposure to a high heat flux, and in which such cooling is initiated and regulated by the surface itself through its novel construction and the behavior of the materials of which it is made. This cooling action is achieved through the use of surface materials having different thermal expansion characteristics which are arranged in such a way that the exposure to a high heat flux on one side of the surface causes the release through the surface of a coolant fluid contained under pressure on the other side.

3,831,397

MULTI-STAGE ABSORPTION REFRIGERATION SYSTEM

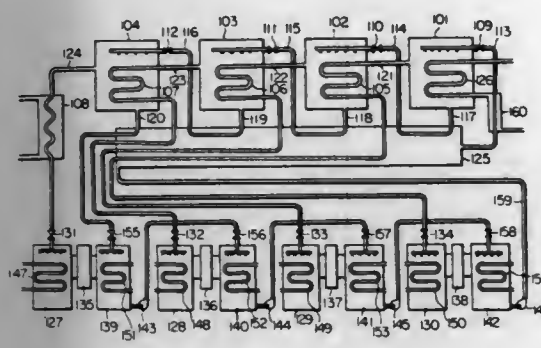
Gohee Mamiya, 11-6 Mitsuzawa Kamicho, Kanagawa-ku, Yokohama, Japan

Continuation-in-part of Ser. No. 180,640, Sept. 15, 1971, Pat. No. 3,742,728. This application May 1, 1973, Ser. No. 356,102 Int. Cl. F25b 15/06

U.S. Cl. 62-476

6 Claims

U.S. Cl. 64-1 R



There is provided an improved multi-stage absorption refrigeration system employing a highly concentrated solution of refrigerant to obtain an increased refrigeration effect relative to the quantity of input heat to the system as compared with a conventional system, comprising a multi-stage regenerator-condenser system and at least a one-stage evaporator-absorber system provided with a pressure elevating device therebetween.

3,831,398

ORNAMENT WITH SECURING MEANS

John N. Davis, Sr., Ten Stanley Oval, Westfield, Fayetteville, N.C. 07090

Filed Apr. 4, 1972, Ser. No. 240,989

Int. Cl. A44c 25/00

U.S. Cl. 63-2

1 Claim



A small button like device is adapted to receive an ornament on one side and is contoured on the other side. This other side is provided with means for detachably securing same to the exposed navel of a wearer by a combination of suction, friction and adhesion.

3,831,399

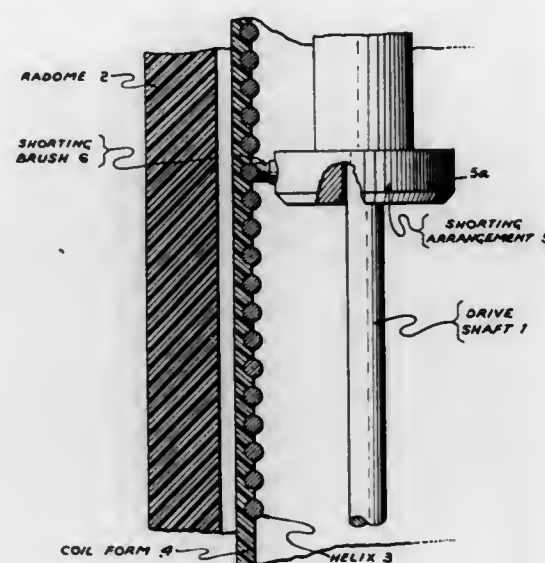
DRIVE SHAFT CONFIGURATION FOR A HIGH VOLTAGE ANTENNA TUNING MECHANISM

Charles P. Majkrzak, Nutley, and Stephen F. X. Sladowski, Bayonne, both of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Feb. 9, 1973, Ser. No. 330,926

Int. Cl. F16c 1/00

13 Claims



There is disclosed dielectric material drive shaft constructions designed for use particularly in high electric-field potential environments such as in driven tuning mechanism of a high voltage helical transmitting antenna, which shaft constructions are capable of maintaining operation under unusually high mechanical loads requiring both rotational and axial movement. A plurality of elongated common-stock pieces of layered epoxy or silicon-bonded fiberglass are shaped cross-sectionally to be united predeterminably into a unitary form via longitudinally running bonds of epoxy adhesive. The unitary form cross-section is a "soft" polygon, for example a rounded-off triangle or square, wherein the individual pieces are so arranged as to have the interlaminar shear planes of the layered dielectric material substantially perpendicular to the direction of the force of the applied loads. To provide a shaft surface which resists wear, prevents surface contamination, and has nontracking properties most beneficial in preventing arcing and creepage in extremely high potential electric gradient environments, a sleeve or jacket of teflon is provided about the shaft's outer surface. In cases where shafts loads are excessive, the shaft construction may include a multiplicity of strong dielectric pins driven thru the unitary structure, each across a successive interfacing epoxy bond, to form a helical pin configuration which resist interlaminar shear loads and provides additional strength to these bonds.

3,831,400

CONSTANT-VELOCITY JOINT

Gerard Morin, Bondy, France, assignor to Societe Anonyme D.B.A., Paris, France

Filed Apr. 9, 1973, Ser. No. 349,139

Claims priority, application France, Apr. 20, 1972, 72.13906

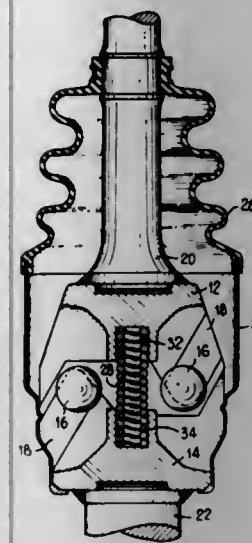
Int. Cl. F16d 3/30

U.S. Cl. 64-21

3 Claims

A constant-velocity joint of the type having torque transmitting members in the form of two interlacing forks and bearing balls situated between the prongs of the fork, the balls being movable in grooves provided in the mutually opposite surfaces of the fork prongs. To prevent relative axial motion of

the forks, a flexible tie has each of its ends connected to a respective fork in the central region of the joint. In a preferred embodiment, the tie is a spring steel wire coiled to have closely wound turns. When the joint is bent, the tie is curved in the



region of its center with sufficient flexibility to prevent jamming of the joint. The flexible tie is more economical to manufacture than the prior art connecting means such as those including a ball and socket device whose center accurately coincides with the joint's bending center.

3,831,401

SLIP CLUTCH FOR OUTBOARD MOTOR

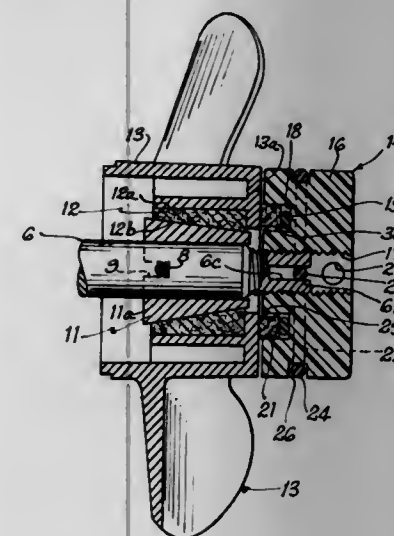
Mathew Hurwitz, 63 Oakland Ave., Auburndale, Mass. 02166

Filed Aug. 30, 1973, Ser. No. 392,982

Int. Cl. F16d 43/20

U.S. Cl. 64-30 R

9 Claims



An improved slip clutch for outboard motors which prevents damage to the propeller and drive train and which eliminates shear pin breakage. The clutch friction mechanism is incorporated within a propeller hub while the mechanism for maintaining the clutch pre-load is housed within a special hub nut designed for ease of calibration and resistance to corrosion and abrasion.

3,831,402

KNITTING MACHINE ENCODER

Ralph H. Schuman, Euclid, Ohio, assignor to The Warner and Swasey Company, Cuyahoga County, Ohio

Filed Oct. 27, 1971, Ser. No. 192,984

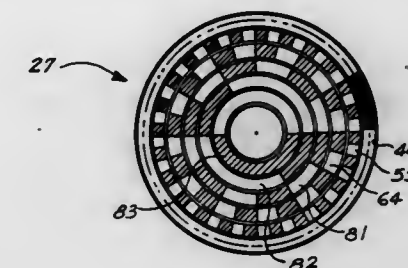
Int. Cl. D04b 15/78

U.S. Cl. 66-50 R

5 Claims

An improved knitting machine includes an encoder which provides signals which vary with variations in the relative posi-

tion of a needle cylinder and associated feeders. The encoder includes code tracks for providing binary coded needle count signals, feeder count signals, and revolution count signals. A



control system receives these binary coded signals and effects the knitting of a selected one of a plurality of patterns. A pattern selector switch is operable to vary the selected pattern.

3,831,403

DEVICE FOR PRODUCING SIMULTANEOUSLY TWO SEPARATE FABRICS RIB ON THE SAME HEAD OF A RIB KNITTING MACHINE WITH TWO NEEDLE BEDS

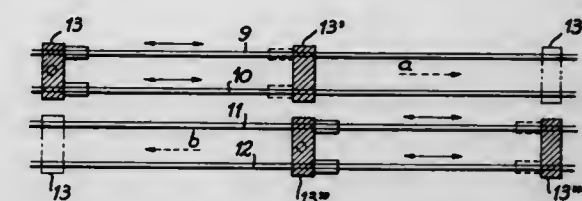
Karel B. Bruelemans, Gentbrugge, Belgium, assignor to Fabrique Nationale Herstal S.A. en abregé FN, Herstal-lez-liege, Belgium

Filed Feb. 27, 1973, Ser. No. 336,189

Int. Cl. D04b 15/52

U.S. Cl. 66-126 R

7 Claims



The device is adapted to be attached to a conventional flat knitting machine with two V-shaped needle beds and includes a movable thread catcher for catching threads between the needle beds and drawing them downwardly, a thread cutter having open blades between which the threads are drawn downwardly, and control means programmed by the movable thread catcher and the thread cutter for moving the thread catcher between a lowered and a raised position and for actuating the thread cutter to cut the threads drawn downwardly by the thread catcher.

3,831,404

WEB SUPPORTING DRUM

Valentin Appenzeller, Am Hagelkreuz, Germany, assignor to Eduard Kusters Maschinenfabrik, Gladbacher Strasse, Germany

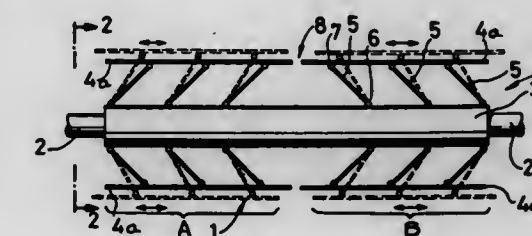
Filed Aug. 14, 1972, Ser. No. 280,431

Claims priority, application Germany, Aug. 14, 1971, 2140891

Int. Cl. B05c 3/04

U.S. Cl. 68-199

4 Claims



A drum for supporting a textile web or the like wrapped around the drum is formed by a cylindrical series of bars arranged to form a drum-like contour for carrying the web. The

bars move radially and axially while rotating as a series in a manner restraining lateral shifting of the web while radially agitating the web more or less as desired.

means renders the handle assembly inoperative against latch releasing actuation upon the other cable element being severed between the coupler means and the locking device.

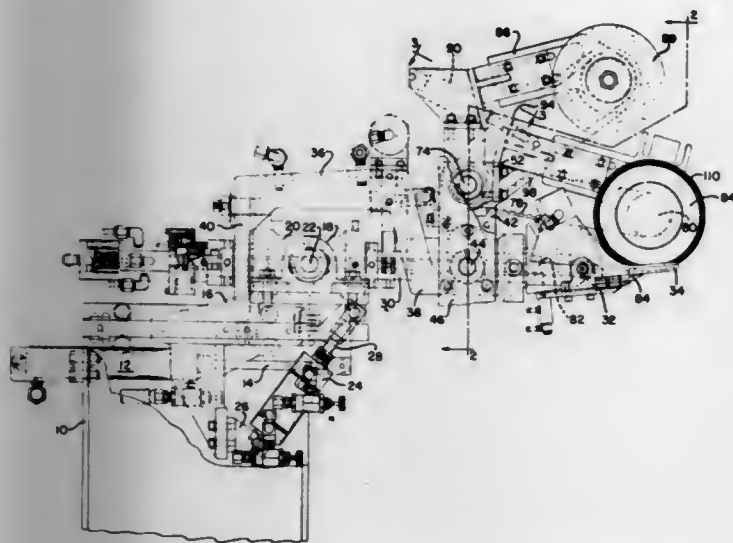
3,831,405

ROUGHING MACHINE WITH ROUGHING TOOL SHARPENING MECHANISM

Walter Vornberger, Tewksbury, Mass., assignor to International Shoe Machine Corporation, Nashua, N.H.
Filed Sept. 24, 1973, Ser. No. 399,881
Int. Cl. C14b 1/44

U.S. Cl. 69-6.5

15 Claims



A mechanism for sharpening the roughing tool of a roughing machine. The roughing machine includes a roughing tool mounted to a rougher unit. The rougher unit is moveable between an upper position wherein the roughing tool is in an idle position and a lower position wherein the roughing tool is in a roughing position and is effective to rough the upper margin of a shoe assembly. A sharpening tool is mounted for movement between an idle position wherein it is spaced from the roughing tool and a working position wherein it is in engagement with the roughing tool. A positioning device is effective to bring the sharpening tool to its working position when the roughing tool is in its idle position.

3,831,406

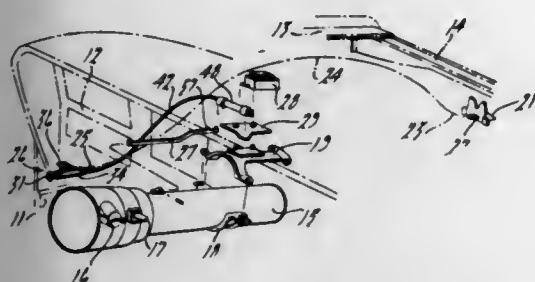
REMOTE CONTROL LATCH RELEASE MECHANISM

Harold C. Gebhard, Livonia, and Alfred M. Keller, Dearborn, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed June 21, 1973, Ser. No. 372,444
Int. Cl. B60r 25/04; E05b 65/19

U.S. Cl. 70-1.5

12 Claims



A remote control latch release mechanism comprising a handle assembly slidably journaled in a support means and having a cable coupler means receiving a pair of cable elements for movement by the handle assembly in latch releasing direction. One of the cable elements is connected to a release lever of a latch mechanism located remotely from the handle assembly and the other cable element is coupled to a locking device operable to hold it and thereby the handle assembly against movement in latch releasing direction. A disabling

An electrical locker means including a locker structure having a chamber, door means having open and closed positions

3,831,407

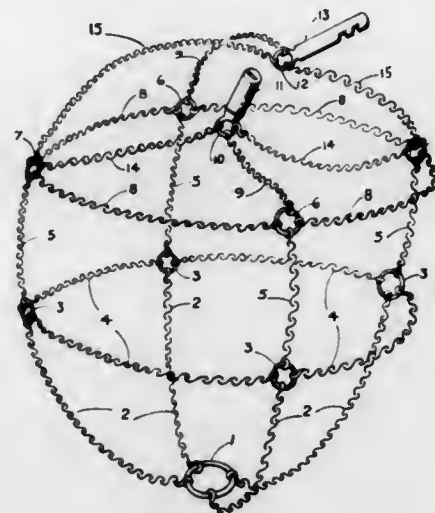
HELMET GUARD

Lloyd Archelle Coleman, 6836 E. Kingston Dr., Tucson, Ariz. 85710

Filed Dec. 26, 1972, Ser. No. 318,549
Int. Cl. E05d 73/00

U.S. Cl. 70-18

4 Claims



The helmet guard of the present invention is especially adapted to be used for head helmets of the type worn by the rider of a motor vehicle, such as a motorcycle. It comprises a number of lengths or strands of supple metal material, such as chain, interconnected in such a manner so as to form a cage-like receptacle into which the helmet may be placed and the shape of which conforms to that of the helmet so that the same is enveloped thereby. The top of the guard is closed by a pair of triangular shaped flaps made of said supple material or chain when locked together at their apexes provide a secure closure for the guard. The flaps may be passed over a frame member (or other suitable part) from opposite sides thereof, and then locked together at their apexes.

3,831,408

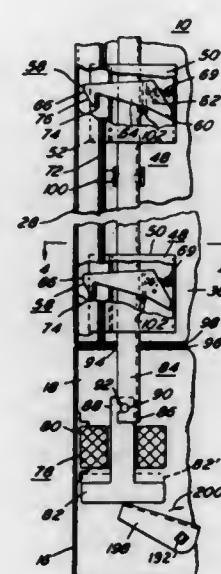
ELECTRICAL LOCKER MEANS

Bernard Featherman, 2100 Spruce St., Philadelphia, Pa. 19103

Filed Mar. 16, 1973, Ser. No. 341,924
Int. Cl. E05b 47/02, 65/02

U.S. Cl. 70-84

6 Claims



for controllably enclosing said chamber, an electrically actuated locking means having locked and release positions for locking said door means in its closed position and controllably releasing said door means for placing same in its open position, and lock control means for selectively energizing the electrically actuated locking means for releasing the locking means.

3,831,409

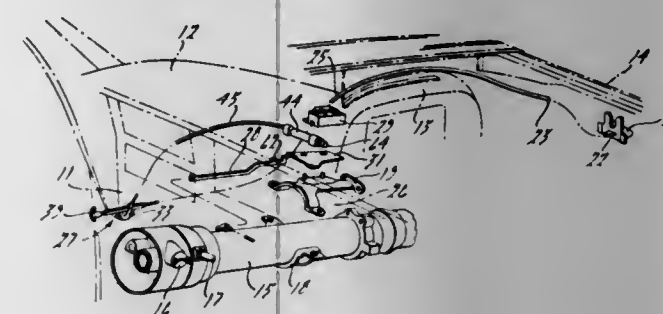
REMOTE CONTROL HOOD LATCH RELEASE MECHANISM

Harold C. Gebhard, Livonia, and Alfred M. Keller, Dearborn, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed May 9, 1973, Ser. No. 358,776
Int. Cl. B60r 25/04; E05b 65/19

U.S. Cl. 70-241

12 Claims



A remote control hood latch release mechanism having an actuator means adapted to be coupled to a latch mechanism release lever by a first cable means for actuating the latch mechanism from a remote location. A second cable means is coupled to the actuator means and extends to a locking means that is operable to immobilize the second cable means to prevent movement of the actuator means in unlatching direction.

3,831,410

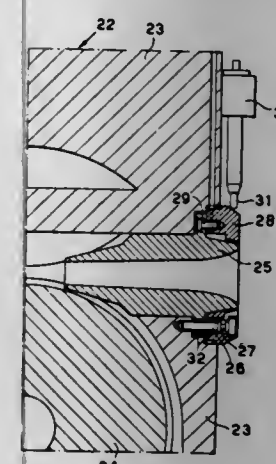
SAFETY DEVICE FOR ROLLING MILLS

Ilario Properzi, Via Cosimo Del Fante, 10, Milan, Italy

Filed July 9, 1973, Ser. No. 377,303
Claims priority, application Italy, July 22, 1972, 27322/72
Int. Cl. B21b 39/14, 35/00; F16p 7/00

U.S. Cl. 72-5

6 Claims



In a rolling mill, particularly a multistand rolling mill for the drawing of metal rods and the like, the improvement consisting in a safety device provided on at least the last stand and consisting of the shearable means securing the outlet guide for the rolled material to the same stand, whereby when the shearable fixing means are subjected to a thrust greater than a predetermined value, the outlet guide is separated from the rolling stand and engages switch means by which the drive to the rolling stands is disengaged.

925 O.G.-44

3,831,411

FULLY AUTOMATIC UPSETTING MACHINE

Hiroshi Sakai; Hisateru Yamashita, and Toshihiro Tanaka, all of Komatsu, Japan, assignors to Kabushiki Kaisha Komatsu Selsakusho, Tokyo-To, Japan

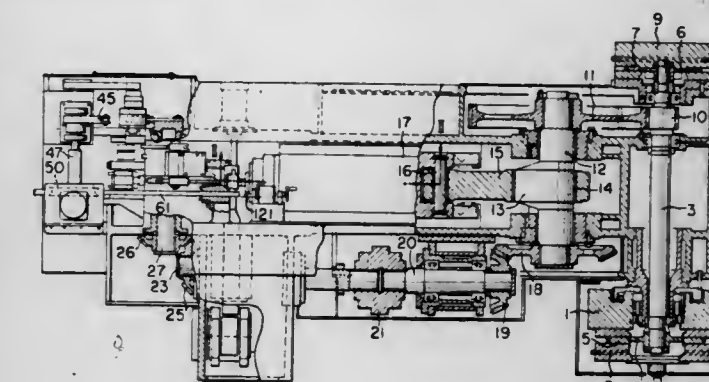
Continuation of Ser. No. 260,895, June 8, 1972, abandoned.

This application Aug. 27, 1973, Ser. No. 391,595

Claims priority, application Japan, June 18, 1971, 46-43272
Int. Cl. B21g 3/32

U.S. Cl. 72-10

8 Claims



Upsetting machine, a kind of horizontal mechanical press, wherein a long-stock bar material including wire material being fed is successively cut to a sized material with a predetermined length in the first station, such a sized cut material is held by a transfer mechanism in the second station, the transfer mechanism positions the cut material directly in front of an upsetting die in the third station, the cut material is upset by the die and a punch, the upset formed article is removed from the die, and thus the entire operation is performed fully automatically in a single machine.

3,831,412

COORDINATED STOPPING OF TAKE-UP AND PROCESS MACHINES

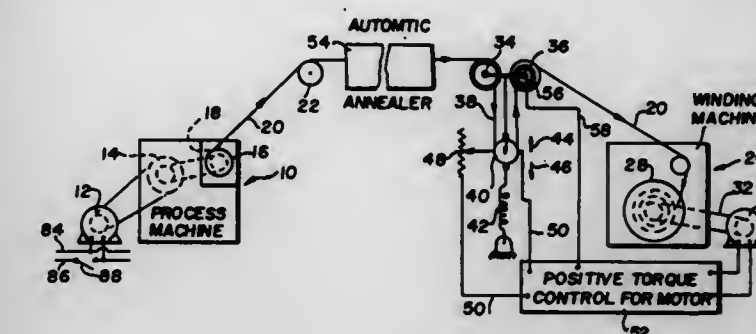
Ben Bravin, New York, N.Y., assignor to Cook Machinery Company, Division of Wire Technology & Machinery Company, Hackensack, N.J.

Filed July 13, 1973, Ser. No. 378,989

Int. Cl. B21c 1/12

U.S. Cl. 72-19

12 Claims



Winding machines that spool wire delivered from a processing machine, such as a wire drawing apparatus, having a speed control that passes a loop of wire around a dancer roll that actuates the control. This invention coordinates the stopping of the processing machine and the winding machine by providing a brake to the rotation of the winding machine spool. This brake applies a negative torque that is grossly set to stop the rotation of the winding machine at a decrease rate which is greater than the decrease rate of the processing machine. A positive torque of the winding machine drive is applied during the brake actuation and continues to supply a positive torque under the control of the dancer roll. The stopping rate of the winding machine is thus coordinated to the stopping time of the processing machine.

3,831,413

TUBE EXPANDER

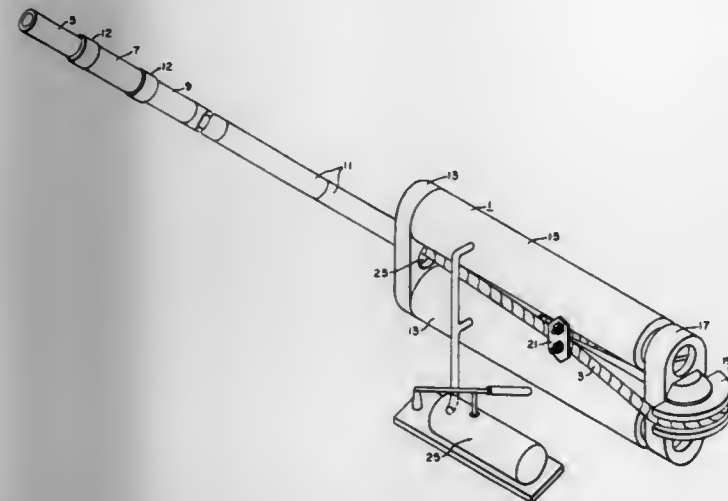
Raymond H. Glatthorn, St. Petersburg, Fla., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 1, 1972, Ser. No. 302,951

Int. Cl. B21d 15/06

U.S. Cl. 72-59

8 Claims



A tube expander comprising an elastomer bushing which expands outwardly when compressed between two bushings pulled together by a cable, which is pulled through a plurality of short lengths of tubing capable of folding against each other when the cable is slack, allows the tube expander to fit through manways and into corners of channel heads of heat exchangers to expand the tubes a predetermined distance from one end thereof.

3,831,414

MEANS FOR MAKING PULLEYS

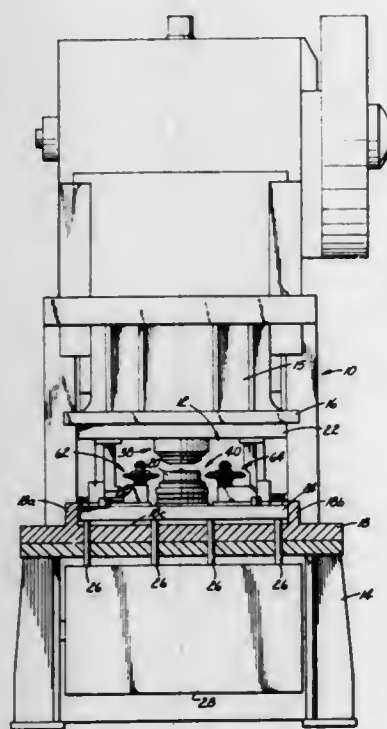
John W. Haswell, and Stanley A. Haswell, both of c/o Master Craft Engineering, Inc., 39555 Express Hwy., Belleville, Mich. 48111

Filed July 9, 1973, Ser. No. 377,643

Int. Cl. B21d 22/16

U.S. Cl. 72-82

15 Claims



An apparatus and method are provided for forming a pulley including a pulley groove from a cup-shaped metal blank having an axially extending wall. The blank is crushed between axially closing dies which are used in combination with forming rolls arranged to apply radially inwardly directed rolling

pressure to the wall of the blank. The forming rolls include rough and finish rolls which are carried by cam actuated slide assemblies arranged to move the rough roll into the blank wall in advance of the finish roll in a working operation so as to partially form a pulley groove and to maintain the finish roll in the partially formed groove in an idling operation. Thereafter, the rough roll is disengaged from within the partially formed pulley groove and the finish roll is advanced to the root of the partially formed groove and into a working operation. The axially closing die movement includes a lost motion dwell during which the dies are moved as a unit in their final relative position together with the finish roll to assure the complete radial advance of the finish roll to assure the complete radial advance of the finish roll and the truing of the pulley being formed.

3,831,415

SELF TAPPING FASTENER AND METHOD AND DIES FOR MAKING SAME

Edwin J. Skierski, Stratford, Conn., assignor to USM Corporation, Boston, Mass.

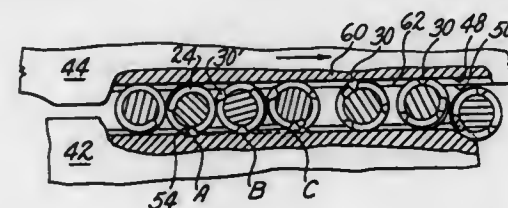
Division of Ser. No. 256,370, May 24, 1972. This application

Sept. 18, 1973, Ser. No. 398,317

Int. Cl. B21b 3/06

U.S. Cl. 72-88

3 Claims



A self tapping threaded fastener, the method of making same and the rolling dies therefor wherein said fastener is adapted for assembly with a member in which a standard internal thread is formed by the fastener and in which a zero running torque or controlled prevailing torque is established between said fastener and member. A plurality of thread forming lobes are disposed on an otherwise standard, substantially fully formed thread on the tapered work entering end, wherein predetermined lobes on said tapered end proximate the shank portion are rolled such that their ultimate projection is within the envelope of the imaginary projection of the convolution of the shank thread toward the tip of said fastener. The method of making said fastener includes rolling a substantially continuous thread from said shank portion throughout said tapered work entering portion and simultaneously forming spaced apart thread forming lobes superimposed upon said thread in said work entering portion, then subsequently rerolling said threaded shank portion and said predetermined lobes on the work entering portion to the cylindrical thread convolution of said shank portion, as projected.

The dies for rolling said fastener include a first, and second rolling dies, said dies having a fastener entrance end and a fastener exit end, and disposed intermediate said ends thread forming surfaces including a plurality of parallel thread crest forming grooves and thread root forming ridges having a shank forming flat portion being bounded along one edge by an upwardly inclined tip forming surface, said first rolling die being the primary rolling die and having a shank and tip forming section including a lobe forming section wherein a plurality of regularly spaced lobe forming pockets are disposed in said thread forming grooves and ridges in said tip forming surface, a reroll support section wherein said thread forming surfaces match said shank forming flat portion and a release section, said reroll support section of a predetermined rolling length so as to reroll a predetermined number of said thread forming lobes, and a said second rolling die having shank and tip forming sections, and a reroll section so disposed as to reroll a predetermined number of said thread forming lobes.

3,831,416

NECKING DIE ASSEMBLY WITH INTERNAL ROLLERS

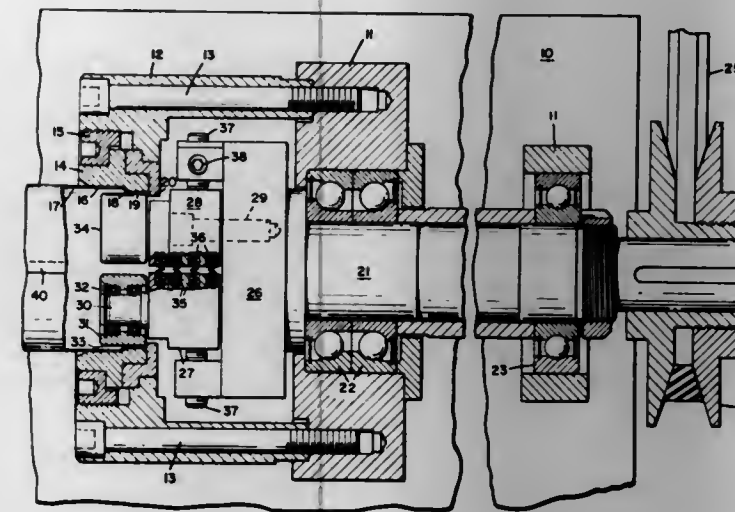
Wayne F. Wolfe, Belmont, Calif., assignor to United Can Company, Hayward, Calif.

Filed Jan. 4, 1973, Ser. No. 320,896

Int. Cl. B21d 3/02

U.S. Cl. 72-117

3 Claims



A die assembly for forming a reduced-diameter neck on the end of a cylindrical can body having a side lap wherein no orientation of the can lap relative to the necking die is required. The can body is pushed into a ring necking die and one or more rollers roll along the inside of the can body to press the can body end outwardly against the inwardly facing reduced-diameter die surface of the necking die, the rollers being yieldable at all times away from the die so that they may roll over the can lap wherever it may be encountered.

3,831,417

STRETCH-REDUCING ROLLING MILL

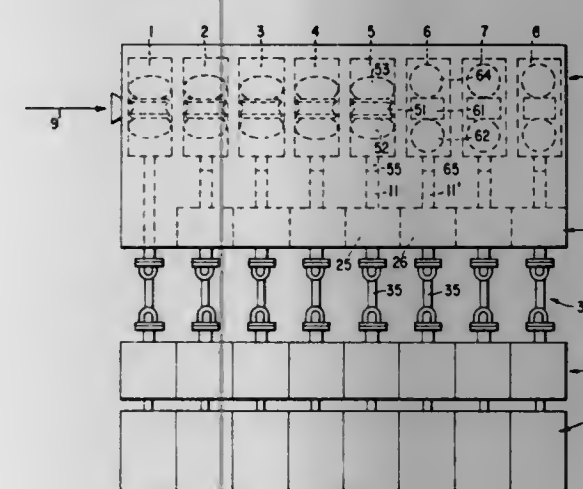
Hans-Georg Ritter, Rheydt, and Ulrich Weiser, Monchengladbach, both of Germany, assignors to Wean United, Inc., Pittsburgh, Pa.

Filed Oct. 10, 1973, Ser. No. 404,944

Int. Cl. B21b 31/08, 35/12

U.S. Cl. 72-235

3 Claims



The disclosure of the application relates to a stretch-reducing rolling mill for tubes, including a number of tandemly arranged mill stands, and individual gear-motor drives for each stand. The mill stands include frames or supports which in an interchangeable manner receive either a three-roll head or a four-roll head, the former having a single drive shaft and the latter two spaced apart drive shafts. Between the gear motors and the stands there is provided for each stand distribution

gear units having two output drive shafts, one being employed to drive the three-roll head and both to drive the four-roll head.

3,831,418

EXTRUSION DIE ASSEMBLY

Evdokim Stepanovich Bogdanov, Volzhsky prospekt 45, kv. 90, Kuibyshev; Alexandr Sergeevich Alexandrov, Vyazemskaya ulitsa, 6, kv. 51, Moscow; Vadim Dmitrievich Schegolevatykh, Sadovaya ulitsa, 172, kv. 3, Kuibyshev; Vyacheslav Ivanovich Saveliev, Spartakovskaya ulitsa, 16, kv. 7, Moscow; Mikhail Fedorovich Zakharov, ulitsa Tolbukhina, 12, kv. 84, Moscow; Jury Nikolaevich Alexandrov, 3 Prudny pereulok, 11/13, kv. 93 "A", Moscow; Gennady Mikhailovich Korsetsky, Tashkentsky pereulok, 3, kv. 2, and Arnold Arkadievich Kucher, Prospekt Metallurgov, 71, kv. 85, both of Kuibyshev, all of U.S.S.R.

Continuation of Ser. No. 205,649, Feb. 7, 1971, abandoned.

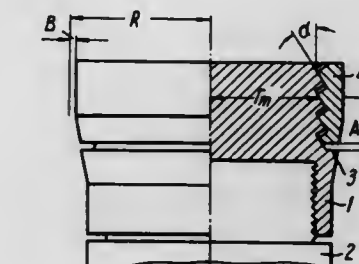
This application May 15, 1973, Ser. No. 360,551

Claims priority, application U.S.S.R., May 29, 1968, 1252825

Int. Cl. B21c 25/00

U.S. Cl. 72-273

3 Claims



A die assembly for extrusion molding of profile shapes is rigidly mounted on the press ram and includes two coaxially arranged parts. The first part is a holder having the free cylindrical end portion provided with an external thread of which the axial extent is limited by a radial shoulder. The other part is a cylindrical nut threaded onto the free end portion of the holder, so that an axial gap is left between the face end of the nut and the radial shoulder of the holder, with this gap being intended to be taken up in the course of an extrusion mold operation, whereby the die assembly provides for a variation of the external diameter thereof, and the cylindrical shape of the external periphery of the die assembly being unaffected by this variation of the diameter.

3,831,419

MACHINE FOR TRANSVERSELY CURVING ELONGATED PANELS

Gerald H. Leese, Pierrefonds, and David H. Kennedy, Baie D'Urfe, Quebec, both of Canada, assignors to Dominion Bridge Company Limited, Quebec, Canada

Filed Aug. 7, 1972, Ser. No. 278,211

Claims priority, application Canada, July 5, 1972, 146427

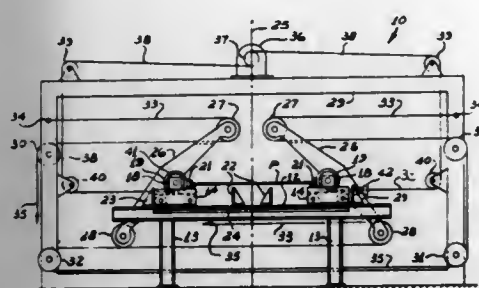
Int. Cl. B21d 5/00

U.S. Cl. 72-298

16 Claims

A pair of elongated, rotatable torque members are mounted in juxtaposed relation on a frame and are provided with longitudinal channels to receive longitudinal edges of a panel which is to be transversely curved. Winch-actuated cables are connected to levers fixed to the torque members for partially

rotating the same in opposite directions, so that a panel held in the channels becomes transversely curved. As this occurs, movable mounting of the torque members on the frame permits them to move closer together as an incidental function of



a decreased transverse dimension of the curved panel. Other winch-actuated cables return the torque members to their initial position after the curved panel is removed therefrom. The torque members may be either parallel to produce half-cylinders or convergent/divergent to produce half-cones.

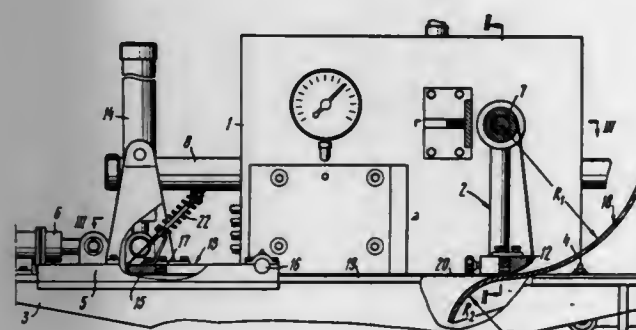
3,831,420

METHOD OF BENDING HEAT EXCHANGER SECTIONS AND A MACHINE FOR THE REALIZATION THEREOF
Gennady V. Bykov, Stary Vodopoi, ulitsa Chapaeva, 20/4; Ilya V. Valdman, ulitsa Grazhdanskaya, 48e, kv. 8; Boris Y. Mazurovsky, ulitsa Teatralnaya, 49/1, kv. 83, and Ivan E. Yakibjuk, ulitsa Moskovskaya, 54, kv. 10, all of Nikolaev, U.S.S.R.

Filed June 7, 1971, Ser. No. 150,394
Int. Cl. B21d 11/04

U.S. Cl. 72-305

3 Claims



A method of bending heat exchanger sections and a machine for the realization thereof. The method consists in that the sections are compressed longitudinally to a critical state preceding the loss of stability by the tube material, after which the section is shaped in the desired direction.

3,831,421
CONDUIT BENDING MACHINE

Joseph A. Koger, Jr., and James L. Wade, both of Martinsville, Va., assignors to Koger & Wade Manufacturing Corporation, Martinsville, Va.

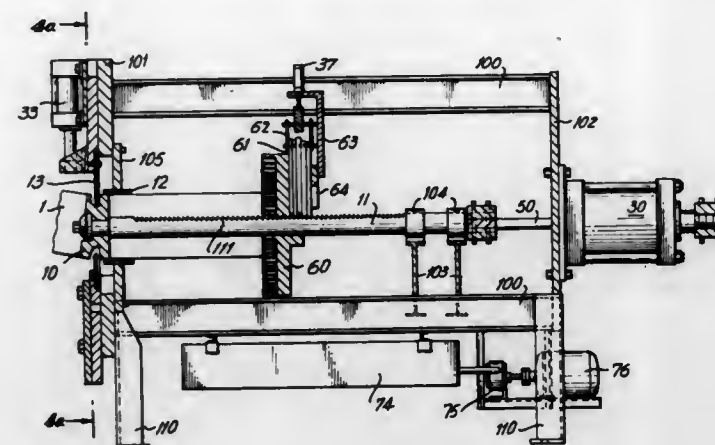
Filed June 26, 1972, Ser. No. 266,460
Int. Cl. B21d 9/14

U.S. Cl. 72-307

7 Claims

A machine for forming integral bends in conduit is provided with a circular die-block carrying a circumferential groove on its outside diameter. The conduit to be formed is slipped over the die-block and four blades converging toward the center of the conduit form a circumferential indentation in the conduit in the plane of the circumferential groove of the die-block.

The die-block is then caused to move relative to an external die member, entraining the indentation in the conduit and crimping the entrapped material against the undeformed sur-



face of the conduit. The center of the circumferential indentation is offset from the center of the conduit and therefore the sections of the conduit on either side of the completed crimp have an angular offset relative to one another.

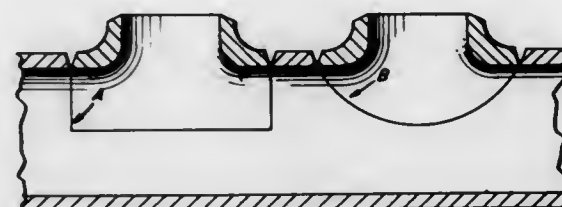
3,831,422

METHOD OF PRODUCING TWO PIPE CONNECTIONS FROM A SINGLE FORGING
Charles H. Moore, 645 Matanzas Ct., Fort Myers Beach, Fla. 33931

Filed July 20, 1973, Ser. No. 381,095
Int. Cl. B21d 28/00

U.S. Cl. 72-340

12 Claims



A novel and relatively inexpensive process is provided for making high quality metallic connector members for metal conduits, pipes, pressure vessels, etc. the same frequently weighing, for example, between approximately 1376 pounds and approximately 138 pounds; the process being characterized by the initial and practically simultaneous rough-forming of a pair of connector members which is subsequently split, and the split articles then subjected to further processing. The pair of connector members so formed may be of entirely conventional configuration, such as a common-place Tee connector, for example, or, in the alternative, of a unique conformation which possesses certain advantages in that the base or plate element is substantially rectangular with peripheral edges, for connection with the corresponding edges of the opening formed in the conduit or pressure vessel, which are formed along lines that are substantially straight, and for this reason alone are much easier to line-up and weld into position by either hand or machine welding, as compared with prior art practices which, for the most part involve peripheral edges to be lined-up and welded that delineate oval or saddle shapes. This rough-forming of a pair of connector members (to be followed by additional operations to obtain two finished connector members) is performed on a (heated) work-piece wherein the areas of displacement are of such size as to permit the same to be used over a wide variety of sizes of finished connector members, as distinguished from the prior art methods of flueing from a flat plate or drop-forging wherein only one finished size is obtainable, which makes it necessary to maintain a very large stock of die sizes.

3,831,423

METHOD OF MAKING GOLF BALL MOLDS

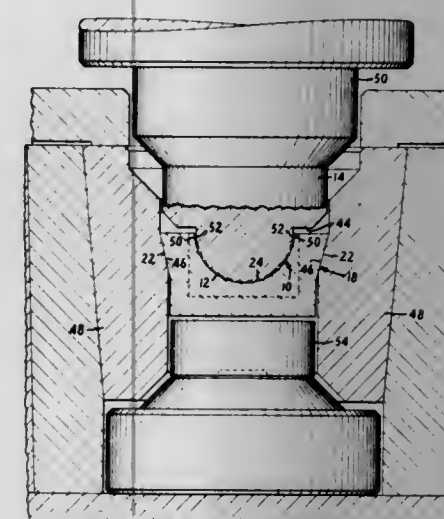
Robert A. Brown; John W. Jepson, both of Marion, Mass., and Herbert W. Lyon, Escondido, Calif., assignors to Acushnet Company, New Bedford, Mass.

Filed Jan. 26, 1973, Ser. No. 326,900

Int. Cl. B21k 5/20

U.S. Cl. 72-358

5 Claims



A method of making molds for the production of golf balls is disclosed. A hob is made of approximately the same dimensions as half of the finished golf ball and then a mold is formed from the hob.

3,831,424

PLIERS TYPE BLIND RIVETING TOOL

Peter A. James, Walsall, England, assignor to USM Corporation, Boston, Mass.

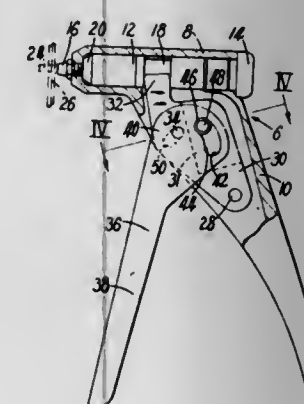
Filed July 30, 1973, Ser. No. 383,667

Claims priority, application Great Britain, Feb. 24, 1973, 9162/73

Int. Cl. B21j 15/34

U.S. Cl. 72-391

8 Claims



A blind-riveting pliers tool has an intermediate member pivoted by an operating handle to act on a jaw case in tensioning a mandrel. The arrangement is such that as the tool is operated by pulling the handle away from the workpiece which is to receive the rivet, mechanical advantage increases and there is a reduced tendency for the tool to "jump" when the stem of the mandrel breaks.

3,831,425

FULLY AUTOMATIC FORGING PRESS

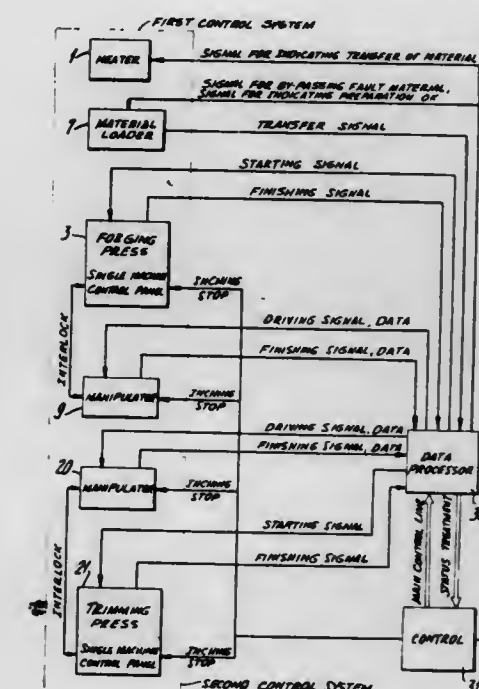
Masaaki Kita, Komatsu, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo-To, Japan

Filed May 1, 1973, Ser. No. 356,123

Int. Cl. B21j 11/00

U.S. Cl. 72-405

4 Claims



This forging press is adapted to operate fully automatically, based on complete control by computers, the process including the heating of a material to be forged, introduction of the heated material, transferring successively to a plurality of metal molds provided in the body of the forging press and reversing of the material, removing the forged material from the forging press, and performing finishing work after the material has been carried into a trimming press.

3,831,426

PROGRESSIVE STAMPING DEVICE HAVING WORK STATIONS IN A CURVILINEAR PATH

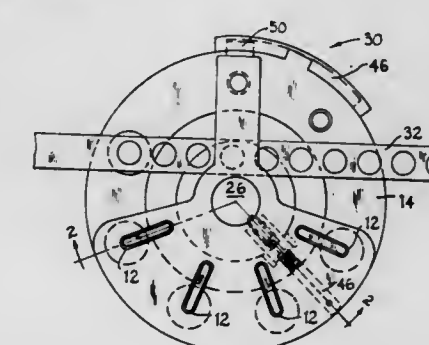
Robert Hakner, 76-78 Vernon Ave., Brooklyn, N.Y. 11206

Filed Sept. 29, 1972, Ser. No. 293,413

Int. Cl. B21d 43/00

U.S. Cl. 72-405

11 Claims



An automatic stamping machine for stamping by means of punches of metal articles from a feed strip and performing various work operations thereon in which the work stations are mounted in a curved pattern on the periphery of at least one or more interacting rotatable segments. The work path thus follows a sinuous line. The machine is provided with a central guide shaft that guides both the vertical and lateral movement of the mechanism. In addition, the central shaft serves as a guide for auxiliary devices, for example, such as the punch knock out and switching mechanisms. The mechanism has a top and bottom set of rollers engaging the central shaft and a set of needle bearings which eliminate the tendency toward binding of the mechanism.

3,831,427 PRESS FEED TABLE

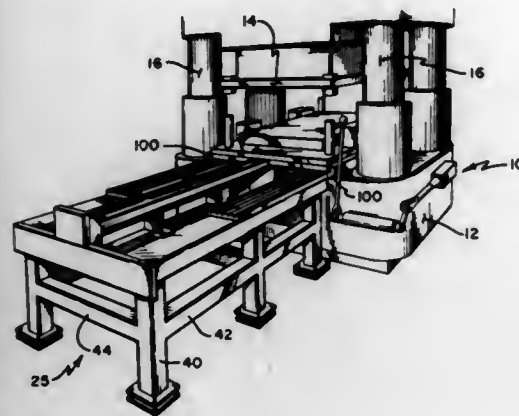
Ronald G. Lee, Medford, Minn., assignor to Owatonna Manufacturing Co., Inc., Owatonna, Minn.

Filed Dec. 15, 1972, Ser. No. 315,330

Int. Cl. B21j 13/00

U.S. Cl. 72-448

5 Claims



The press feed table in the form of a table structure having two table members at the upper surface thereof and adjustable legs supporting the same to mount wear plates which provide for the sliding movement of a die support shoe thereon. A simplified and single hydraulic actuator of the linear type will move the die shoe into and out of engagement with the press for a normal working and die changing operation.

3,831,428 COMPOSITE WIRE DRAWING DIE

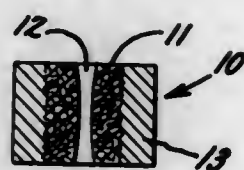
Robert H. Wentorf, Jr., Schenectady, and William A. Rocco, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 26, 1973, Ser. No. 345,178

Int. Cl. B21c 3/00

U.S. Cl. 72-467

10 Claims



Composite wire drawing die construction is described in which a centrally-located mass of diamond, cubic boron nitride or a polycrystalline mixture thereof defines at least the throat of the wire drawing hole, the mass being flanked or girded by at least one mass of metal bonded carbide that is directly bonded thereto. The composite is readily ground into the form of a solid of revolution. In the preferred construction (for dies for drawing 0.008 inches diameter wire and larger) a composite assembly includes at least one high strength metal ring that is press fitted around a composite body or sub-assembly comprising a polycrystalline mass of diamond girded by a metal-bonded carbide jacket.

3,831,429 METHOD AND APPARATUS FOR TESTING LOW WATER FUEL CUT-OFF SWITCHES

Leopold J. Kmiecik, Lincolnwood, Ill., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Aug. 3, 1972, Ser. No. 277,523

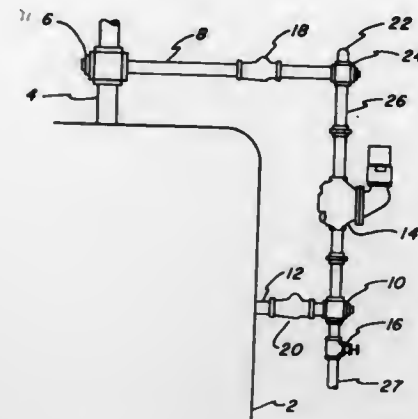
Int. Cl. G01f 25/00

U.S. Cl. 73-1 R

9 Claims

A method and apparatus are disclosed for use in testing or inspecting low water fuel cut-off switches used with hot water

heating boilers. The low water fuel cut-off switches employ floats which are positioned in float chambers between equalization pipes connected to the hot water boiler. To enable inspection, flow of water through the equalization tubes is restricted at the same time a drain valve is opened below the



float chamber in the cut-off switch. Restriction of flow makes it possible for a vacuum release valve located above the float chamber to open and dump the water out of the float chamber thereby enabling the float to operate associated indicator means.

3,831,430 DEVICE FOR MEASURING DENSITY AND DEW POINT OF A GAS

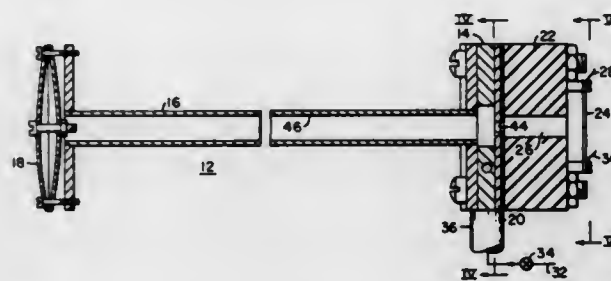
Frederick A. Azinger, Jr., Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 16, 1972, Ser. No. 263,562

Int. Cl. G01n 9/36, 25/66

U.S. Cl. 73-17 A

5 Claims



This invention uses a vortex tube or Hilsch tube in combination with a thermocouple to determine the apparent molecular weight or density of a gas mixture and the dew point of the gas mixture. The thermocouple has a flat planar configuration with one side highly polished for accurately indicating the dew point. The cold gas which is extracted from the Hilsch tube is used to cool the polished thermocouple until frost or dew is formed on the thermocouple. This indicates the dew point of the gas surrounding the polished surface of the thermocouple. The temperature of the thermocouple continues to drop until it indicates the exhaust temperature of the cold gas from the Hilsch tube. This output temperature is a function of the pressure and temperature of the incoming gas and the density of the gas. Thus if the incoming gas temperature and pressure are held constant the exhaust gas temperature is a function of the density of the gas mixture.

3,831,431 ADJUSTABLE STATIC PRESSURE OR VACUUM SOURCE AND INDICATOR

Billy D. Morris, Rd. 1, Red Lion, Pa. 17356

Filed May 11, 1973, Ser. No. 359,240

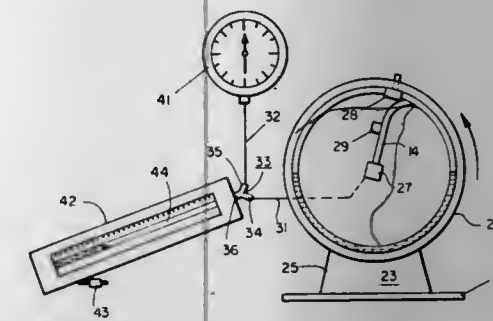
Int. Cl. G01l 27/00

U.S. Cl. 73-4 R

9 Claims

Device and method for checking and calibrating vacuum and low pressure pneumatic gauges and differential pressure

switches by utilizing a helix of tubing partially filled with a liquid and then rotated about its axis to a new position as a



readily adjustable, highly accurate, constant source of vacuum or low pressure.

3,831,432 ENVIRONMENT MONITORING DEVICE AND SYSTEM

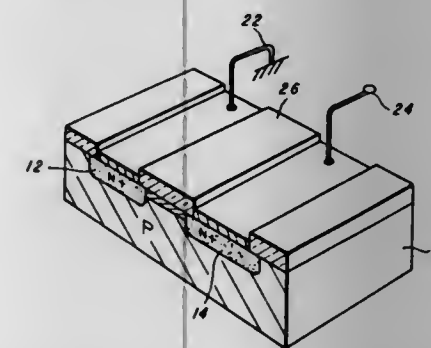
Paul F. Cox, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Sept. 5, 1972, Ser. No. 286,522

Int. Cl. G01n 31/06; H01l 9/00

U.S. Cl. 73-23

17 Claims



A monitoring system for characterizing the presence and concentration of selected substances in an environment is provided. The system includes a set of sensors which provide outputs responsive to substances adsorbed from the environment, at least one of the sensors having an output which differs from others in the set in its response to at least one substance being monitored. Preferably the sensors comprise adsorption field effect transistors respectively having chemically specific films in the gate region to enable preferential adsorption of preselected substances.

3,831,433 APPARATUS FOR MEASURING THE DENSITY OF A FLUID BY RESONANCE

Sandor Kovacs, and Gyorgy Felsovalyi, both of Budapest, Hungary, assignors to Meresteknikai Kozponti Kutato Laboratorium, Budapest, Hungary

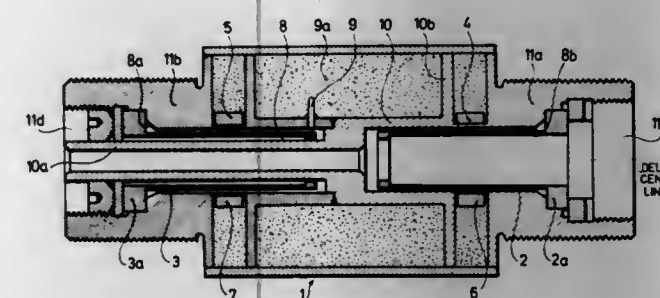
Filed Nov. 28, 1972, Ser. No. 309,989

Claims priority, application Hungary, Dec. 7, 1971, ME 1448

Int. Cl. G01n 9/00

U.S. Cl. 73-32 A

20 Claims



Apparatus for measuring the density of a fluid, and if desired also its mass flow rate, comprises a sensor unit having

in unitary assembly a pair of coaxial resonant cylinders each anchored at one end and extending toward each other at their free ends. One resonant cylinder is in a closed chamber and the other provides a passageway for the flow therethrough of the fluid to be measured. The sensor has means to excite vibrations in the resonant cylinders and means for sensing vibrations in the resonant cylinders. The exciting means and the sensing means of each resonant cylinder are in a feedback loop with an amplifier, and means are provided to compare the outputs of the amplifiers and to derive a signal indicative of the density of the tested fluid. In addition, the flow rate of the fluid is metered and a multiplier responsive to the density and flow rate signals derives a signal indicative of mass flow.

3,831,434 METHODS AND APPARATUS FOR IMAGE DISPLAY OF SOUND WAVES AND UTILIZATIONS THEREOF

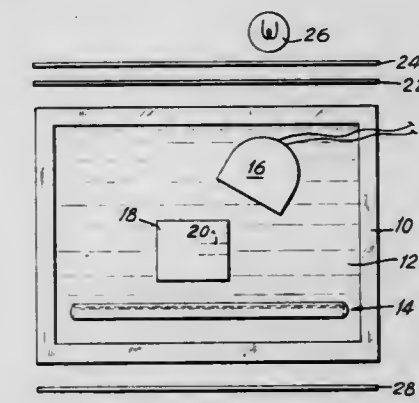
Pal Greguss, Long Island, N.Y., assignor to Vari-Light Corporation, Cincinnati, Ohio

Filed Mar. 23, 1972, Ser. No. 237,404

Int. Cl. G01n 29/04

U.S. Cl. 73-67.5 H

19 Claims



A device employing a piezo-optic cell having a thin layer of aligned liquid crystals which is illuminated by polarized light and viewed through a polarized analyzer to give a real-time visual image in color of the acoustic wave pattern incident thereon. The acoustic wave pattern is typically an acoustic image of an insonified object such that the resulting device is useful in non-destructive testing for industry and medicine. The acoustic wave pattern can also be the human voice (helpful in teaching speech to the deaf) and music (for pleasurable and informative visualization of the musical sound). By use of a reference acoustic wave this device may be utilized to obtain a holographic image.

3,831,435 SILVER-FOIL PSYCHROMETER FOR MEASURING LEAF WATER POTENTIAL

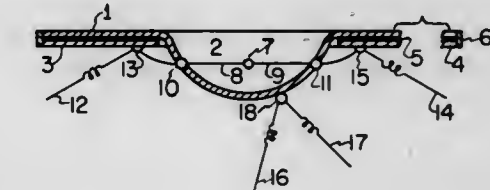
Glenn J. Hoffman, Colton, and Stephen L. Rawlins, Riverside, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Apr. 6, 1973, Ser. No. 348,584

Int. Cl. G01n 25/62

U.S. Cl. 73-77

2 Claims



A miniature apparatus for measuring the water potential of leaves in situ without temperature control. The apparatus in-

cludes a metal disk with a central cavity, a pair of thermally conductive washers mounted on the bottom of the disk, a reference thermocouple connected to each washer, and a measuring thermocouple located in the cavity. The thermocouples are connected in series.

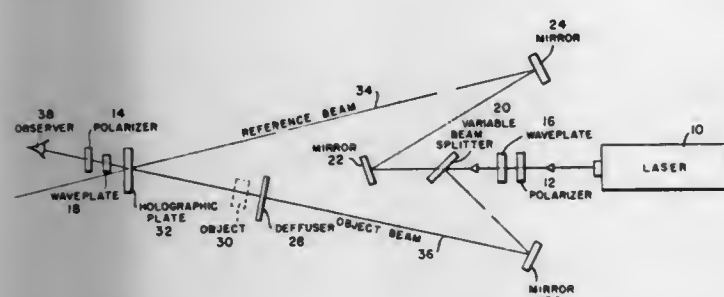
3,831,436

MULTI-PURPOSE REAL-TIME HOLOGRAPHIC POLARISCOPE

Robert J. Sanford, 101 Julian Ct., Greenbelt, Md. 20770
Filed Feb. 23, 1973, Ser. No. 335,389
Int. Cl. G01b 11/16

U.S. Cl. 73-88 A

7 Claims



A modification of a real-time holographic interferometer to permit the observation of a complete set of interference patterns from a single reference hologram. The apparatus consists of a conventional off-axis transmission holographic set-up with the addition of several polarization optical elements to alter the polarization of the light at various stages of a procedure to study an object. These elements are adjusted so as to produce circularly polarized light for recording the reference hologram. After producing the hologram these elements are readjusted to any desired state of polarization and the corresponding interference pattern is observed in real-time and may be changed at any time to view a different type of interference pattern.

3,831,437

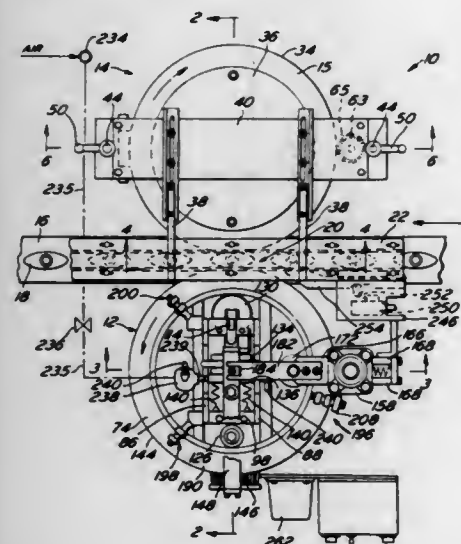
APPARATUS FOR SQUEEZE TESTING CONTAINERS

Richard S. Sheets, Elmira, N.Y., assignor to Powers Manufacturing Inc., Elmira, N.Y.

Filed Jan. 11, 1973, Ser. No. 322,663
Int. Cl. G01n 3/08

U.S. Cl. 73-94

16 Claims



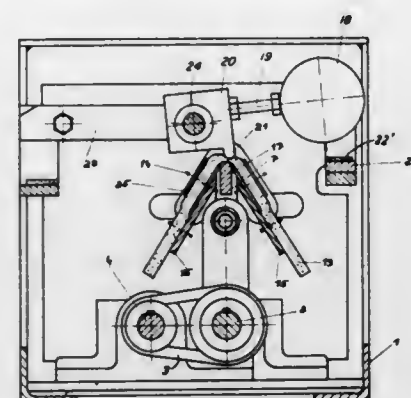
An apparatus for squeeze testing glass containers on a production line basis. The apparatus includes a squeeze wheel and a reaction wheel which are disposed in spaced side-by-side relation above a conveyor which moves the containers into a test zone between the wheels. One of the wheels is supported in part by resilient means so that it yields as the containers pass through the test zone while a squeezing pressure of predetermined magnitude is applied. Both round and non-round containers can be tested.

3,831,438 APPARATUS FOR TESTING THE BENDING STRENGTH OF ELASTIC MATERIALS

Karin Schmidt, Chicago 5, 2421 Kittsee, Austria
Filed Aug. 18, 1972, Ser. No. 281,961
Claims priority, application Austria, Aug. 26, 1971, 7461/71
Int. Cl. G01n 3/32

U.S. Cl. 73-100

8 Claims



Two parallel carrying plates serve to grip workpieces of elastic material and are mounted in crossing guide slots for relative swinging in opposite directions. A bar is provided between the two carrying plates and adapted to be lifted and lowered thereby to support the elastic working at locations to be subjected to bending stress. As the base rises, each workpiece is subjected to increasing pressure by a weighted member bearing upon it at the bend.

3,831,439

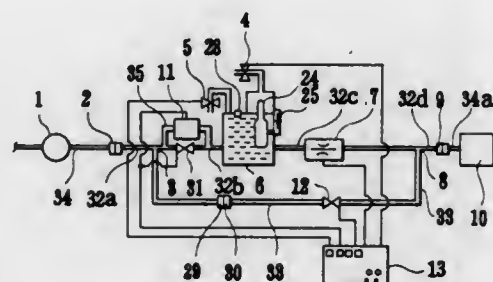
FUEL CONSUMPTION METER

Toshiaki Konomi, Susono, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed June 29, 1973, Ser. No. 374,995
Claims priority, application Japan, June 30, 1972, 47-77901
Int. Cl. G01m 17/00

U.S. Cl. 73-113

10 Claims



A fuel consumption meter for a motor vehicle comprises a bubble separating vessel and a fuel flow meter connected in series in the main pipeline between the fuel pump and a fuel supply member of the vehicle. The bubble separating vessel has an air vent valve, a float for measuring specific gravity and a thermometer. An auxiliary pipeline connected in parallel with the portion of the main containing the bubble separating vessel and the fuel flow meter provides a circulating circuit in which an electric pump is provided so as to recirculate the fuel through the bubble separating vessel and fuel flow meter in order to remove any air from the system. An electric circuit comprises controls for electromagnetic valves and for the circulating pump and amplifying, indicating and timing circuits for the fuel flow meter.

3,831,440

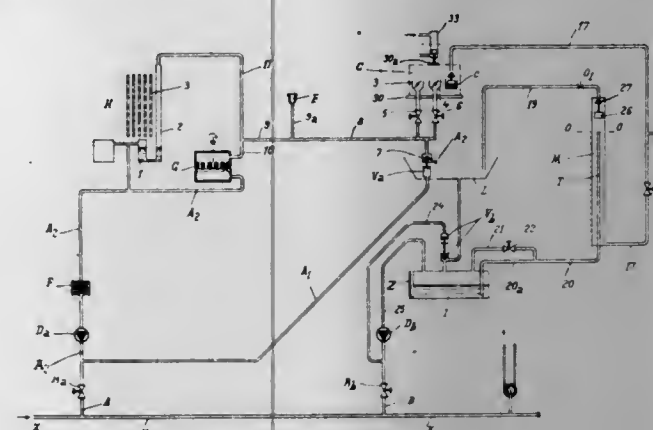
APPARATUS FOR MONITORING CARBURETORS OR OTHER GASOLINE-CONSUMPTION DEVICES

Francois Monnet, 1 Rue Grounod, 06 Nice, France
Filed Nov. 21, 1972, Ser. No. 308,406
Claims priority, application France, Nov. 21, 1971, 71.42994

Int. Cl. G01m 17/00

U.S. Cl. 73-113

9 Claims



Apparatus for monitoring the regulating carburetors or other gasoline-consumption devices comprises a graduated test tube adapted to be subjected at its upper part to a predetermined pressure by its connection with the float chamber of the carburetor or the like. A gasoline inlet tube opens at its upper end into the test tube, for discharging its gasoline therein. A tank for containing gasoline is provided, and there is a direct first connection between the lower end of the gasoline inlet tube and the base of the tank, and a second connection between the lower end of the gasoline inlet tube and the upper part of the tank. There are a number of valves including a valve within the second connection so as to enable, by a simple manipulation of the valves, a quantity of gasoline to be obtained in the test tube at a strictly metered and constant pressure.

3,831,441

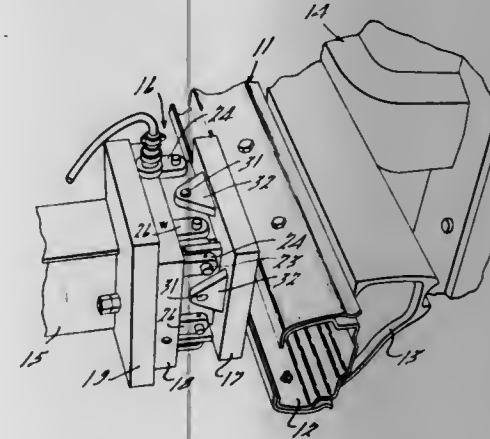
LOAD CELL

Johnny M. Petty, Warren, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 2, 1973, Ser. No. 337,515
Int. Cl. G01l 5/00

U.S. Cl. 73-141 A

12 Claims



A load cell insensitive to bending loads and able to accurately indicate off-center loading for tension or compression loads under static or dynamic conditions. The load cell comprises a plurality of strain gaged beams, the beams being selected to have substantially identical stress versus strain curves. The beams are supported in a simple arrangement and are effective to indicate desired load and to cancel out the effects of undesirable loads.

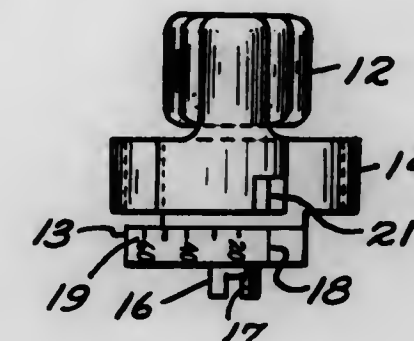
3,831,442

STRING TENSION MEASURING DEVICE

Millard M. Cummins; Richard H. Keates; Robert G. Best, and Donald L. Barr, all of Columbus, Ohio, assignors to The Thurman Manufacturing Company, Columbus, Ohio
Filed Jan. 3, 1973, Ser. No. 320,769
Int. Cl. G01l 5/06

U.S. Cl. 73-144

8 Claims



A device for measuring the tension of relatively taut strings of tennis rackets or the like. The device comprises a single piece of material formed to have a handle, a string engaging portion, and a resilient portion joining the two. The string engaging portion bears a calibrated scale and a reference mark. The handle includes an index mark positioned such that when the handle is twisted relative to the engaging portion as the latter is secured to a string, measurement of tension is indicated on the scale by the index mark when the reference mark is in alignment with the string being tested.

3,831,443

APPARATUS FOR INTERCOUPLING WELL TOOL SECTIONS HAVING ELECTRICAL AND FLUID LINES

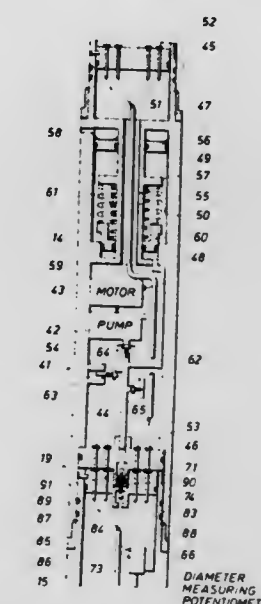
Jean Planché, L'Hay-Les-Roses, France, assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Jan. 19, 1973, Ser. No. 324,936
Claims priority, application France, Jan. 26, 1972, 72.02579

U.S. Cl. 73-152

Int. Cl. E21b 47/00

12 Claims



In the preferred embodiment of the invention disclosed herein, a well tool comprised of one or more separable bodies carrying electrical and hydraulic devices as required for operating the tool. To control the hydraulic devices, another separable body is provided with a selectively-operable hydraulic pressure generator. The mating ends of the several bodies are tandemly intercoupled by new and improved coupling means cooperatively arranged for facilitating the quick and foolproof connection and disconnection of electrical and hydraulic lines in each body.

3,831,444

YARN QUALITY ASSESSMENT METHOD AND APPARATUS THEREFOR

Toshiro Sasaki, Osaka, and Katsuaki Kuroda, Kyoto, both of Japan, assignors to Kurashiki Boseki Kabushiki Kaisha (a/k/a Kurabo Industries Ltd.), Kurashiki-shi, Okayama-ken, Japan

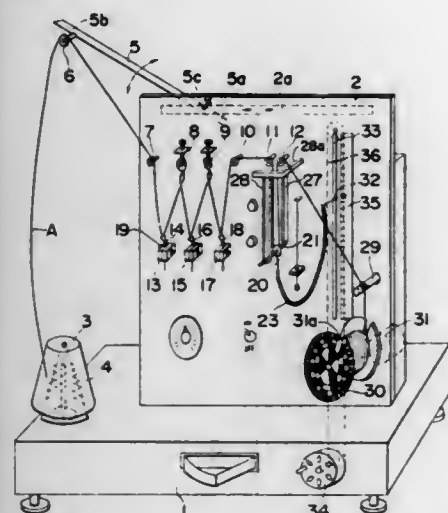
Filed Jan. 26, 1973, Ser. No. 326,695

Claims priority, application Japan, Jan. 26, 1972, 47-10153; June 16, 1972, 47-60660

Int. Cl. G011 5/06

U.S. Cl. 73-160

9 Claims



A method and apparatus for assessing knitting quality of yarn which comprises a plurality of elements which cooperatively cooperate so that some prediction can be made about the knitting quality of the yarn by the detection of the accumulated value of the resistances to various forces as a yarn winding tension, and by the comparison of the data with the respective standard value, an evaluation of the yarn can be made easily and simply before the yarn is knitted.

3,831,445

FLUID VELOCITY METER

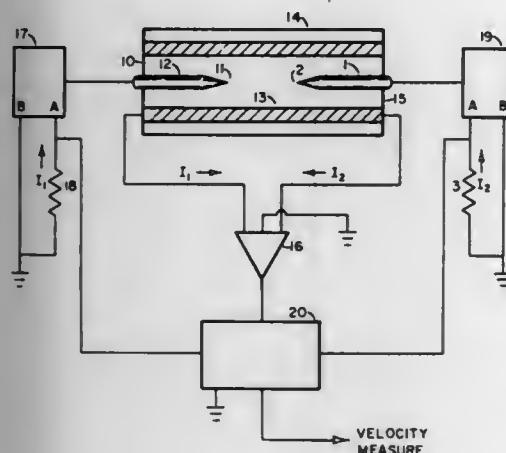
Enoch J. Durbin, 246 Western Way, Princeton, N.J. 08540

Filed May 8, 1972, Ser. No. 250,964

Int. Cl. G01f 1/00

U.S. Cl. 73-194 F

13 Claims



This disclosure is related to apparatus described in an earlier patent for mass flow meter apparatus awarded to the present inventor wherein the mass flow of flowing fluids was measured by directly measuring the drift of ionized portions of said fluid. The invention disclosed herein relates in particular to an improvement on said previous Patent in which apparatus is provided to eliminate calibration changes of the previous invention due to changes in mobility of ions of the fluid thereby converting the previous invention into a fluid velocity meter from a mass flow meter.

3,831,446

APPARATUS FOR MEASURING AVERAGE FLOW RATE

John F. Dye, Barrington, Ill., assignor to The Kendall Company, Walpole, Mass.

Filed May 14, 1973, Ser. No. 360,213

Int. Cl. G01f 1/00

U.S. Cl. 73-194 R

21 Claims



A device for measuring a duration of a liquid discharge having a hollow receptacle. The receptacle has an inlet port adjacent its upper end to receive the liquid discharge, and a cup-shaped pan below the inlet port to receive the liquid passing through the inlet port. The pan has a bore extending through the pan at a lower portion thereof and has an upper edge to direct overflow from the pan into a lower part of the receptacle. The receptacle also has a chamber below the pan communicating with the pan bore to collect liquid from the pan passing through the bore and to measure the period of time of the liquid discharge as indicated by the height of liquid collected in the chamber. Means is provided to also determine the total volume of the liquid discharge, and the average flow rate of the discharge may be determined from the measured volume and the time period of the discharge.

3,831,447

METHOD OF MEASURING THE FLOW RATE IN A PLURAL-FLOW SYSTEM

Shunsuke Nogita, and Yukio Kawamoto, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

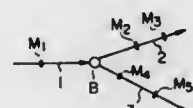
Filed Feb. 20, 1973, Ser. No. 334,096

Claims priority, application Japan, Feb. 21, 1972, 47-17214

Int. Cl. G01f 1/00

U.S. Cl. 73-195

11 Claims



A plurality of measuring instruments are inserted in a flow system having a plurality of stable and continuous flow paths in such a manner as to constitute a plurality of material balance equation groups each including a multiplicity of measurement factors. In this way, whether the measurement of the flow rate in a flow path under consideration is accurate or not is determined statistically as it is related to the measurements of the flow rates in the remaining flow paths in respect of the material balance equation. Further, an estimated value which takes the place of an erroneous measurement is easily calculated.

3,831,448

MANOMETER AND PITOT TUBE PROBE

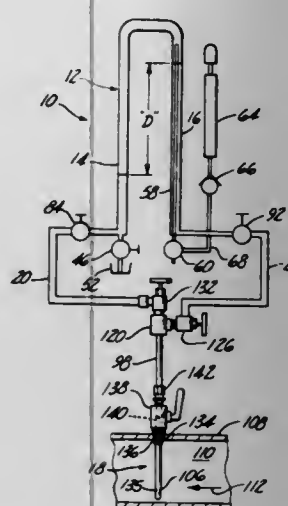
Vernon E. Kors, 28660 Millbrook, Farmington, and Lawrence Leadbitter, 30698 Harlincin, Franklin, both of Mich. 48076

Continuation-in-part of Ser. No. 180,744, Sept. 15, 1971, abandoned. This application Feb. 15, 1973, Ser. No. 332,706

Int. Cl. G01f 1/00

U.S. Cl. 73-212

8 Claims



A manometer for measuring the velocity pressure of a fluid at selected positions along the length and cross section of a conduit or system of conduits carrying the fluid. The manometer comprises an inverted differential U-tube having a pair of downwardly extending legs, each leg of which is in fluid communication through control valves to a pitot tube probe selectively positioned within the conduit. The probe comprises an outer tubular member having a coaxially aligned inner tubular member carried by a plug enclosing the lower end of the outer tubular member. The lower end of the tubular member has a pair of diametrically opposed openings which respectively communicate via the probe plug with the annular space formed between the inner and outer tubular members and the interior of the inner tubular member. Valve means at selected locations along the length of the conduit permit the withdrawal and insertion of the pitot tube probe into the conduit without any fluid leaking therefrom.

One of the probe openings faces upstream to sense the total pressure of the fluid flowing through the conduit and communicates fluid at total pressure to one leg of the manometer while the other probe opening faces downstream to sense the static pressure of the fluid flowing through the conduit and communicates fluid at static pressure to the other leg of the manometer, wherein the difference in the height of the fluid in each leg of the manometer is indicative of the velocity pressure of the fluid within the conduit.

One leg of the manometer has an air supply tube with its upper end communicating with the upper interior of the U-tube while the lower end of the air supply tube is connected to a manually operated air supply pump. By pressurizing the air trapped with the inverted manometer with the air supply pump, any length of air column within the range of the manometer can be obtained to accommodate fluids at high pressure differentials without the possibility of the fluid in the high pressure leg spilling over the top of the U-tube and being exhausted out the low pressure leg. A method of manufacturing the manometer probe is disclosed.

3,831,449

DEPTH GAUGE

Douglas K. MacNiel, 1962 Balearic Dr., Costa Mesa, Calif. 92626, and Sohail Azizi, 17171 Bolso Chica, Huntington Beach, Calif. 92647

Filed Dec. 8, 1971, Ser. No. 205,933

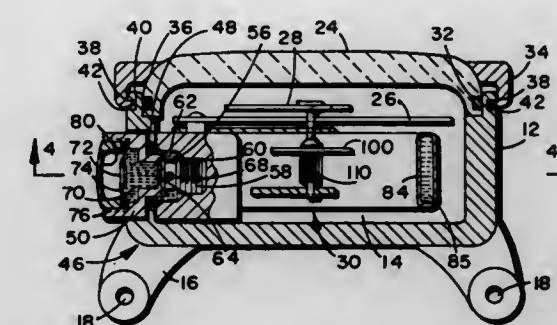
Int. Cl. G01f 23/14

U.S. Cl. 73-300

5 Claims

An improved depth gauge for use by a diver having a bourdon tube assembly with appropriate linkages to operate a dial

for indicating the ambient depths as a function of pressure. The bourdon tube is filled with oil and is exposed to pressure through an open end secured in a fitting having a passage with a diaphragm seated therein exposed to the ambient pressure. The exposure of the diaphragm operatively pressurizes the oil in the bourdon tube to cause it to expand and operate the linkages for turning the dial.



A second embodiment of this invention incorporates a capillary tube depth gauge in combination with a bourdon tube or other mechanically reacting depth gauge. The capillary tube surrounds the dial face of the gauge and has appropriately scribed markings to show the depth corresponding to the extent of entrance of water into the capillary tube which is a function of pressure. In this manner, the optimum accuracy of both types of gauges can be utilized.

3,831,450

AGRICULTURAL ALARM SYSTEM TO WARN OF IMPENDING AGRICULTURAL PEST ATTACKS

Winfried Schipke, and Friedrich Scharf, both of Stuttgart, Germany, assignors to Robert Bosch GmbH, Gerlingen-Schillerhoke, Germany

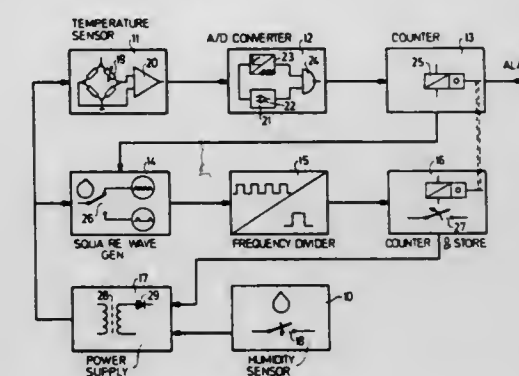
Filed Feb. 28, 1973, Ser. No. 336,824

Claims priority, application Germany, Apr. 17, 1972, 2218452

Int. Cl. G01w 1/06

U.S. Cl. 73-336

26 Claims



To warn farmers when conditions are favorable for fungus infection, that is, certain humidity and temperature conditions which have persisted for predetermined periods of time, a humidity sensing device senses humidity of the atmosphere in the region of the agricultural planting to provide a humidity sensing signal; a temperature sensing means senses temperature of the atmosphere and provides a temperature sensing signal; the signals are converted into digital form, or integrated over time, and a threshold circuit is provided which, when a certain time-integral of humidity or temperature, during predetermined conditions of other sensed condition (temperature or humidity) is determined, an alarm signal is given. If the signal is a digital signal, a counter is activated to count the digits above a threshold level of humidity, and giving an alarm signal when a certain time during which both temperature and humidity were at levels at which pests proliferate, is exceeded.

3,831,451

MEANS FOR AVOIDING STATIC FRICTION

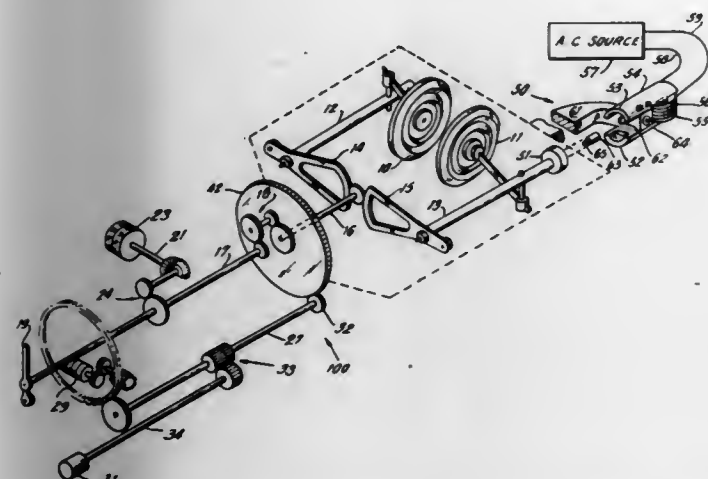
Michael Argentieri, West Orange, and John H. Andresen, Jr., Hewitt, both of N.J., assignors to Intercontinental Dynamics Corporation, Englewood, N.J.

Filed Jan. 26, 1973, Ser. No. 326,999

Int. Cl. G01h 7/14

U.S. Cl. 73-387

6 Claims



A pressure driven altimeter is provided with an A.C. torquer to impart low amplitude torsional oscillations to a drive shaft of the gear train between the aneroid mechanism and the output pointer. These shaft oscillations are coaxial with the direction in which this shaft is pivoted by a pressure-altitude sensing aneroid mechanism. These torsional vibrations serve to prevent buildup of static friction forces and overcome other friction forces that will interfere with altimeter accuracy and resolution.

3,831,452

GAS SAMPLER

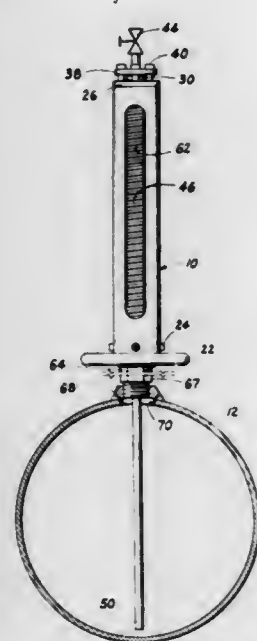
Harold M. Pittenger, Tulsa, Okla., assignor to Charles Wheatley, Inc., Tulsa, Okla.

Filed Jan. 8, 1973, Ser. No. 321,661

Int. Cl. G01n 1/16

U.S. Cl. 73-421.5 R

5 Claims



An apparatus for retrieving a sample of gas in a pipe line, or the like, which may be secured to the outer periphery of the pipe line for retrieving a sample of the fluid passing through the pipe line at substantially any desired area therein. An outer tube is threadedly engaged with a threaded shank secured to the outer periphery of the pipe line and carries an inner tube which is selectively inserted into the interior of the pipe line for picking up fluid samples therefrom. The position

of the open portion of the inner tube within the pipe line may be adjusted for retrieving a fluid sample from substantially any desired cross sectional area within the pipe line.

3,831,453

URINE METER AND COLLECTION RECEPTACLE

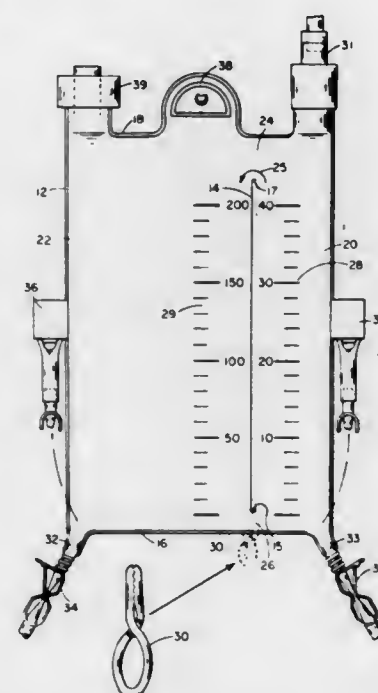
Daniel M. McWhorter, Arlington Heights, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Feb. 10, 1972, Ser. No. 225,051

Int. Cl. A61f 5/44

U.S. Cl. 73-427

3 Claims



A combination urine meter and collection receptacle for measurement of liquid urine volume formed from a pair of plastic sheet panels, preferably flexible at least in part, closed along their peripheries, and having dividing wall means therein defining a lower volume first compartment and a higher volume second compartment. An inlet is provided into the first compartment, wherein liquid urine introduced thereinto may be measured by suitable indicia and thereafter transferred to the higher volume second compartment for collection. Overflow protection is also provided for the lower volume first compartment.

3,831,454

FLUID ROTOR MOTION SENSOR

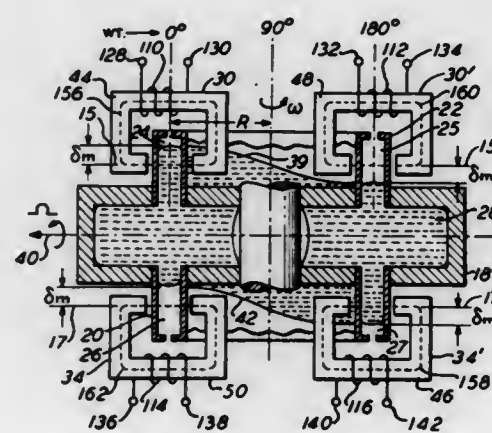
Jay Hoffman, Livingston, N.J., assignor to The Singer Company, New York, N.Y.

Filed Mar. 25, 1971, Ser. No. 127,906

Int. Cl. G01p 9/00

U.S. Cl. 73-504

10 Claims



A multipurpose sensing device is disclosed having the sensing capabilities of both a two axis rate gyro and a single

axis accelerometer wherein these capabilities are achieved by measuring the displacement of a rotating body of fluid which results when the device disclosed is subjected to angular velocity rates or rectilinear accelerations.

ram in a range of extended positions. Both the ram and wedge are driven through a floating element received in the wedge

3,831,455

CHAIN-TYPE JACK FOR HANDLING TENSILE AND COMPRESSIVE LOADS

Theo Patrignani, Paris, France, assignor to Manufacture de Machines du Haut Rhin, Mulhouse-Bourtzwiller, France

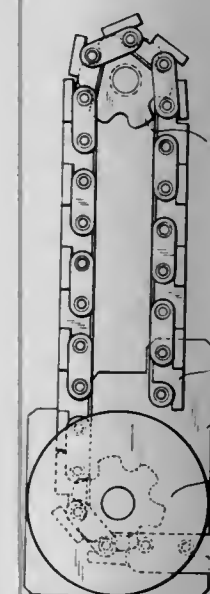
Filed Apr. 24, 1972, Ser. No. 246,621

Claims priority, application France, Apr. 26, 1971, 71.14792

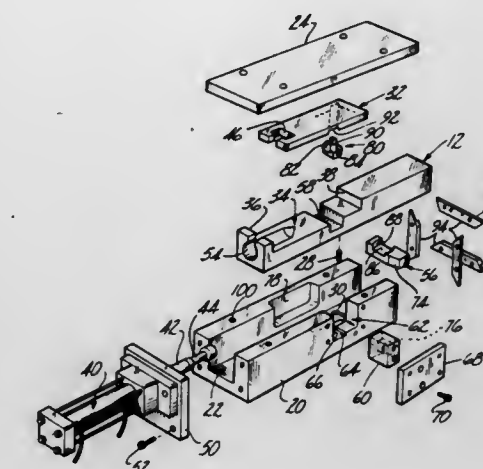
Int. Cl. F16h 29/02

U.S. Cl. 74-89.21

8 Claims



An improved jack includes a fixed housing through which an elongated drive chain extends. A sprocket within the housing advances and retracts the chain through the housing via forward and rearward exit ports to provide a desired change in the direction of motion of the chain. The portion of the chain extending from the rearward port of the housing is further rotated back on itself through engagement with a floating guide member. The rear end of the chain is suitably anchored. The combination of the guiding member and the anchoring means serves to restrict the overall rearward extension of the guide member to a prescribed fraction of the forward extension and permits the form factor of the jack in its retracted position to be smaller than that in its extended position. The adjacent links of the chain include interlocking, axially aligned projections for withstanding compressive as well as tensile loads.



3,831,457

VARIABLE TRACKING CAM FOLLOWER

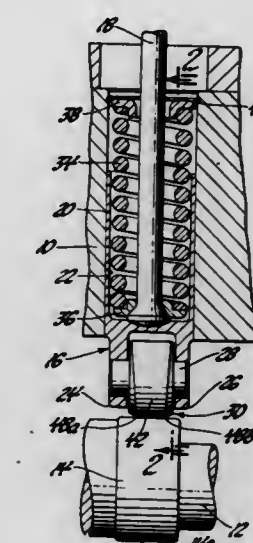
Richard A. Kern, Centerline, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 5, 1973, Ser. No. 338,369

Int. Cl. F16h 21/14

U.S. Cl. 74-569

6 Claims



A cam follower in the form of a roller has an outer peripheral contact surface of varying width to effect variable roller edge contact on the surface of a cam with which it is in rolling engagement.

3,831,458

INTERMITTENT FEED MECHANISM

Akihiro Takanashi, Hachioji, and Selya Hashimoto, Tokyo, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 8, 1973, Ser. No. 321,964

Int. Cl. F16h 55/04

U.S. Cl. 74-436

10 Claims

A mechanism for obtaining intermittent feed motion through a driven wheel in engagement with a driving wheel, said driven wheel being formed by a slotted rotating plate and

3,831,456

LINEAR ACTUATOR WITH LOCK

William R. Jahnke, Cincinnati, Ohio, assignor to KMS Industries, Inc., Ann Arbor, Mich.

Filed Apr. 13, 1973, Ser. No. 350,773

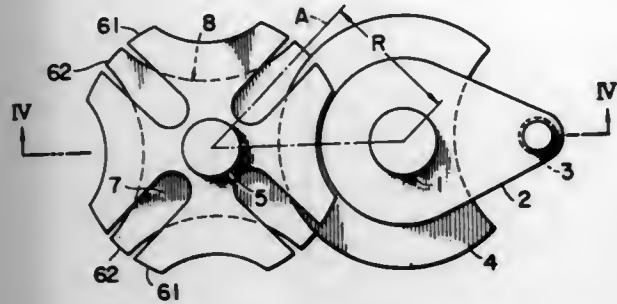
Int. Cl. F16h 21/44

U.S. Cl. 74-110

18 Claims

A linear actuator with a reciprocable ram having a transversely movable wedge slidably received thereon for locking the

a rotating plate formed with arcuate cam-contacting recesses in such manner that each of the slots is adapted to engage a



roller of the driving wheel and each of the cam-contacting recesses is adapted to engage a locking cam of the driving wheel.

3,831,459

CLUSTER GEAR ASSEMBLY PRODUCED BY FRICTION WELDING

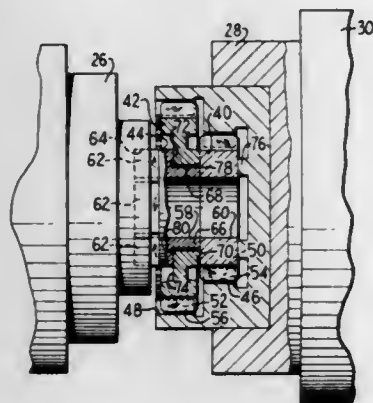
Ronald L. Satzler, Metamori, and Marion R. Calton, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 148,780, June 1, 1971, Pat. No. 3,750,263. This application Mar. 26, 1973, Ser. No. 344,979

Int. Cl. F16h 55/12

U.S. Cl. 74-439

5 Claims



Cluster gear assemblies are produced by a method and apparatus which join a plurality of premachined gears by a common joining member. The plurality of gears are held in relative nonrotative relationship by special holding means which further establish precise angular and axial alignment between the gears and axial alignment between the joining member and the gears. Joining of the various members to produce the assembly is accomplished by friction welding.

3,831,460

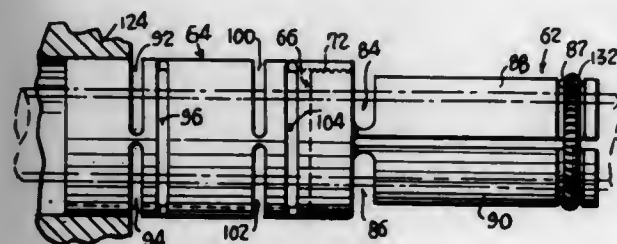
ANTI-BACKLASH NUT

Francis M. Linley, Jr., Banks Rd., Easton, Conn. 06612 Filed Aug. 20, 1973, Ser. No. 390,069

Int. Cl. F16h 55/22, 55/18, 1/18

U.S. Cl. 74-459

18 Claims



An anti-backlash nut construction for engagement with threads of a screw, the nut comprising a base portion and a

threaded portion connected therewith. Both portions have central bores in alignment with one another to receive the screw. The threaded portion is elongate and slotted, comprising two elements which are capable of limited movement toward and away from one another. The nut threads are disposed on the internal surfaces of these elements. An O-ring or equivalent carried in a grooved formation on the outside surfaces of the elements biases the latter toward each other such that the internal threads thereon are brought into close engagement with the screw threads, thus eliminating all looseness and minimizing substantially all of the clearance space between the nut and screw threads which would otherwise give rise to undesirable backlash. An alignment sleeve for the nut is also provided to accommodate slight misalignment between the axes of the screw and the nut.

3,831,461

DIFFERENTIAL TRANSMISSION

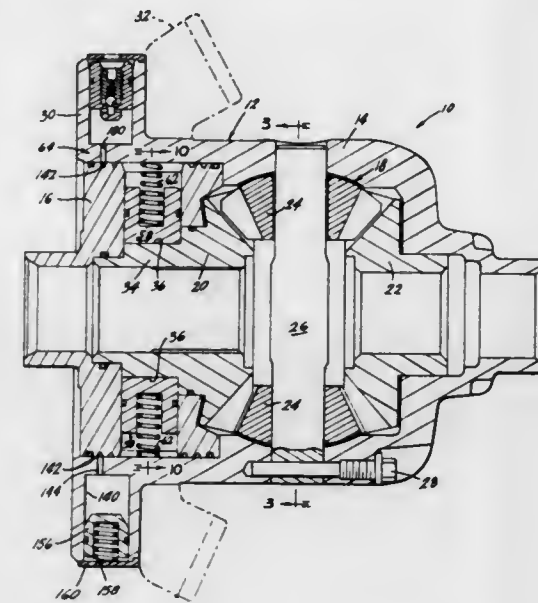
Otto Mueller, 13 Byfield Ln., Dearborn, Mich. 48120

Filed Nov. 3, 1972, Ser. No. 303,629

Int. Cl. F16h 1/44

U.S. Cl. 74-711

8 Claims



A differential transmission for automobiles which has a hydraulic mechanism in the differential carrier for limiting the differential action that can occur between the two driven axle shafts. A closed hydraulic circuit is provided which has compensation means to accommodate volumetric changes of the hydraulic fluid resulting from temperature changes, and the circuit is located in the differential carrier so as to provide optimum use of space provided therein.

3,831,462

LIMITED SLIP DIFFERENTIAL

Jerry F. Baremor, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Continuation of Ser. No. 235,280, March 16, 1972. This

application Jan. 14, 1974, Ser. No. 433,064

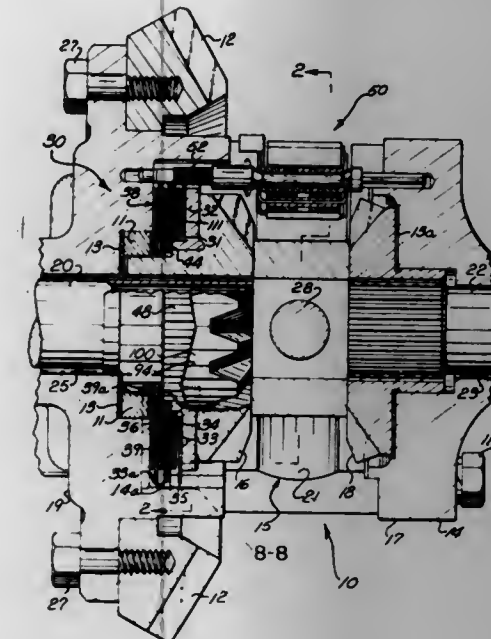
Int. Cl. F16h 1/44

U.S. Cl. 74-711

11 Claims

A limited slip differential mechanism includes a normally disengaged regenerative self energizing clutch assembly for producing lock-up when activated. Engagement of the clutch assembly is initiated by means of an actuator device which is in turn activated by a predetermined level of differential action between driving and driven members in the differential mechanism. The clutch assembly includes a first group of clutch friction elements which are connected for rotation with the driving member and another group of clutch friction elements connected for rotation with the driven members. Upon operation of the actuator, movement of a cam element is re-

tarded relative to one of the driven members. The cam element presses the groups of clutch friction elements together to thereby provide a force which further retards relative rotation between the members. To provide a clutch which has smooth locking characteristics due to the gradual application of locking torque, the complementary friction surfaces have a dynamic coefficient of friction which constantly increases to a



magnitude of at least 0.09 as the clutch is operated from a disengaged condition to a fully engaged condition. After initial actuation, the regenerative portion of the clutch assembly automatically increases the force pressing the complementary friction surfaces of the clutch friction elements together as a result of the previous retarding force until the driving and driven members are locked together.

3,831,463

HYDROMECHANICAL TRANSMISSIONS INCLUDING TORQUE CONVERTER HAVING RELEASABLE PUMP OR TURBINE COMBINED WITH HOLDING CLUTCH GEARS

Karl Gustav Ahlen, Stockholm, Sweden, assignor to S.R.M. Hydromekanik Aktiebolag, Vallingby, Sweden

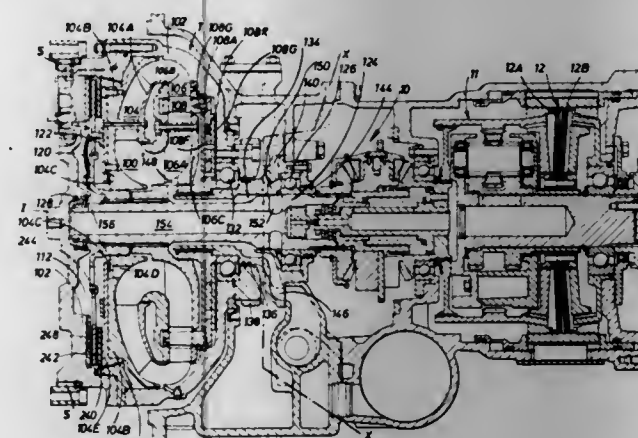
Filed Feb. 1, 1973, Ser. No. 328,525

Claims priority, application Great Britain, Feb. 7, 1972, 5487/72

U.S. Cl. 74-732

Int. Cl. F16h 47/00

31 Claims



valves. Fluid pressures selectively fed to and from the friction engaging devices under the control of various shift valve devices are modulated by the modulator valves to minimize the jerks that may be produced during the transition.

3,831,466

GLASS BLADE AND GLASS BLADE BLANK

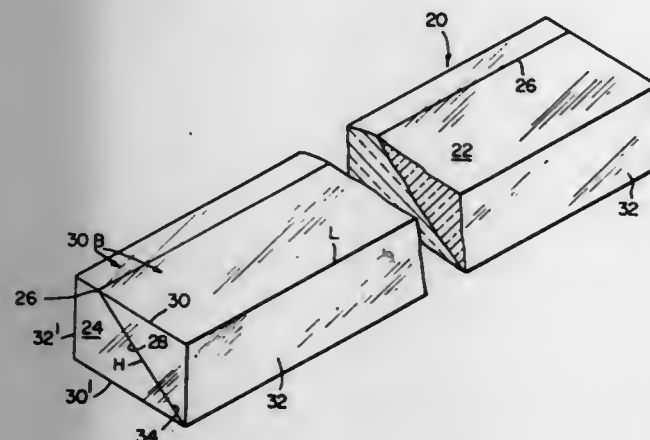
John Wilbur Hicks, Jr., Apple Hill Rd., Sturbridge, Mass. 01566

Filed Feb. 8, 1972, Ser. No. 224,533

Int. Cl. B21k 11/00; B26b 19/54

U.S. Cl. 76—104 R

8 Claims



A blank of a plurality of vitreous materials is prepared by selecting a first vitreous material which is relatively resistant to chemical etching and grinding it to a desired blade configuration with dimensions which are a multiple of the dimension of the desired end product as represented by a predetermined attenuation ratio, then a second vitreous material which is susceptible to chemical etching is selected and prepared to have a portion complementary to said blade portion of said first material, and the blank comprising both materials positioned in complementary contacting relationship is heated to about their softening points and drawn down with a desired attenuation to produce a continuous blade ribbon in said first vitreous material of uniform predetermined cross-sectional dimensions. The second material is then etched away from the ribbon comprising the first material and cut into desired blade lengths.

3,831,467

KNEE BRACE

Robert R. Moore, 5401 San Leandro St., Oakland, Calif. 94601

Filed Mar. 16, 1973, Ser. No. 342,163

Int. Cl. A61f 3/00

U.S. Cl. 128—80 C

10 Claims



An orthopedic appliance for bracing the human knee and restraining the same against normal knee bending movement

or genuflexion, or other knee movement, such as lateral movement. The appliance wraps around the leg and is provided with an opening through which the patella may extend, and opposite such opening is a resilient pad of tapered form engageable with the popliteal area of the knee. Rearwardly of the pad are rigid longitudinally extending bracing elements, and additional parallel elements are provided adjacent the patella opening to prevent lateral movement.

3,831,468

IMPACT WRENCH

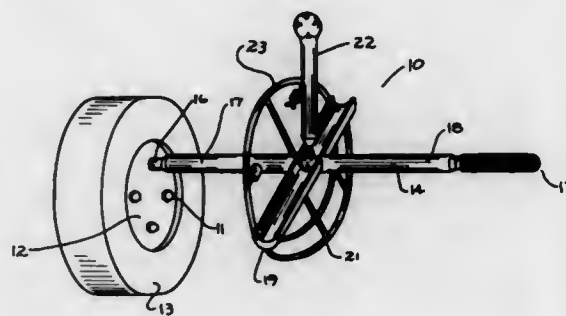
Robert G. Miller, 311 W. Prairie St., Camp Point, Ill. 62320

Filed July 13, 1972, Ser. No. 271,505

Int. Cl. B25b 19/00

U.S. Cl. 81—52.3

1 Claim



An impact wrench for use in tightening or loosening threaded parts, the wrench including a spindle adapted to engage a nut or bolt, a moment arm projecting transversely of the spindle, a semicircular brace disposed radially of the spindle and interconnected at its ends to the ends of the moment arm, and a breaker bar pivotally secured on the spindle and adapted to impart a force substantially simultaneously to the moment arm at both ends thereof thus applying a uniform and balanced application of torque to the workpiece.

3,831,469

TABLE TOP PINEAPPLE SLICING AND CHUNKING

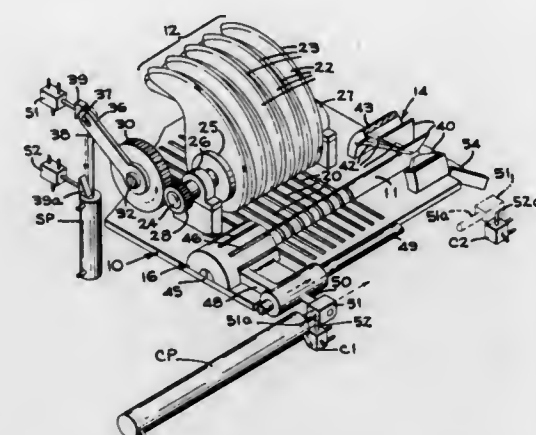
Leslie Vadas, Los Gatos, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 26, 1973, Ser. No. 336,153

Int. Cl. B26d 3/26, 7/06

U.S. Cl. 83—39

17 Claims



Contour peeled pineapple halves are supported on a slotted table having a slotted guide rib within their core cavities. The halves are sliced transversely by knives that move below the table, whereupon a chunking plunger pushes the transversely sliced halves through radial chunking knives. In one embodiment the slotted table is advanced and retracted to alternately receive halves from two infeed conveyors, and the chunking plunger is double ended to alternately feed sliced halves through one of two sets of opposed chunking knives. The slicing knives can be mounted below the table and operated by planetary gearing.

3,831,470

METHOD AND APPARATUS FOR FORMING SLITS IN TUBES

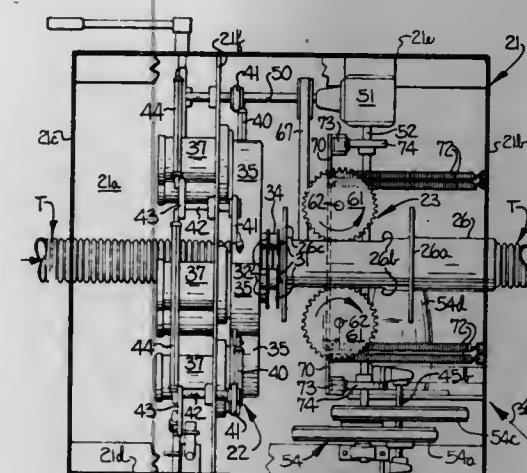
Ernest J. Maroschak, Box 878, Roseboro, N.C. 28382

Filed July 13, 1972, Ser. No. 271,379

Int. Cl. B23c 1/14; B23d 25/16; B26d 3/06

U.S. Cl. 83—39

1 Claim



A tube is slit or slotted for use as an irrigation pipe, for example, by intermittently feeding the tube through a slitting station in a stepwise manner and moving a plurality of rotating cutting blades which encircle the path of travel of the tube into cutting engagement with the tube between successive stepwise movements thereof. The apparatus includes a pair of rotary feed members which engage portions of the tube closely adjacent sets of rotary cutting blades arranged around the path of travel of the tube, and means are provided for operating the rotary feed members to impart the stepwise movement to the tube in timed relation to inward and outward movements of the cutting blades.

3,831,471

GROUPING AND STACKING ATTACHMENT FOR SLICING MACHINE

Conn Rehlander, La Porte, Ind., assignor to Land O'Frost, Inc., Lansing, Ill.

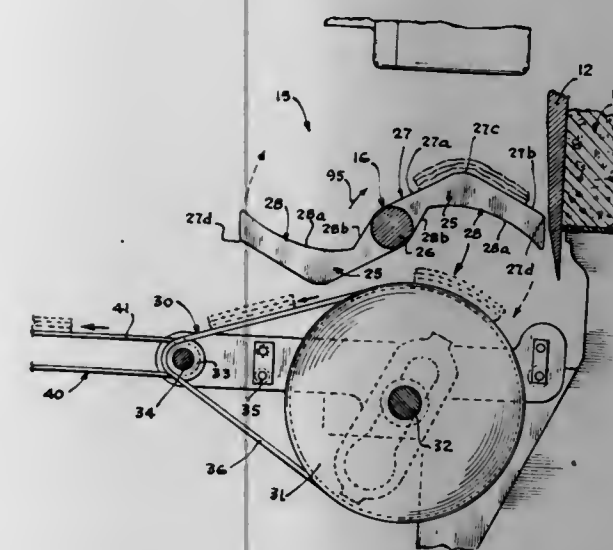
Continuation of Ser. No. 171,183, Aug. 12, 1971. This

application June 4, 1973, Ser. No. 366,404

Int. Cl. B26d 4/46

U.S. Cl. 83—91

10 Claims



An attachment for a heavy duty food slicing machine capable of either grouping or stacking slices received by the slicing machine, wherein a flipper is provided onto which the meat slices are deposited directly upon being sliced, and from which the meat slices are transferred to a station for further processing. A hydraulic drive motor operates the flipper by

periodically rotating the flipper through 180° revolutions. The flipper when stationary, receives slices, and when rotating, transfers the slices to a station for further processing. The hydraulic motor is uniquely constructed to perform the drive function necessary to periodically rotate the flipper through 180° revolutions.

3,831,472

METHOD OF AND APPARATUS FOR SPREADING CLOTH

Tadajiro Sasaki, Osaka, Japan, assignor to Kabushiki Kaisha Sesaki Seisakusho, Osaka, Japan

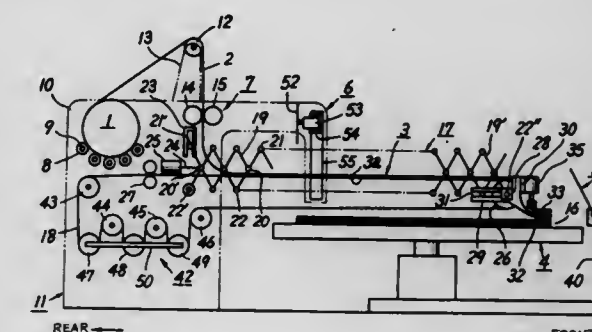
Filed May 31, 1973, Ser. No. 365,686

Claims priority, application Japan, June 12, 1972, 47-58792

Int. Cl. D06h 7/00

U.S. Cl. 83—92

7 Claims



A cyclically operated cloth spreader wherein cloth is drawn from a supply roll mounted for rotation about its axis by a feeding device and a measured length of the cloth is laid upon the upper flight of a traveling belt of a conveyor which latter is mounted for movement in a back-and-forth manner. When the conveyor and the cloth thereon reach the forward limit position in its stroke, the leading end of the cloth is gripped and held. The conveyor now returns to its starting position, leaving the leading end of the cloth gripped whereupon a rotatable cutting blade then moves across and cuts the cloth leaving a length of the cloth on a pile of cloth lengths previously fed and cut by the spreader. This completes one cycle of operation which then repeats itself.

3,831,473

DEVICE FOR CUTTING ENDLESS MATERIAL, FOR EXAMPLE FOR THE PRODUCTION OF STAPLES FROM SYNTHETIC FIBERS

Hans Fleissner, Frankfurt am Main, Germany, assignor to Vepa AG, Riehen/Basel, Switzerland

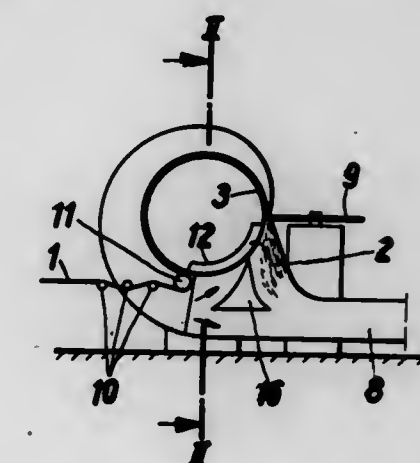
Filed Apr. 24, 1972, Ser. No. 246,659

Claims priority, application Germany, Apr. 23, 1971, 2119821; Dec. 1, 1971, 2159485; Feb. 10, 1972, 2206255

Int. Cl. D01g 1/04

U.S. Cl. 83—100

41 Claims



A device for cutting endless fibrous material, particularly for the production of staples from synthetic fibers, which com-

prises a rotatably disposed support means feeding the fibrous material to a cutting zone, said support means being operatively associated with a rotatably mounted cutting means and comprising drum means subjected to a suction draft.

3,831,474

SLIDE FASTENER GAPPING MACHINE

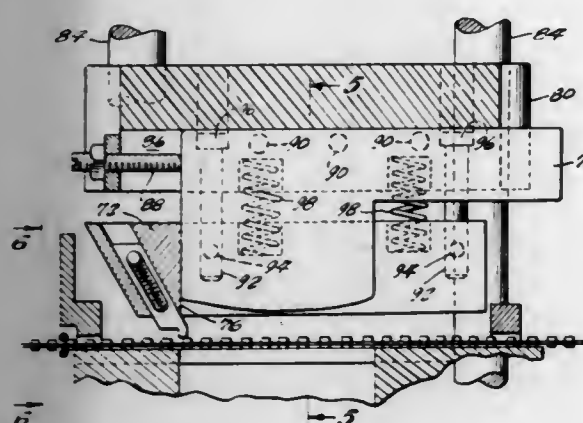
Morris Perlman, Brooklyn, N.Y., assignor to Carbide Form Grinding Inc., Brooklyn, N.Y.

Continuation-in-part of Ser. No. 837,483, June 30, 1969, abandoned. This application July 5, 1973, Ser. No. 376,928

Int. Cl. B26d 7/16, 7/02

U.S. Cl. 83-143

10 Claims



A machine for punching out interlocked teeth carried on adjacent edges of a pair of tapes of a continuous slide fastener chain to provide in the latter gaps free of teeth. The machine comprises die means adapted to receive on an upper surface thereof a portion of the slide fastener chain to be gapped, punch means cooperating with the die means for punching out interlocked teeth for forming a gap free of teeth in the slide fastener chain, and means for automatically adjusting the position of the slide fastener chain in longitudinal direction relative to the punch means so that the teeth on opposite ends of the gap will be fully cut through without damage to each next adjacent tooth remaining on the slide fastener chain.

3,831,475

COMESTIBLE SLICING APPARATUS

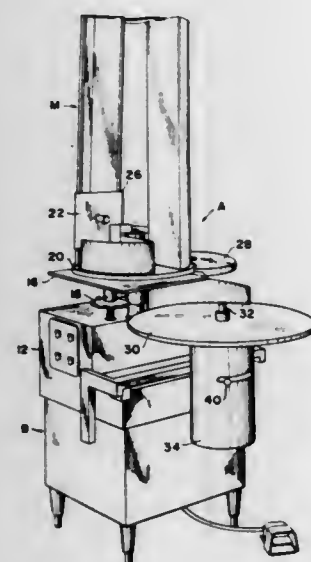
Louis A. Bettcher, Amherst, Ohio, assignor to The Bettcher Industries, Inc., Birmingham, Ohio

Continuation-in-part of Ser. No. 215,462, Jan. 5, 1972, Pat. No. 3,782,230. This application Sept. 24, 1973, Ser. No. 400,344

Int. Cl. B26d 7/06, 7/12

U.S. Cl. 83-161

3 Claims



Slicing apparatus having a magazine with upright product receptacles for carrying comestible workbodies in a circular

path past a rotating knife in a table recess to sever slices from the bottom of workbodies, product followers slidable on receptacle guides to urge workbodies toward the knife, table height adjustment for controlling the thickness of slices being severed, a fluid-pressure actuated ram for lifting the product followers, a unitary plastic or like guard for the knife, and a power driven variable speed rotatable circular table below the knife for receiving the sliced products and conveying them from the vicinity of the knife.

3,831,476

CAPSULE HANDLING APPARATUS

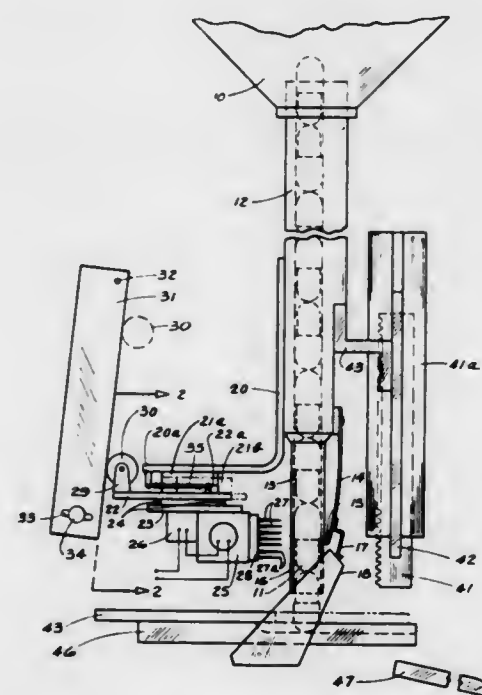
Oscar B. Noren, Grosse Pointe Farms; Carl C. Garland, and Edmund J. Kwarsick, both of Detroit, Mich., assignors to Parke, Davis & Company, Detroit, Mich.

Filed Feb. 12, 1973, Ser. No. 331,778

Int. Cl. B26d 7/10; B26f 1/24

U.S. Cl. 83-170

5 Claims



Apparatus and means are provided for the handling of hard shell pharmaceutical capsules comprising means for supporting each capsule one at a time at a fixed work station, a set of probes spaced in a pattern generally parallel to the capsule length axis and arranged to reciprocate on a radius to and from the supported capsule so as to vent or perforate the side wall of the capsule and thereby produce a corresponding pattern of vent holes, and means for removing the vented capsule from the work position.

3,831,477

SCRAP CUTTER MACHINE

Beryle W. Wright, Portland, Oreg., assignor to Mill Power Engineering & Manufacturing Co., Portland, Oreg.

Filed Mar. 19, 1973, Ser. No. 342,715

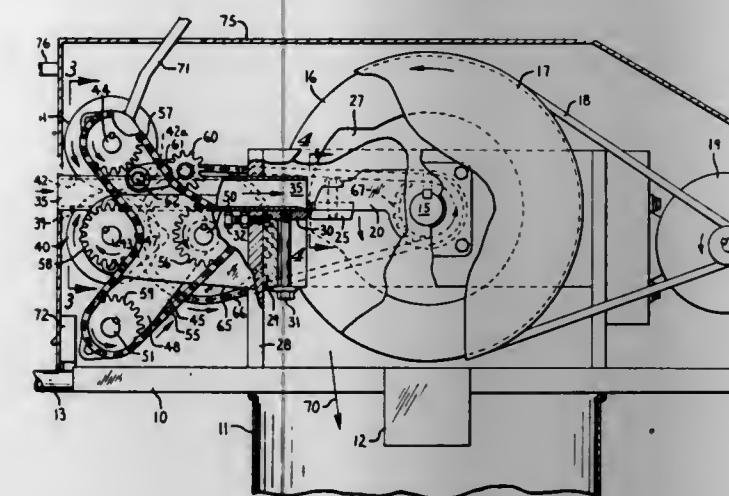
Int. Cl. B26d 1/56; B23d 25/02

U.S. Cl. 83-349

11 Claims

A motor-driven flywheel shaft mounts a cutter blade between a pair of flywheels. An identical cutter blade forms an anvil at the discharge end of a horizontal feed tube extending between the two flywheels. A stationary feed roller protrudes through an opening in the bottom of the feed tube and a companion feed roller protrudes through an opening in the top of the feed tube to provide a pair of pinch rolls for feeding elongated pieces of material, such as steel strapping, wire or plastic, which is to be cut into short lengths for storage or disposal. The shafts of the two pinch rolls are equipped with sprocket wheels driven by a chain from a sprocket wheel on a feed drive shaft which is driven by the flywheel shaft. The

upper pinch roll is mounted on a rocker frame having pivotal movement on the feed drive shaft. Chain tension exerted in



rotating the pinch rolls pulls the upper roll down toward the lower roll to grip and feed the material through the tube.

3,831,478

PRINT CUTTING MECHANISM FOR BORDERED AND BORDERLESS PRINTS

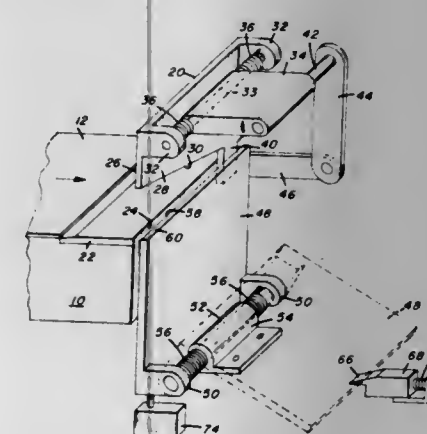
Luther M. Wright, Brockport, and William A. Epps, Rochester, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed July 30, 1973, Ser. No. 383,649

Int. Cl. B26d 5/02

U.S. Cl. 83-368

8 Claims



A print cutting mechanism for cutting prints from a web and operable in a first mode to cut individual bordered prints from a web containing bordered prints, and in the second mode to cut individual borderless prints from a web containing borderless prints. The cutting mechanism is provided with a stationary bed blade having a cutting edge, and a movable cutting knife having two cutting edges spaced apart a distance slightly greater than the distance between the leading and trailing ends of two adjacent borderless prints. In the first mode of operation, the cutting edge of the stationary bed blade cooperates with one of the two cutting edges of the knife to sever individual prints having a border. In the second mode of operation, a movable bed blade is moved to a borderless print cutting position in which a cutting edge thereof is spaced from the cutting edge of the stationary bed blade a distance slightly greater than the distance between the leading and trailing ends of two adjacent borderless prints on the web. Accordingly, when the movable cutting knife is moved between the stationary and movable bed blades, the cutting edges of the knife and blades cooperate to cut out the border portion between the two adjacent prints to provide an individual borderless print.

3,831,479

COUPLING DEVICE FOR A CUTTING MACHINE

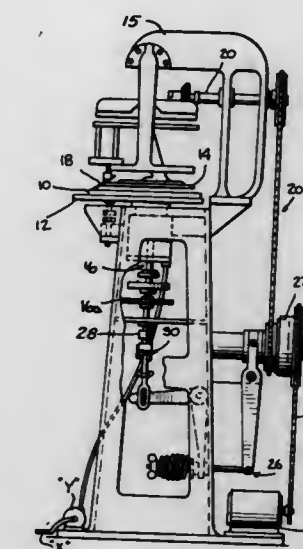
Herbert R. Polleys, New Haven, Conn., assignor to Wellman Company, Medford, Mass.

Filed Nov. 23, 1971, Ser. No. 201,418

Int. Cl. A43d 7/08

U.S. Cl. 83-380

10 Claims



A coupling device for use in a cutting machine, the coupling device being interposed between and connectable to a clamp actuating assembly and a cutter drive unit. The coupling device includes a turnbuckle coupling member having an eyelet which may be hooked upon or, alternatively, unhooked from a hook presented by a second coupling member. The coupling device enables a machine operator to inactivate the cutter drive unit when adjustment of the clamp actuating assembly is to be effected.

3,831,480

ROTARY CUTTER-SLITTER FOR HIGH SPEED BURSTING APPARATUS

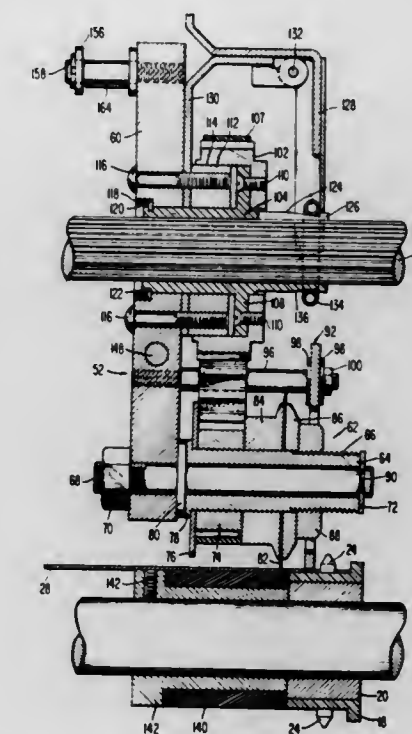
James Curt Phillips, 35 Coach St., Canandaigua, N.Y. 14424

Filed May 1, 1972, Ser. No. 249,341

Int. Cl. B23d 19/06

U.S. Cl. 83-481

4 Claims



The invention relates to a demountably replaceable rotary cutter-slitter provided with a demountable, circular blade of the so-called throw-away, disposable type permitting a dull

blade to be quickly and easily replaced with a sharp blade. The cutter-slitter device can be positioned to accommodate varying widths items and the location of the cutter relative to the edges of the item may be adjusted according to the desired dimensions by the simple expedient of sliding the cutter normal to the path of movement of the item web avoiding unnecessary downtime of the associated apparatus, e.g., burster.

3,831,481

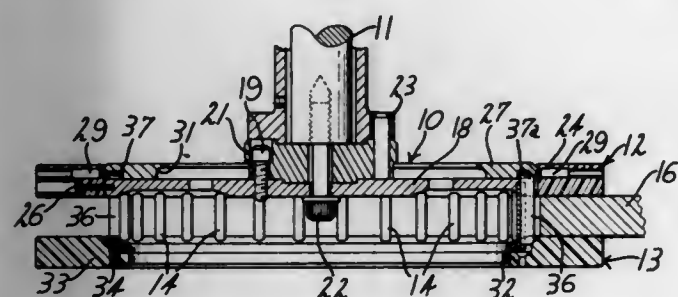
CUTTER REELS FOR FIBER CUTTING APPARATUS
Donald W. Van Doorn; James B. Hawkins, and Roy T. Williams, all of Columbus, Ga., assignors to Lummus Industries, Inc., Columbus, Ga.

Filed June 14, 1971, Ser. No. 152,758

Int. Cl. B26d 1/12

U.S. Cl. 83-674

13 Claims



A cutter reel for tow cutting apparatus especially for use in apparatus as shown, described and claimed in U.S. Pat. No. 3,485,120. The construction provides reels which compared to prior art reels are more self cleaning, in which the blades may be more safely installed and removed, in which shorter and narrower blades may be used without decreasing the effective cutting lengths thereof or the strength of the same, and in which it is impossible to install the blades backwards. Further, the new reel causes the blades to be positioned correctly, in positive manner, when the reel parts are assembled and the construction decreases the damage to the reel parts and the blades by greatly decreasing the chance of the cutting edges of the blades contacting the reel parts when changing blades.

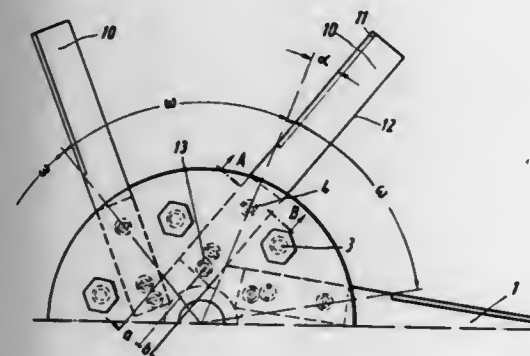
3,831,482

APPARATUS FOR CUTTING OF FIBER STRANDS
Norbert Eichler, Bohlerwerk, and Kurt Urban, Waidhofen/Ybbs, both of Austria, assignors to Gebr. Bohler & Co., Aktiengesellschaft, Kapfenberg/Steiermark, Austria
Division of Ser. No. 18,274, March 10, 1970, Pat. No. 3,735,661. This application Nov. 30, 1972, Ser. No. 310,799
Claims priority, application Austria, Mar. 10, 1969, 2329/69; July 9, 1969, 6564/69

Int. Cl. B26d 1/28

U.S. Cl. 83-675

2 Claims



An apparatus for cutting fiber strands in which there is provided a rotatable clamping head defined by two disc-shaped members, means for forcing the members against each other and knives clamped between the disc members and protruding

from the periphery thereof, each knife being constituted by a straight metal body of substantially triangular cross-section having a first portion clamped between the disc-shaped members and a second portion protruding beyond the periphery of the disc-shaped members, with the second portion being provided with a knife edge.

3,831,483
PUNCH TOOL

Philippe Louis Beauplat, 44 Rue de Montmorency, 95230 Montmorency, France

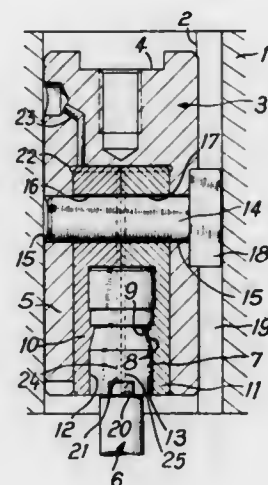
Filed Dec. 26, 1973, Ser. No. 428,012

Claims priority, application France, Jan. 14, 1973, 73.273

Int. Cl. B26d 1/00

U.S. Cl. 83-698

4 Claims



A punch tool is mounted within a tubular portion of a tool-carrier by means of two separable half-shells which engage over the shank of the tool. The shells are retained within the tool-carrier by means of a pin extending transversely therethrough. The tool-carrier is reciprocable within a bore of a support member, and the pin has a head engaged in an axial groove in the bore.

3,831,484

LOBED ROTARY CUTTING BLADE

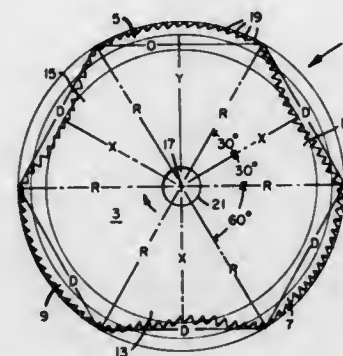
David T. Gibb, Rt. No. 2, Ellensburg, Wash. 98926

Filed Dec. 13, 1971, Ser. No. 207,416

Int. Cl. B27b 33/08

U.S. Cl. 83-847

3 Claims



A multi-lobed cutting blade having a plane member adapted for mounting to a rotary drive shaft at right angles to the plane member. The plane member includes three or more lobes spaced apart relative to one another and a plurality of abbreviated sectors spaced apart relative to one another with an abbreviated sector intermediate two lobes such that the outer peripheral edge of each lobe extends to the outer peripheral edge of an abbreviated sector. Each of said lobes and abbreviated sectors carries a cutting edge surface about its outer periphery.

3,831,485

STRINGED MUSICAL INSTRUMENT WITH REMOVABLE NECK

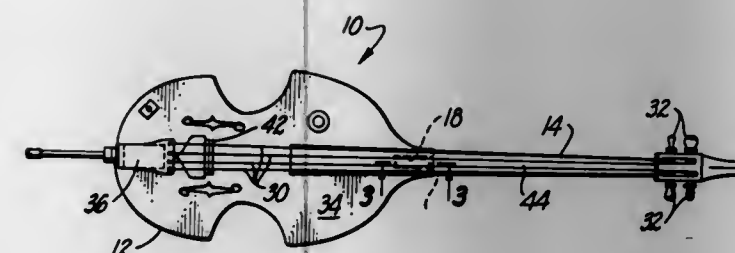
Edgar E. Dopera, 1404 Gaylord, Long Beach, Calif. 90813

Filed May 29, 1973, Ser. No. 365,023

Int. Cl. G10d 1/02

U.S. Cl. 84-275

3 Claims



A stringed musical instrument such as a bass or bass viol can be constructed so that the neck and strings may be detached from the body of the instrument so as to facilitate movement or transportation of the instrument from one location to another. Preferably, the neck includes a male type plug which fits within a female type socket in the body of the instrument so as to hold the neck in place. Fastener means may be employed to secure the plug relative to the body of the instrument. The strings may be secured to the body of the neck by a hook type tailpiece so that they may be readily detached from the body of the instrument. A removable bridge which may contain a transducer is preferably used between the strings and the body of the instrument.

3,831,486

ELECTROMAGNETICALLY OPERATED LATCH

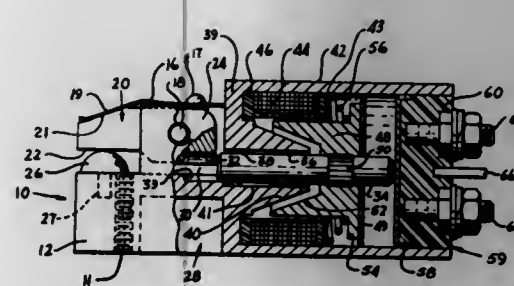
Betty Jane Yost, Dayton, Ohio, assignor to Ledex, Inc., Dayton, Ohio

Filed Dec. 11, 1972, Ser. No. 313,939

Int. Cl. A44b 11/25; F41f 5/06

U.S. Cl. 89-1.5 D

5 Claims



A latch device is assembled upon a one-piece body member having an electromagnet core portion at one end thereof and a platform extending from the core portion to the other end thereof. The one-piece body includes parallel stanchions rising above said platform to support a shaft pivotally mounting a lever which cooperates with a knob on said platform to provide a latch mechanism. The stanchions also support a plate spring biasing said lever against said knob to yieldingly close said latch mechanism. An electromagnet assembled about said core portion acts, when energized, to drive one end of a second shaft into a chamber between said lever and said platform to positively lock said latch mechanism.

3,831,487

METHOD FOR MILLING CAMS FOR SWISS-TYPE SCREW MACHINES

John A. Villano, 17 Brown St., Waterbury, Conn. 06702

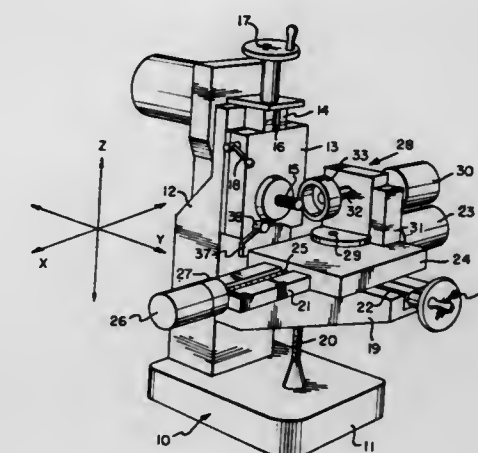
Division of Ser. No. 104,662, Jan. 7, 1971, Pat. No. 3,714,865.

This application Dec. 14, 1972, Ser. No. 315,134

Int. Cl. B23e 1/18

U.S. Cl. 90-11 C

1 Claim



The invention is directed to a novel apparatus for milling Swiss-type screw machine cams. The invention provides a highly simplified and economical numerically controlled system enabling Swiss-type screw machine cams and similar articles to be milled with an ease and precision heretofore unattainable otherwise than with highly sophisticated and costly equipment. In its most typical application, the invention is utilized in the retro-fitting of an existing milling machine apparatus of otherwise conventional construction. Alternatively, the invention can be applied in the first instance, in connection with the manufacture of modified milling machines incorporating the new control system.

3,831,488

KEY VISE GAUGE

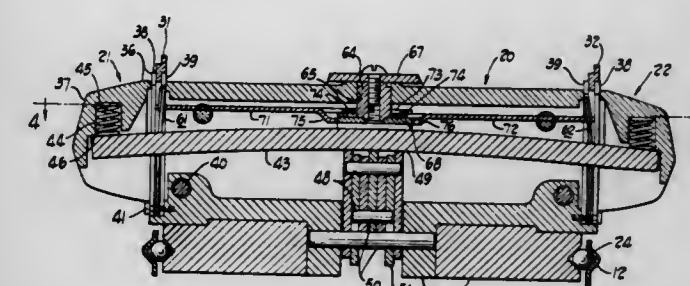
Robert H. Richens, Macedonia, and Charles A. Garner, Strongsville, both of Ohio, assignors to Cole National Corporation, Cleveland, Ohio

Filed Nov. 20, 1972, Ser. No. 308,275

Int. Cl. B23c 9/00; B25b 1/14, 1/20

U.S. Cl. 90-13.05

11 Claims



A key vise gauge is disclosed wherein a cam moves two cam follower links to move two bottom gauges in each of two key vises. The gauges move laterally within apertures in the key vise jaws and have three positions to accommodate three different styles of keys. Two of the positions are symmetrical about the cam axis and a third position of the gauges is asymmetrical to accommodate a master key and a key blank in the same attitude in the two vises. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications and is not to be construed as a limitation on the scope of the claimed subject matter.

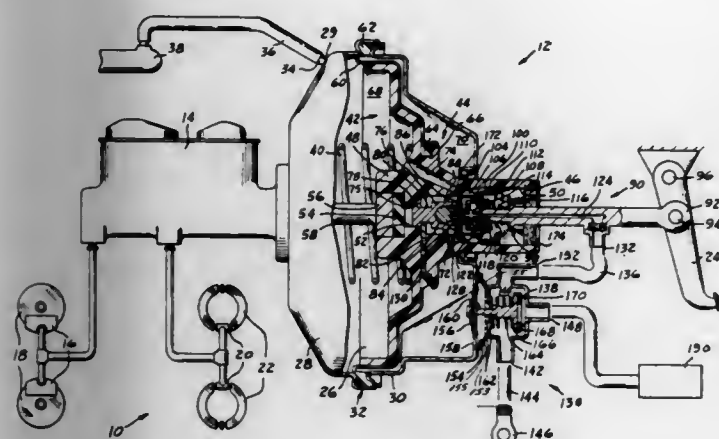
3,831,489

TUBULAR PUSH ROD MEANS FOR SERVOMOTOR
 Ji Yah Woo, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind.

Filed Nov. 13, 1972, Ser. No. 306,256
 Int. Cl. F01b 25/04; F15b 9/10

U.S. Cl. 91-32

10 Claims



A control valve for a servomotor wherein vacuum, air at atmospheric pressure and air above atmospheric pressure are sequentially communicated to a rear chamber of the servomotor to create an operational pressure differential across a movable wall with vacuum in a front chamber to develop an input force to meet an operational output condition.

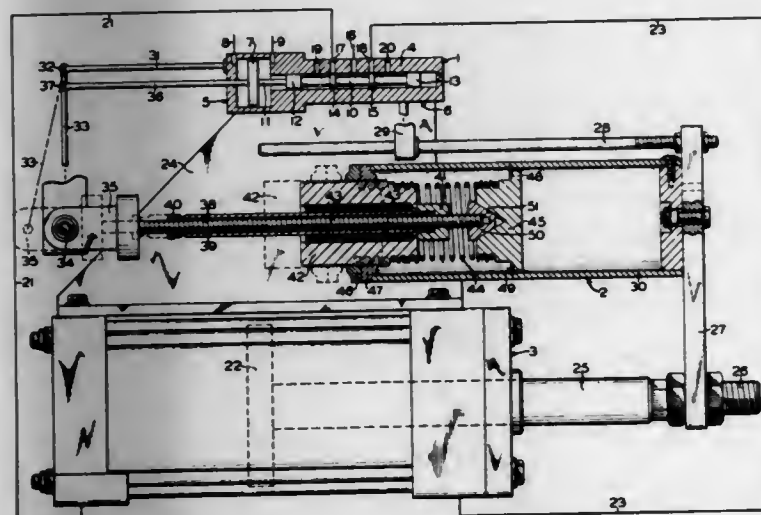
3,831,490

FLUID PRESSURE OPERABLE SERVO POSITIONER
 Paul E. Olson, and Homer A. Knight, both of Lexington, Ky., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Sept. 15, 1972, Ser. No. 289,754
 Int. Cl. F15b 13/16

U.S. Cl. 91-387

4 Claims



A servo positioner for selectively positioning a machine component or device in accordance with a preselected fluid pressure signal input. An operator controlled actuator, when subjected to a preselected control pressure signal, causes a valve portion to transmit operating fluid pressure to a power cylinder for positioning the machine part or device connected thereto at a position determined by the degree of the control pressure signal, and a force-balancing portion for counterbalancing the force exerted by the power cylinder for maintaining the preselected position thereof and for restoring the valve portion to a neutral position.

3,831,491

BRAKE BOOSTER

Alfred William Thomas, Bubingen, Germany, assignor to Deutsche Bendix Ausrüstungs GmbH, Saarbrücken, Germany

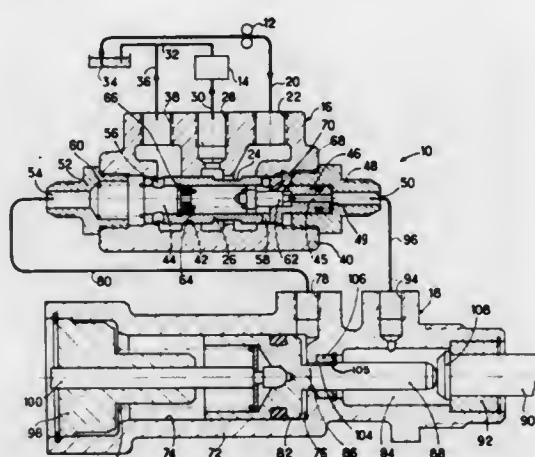
Filed May 4, 1972, Ser. No. 250,397

Claims priority, application Germany, May 25, 1971, 2125880

Int. Cl. F15b 9/10

U.S. Cl. 91-391

12 Claims



A hydraulic booster is disclosed which includes a piston which is actuated by fluid pressure communicated into the booster from an external source by a spool valve. An operator-actuated input rod generates fluid pressure in a control chamber when the booster is actuated. The pressure generated in the control chamber shifts the spool valve to a position admitting fluid pressure to the piston.

3,831,492

OVERLOAD PROTECTION DEVICE FOR COUNTERBALANCE VEHICLES

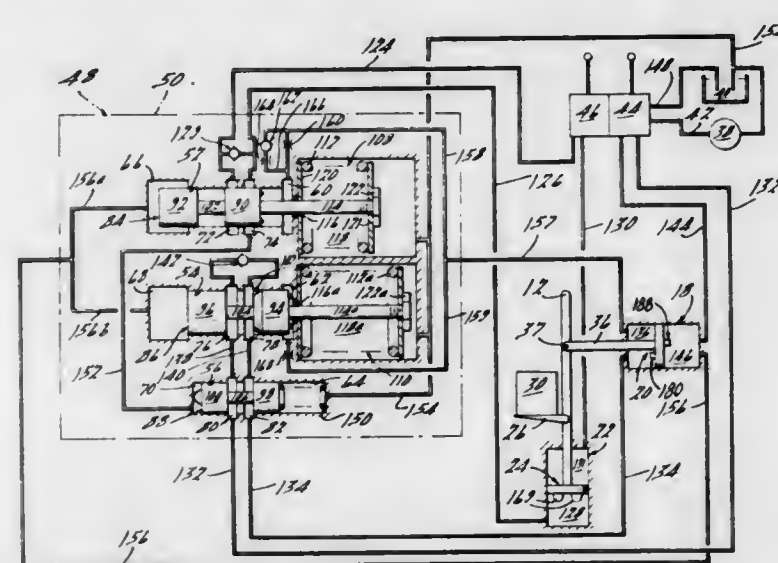
Michael R. Young, Farmington, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 4, 1972, Ser. No. 312,087

Int. Cl. F15b 11/16

U.S. Cl. 91-411 R

39 Claims



An overload protection device for a vehicle, such as a lift truck, having a primary load member or mast pivotally mounted on a frame and a secondary load member or forks movably mounted on the primary member and adapted to hold a load. The overload protection device includes a fluid actuated double acting piston-cylinder and a pressure actuated valve operable in response to a pressure signal representative of the difference in pressure on opposite sides of the piston to prevent movement of the load members in one direction when the overturning moment on the vehicle ex-

ceeds a safe value. A stop assembly is provided in the piston-cylinder to prevent the pressure of the fluid on either side of the piston from becoming zero when the piston approaches either end of the cylinder. The valve includes an override mechanism to allow pivotal movement of the primary member, irrespective of the presence of an overload signal, whenever the secondary member is in a given position relative to the primary member. Damping means are provided to prevent false actuation of the valve in the presence of rapidly changing pressure signals from the piston-cylinder. The valve is further designed to decrease the rate of pivotal movement of the primary member in proportion to increases in the overturning moment and to rapidly stop movement of the secondary member relative to the primary member when the overturning moment approaches an unsafe value.

3,831,493

PROPULSION NOZZLE AND ACTUATOR SYSTEM EMPLOYED THEREIN

Robert Price Wanger, Fairfield, Ohio, assignor to General Electric Company, Lynn, Mass.

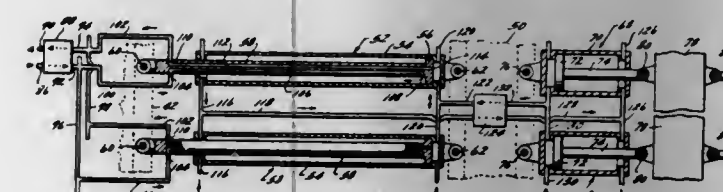
Division of Ser. No. 264,394, June 19, 1972. This application

Sept. 13, 1973, Ser. No. 396,985

Int. Cl. F15b 11/00; F01b 1/02

U.S. Cl. 91-411 R

8 Claims



A propulsion nozzle is described in combination with a gas turbine engine. The hot gas stream of the engine is discharged through the nozzle for forward propulsion, or may be discharged laterally thereof for reverse thrust. The nozzle is of the variable geometry, plug type wherein flaps are pivotal to vary the discharge and throat areas thereof for different flight conditions spanning subsonic and supersonic operation. The flaps for controlling discharge area are pivotally mounted on a frame which is longitudinally displaceable to uncover ports in the sides of the pod or nozzle structure. The hot gas stream may then be laterally and forwardly discharged therethrough for reverse thrust. Axial movement of this frame is controlled by a set of first actuators. Pivotal movement of the flap is controlled by a set of second actuators. The first and second set of actuators are sequentially interconnected in such a fashion that both sets may be powered from a single source of pressurized hydraulic fluid through "hard" conduits. Valves are employed to enable independent operation of each set of actuators in providing the varying thrust capabilities of the nozzle.

3,831,494

HYDRAULIC SERVOMOTOR

Jean-Jacques Carre, Montreuil, France, assignor to Societe Anonyme D. B. A., Paris, France

Filed May 17, 1973, Ser. No. 361,374

Claims priority, application France, June 12, 1972, 72.21052

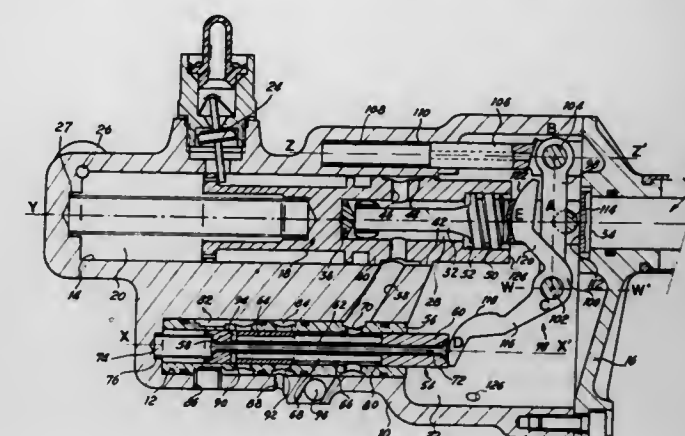
Int. Cl. F15b 13/14

U.S. Cl. 91-434

9 Claims

The servomotor comprises a boost piston whose movements depend on the pressure of fluid contained in an actuating chamber, said pressure being controlled by a distributing valve connected to a pressure fluid source and to a reservoir. The valve is operated by a push rod through the intermediary of a lever assembly responsive to the relative movement of the

push rod and of the boost piston. The push rod, mounted coaxially to said boost piston, projects therein. The projecting



end contains a helical groove whose top cooperates slidably with the surface of a cylindrical bore formed in the boost piston.

3,831,495

REMOTELY CONTROLLED ELECTROHYDRAULIC SYSTEM WITH FAIL-SAFE FEATURES

Winfried Arnold, Moglingen, and Johannes Locher, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

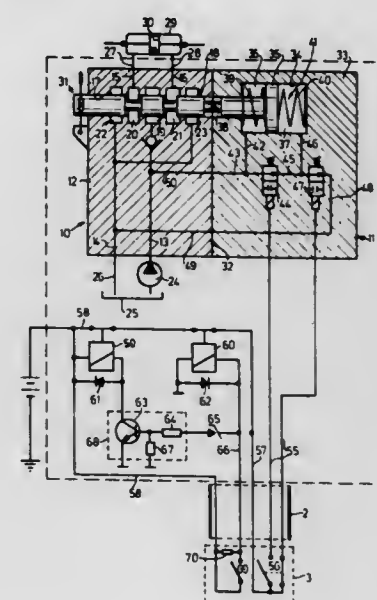
Filed Aug. 9, 1973, Ser. No. 387,201

Claims priority, application Germany, Aug. 18, 1972, 2240607

Int. Cl. F15b 13/044

U.S. Cl. 91-459

9 Claims



The system includes a hydraulic user device and a source of hydraulic fluid. A hydraulic arrangement connects the source of fluid to the user device and provides a path for the flow of fluid from the source to the user device, and includes a control member positioned in such path and mounted for movement between a plurality of positions in different ones of which the control member differently affects the flow of fluid from the source to the user device, including a neutral position in which the control member blocks the flow of fluid from the source to the user device. An electrohydraulic moving arrangement is operative when electrically energized for moving the control member by applying hydraulic force thereto. A restoring arrangement is operative for applying to the control member a restoring force tending to move the control member to said neutral position when the electrohydraulic moving arrangement is electrically unenergized. An electrical control arrangement controls the electrohydraulic moving arrangement and includes a source of electrical power having two ter-

minals, connectors connecting the source of electrical power to the electrohydraulic moving arrangement for furnishing electrical energy to the latter, a remote control arrangement and an electrical control cable having a first cable end connected to the electrohydraulic moving unit and a second cable end connected to the remote control arrangement, the control cable comprising a first conductor having at the first cable end a first end connected to one terminal of the source of electrical power and having a second end at the second cable end, a second conductor extending along the length of the cable and having a first end at the first cable end and a second end at the second cable end. A fail-safe unit prevents electrical energization of the electrohydraulic moving arrangement when a short-circuit develops between the first and second conductors, to prevent the application by the electrohydraulic moving arrangement of hydraulic force to the control member and to thereby cause the control member to be returned to the neutral position by the restoring means.

3,831,496

PRESSURE RESPONSIVE CONTROL BODY ARRANGEMENT

Kearl Eickmann, 2420 Isshiki, Hayama-machi, Japan

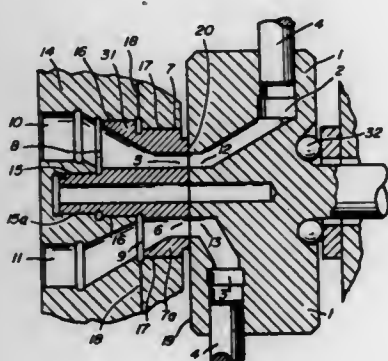
Filed Mar. 30, 1972, Ser. No. 239,551

Claims priority, application Austria, Apr. 7, 1971, 2987/71

Int. Cl. F04b 1/00

U.S. Cl. 91—487

8 Claims



A pressure responsive control body arrangement is provided in a fluid handling device thereby, that axially of one end of the fluid handling rotor which contains the fluid intake and expelling working chambers a pressure responsive fluid flow control body is adapted against the rotary control face of the rotor to seal with its stationary control face along said rotary control face while said control body is partially contained in a fluid containing pressure chamber; axially moveable therein in a limited extend, forming separated portions of said pressure chamber therein and having a cylindrical but radially eccentrically located portion or control body shoulder extending into a respectively located portion of said pressure chamber and sealing therein one portion of the fluid containing chamber from another portion thereof, while in order to locate the pressure centre of said eccentric portion of said control body at the same position relatively to the axis of the rotor of the device as the control faces between said rotor and said control body have, the eccentric shoulder of said control body partially extends radially over the outer diameter of said control faces. This location of the eccentric shoulder of the invention provides a smooth running of the control faces along each other whereby tilting or sticking between them is effectively prevented, so, that the control mirror between the rotary and the stationary control faces of the device operate at high efficiency also at high pressures in fluid and high relative velocities between them.

3,831,497

HYDROSTATIC TRANSMISSION

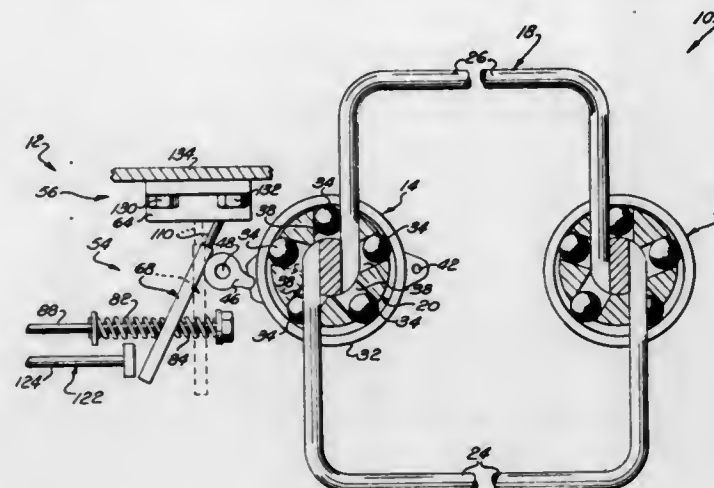
Gerald W. Trabbic, Marshall; Wayne C. Dunn, Homer, and Paul E. Hakes, Battle Creek, all of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Mar. 22, 1972, Ser. No. 237,149

Int. Cl. F01b 1/06

U.S. Cl. 91—497

22 Claims



An improved neutral locate and hold assembly is operable to move a displacement control cam for a pump unit of a hydrostatic transmission to a neutral or minimum displacement position and to yieldably retain it there upon movement of the cam to a position closely approximating the neutral position by a manually actuatable control lever. The neutral locate and hold assembly also retards oscillatory movement of the pump displacement control cam under the influence of any hydraulic pulses which may be generated during operation of the hydrostatic transmission. Upon operation of an override or panic stop mechanism, the neutral locate and hold assembly also functions to position and hold the displacement control cam at the neutral position. A linkage interconnecting the control lever and the neutral locate and hold assembly includes a pair of links which are yieldably interconnected by springs to enable the control lever to be moved through a relatively wide range with the pump in a neutral position. The neutral locate and hold assembly may be adjusted to precisely position the displacement control cam at neutral.

3,831,498

MULTIPLE-PLY BELLOWS

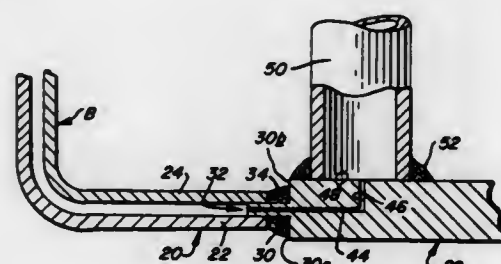
Edward F. Harrington, Jr., Louisville, Ky., assignor to Chemetron Corporation, Chicago, Ill.

Filed Apr. 26, 1973, Ser. No. 354,692

Int. Cl. F16j 3/00

U.S. Cl. 92—34

8 Claims



An end of a bellows having radially spaced inner and outer plies is mounted to a support having a wall and further having a tubular flange extended from the wall and inserted between the plies. Cylindrical weldments, preferably butt weldments, are deposited on the flange to weld the inner and outer plies to the support.

3,831,499

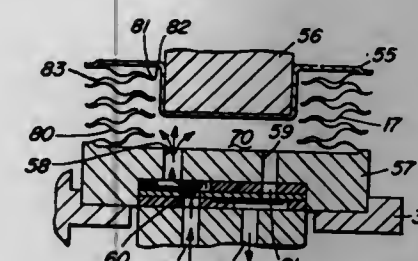
GAS PUMP EMPLOYING ELECTRON BEAM WELDED BELLOWS

Arthur J. Andrews, Harwichport, Mass., and Paul J. Luther, Ft. Lauderdale, Fla., assignors to Compressive Industries, Inc., Ft. Lauderdale, Fla.

Filed Aug. 16, 1972, Ser. No. 281,122

Int. Cl. F01b 19/00; F16j 3/00

U.S. Cl. 92—45



A gas compressor/vacuum pump has an electron beam welded bellows defining a compression chamber. The diaphragms of the bellows are welded at lap joints with the joint thicknesses preferably being no more than the thickness of the diaphragms so as to allow full compression of the bellows and thus optimize volumetric output and compression ratio. A method of forming the bellows includes electron beam welding on continuous seam paths to form bellows with highly precise concentricity.

3,831,500

APPARATUS FOR EFFECTING OSCILLATORY MOVEMENT OF AN OUTPUT MEMBER

Yoshiaki Kitamura, Kamagaya-machi, and Shigemi Misono, Tokyo, both of Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

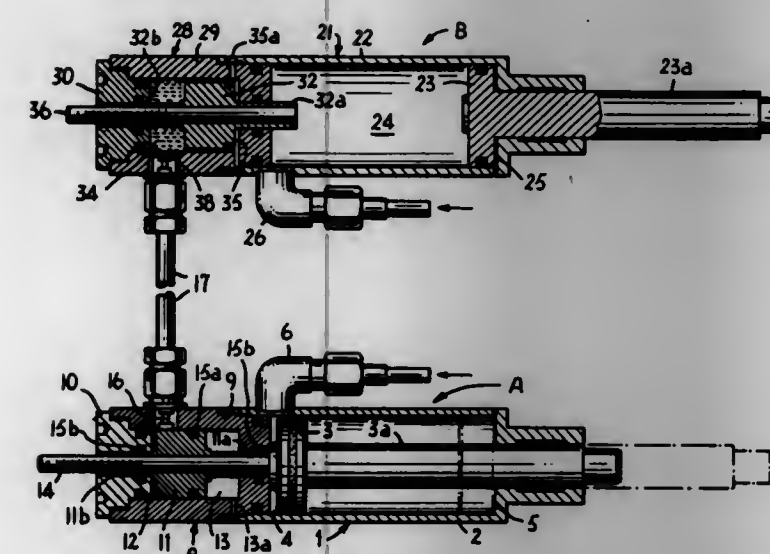
Filed Oct. 13, 1972, Ser. No. 297,355

Claims priority, application Japan, Oct. 13, 1971, 46-80674

Int. Cl. F01b 1/102, 9/00, 7/04

U.S. Cl. 92—68

8 Claims



An apparatus for effecting oscillatory movement of an output member comprises a pair of single-acting fluid reciprocating motors each having a working piston reciprocal through a working stroke and a return stroke and the motors are alternately supplied with motive fluid to effect synchronous reciprocation of the working pistons in opposite stroke directions. Each working piston is connected to a common roller chain and the roller chain engages with chain sprockets around the periphery of the output member so that alternate movement of each working piston through its working stroke drives the roller chain in opposite directions to thereby impart

oscillatory movement to the output member. A dampening device is connected to each reciprocating motor to dampen the impact of each working piston at the end of both its working and return strokes.

3,831,501

SHEET PLICATING DEVICE

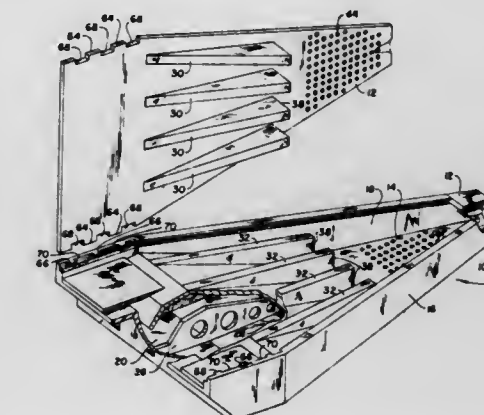
Richard E. Bevington, Jr., Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 16, 1973, Ser. No. 379,533

Int. Cl. B31f 1/08

U.S. Cl. 93—1 C

22 Claims



Plicating device or jet for receiving a material in continuous, band, ribbon or sheet-like form, uniformly plicating and compacting the material into a shape of relatively low cross-sectional area, and presenting the plicated and compacted material through an exit for further processing. The jet folds and condenses the material so that the axis of the fold is generally parallel to the direction of travel of the material. The position and amplitude of each fold as well as the degree of compacting is highly controlled. The device is formed to provide a slot-like band inlet communicating with a venturi connected to a gas inlet to transport the band to a folding cavity having nested vanes around which the band is plicated along its direction of travel.

3,831,502

SLITTER SCORER APPARATUS

Masateru Tokuno, Nishinomiya, Japan, assignor to Rengo Co. Ltd., Osaka, Japan

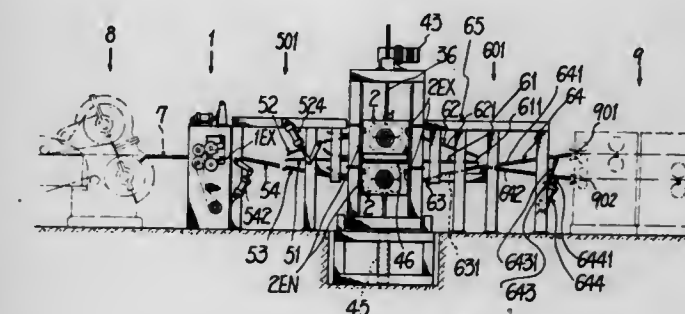
Filed Jan. 29, 1973, Ser. No. 327,572

Claims priority, application Japan, Feb. 25, 1972, 47-19443; Apr. 5, 1972, 47-34700

Int. Cl. B26d 3/08

U.S. Cl. 93—1 G

24 Claims



The present disclosure is directed to a slitter scorer apparatus which slit and flutes, along a running direction, long and flat materials which are successively delivered. More particularly, the present disclosure is concerned with a slitter scorer apparatus comprising a rotary shear which cuts the flat materials at a right angle direction with their running

direction, two slitter scorers which are vertically placed downstream of the rotary shear, a front guide which guides the materials from the exit of the rotary shear to either entrance of the two slitter scorers or to an opening entrance between the two slitter scorers, and a rear guide which guides the material from either exit of the two slitter scorers or from an opening entrance between the two slitter scorers to the next process step.

3,831,503

METHOD OF MAKING CELL STRUCTURE

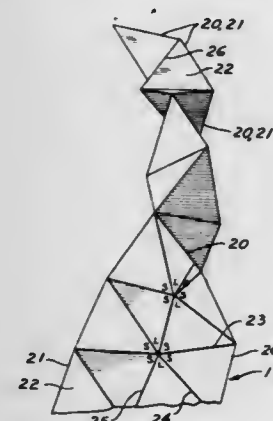
George V. Tranquillitsky, 3161 Lynde St., Oakland, Calif. 94601

Division of Ser. No. 91,384, Nov. 20, 1970. This application May 14, 1973, Ser. No. 360,335

Int. Cl. B31d 5/04

U.S. Cl. 93-84 R

11 Claims



A cell structure and method of fabricating the same. Cell structures embodying the invention may be used to fabricate panels, beams, and like components having utility in a great number of environments such as in the construction of side, floor and ceiling walls of a building and of material-handling pallets. Any such panel or beam structure comprises a plurality of sub-components or segments each constituted of a number of cells, with all of the segments forming any such panel or beam being connected one with another so as to define a panel or beam having the desired dimensions. Each such segment includes a plurality of cells in the form of substantially closed polyhedrons hinged together one with another in a string-like succession thereof, and each such string of polyhedrons is fabricated by scoring a continuous web of flat paper or paper-like material which is then folded along the score lines into a continuous string of interconnected polyhedrons. The folded web is then adhesively or otherwise constrained in the folded condition thereof to maintain the string-like succession of interconnected polyhedrons.

3,831,504

SPIKE-MOUNTING STACKED-BAGS PROCESS AND APPARATUS

William P. Daly, White Plains, N.Y., and Oliver L. Pouliot, Oradell, N.J., assignors to Oneida Packaging Products, Inc., Clifton, N.J.

Filed Jan. 15, 1973, Ser. No. 323,749

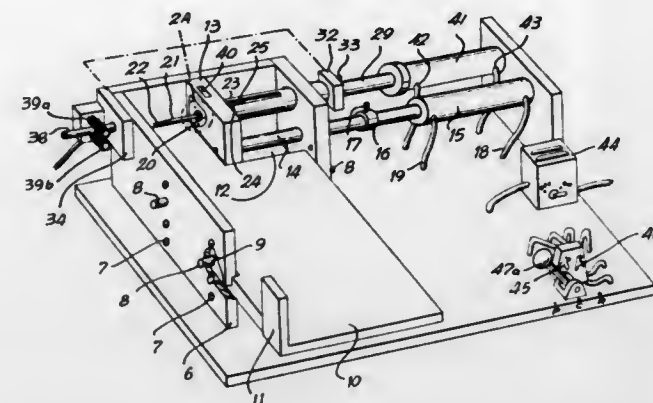
Int. Cl. B31b 1/98

U.S. Cl. 93-93 M

16 Claims

The bag-mounting process and apparatus of the invention are directed to a spearing of stacked paper bags onto a needle-like spike rammed through stacked lips thereof with the spike piercing the lips from the lips' outer faces thereof near the lips' upper peripheries after first compressing the stacked lips in the stacked state, employing solely a linear spike having a concentrically tapered point at its piercing end and a blunt opposite end against which a plunger is pressed to ram the spike from a spike-supporting barrel aligned perpendicularly to the point for piercing, and mounting tabs or other retaining mem-

bers on the opposite ends of the spike for retaining the pierced-bags on the spike against bags' tendency to slip-off during handling and shipping. Preferably the machine is pneu-



matically actuated and semi-automatic for at least part of the process, and is adjustable to receive bag-stacks of different widths of the bags thereof.

3,831,505

DEVICE FOR DETERMINED BATCH-WISE COLLECTION AND DISCHARGE OF ARTICLES

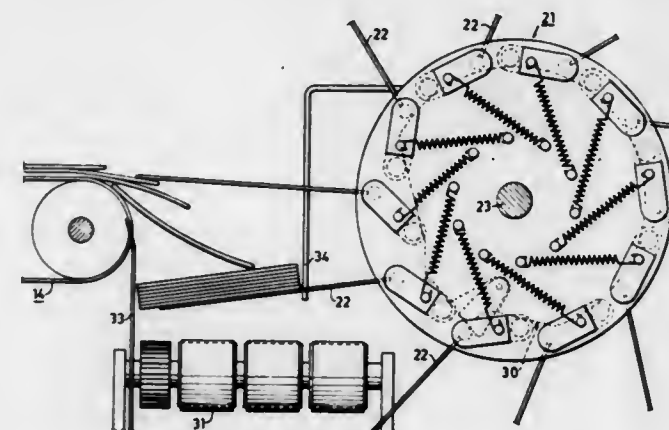
Gunnar Skogsberg, Gosta Ekmans Vag 22, Hagersten, Sweden
Filed Mar. 5, 1973, Ser. No. 338,167

Claims priority, application Sweden, Mar. 10, 1972, 3097/72

Int. Cl. B31b 1/98

U.S. Cl. 93-93 DP

4 Claims



A device for determined batch-wise collecting and discharging of articles, in a printing machine for allowing direct automatic transfer of the printed articles for binding in a subsequent binding machine, at least one web of paper provided with prints at predetermined places being discharged from the printing machine in order to form the successive signatures of the book to be produced, said device comprising a distribution wheel having receiver compartments for receiving the cut signatures which are discharged from the printing machine, and a star wheel having cam-controlled collecting wings wherein below the distribution wheel is located the receiving end of a substantially horizontal discharge conveyor, running in the direction of the rotational axis of said distribution wheel and adapted to support in maintained order and in a precisely controllable manner the signatures delivered by the distribution wheel in a continuous overlapping sequence and carry them to the star wheel at the discharge end thereof, said star wheel being mounted on a horizontal axis transversely to the direction of discharge of said signatures and adapted to rotate in a direction opposite to that of said discharge conveyor, the signatures supported by the latter being located with such mutual edge spacing that an absolutely reliable desired collection and separation of the signature sequence is allowed by the wings of said star wheel.

3,831,506

COMPOSITE VENTILATION MEMBER FOR CEILING COVERINGS

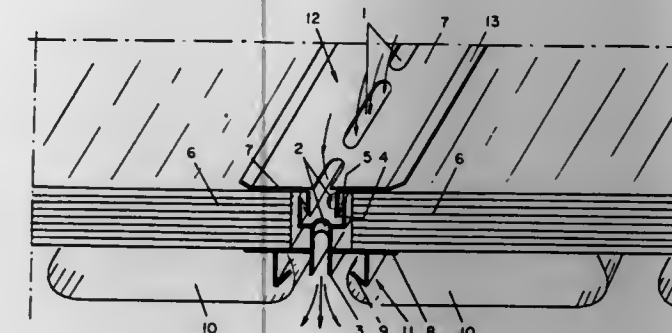
Hugo Arie Johan Landheer, Rotterdam, Netherlands, assignor to Hunter Douglas International N.V., Curacao, Netherlands Antilles

Filed Nov. 21, 1972, Ser. No. 308,404

Int. Cl. F24f 7/00

U.S. Cl. 98-41

14 Claims



A ventilation member composed of top and bottom component sections, which sections have holding flanges to secure sound-absorbing material between the sections, provides an economical and efficient ventilating system. The component sections are easily fastened, their design facilitates subsequent installation, and each component section has air passage openings.

3,831,507

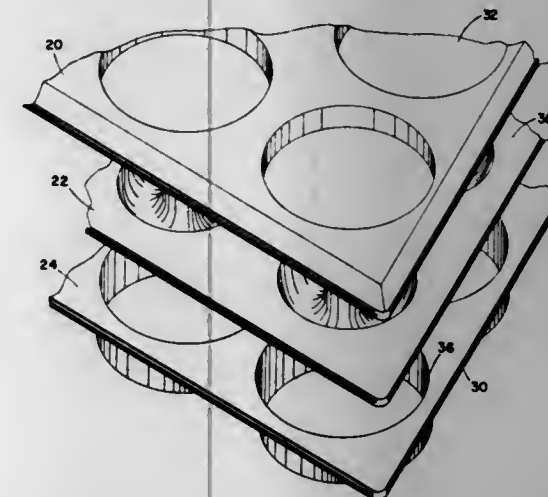
BAKING PAN ASSEMBLY

Donald S. Wheaton, 3521 Medina, Columbus, Ohio 43224
Filed Aug. 10, 1972, Ser. No. 279,684

Int. Cl. A21d 13/00; A23p 1/00

U.S. Cl. 99-428

2 Claims



A baking pan assembly and a method of using same to make a sandwich bun having separate upper and lower portions. The assembly and method is characterized by an arrangement of three baking pans in vertical substantially sealed relationship. The middle pan in this assembly has a unique shape which not only forms a bowl-like recess in the lower portion of the bun but contributes in the baking process to permit the lower surface of the top portion of the bun and the interior surface defining the recess in the lower portion of the bun to be fully baked in a soft, unbrowned condition.

3,831,508

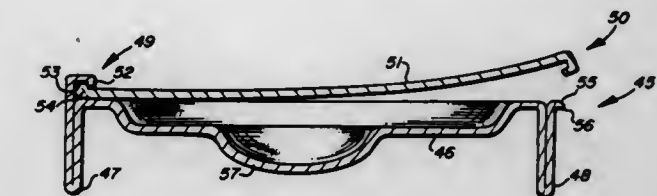
EGG BOILER OR COOKER

John J. Wallard, P.O. Box 1053, Scottsdale, Ariz. 85252
Filed May 25, 1972, Ser. No. 256,892

Int. Cl. A47j 43/18

U.S. Cl. 99-440

3 Claims



An egg boiler or cooker within which a shelled egg can be cooked so that the egg is hard boiled and conformed to a predetermined shape in a rack for use in a toaster, oven or in boiling water.

3,831,509

PROCESSING APPARATUS

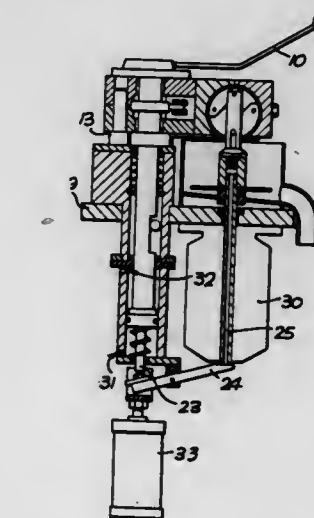
Clement Pierre Collet, 207 Avenue di Roule, Neuilly Sur Seine, France

Filed Mar. 21, 1972, Ser. No. 236,671

Int. Cl. A23n 3/12

U.S. Cl. 99-542

15 Claims



The specification discloses an apparatus for hollowing out bodies comprising a post, a clamp mounted for rotation about the post but fixed against movement along the post, a support, means to mount the post for sliding movement in a longitudinal direction on the support, means to open and close the clamp with rotation of the clamp about the post and a radially expandable cutter mechanism for hollowing out a body which cutter mechanism is located in the path of movement of the clamp when the clamp is closed and the post is slid longitudinally with respect to said support whereby the cutter mechanism is brought into operation on a body held by the clamp.

3,831,510

MACHINE FOR SEED CELLING PREVIOUSLY CORED APPLES

Malcolm W. Loveland, Orinda, Calif., assignor to Atlas Pacific Engineering Company, Emeryville, Calif.

Filed Aug. 25, 1972, Ser. No. 283,919

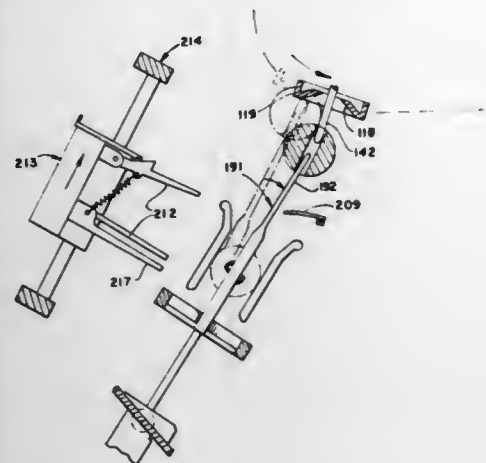
Int. Cl. A23n 3/08

U.S. Cl. 99-553

11 Claims

Apples which have been peeled and cored as with the machine shown in U.S. Pat. No. 3,586,081 are discharged to an inspection station where they are inspected and any trimming required is done by hand. The apples selected for

slicing are then sent on in bulk to the machine of the present invention wherein they are oriented, utilizing the cored hole in the apple, following which they are transferred from the orienting mechanism, taking advantage of the alignment pro-



vided by the cored hole. After the transfer they are moved to a station where they are cut to remove the fibrous carpel material surrounding the seeds together with the seeds. Following this operation, the apples are cut into segments as desired.

3,831,511

DEVICE FOR PRESSING TOGETHER GOODS SUPPORTED ON CONVEYOR

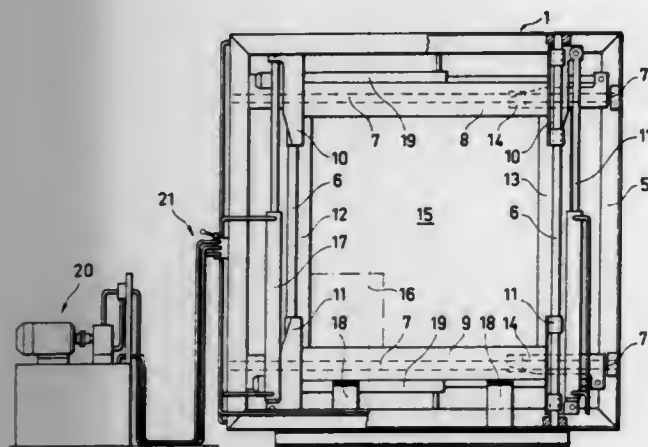
Karl Johan Back, Helsinki, Finland, assignor to Oy Cylop AB, Helsinki, Finland

Filed Jan. 30, 1973, Ser. No. 328,871

Int. Cl. B65b 63/02

U.S. Cl. 100-7

5 Claims



The goods are pressed together in vertical direction by preventing an upper surface of the goods from rising and by subjecting a part of the goods not supported by the conveyor to an upward compression force, whereby no compression is directed at the conveyor itself.

3,831,512

STRAP FEED TRACK WITH FLUID-ACTUATED STRAP END POSITIONING MEANS

Robert A. Johnson, Flossmoor, Ill., assignor to Interlake, Inc., Chicago, Ill.

Filed Dec. 26, 1972, Ser. No. 318,634

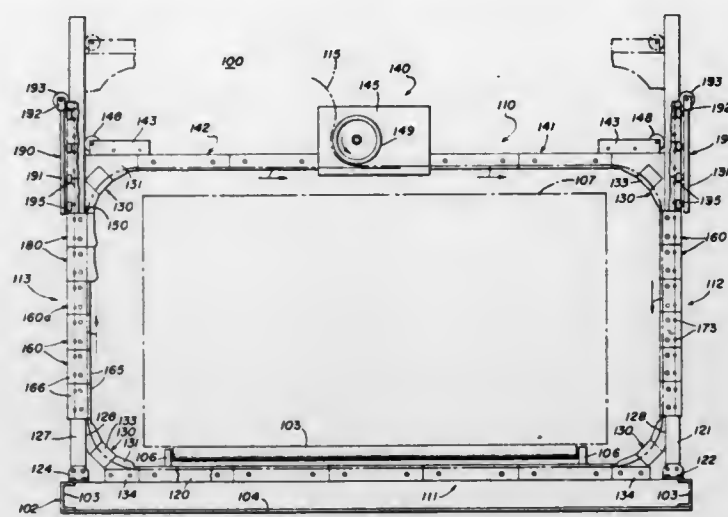
Int. Cl. B65b 13/06

U.S. Cl. 100-26

15 Claims

A binder strap track includes a stationary section and a movable section movable therealong for varying the track length, each section comprising a backing wall having a strap guide surface and a retainer cooperating therewith to define a strap path. A discontinuity in the strap guide surface is formed at the junction of stationary and movable sections thereof.

The stationary section of the backing wall has an elongated slot therein adjacent to the discontinuity. Disposed in the slot is a fluid conduit, substantially rectangular in transverse cross-section, with the outer wall thereof perforated and having an outer surface thereon substantially coplanar with the adjacent



portions of the stationary section of the strap guide surface. Compressed air is introduced into the conduit and produces jets of air through the perforation for urging the associated strap away from the strap guide surface and the discontinuity therein and toward the strap retainer.

3,831,513

PORTABLE SOLID WASTE COMPACTOR

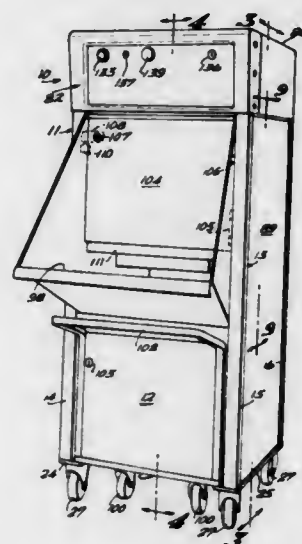
Philip Tashman, 4800 Ronda, Coral Gables, Fla. 33146

Continuation-in-part of Ser. No. 154,575, June 18, 1971, abandoned. This application Nov. 1, 1972, Ser. No. 302,846

Int. Cl. B30b 15/14

U.S. Cl. 100-52

7 Claims



A portable waste compactor for automatically compressing used paper cartons, cans and the like refuse or waste into a compact mass for efficient disposal is described. An automatically recycling worm gear drive mechanism reciprocally drives a compacting ram down into a dolly-supported refuse container with a stroke varying in accordance with the reactive force of the waste material being compacted. An electrical interlock prevents operation of the compactor upon removal of the dolly-supported container for easy withdrawal and transport of waste compacted therein. The throat of the refuse chute is equipped with a guard gate cooperatively associated with the ram so as to close the refuse chute opening upon downward compacting movement of the ram to prevent the placing of a person's hand under the ram while in its downward stroke, and operative to stop the ram on its downward stroke if the gate is obstructed in an open position by the hand or by a piece of refuse accidentally jammed

between the side portion of the ram and an outer portion of the refuse chute. The period of repetitive recycling can be varied over wide time interval for adjustment to a rate in keeping with that at which waste is being supplied to the device for compaction.

3,831,514

DEODORIZED GARBAGE COMPACTOR AND APPURTENANCES

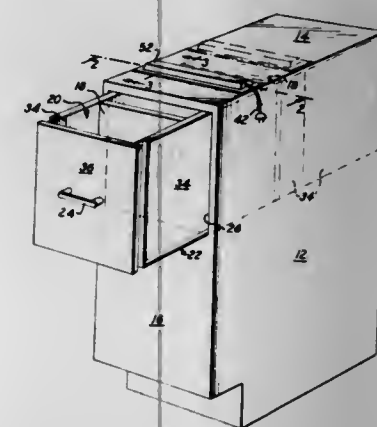
Karl W. Jernstrom, 22 Island Trl., Sparta, N.J. 07871

Filed Jan. 7, 1972, Ser. No. 216,007

Int. Cl. B30b 9/00

U.S. Cl. 100-70

6 Claims



A garbage compactor and appurtenances, loading hoppers, conveyor chutes and the like having a source of ultra-violet light mounted to irradiate the light upon garbage as well as the space through which garbage is passed, contained, or compressed, the irradiation being effective to destroy garbage odors emanating from the garbage or garbage-contaminated surfaces.

3,831,515

METHOD FOR CORING AND PRESSING JUICE FROM FRUITS HAVING A RIND

Roger J. Breton, Los Angeles, and David F. Beck, San Juan Capistrano, both of Calif., assignors to Roto Manufacturing, Inc., Westminster, Calif.

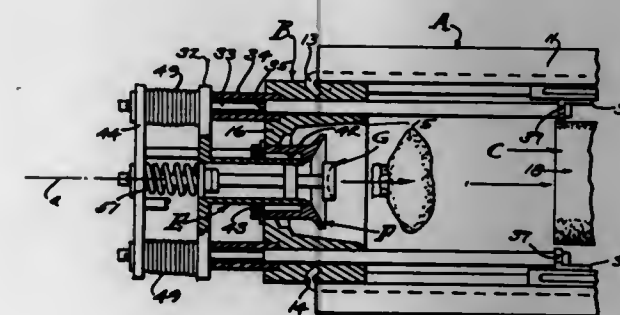
Division of Ser. No. 55,538, July 16, 1970, Pat. No. 3,682,092.

This application Aug. 7, 1972, Ser. No. 278,281

Int. Cl. A46j 19/02; B30b 9/02

U.S. Cl. 100-37

14 Claims



A method for juicing fruit having a rind and varying in hardness and size, and comprising generally the steps of supporting a said fruit, cutting an opening through the rind at one side thereof, then confining the said fruit and applying external pressure thereto thereby extruding a core through the opening cut through the rind and delivering the juice from said fruit via said opening and through said extruded core.

3,831,516

CONTINUOUS PRESS

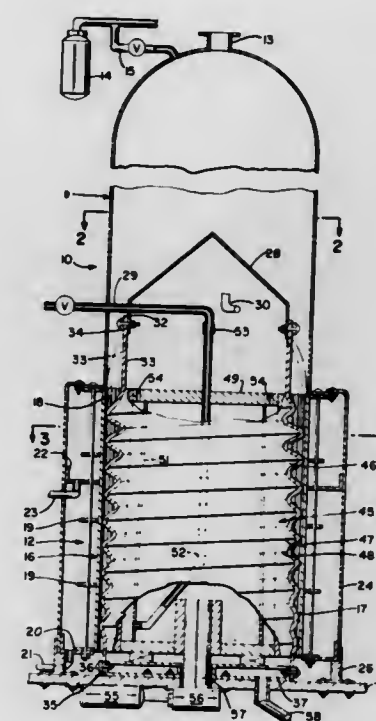
Wallace J. S. Johnson, Berkeley, Calif., assignor to Upright, Inc., Berkeley, Calif.

Continuation-in-part of Ser. No. 192,545, Oct. 26, 1971, abandoned. This application Oct. 12, 1972, Ser. No. 297,000

Int. Cl. B30b 9/06, 9/12; B20b 5/02

U.S. Cl. 100-116

31 Claims



A continuous press comprising a tubular apertured screen and a cylindrical sleeve disposed coaxially within the screen, the sleeve being held against rotation relative to the screen. One or more annular or helicoidal ripples are repeatedly formed on and around the outer surface of the sleeve. The pressure applied to the wet pulp entering the press and the compressive action of the rippling sleeve outwardly towards the screen combine to move the wet pulp lengthwise of the screen while progressively compressing the pulp to squeeze the juice therefrom.

3,831,517

FOUNTAIN DIVIDER

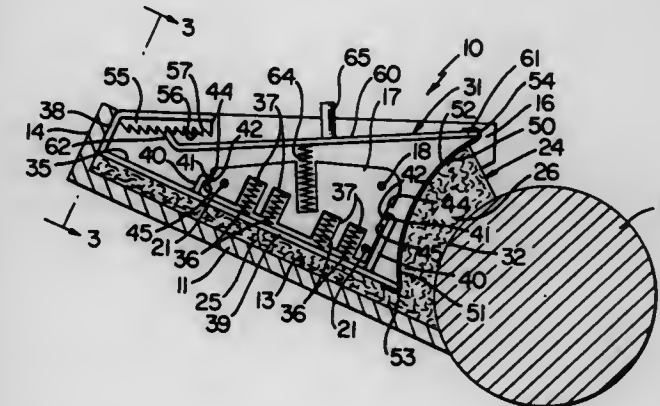
William T. Wagner, Dayton, Ohio, assignor to Dayco Corporation, Dayton, Ohio

Filed Dec. 22, 1972, Ser. No. 317,877

Int. Cl. B41f 31/06

U.S. Cl. 101-208

14 Claims



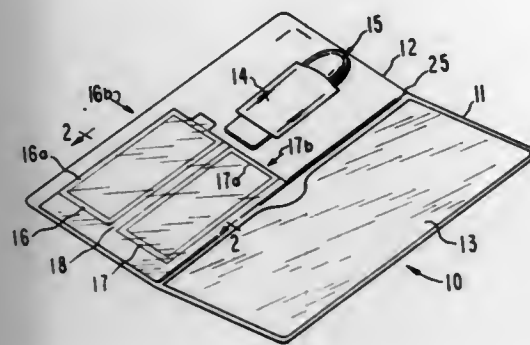
A fountain divider for printing press ink fountain systems which holds or separates ink within the fountain and has means enabling such divider to be used with associated rotatable cylindrical fountain rollers of different diameters.

3,831,518 PORTABLE IMPRINTER

Gary L. Pittman, Phoenix, Ariz., assignor to G.B. Frank Incorporated, Chicago, Ill.
Continuation of Ser. No. 104,649, Jan. 7, 1971, abandoned.
This application Apr. 25, 1973, Ser. No. 354,216
Int. Cl. B41a 8/06

U.S. Cl. 101—368

7 Claims



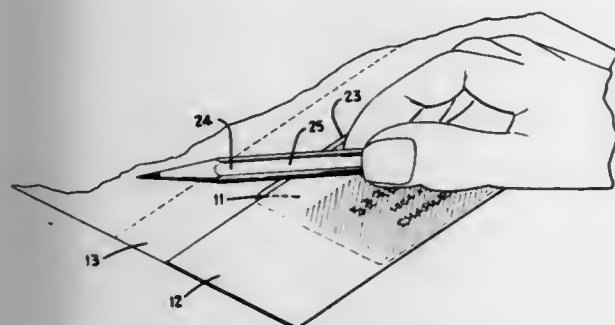
A portable imprinter comprises two covers joined by a flexible hinge with first and second receptacles for embossed cards placed on the inside surface of one cover and overlaid by a third receptacle for a sales ticket. Information on the cards placed in the first and second receptacles is transferred to the sales ticket by rubbing the sales ticket with an imprinting tool carried in the imprinter.

3,831,519 MAIL ORDER SALES DEVICE METHOD

Edward L. Fischer, Indianapolis, Ind., assignor to The Indiana National Bank, Indianapolis, Ind.
Division of Ser. No. 234,211, March 13, 1972. This application Dec. 18, 1972, Ser. No. 315,808
Int. Cl. B41m 3/00; B41l 47/04

U.S. Cl. 101—426

2 Claims



A device and method for mail order sales utilizing credit cards. The device is a paper construction having a piece of imaging paper secured thereto forming a credit card receiving pocket. The imaging paper is separable from the paper construction for mailing with the order form. The method includes the steps of inserting the credit card into the pocket with the upraised identification data on the credit card being positioned adjacent to the imaging paper. An element is then rubbed against the exterior surface of the imaging paper so as to force the interior surface of the imaging paper against the upraised identification data to transfer and store an image of the data on the imaging paper. The credit card is then removed and the imaging paper is removed from the paper construction and mailed to the seller along with the order form.

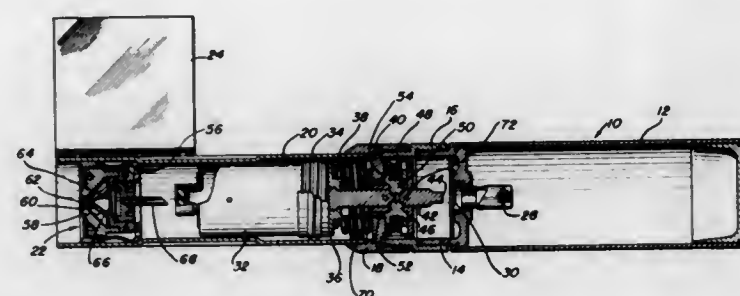
3,831,520 BIOLOGICAL BOMB

Russell J. Bowen, Boston; William B. Ford, Jr., Winchester; Ralph D. Sanborn, Norwell; Winslow A. Sawyer, East Braintree; John R. Sharp, North Quincy; Herbert E. Soini, Hingham; Benjamin A. Lambert, Marshfield Hills, and David B. Lull, Lexington, all of Mass., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 10, 1958, Ser. No. 727,754
Int. Cl. F42b 25/12

U.S. Cl. 102—6

5 Claims

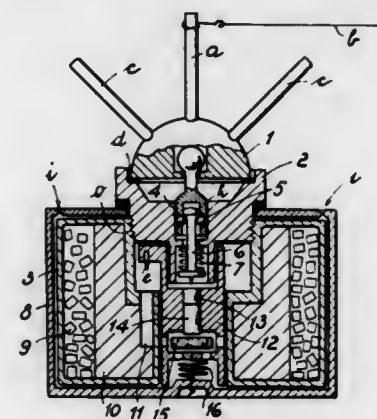


1. An aerosol bomb comprising an elongated cylindrical casing, a transverse wall in said casing having a rupturable diaphragm and defining a pressure chamber in the front end of said casing, said pressure chamber containing a compressed normally gaseous medium, a set of rotating tail vanes and a nozzle in the opposite end of said casing, a flexible sealed aerosol container within said casing adjacent said nozzle, penetrating means, within said casing, associated with said nozzle and adapted to penetrate said flexible container and conduct its contents to said nozzle, spring biased inertia means between said pressure chamber and said flexible container, said inertia means being held against the bias of the spring by means of centrifugally disengaging pawls, said inertia means serving to move forward, upon impact of the bomb, to penetrate said rupturable diaphragm and to release the gaseous pressure medium in the pressure chamber, said spring bias serving to force the inertia member in the opposite direction to impale the flexible aerosol container on the penetrating means whereby the released gaseous pressure from the pressure chamber serves to collapse said flexible container and expel its contents through the nozzle.

3,831,521
MECHANICAL-PYRIC DEVICE UTILIZABLE IN THE TYPE OF ANTI-MAN MINES WITH A WIDE ACTION RANGE AND GUSHING OUT FROM THE GROUND
Federico Engeli, Lugano, Switzerland, assignor to Technical Arco Establishment, Schaan, Liechtenstein
Filed Feb. 14, 1973, Ser. No. 332,494
Int. Cl. F42b 23/10

U.S. Cl. 102—8

6 Claims



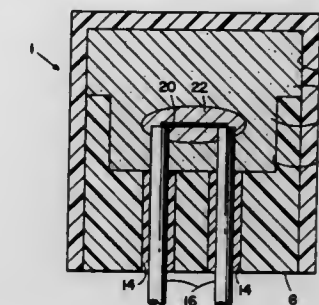
The mechanical device may be applied to anti-personnel mines of the type ejected from the ground by a throw-charge

3,831,523 ELECTROEXPLOSIVE DEVICE

William B. Thomas, and Robert E. Betts, both of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Jan. 4, 1967, Ser. No. 607,603
Int. Cl. F42b 3/12

U.S. Cl. 102—28 R

6 Claims



and deflagrated in the air by an explosive charge to cover a wide action range. The device comprises an igniter operable by either pressure or traction, and a throw bowl concealable in the ground and enclosing an ejectable body containing all the other components of the mine including a throw charge, an explosive charge, a firing pin for the throw charge, and a firing pin for the explosive charge. The igniter is disengageably connected to the ejectable body, and the firing pin for the throw charge is connected to the igniter and is operable to ignite the throw charge responsive to pressure or traction on the igniter. A detonator is provided for the explosive charge, and the ejectable body encloses a mounting member, mounting the firing pin for the explosive charge in a stable position spaced substantially from the detonator and a substantial distance out of alignment with the detonator. A flexible tensile member interconnects the mounting member and the throw bowl. When the throw charge is ignited to eject the body from the throw bowl, the tensile member exerts a restraining force on the mounting member which causes the firing pin for the explosive charge to be moved into alignment with the detonator and then impacted against the detonator when the ejectable body is a pre-selected distance above the throw bowl.

ERRATUM

For Class 102—23 see:
Patent No. 3,832,249

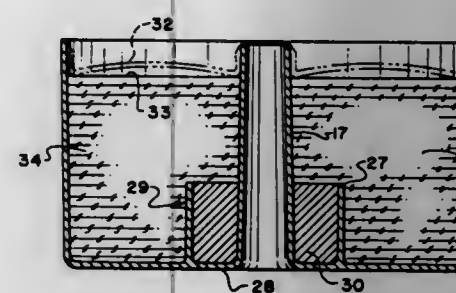
3,831,522
EXPLOSIVE BOOSTER AND CONTAINER THEREFOR
Russell H. Romney, 3259 Bon View Dr., Salt Lake City, Utah 84109

Filed Mar. 2, 1973, Ser. No. 337,434

Int. Cl. F42b 3/10

U.S. Cl. 102—24 R

8 Claims



A plastic shell or container casing for explosive charges, particularly small explosive charges of higher sensitivity, is injection molded in parts with sufficient precision that it can be assembled with liquid-tight joints without adhesives or heat-sealing. The casing or shell is formed with one or more integral tubes or recesses for receiving an initiator or primary detonator, such as a blasting cap or a detonating cord, or both. The separate parts of the container may be formed as a main receptacle and a closure, or as two half-casings or containers, or in other minor and major part combinations. The parts are designed with tight frictional connections but may include locking or semi-locking joints, to resist unauthorized tampering as well as to protect the contents against intrusion of water or other external liquids. Design features preferably include an inner structure or receptacle for holding a core of hypersensitive explosive, capable per se of detonation by a small initiator, to magnify the initiatory detonation and thus set off a surrounding charge of less sensitive material which could not be reliably detonated per se by the primary initiator.

3,831,524 MISSILE DEVICE RESPONSIVE TO AERODYNAMIC CONDITIONS

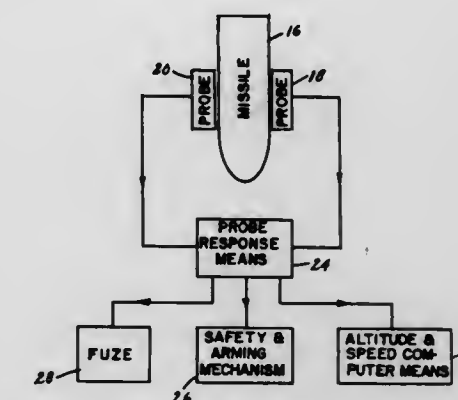
Irvin Pollin, Washington, D.C., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 21, 1957, Ser. No. 641,782

Int. Cl. F42c 13/02

U.S. Cl. 102—70.2 P

2 Claims



In combination with a ground-to-ground ordnance missile having a predictable trajectory during which the missile attains a supersonic velocity, improved means for obtaining an activating signal at a predetermined altitude prior to impact and after the missile has begun to decelerate, said means comprising in combination: first and second heat-responsive probes mounted to the exterior surface of said missile such that the aerodynamic heating of said probes during missile flight are highly independent of the surface conditions of the missile and missile geometry, each probe being located at the same distance aft of the missile nose so as to be exposed to the same aerodynamic heating conditions during missile flight, said probes being so constructed that said first probe has a heat capacity which is substantially different from the heat capacity of said second probe, said probes thereby having substantially different time-temperature relationships during missile flight, the heat capacities of said probes further being

chosen in conjunction with predicted values of missile velocity, ambient air density and ambient air temperature throughout the missile trajectory so that the instantaneous temperature of said probes will become equal at said predetermined altitude, and probe-responsive means within said missile connected to said probes for producing an activating signal when the instantaneous temperatures of said probes become equal, said probe-responsive means including an electronic bridge-type circuit for sensing the temperatures of said probes by sensing their resistivities.

3,831,525

AUTOMATED ASSEMBLY LINE WITH AIR CUSHION DEVICES

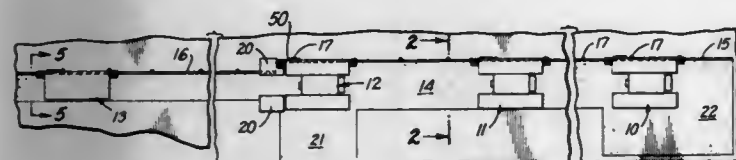
Robert E. Burdick; Terry M. Baker, and Baxter K. Wolfe, all of Santa Barbara, Calif., assignors to Rolair Systems Inc., Santa Barbara, Calif.

Filed Jan. 26, 1973, Ser. No. 326,792

Int. Cl. B61b 13/08

U.S. Cl. 104—23 FS

5 Claims



An assembly line with a plurality of self propelled air cushion transporters for moving large loads through an assembly area. An automatic control system with a plurality of control points, with the transporters moving continuously except when a stop signal is provided at a control point. A programmable automatic control can program the transporter movement for an entire shift and provide transporter movements at predetermined intervals, typically 2 minutes.

3,831,526

VIADUCT FOR SMALL, POWERED, PASSENGER VEHICLES

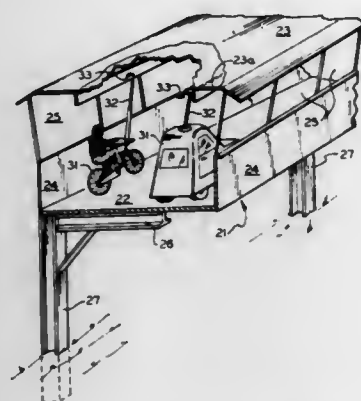
Paul W. Howells, Morrisville; Edwin H. Lederer, Syracuse, and Robert N. Lothes, Manlius, all of N.Y., assignors to Syracuse University Research Corporation, Syracuse, N.Y.

Filed Oct. 26, 1973, Ser. No. 410,165

Int. Cl. E01b 25/08

U.S. Cl. 104—121

10 Claims



The viaduct comprises an enclosed and windowed way or flat road, wide enough for two vehicles abreast, the vehicles each having a forwardly and upwardly extending mast. The way is elevated and is arranged in successive portions comprised of comparatively long downwardly sloping portions followed by comparatively short upwardly sloping lift portions having overhead, endless belt means engageable by friction pad means at the upper ends of the vehicle masts for towing the vehicles up the lifts to another downward slope where the vehicle is released to coast or be driven by power furnished by

the driver or by a battery powered electric motor. Entrance and exit ramps are provided for entering vehicles and for those leaving for street level. The lift belt is stainless steel supported on drive rollers and a low friction slider bed. The friction pad is offset from the mast and comprises a pad with a rubber working surface layer lying adjacent another body having a surface of low friction material, the pad being spring-biased downward against the belt by novel lever means to prevent excessive initial friction of the pad with the belt in the case of a low speed entry of a vehicle to the lift. Ceiling supported guide rails are provided at each side of the downslopes and similar converging rails are provided for guiding the mast tops to the lift belts.

3,831,527

PASSENGER CAR SWITCHING DEVICE

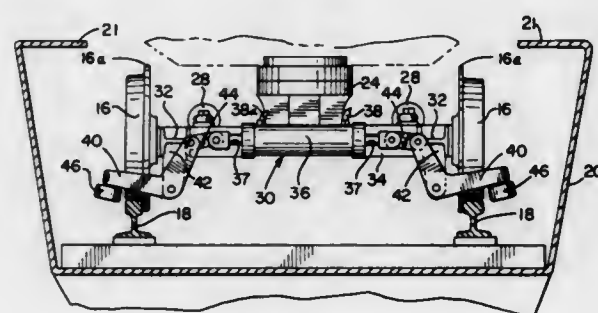
William Hartin Peterson, Homewood, Ill., assignor to Pullman Incorporated, Chicago, Ill.

Filed May 18, 1973, Ser. No. 361,676

Int. Cl. E01b 25/12

U.S. Cl. 104—130

3 Claims



A vehicle mounted switching arrangement for use in a static switching track structure having no moving track sections whereby the passenger vehicle is moved laterally by engagement of the car mounted rail grabbing device to permit the flange of the wheel opposite the actuated rail engaging device to be spaced a short distance from the supporting rail. After the lateral movement of the vehicle the car is in position to move into a switch track which is positioned in the space between the wheel flange and main supporting rail. This switch track then permits the passenger vehicle to be switched off the main line and through a curved section into a second switch track. The rail grabbing mechanism which is mounted on the passenger vehicle includes an interconnected rail grabbing device on each side of the vehicle which permit only one rail grabbing arm to engage a track at a time.

3,831,528

PRESSURE RELIEVED TROLLEY STOP FOR CONVEYORS

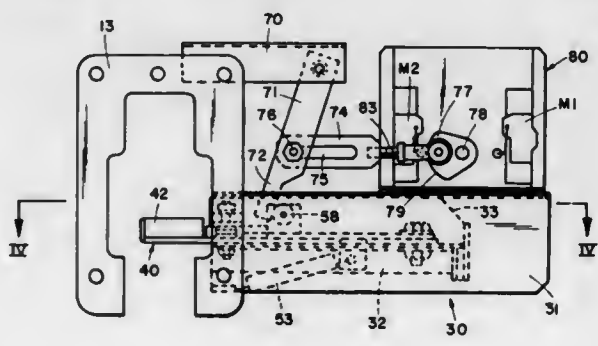
Augusts V. Redlisch, Grand Rapids, Mich., assignor to Rapistan Incorporated, Grand Rapids, Mich.

Filed Sept. 13, 1973, Ser. No. 396,798

Int. Cl. B61k 7/18

U.S. Cl. 104—252

20 Claims



A stop for conveyors for arresting the forward movement of an article such as a trolley at the time of or after its release

from the propelling mechanism of the conveyor. The stop has a member mounted for reciprocal movement into and out of the path of the article. The member includes an article engaging arm and a locking arm and a mechanism for removing the locking arm when the member is to be retracted from article interception position. Removal of the locking arm allows the article engaging arm to shift away from the article in the direction of travel of the article. The article engaging arm is then free to be retracted without interference from the article resulting from the pressure with which the article normally presses against the member.

3,831,529

FLUID TRUCK SNUBBER

Stuart A. Schwam, 372 Robinson Dr., Broomall, Pa. 19008

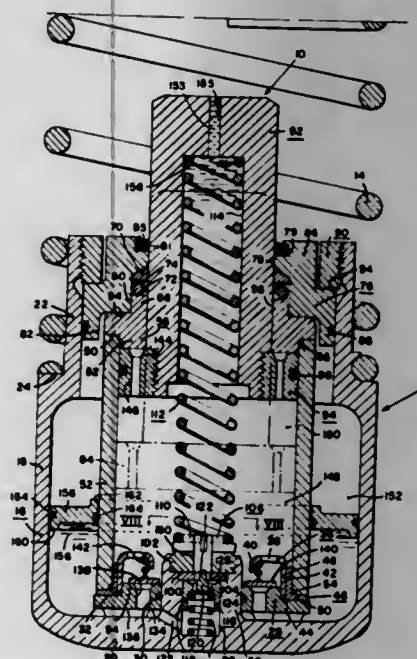
Continuation-in-part of Ser. No. 300,109, Oct. 24, 1972,

abandoned. This application Aug. 16, 1973, Ser. No. 388,785

Int. Cl. B61f 5/12; F16f 9/06, 9/32

U.S. Cl. 105—197 DH

24 Claims



The truck of a railroad car or similar vehicle is provided with a hydraulic fluid single action piston and cylinder motion damping device located in each spring group, between the spring seat and the truck bolster. The device is provided with unvalved passages by means of which hydraulic fluid is bypassed around the piston head. As a consequence, the piston is capable of yielding to accommodate movement of the truck bolster regardless of the magnitude of the load applied by the truck bolster to the piston. The device is also provided with valved passages through which hydraulic fluid flows back and forth between a compression chamber and a reservoir in response to actuation of the piston.

In addition, the device may be provided with a piston which floats upon the hydraulic fluid in the reservoir. The floating piston is arranged for keeping the hydraulic fluid in the reservoir interposed between the air in the reservoir and said valved passages, irrespective of which end of the device is uppermost.

3,831,530

RAILWAY CAR CENTER BEARING ASSEMBLY

Geoffrey Wilton Cope, Williamsville, and Loren William Smith, Eggertsville, both of N.Y., assignors to Dresser Industries, Inc., Dallas, Tex.

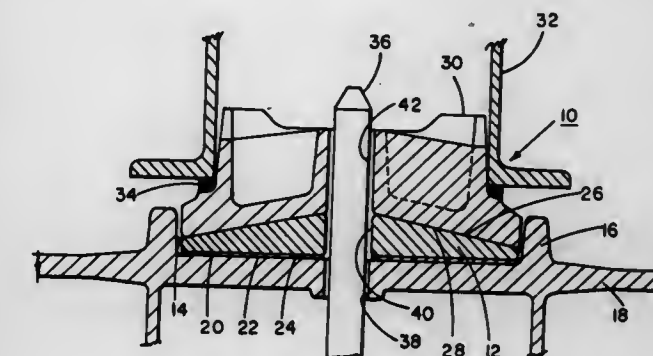
Filed Oct. 19, 1972, Ser. No. 298,965

Int. Cl. B61f 1/14, 5/16, 5/18

U.S. Cl. 105—199 C

16 Claims

A center plate assembly for railway cars including a detachably mounted center filler which may consist of one or more separate sections disposed between a body center plate



and a truck bolster center plate bowl of the railway car, the bearing surfaces of the center filler having a hardness greater than the bearing surface of the truck center plate bowl and no

less than the hardness of the body center plate to produce a very low rate of wear. Also, means are provided to inhibit relative movement of all bearing surfaces except those required to move.

3,831,531

RETAINER KEY FOR PEDESTAL SIDE FRAMES

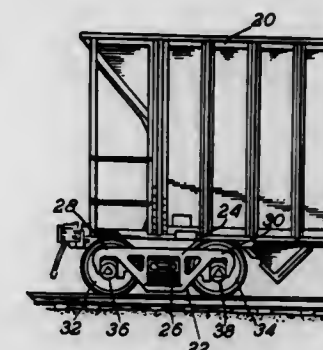
Herman D. Wresch, Wheeling, Ill., assignor to MacLean-Fogg Lock Nut Co., Mundelein, Ill.

Filed Mar. 16, 1973, Ser. No. 341,956

Int. Cl. B61f 5/28, 5/52, 15/20

U.S. Cl. 105—221 K

6 Claims



Key for retaining an axle bearing assembly between spaced vertical pedestal walls which define an open-bottomed jaw in a railway truck side frame on a railway car. The key has a one piece body consisting of a base portion, an inner retainer end portion and an upper stabilizing arm. The base portion is seated on an external flange on one of the pedestal walls and the bottom is formed to seat against upwardly and inwardly facing support surfaces on the flange to prevent downward and outward displacement of the key. The inner retainer end portion extends through an access opening in the pedestal wall above the flange and engages the underside of the axle bearing assembly to hold it in the jaw regardless of up and down oscillation of the railway car relative to the truck. The stabilizing arm extends upwardly from the base section and engages the outside of the pedestal wall above the access opening. A downward force exerted by the axle bearing assembly on the retainer end portion produces a force couple about an axis on the flange. This is resisted by an opposite, balancing reactive force couple about the same axis resulting from a thrust reaction between the stabilizing arm and the one pedestal wall. This holds the key stably in position to retain the axle bearing assembly in the jaw.

3,831,532

LADING TIE ANCHOR

Edward Payson Smith, Wilmette, and Rudolph E. Nadherny, Naperville, both of Ill., assignors to Illinois Railway Equipment Co., Chicago, Ill.

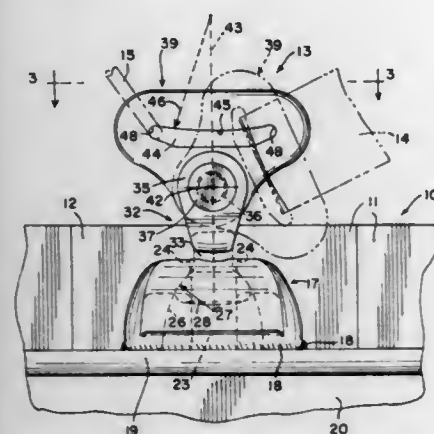
Filed Mar. 12, 1973, Ser. No. 340,184

Int. Cl. B61d 45/00

U.S. Cl. 105—369 A

2 Claims

U.S. Cl. 110—8 C



A lading tie anchor assembly for a railway car comprises a C-shaped retainer to be welded to the car frame and having a concave spherical surface engaged by a convex spherical surface of a trunnion the neck of which extends through the slot in the retainer with an endwise extending bifurcated section between the furcations of which one corner of a triangularly shaped link is pivoted. The link has a lading tie receiving slot along its side opposite the one corner the outer side of which is convexly curved and the ends are semi-circular.

3,831,533

SHELVING SYSTEM

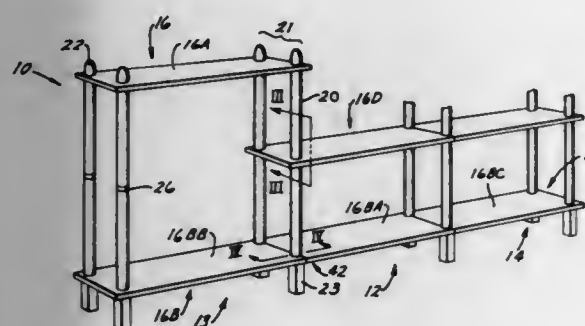
Harlan F. Kellogg, Rockford, Ill., assignor to Kirsch Company, Sturgis, Mich.

Filed Aug. 21, 1972, Ser. No. 282,431

Int. Cl. A47b 57/00

U.S. Cl. 108—64

12 Claims



A free-standing shelf system comprises a plurality of shelves having passages through end portions thereof. A plurality of spindles support the shelves in spaced relation, the spindles having fastening elements extendible through the passages for axially interconnecting a pair of spindles with a shelf sandwiched therebetween. Interlocking tongue and groove portions on an opposed shelf surface and spindle end are provided. The tongue and groove portions are laterally adjacent the corresponding spindle fastening element and shelf passage for positively preventing lateral shifting of the shelf with respect to the spindles sandwiching same therebetween. The passage is circumferentially continuous opening through a shelf near the end thereof or alternatively is a circumferentially continuous opening formed at the juncture of two end abutting shelves by opposed, substantially hemispherical opening portions in the abutting shelf end edges. In the latter instance, the tongue and groove interlock prevents the abutting shelf ends from shifting apart laterally.

3,831,534

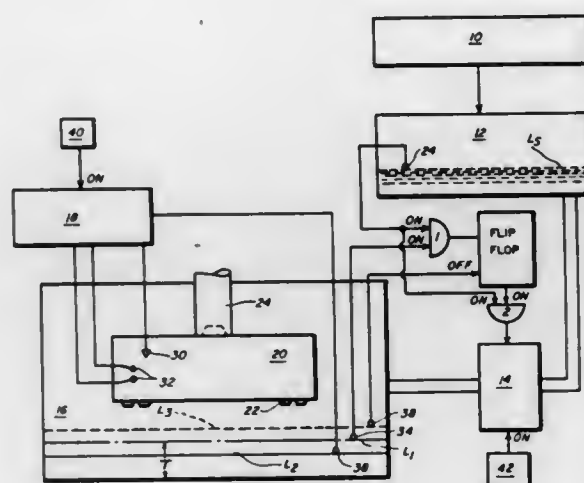
SEWAGE TREATMENT SYSTEM

Alan H. Cornish, Newington; Ronald E. DeLaney, and Robert B. Davis, both of New Britain, all of Conn., assignors to Koehler-Dayton, Inc., New Britain, Conn.

Filed July 2, 1973, Ser. No. 375,840

Int. Cl. F23g 5/12

6 Claims



A sewage treatment system comprising a surge tank adapted to receive effluent from a recirculating toilet or the like, an incinerator including a housing, means for selectively and periodically delivering the effluent received in the surge tank to the incinerator housing, the incinerator further including a combustion chamber having a stack and means for directing the flames of combustion downwardly against the top surface of the sewage contained within the housing whereby the liquid component of the contained effluent will evaporate and pass through the stack thereby lowering the level of the contained effluent, means for turning off the incinerator when the level of the effluent contained in the incinerator housing is lowered to a predetermined level whereat a layer of effluent having a predetermined thickness will insulate the bottom of the incinerator housing from the flames of combustion.

3,831,535

WOOD WASTE BURNER SYSTEM

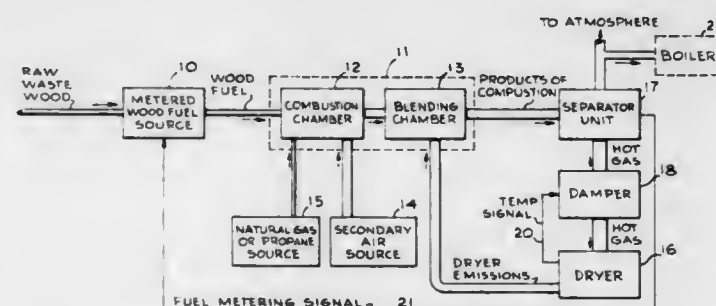
Andrew B. Baardson, Beaverton, Wash., assignor to Mill Conversion Contractor, Inc., Hillsboro, Oreg.

Filed Nov. 2, 1973, Ser. No. 412,474

Int. Cl. F23g 7/00

U.S. Cl. 110—8 C

15 Claims



The present invention provides a system by means of which waste wood, as well as the fumes emitted by veneer being dried, are burned in such a manner as to basically accomplish two things, namely, provide large amounts of heat energy that was formerly wasted and, secondly, substantially reduce the emission of pollutants into the atmosphere. The system finds particular application to the lumber mill industry.

3,831,536

SEEDBED AND METHOD AND MEANS FOR PREPARING SAME

Henry K. Orthman, Lexington, Nebr., assignor to Orthman Manufacturing, Inc., Lexington, Nebr.

Continuation-in-part of Ser. No. 104,405, Jan. 6, 1971. This application Aug. 14, 1972, Ser. No. 280,729

Int. Cl. A01c 1/00

U.S. Cl. 111—1

3 Claims



A tool bar having a plurality of spaced apart ground working assemblies including a furrowing shovel with outwardly and rearwardly extending vertically adjustable mold boards on opposite sides thereof. The outer ends of the mold boards have an upper convex forwardly rounded surface and a rear edge which extends forwardly and downwardly and meets at a vertex with an upwardly and longitudinally inwardly extending rear edge on a cutting blade extending along the bottom of the mold board. The mold boards are supported independently of the furrowing shovel and the outer ends of adjacent mold boards are closely spaced to form a ridge such that seed is planted on a ledge between the valley formed by the furrowing shovel and the ridge formed by adjacent mold boards. The ground working assemblies may be spaced apart to provide alternate spacing between rows of 20 and 30 inches with the ridges being on the centerline of the 30 inch spacing and the troughs being on the centerline of the 20 inch rows. A wheel having a V-shape in cross section peripheral edge may be mounted on the tool bar for forming a small trough in the ridge. The small trough has a bottom higher in elevation than the ledge on which the seed is planted. The method of producing row crops includes planting the seed of the first crop in rows utilizing the alternate narrow and wide spacing, harvesting the crop and planting the seed for the second crop with the wide rows having the same centerline as the narrow rows of the first crop and the narrow rows of the second crop having the same centerline as the wide rows of the first crop. The root structure of the first crop is left in the ground to help prevent soil erosion and allow for more time to decay.

3,831,537

DRIVE FOR SEWING MACHINE OR THE LIKE USING MAGNETIC FORCE TRANSMISSION

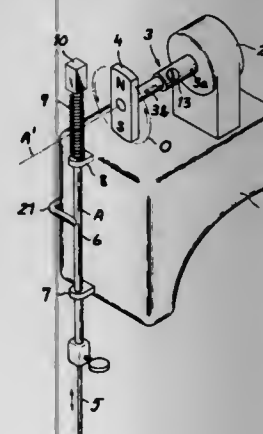
Sidney Siegel, 989 Schenectady Ave., Brooklyn, N.Y. 11203

Filed Apr. 12, 1973, Ser. No. 350,373

Int. Cl. D05b 55/14

U.S. Cl. 112—220

9 Claims



A drive for a sewing machine or the like has a first body which is linearly displaceable in a linear guide adjacent the

orbit of a second rotatable body. At least one of the bodies is magnetized and the other is magnetically entrainable so that, as the second body is rotated adjacent the first body, this first body is linearly displaced. A spring or the like can be provided to return the first body whereby the rotary motion of the second body is converted into linear reciprocation of the first body. Both bodies can be magnetic and the first body can be part of or carried by a needle bar, with the second body carried by a motor shaft.

3,831,538

FLOATING STRUCTURE FOR THE MOORING OF YACHTS AND OTHER SIMILAR CRAFT

Pieter Meeusen, Barendrechtseweg 30, Barendrecht, Netherlands

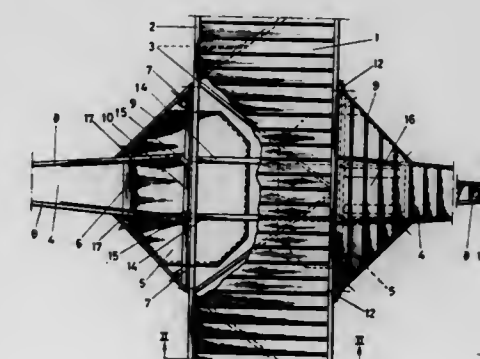
Filed Oct. 24, 1972, Ser. No. 300,392

Claims priority, application Netherlands, Oct. 28, 1971, 7114866

Int. Cl. B63b 35/00

U.S. Cl. 114—5 BD

6 Claims



A floating structure for the mooring of yachts and similar craft, comprising an elongated main jetty and a number of landing platforms attached to said main jetty and protruding therefrom, in which the landing platforms are considerably wider adjacent to the main jetty than at any distance away from it, the greater part of the buoyancy of both main jetty and landing platforms being formed by a float below the main jetty and the landing platforms in the area where their axes intersect. Moreover there are rigid beams below the main jetty protruding therefrom and supporting the jetty and the landing platforms and connected to the float structure underneath.

3,831,539

WIND-PROPELLED APPARATUS

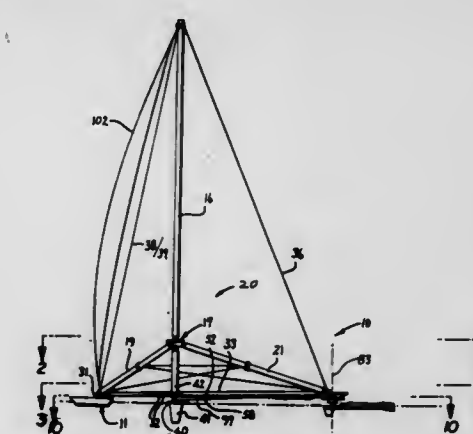
Robert Bruce Black, 1250 34th Ave., San Francisco, Calif. 94122

Filed Aug. 31, 1972, Ser. No. 285,461

Int. Cl. B63b 35/00

U.S. Cl. 114—39

6 Claims



A wind-propelled apparatus for surface travel is provided having a frame with a triangular sail secured at its three cor-

ners to a frame supported by spaced, surface-engaging transit members, disposed generally beneath the two lower corners of the sail and with the user position in a spaced relationship at right angles to the sail, which results in maximum capsize resistance of the apparatus.

3,831,540

CATAMARAN AND METHOD OF MAKING

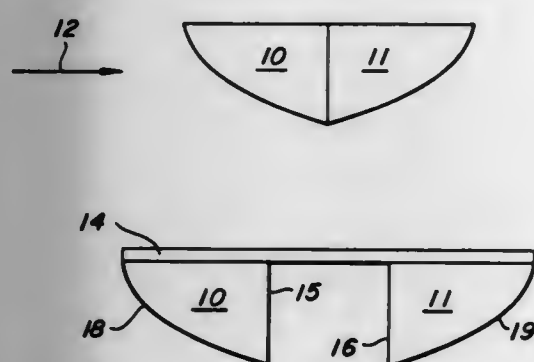
John N. Case, 783 Cave St., Victoria, B.C., Canada

Filed Jan. 31, 1972, Ser. No. 221,943

Int. Cl. B63b 3/02

U.S. Cl. 114—77 R

4 Claims



There is disclosed a method for converting conventional ships hulls into catamarans, comprising the longitudinal and vertical division of the hull into two halves. The two halves are then connected by a bridging member to define a deck, and the open inner sides of the two halves are completed to make them water-tight. In a preferred construction, to compensate for increased lightship weight and allow for greater capacity, a section is added to the centre of each of the longitudinal halves, thus increasing the length of the vessel. By this means, a hull that has marginal stability or is unstable or otherwise unsuitable for use can be given increased stability and carrying capacity and to take advantage of other unique features which catamarans possess. The result is a catamaran of much lower cost than a new ship.

3,831,541

DEVICE FOR APPLYING STOPS TO SPINNAKER SAILS

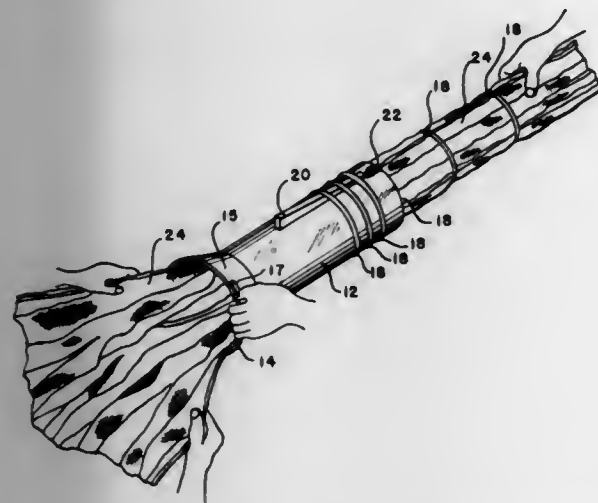
Robert D. Williams, Jr., Palisades, N.Y., assignor to Dwight S. Williams Co., New York, N.Y.

Filed May 30, 1973, Ser. No. 365,346

Int. Cl. B63h 9/04

U.S. Cl. 114—104

9 Claims



A device for applying "stops" to a spinnaker sail comprising a hollow tubular member through which the sail is passed. The sail is thereby compressed into a tight roll configuration and elastic bands positioned on the tubular member are slipped off of the tubular member and onto the sail as it exits from the member to maintain the sail in a tight roll configuration.

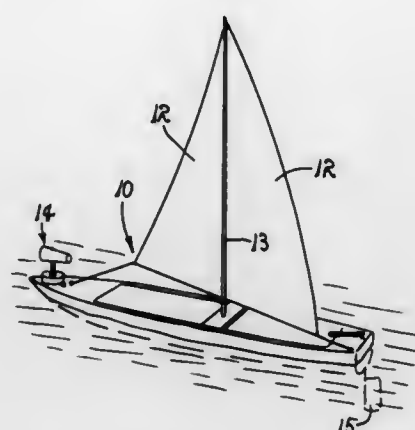
3,831,542
AUTOMATIC PILOT FOR SAILBOAT HAVING AN
IMPROVED RUDDER CONTROL UNIT
David A. Krebs, Destin, Fla., assignor to Earle P. Thurston,
Fresno, Calif.

Filed June 13, 1973, Ser. No. 369,713

Int. Cl. B63h 25/04

U.S. Cl. 114—144 C

8 Claims



An automatic pilot including a rudder control unit having a bidirectional electric motor for driving the rudder of a sailboat having motor input terminals, switching circuitry associated with the motor for controlling the supply of electrical power to the input terminals, and a device mounted on the sailboat, preferably a wind sock, which operates to sense wind direction, connected with the switching circuitry for dictating the condition of the circuitry in response to changes in wind direction, whereby the sailboat is automatically piloted as a function of wind direction.

3,831,543

DEVICE FOR CONTROLLING SEABORNE VESSELS

Kamenosuke Hamasaki, 3322 Kozasa Danchi, 432-1 Oaza Shemonagao, Fukuoka, Japan

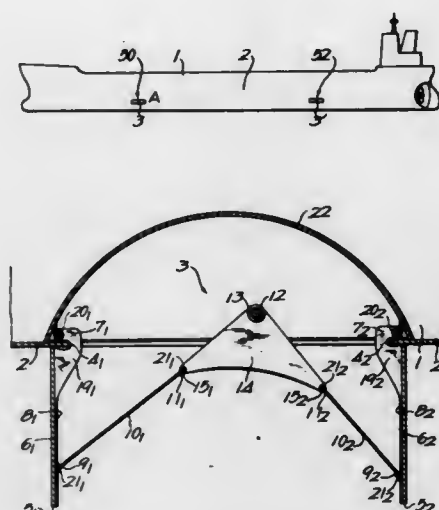
Filed Jan. 6, 1972, Ser. No. 215,795

Claims priority, application Japan, Aug. 6, 1971, 46-59005

Int. Cl. B63h 25/44

U.S. Cl. 114—145 R

11 Claims



An apparatus for controlling the movement of a ship or similar water borne vessel, includes a pair of control plates which are mounted at longitudinally spaced locations on the vessel hull, preferably in a position in which they enclose a cavity containing the plate movement control mechanism. The plates are pivotally mounted at their outer or opposite ends to the hull, and when they are pivoted against the hull, they substantially can close a cavity in which is contained a rotatable element which is rotatable for the purposes of opening and closing the plates. The rotatable element comprises a shaft having a control plate, for example a triangularly-shaped

plate, with one of the apices centered on the rotatable shaft and opposite spaced apices which are connected through control rods to the respective plates. An alternate construction includes a separate rotatable shaft and a drive plate for each control plate and a central rotatable lever arm centrally located within the cavity and connected through connecting rods to each individual drive plate.

3,831,544

WATER-TIGHT CLOSING DEVICE

Rene Callet, 26 Rue de la Republique 78, Saint-Germain-en-Laye, France

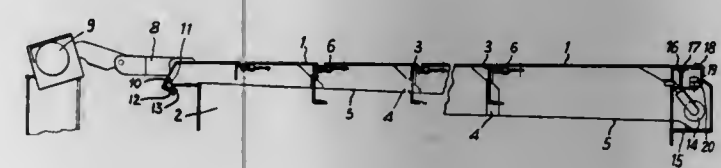
Filed Aug. 3, 1971, Ser. No. 168,543

Claims priority, application France, Aug. 5, 1970, 70.28847

Int. Cl. B63b 19/18

U.S. Cl. 114—202

9 Claims



Device for automatically closing in a water-tight manner an aperture by means of a movable panel, characterized in that it comprises an inclined ramp on which the panel is caused to bear during its movement, the ramp being disposed along the longitudinal edges of the aperture so as to move away from the plane of the aperture when considering the ramp in the direction of travel of the panel during the closing movement thereof, so that during its closing movement, the panel moves towards the aperture and, at the end of this movement, eventually slides on suitable gasket means carried by the panel, along the edges of the aperture to be closed, and locking means disposed on the panel sides and adapted at the end of the closing movement to coact with corresponding locking means located externally of the aperture for automatically clamping the gaskets against the edges of the aperture.

3,831,545

WATER SKI TOWLINE PAY-OUT AND RETRIEVAL APPARATUS

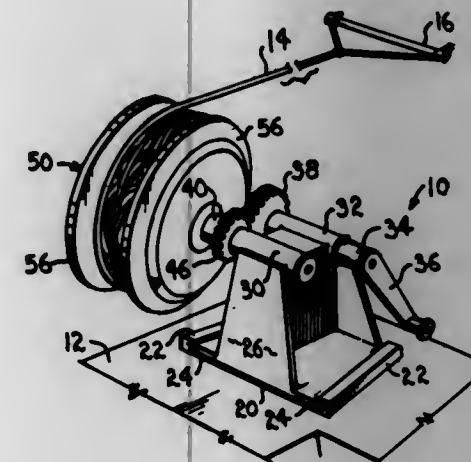
Gerald E. Cain, Sublette, Kans. 67877

Filed May 16, 1973, Ser. No. 360,653

Int. Cl. B65h 75/40

U.S. Cl. 114—235 WS

8 Claims



Apparatus assembled as a unit which is buoyant in water, rapidly secured and released from a boat, and capable of paying-out or retrieving an unloaded water ski towline. A hook on the hub of the wind spool receives an eyelet in the end of the towline for quick connection and release of the towline from

the apparatus. The apparatus may be manually cranked to retrieve the towline into the boat, and has a free-wheel position wherein drag on the towline causes the latter to pay-out upon movement of the boat.

3,831,546

PORTABLE SWIMMER PROPULSION UNIT

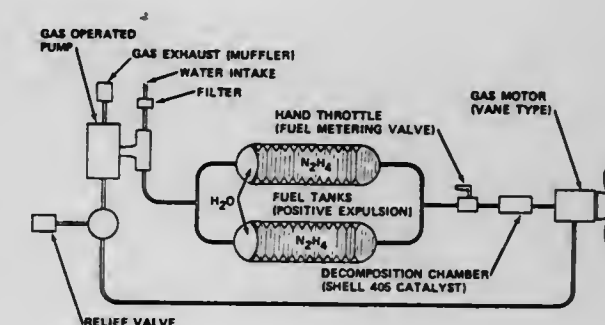
Robert J. Geres, China Lake, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 24, 1972, Ser. No. 237,814

Int. Cl. B63b 21/56

U.S. Cl. 115—6.1

1 Claim



A portable swimmer propulsion unit including a vane type gas motor driving a shrouded screw. A positive expulsion, boot strap, hydrazine feed system supplies hydrazine to a hydrazine decomposition reactor. Gas from the reactor serves to drive the gas motor.

3,831,547

PROPELLER SHAFT LOCK

John Lee Bird, Upland Dr., Greenwich, Conn. 06830

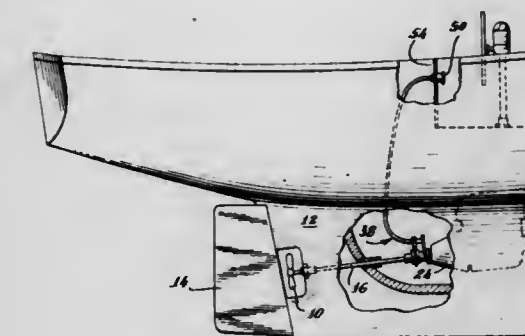
Continuation of Ser. No. 96,053, Dec. 8, 1970, abandoned.

This application Sept. 7, 1972, Ser. No. 286,675

Int. Cl. B63h 5/06

U.S. Cl. 115—43

4 Claims



A propeller shaft lock for preventing rotation of windmilling of a boat propeller and controlling its position when its engine is "off" and its transmission is in neutral, comprises a cam mounted on the propeller shaft and having abrupt radial shoulders equal in number to the number of blades comprising the propeller, and a stop member which is movable into and away from the path of rotation of said shoulders. The means for controlling the position of the stop member may be manually controlled mechanical means, or automatic means controlled by the pressure of the oil of the lubricating system of the propeller shaft engine.

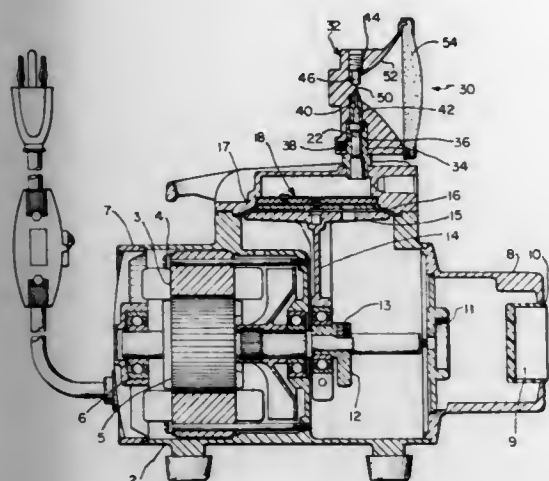
3,831,548

PEST CONTROL DEVICE

Arthur J. Droege, 2213 Broadway, Sheboygan, Wis. 53081
Filed Dec. 29, 1972, Ser. No. 319,448
Int. Cl. G08b 9/00

U.S. Cl. 116—22 A

15 Claims



A resonator and resonator combination for continuously producing ultrasonic vibrations of frequencies effective to drive away pests, e.g., rodents. The resonator has a housing provided with an internal cavity and an outwardly flaring horn in communication with and spaced from said fluid jet producing means. A rigid airfoil, which may be integral with said housing, projects into the path of flow of fluid from the jet producing means to the jet obstruction means. The resonator can be used in combination with a means to continuously supply air under pressure to the jet producing means and characterized by cycle pulsation to cyclically vary the amplitude of the ultrasonic vibrations, said means preferably comprising an expansible chamber axially aligned with and closely connected with said jet producing means.

3,831,549

CHANNEL INDICATOR MEANS HAVING REPLACEABLE INDICIA

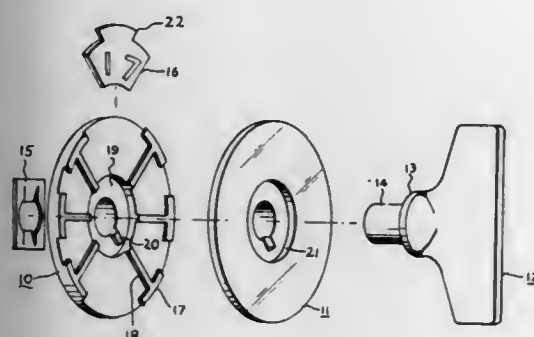
John M. Parsons, Portsmouth, Va., assignor to General Electric Company, Portsmouth, Va.

Filed July 19, 1971, Ser. No. 163,786

Int. Cl. H03j 1/02

U.S. Cl. 116—124.1

3 Claims



A partitioned indicia carrier having a flange or ridge about the periphery thereof is mated with a transparent cover whose rear surface approaches the peripheral flange. A knob having a shank extending therefrom engages the cover and indicia carrier such that they rotate with the knob. Thin, resilient indicia are deformably inserted between the retaining and the cover disc. New indicia may be inserted in front of existing ones, or existing indicia may be removed by flexing the cover away from the carrier to enlarge the gap between the rear of the cover disc and the peripheral ridge of the retainer disc.

3,831,550

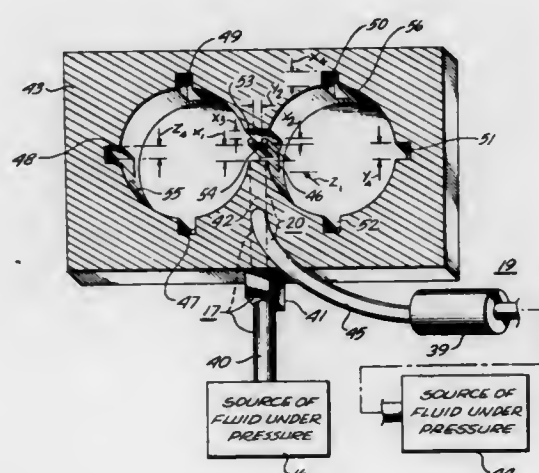
SONIC WAVE GENERATION

Nathaniel Hughes, Rolling Hills Estates, Calif., assignor to Energy Sciences Incorporated, El Segundo, Calif.

Continuation-in-part of Ser. No. 85,911, Nov. 2, 1970, abandoned, which is a continuation-in-part of Ser. No. 827,451, April 23, 1969, Pat. No. 3,554,443, and a continuation-in-part of Ser. No. 82,771, Oct. 21, 1970, abandoned, and a continuation-in-part of Ser. No. 158,915, July 1, 1971, Pat. No. 3,730,160. This application Oct. 14, 1971, Ser. No. 189,206
Int. Cl. B06b 3/00

U.S. Cl. 116—137 A

56 Claims



In a first embodiment, a source of fluid under pressure is supplied to a conduit that is terminated by a transverse resonant cavity preferably having a square cross section. The cross section of the conduit and the cavity are dimensionally related. In a second embodiment, a shock wave generator is coupled to a transverse resonant cavity. The component wavelengths of the shock waves and the cross-section of the cavity are dimensionally related. A third embodiment combines the first and second embodiments. The primary resonant cavity itself may be supplemented by auxiliary resonant cavities that communicate with a partially enclosed area into which the primary resonant cavity opens. One or more of the auxiliary cavities may be fed in parallel with the primary cavity by auxiliary conduits. Further, an auxiliary cavity may be arranged in series with the primary cavity to form a fluidic reflecting surface at the back of the primary cavity. Fluid may be supplied to a transverse resonant cavity by two or more feed conduits. The cavity may form a network of closed interconnected geometric channels such as circles, squares, and triangles, that are either arranged in a single plane or in stacked planes.

3,831,551

APPARATUS FOR COATING FILAMENTARY MATERIAL

Roger A. Klme, Napoleon, Ohio, assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Filed Apr. 14, 1972, Ser. No. 244,182

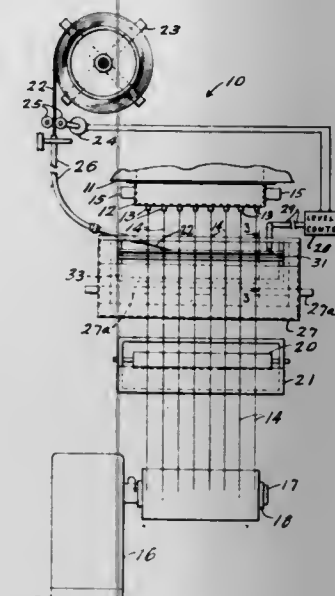
Int. Cl. B05c 1/10

U.S. Cl. 118—7

9 Claims

Method and apparatus for coating fibers of glass and the like with a liquid such as molten aluminum. The fibers are passed through a lip of the molten metal which projects from an upper edge of a vessel which holds a body of the molten

metal. The coated fibers are then passed over a heated wiper to more uniformly distribute the molten metal on the fibers



before the metal hardens. An automatic control is provided for maintaining a substantially constant molten metal level in the vessel as the metal is applied to the fibers.

3,831,552

FINGERPRINTING APPARATUS

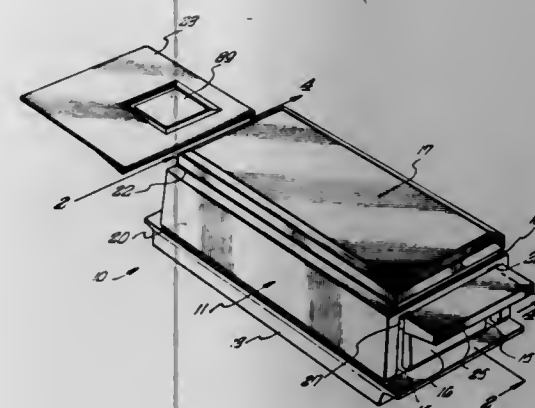
Gerald W. Schmidt, Woodland Hills; Jay Smith, III; Lawrence T. Jones, both of Pacific Palisades, and Richard F. M. Conroy, Woodland Hills, all of Calif., assignors to Identicator Corporation, San Francisco, Calif.

Filed Feb. 7, 1972, Ser. No. 224,025

Int. Cl. B05b 17/00

U.S. Cl. 118—31.5

26 Claims



A fingerprinting apparatus is disclosed for developing latent fingerprints impressed on the surface of a medium, such as a check. The apparatus comprises a casing having an enclosed cavity formed therein for containing a supply of magnetizable powder. A slot is formed in the upper portion of the casing defining an opening over the cavity. A spring biased cover is mounted over the opening to enclose the cavity and prevent the powder from spilling out during non-use. A folded holder is adapted to receive the medium within the fold. The bottom fold of the holder has an open window formed thereon for displaying the latent fingerprint on the medium. The holder is

adapted to be inserted within the slot and under the cover, and is positioned to expose the window directly over the opening of the cavity. A magnet is rotatably mounted within the cavity and includes at least one pole which is adapted to physically contact the powder for attracting a quantity of powder thereon. The pole of the magnet is then rotated upwardly to pass over the opening of the cavity to brush a portion of the powder onto the surface of the medium. A portion of the powder deposited on the magnet adheres to the oils defining the latent fingerprint, but not to portions of the surface devoid of such oils, to produce a visible image of the fingerprint. The magnet is rotated by a gear and arcuate rack drive combination. The arcuate rack is formed on a lever which is pivotally mounted on the sidewall of the casing. A hammer is also pivotally mounted on the sidewall of the casing and is adapted to be cocked and triggered by the lever to strike the holder to shake loose any excess powder deposited on the impressed fingerprint.

3,831,553

WICK FOR OIL DISPENSING APPARATUS

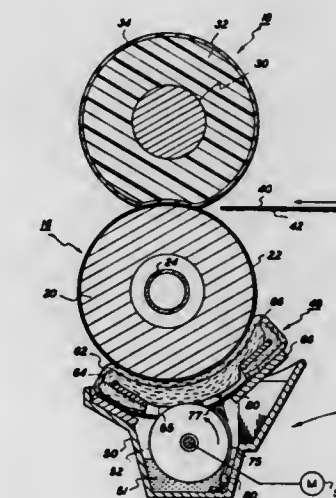
Raghulunga R. Thettu, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 11, 1972, Ser. No. 313,719

Int. Cl. B05c 11/00

U.S. Cl. 118—266

2 Claims



Apparatus for lubricating the heated fuser roll in a heated pressure xerographic fusing system. The apparatus includes an applicator roll for providing a film of oil to a wick assembly having a main wick contacting the fuser roll and an auxiliary wick contacting the applicator roll and the main wick at one end and an oil supply at the other end to dispense sufficient oil when the applicator roll is inoperative. The improvement is in the form of a sponge member inserted between the main wick, auxiliary wick, and applicator roll to limit the flow of oil onto the main wick thereby preventing oversaturation thereof.

3,831,554

SPECIMEN AGITATOR

Henry T. Wilton, Buffalo, N.Y., assignor to American Optical Corporation, Southbridge, Mass.

Filed June 27, 1973, Ser. No. 374,182

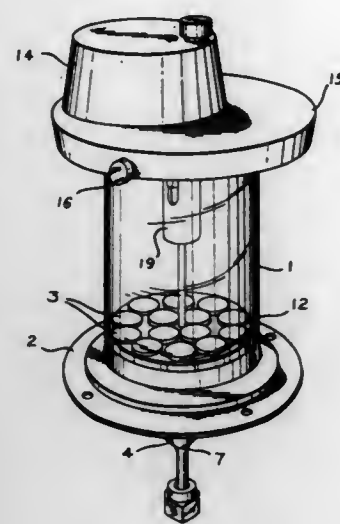
Int. Cl. B05c 3/08

U.S. Cl. 118—416

10 Claims

A motor driven agitator providing slow rotational movement of a specimen holder rack with momentary periodic mo-

tion in the direction of the rotational axis induces maximum penetration of a treating fluid into specimens held in porous capsules on the rack. A self-aligning, automatic engaging

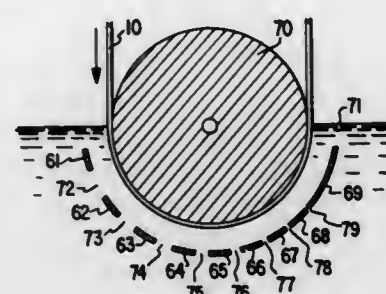


clutch arrangement permits the agitator cover with motor, to be conveniently removed and replaced without complex mechanical components or annoying delays caused by unsuccessful efforts to align separated driving and driven members.

3,831,556
LIQUID DEVELOPING APPARATUS OF ELECTROSTATIC LATENT IMAGE
Masamichi Sato, and Osamu Fukushima, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 16, 1971, Ser. No. 124,778
Claims priority, application Japan, Mar. 16, 1970, 45-22179

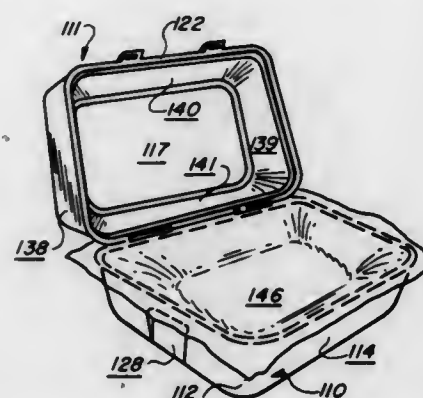
Int. Cl. G03g 13/00
U.S. Cl. 118-637 8 Claims



A liquid developing apparatus for electrostatic latent images, the apparatus including a developing electrode having open areas where the ratio of open areas to non-open areas decreases along the path of the electrophotographic material.

3,831,557
CAT LITTER BOX
James N. Elesh, 40 Sportsman's Hill Rd., Madison, Conn. 06443
Continuation-in-part of Ser. No. 218,295, Jan. 17, 1972, abandoned. This application Jan. 24, 1973, Ser. No. 326,244

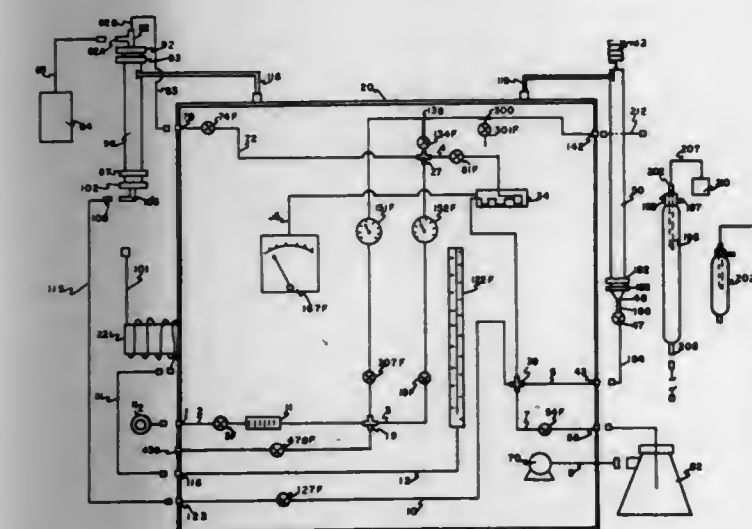
Int. Cl. A01k 01/00
U.S. Cl. 119-1 6 Claims



A one-piece molded sanitary cat box of hexagonal-like vertical cross section having a disposable liner and an integrally hinged splatter shielding cover with sides slanted upwardly and inwardly to keep the cat from dislodging the filler material and daily waste outwardly of the box per se, and containing deflector flanges extending inwardly from the top edges of the shield to return the material in the box away from the inner edges thereof, the box and cover containing a mating joint to anchor a free end of a disposable liner for the box and arranged to prevent the filler material and daily waste from entering the joint.

3,831,558
WATER FOUNTAIN FOR ANIMALS
Alden O. Forbes, Colorado Springs, Colo., assignor to North 40 Manufacturing Inc., Colorado Springs, Colo.
Filed Aug. 16, 1973, Ser. No. 388,818

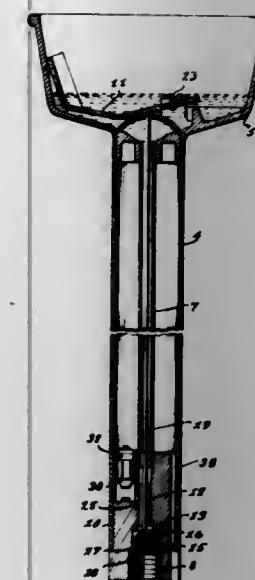
Int. Cl. A01k 7/00
U.S. Cl. 119-73 1 Claim
An animal watering fountain having a water containing basin supported by a stanchion imbedded in the earth for sup-



An integral system contained in a suitable housing which includes means for coating particulate support material with stationary phase chemicals, means for draining liquid from the coated support material, means for drying the coated support material, and means for transferring the dried, coated support material into a gas-chromatography column. Means for cleaning and coating capillary tubes is also disclosed. Additionally means for conditioning packed columns and capillary tubes is disclosed.

3,831,555
SYSTEM FOR PREPARING PACKED COLUMNS AND COATED CAPILLARY TUBES USEFUL IN GAS CHROMATOGRAPHY
Srivasa Rangachar Srinivas, 2850 Webb Ave., Apt. 5J, Bronx, N.Y. 10468
Filed Mar. 7, 1972, Ser. No. 232,583
Int. Cl. C23c 13/08
U.S. Cl. 118-506 11 Claims

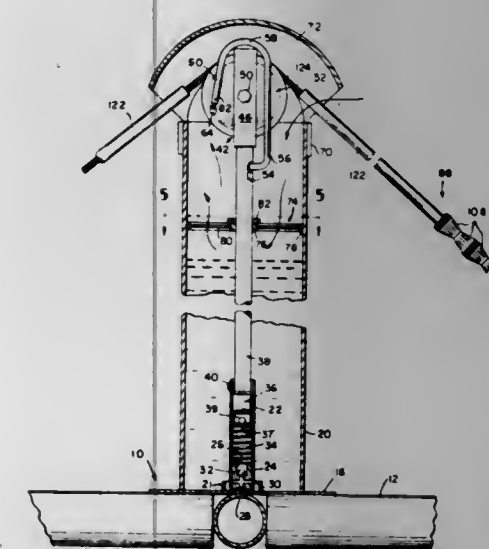
port and containing the water conduit which is connected to a water source, and including intake and drain valves, the



former of which is operated by an animal which depresses a valve actuator lever disposed within the water basin.

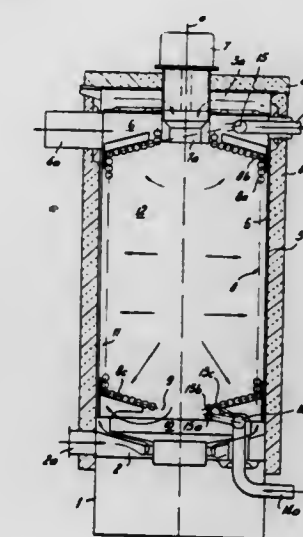
3,831,559
STOCK TREATMENT DEVICE
Bert F. Hinrichs, 926 N. Hampton Blvd., Shelbyville, Ind. 46176

Filed Aug. 24, 1972, Ser. No. 283,493
Int. Cl. A01k 29/00
U.S. Cl. 119-157 11 Claims



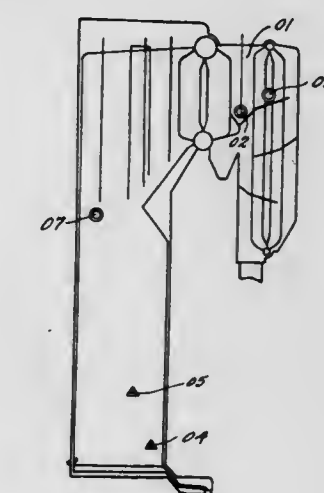
A stock treatment device which provides a comb-strung flexible strand suspended so that a domestic animal may conveniently rub its hide against the strand. The strand is so suspended that when an animal does so rub itself, a pump will be actuated to deliver treatment liquid to an elevated region of the strand so that the liquid will saturate the strand and rub off onto the animal's hide. A face treater is associated with the strand and pump to attract animals to the assembly and includes an improved box for containing salt or other bait. The combs on the strand are of novel construction to assist in distributing the liquid which is delivered to the strand.

3,831,560
COIL-TYPE CONTINUOUS FLOW HEATER
Hans L. Kuhnlein, Fullinsdorf, Switzerland, assignor to Hch. Bertrans Aktiengesellschaft
Filed May 10, 1973, Ser. No. 358,999
Claims priority, application Switzerland, Sept. 21, 1972, 13904/72
Int. Cl. F22b 27/08
U.S. Cl. 122-250 R 6 Claims



A coil-type continuous flow heater which comprises a combustion chamber, burner means located at one end of the combustion chamber and flue gas outlet means disposed at the other end of said chamber, and pipe coil means substantially lining the combustion chamber, said pipe coil means being coaxially disposed within said chamber so that no gaps exist between the individual coils of said pipe, said pipe coil means also extending a distance from the wall of the combustion chamber so as to define a flue gas duct which is adapted to channel the flue gas from the flue gas outlet means to an outlet means at the burner side of the combustion chamber.

3,831,561
DEVICE FOR EARLY DETECTION OF RUPTURE OF THE PRESSURE PART OF A BOILER
Takashi Yamamoto, Togitsu-machi; Kenichi Yasukouchi, and Ryuichi Sato, both of Nagasaki, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 14, 1973, Ser. No. 397,355
Claims priority, application Japan, Sept. 25, 1972, 47-95907
Int. Cl. F22b 37/48
U.S. Cl. 122-379 8 Claims



A device for early detecting any abnormal conditions of a boiler from the sound wave which is generated when water or steam spouts from the pressure part of the boiler. The device

is adapted for use in an atmosphere, such as a recovery boiler, which is liable to contamination, and comprises a gate circuit for shutting a sound wave transmission tube and shutting an output of a microphone upon actuation of soot blowers of the boiler so as to protect the device against detrimental effects imposed thereon by the operation of the soot blowers, means for cleaning the transmission tube by passing pressurized air therein while the output of the microphone is being shut down, means for cooling the sound wave transmission tube, means for detecting an abnormal condition of the microphone by passing pressurized air in the vicinity of said microphone and means for detecting clogging of the sound wave transmission tube by pressure.

3,831,562

SURFACE GAP SPARK PLUG AND ROTARY ENGINE COMBINATION

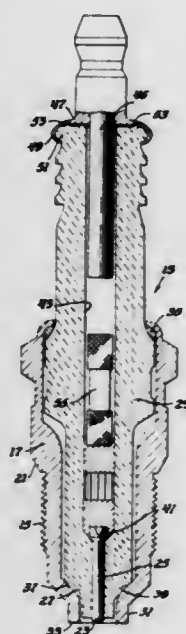
Wayne E. Paxton, Flint; Edward A. Rishavy, Warren, and James H. Currie, Rochester, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed July 2, 1973, Ser. No. 375,369

Int. Cl. F02b 53/12

U.S. Cl. 123—8.09

3 Claims



A surface gap type spark plug in combination with a rotary engine having an ignition opening in the housing inner surface, the opening being substantially entirely closed off by the firing end of the plug to substantially eliminate any blow-by or leakage gas as the apex seal wipes over the opening area, the reach of the plug being precisely controlled to place the sparking surface of the plug at the housing inner surface with the spark substantially in the combustion chamber while precluding projection of the plug into the combustion space beyond the inner housing surface, the closing of the ignition opening at the housing inner surface serving also to preclude collection of lubricant.

3,831,563

ELECTRONIC FUEL METERING APPARATUS FOR INTERNAL COMBUSTION ENGINE

William J. Brittain, Westcliff-on-Sea; Thomas J. L. Dobedoe, Watlington; Raymond Mitchell, Chelmsford, and Wilfred T. Oliver, Rugby, all of England, assignors to Ford Motor Company, Dearborn, Mich.

Filed Nov. 3, 1972, Ser. No. 303,661

Claims priority, application Great Britain, Feb. 3, 1972, 5056/72

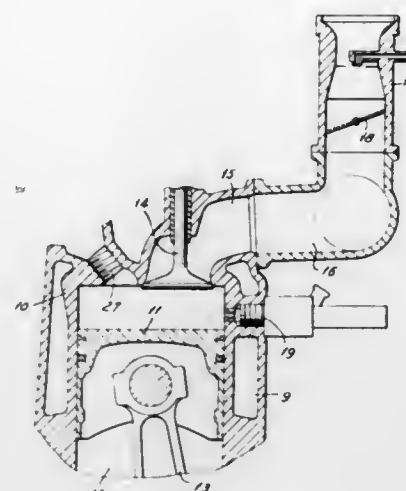
Int. Cl. F02m 51/00

U.S. Cl. 123—32 EA

1 Claim

Electronic fuel metering apparatus is described for use with an internal combustion engine having an air inlet passage for

supplying air to one or more combustion chambers. The apparatus includes an electrically controlled fuel metering device, a circuit for accumulating a count of air entering the combustion chamber (s), and a circuit for controlling, in ac-



cordance with the air count, the amount of fuel discharged by the fuel metering device. An up/down counter may be employed, and the rate at which fuel is discharged may be varied depending upon the air count accumulated on the up/down counter.

3,831,564

METHOD TO REDUCE NOXIOUS COMPONENTS IN INTERNAL COMBUSTION ENGINE EXHAUST GASES, AND APPARATUS THEREFOR

Peter Schmidt, Schwieberdingen, and Osvaldo Bejerman, Gerlingen, both of Germany, assignors to Robert Bosch GmbH, Gerlingen-Schillerhohe, Germany

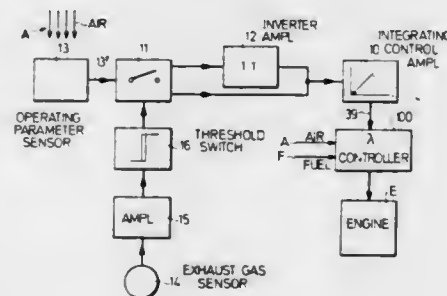
Filed Dec. 14, 1972, Ser. No. 314,922

Claims priority, application Germany, June 20, 1972, 2229928

Int. Cl. F02m 7/00, 51/00

U.S. Cl. 123—22 EA

12 Claims



The composition of exhaust gases is sensed and an electrical signal is derived representative of the composition, which has at least two discrete values. A control signal is generated, the control signal continuously varying in increasing or decreasing direction, for example by utilizing an integrator, and the control signal is applied to control the mass ratio of air and fuel applied to the engine. The direction of variation is controlled in dependence on the discrete value of the control signal. An operating parameter signal of the engine is also generated, and the rate of variation of the continuously varying control signal is changed as a function of the operating parameter signal; the controller typically is an integrating-type controller, in which the integrating rate is changed, as commanded by an engine operating parameter which may, for example, be the flow rate of air being applied to the engine.

3,831,565
ENGINE

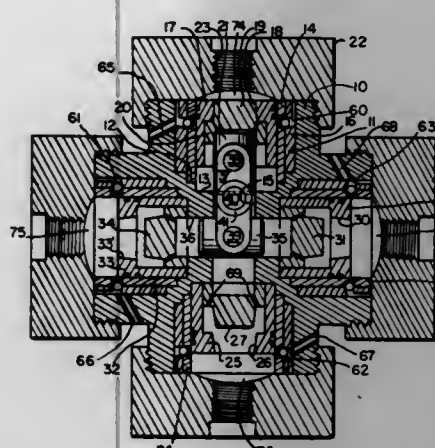
Hillard M. Avery, R.R. 3, Box 140A, Morgantown, Ind. 46160

Filed Sept. 10, 1973, Ser. No. 395,954

Int. Cl. F011 11/00; F02b 75/22

U.S. Cl. 123—47 AA

6 Claims



An internal combustion engine comprising a block providing four equiangularly arranged cylinders opening toward a common center, a piston reciprocable in each cylinder, each piston comprising a main body formed at its outer end with an outwardly tapering port, and a plug for closing the tapered port at times, a first drive piston reciprocable across the common center and cooperative with one diametrically opposed pair of plugs, a second drive piston reciprocable across the common center and cooperative with the other diametrically opposed pair of plugs, a link connected at one end to the first drive piston and connected at its other end to the second drive piston, a rotor mounted on an axis which is perpendicular to the plane which is common to the axes of the cylinders, and a pivot connecting the midportion of the link eccentrically to the rotor to drive the rotor when the drive pistons are reciprocated in sequence.

3,831,566

MULTI-PIECE INTAKE MANIFOLD

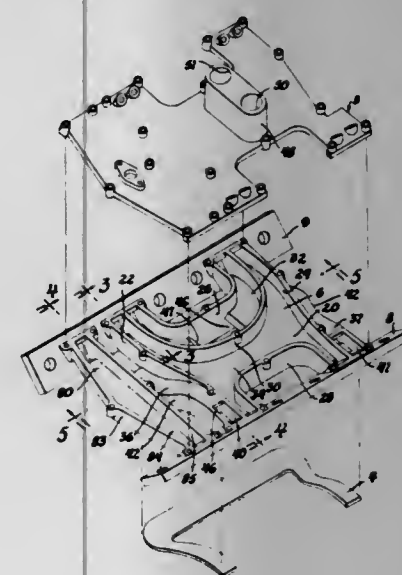
Thomas G. Thomas, Bedford, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed May 31, 1973, Ser. No. 365,546

Int. Cl. F02b 29/00

U.S. Cl. 123—52 MV

5 Claims



A multi-piece bi-level engine intake manifold comprises a main body, a top cover member and a bottom cover member. The main body has a pair of upwardly opening channels and a downwardly opening channel in communication with discharge ports, the downwardly opening channel being in

communication through an opening in the level portion of the manifold with one of the upwardly opening channels. The upwardly opening channels are closed at their upper surfaces by the top cover member, and the downwardly opening channel is closed at its lower surfaces by the bottom cover member.

3,831,567

SUPPLEMENTAL PULLDOWN MECHANISM FOR CARBURETOR AUTOMATIC CHOKE

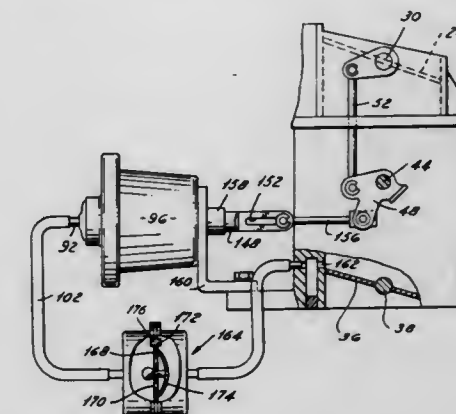
Richard J. Freismuth, Mt. Clemens, and Thomas R. Johnson, Ann Arbor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 16, 1973, Ser. No. 389,066

Int. Cl. F02m 1/10

U.S. Cl. 123—119 F

7 Claims



The carburetor has a conventional automatic choke construction heating a bimetallic coil by engine exhaust stove heat to slowly open the choke valve during cold weather starts; a supplemental temperature responsive power means operable above a predetermined ambient temperature in response to engine acceleration demand moves the choke valve open faster, to reduce emissions.

3,831,568

INTERNAL COMBUSTION ENGINE FUEL-AIR MIXTURE PREHEATING APPARATUS

Fritz Heimburg, Russelsheim, Germany, assignor to General Motors Corporation, Detroit, Mich.

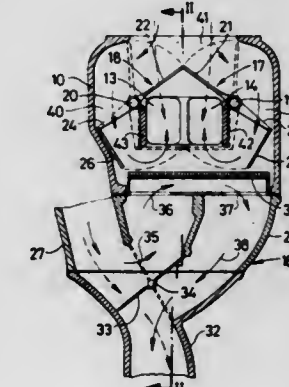
Filed Apr. 30, 1973, Ser. No. 355,692

Claims priority, application Germany, May 15, 1972, 2223655

Int. Cl. F02m 31/00

U.S. Cl. 123—122 R

6 Claims



A preheater for the fuel-air mixture of an internal combustion engine has a housing one end wall of which is closed by one side of a heat exchanger, an opposite end wall having an inlet, and a side wall having an outlet, for the mixture which can be selectively preheated by the operation of a pair of butterfly valves pivotally mounted between the inlet and the heat exchanger and to each side of the outlet, the vanes of the valve in one position (preheating) forming a guide baffle which

directs the mixture into contact with the heat exchanger before reaching the outlet and in another position (no preheating) forming a trough shaped guide baffle by which the mixture is caused to flow directly from the inlet to the outlet of the housing.

3,831,569

CAPACITIVE DISCHARGE IGNITION SYSTEM HAVING PROTECTIVE DIODE NETWORK

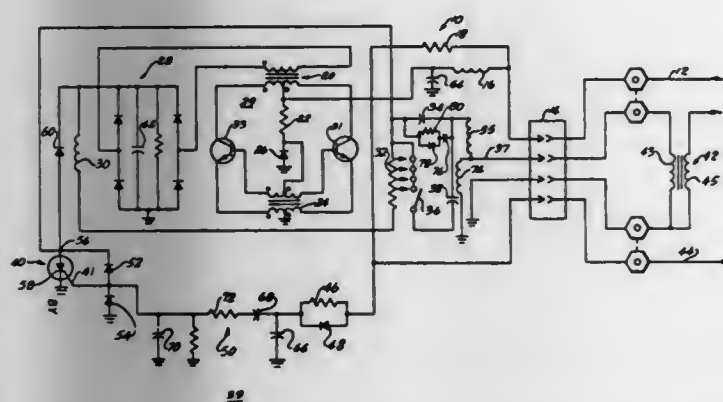
Christopher A. Jacobs, 3570 1/2 Eagle Rock Blvd., Los Angeles, Calif. 90065

Continuation-in-part of Ser. No. 866,626, Oct. 15, 1969, Pat. No. 3,716,037. This application Nov. 29, 1972, Ser. No. 310,266

Int. Cl. F02p 1/00

U.S. Cl. 123—148 CD

4 Claims



An ignition system for internal combustion engines utilizing a capacitive discharge to supply energy to the spark plugs. Charging and discharging of the capacitor is controlled by a circuit utilizing a silicon controlled rectifier (SCR) which operates in response to the engine controlled switching means for turning on and in response to positive back-biasing for turning off. A diode network is provided and is electrically connected to the SCR in such a way that it performs multiple functions, including providing a path for channeling coil-capacitor oscillating energy in the system back to the energy storage capacitor, biasing the electrodes of the SCR in proper relation to one another to provide proper control of the potentials on the SCR electrodes to assure extinguishment of the SCR and aiding the system in preventing the buildup of residual magnetism in the ignition coil by providing a reverse direction current path in parallel with the SCR.

3,831,570

BREAKERLESS IGNITION SYSTEM

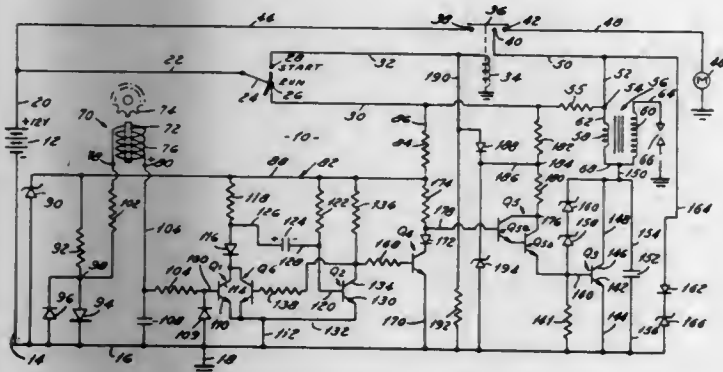
Carlton B. Compton, Detroit, and Walter L. Doelp, Jr., Livonia, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 20, 1972, Ser. No. 316,944

Int. Cl. F02p 3/02

U.S. Cl. 123—148 E

2 Claims



A breakerless ignition system for a spark ignition internal combustion engine is described. The system utilizes an alternating signal having a frequency proportional to the rate at

which sparks are to be generated. The alternating signal is applied to the control electrode of a first transistor. The control electrode normally is biased to a point close to conduction. A second transistor has its control electrode connected to one side of a capacitor, the other side of which is connected to the output of the first transistor. A third transistor has its output circuit coupled to the primary of an ignition coil. Means are provided for coupling the output circuit of the second transistor to the control electrode of the third transistor. The circuitry of the third transistor operates at voltage levels determined by the source of electrical energy utilized, such as a storage battery or alternator. The first and second transistors operate at a reduced voltage level determined by a circuit comprising a resistor and a zener diode. Transient protection is provided throughout.

3,831,571

VARIABLE DWELL IGNITION SYSTEM

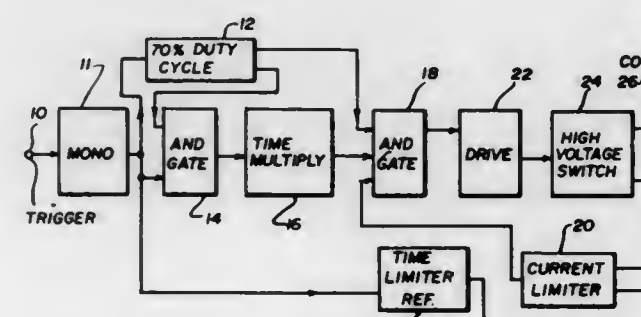
Howard F. Weber, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed May 11, 1973, Ser. No. 359,472

Int. Cl. F02p 1/00

U.S. Cl. 123—148 E

6 Claims



An electronic triggering circuit for an ignition system develops electric signals which correspond to the closing and opening of breaker points to supply variable dwell (ratio of on-to-off) pulses to the primary winding of the ignition coil at speeds below a predetermined RPM. The circuit operates to supply constant dwell pulses to the primary winding of the ignition coil at higher engine speeds.

3,831,572

SINGLE-STAGE COLD START AND EVAPORATIVE CONTROL METHOD AND APPARATUS FOR CARRYING OUT SAME

Sigmund M. Csicsery, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Oct. 4, 1972, Ser. No. 295,028

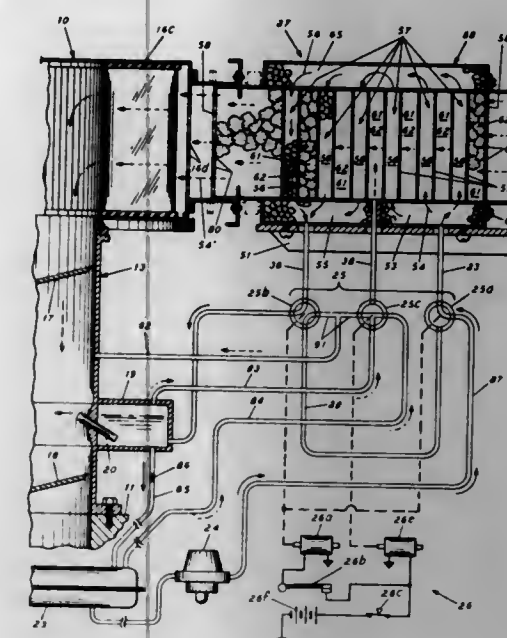
Int. Cl. F02m 1/16, 27/02

U.S. Cl. 123—179 G

10 Claims

As cold start is initiated in a spark-ignition internal combustion engine, lower molecular weight constituents of a full-range gasoline are selectively eluted by an elution system including an adsorbent bed of adsorbent material. The adsorbent bed forms an elution zone within a cannister assembly in fluid contact with the full range gasoline. The adsorbent material—usually in pelletized form—is preferably housed within a tubular means disposed within the cannister assembly, the tubular means being positioned within a much larger shell housing in fluid contact with a valve and conduit network. Entry of the gasoline is initiated by the valve and

conduit network under control of a controller circuit. A vapor emission control system can also be housed within the



cannister assembly and undergo selective operation to prevent escape of vapor emission originating from within the carburetor and gasoline tank.

3,831,573

CYLINDER HEAD FOR AN INTERNAL COMBUSTION ENGINE

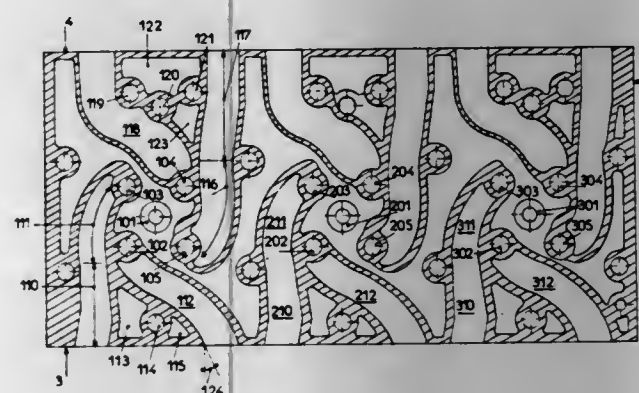
Jean Excoffon, Villeurbanne, France, assignor to Automobiles M. Berliet, Lyon, France

Filed Mar. 27, 1972, Ser. No. 238,225

Int. Cl. F02f 1/42

U.S. Cl. 123—193 H

6 Claims



A cylinder head, particularly adapted for a diesel engine including four valves, two inlet and two exhaust, symmetrically arranged about an injector. Each of the inlet valves has associated therewith an inlet duct opening to a first lateral face of the head. The exhaust ducts associated with the exhaust valves open on the opposite lateral face of the head. The inlet ducts are configured such that a turbulence is created in each one in the same direction around the injector seating.

3,831,574

LOADING DEVICE FOR SPHERICAL OBJECTS

Leif W. Strand, Rt. 1, Walworth, Wis. 53184

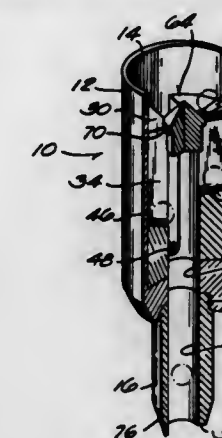
Filed Jan. 24, 1973, Ser. No. 326,226

Int. Cl. F41c 25/00

U.S. Cl. 124—49

8 Claims

A loading device for loading spherical air rifle shot into the magazine of an air rifle includes an inlet chamber having a central passage and a plurality of radially positioned channels whose bottoms are axially staggered. The channel bottoms



itudinal axis of the device a cone shaped member is positioned so as to deflect the shots into the channels.

3,831,575

APPARATUS FOR REPRODUCING RELIEF IMAGES ON SOLID BODIES

Angelo Menghini, Villa d'Alme, Italy, assignor to Giacomo Cortinovis, Boldone, Italy

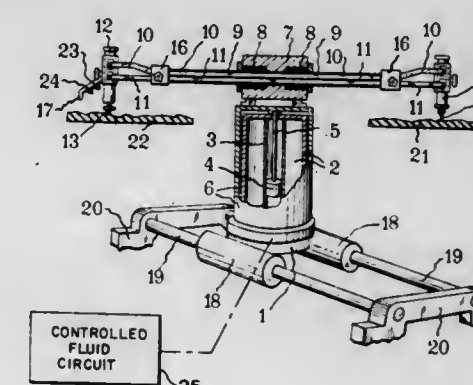
Filed Oct. 16, 1972, Ser. No. 297,771

Claims priority, application Italy, Oct. 22, 1971, 2947/71

Int. Cl. B28d 1/26; B44b 1/02

U.S. Cl. 125—7

7 Claims



Semi-automatic apparatus for reproducing relief images on blocks or slabs of marble, granite and the like, comprising a sensing member and a power driven working tool, as rotably interconnected about two axes at right angles to each other, said sensing member and working tool being movable along a longitudinal axis and rotatable about an axis at right angles to said longitudinal axis, as carried by a head which through a piston-cylinder assembly can be raised or lowered relative to a bearing base.

3,831,576

MACHINE AND METHOD FOR CUTTING BRITTLE MATERIALS USING A RECIPROCATING CUTTING WIRE

Harold W. Mech, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Continuation of Ser. No. 200,943, Nov. 22, 1971, abandoned.

This application July 9, 1973, Ser. No. 377,672

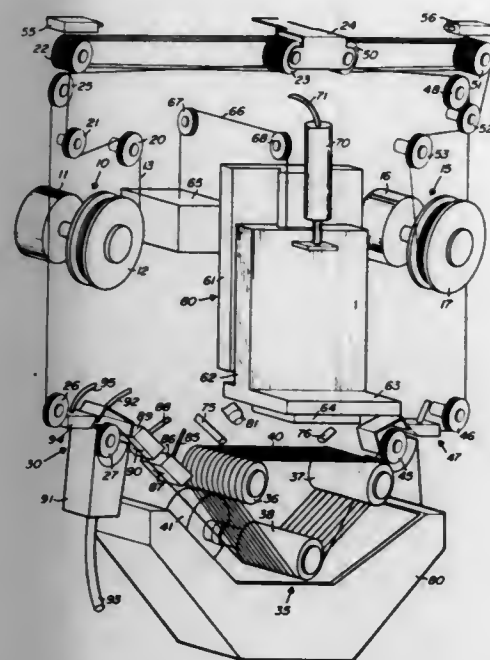
Int. Cl. B28d 1/08

U.S. Cl. 125—12

10 Claims

A web of wires defining a cutting area having a plurality of axially spaced apart wire portions formed by winding a continuous strand of wire around a plurality of elongated spaced apart pulleys, said continuous strand extending from a source of new wire and extending to take-up means. One of said elongated pulleys having a reversible motor attached thereto for

causing the wire in the cutting area to continually move and periodically reverse directions. Mounting apparatus external of said web for fixedly holding a piece of material to be cut and moving the material into the cutting area in engagement with the wires therein at a generally uniform rate. Apparatus for supplying a continuous flow of cutting mixture, including relatively fine particles of cutting material and a relatively

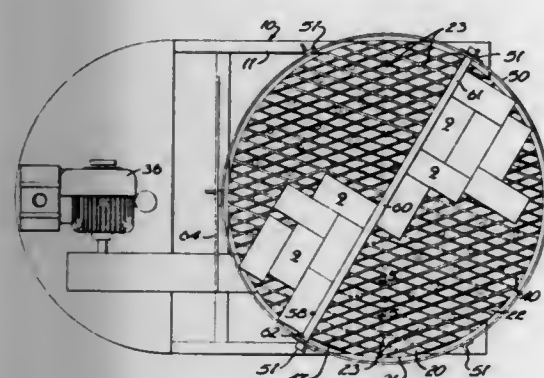


viscous carrying agent, to the cutting area and further apparatus for removing the cutting mixture from the wire as it leaves the cutting area, including a jet of gas directed onto the wire transverse to the longitudinal axis thereof, a bath for immersing the wire in a relatively low viscous fluid and a second jet of air directed onto the wire for removing the relatively low viscous mixture.

3,831,577
APPARATUS FOR CLEANING USED BRICKS
Rex Price, 6310 E. 6th Ave., Spokane, Wash. 99206
Filed Nov. 13, 1972, Ser. No. 305,705
Int. Cl. B28d 1/00

U.S. Cl. 125-26

5 Claims



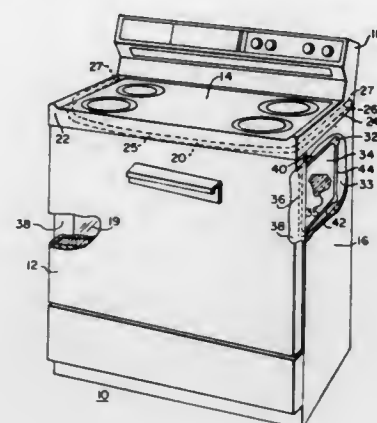
An apparatus is described for cleaning the mortar and other protruding material from the surfaces of used building bricks. The apparatus has a perforate turntable with an expanded sheet metal lath removably supported thereon and substantially covering the turntable. The expanded sheet metal provides edges upon which the bricks are supported, so that these upstanding edges scrape the protruding material from the brick surfaces. An upstanding band surrounds the brick on the turntable to keep the bricks thereon and a stationary bar across the band keeps the bricks from traveling with the sheet metal lath.

3,831,578
RANGE EXTERIOR SURFACE COOLING DEVICE
Robert Draper, Pittsburgh; Donald T. Beecher, Murrysville, both of Pa., and David L. Ayers, West Lafayette, Ind., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 11, 1973, Ser. No. 378,290
Int. Cl. A21b 1/00

U.S. Cl. 126-19 R

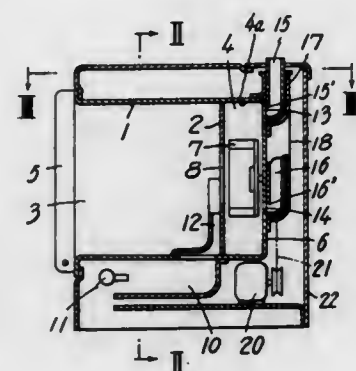
10 Claims



A sealed tube containing a heat transport fluid is positioned in heat exchange relation with those exterior surfaces of a pyrolytic self-cleaning oven which are raised to relatively high temperatures during the heat cleaning cycle. The heat transport fluid boils and the vapor is directed by the tube away from the hot exterior surfaces and is placed in heat exchange relation with other parts of the range which are at relatively cooler temperatures and can therefore be used as a heat sink. At these cooler locations, condensation of the transport fluid occurs and thereby removes the latent heat of vaporization of the fluid from the hot surfaces.

3,831,579
FORCED HOT AIR TYPE COOKING OVEN
Kazumi Tamada, and Tadayoshi Takase, both of Aichi, Japan, assignors to Kabushiki Kaisha Rinnai Seisakusho, Nakagawa-ku, Nagoya-shi, Japan
Filed Aug. 16, 1971, Ser. No. 172,081
Claims priority, application Japan, Dec. 16, 1970, 45-125294 The portion of the term of this patent subsequent to Jan. 16, 1990, has been disclaimed.
Int. Cl. F24c 15/16, 15/32
U.S. Cl. 126-21 A

6 Claims

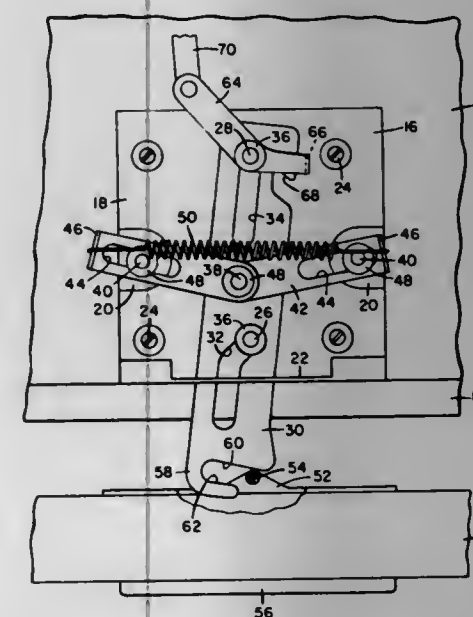


A hot air type cooking oven in which the interior of a casing is divided by a partition plate which has an opening at its center portion. The plate divides the casing into a front heating chamber and a rear blower chamber while providing lateral air passages on both sides of the plate. A combustion chamber is provided below the casing and contains a burner, the combustion chamber being in communication with the heating chamber through a communication duct which opens at the front lower portion of the opening. A blower is mounted

within the blower chamber to face the opening, and at least one exhaust opening is made in the rear wall of the casing and leads to an exhaust pipe extending upwards, an inner tube being removably and slidably mounted in the exhaust pipe.

3,831,580
LOCKABLE OVEN DOOR LATCH
Byron R. McLean, Coopers Plains, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Nov. 19, 1973, Ser. No. 417,105
Int. Cl. F24c 15/02
U.S. Cl. 126-197

10 Claims



A mechanical latch mechanism, positioned adjacent the front wall of an oven, is provided with a latch arm having an outer end for engaging a roller on the oven door as the door is moved toward a closed position. The roller initiates an inward or backward movement of the latch arm and the arm is cammed during its backward travel from a canted or skewed position to a position substantially perpendicular to a vertical plane passing through the oven door, so as to facilitate the engagement of the door roller with a hook portion on the forward end of the latch arm. A pair of spring-loaded pivot arms, which initially function to retain the latch arm in its forward position, provide a rearward force to the latch arm after being pivoted passed dead center to urge the latch arm toward its backward most position and thereby retain the oven door in a closed and sealed position. The latch arm is also provided with a locking recess for operatively receiving a flanged end of a pivotal locking arm, which prevents the latch arm from moving forward and thereby locks the oven door in a closed and sealed position.

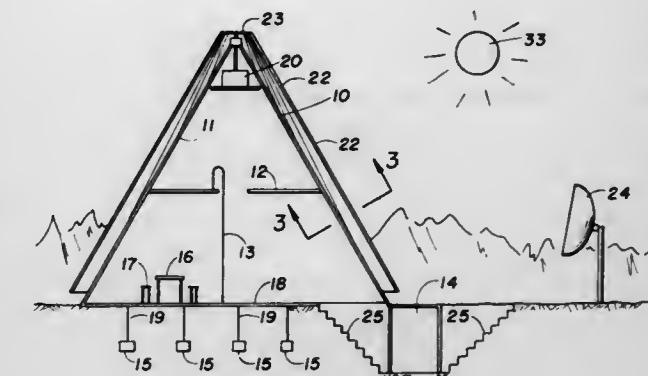
3,831,581
LUNAR SHELTER
Edward Baseley, Vancouver, B. C., Canada, assignor to The Raymond Lee Organization, Inc., New York, N.Y.
Filed Mar. 16, 1973, Ser. No. 342,027
Int. Cl. F24j 3/02

U.S. Cl. 126-270

2 Claims

A lunar shelter which is maintained at a uniform temperature during the lunar day, by means of reflecting shutters

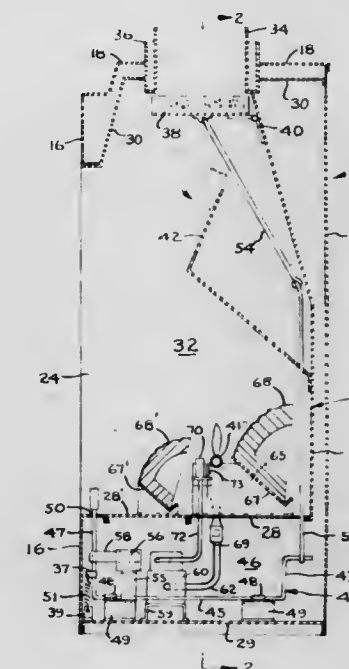
about the outside of the shelter with the temperature of the shelter itself controlled by rotation of the external shutters.



The shutters may be varied in projected width so as to vary the opening between the shutters to permit the desired amount of radiation from the sun to warm the shelter walls.

3,831,582
FIREPLACE HAVING A DAMPER-FUEL GAS SUPPLY INTERLOCK
Kenneth L. Mahoney, Fort Wayne, Ind., assignor to American Standard Inc., New York, N.Y.
Filed July 12, 1972, Ser. No. 270,907
Int. Cl. F23l 11/02
U.S. Cl. 126-286

24 Claims



A fireplace having a gas-fired burner extending substantially the entire transverse dimension of the firebox for producing an elongated flame zone in the space between two artificial logs. The fuel supply control means for the burner is located in a control compartment below the bottom wall of the firebox to minimize the overall width of the fireplace. Preferably the fuel supply control means is interlocked with the flue damper so that fuel gas can be delivered to the burner only when the damper is in its fully open position.

3,831,583

IMPLANTABLE BULB FOR INFLATION OF SURGICAL IMPLEMENTS

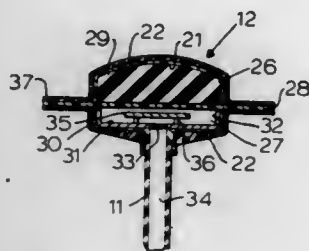
Louis Henry Edmunds, Jr., Piedmont, Calif., and Silas A. Braley, Midland, Mich., assignors to The Regents of the University of California, Berkeley, Calif.

Continuation of Ser. No. 121,406, March 5, 1971. This application Feb. 5, 1973, Ser. No. 329,643. The portion of the term of this patent subsequent to May 1, 1990, has been disclaimed.

Int. Cl. A61b 19/00

U.S. Cl. 128-1 R

9 Claims



A device, completely implantable within the human body, for restricting the flow of blood through a major blood vessel, such as an artery, especially the pulmonary artery. An inflatable, flexible annulus, generally circular in shape but not a closed circle, has a non-distensible outer wall so that upon inflation all distension or expansion is inward. The device is placed around an artery or other blood vessel, and the ring may then be closed, as by suturing together preformed tabs attached to the annulus, or by suturing together the ends of an overlapping tape, for instance, to firmly hold the vessel. Upon inflation, inward distension of the inflatable annulus constricts the vessel, and flow of blood therethrough is accordingly restricted. Inflation and deflation are effected through a self-sealing hollow bulb and a non-distensible tube connecting the bulb to the interior of the inflatable annulus, pressure fluid being introduced into the bulb by a fine hypodermic needle. The device may be wholly contained within the patient's body, and all surfaces thereof are of a substance, such as a medical elastomer, that is compatible with and resistant to the action of body fluids.

3,831,584

DEVICES FOR CONTROLLING FLUID FLOW IN LIVING BEINGS

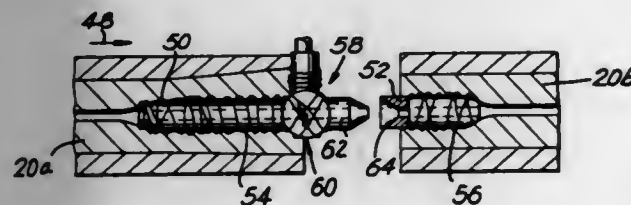
Louis Bucalo, Holbrook, N.Y., assignor to Investors in Ventures, Inc., New York, N.Y.

Division of Ser. No. 155,141, June 21, 1971, Pat. No. 3,742,933. This application Feb. 14, 1973, Ser. No. 332,554

Int. Cl. A61b 19/00

U.S. Cl. 128-1 R

4 Claims



A device for controlling the flow of fluid in a living creature. The device has an inlet and outlet both of which are mounted fluid-tightly in a body cavity in a position compelling the fluid which is to be controlled to flow into said inlet before reaching the outlet. Between the inlet and outlet there is a control structure which in one position provides for flow of fluid in a given condition through the inlet and the outlet and which in another position prevents the flow of fluid in this given condition through the inlet and outlet. This control structure can

provide for fluid flow at all times while chemically treating the fluid to prevent it from having a given condition, or the control structure can in one position cut off the flow of fluid and in another position reestablish the flow of fluid.

3,831,585

RETROGRADE RENAL BIOPSY DEVICE

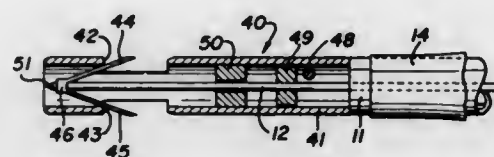
Thomas L. Brondy, 334 A Joan Ct., Bartlett, Ill. 60103, and Andrew T. Cole, 5107 S. Blackstone, Chicago, Ill. 60615

Filed July 19, 1972, Ser. No. 273,016

Int. Cl. A61b 10/00

U.S. Cl. 128-2 B

9 Claims



A medical instrument for use in renal biopsy is in the form of an injector tube having a puncturing and scraping tool secured to the end of an inner slide wire and a balloon surrounding the injector tube at the distal end thereof. A second flexible tube is mounted along the outside of the injector tube and connects to the balloon for inflation thereof in the renal pelvis to hold the distal end of the injector tube in fixed relation to the kidney to permit penetration of the scraping tool into the kidney tissue through the epithelium of the renal pelvis.

3,831,586

RESPIRATION MONITOR

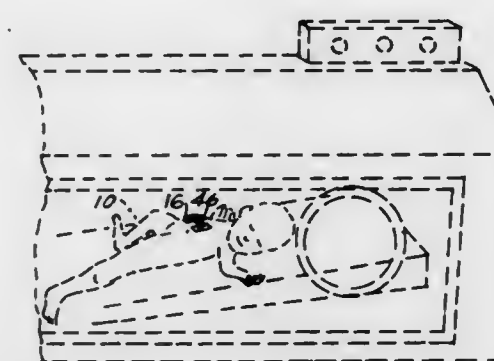
Parker H. Petit, 1741 McCuba Dr., Marietta, Ga. 30080

Filed Nov. 16, 1972, Ser. No. 307,091

Int. Cl. A61b 5/02

U.S. Cl. 128-2 R

9 Claims



A respiration monitor comprising a sensing unit which senses the expansion and contraction of the chest, abdomen, side or back; and through the electrical system sounds an alarm if this motion ceases. The respiration motion is changed to an electrical signal in the transducer. Two points on the skin surface are selected as reference points and the relative motion of the two points is monitored by a light modulation method. A small transducer is mounted on the skin at the first reference point. A thin and flexible modulation reed which conforms to the curvature of the body is mounted at the second reference point, and extends through a slot in the transducer. The relative motion of the modulation reed with reference to the transducer causes the light intensity impinging on a sensor to change thereby changing the sensor's resistance and whenever light modulation stops, the electronic circuitry produces a visual or aural alarm and the patient is attended.

3,831,587

MULTIPURPOSE VAGINAL AND CERVICAL DEVICE

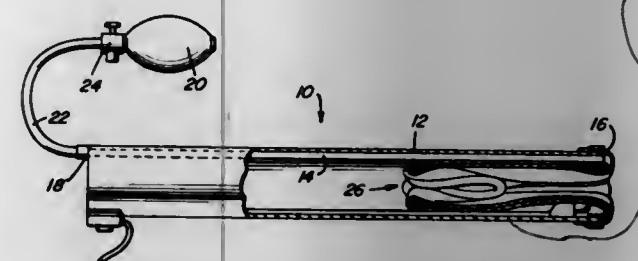
Herman L. Boyd, Savannah, Tenn., assignor to Raymond H. McAnally, Savannah; Allen C. Selmin, Memphis; Harry Schneider, Memphis; I. A. Jefcoat, Memphis and Richard R. Thais, Memphis, all of, Tenn., part interest to each

Filed Feb. 8, 1973, Ser. No. 330,644

Int. Cl. A61b 1/06

U.S. Cl. 128-6

7 Claims



A vaginal and cervical device comprising an elongated tubular member with an air tube connected to a pressure source at one end, a tubular extension structure at the distal end comprised of inner and outer sheets of flexible material which define an air chamber and which may be collapsed into the distal end of the tubular member or deployed therefrom into a fully extended position to provide an opening for observation of a cervix to aid in artificial insemination. Air from the pressure source maintains the tubular extension in the extended position. The outer sheet of the tubular extension may be stretchable to define an expander which is inflated by way of the pressure source or, alternatively, a separate expander may be mounted on the medial portion of the tubular member either of which press against the walls of the vagina to hold the device firmly in place.

3,831,588

PRESSURE SENSING DEVICE

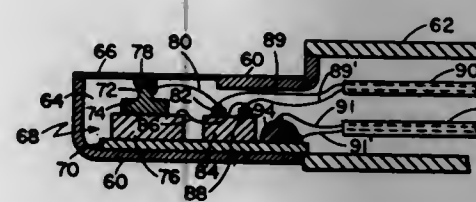
Wilhelm Rindner, Lexington, Mass., assignor to Device Research Inc., North Billerica, Mass.

Filed Oct. 16, 1972, Ser. No. 297,778

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 E

8 Claims



A pressure sensor which produces an electric output proportional to pressure on it is housed in a chamber having a flexible membrane for transmitting external pressure to the sensor. Means are provided for varying the pressure in the chamber by known amounts thus enabling calibration of the pressure sensing system while the sensor is at the site.

3,831,589

SURFACE ELECTRODE ADAPTED FOR USE WITH RHEOGRAPHIC APPARATUS

Raymond M. Deering, Franklin Park, and Raymond M. Pawlak, Addison, both of Ill., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jan. 29, 1973, Ser. No. 327,473

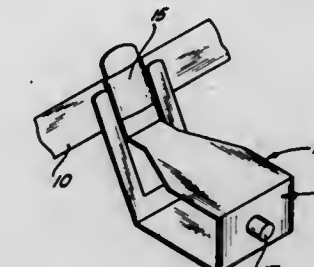
Int. Cl. A61b 5/04; A61n 1/04

U.S. Cl. 128-2.1 E

1 Claim

A quickly attachable and detachable surface electrode arrangement, especially adapted for connecting rheographic ap-

paratus to the extremity of a subject such as a human subject for making impedance measurements. A broad, flexible conductive band is provided, adapted to loop around an extremity of the subject in conductive contact with the skin. A clamp is provided to firmly secure the conductive band in the loop, with the band in good conductive contact with the skin. The clamp is adapted to be connected to a conductor for providing an excitation signal to the subject from suitable rheographic apparatus or other electrical equipment. The electrode and clamp arrangement is also capable of use as a receiver elec-



The clamp is easily attachable and removable since it comprises two outer tangs joined at one end to a base to form a fork, and otherwise includes an elongate center tang or tongue which is also joined to the base of the fork by a flexible, spring portion. The tongue can be depressed through the fork by pinching action of an operator and, when released, will spring back through the fork to firmly engage and clamp a portion of the band placed therebetween. The extended ends of the fork tangs and the tongue are formed of flat conductive material whereby excellent electrical contact is achieved with the conductive band, when it is clamped.

3,831,590

APPARATUS FOR MEASURING THE AREA BETWEEN A FLUCTUATING SIGNAL AND AN INCLINED BASELINE

Kenneth Hector McKinnon Boyle, Glasgow, and Thomas Rogers, Milngavie, both of England, assignors to Barr and Stroud Limited, Glasgow, England

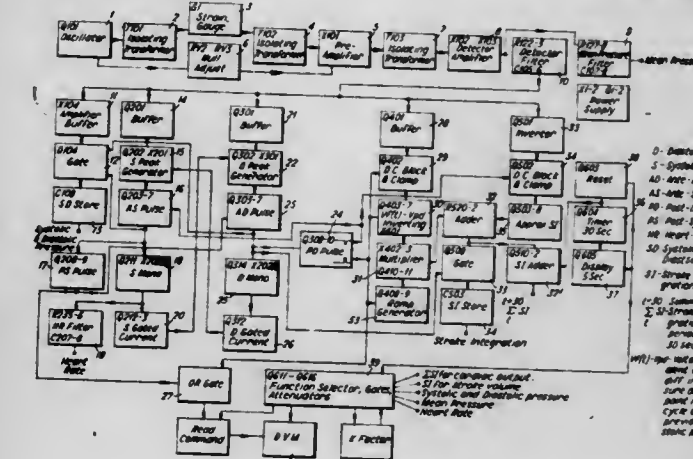
Filed May 3, 1972, Ser. No. 250,038

Claims priority, application Great Britain, June 30, 1971, 30573/71

Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 R

6 Claims



Apparatus for measuring the area between a fluctuating signal and an inclined baseline, as for example in measuring cardiac stroke volume and output, wherein the area between the signal and the baseline is measured between two limits. The apparatus comprises an integrator for measuring the area between a curve and a datum baseline coincident with one of the limits of the inclined baseline and extending between the limits, means for measuring the length of the datum baseline, means for measuring at the second limit the distance normal to the datum baseline from the latter to the inclined baseline, means for multiplying the length and the distance measured and halving the product to obtain the area between the baselines, and means for summing the areas.

3,831,591

VIBRATORY CUSHION

Reginald H. Newkirk, 6449 Olympic Blvd., Los Angeles, Calif. 90048

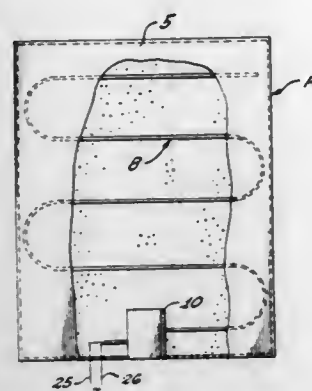
Continuation of Ser. No. 92,634, Aug. 16, 1971, abandoned.

This application Mar. 14, 1973, Ser. No. 341,279

Int. Cl. A61h 1/00

U.S. Cl. 128—33

1 Claim



A seat cushion pad adapted for use over a seat cushion or against a back cushion. The pad is provided with a motor-driven vibration generator of the unbalanced motor type. The motor has a housing to which is coupled one end of an undulatory spring, which extends from the motor housing substantially throughout the area of the pad, acting as a vibration-transmitting device which transmits vibration throughout the area of the pad and to the body of a user sitting or leaning thereon. The end of the spring opposite from that coupled to the motor housing is free or unanchored, so that the vibration amplitude of the spring is not restricted and reduced to zero by an end anchorage.

3,831,592

TRIGGER POINT INSTRUMENT

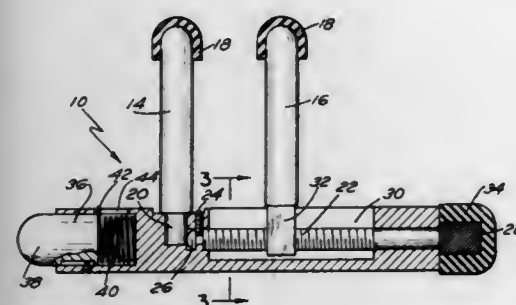
William E. Lancellotti, 371 Broadway, Providence, R.I. 02909

Filed Jan. 15, 1973, Ser. No. 323,438

Int. Cl. A61h 7/00

U.S. Cl. 128—60

4 Claims



A trigger point instrument for chiropractic use in releasing trigger points in the human body comprising an elongated handle portion with a pair of spaced legs extending from said handle portion in substantially the same direction, the spacing between said legs being readily adjustable, and each of said legs having a resilient tip secured to the outer end thereof, the handle portion also having resilient tips secured to its outer ends, said latter tips being larger than the tips secured to the spaced legs.

3,831,593

THERAPEUTIC TUB FOR THE TREATMENT OF BURNED PATIENTS

Jose Corona Ochoa, Bezares 40, Mexico City, Mexico

Filed July 13, 1973, Ser. No. 378,863

Claims priority, application Mexico, July 14, 1972, 137020

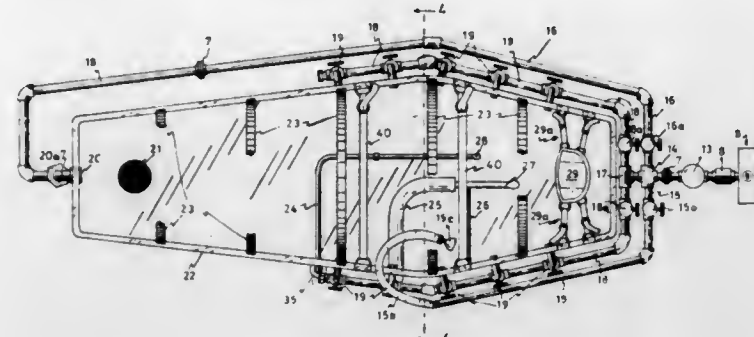
Int. Cl. A61h 9/00

U.S. Cl. 128—66

10 Claims

An improved therapeutic tub for the treatment of burned patients comprises a container having a shape suitable to

maintain a patient submerged in a leaned positioned thereinto, an isotonic or hypertonic liquid medium in said container, recycling means connected to said container to recycle said liquid medium, filtering and purifying means connected to said recycling means, uretral and rectal probe means to continuously carry human fluids and defecations outside of said container, thermostat means to maintain the temperature of said liquid medium at a constant level, percolating means at the discharge holes of the container to avoid passage of frag-



ments released from the wounds, head support means and body support means within said container, said body support means having a small contact area to avoid injuries to the body of the patient, irrigation nozzle means to irrigate difficult accessible areas of the body of the patient, and removable cover means on the top of the container to isolate the nude body of the patient from the environment.

The liquid medium in said container, when hypertonic, can also contain medicaments to be absorbed by osmosis through the skin of the patient.

ERRATUM

For Class 128—80 see:
Patent No. 3,831,467

3,831,594

LIFE SUPPORT SYSTEM

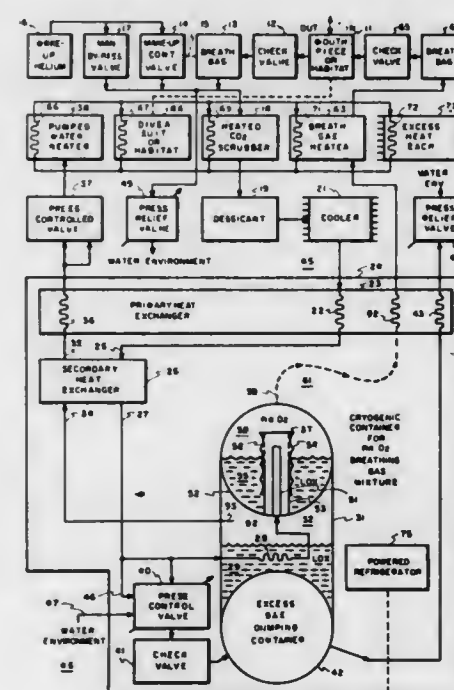
Charles R. Rein, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 5, 1973, Ser. No. 337,782

Int. Cl. A62b 7/06

U.S. Cl. 128—142

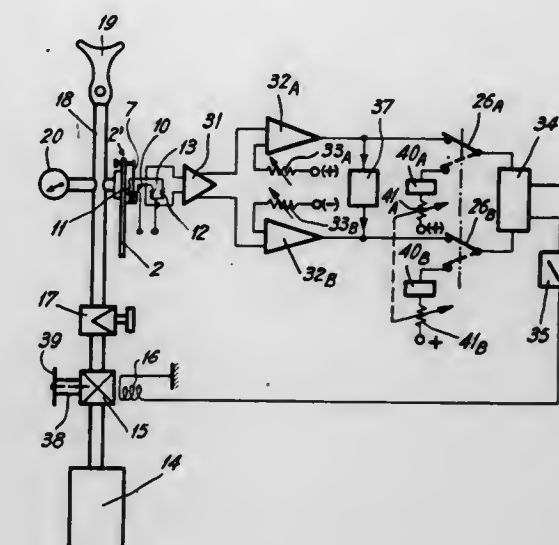
16 Claims



A closed cycle HeO_2 cryogenic underwater life support system is disclosed as including a breathing gas rejuvenation

process, wherein helium gas is added thereto to maintain proper breathing gas pressures at various and sundry water depths, carbon dioxide and water are removed therefrom, and life-sustaining oxygen gas is added thereto from liquid oxygen cooled to cryogenic temperatures by means of a cryogenic chamber and refrigeration apparatus. Controlled heating equipment is also disclosed for the purpose of maintaining proper temperatures in said breathing gas rejuvenation process, as well as in a diver's suit. Excess non-rejuvenated gas is stored in a gas dumping container located within the cryogenic chamber, but may be vented to the ambient water environment should said gas dumping chamber become full.

opening and shutting the valve in accordance with pressure changes appearing during periods of inhalation and exhalation

3,831,595
RESPIRATOR

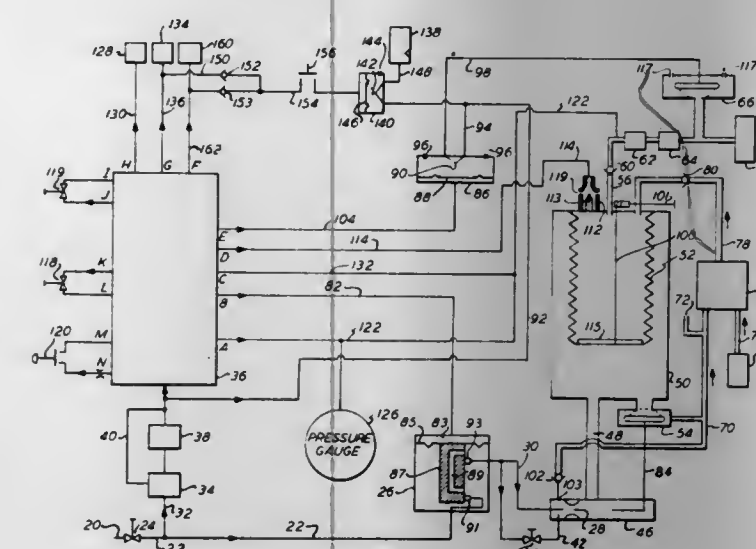
James D. Valenta, Madison; Ulrich Sielaff, McFarland, both of Wis., and Stephen H. Drabkin, Woodbridge, Conn., assignors to Airco, Inc., New York, N.Y.

Filed July 25, 1972, Ser. No. 275,019

Int. Cl. A61m 16/00

U.S. Cl. 128—145.8

16 Claims



A volume-limited general medical respirator is controlled by an integrated fluidic circuit. The respirator includes various alarm systems, control valving and main exhalation and inhalation phases operated entirely through gas means. A collapsible bellows is utilized to inspire the patient and is powered by an operative gas such as oxygen. The same operative gas not only powers the bellows during inspiration of the patient but is then recycled during the exhalation phase and thereafter used in the system for introduction to the patient during the subsequent inspiration phase.

by a patient using the apparatus. Alternatively, the valve can be opened and shut according to a predetermined cycle.

3,831,597

APPARATUS FOR INSERTING EAR RINGS

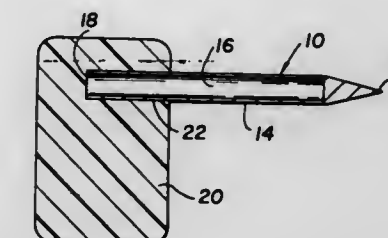
Jack G. Shiller, Westport, Conn., assignor to Seymour Oestricher, Westport, Conn.

Filed Dec. 8, 1972, Ser. No. 313,335

Int. Cl. A61b 17/34; A44c 7/00

U.S. Cl. 128—330

3 Claims



Method and apparatus for piercing ear lobes and inserting ear rings therein. The apparatus includes a needle having a hollow shank with an open end over which a handle is removably located. The needle is manipulated by the handle to pierce the ear and the handle is removed. An ear ring having a post is inserted within the needle and the needle is removed leaving the ear ring in place.

3,831,598

STERILE ANESTHETIC INSTRUMENTS

Irvin D. Tice, 192 East State St., Salem, Ohio 44460

Filed Sept. 28, 1972, Ser. No. 292,942

Int. Cl. A61m 35/00

U.S. Cl. 128—172.1

3 Claims

A self contained cathartic device which may be conveniently hand held by or attached to the patient for locally anesthetizing an area of tissue. The device includes a central body portion containing a battery having one terminal connected to an electrically conducting outer surface. Connected to one end of this central body is a rigid arm having an electrical contact socket connected to the remaining battery terminal and located at the opposite end of the rigid arm for receiving an absorbent pledget made of material such as compressed felt. The absorbent material is saturated with a conventional anesthetizing agent. Typically, the patient will hand hold the central body portion thus automatically making electrical contact with one terminal of the battery through the

3,831,596

CONTROL DEVICE FOR A RESPIRATORY APPARATUS

Roger Paul Charles Cavallo, Bourg-la-Reine, France, assignor to Synthelabo, Paris, France

Filed Nov. 7, 1972, Ser. No. 304,487

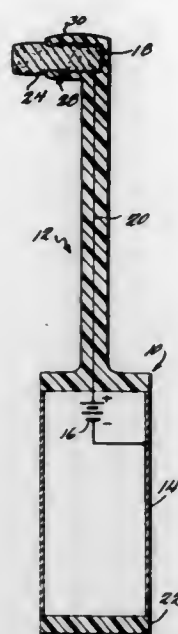
Int. Cl. A61m 16/00

U.S. Cl. 128—145.8

10 Claims

Respiratory apparatus having an electromagnetically operated valve for controlling the flow of respirable gas from a source thereof to a mouthpiece has a control arrangement for

outer conducting surface. The saturated pledget will then be applied to the area where anesthesia is desired thus completing an electrical circuit through the body such that significant



amounts of the anesthetizing agent are physically transported by the electrical current below the skin surface in the desired local area to achieve anesthesia.

3,831,599

ANAESTHESIA MACHINES

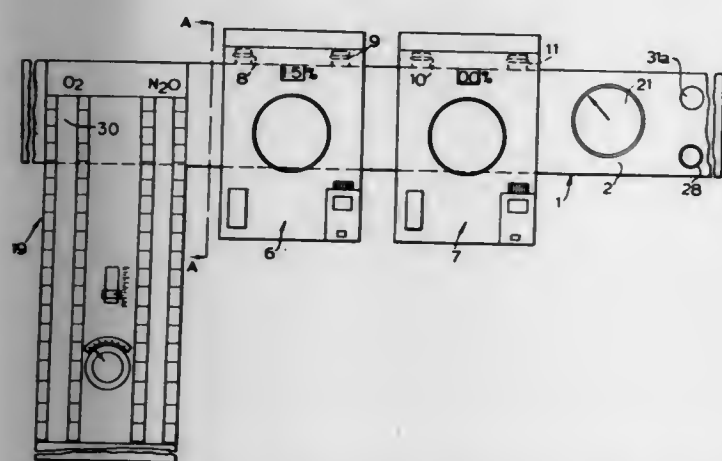
David Alan Needham, Keighley, England, assignor to Cyprane Limited, Keighley, Yorkshire, England

Filed Sept. 8, 1972, Ser. No. 287,492

Int. Cl. A61m 16/00

U.S. Cl. 128-188

13 Claims



A console rack for anaesthesia equipment, the rack having apparatus whereby an anaesthesia unit can be plugged into position by access from the front of the rack and held in that position. The plug apparatus may be plug or socket elements for receiving mating connecting elements on an anaesthesia unit and may be appropriately interconnected by fluid circuit pipework built into the rear of the console rack. Bays on the rack for receiving anaesthesia units, and anaesthesia units for fitting in these bays may be designed on the modular principle.

3,831,600

FLUID FLOW CONTROL

Su Il Yum, Mountain View; Richard G. Buckles, Menlo Park, both of Calif., and Richard M. Barrer, London, England, assignors to ALZA Corporation, Palo Alto, Calif.

Filed Apr. 2, 1973, Ser. No. 346,749

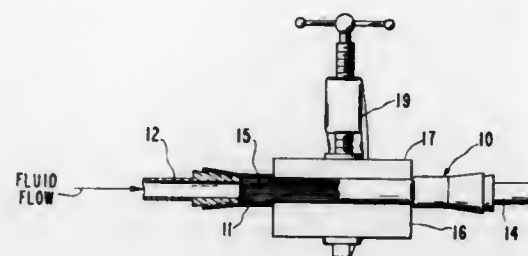
Int. Cl. A61n 05/14; F16k 7/06

U.S. Cl. 128-214 R

9 Claims

An improved variable fluid flow control is disclosed. This control employs a fluid-containing deformable elastic conduit

having a plurality of parallel elastomeric fibers positioned axially within. Fluid passes through the conduit along the fibers. The rate of fluid flow is altered by applying a greater or lesser



deforming compression, perpendicular to the direction of fluid flow, to the conduit at the location of the parallel aligned elastomeric fibers.

3,831,601

ADJUSTABLE SYRINGE PLUNGER

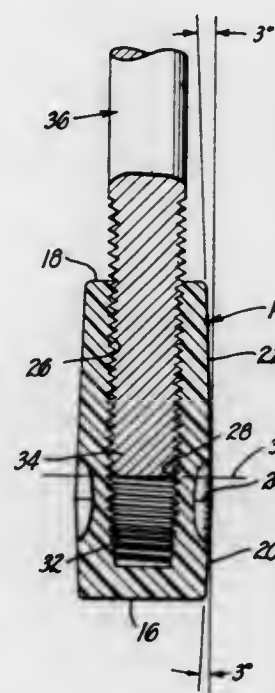
Archie Kessell, Huntington Beach, Calif., assignor to Robe Scientific Corporation, Santa Ana, Calif.

Filed Oct. 29, 1973, Ser. No. 410,385

Int. Cl. A61m 5/22

U.S. Cl. 128-218 PA

6 Claims



An adjustable syringe plunger of Teflon and of a size to fit into the cylinder of the syringe and having forward and rearward ends, the plunger being axially tapered externally thereof toward its forward and rearward ends from an annulus adjacent its forward end. The plunger has a threaded axial, cylindrical bore therein extending from its rearward end toward its forward end and terminating in an inner end just rearwardly of the annulus, the plunger having a threaded tapered bore forming an axial continuation of the cylindrical bore and converging from the inner end of the cylindrical bore to adjacent the forward end of the plunger. A stem is threaded through the cylindrical bore and into the tapered bore to expand the plunger in its cylinder, thereby providing a relatively wide band of engagement between the plunger and the cylinder in the area of the annular intersection of the two external axial tapered.

3,831,602

ADJUSTABLE SYRINGE ASSEMBLIES

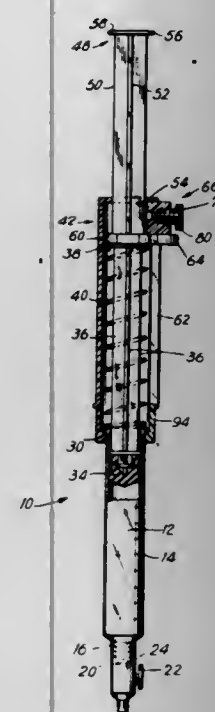
Samuel Broadwin, New York, N.Y., assignor to Union Plastics Corporation, Springfield, N.J.

Filed Feb. 11, 1972, Ser. No. 225,505

Int. Cl. A61m 5/22

U.S. Cl. 128-218 F

2 Claims



An adjustable syringe assembly capable of adjusting the extent to which fluid is drawn into a syringe. A plunger of the syringe is engaged by a pusher which is guided by a support releasably connected with a barrel of the syringe. This support carries a stop which is adjustably fixed to the support in the path of movement of part of the pusher so as to adjust the extent to which the plunger is displaced along its suction stroke.

3,831,603

DEVICE FOR THE ORAL ADMINISTRATION OF MEDICINE

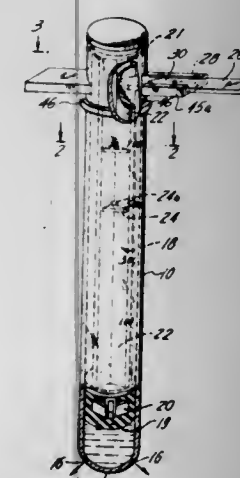
Nicholas P. Armenti, 50 Thorn Terrace, West Orange, N.J. 07052

Filed June 6, 1972, Ser. No. 260,265

Int. Cl. A61j 7/00; A61m 5/22

U.S. Cl. 128-222

9 Claims



The present invention constitutes a device for the oral administration of medication, including (1) an elongated hollow cylinder having an opening at one end and a plurality of apertures at an opposite end, the opposite end intended for placement into a pool of liquid medication, the cylinder also having a side wall opening; (2) a reciprocating plunger received within the cylinder, the plunger including a forward portion for assuring an air-and liquid-tight fit between the circum-

ferential periphery of the forward portion and the interior walls of the cylinder, and a shank portion having a radially projecting measuring shelf; (3) a slidable member supported by a radial plane element near the open end of the cylinder, wherein the slidable member will, after a sufficient withdrawal of the plunger toward the open end of the cylinder, pass through the side wall opening and engage the measuring shelf, thereby securing a withdrawal into the cylinder of a predetermined volume of medication, the volume being a function of the longitudinal location of the measuring shelf on the shank portion of the plunger; (4) a bottle for holding medicine, the bottle having a mouth and a cover connected to the mouth, the cover having an opening therein, the opening receiving the cylinder and attaining a press-fit insertion of the cylinder into the opening, in which the press-fit is both liquid-and air-tight, and in which the opening itself is a partially circumferential female slot for receiving the radial plane element of the cylinder.

3,831,604

METHOD OF RESHAPING THE CORNEA

Charles W. Neefe, P.O. Box 429, Big Spring, Tex. 79720

Continuation-in-part of Ser. No. 352,227, April 18, 1973, Pat.

No. 2,776,230, which is a continuation-in-part of Ser. No.

241,904, April 7, 1972, which is a continuation-in-part of Ser.

No. 45,333, June 11, 1970, which is a continuation-in-part of

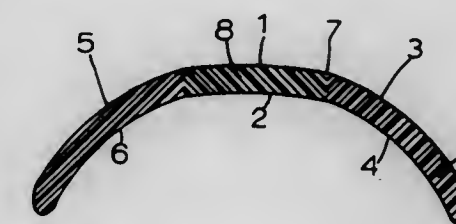
Ser. No. 562,002, May 16, 1966, abandoned. This application

Sept. 19, 1973, Ser. No. 398,665

Int. Cl. A61m 7/00

U.S. Cl. 128-260

10 Claims



A method of correcting refractive errors of the eye by changing the shape of the cornea by softening the corneal tissue by the application of heat in the form of ultra sonic energy with and without the presence of chemical compounds to reshape the convex cornea to the curvature of the surface of a concave mold applied to the cornea.

3,831,605

MULTIPURPOSE APPLICATORS

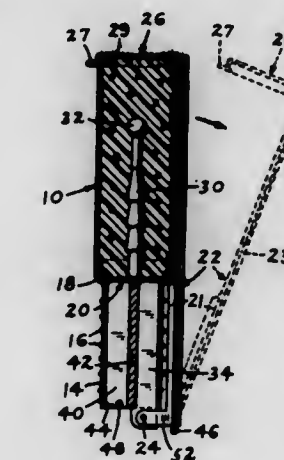
Erick-Pierre Fournier, 30 Park Ave., New York, N.Y. 10022

Filed Jan. 26, 1973, Ser. No. 327,237

Int. Cl. A61f 13/20

U.S. Cl. 128-263

19 Claims



Applicators for liquid or solid matter are disclosed that are capable of a single or multiple uses. They are characterized by

an outer tube and an inner ejecting means slidably positioned therein, said ejecting means including a plunger element that includes a foldable handle means.

3,831,606

AUTO INHALER

Nalinkant C. Damani, Mountain View, Calif., assignor to ALZA Corporation, Palo Alto, Calif.

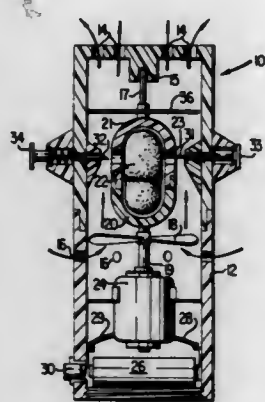
Continuation of Ser. No. 117,015, Feb. 19, 1971, abandoned.

This application Oct. 24, 1973, Ser. No. 409,243

Int. Cl. A61m 15/08, 13/00

U.S. Cl. 128-266

4 Claims



An improved device and process for the oral inhalation of medicaments in finely divided form is disclosed. The device has a hollow elongate housing having one end adapted for insertion into the oral or nasal cavity of a user, this end having at least one air passageway therein. There is at least one other air passageway near the other end of the housing. A propeller attached to a medicament container is rotatably mounted in the housing. Piercing members are provided for perforating the medicament container. There is also a self-contained power source for rotating the propeller and the medicament container to dispense the medicament in a positive pressure airstream. Optionally, the device contains an atomizer rotatably mounted in the housing intermediate the medicament container and the medicament dispensing end of the device.

3,831,607

ELECTROCOAGULATION GRASPING FORCEPS FOR TUBE STERILIZATION BY MEANS OF BIPOLAR HIGH FREQUENCY HEAT RADIATION

Hans-Joachim Lindemann, Kleiner Schaferkamp 43, Hamburg, Germany

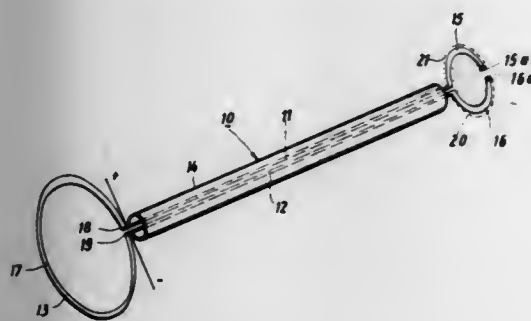
Filed Mar. 7, 1973, Ser. No. 339,011

Claims priority, application Germany, Feb. 10, 1972, 7305040

Int. Cl. A61b 17/36; A61n 3/04

U.S. Cl. 128-303.17

2 Claims



The invention relates to a electrocoagulation grasping forceps for tube sterilization for the elimination of sick parts of the tissue by means of punctiform and section-taking heat radiation without damaging sound parts of the tissue.

3,831,608

SUTURE BRIDGES

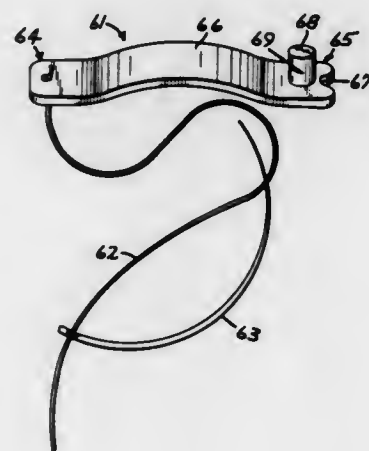
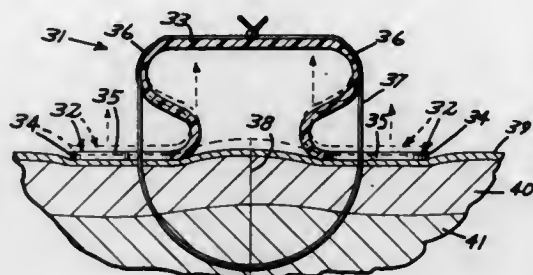
Harold D. Kletschka, Minneapolis, and Edson H. Rafferty, Excelsior, both of Minn., assignors to Bio-Medicus, Inc., Minnetonka, Minn.

Filed Nov. 24, 1972, Ser. No. 309,466

Int. Cl. A61b 17/04

U.S. Cl. 128-335

18 Claims



The disclosure is directed to a surgical bridge for supporting incision sutures under continuous tension. One form of the surgical bridge comprises an elongated member constructed to bridge the incision, and which is resiliently flexible under the influence of suture tension to compensate for swelling of the incision as it heals. In another form, the bridge includes slotted end guides which are respectively disposed under elevated suture support points, which structure precludes cutting or slicing of the patient's skin by the suture itself upon pressured lateral movement of the bridge over the skin surface.

3,831,609

SMOKABLE SUBSTITUTE MATERIAL AND SMOKING PRODUCTS THEREOF

Theodore S. Briskin, Beverly Hills; Norman G. Schnautz, Van Nuys, and Inderjit Sabherwal, Los Angeles, all of Calif., assignors to Sutton Research Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 226,267, Feb. 14, 1972. This application May 10, 1972, Ser. No. 252,003

Int. Cl. A24b 3/14, 13/00

U.S. Cl. 131-2

14 Claims

A smokable material designed to be used for cigars and cigarettes and having waterproof properties is disclosed. The material comprises a composition of a vinylene carbonate, the homopolymer or copolymers thereof, and a combustible filler, such as carbon, cellulose, cellulose derivatives or tobacco. The principal combustion products of the vinylene carbonate employed are carbon dioxide and water.

3,831,610

MACHINE FOR BLENDING TOBACCO OR THE LIKE

Waldemar Wochowski, Hamburg-Volksdorf, and Helmut Baumann, Hamburg-Bergedorf, both of Germany, assignors to Hauni-Werke Korber & Co. KG, Hamburg-Bergedorf, Germany

Division of Ser. No. 635,597, May 2, 1967, Pat. No. 3,590,826.

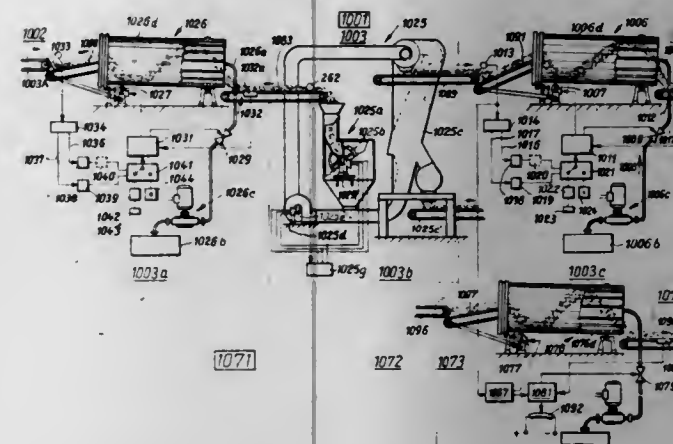
This application July 2, 1971, Ser. No. 159,350

Claims priority, application Germany, May 4, 1966, 5930079; May 13, 1966, 5939079; May 17, 1966, 5942679

Int. Cl. A24b 07/14, 09/00

U.S. Cl. 131-21 R

10 Claims



A machine for blending various types of tobacco has a blending unit and several conveyor lines which supply to the blending unit different types of tobacco and at least one of which contains at least one adjustable processing apparatus for the treatment of the respective tobacco type. One or more signal generating detectors are provided in at least one other conveyor line to scan the rate of supply of tobacco and to adjust operating means for the processing apparatus in dependency on changes in the tobacco supply.

3,831,611

DENTAL FLOSS UNIT

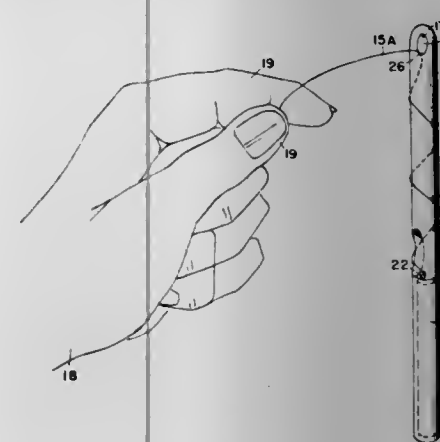
Thelma Hendricks, La Grange, Ga., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Feb. 6, 1973, Ser. No. 330,119

Int. Cl. A61c 15/00

U.S. Cl. 132-92 R

1 Claim



A unit for handling dental floss, for the purpose of cleaning the teeth, in the form of a cylindrical rod with the dental floss contained on a spindle inside the rod and led out through a hole in the side. The dental floss is wrapped several turns around the rod and led through an eye opening at the rod's end with the free end of the floss grasped by one hand and the rod about which the floss has been wrapped grasped with the other hand when cleaning the teeth. One edge of the eye opening at the end of the rod is finished with a cutting edge so that after a section of dental floss has been used, it may be cut off.

3,831,612

APPARATUS FOR TREATING A MATERIAL

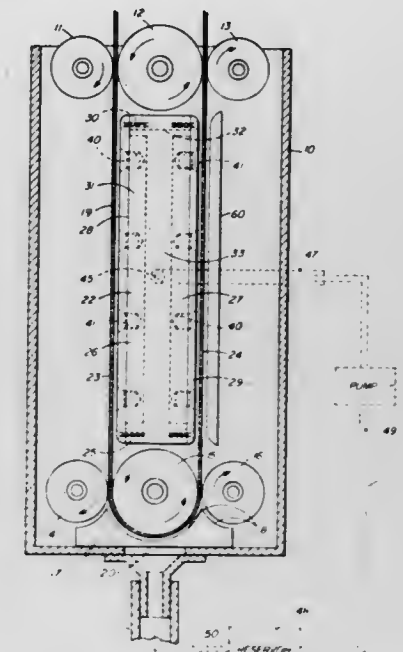
Raymond F. Limoges, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 15, 1972, Ser. No. 289,527

Int. Cl. B08b 3/00

U.S. Cl. 134-122

8 Claims



A device is disclosed that can be mounted within an enclosure relative to one or more surfaces of a material to be treated and to a prescribed path through which the material is to be moved. A liquid with which the material is to be treated is pumped under pressure into a chamber from which it is expelled with a vortex action. This action forms a low pressure area which holds the material in contact with the liquid layer on the facing surface of the plenum member. With such a structure, the material is maintained at a fixed distance relative to the surface of the plenum member and a maximum agitation of the liquid is obtained due to the vortex action.

3,831,613

UMBRELLA

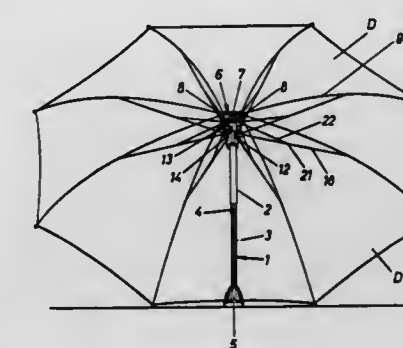
Heinz Weber, Durerweg, Germany, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada

Filed Aug. 7, 1972, Ser. No. 278,432

Int. Cl. A45b 19/06

U.S. Cl. 135-20 R

7 Claims



A flat umbrella of a telescopic type having a crown of generally rectangular shape, a main runner sliding on the telescopic stick and an auxiliary runner sliding between the main runner and the crown. The auxiliary runner is relatively more compact than the main runner or the crown. The lateral extensions of the runner converge towards the ends, thereby reducing the area of each lateral extension and allowing the dome ribs and stretcher members, when the umbrella is closed, to be grouped closer together, thereby reducing the size of the collapsed umbrella.

3,831,614

COLLAPSIBLE UMBRELLA

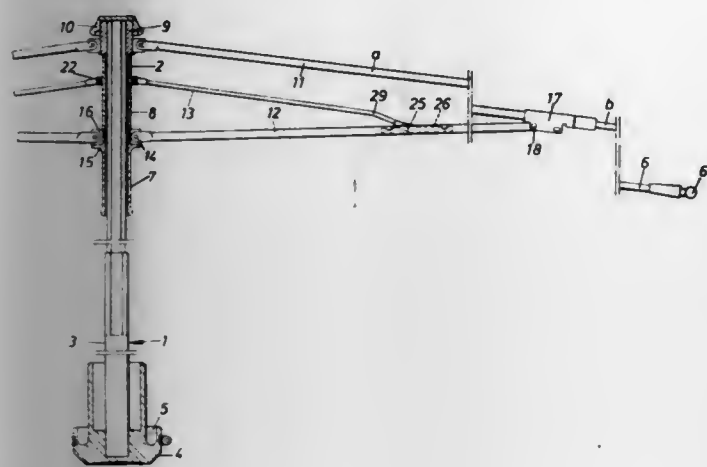
Heinz Weber, Hilden, Germany, assignor to Bremshey AG, Solingen, Germany

Filed Sept. 24, 1969, Ser. No. 860,628

Int. Cl. A45b 19/00

U.S. Cl. 135-25

4 Claims



An umbrella having a telescopic stick and shortenable dome ribs which can be stowed in a relatively small package; the dome ribs, struts and stretcher members being arranged such that they fit within each other.

3,831,615

ELECTRICALLY CONTROLLED GOVERNORS

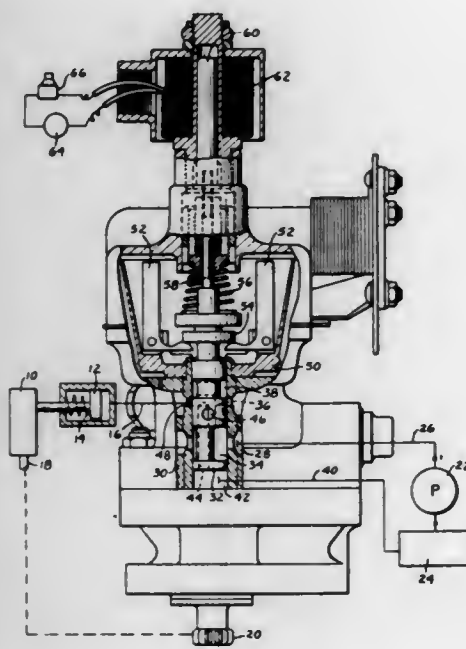
James R. Hartzell, Troy, Ohio, assignor to Piqua Aircraft Company, Piqua, Ohio

Continuation-in-part of Ser. No. 62,859, Aug. 11, 1970. This application Aug. 31, 1972, Ser. No. 285,242

Int. Cl. G05d 13/38

U.S. Cl. 137-53

4 Claims



An electric control for a governor in which a governor comprises a speed sensitive actuator, such as a flyball actuator, operating against a spring bias with electromagnetic means associated with the actuator for biasing the actuated element in either one direction or the other.

3,831,616

NOVEL LIQUID CONTROL SYSTEM

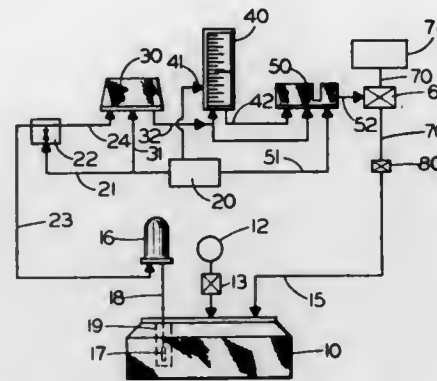
Hugo Jozef Weyers, Bornem, Belgium, assignor to Parke, Davis & Company, Detroit, Mich.

Filed Sept. 13, 1972, Ser. No. 288,698

Claims priority, application Belgium, Mar. 13, 1972, 115038

Int. Cl. B29c 13/00; G05d 24/00
U.S. Cl. 137-92

3 Claims



An automatic viscosity control system is provided for maintaining a predetermined target viscosity range for pharmaceutical capsule dipping solution used for making capsules by the dip-molding technic. The system comprises means for measuring and amplifying abnormal change in viscosity expressed as an analog and converting the analog to a digital signal for incorporating digital increments of water into the dipping solution as required for viscosity control.

3,831,617

ADDITIVE INJECTION SYSTEM

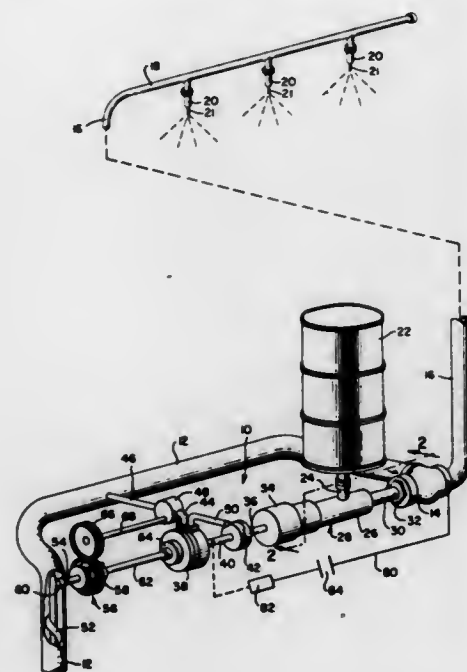
William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.

Continuation of Ser. No. 194,994, Nov. 2, 1971, abandoned, which is a division of Ser. No. 864,757, Oct. 8, 1969, Pat. No. 3,642,072. This application May 16, 1973, Ser. No. 360,963

Int. Cl. F16k 19/00

U.S. Cl. 137-98

21 Claims



An injection apparatus for introducing a slurry of water swellable gelling agent into a water line feeding a fixed fire extinguishing system to form an ablative extinguishant therein. The apparatus includes a peristaltic pump driven by a hydraulic motor using water at line pressure for motive fluid and controlled by a servomechanism driven in part by a flow sensor to

ensure injection rates corresponding to flow rates of water in the line. The injection apparatus is operated in a no-injection failure mode to avoid interference with normal flow of plain water to the fire extinguishing system.

3,831,618

APPARATUS FOR THE PRECISION METERING OF FLUIDS

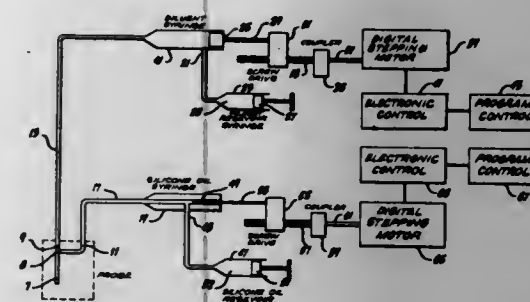
Max D. Liston, Newport Beach, Calif., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Dec. 22, 1972, Ser. No. 317,753

Int. Cl. F16k 19/00

U.S. Cl. 137-154

9 Claims



There is disclosed a first capillary conduit having a minute aperture therein, the aperture dividing the first conduit into a separate and a common section, there being a first fluid conducting path formed through the separate and common sections. A second capillary conduit has one end thereof intersecting the first conduit and mating with the minute aperture to form a second fluid conducting path through the second conduit and the common section of the first conduit. The minute aperture forms a first precise interface between the first fluid path and the second conduit. The capillary cross-section of the first conduit separate section adjacent the minute aperture forms a second precise interface between the second fluid conducting path and the separate section, whereby fluid can traverse the first fluid path substantially free from contamination from fluids adjacent the first precise interface and fluids can traverse the second path substantially free from contamination from fluid adjacent the second precise interface.

3,831,619

APPARATUS FOR ACCURATELY MAINTAINING SMALL UNDERPRESSURES IN A TANK SYSTEM WHICH IS CONNECTED TO A GAS SUCTION INSTALLATION

Albrecht Schmidt, Nieder-Roden, Germany, assignor to Licentia Patent-Verwaltungs-GmbH, Frankfurt/Main, Germany

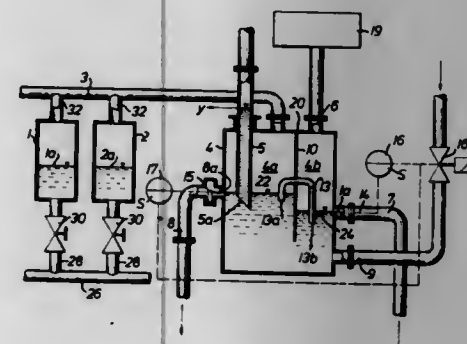
Filed July 18, 1973, Ser. No. 380,267

Claims priority, application Germany, July 21, 1972, 2235757; July 21, 1972, 7227026[U]

Int. Cl. G05d 16/00

U.S. Cl. 137-206

3 Claims



An apparatus for accurately maintaining small underpressures in a tank system which is connected to a gas suction installation comprises a vessel which is partly filled with liquid

and which has a partition wall which extends downwardly from the top thereof and terminates below the liquid level. A tank system which has one tank or plurality of tanks which are partly filled with liquid is connected to a gas collection conduit above the liquid level and this gas collection conduit terminates in a first chamber portion of the vessel on one side of the partition wall above the liquid level. In addition, a gas suction installation conduit is connected into the same chamber and terminates in a lower end opening in the vicinity of the liquid level. An external air conduit is connected into the second chamber on the opposite side of the partition wall. An equalizing compensating tube is connected between the first and second chambers through the partition wall and the respective ends terminate at distinctive levels in the respective chambers so that they will lay slightly below the top of the water level therein. The gas suction installation conduit lies with its lower open end located above the discharge height of a discharge conduit of the second chamber by an amount corresponding to the desired underpressure. The first chamber has a discharge conduit which lies above the termination of the gas suction installation conduit.

3,831,620

VALVE DISABLING DEVICE

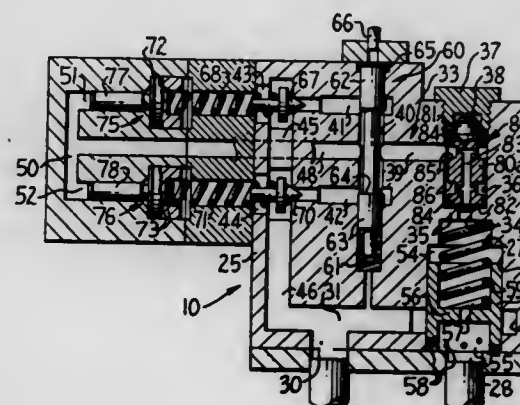
Donald L. Bianchetta, Coal City, and Kenneth R. Lohbauer, Joliet, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 12, 1972, Ser. No. 243,396

Int. Cl. F16k 21/04, 51/00

U.S. Cl. 137-269

3 Claims



A valve disabling device for a fluid valve having a moveable control element operative for selectively controlling fluid communication through the valve comprises a disabling member disposed adjacent the control element and operative in a first position to permit normal movement of the control element and moveable to a second position to prevent normal movement of the control element.

3,831,621

ROTARY SLIDE VALVE

Robert C. Anthony, White Bear Lake, and Donald W. Byland, St. Paul, both of Minn., assignors to Union Brass and Metal Manufacturing Company, St. Paul, Minn.

Filed Nov. 19, 1973, Ser. No. 417,369

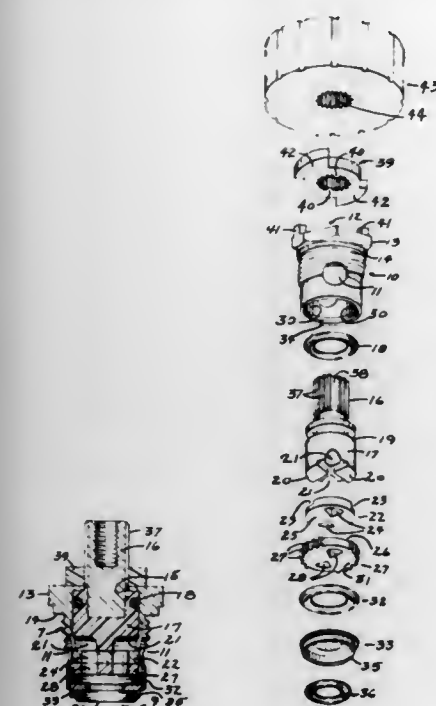
Int. Cl. F16k 11/06

U.S. Cl. 137-270

2 Claims

Ceramic disks, rotor and stator, each with two apertures located symmetrically in opposite quadrants and each having one optically flat surface in contact at an interface, are combined with associated elements within a cylindrical cartridge, the stator sealed to the open end of the cartridge, the rotor subject to rotation in the claws of a clutch driven by a control shaft sealed through the opposite closed end of the cylinder and by means of which the rotor may be turned to align the apertures, opening a passageway through the interface, or rotated 90° from that position to close the passageway. Ports

in the cylinder wall adjacent to the rotor provide exit passage from the cylinder. A limit washer with two lugs is keyed to the control shaft and limits rotation to one quarter turn, 90°, by interference of the lugs with two stops on the closed end of the



cartridge. The keys are 45° removed from the lugs on the limit washer; consequently a "left-hand" valve is convertible to a "right-hand" valve (and vice versa) by turning the limit washer face over face.

3,831,622

CLOSURE FOR SPONGE IRON DISPENSER

Rudolf Grever, and Herbert Hickmann, both of Oberhausen, Germany, assignors to Thyssen-Niederhein AG Hutten- und Walzwerke, Oberhausen, Germany

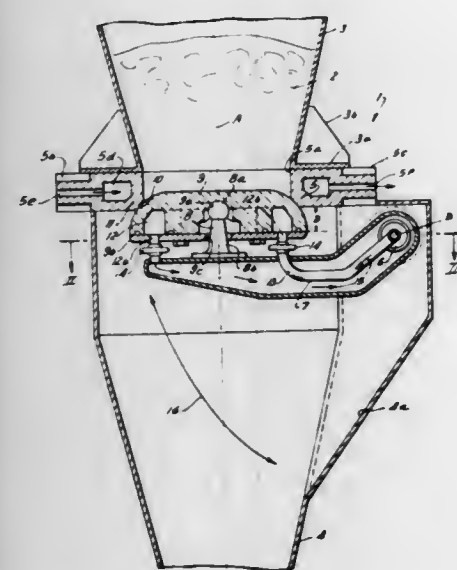
Filed Feb. 20, 1973, Ser. No. 333,742

Claims priority, application Germany, Feb. 24, 1972, 2208774

Int. Cl. F16k 49/00

U.S. Cl. 137-340

6 Claims

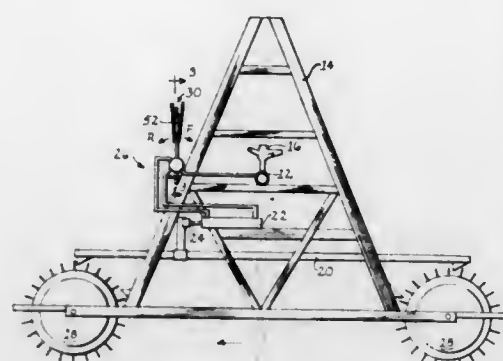


A flap-type closure for a device for the feeding of sponge iron to a transport vessel, adapted to receive the product of a furnace for the direct reduction of iron ore, comprises a substantially horizontal annular seat and a substantially horizontal pivot shaft connected to the flap by a swingable arm. A pin between the arm and the flap allows relative swiveling motion of the flap with respect to the arm, and the flap is convex toward the seat to provide selfcentering positioning of the flap against the seat.

3,831,623
RECIPROCATING CABLE ALIGNMENT ACTUATOR
Ralph D. Boone, 29020 Axtell, Clovis, N. Mex. 88101
Filed Feb. 8, 1973, Ser. No. 330,716
Int. Cl. B05b 15/06

U.S. Cl. 137-344

25 Claims



An irrigation system is aligned by a reciprocating alignment cable extending the length of the system. With systems having reciprocal fluid motor drive, the valve for each motor is actuated solely by the alignment cable. A lost motion device attaches the cable to each of the valves so the first movement of the cable moves the valve (if the vehicle is to move because of its position); additional movement of the cable is lost.

The cable is guided to the pipe between vehicles to compensate for rough terrain. The cable is counter weighted for compensation on graded terrain.

3,831,624

PLUMBING OUTLET BOX

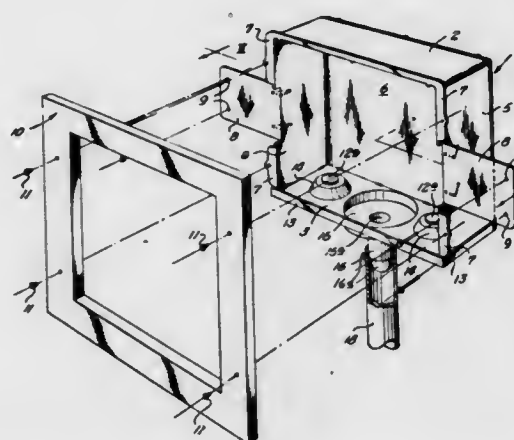
Constantine R. Doumany, Dallas, Tex., assignor to Conrad Industries Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 104,593, Jan. 7, 1971, Pat. No. 3,718,154. This application Feb. 20, 1973, Ser. No. 333,769

Int. Cl. F16l 5/00

U.S. Cl. 137-360

1 Claim



A laundry plumbing outlet box having a waterproof trough formed in the bottom thereof to prevent leakage. The bottom of the box is of unitary plastic construction and has a downwardly extending neck around a drain opening formed therein. Upwardly extending surfaces are formed around openings in the bottom of the box through which pipes extend. The neck around the drain opening extends downwardly into a drain pipe.

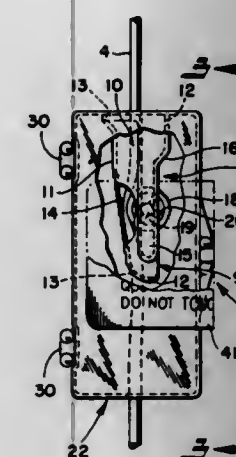
3,831,625
INTRAVENOUS SAFETY DEVICE
Deborah Lynn Roediger, 7140 Jackson St., Mentor, Ohio 44060

Filed Feb. 20, 1973, Ser. No. 333,682

Int. Cl. A61m 5/00; F16l 55/14

U.S. Cl. 137-377

7 Claims



A safety device for intravenous administration of soluble medication or the like is disclosed wherein the valve regulating the flow rate of medication is positioned within an enclosure having a latched pivotable top or lid. A tape label having a warning printed thereon is positioned about such enclosure and the latch thereon to preclude pivotal movement of the top and thus access to the valve unless the tape label is removed.

3,831,626

PISTON FOR A SHOCK ABSORBER

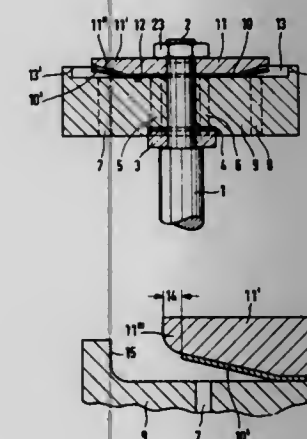
Carl Ullrich Peddinghaus, Obere Lichtenplatzer Str. 276, Wuppertal-Barmen, Germany

Filed Dec. 14, 1972, Ser. No. 315,244

Int. Cl. F16k 17/18

U.S. Cl. 137-493.8

10 Claims



A shock absorber piston in which there is provided a piston body mounted on an end portion of a piston rod. The body has ports therein which open into respective grooves in respective opposed sides of the body. A valve plate is completely received in each groove to overlie the respective port and a support plate is at least partially received in each groove. Each support plate presses flat against a middle region of the respective valve plate but has end portions which allow a variable opening of end regions of the valve plate. The grooves are greater in length than the respective support plates but lesser in length than the diameter of the piston body.

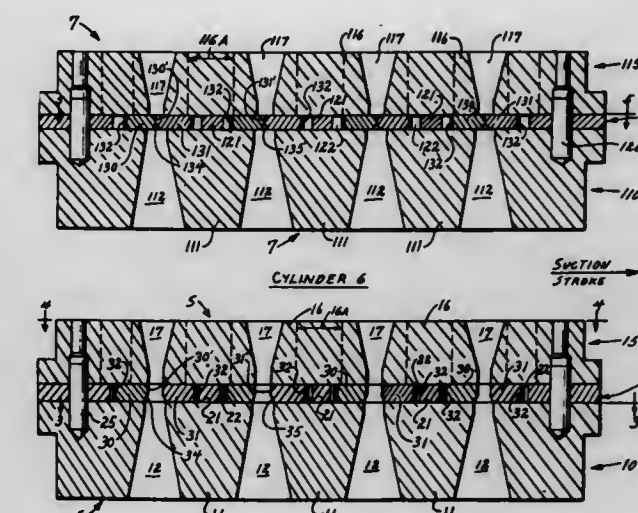
3,831,627
COMPRESSOR VALVE OF THE SLOTTED PLATE TYPE
Paul C. Hanlon, Louisville, Ky., assignor to Dover Corporation, Washington, D.C.

Filed Mar. 14, 1973, Ser. No. 341,288

Int. Cl. F16k 15/02

U.S. Cl. 137-512.1

6 Claims



A compressor valve of the slotted plate type comprising: three plates stacked in face-to-face contact, each having a slot which is vertically aligned with the slots in the other two plates, the center plate slot being wider than the bottom and top plate slots; a pair of (right and left) slide bars mounted within the center plate slot for relative slidable movement laterally toward (and away from) each other to close and open the center plate slot and thereby respectively disconnect the bottom and top plate slots from (and reconnect them to) each other to close (and open) the valve; means yieldably urging the slide bars toward each other to close the valve; and means for communicating the fluid pressure in the bottom plate slot laterally in opposite (right and left) directions against the (right and left) slide bars in the center plate slot so that, if the device is operating as an inlet valve assembly, the pressure of the incoming fluid is effective to move the bars laterally away from each other on the suction stroke to open the inlet valve against the action of the spring means, whereas, if it is operating as an outlet valve assembly, the pressure of the outgoing fluid is effective to do the same thing on the pressure stroke to open the outlet valve in the same way.

3,831,628

CHECK VALVE

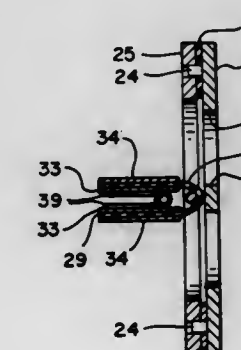
Edwin K. Kintner, 1929 Elmbrook Ln., Pittsburgh, Pa. 15243, and C. Edward Titley, 9685 Highland Rd., Pittsburgh, Pa. 15237

Filed Mar. 13, 1973, Ser. No. 340,733

Int. Cl. F16k 15/14

U.S. Cl. 137-512.15

4 Claims



A check valve comprising a flat ring, a diametrically extending support mounted thereacross for supporting a rubber diaphragm. The outer peripheral portion of the diaphragm is

normally seated on the inner peripheral portion of the ring. Thus, fluid pressure effects pivotal flexing of the diaphragm adjacent said support to open the valve. Stiffening segments are fastened to substantially semi-circular portions of the diaphragm. The ring is supported by a plurality of bolts extending through connecting flanges of two pipes along a circular path of greater diameter than the outer diameter of the pipes. The outer periphery of the ring rests on and is centered by the shanks of the bolts. By adding spacing rings the check valve may be laterally withdrawn without the necessity of separating the connected flanges of the pipes. A manually operated shut-off valve may be added.

3,831,629

CHECK VALVE

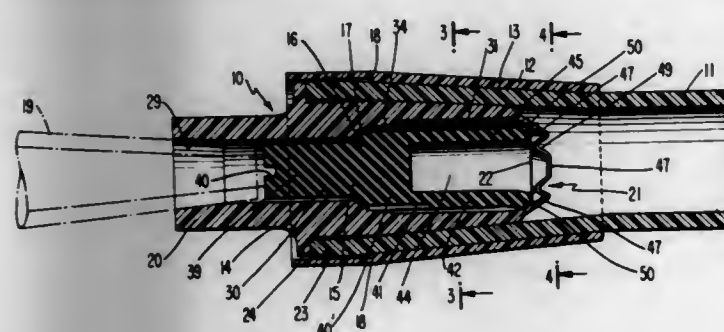
Glenn H. Mackal, Saddle River, and George E. Lardner, Hawthorne, both of N.J., assignors to Halkey-Roberts Corporation, Paramus, N.J.

Filed Jan. 24, 1972, Ser. No. 219,974

Int. Cl. F16k 15/14

U.S. Cl. 137-525

5 Claims



Two-piece check valve having a sleeve-like valve body and a valve element reciprocable therewithin, the valve element having an elastomeric rear end portion integral therewith which is held in axial compression, whereby constantly to urge the valve element forwardly toward valve-closed position. The rear end of the valve body is crimped radially inwardly to form a fluid-passing abutment for the rear end portion of the valve element. The valve also incorporates a novel means for guiding the valve element for reciprocation within the valve body, while maintaining it concentric with respect thereto.

3,831,630

VALVE MANIFOLD

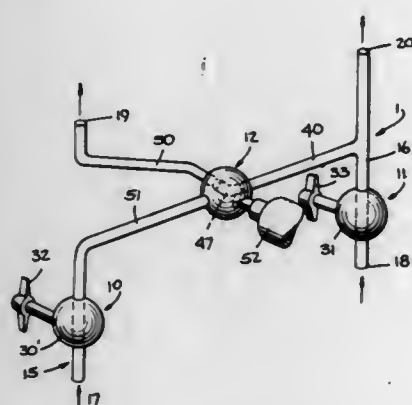
Joseph J. McGavin, Denville, N.J., assignor to Hoke Incorporated, Cresskill, N.J.

Continuation of Ser. No. 202,118, Nov. 26, 1971, abandoned. This application July 9, 1973, Ser. No. 377,410

Int. Cl. F16k 11/22

U.S. Cl. 137-597

3 Claims



A valve manifold is disclosed which includes simplified ball valve control means for use in a multi-outlet fluid control operation, such as a differential pressure type of fluid flow rate measuring operation. The manifold may include a plurality of

ball valves each of which controls an individual fluid conduit as well as an additional ball valve which is arranged to selectively connect the individual conduits together to thereby equalize their fluid outlet pressures as is done, for example, in checking the zero reading of a differential pressure meter.

3,831,631

MICRO TORCH

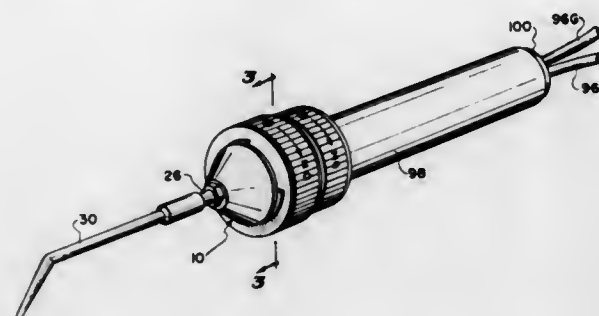
Walter E. Draxler, Arlington Heights, Ill., assignor to Golconda Corporation, Chicago, Ill.

Filed Feb. 16, 1973, Ser. No. 333,308

Int. Cl. E03b; E03c

U.S. Cl. 137-606

14 Claims



A micro torch for oxygen-acetylene, and other gases, having a handle as small as approximately 3/4 inch in diameter and four inches in length, in which the gas mixture controls are knurled members having contiguous edges both movable in the same directions for "on" and "off" adjustably to control roller valves for gas flow proportioning preferably with a gearing drive interengagement between a valve gear and a ring gear segment for micro control of the flame.

3,831,632

REMOTE CONTROLLED SAFETY VALVE

David E. Young, Friendswood, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Continuation of Ser. No. 235,988, March 20, 1972, abandoned. This application Sept. 14, 1973, Ser. No. 398,260

Int. Cl. F16k 17/34; E21b 33/00

U.S. Cl. 137-624.13

13 Claims



An illustrative embodiment of a downhole safety valve apparatus to control a well in the event of a surface disaster, includes a valve actuator moved in one direction toward valve closing position in response to the normal rate of flow of production fluids, a metering system to retard movement of the valve actuator so that a predetermined time interval must

lapse before closure occurs, and a spring that operates during a temporary reduction in flow rate below the normal rate to move the valve actuator in the opposite direction, so that successive reductions in flow rate, one during each predetermined time interval, maintain the safety valve in open position, and the absence of a reduction in flow rate during said time interval enables the valve to close.

3,831,633

SINGLE LEVER CONTROL FOR ACTUATING MULTIPLE CONTROL VALVES

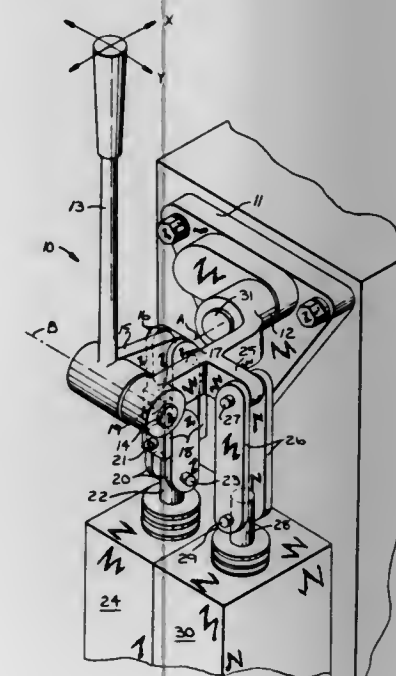
Glen S. Comer, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 28, 1972, Ser. No. 248,564

Int. Cl. F16k 11/18; G05g 9/04

U.S. Cl. 137-636.2

6 Claims



A bracket is pivotally mounted at its first end on a stationary support for rotation about a first axis. A handle is pivotally mounted on a second end of the bracket for rotation about a second axis which is disposed transversely relative to the first axis. The handle and bracket each have an extension formed thereon which is connected to respective control valve stems whereby pivotal movement of the handle about the first axis will reciprocate one of the valve stems and pivotal movement of the handle about the second axis will reciprocate the other valve stem.

3,831,634

CHARGING CYLINDER FOR A VACUUM OPERATED HYDRODYNAMIC BRAKE SYSTEM

Herbert Schmidt; Rolf Weiler, and Erhard Czich, all of Frankfurt, Germany, assignors to IIT Industries, Inc., New York, N.Y.

Filed Jan. 15, 1973, Ser. No. 323,461

Claims priority, application Germany, Jan. 22, 1972, 2202997

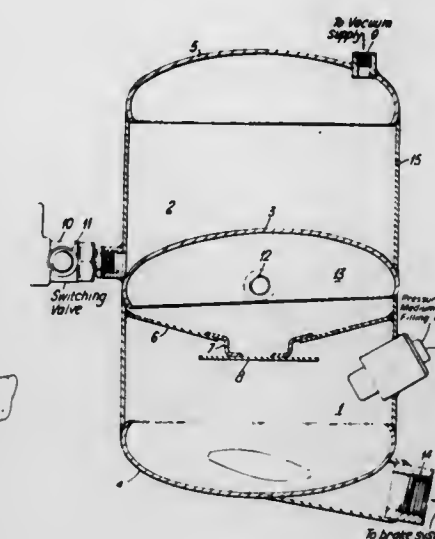
Int. Cl. F16d 51/00; F15d 1/10

U.S. Cl. 138-26

9 Claims

This relates to a charging cylinder incorporated in a vacuum operated hydrodynamic brake system having a pressure medium (brake fluid) and air to actuate the brakes. In accordance with the present invention, the pooling of the pressure medi-

um of a charging cylinder in the vacuum reservoir upon the return of the pressure medium and air from the hydrodynamic brake is eliminated by constructing the vacuum reservoir to also serve as a plenum chamber. This plenum chamber returns



the pressure medium to the charging cylinder through a valve. An assembly is also provided in the charging cylinder to segregate the pressure medium from air as the pressure medium flows back from the brake and retains the pressure medium in the charging cylinder.

3,831,635

PERSONNEL PROTECTION SLEEVE

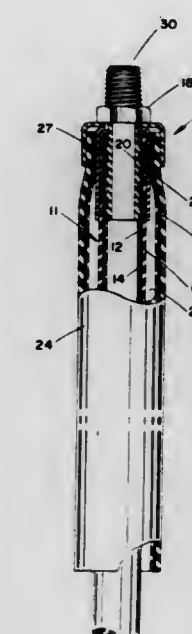
Frank L. Burton, Littleton, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Filed June 30, 1972, Ser. No. 267,814

Int. Cl. F16d 11/00

U.S. Cl. 138-114

3 Claims



A sleeve of predetermined length that fits over one end portion of a high pressure flexible hose assembly. One end of the sleeve is coupled to or near a coupling of the hose assembly while the opposite end of the sleeve is unfastened.

3,831,636

ARMORED TUBING WITH HELICAL OR CIRCULAR CORRUGATION

Herbert Bittner, Krahenwinkel, Germany, assignor to Kabel- und Metallwerke Gutehoffnungshütte Aktiengesellschaft, Hannover, Germany

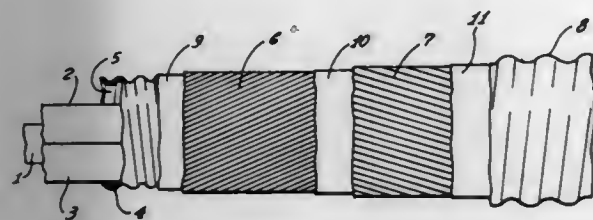
Filed Dec. 6, 1971, Ser. No. 204,887

Claims priority, application Germany, Dec. 28, 1970, 2064053

Int. Cl. F16l 9/04, 9/18

U.S. Cl. 138—173

9 Claims U.S. Cl. 139—12



A corrugated metal tube has radially outwardly bulging corrugation crests which extend helically or circularly around the axis of the tube; a plurality of tensioned, metal strips, are helically wound on and engaging the crests at similar relatively large pitch angles, preferably in the range from 60° to 70°.

3,831,637

DEVICE FOR CONTROLLING THE HEDDLES OF THE HARNESS OF A LOOM

Yves Jullard, Mulhouse, France, assignor to Societe Alsacienne de Constructions Mechaniques de Mulhouse, Mulhouse, France

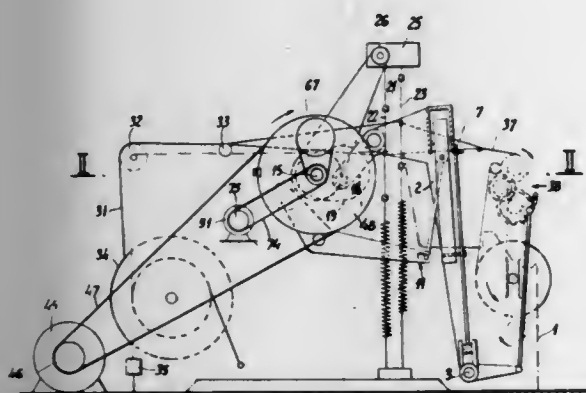
Filed Jan. 10, 1973, Ser. No. 322,498

Claims priority, application France, Jan. 10, 1972, 72.00593

Int. Cl. D03c 3/32

U.S. Cl. 139—1 E

8 Claims



A loom having a device for driving the dobby which operates the heddles of the harness of the loom. The dobby is driven selectively either from the crankshaft of the loom during normal operation thereof or from an auxiliary motor when the loom is stationary and the crankshaft is held stationary at a position corresponding to the wide-open state of the shed of the loom.

3,831,638

SHEDDING MECHANISM FOR LOOMS

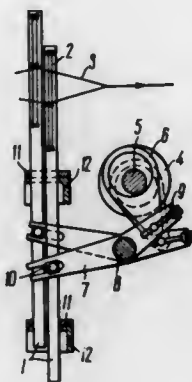
Anatoly Grigorievich Selivanov, ulitsa Lobachevskogo, 44, kv. 59; Nikolai Ivanovich Makachev, ulitsa Tsjurupy, 12, korpus 1, kv. 27; Dmitry Vladimirovich Titov, 13 Parkovaya ulitsa, 27, korpus 2, kv. 49, and Alexandr Aronovich Rotenburg, ulitsa Krupskoi, 3, kv. 19, all of Moscow, U.S.S.R.

Continuation of Ser. No. 180,621, Sept. 15, 1971, abandoned.

This application Dec. 11, 1972, Ser. No. 313,749

Int. Cl. D03d 47/26; D03c 5/00, 13/00

3 Claims



A shedding mechanism in which there is provided a system of shaft rods reciprocated from eccentrics through clips and angle levers, with forked ends. Mounted in the fork of one end is a means to regulate the shed depth, and in the fork of the other end, a link gear which converts the swiveling movement of the lever into reciprocatory movement of the shaft rods.

3,831,639

CHECKING DEVICE

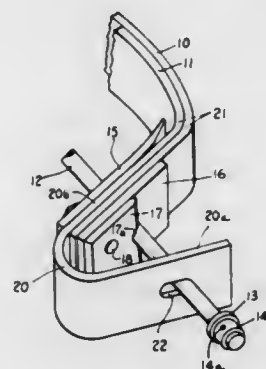
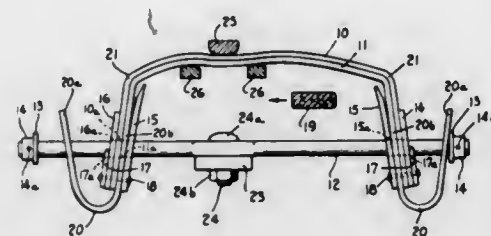
Robert L. Springfield, 106 Galphin Dr., Greenville, S.C. 29609

Filed Oct. 4, 1972, Ser. No. 294,843

Int. Cl. D03d 49/40

U.S. Cl. 139—165

6 Claims



A pair of loop members constructed of resilient flexible strap material are positioned between reinforced end portions of a check strap and an adjacent abutment confining the check strap on each end for limited sliding movement on a rod, so that a loop member is compressed on each stroke of the picker stick preparatory to assisting in producing a following movement of an adjacent end portion on the next stroke of the picker stick to avoid excessive binding of the adjacent end portion.

3,831,640

PNEUMATIC LOOM

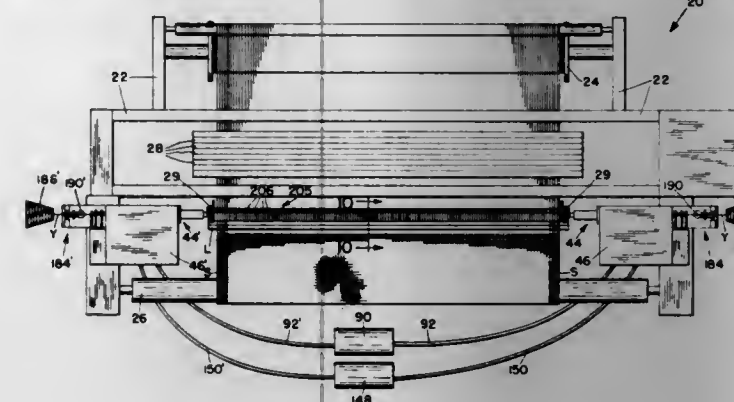
Karl W. Wueger, North Brookfield, Mass., assignor to Crompton & Knowles Corporation, New York, N.Y.

Filed July 24, 1972, Ser. No. 274,687

Int. Cl. D03j 5/06; D03d 47/24

U.S. Cl. 139—125

15 Claims



Improved weft inserting elements for a pneumatic loom in which means are provided for: Inserting at least a portion of a filling pick from an outside supply source within a hollow, projectile; pneumatically propelling the projectile and the remainder of the filling pick through a warp shed; and guiding the projectile in a stabilized and airborne flight through the warp shed.

3,831,641

WINDING INSERTING APPARATUS

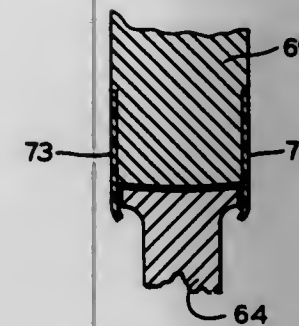
Leo M. Schlaudroff, and Hollace R. McKinley, both of Fort Wayne, Ind., assignors to General Electric Company, Fort Wayne, Ind.

Filed Dec. 4, 1972, Ser. No. 311,815

Int. Cl. B21f 3/00; H02k 15/06

U.S. Cl. 140—92.1

9 Claims



A coil winding and inserting machine having coil forming means for forming a plurality of turns of wire into coils wherein at least a part of the coil forming means may be passed through a stator bore in the direction of the axis thereof to aid in inserting the coils into slots between adjacent teeth of the stator. The inserting part of the coil forming means includes spring means disposed on and moveable with such part. The spring means prevent direct contact between wire and stator tooth sides during the coil insertion process to thereby minimize wire damage.

3,831,642

TOOL FOR TIGHTENING FENCE WIRES OR THE LIKE

George S. Greecott, 9605 Chalk Hill Rd., Healdsburg, Calif. 95448

Filed June 29, 1973, Ser. No. 375,111

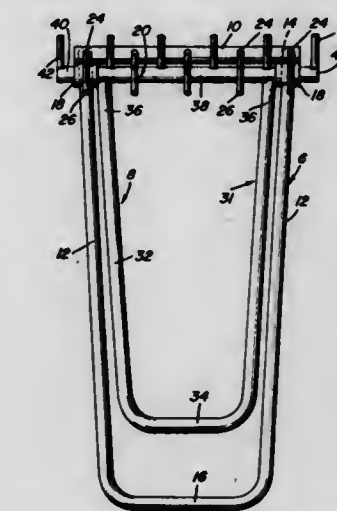
Int. Cl. B21f 1/04

U.S. Cl. 140—106

8 Claims

A pliers-like hand operated innovative tool which in use has proved effective when the user is called upon to take up slack and tighten sagging post-supported fence wires (in old or new

fences) or alternatively, for crimping and tightening line wires whether woven with vertical stays, plain and smooth or of barbed wire in construction. Two lever or handle units, that is, U-shaped handle-equipped units are provided with opposed confronting shaft-like rod members uniquely and hingedly joined. The primary rod member has forwardly projecting longitudinally spaced brackets, each bracket comprising a projecting shank carrying a V-shaped adapter. The prongs or fingers of the adapter straddle the wire and a portion of the wire



is firmly nested, seated and held in the anvil-like crotch portion. Six, more or less, brackets accommodate a stretch of the wire which is to be bent and suitably crimped in a manner to shorten the wire. The rod member of the second and companion unit provides a rocker shaft equipped with crimping or kinking fingers which are coordinated to coact with the adapters. By holding one handle or lever and actuating the other one relative thereto the desired multiple crimping result is achieved.

3,831,643

BAG FILLING MACHINE HAVING DOOR-TYPE INLET VALVE

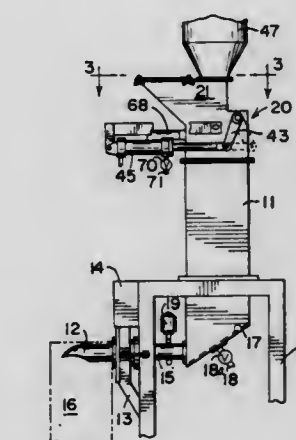
Erwin M. Lau, Dolton, Ill., assignor to Black Products Co., Chicago, Ill.

Filed May 21, 1973, Ser. No. 362,258

Int. Cl. B65b 1/18

U.S. Cl. 141—68

11 Claims



The inlet valve is at the top of the pressure chamber, and has a casing, a door-type valve pivotally mounted within the casing which abuts against a doorstop baffle edge. The door valve includes a doorplate having Teflon bar wiping seals along two side edges and the top or hinge edge. The baffle slopes to provide a free space into which the top air is fed. The air blows between the doorplate and baffle edge as the door is in its almost closed position to sweep the abutting edges clear of particles. A time delay retards the door closing movement with respect to the opening of top air supply. Weighing

mechanism controls the door opening movement. A second baffle provides an expansion chamber above the first baffle to accommodate material displaced by the door movement, and a porous wall permits escape of the air sweep air.

3,831,644

FILLING NOZZLE AND INSTALLATION FOR FILLING DRUMS WITH LIQUID YELLOW PHOSPHORUS

Leo Berg, Hurth-Alstadt, Germany; Gerhard Johann Lenemann, Middlebourg, Netherlands, and Johannes Wilhelmus Kinneging, Schwalbach, Hassen, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack bei Koln, Germany

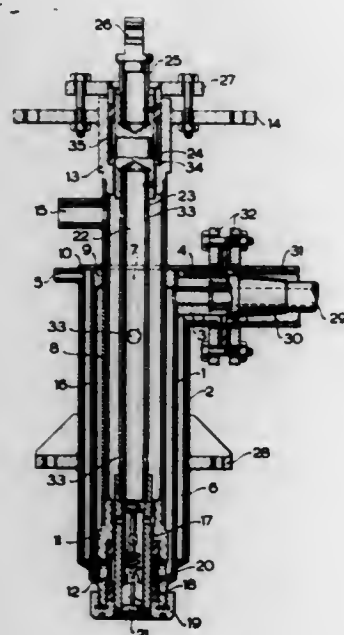
Filed Aug. 15, 1972, Ser. No. 280,807

Claims priority, application Germany, Aug. 18, 1971, 2141315

Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141-82

5 Claims



Liquid yellow phosphorus is filled into drums by means of a filling nozzle or filling lance. As its essential parts the filling nozzle comprises a control tube provided with a plurality of perforations and connected at its top end to a cylindrical member which carries an eye for the connection of a control unit via a connecting piece of piping. A nozzle supporting tube which concentrically surrounds the control pipe is provided at its upper portion with a warm water inlet, and carries in its bottom portion a control cylinder with a control piston with a hole running through it. The control cylinder is secured via a conical bottom to a nozzle pipe and the nozzle pipe has at its top end a gland with a supporting flange. The nozzle pipe concentrically surrounds the nozzle supporting tube so as to form an annular chamber receiving yellow phosphorus. A heating jacket is arranged around the nozzle pipe so as to form a heating chamber. The heating jacket is fitted in its upper portion firstly with a double pipe running therethrough and delivering warm water to the heating chamber, and delivering yellow phosphorus to the annular chamber, and secondly with a water outlet. A supporting flange is fixed to the heating jacket and a spring-loaded water outlet valve is arranged at the bottom end of the control piston.

The installation filling drums with liquid yellow phosphorus with the use of the filling nozzle or lance comprises as its essential parts a rotating frame which is movable in a semi-circle, and has a first trolley secured thereto. The trolley is horizontally movable by means of a lifting cylinder. Secured to the first trolley is a second trolley vertically movable by means of lifting cylinders and having the filling nozzle mounted thereon. A third lifting cylinder is connected to the control cylinder of the filling nozzle, and a switch and control desk is arranged on the outside of the rotating frame.

3,831,645 APPARATUS FOR WASHING AND FILLING CONTAINERS

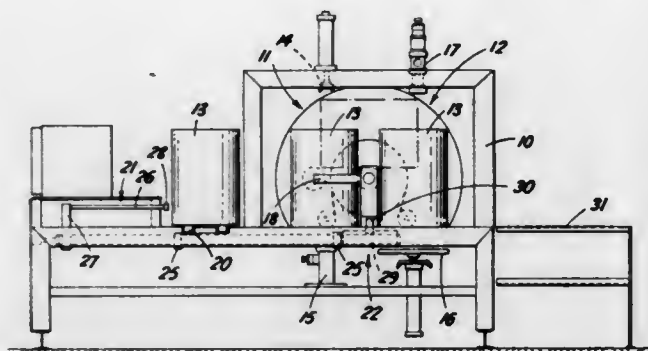
Cyril George Golding; Anthony John Wiggin, and Frank Beech, all of Bilston, England, assignors to GKN Sankey Limited, Bilston, England

Filed Feb. 25, 1972, Ser. No. 229,435

Int. Cl. B65g 47/24

U.S. Cl. 141-92

6 Claims



A machine for washing and filling containers for liquids comprises a washing station, washing means at the washing station, a filling station, filling means at the filling station, means to move a container through the machine comprising a first pusher to push a container to the washing station, transfer means to transfer a container from the washing station to the filling station, and a second pusher to push a container away from the filling station.

3,831,646

COUPLING DEVICE

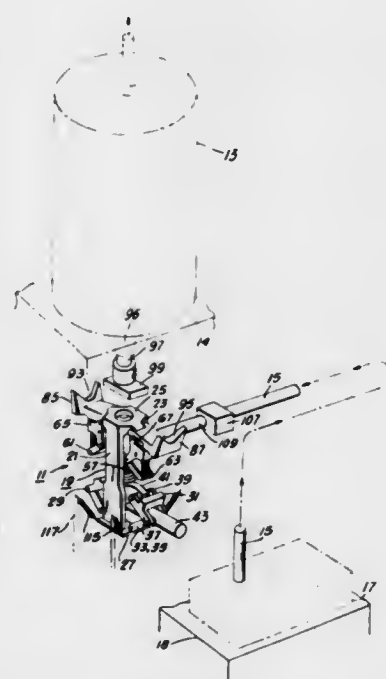
Emmanuel V. Gouye, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Apr. 19, 1972, Ser. No. 245,348

Int. Cl. B65b 1/04, 3/04

U.S. Cl. 141-383

10 Claims



A first conduit is coupled to a second conduit by a plunger that is secured to the first conduit and is movable into engagement with a seating surface on the second conduit. A plunger pusher, activated by fluid operated toggle linkages, moves the plunger pusher and plunger into cooperation with the seating surface. Clamps that are operated by the plunger pusher surround the second conduit and hold the plunger in contact with the seating surface.

3,831,647

CLAMPING AND SHEARING HEAD FOR A TREE HARVESTER

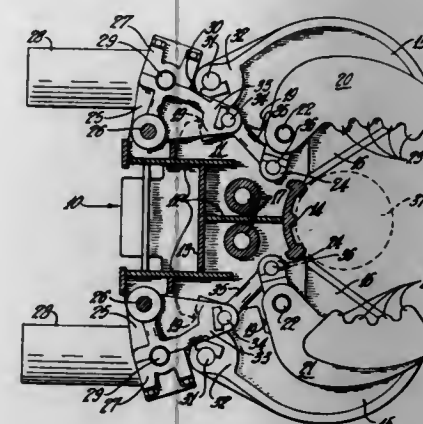
Robert N. Windsor, Brisbane, Australia, assignor to Eaton Yale Ltd., Woodstock, Ontario, Canada

Filed Aug. 10, 1973, Ser. No. 387,556

Int. Cl. A01g 23/08

U.S. Cl. 144-34 E

5 Claims



A clamping and shearing head for a tree harvester employing a single pair of actuating cylinders for clamping and shearing. The piston rod of each cylinder acts directly on a shear blade while the cylinder body acts on a tree clamp member through a trunnion mount and bellcrank arrangement. As the shear blade closes against a tree the reaction forces on the cylinder body, acting through the trunnion mount, cause the bellcrank to rotate to close the clamp member against the tree. Once the clamp has closed on the tree the piston rod continues to extend to move the shear blade through the tree trunk.

3,831,648

COMBINED SCREW DRIVING AND SCREW GRIPPING TOOL

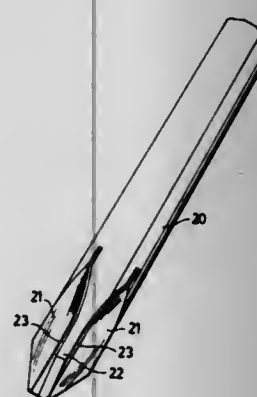
Tore L. Hill, Carl Tunbergs vag 6, Solna, and Robert Man-kowitsch, Skondalsbrovagen 21, Farsta, both of Sweden

Filed Mar. 20, 1972, Ser. No. 236,143

Int. Cl. B25b 15/02

U.S. Cl. 145-50 D

2 Claims



A combined screw driving and screw gripping tool with which a screw can be moved attached to the tool towards and away from a screw hole without fear of being accidentally dislodged from the tool. The screw driving portion of the tool is provided with at least one resilient tongue like element which extends in the longitudinal direction of the tool and which, when inserted in the tool receiving cavity of a screw or the like, exerts a spring force of such magnitude against its contacting surface of the cavity that the screw is held on the tool against accidental dislodgement therefrom.

925 O.G.-46

3,831,649

SHOULDER STRAP BAG

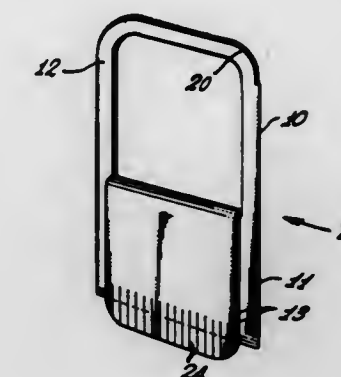
Alvin Whittaker, 5274 Lindley Ave., Encino, Calif. 91316

Filed Mar. 12, 1973, Ser. No. 340,236

Int. Cl. A45c 3/02, 13/26

U.S. Cl. 150-1.7

2 Claims



A shoulder strap bag formed from a tube of thin flexible material, having a seam across the bottom, and an inverted U-shaped cut above the bag forming the remainder of the material into a shoulder strap and two flaps which may be hung from the upper edges of the bag, one flap folded over the top opening of the bag and hanging outside the upper flap.

3,831,650

LAUNDRY BAG

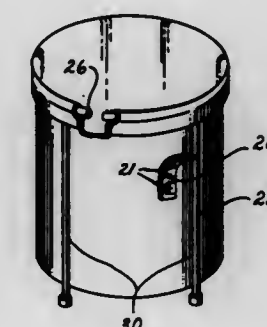
Sebastian John Consorti, 820 S. McClelland St., Santa Maria, Calif. 93454

Filed June 5, 1972, Ser. No. 259,905

Int. Cl. B65d 33/14, 33/16

U.S. Cl. 150-7

2 Claims



A laundry bag has an open end capable of folding back onto itself around the upper rim of a laundry hamper and to fasten to itself as through hook and pile type fasteners to hold the bag on the hamper. A flap to close the laundry bag has a grommet through which a strap of the bag passes. The strap then fastens to itself with hook and pile type fasteners to close the bag. Strap is provided at the bottom of the bag for transport of the bag as by laundry machinery.

3,831,651

FITTED KIT CONSTRUCTION

Dorothy Leahy, 5 Pinehurst Ave., New York, N.Y. 10033

Filed Nov. 8, 1972, Ser. No. 304,607

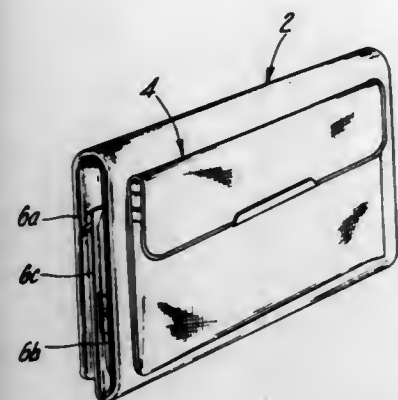
Int. Cl. A45c 1/08

U.S. Cl. 150-35

1 Claim

A fitted kit suitable for use in the manner of envelope-shaped handbag is arranged for carrying small cosmetic items, accessories and the like. A cover member is foldable to provide a handbag-like shape and when opened, one side of the cover member presents holding elements for receiving individual accessories. Further, the cover member forms an envelope closed along one side by a zipper into which certain items can be placed. The cover member is provided with snap

fasteners so that it can be held in the folded closed condition and additional snap fasteners can be formed on its outer surface in the folded condition for securing another envelope-shaped member. The envelope-shaped member secured to the folder cover member has resilient retainer members within its interior for holding cosmetic items in position.



When fastened together, the two items form a handbag-like unit or, if preferred, they can be separated and carried as individual members. The cover member can be formed of a handknitted materials folded to provide pockets for the small cosmetic items and accessories. A knitted flap can be formed on the cover member to provide a closure flap when it is folded.

3,831,652

GOLF PUTTER COVER AND TOWEL

Alsie G. Hyden, P.O. Box 16714, Oklahoma City, Okla. 73116, and Bill J. Blundell, Oklahoma City, Okla., assignors to said Hyden, by said Blundell

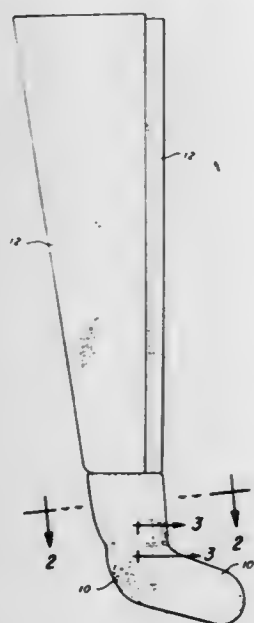
Continuation of Ser. No. 44,314, June 8, 1970, abandoned.

This application Apr. 20, 1972, Ser. No. 245,895

Int. Cl. B65d 65/02

U.S. Cl. 150—52 G

2 Claims



A boot-like sheath for covering the head of a putter has secured thereto a towel extension for cleaning and wiping a golf ball.

3,831,653

PUNCTURE-RESISTANT TIRE ASSEMBLY

Alvin Edward Moore, 916 Beach Blvd., Waveland, Mich. 39576

Filed Sept. 15, 1972, Ser. No. 289,477

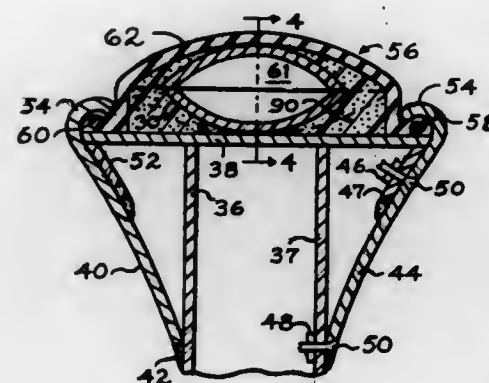
Int. Cl. B60c 5/06

U.S. Cl. 152—195

23 Claims

A vehicle tire casing and inner inflated tubular member of material comprising lead (or optionally other highly malleable

metal having high ductility in the range of that of lead and copper, and substantially pure aluminum and tin). Lead, which may be flexed many thousands of times without fracture, is resistant to puncture and may be welded by simple heating without flux, is preferred; when copper, aluminum or tin is used the tubular member is sheathed in and flexibly bonded to a thin-rubber envelope. The invention comprehends a doughnut-shaped lead inner tube; but optionally the



tubular member comprises annularly arranged tubular elements, each having a middle portion of greatest inflated bulge, from which portions curvingly slope to wider constrictions at ends of the elements. These constrictions may be: flattened, hermetically bonded plies of the tubular-member material; or only substantially flat, having lines of seam or spot welding, allowing passage of gas between the welds. The invention includes a wheel, having laterally projecting flanges, inward of which casing flanges are held.

3,831,654
TIRE HAVING LATERAL SHIFT OF SALIENT TREAD
GROOVE ANGLES

Jacques Boileau, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, France

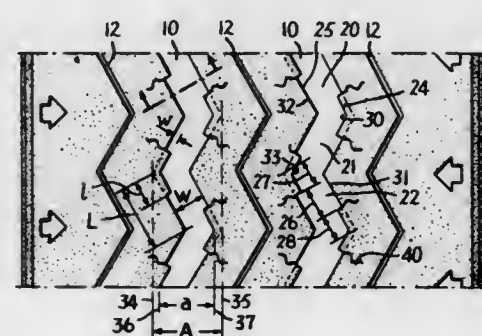
Filed Feb. 12, 1973, Ser. No. 331,987

Claims priority, application France, Feb. 25, 1972, 72.6965

Int. Cl. B60c 11/06

U.S. Cl. 152—209

6 Claims



A radial tire for heavy road vehicles comprises a tread formed with wide circumferential zigzag grooves. The sides of the grooves form angles that are alternately salient and reentrant, and the zigzag of at least one of the grooves has its amplitude reduced by a lateral shift of the salient angles along at least one side of the groove. The shift is one of translation without rotation.

3,831,655

ANTI SKID ELEMENT FOR A VEHICLE TIRE

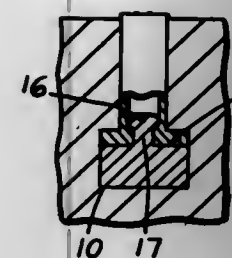
Rudolf Cantz, Stuttgart, Germany, assignor to Kennametal Inc., Latrobe, Pa.

Filed Nov. 3, 1972, Ser. No. 303,316

Int. Cl. B60c 27/00

U.S. Cl. 152—210

2 Claims



An anti-skid element for a vehicle tire in which the radially inner end of the element is cushioned in the tire tread in which it is mounted to control the force required to push the element radially inwardly into the tire.

3,831,656

BELTED PNEUMATIC TIRES

Gerhard Franz-Josef Senger, and Dionysius Josef Poque, both of Aachen, Germany, assignors to Uniroyal AG, Aachen, Germany

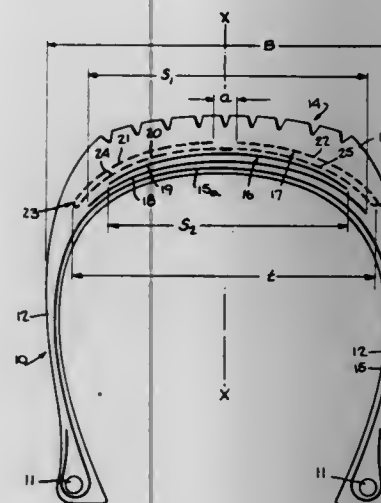
Filed Mar. 27, 1972, Ser. No. 238,076

Claims priority, application Germany, Apr. 1, 1971, 2115914

Int. Cl. B60c 9/64

U.S. Cl. 152—361 FP

13 Claims



Belted pneumatic tire having a reinforcing textile layer disposed between the tread and the carcass. The reinforcing textile layer can be transversely continuous or discontinuous across the crown region of the tire and extends into the shoulder areas. In the shoulder areas the reinforcement is a plural layer formed by a folding over of the textile. The tire may include a metallic breaker located above or below the textile reinforcement. The folded portion of the textile extends beyond the marginal edges by the metal breaker. The cords of either the textile or metal layers can be oriented at zero degrees to the equatorial plane of the tire.

The foregoing abstract is not to be taken either as a complete description or as a limitation of the present invention. The invention is to be understood by the following detailed description and the scope of the invention is to be determined by the claims.

3,831,657

TIRE HAVING FOLDED TREAD-REINFORCEMENT PLY WITH CORD IN EACH FOLD

Jean Paul Dillenschneider, Beaumont, France, assignor to Compagnie Generale Des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand, France

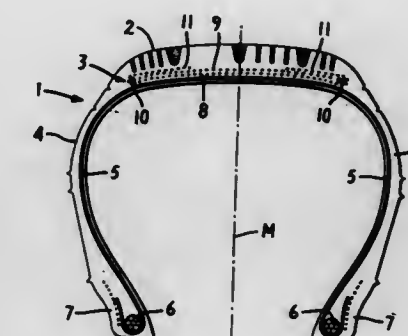
Filed Feb. 20, 1973, Ser. No. 333,731

Claims priority, application France, Feb. 25, 1972, 72.6964

Int. Cl. B60c 9/00

U.S. Cl. 152—361 FP

2 Claims



A radial tire having a tread reinforcement including at least one folded tread ply includes in each fold a longitudinal cord forming at least one turn, the ends of the cord being overlapping and not connected. This facilitates the manufacturing process and provides an improved tire.

3,831,658

TIRE REMOVAL MEANS

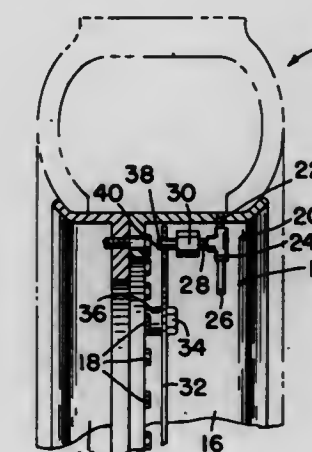
Eugene M. Poplawski, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Sept. 17, 1973, Ser. No. 397,668

Int. Cl. B60c 29/00

U.S. Cl. 152—427

6 Claims



An inflated tire mounted on a two-piece rim includes a lock member which normally blocks off access to the bolts fastening the two-piece rim together. The lock member may be removed to allow access to such bolts only upon removal of a sealing cap which allows the tire to deflate into a condition safe for the disassembly of such rim parts, to allow removal of the tire therefrom.

3,831,659

METHOD OF DISPENSING LOW VELOCITY LIQUID MATERIAL FOR STRIP CASTING

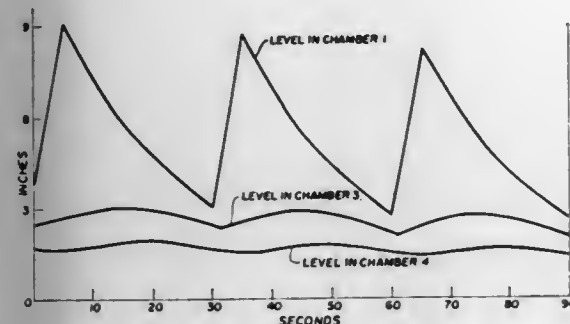
Charles Christian Gerding, Pittsburgh, and Louis John Todora, Aliquippa, both of Pa., assignors to Jones & Laughlin Steel Corporation, Pittsburgh, Pa.

Filed Jan. 18, 1973, Ser. No. 324,700

Int. Cl. B22d 1/110

U.S. Cl. 164-82

3 Claims



Liquid materials are dispensed at a low velocity through the use of a multi-chambered tundish which induces a dampening effect upon the flow of the liquid material which passes through the tundish. The tundish is well suited as a liquid metal source in continuous strip casting methods.

3,831,660

APPARATUS FOR IMPROVING CONTINUOUSLY CAST STRANDS

William P. Hill, Allison Park, Pa., assignor to National Steel Corporation, Pittsburgh, Pa.

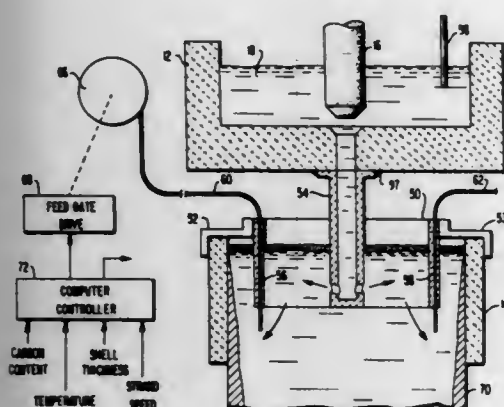
Division of Ser. No. 156,818, June 25, 1971, Pat. No.

3,746,070. This application Apr. 10, 1973, Ser. No. 349,854

Int. Cl. B22d 1/110

U.S. Cl. 164-275

15 Claims



Method and apparatus are disclosed for improving the structure of continuously cast strand by separating undesirable hot metal inclusions at locations spaced from cooling wall surfaces of a continuous casting mold and removing at least a portion of the superheat of molten metal internally of the shape being cast. Apparatus is provided for delivering hot metal subsurface to molten metal level within a continuous casting mold with a component of motion opposite to the direction of casting, initially confining such metal, and changing its direction of movement for separating undesirable inclusions. Apparatus is provided for introducing solid metal below the slag and molten metal surface into the high temperature zone.

3,831,661

ASSEMBLY GAUGE FOR CURVED ROD RACK FRAME CONSTRUCTION

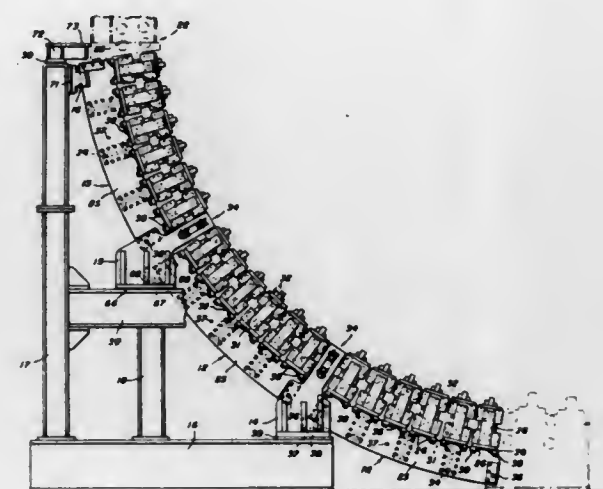
John J. Anderton; Max S. Dudzic, and Wilmer C. Wrhen, all of Oil City, Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Division of Ser. No. 265,379, June 22, 1972, abandoned. This application Dec. 19, 1973, Ser. No. 426,291

Int. Cl. B22d 1/112

U.S. Cl. 164-282

2 Claims



A frame construction for the curved roll-rack of a continuous-casting apparatus, and a method of assembling the rack. The frame is formed of lower, middle and upper sections assembled in aligned end-to-end relation. Each section is pivotally mounted at its exit end and supported on base members at its entry end. The side plates of the sections carry reference pins cooperable with specially designed gauges for accurately positioning roll clusters on the sections, the sections with respect to each other, the base members with respect to the sections, and a bending-roll unit at the entry end of the roll-rack.

3,831,662

CASTING MOLD WITH CONSTRICTING DEVICE

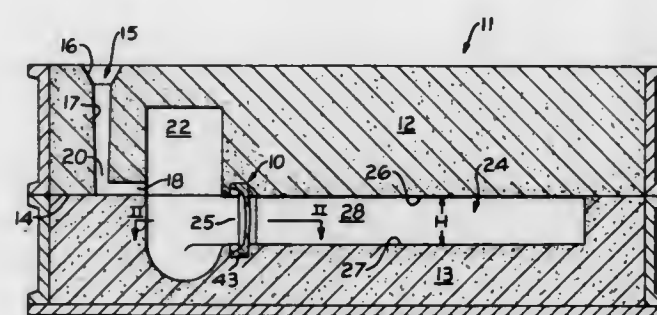
John R. Nieman, Pekin, and Roger A. Worman, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 22, 1972, Ser. No. 317,522

Int. Cl. B22c 9/08

U.S. Cl. 164-362

8 Claims



A stricture is formed between riser and cast article in a conventional metal mold casting process to facilitate clean removal of the riser after casting by interposing thin-walled frangible constriction means between riser cavity and casting cavity prior to pouring molten metal; the flow of metal into casting cavity is also regulated thereby.

3,831,663

AIR CONDITIONER

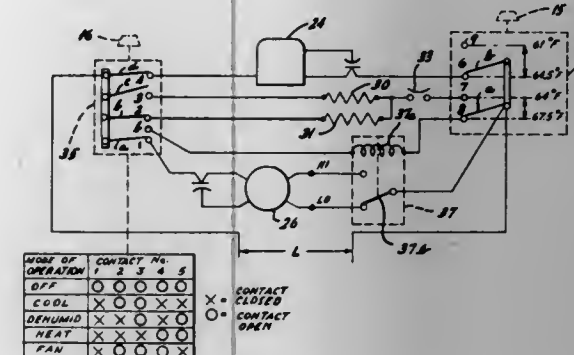
David J. Pithie, Richmond, Ind., assignor to Philco-Ford, Blue Bell, Pa.

Filed Apr. 5, 1973, Ser. No. 348,203

Int. Cl. F25b 29/00

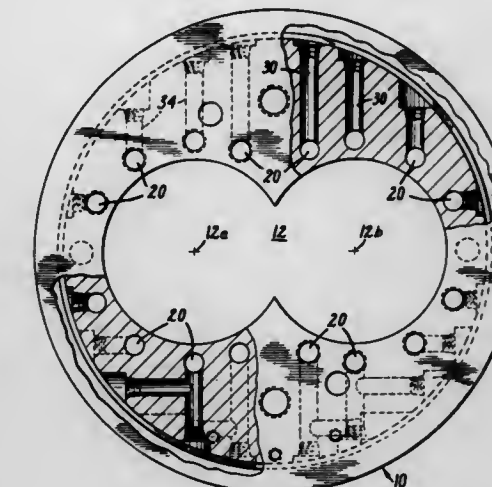
U.S. Cl. 165-26

5 Claims



A room air conditioner having an electrical heater that is energized continuously while the evaporator coil is alternately energized and deenergized, in provision of a dehumidification and reheat cycle of operation under conditions characterized by relatively low temperatures and high relative humidity.

dinal passages. By means of these passages a heat-exchange fluid is circulated through the barrel in good heat-exchange relationship with the plastic and at a proper temperature to



bring the plastic to a desired temperature. Independent control of the flow of the heat-exchange fluid can be established in different zones.

3,831,664

HEAT PIPE INTERFACES

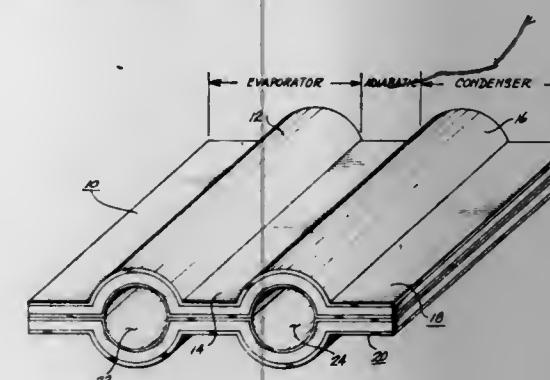
John T. Pogson, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Nov. 7, 1973, Ser. No. 413,717

Int. Cl. F28d 15/00

U.S. Cl. 165-80

6 Claims



An interface for interconnecting heat pipes is disclosed. The interface is itself a special purpose heat pipe adapted to efficiently transfer heat from the condenser of a first heat pipe to the evaporator of a second heat pipe. Using the present invention, simple heat pipes can be interconnected to form a complex heat pipe structure for particular applications.

**3,831,666
GODET FOR USE IN DRAWING APPARATUS AND DRUM DRYER UNITS**

Heinz Fleissner, Frankfurt am Main, Germany, assignor to Vepa Aktiengesellschaft, Riehen-Basel, Switzerland

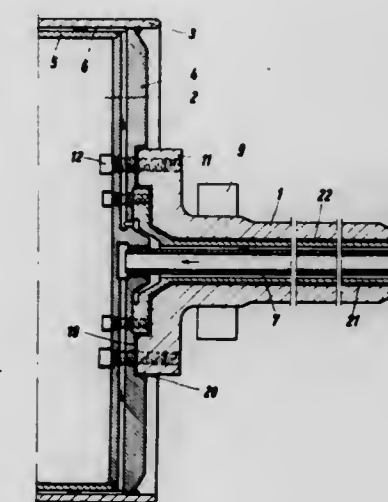
Continuation-in-part of Ser. No. 121,890, March 8, 1971. This application Jan. 31, 1972, Ser. No. 221,941

Claims priority, application Germany, Jan. 30, 1971, 2104392

Int. Cl. F28f 5/02

U.S. Cl. 165-89

5 Claims



3,831,665

EXTRUDER BARREL TEMPERATURE CONTROL

Dennis A. Knaus, Centerville, Mass., assignor to Packaging Industries, Inc., Hyannis, Mass.

Filed Jan. 19, 1972, Ser. No. 218,873

Int. Cl. F28f 5/06

U.S. Cl. 165-87

6 Claims

At least a part of the barrel of an extruder in which plastic is heated, mixed, pressurized, and forced through a die is formed with a plurality of longitudinal passages all around the bore, close to the bore, and extending substantially parallel to the bore axis. Transverse passages respectively communicate with the longitudinal passages adjacent to opposite ends thereof, and plugs are provided for plugging the ends of the longitudi-

A godet for transporting and heating fibers comprises an outer and an inner cylindrical shell which define an annular space therebetween for the flow of a fluid heating medium, an end wall secured to the outer shell, and a bearing shaft attached to the end wall via radial and axial fitting surfaces. A continuous layer of heat-insulating material is provided for the radial and axial fitting surfaces. Also, a godet construction having means to collect and return leakage oil from the outside of a bearing housing to the inside of the housing is disclosed.

3,831,667

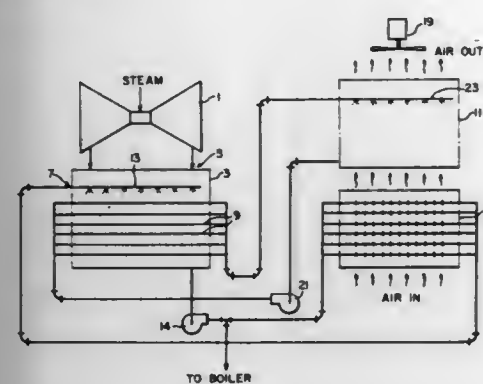
COMBINATION WET AND DRY COOLING SYSTEM FOR A STEAM TURBINE

Lee A. Kilgore, Export, and Kenneth A. Oleson, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 4, 1971, Ser. No. 112,659
Int. Cl. F28b 1/02, 3/04, 5/00

U.S. Cl. 165—96

1 Claim



A combination wet-dry cooling system for an axial flow steam turbine having a portion of the exhaust steam from the turbine condensed by cooling water circulating through a condenser and through a wet cooling tower, and having another portion of the exhaust steam condensed by liquid coolant circulated in a finned tube heat exchanger, wherein the heat from the liquid coolant is transferred to the air, and the liquid coolant is passed through the tubes extending through the condenser, or the liquid coolant is sprayed directly into the condenser to provide mixing condensing, thus providing a cooling system, which eliminates the objectionable plume associated with wet cooling towers and which is smaller than dry cooling towers.

3,831,668

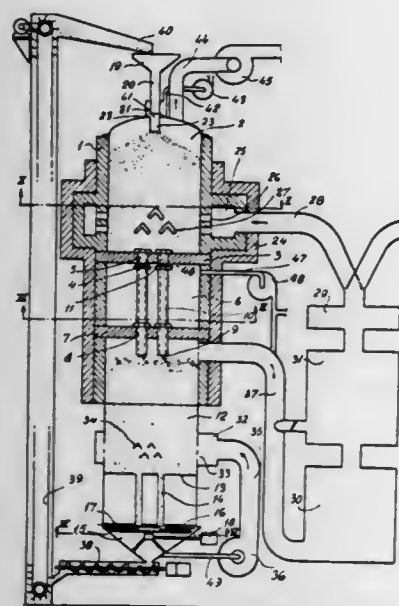
TOWER TYPE HEAT EXCHANGERS FOR HEAT INTERCHANGE BETWEEN GASES HEATED TO DIFFERENT TEMPERATURES

Per Torsten Weissenburg, Virebergsågen 13, Solna, Sweden (17140)

Filed May 17, 1972, Ser. No. 188,569
Int. Cl. F28d 17/00

U.S. Cl. 165—107

10 Claims



A pebble heat exchanger which uses the waste heat of the exhaust stack to raise the temperature of the intake air for the furnace, thereby acting as an economizer. This heat interchange between two gases at different temperatures, is ef-

fectured through the medium of small heat-exchange bodies which are arranged to fall freely under gravity through a generally vertically tower with upper, intermediate and lower chamber. The intermediate chamber can be maintained at a pressure above or below atmospheric pressure for purposes of keeping the gases separate so as to prevent contamination therebetween.

3,831,669

AIR CONDITIONER

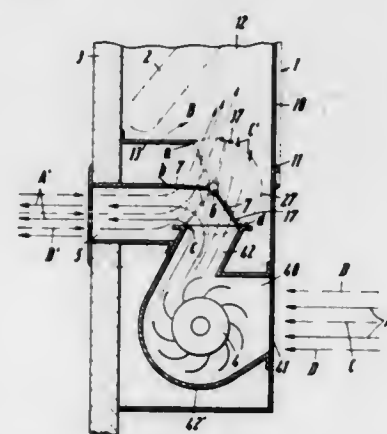
Heinz Menne, Schloss Neuhaus; Wilhelm Schirp, Bergneustadt, and Otto Eckhardt, Bielefeld, all of Germany, assignors to Benteler-Werke Aktiengesellschaft, Bielefeld, Germany

Filed Sept. 22, 1972, Ser. No. 291,416
Claims priority, application Germany, Sept. 25, 1971, 2148047

U.S. Cl. 165—122

Int. Cl. F24h 9/08

14 Claims



An air conditioner having heat transfer means in an upper portion of its housing, blower means in a lower portion of the housing for sucking air from a room into the lower housing portion, and adjustable air guide means cooperating with said blower means for passing air sucked in by the blower means over the heat transfer means in the upper housing portion or through a duct communicating with the atmosphere outside the room, respectively to pass fresh air from the outside over the heat transfer means into the room.

3,831,670

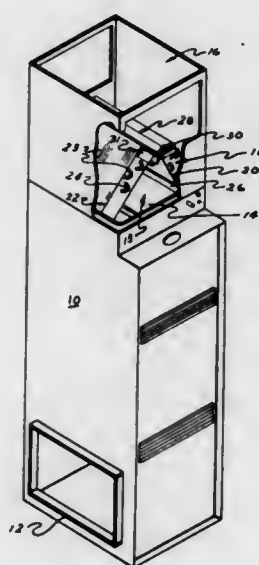
A-COIL WITH IMPROVED AIR DEFLECTOR

Donald M. Mullings, Yardley, Pa., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 15, 1973, Ser. No. 406,646
Int. Cl. F28f 7/00

U.S. Cl. 165—124

5 Claims



The present invention provides an air guide mounted in the apex area of an "A"-coil evaporator. The air guide is effective

in allowing the air to pass smoothly through the evaporator coils. The air coil guide is arranged to allow an unrestricted air flow through the evaporator plates thereby eliminating eddying of the air in the downstream side of the air guide.

3,831,671

TRANSMISSION FLUID HEAT EXCHANGER IN A MOTOR VEHICLE COOLING SYSTEM

Wilfred L. Was, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Feb. 28, 1972, Ser. No. 229,899
Int. Cl. F28g 13/00

U.S. Cl. 165—154

4 Claims



A heat exchanger for cooling transmission fluid of a motor vehicle having a liquid-cooled internal combustion engine and a fluid controlled or operated transmission. The transmission fluid heat exchanger is used in conjunction with the cooling system used to transfer to the atmosphere heat from the liquid used for cooling the internal combustion engine. The transmission fluid heat exchanger preferably is positioned in a tank of a radiator for the purpose of transferring heat from the transmission fluid passing through the heat exchanger to the liquid used for cooling the internal combustion engine. The transmission fluid heat exchanger includes an inlet orifice and an outlet orifice and means for causing the transmission fluid entering the inlet orifice of the heat exchanger to flow initially in a direction away from the outlet orifice and then in a direction toward the outlet orifice.

3,831,672

LIQUID-TO-LIQUID HEAT EXCHANGER

Sylvester J. Battisti, Westland, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of Ser. No. 131,306, April 5, 1971, abandoned. This application June 2, 1972, Ser. No. 259,095
Int. Cl. F28d 7/10

U.S. Cl. 165—154

1 Claim



A liquid-to-liquid heat exchanger adapted especially for use with an automotive vehicle radiator assembly for transferring heat from automatic power transmission fluid to the engine liquid coolant comprising a pair of cylindrical tubes adapted to be positioned in coaxial disposition within the engine radiator heater and a helical turbulator positioned within an annular space defined by the cylindrical tubes, said turbulator com-

3,831,673

HEAT EXCHANGERS

Owen Hayden, Bolton, and Derek Taylor, Knutsford, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

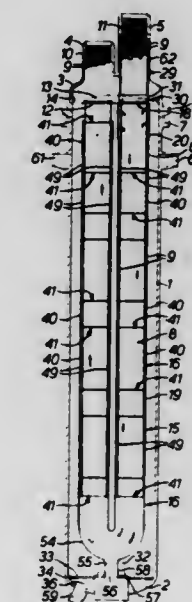
Continuation of Ser. No. 179,342, Sept. 10, 1971, abandoned.
This application Sept. 4, 1973, Ser. No. 393,951

Claims priority, application Great Britain, Sept. 18, 1970, 44621/70

U.S. Cl. 165—158

Int. Cl. F28f 9/00

13 Claims



A heat exchanger of the type comprising a shell containing an array of U-shaped tubes arranged longitudinally in the shell. The tubes are assembled in a number of separate tube bundles with the ends of the tubes connected with individual tube plates in separate inlet and outlet header pipes in an end closure head for the shell. Each tube bundle is contained within an individual tubular shroud with ducting for passing heat transfer fluid from outside the shell into one end of the shroud, so that the heat transfer fluid passes through the shroud over the surface of the tubes in the tube bundle and enters the shell of the heat exchanger from the other end of the shroud. The tubes in the individual tube bundles are spaced at points along their length by grids which are connected in an articulated manner by tie bars. The shrouds for the tube bundles comprise individual tubular sleeves extending between adjacent grids so that the shrouds can flex with flexing of the tubes of the tube bundles.

3,831,674

PLATE TYPE HEAT EXCHANGERS

Wolfgang J. Stein, Milford, and Salvatore Straniti, Orange, both of Conn., assignors to Avco Corporation, Stratford, Conn.

Filed Nov. 16, 1972, Ser. No. 307,264
Int. Cl. F28b 3/12, 13/06

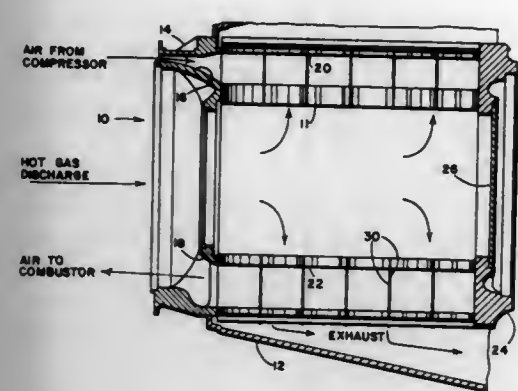
U.S. Cl. 165—166

7 Claims

A heat exchanger is described which is adapted for use with a regenerative type gas turbine engine. The heat exchanger comprises a stack of annular disc plates which are joined in bellows fashion. Inlet and exit plenums extend longitudinally of the stack. The plates define alternate flow paths respectively for radial flow of the hot gas discharge outwardly from the center of the stack and for cross flow of pressurized air from the inlet to exit plenums. Alternate plates are provided with flow path defining corrugations formed both radially, in a

general sense, and cross wise, generally concentric of the discs. The remaining plates have generally radially extending, flow paths defining corrugations. The radial corrugations of all

specific form of union type coupling is a hand operated quick union. The stuffing box is especially useful in situations where wireline well tools become lodged extending through the



plates are curved to be generally concentric of the curved sides of the inlet and exit plenums which are respectively triangular and elliptical in cross section.

3,831,675

HEAT EXCHANGER TUBE

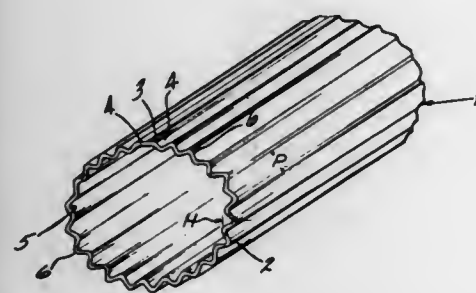
Charles D. McLain, Alton, Ill., assignor to Olin Corporation, New Haven, Conn.

Division of Ser. No. 218,422, Jan. 17, 1972, abandoned. This application Mar. 21, 1973, Ser. No. 343,278

Int. Cl. F28f 1/08

U.S. Cl. 165-177

6 Claims



A heat exchanger tube having a corrugated wall with longitudinally extending corrugations and a process and apparatus for making such tube. The tube is formed from corrugated metal strip which is formed and welded into a tube. The resulting tubing has a longitudinally extending weld seam and portions of the tube surface coextensive with the weld seam on either side thereof are left uncorrugated.

3,831,676

STUFFING BOX FOR WIRELINE WELL APPARATUS

Vernon L. Brown, Belle Chasse, La., and Joseph L. Pearce, Dallas, Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Filed Dec. 11, 1972, Ser. No. 313,931

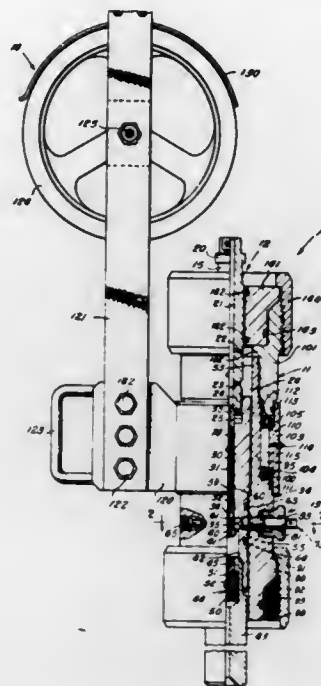
Int. Cl. E21b 33/03

U.S. Cl. 166-82

12 Claims

A stuffing box for use in sealing around a wireline used in the running and pulling wireline equipment in oil and gas wells under pressure. The stuffing box has a removable internal body for enlarging the useable bore through the box to permit passage of tools under certain emergency conditions. The stuffing box is particularly characterized by a fishing neck type head configuration on an internal body which is removable from the housing of the box without rotation. One specific form of the stuffing box includes a union type coupling for attaching the box to a lubricator without rotation. A more

In accordance with the illustrative embodiments of the present invention as disclosed herein, a packer apparatus adapted for well pressuring operations such as cementing includes a mandrel having a flow passage and a valve sleeve movable vertically within the lower end portion of the mandrel for opening and closing the flow passage in response to manipulation of an operator that can be extended into the flow passage. The operator is arranged to be indexed automatically through a sequence of angular displacements in response to upward and downward movement thereof, and cooperatively arranged coupling structures on the valve sleeve and the operator function to connect the two together so that the valve can be shifted vertically between open and closed positions, and to automatically disconnect the operator from the valve sleeve so that the operator can be withdrawn from the flow passage leaving the valve closed.



3,831,677

RETAINER PACKER WITH IMPROVED VALVE SYSTEM

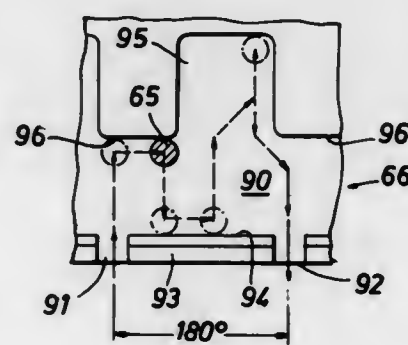
Albert A. Mullins, Richmond, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Nov. 24, 1972, Ser. No. 309,313

Int. Cl. E21b 33/12

U.S. Cl. 166-128

15 Claims



3,831,678

METHOD OF PRODUCING AND USING A GELLED OIL BASE PACKER FLUID

Thomas C. Mondshine, Houston, Tex., assignor to NL Industries, Inc., New York, N.Y.

Filed May 2, 1973, Ser. No. 356,347

Int. Cl. E21b 33/14, 43/00

U.S. Cl. 166-288

16 Claims

An oil base packer fluid is provided for use in permafrost formations which is pumpable at temperatures less than 50°F and which will gel after placement at its desired location in an annular space in a wellbore when a hot oil or gas is produced through the wellbore. The packer fluid comprises an oil, an organic modified clay gellant, a dispersant for the clay, and, optionally, asbestos, wherein the clay is added to the oil at a temperature less than about 50°F and the temperature of the packer fluid is maintained less than about 50°F before and during placement within the wellbore.

3,831,679

STIMULATION WITH INHIBITED ACIDIZING FLUIDS

C. Travis Presley, and Ronald E. Smith, both of Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed July 5, 1973, Ser. No. 376,631

Int. Cl. E21b 43/27

U.S. Cl. 166-307

15 Claims

Production and injection wells are stimulated with an inhibited acidizing microemulsion containing hydrocarbon (external phase), surfactant, and acid. The acid is inhibited from reacting with the reservoir rock until it has penetrated the rock face. About 5 - 500 gallons of the microemulsion per vertical foot of formation are useful to stimulate the wells. Carbonate reservoirs are particularly suited for stimulation.

3,831,680

PRESSURE RESPONSIVE AUXILIARY DISC VALVE AND THE LIKE FOR WELL CLEANING, TESTING AND OTHER OPERATIONS

Arnold Glen Edwards, and Charles J. Jenkins, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

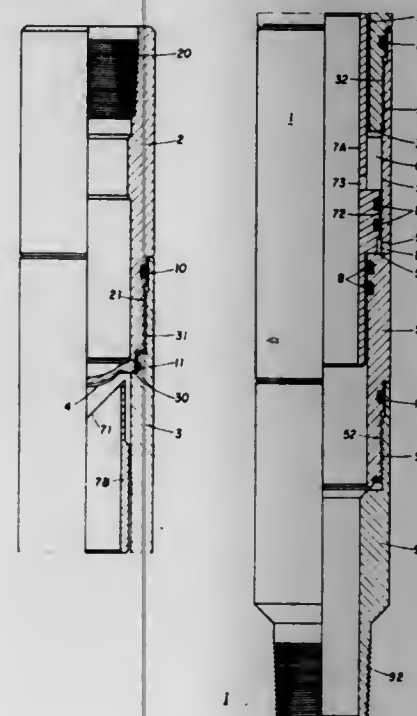
Division of Ser. No. 224,755, Feb. 9, 1972. This application

June 28, 1973, Ser. No. 374,289

Int. Cl. E21b 21/00

U.S. Cl. 166-311

4 Claims



sliding tubular rupture member actuated by a controlled pressure differential between the tubing chamber and the casing annulus, with said element and rupture member being located concentrically within a tubular body and having an ID substantially the same as that of the tubing string.

3,831,681

FIRE PROTECTION SYSTEM UTILIZING MODULAR COMPONENTS

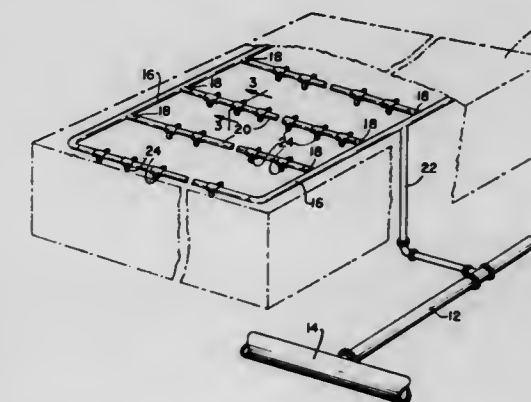
William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.

Filed July 23, 1973, Ser. No. 381,764

Int. Cl. A62c 37/02

U.S. Cl. 169-16

4 Claims



A fire protection system in which a plurality of spaced parallel branch conduits extend perpendicular to a plurality of spaced parallel cross-main conduits and are connected thereto to form a network adapted to be supported in an elevated position in a substantially horizontal plane in an area to be protected by fire. Each cross-main conduit is formed by a relatively long tubular portion and a plurality of relatively short tubular portions integral with the long tubular portion and extending perpendicular thereto. The relatively short tubular portions register with the long tubular portion and are spaced apart along the length thereof for the purpose of connecting to the branch conduits, and a plurality of discharge heads are connected to the branch conduits for discharging extinguishant.

3,831,682

FIRE EXTINGUISHING SYSTEM NOZZLE

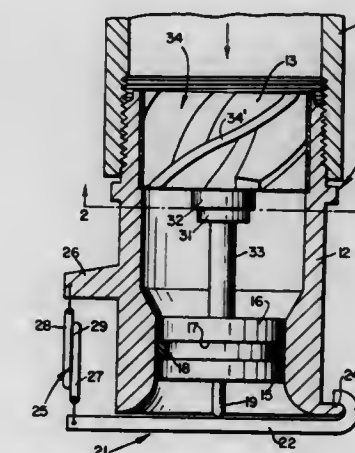
Louis A. Calcaro, Pittsburgh, Pa., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa.

Filed Jan. 19, 1973, Ser. No. 324,979

Int. Cl. A62c 37/08

U.S. Cl. 169-37

14 Claims



A full opening pressure operated disc valve particularly suited for cleaning formation perforations by surging and for other operations comprises a rupturable sealing element and a

A fluid dispensing nozzle wherein an outlet blocking plug is dually independently restrained by heat responsive means and by a magnetic or mechanical interlock that releases only in response to predetermined fluid pressure.

3,831,683

SYSTEM FOR CONTROLLING THE LEVEL OF AN EARTH-REMOVING BLADE OF A BULLDOZER

Toshimichi Ikeda, Ibaraki-Ken; Masataka Kawauchi; Atsushi Matsuzaki, both of Tokyo, and Masayuki Suzuki, Kashiwa, all of Japan, assignors to Hitachi Construction Machinery Co., Ltd., Tokyo, Japan

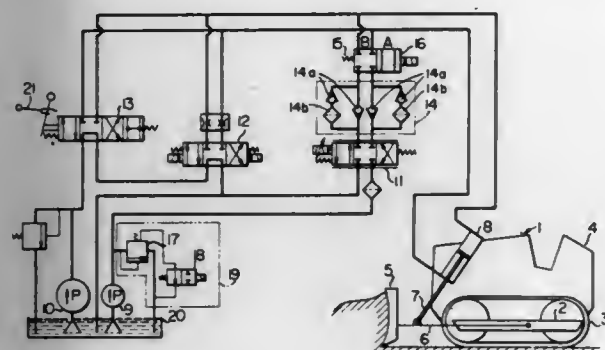
Filed Sept. 1, 1972, Ser. No. 285,645

Claims priority, application Japan, Sept. 6, 1971, 46-68049

Int. Cl. E02f 3/76

U.S. Cl. 172-4.5

3 Claims



A system for controlling the level of an earth-removing blade of a bulldozer. The system comprises a first circuit means adapted for manual control of the level of the earth-removing blade and a second circuit means automatically operative to keep the earth-removing blade at a predetermined level. The first circuit means is usable in usual earth excavating and removing operation of the bulldozer while the second circuit means is usable to produce a flatly bulldozed earth surface. The second circuit means includes electric and hydraulic circuits. The electric circuit includes an input setting unit, a gyro-means to measure the actual level of the blade, and a circuit for comparing the signals from the input setting unit and gyro-means to emit an instruction signal. The hydraulic circuit includes valves operative in response to the instruction signal to control the amount and direction of the fluid to be fed from a fluid source to a cylinder for the actuation of blade supporting arms of the bulldozer for thereby automatically controlling the blade level.

3,831,684

EARTH WORKING APPARATUS

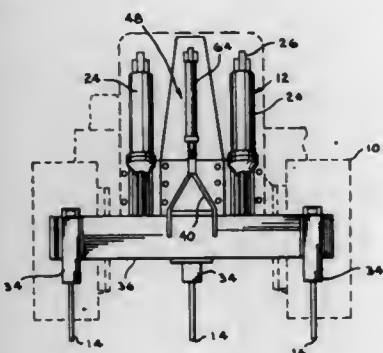
James L. Thigpen, Harlingen, Tex., assignor to CRC-Crose International, Inc., Houston, Tex.

Filed Feb. 16, 1973, Ser. No. 333,062

Int. Cl. A01b 63/32

U.S. Cl. 172-248

3 Claims



An earth working apparatus including a draw bar having a tool holder adapted to have an earth working tool herein and being pivotally mounted at one end thereof and a pivotal connection at the other end adapted to be connected to a moving vehicle such as a tractor, an actuator for raising and lowering the draw bar about its pivotal connection to the vehicle, a link pivotally connected at one end to the tool holder above its

pivotal connection to the draw bar and at the other end to a movable or sliding pivotal connection and an actuator for moving the sliding pivotal connection of said link from a point above the draw bar connection to the vehicle forming a parallelogram type linkage device for the maintenance of the angle of the tool in the tool holder with respect to the ground to a point near the draw bar vehicle connection to form a radial type linkage device for varying the angle of the tool in the tool holder with respect to the ground responsive to the elevation of the draw bar. The earth working apparatus also includes a mounting structure being pivotally mounted to the vehicle and to the draw bar and having an actuator for changing the draw bar and having an actuator for changing the position of said mounting structure with respect to the vehicle. This abstract is neither intended to define the invention of the application which, of course, is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

3,831,685

DISK GANG COUPLING FOR HARROWS AND THE LIKE

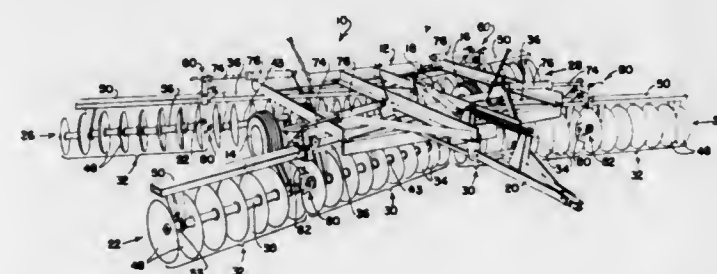
Eugen J. Birkenbach, Park Ridge, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Mar. 2, 1973, Ser. No. 337,321

Int. Cl. A01b 5/06, 15/16

U.S. Cl. 172-568

8 Claims



A gang coupling for correlating the rotary movements of the arbor bolts of adjacent aligned disk gang sections of a disk harrow or the like. Cooperating driving and driven coupling members are mounted on the adjacent ends of the coaxial arbor bolts and embody torque transmitting fingers which overlap each other in a longitudinal direction and assume the same degree of eccentricity relative to the common axis of the arbor bolts so that they are disposed in the same cylindrical surface of revolution and thus are capable of side-by-side engagement with each other for torque-transmitting purposes but allow for circumferential lost motion in either direction through an arc of slightly less than 360°.

3,831,686

PNEUMATIC RAPPER

Roger S. Brookman, East Aurora, N.Y., assignor to American Precision Industries, Inc., Buffalo, N.Y.

Filed June 28, 1973, Ser. No. 374,813

Int. Cl. B25d 9/00

U.S. Cl. 173-132

17 Claims

A pneumatic rapper has the upper end of a guide tube arranged to face an anvil operatively mounted on an object to be rapped. A ball hammer is disposed within the guide tube and is arranged to be propelled against the anvil. A concentric outer tube surrounds the guide tube for a portion of its length to define an annular accumulator chamber therebetween. A diaphragm valve is operatively mounted on the lower end of the outer tube and is arranged to have a central portion of its upper face close the open lower end of the guide tube to prevent pressure in the accumulator chamber from entering the guide tube. A control chamber exposes the diaphragm to a

3,831,688

SPRING BALANCE MECHANISM

Dennis Phipps, Llanelli, Wales, assignor to Cambrian Housewares Limited, Staffordshire, England

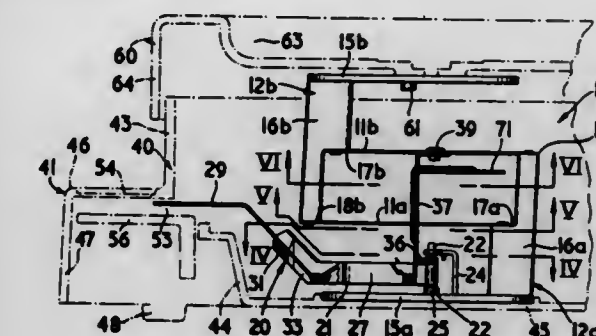
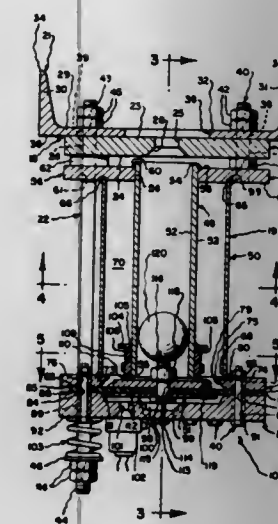
Filed Mar. 21, 1973, Ser. No. 343,592

Claims priority, application Great Britain, Mar. 25, 1972, 14133/72

Int. Cl. G01g 3/08

U.S. Cl. 177-229

4 Claims



pressure from the accumulator chamber to the guide tube to propel the ball hammer against the anvil and to impart an impact to the object. A recoil spring functions to absorb the reactive energy on the diaphragm as the ball hammer is propulsively accelerated toward the anvil.

A spring balance mechanism for weighing apparatus is built up in the form of a compact self-contained unitary assembly comprising a pair of similar L-shaped frame members in spaced inverted superposed relationship interconnected by parallel motion leaf spring members which are secured to flat step surfaces of the frame members. The top leaf spring member is rigidly connected along its length to a vertically depending elongate control arm of which the lower end abuts a weight indicator member pivotally mounted on the bottom frame member and thereby controls the movement of said indicator in accordance with load applied to the top frame member.

3,831,689

VEHICULAR ROAD SWEEP DEVICE

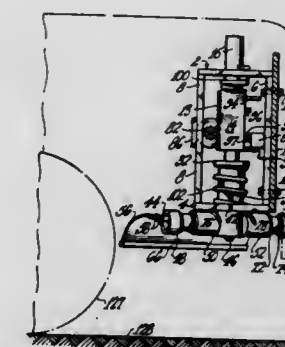
Charles H. Smith, 5215 Southall Ln., Bell, Calif. 90201

Filed May 7, 1973, Ser. No. 357,940

Int. Cl. E01h 10/00

U.S. Cl. 180-1 R

7 Claims



A vehicular road sweep device is provided for effectively engaging a wet, slippery road surface under rapid braking, emergency-type conditions to sweep water and other debris from the path of the vehicle's tires and thereby improve traction between the vehicle and the road surface. The device, comprising right and left-hand units, is adapted to be mounted to the vehicle anterior to each of the wheels and to be operated by a manual switch or a brake system switch. The device includes a linear assembly provided with a drive member having an upwardly extending guide member and downwardly extending coupling member. A longitudinally disposed connector rod is rotatably secured to the coupling member. A road engaging assembly is attached to the lower end portion of the connector rod. The road engaging assembly includes horizontally supported, limitedly rotatable, rotary means having pivot means and a road engaging member secured thereto. Means are provided for limitedly, axially and reciprocally rotating the connector rod; and means, respon-

3,831,687

FLEXURE BASE SCALE

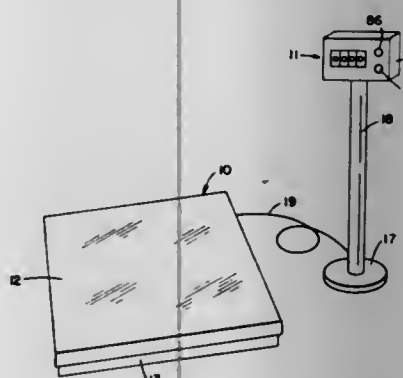
Doro Maffia, Santa Rosa, and Linus G. Schwartz, Ronnet Park, both of Calif., assignors to National Controls, Inc., Santa Rosa, Calif.

Division of Ser. No. 54,473, July 13, 1970. This application May 26, 1972, Ser. No. 257,449 The portion of the term of this patent subsequent to May 30, 1989, has been disclaimed.

Int. Cl. G01g 3/14, 21/08

U.S. Cl. 177-210

5 Claims



Scale in which force applied to a platform is transmitted to a transfer lever arm through flexure plates. In one embodiment, the transfer arm is connected to a load cell which produces an electrical signal which actuates digital means to provide a digital indication of the weight of an object on the platform. In other embodiments the transfer arm bears against a hydraulic load cell which is connected to a pressure gauge or digital display means for indicating the weight of an object on the platform.

sive to switch means, are provided for sequentially moving the drive member in downward and upward directions between predetermined upper and lower vertical positioning limits whereby the road engaging member is reciprocated between a raised, horizontal, inward, storage position and a lowered, vertical, outward, operative position.

3,831,690

TRACTOR DRIVING AND STEERING ARRANGEMENT

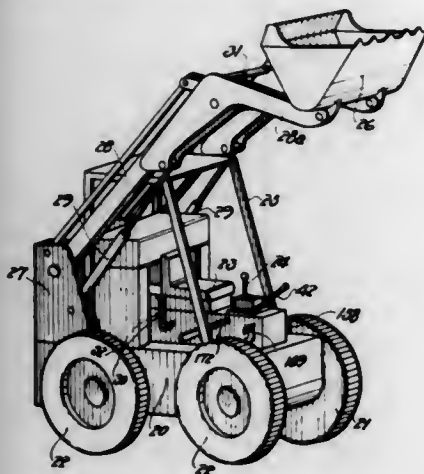
Kojiro Yamaoka, Nishinomiya; Toshiro Azuma, and Koichiro Fujisaki, both of Toyonaka, all of Japan, assignors to Kan-zaki Kokyukoki Mfg. Co., Inadera, Amagasaki, Japan
Filed July 23, 1973, Ser. No. 381,897

Claims priority, application Japan, Oct. 26, 1972, 47/124219[U]; May 23, 1973, 48/60965

Int. Cl. B62d 11/06

U.S. Cl. 180—6.66

9 Claims



A tractor comprising a pair of power transmitting means which connect engine output to left and right final drive means individually, each of said power transmitting means including a first fluid actuated clutch means for connecting said final drive means associated with said each of the power transmitting means to the engine output so as to drive the final drive means in forward direction and a second fluid actuated clutch means for connecting said final drive means associated with said each of the power transmitting means to the engine output so as to drive the final drive means in backward direction, a pair of control valve means having spools for controlling supply of pressure fluid to said clutch means, a single maneuvering lever, and connecting means connecting said lever and said spools and having a first connecting member for displacing both of said spools in a same direction and a second connecting member for displacing the spools in opposite directions. By manually operating said single maneuvering lever the left and right final drive means can be driven to rotate so as not only to stop, advance and retreat the tractor but to spin-turn the tractor to the left and right and further to turn the tractor to the left and right with an optional radius of turn by combining the operation of said maneuvering lever with manual operation of brakes for the final drive means.

3,831,691

WALKING TREAD FOR AIR CUSHION VEHICLES

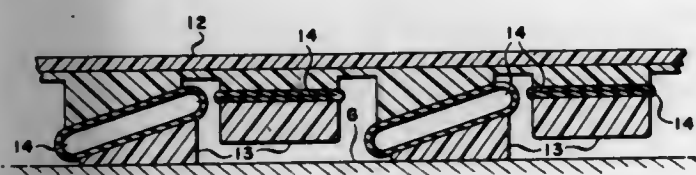
Dave H. Jenkins, Marietta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Los Angeles, Calif.

Filed Oct. 17, 1973, Ser. No. 407,317

Int. Cl. B60v 3/08

U.S. Cl. 180—8 C

10 Claims



This walking tread provides a means for moving a vehicle, e.g., an aircraft, equipped with an air cushion landing system

without starting the aircraft's primary engines. The device can move the aircraft from parked position forward, backward, or turn it by the proper sequencing of the walking tread.

This device, which is attached to the bottom surface of longitudinal portions of the aircraft is basically a mat with cross-wise rows of inflatable treads that alternately inflate and deflate to produce a walking motion. The treads are of three basic types - forward walking, stationary and aft walking. The internal surfaces of the walking treads are cut on an incline to impart a forward or backward motion by sliding down the inclined tread planes as the air pressure attempts to lift the aircraft.

This system is operated by compressed air from the aircraft's auxiliary power unit, therefore, the starting of the aircraft's primary engines is not required.

3,831,692

DRIVE TOWER FOR CIRCULAR IRRIGATION SYSTEM

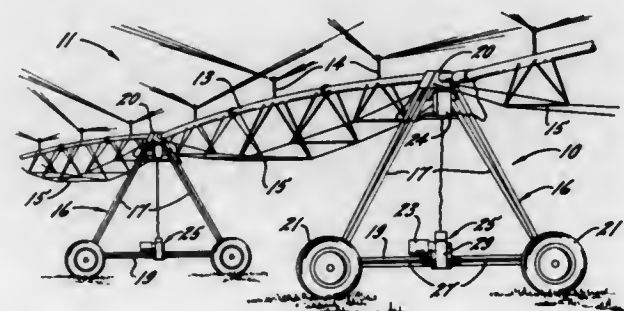
Denton E. Fry, Fort Atkinson, Wis., assignor to Durst Corporation, Beloit, Wis.

Filed Oct. 17, 1972, Ser. No. 298,288

Int. Cl. B60k 7/02

U.S. Cl. 180—14 R

6 Claims



A drive tower for a circular irrigation system includes an upright frame for supporting a water pipe which extends radially from a central pivot. The frame is supported on wheels power rotated by an electric motor to drive the tower in a circular path around the pivot. To turn the wheels, the motor rotates a power shaft to reciprocate two pawls through alternating power strokes by means of two eccentrics each of which is mounted on the shaft and rotates within one of the pawls. As the pawls are alternately driven through their power strokes, they push against the teeth of a drive gear keyed to a drive shaft which connects to the wheels so that, as the pawls rotate the gear, the wheels are turned to move the tower. The pawls are shaped symmetrically so that either of their opposite ends may fit between the teeth of the gear, and reversible spring means selectively hold the adjacent ends of the pawls against the gear during the power stroke to drive the gear in one direction. By reversing the action of the spring means, the other adjacent ends of the pawls are pressed against the gear so the latter may be driven in the opposite direction. Solenoids controlling the reversal of the spring means enable an operator to reverse the direction of movement of the tower from a remote location.

3,831,693

STEERABLE ARTICULATION JOINT

James F. King, Cupertino, Calif., assignor to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed Dec. 26, 1972, Ser. No. 318,540

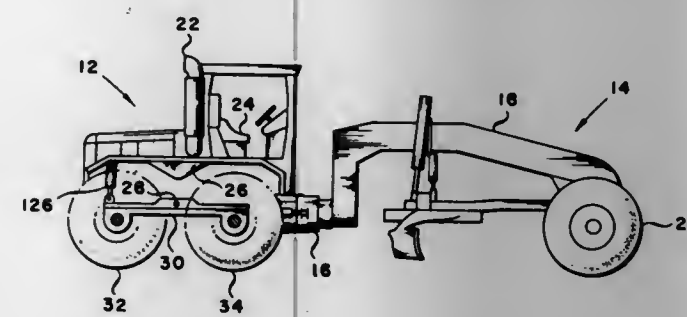
Int. Cl. B62d 59/00

U.S. Cl. 180—14 A

12 Claims

A steerable articulation joint for effecting rapid connection of the two sections of a ground vehicle is shown. The joint has a first and second cylindrical support surface mounted con-

centrically from each other. The steerable articulation joint is connected to a steerable ground contacting member so that between the planet carrier and the driven shaft of the speed changer. The planet carrier is rigid with a spur gear driving the



pivotable movement of the articulation joint causes concurrent movement of the ground contacting member in the opposite direction of rotation.

3,831,694

APPARATUS FOR MOVING VEHICLES AND THE LIKE

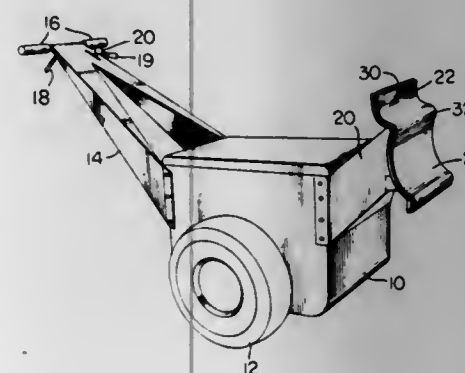
James MacKew, Fort Wayne, Ind., assignor to Power Wheels Corp., Ft. Wayne, Ind.

Filed Mar. 5, 1973, Ser. No. 338,149

Int. Cl. B62d 51/04

U.S. Cl. 180—19 R

4 Claims



A two wheeled vehicle-like apparatus for moving automobiles or the like, and which apparatus has a pair of ground wheels independently rotatable on a common axis. An electric motor is provided for driving the wheels and battery means are provided in the apparatus for supplying power to the electric motor. A handle is fixed to one end of the frame of the apparatus and a lifting arm extends outwardly and upwardly from the other side of the frame and has vehicle engaging means on the other end thereof to exert a lifting force on the vehicle being moved, thereby to transfer weight from the vehicle to the wheels of the apparatus.

3,831,695

ALL-WHEEL DRIVE FOR MOTOR VEHICLES

Kurt Osterloff, Friedrichshafen-Manzell, and Georg Ruhrenschopf, Friedrichshafen, both of Germany, assignors to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Germany

Filed Aug. 8, 1973, Ser. No. 386,498

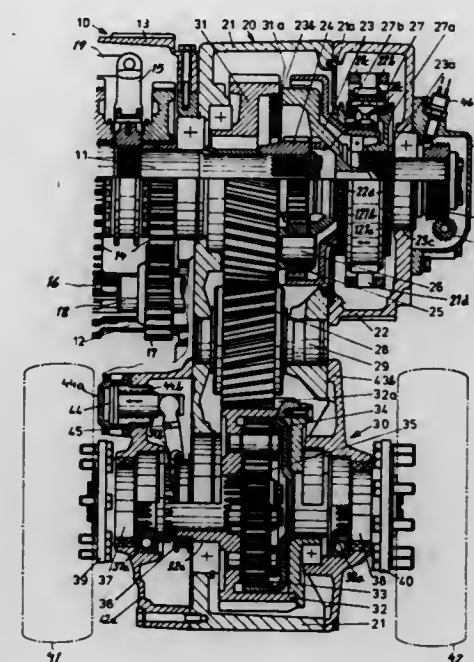
Claims priority, application Germany, Aug. 8, 1972, 2238976

Int. Cl. B60k 17/04

U.S. Cl. 180—44 R

10 Claims

A planetary-gear train of an automotive transmission, in tandem with a speed changer of the shiftable-gear type, has a ring gear adapted to be locked either to an associated planet carrier or to a stationary housing to vary the speed ratio



drum of a differential gearing with two output shafts, one of the latter being selectively connectable with the housing to make the two output shafts run in unison.

3,831,696

VEHICLE INSECT PROTECTION APPARATUS

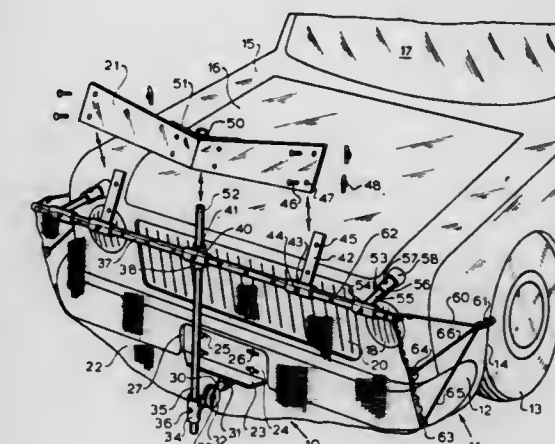
Theodor H. Mittendorf, Mt. Dora, and Dale L. Bennett, P.O. Box 1138, Mt. Dora, both of Fla. 32757, assignors to said Mittendorf, by said Bennett

Filed Jan. 22, 1973, Ser. No. 325,318

Int. Cl. B60j 7/20

U.S. Cl. 180—68 P

6 Claims



An insect protection apparatus for protecting moving vehicles from insects having a deflector shield for attachment to the front end of a vehicle for deflecting air currents and insects from the windshield of the vehicle and including a screen attached to the apparatus for covering an additional portion of the front end of a vehicle to catch insects to prevent the insects from hitting the front end of the car and getting into the vehicle radiator. The apparatus includes an easily attachable supporting system for the deflector shield and screen which is attached to the vehicle license plate holder and to the vehicle tire wells and having braces engaging the front end of the vehicle for ease in attaching and removing the apparatus from the vehicle.

3,831,697

RACK AND PINION POWER STEERING

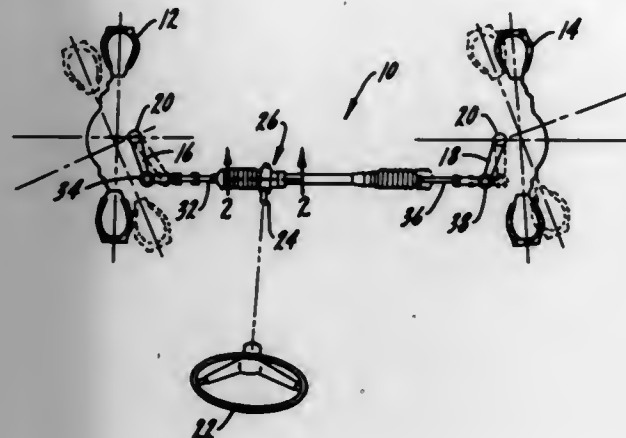
Gunnar A. Wahlmark, Dixon, Ill., assignor to Wahlmark Systems, Inc., Chicago, Ill.

Filed Oct. 3, 1973, Ser. No. 403,201

Int. Cl. B62d 5/08

U.S. Cl. 180—79.2 R

16 Claims



A power steering system integrated with conventional manual rack and pinion steering for an automotive vehicle. The system includes a housing in which are disposed a rack adapted to move rectilinearly along the axis of the housing and a pinion adapted to rotate in response to steering movements by a driver turning the vehicle's steering wheel. The rack engages the pinion so that rotation of the pinion moves the rack in conventional fashion. A pair of tie rods couple the rack to the vehicle's front left and right wheel steering mechanisms. A pair of piston heads fit snugly in the housing with one piston head attached to one end of the rack and the other piston head attached to the opposite end of the rack. The rack is received in the piston heads so that it can shift slightly in the vertical direction as the load on the rack changes due to changes in driving conditions. The power steering system has a steering valve which includes a body member with at least one groove therein and a sleeve having a plurality of openings therein. The sleeve fits snugly about the body member and the sleeve and body member are adapted to move relative to each other. Means are provided for moving the sleeve and body member, such means including a pair of follower elements which respond to rack and pinion movement. One follower element has one end connected to the body member and another end in frictional engagement with the pinion to move the body member in response to rotational movement of the pinion. The other follower element has one end connected to the sleeve and another end in frictional engagement with the rack to move the sleeve in response to axial movement of the rack. The system further includes a regulator for the steering pump in the form of a piston-like bearing member which tends to force the rack into engagement with the pinion, and regulates the hydraulic pressure produced by the pump by its up and down vertical movement as the load on the rack changes.

3,831,698

MOTOR VEHICLE BRAKE SYSTEM

John G. Fontaine, Fort Lauderdale, Fla., assignor to Fail Safe Brake Corporation, Ft. Lauderdale, Fla.

Division of Ser. No. 135,193, April 19, 1971. This application May 31, 1973, Ser. No. 365,433

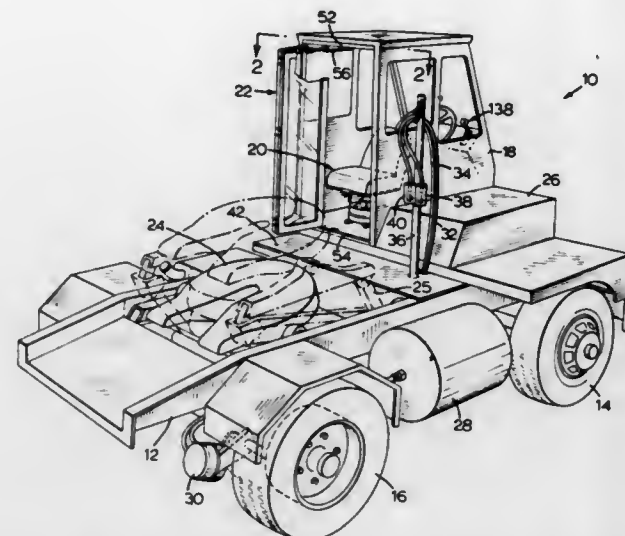
Int. Cl. B60t 7/12

U.S. Cl. 180—77 R

2 Claims

An Automatic Parking or Emergency brake system for motor vehicles comprising means by which the parking or emergency brakes of a motor vehicle will become applied automatically when the engine of the vehicle is shut off or stalls, and by which the brakes will become released automatically and immediately when the engine is started, and then only when the driver's seat is occupied and pressure exerted on the

accelerator pedal. The described means includes also an arrangement by which, when the vehicle is halted at crossings and elsewhere on either level or hilly roadway, the parking or emergency brakes will be automatically applied within about



3,831,699

SHUNTING TRACTOR WITH SWIVEL SEAT AND AUTOMATIC REAR DOOR OPENER

Karl Reinhold Wolter, Mississauga, Ontario, Canada, assignor to Levy-Russell Limited, Toronto, Ontario, Canada

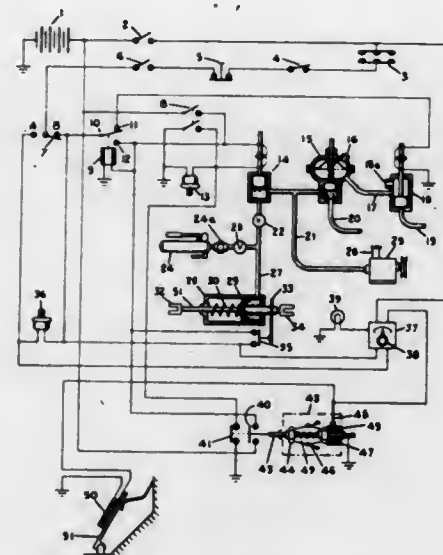
Filed July 25, 1973, Ser. No. 382,353

Claims priority, application Canada, July 27, 1972, 148077

Int. Cl. B62d 53/08

U.S. Cl. 180—77 S

13 Claims



A shunting tractor is provided for moving road trailers. The tractor has a driving cap coupled to a chassis adjacent the front of the tractor and a fifth wheel is coupled to the chassis behind the cab by an adjustable support which is operable to raise and lower the fifth wheel for lifting the front of a road trailer. A swivel seat is mounted in the cab for rotation between a forward-facing first position and a rearward-facing second position and a cab door which is located at the rear of the cab adjacent a platform, is operably coupled to the seat. On moving the seat from the first to the second position the door opens to provide an operator with ready access onto the platform for coupling air services and the like to a trailer. The door returns to closed position upon returning the seat to the first position.

3,831,700

POWER STEERING MECHANISM

Akira Suzuki, Nishio, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi, Japan

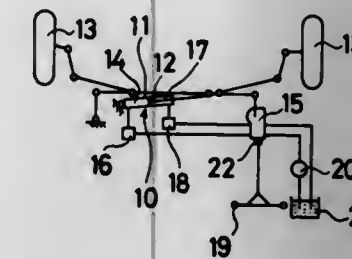
Filed Aug. 25, 1972, Ser. No. 283,718

Claims priority, application Japan, Aug. 25, 1971, 46-64933; Aug. 26, 1971, 46-65364

Int. Cl. B62d 5/08

U.S. Cl. 180—79.2 R

4 Claims



A power steering mechanism including an actuator having two actuating chambers operatively connected to vehicle wheels, a changeover control valve for alternatively connecting one actuating chamber to a pump and for connecting the other actuating chamber to a reservoir depending upon the direction of rotation of the steering wheel. A reaction means transmits a rotating resistance to the steering wheel in accordance with the discharging pressure of the pump, while various means are disposed within the connecting passageway for controlling the flow of fluid in an amount which is proportional to the vehicle speed, whereby the sudden restoration of the steering wheel, when the vehicle is running at a high rate of speed, is prevented.

3,831,701

POWER STEERING GEAR ACTUATOR

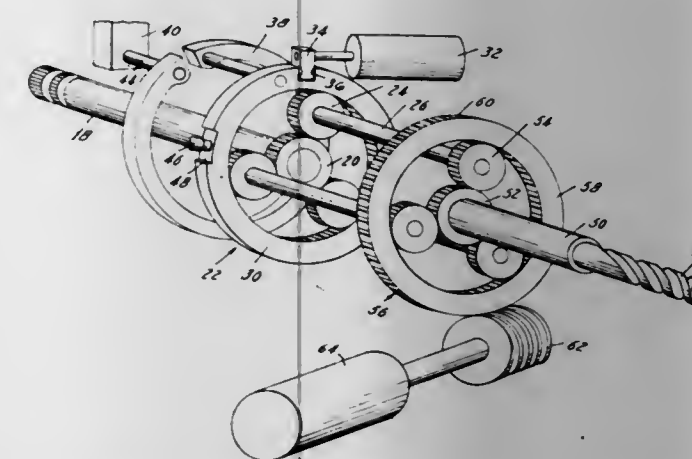
Howard M. Pilon, Allen Park; Sven W. Sattavara, Detroit, and Michael M. Schechter, Oak Park, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 7, 1972, Ser. No. 312,995

Int. Cl. B62d 5/06

U.S. Cl. 180—79.2 R

8 Claims



This disclosure relates to a power steering gear, and more particularly to a gear actuator constructed to be controlled both manually and by a source responsive to an external condition such as the lateral force produced upon a vehicle by a cross wind. In accordance with one embodiment, a steering gear actuator has first and second planetary gear sets with an input shaft connected to the sun gear of the first set. The ring gear of the first set is coupled to a power steering valve. The planet gears of the first set are coupled to the planet gears of the second set. An output shaft is connected to both the sun gear of the second set and the ball nut of a power boosted steering gear. An electric motor has a worm gear engaging the ring gear of the second set. The motor is adapted to be actuated by an external system such as a system constructed to

produce a signal in response to a lateral force upon the vehicle resulting from a cross wind. Thus, in this embodiment a steering gear actuator is provided having both a manual input and a system operated input. The two planetary gear sets move in response to the two inputs and provide a composite output for actuating the steering gear.

3,831,702

SAFETY BELT DEVICE

Yuichiro Kaneko, Nagoya; Fuminori Teraoka, Konan; Tatsushi Kubota, Heguri-gun, and Takehiko Nishikawa, Inazawa, all of Japan, assignors to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho, Nishikasugai-gun, Aichi-Pref., Japan

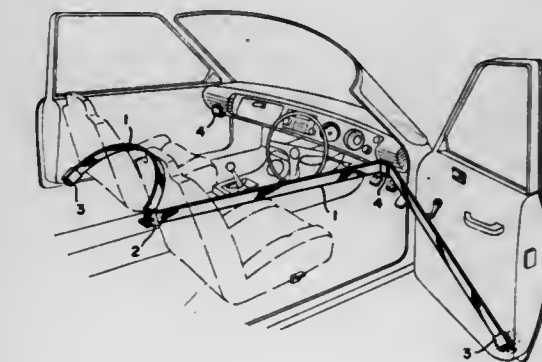
Filed Oct. 24, 1972, Ser. No. 299,808

Claims priority, application Japan, Oct. 25, 1971, 46-84475

Int. Cl. B60r 21/10

U.S. Cl. 180—82 C

1 Claim



A safety belt device for use in vehicles, including a belt which is extended across a seat, with one end thereof fixed to the body of a vehicle and the other end connected to a retractor mounted in the door to be taken up therein and with the central portion thereof hooked on hook apparatus provided in front of the seat, a solenoid device to operate the hook apparatus to release the belt and a solenoid device operating circuit, the solenoid device being actuated by the operating circuit for a predetermined period of time when a passenger is seated on the seat and the door is closed, whereby said belt is automatically engaged around the body of the passenger.

3,831,703

AUTOMATIC PARKING OR EMERGENCY BRAKE SYSTEM FOR MOTOR VEHICLES

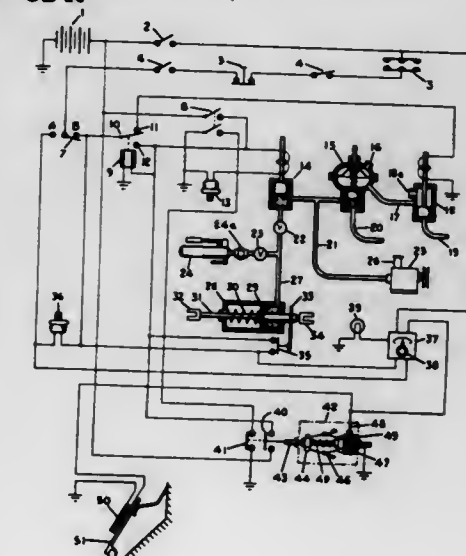
John G. Fontaine, Fort Lauderdale, Fla., assignor to Fail Safe Brake Corporation, Ft. Lauderdale, Fla.

Division of Ser. No. 135,193, April 19, 1971. This application May 31, 1973, Ser. No. 365,442

Int. Cl. B60t 7/12

U.S. Cl. 180—82 R

4 Claims



An Automatic Parking or Emergency Brake system for motor vehicles comprising means by which the parking or

emergency brakes of a motor vehicle will become applied automatically when the engine of the vehicle is shut off or stalls, and by which the brakes will become released automatically and immediately when the engine is started, and then only when the driver's seat is occupied and pressure exerted on the accelerator pedal. The described means includes also an arrangement by which, when the vehicle is halted at crossings and elsewhere on either level or hilly roadway, the parking or emergency brakes will be automatically applied within about three seconds after the vehicle comes to a complete stop and thus creeping of the vehicle is prevented, and this is particularly desirable when it is one of the automatic transmission type.

3,831,704

ISOLATED VEHICLE CONTROL MODULE

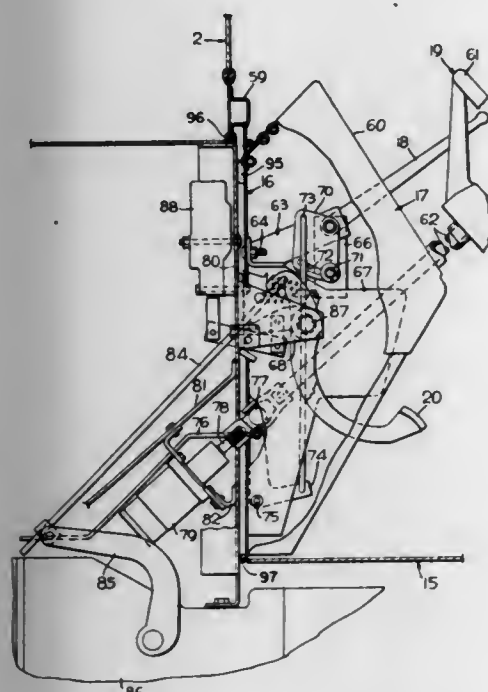
Charles F. Zuege, Milwaukee, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Nov. 20, 1972, Ser. No. 308,108

Int. Cl. B62d 27/04

U.S. Cl. 180—89 R

10 Claims



A vehicle having means defining an operator station including a control module supported on a shroud and resiliently mounted on the vehicle chassis and means defining an engine compartment including a fire wall in spaced relation to the shroud to provide a sound and vibration dampener between the engine compartment and the operator station.

3,831,705

ENERGY ABSORBING DASH STRUCTURE

Patrick M. Glance, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed June 28, 1972, Ser. No. 266,916

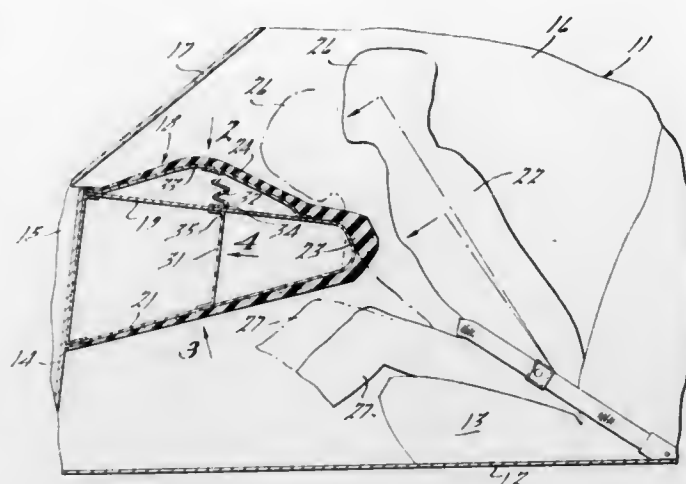
Int. Cl. B60k 37/00

U.S. Cl. 180—90

4 Claims

A two stage energy absorbing dash structure is adapted to be positioned in a motor vehicle compartment forwardly of the vehicle seating area. The dash structure has a chest impact

zone and a head impact zone. The chest impact zone provides first stage dissipation of energy in decelerating a vehicle occupant during collision conditions and the head impact zone provides for a second stage of energy dissipation. The second



stage of energy dissipation may be enhanced by a knee impact zone of the dash structure. The dash structure includes at least one energy absorbing tension member extending between panels forming the dash structure to control the load deflection during energy absorption.

3,831,706

AUTOMATIC ROW MARKER APPARATUS

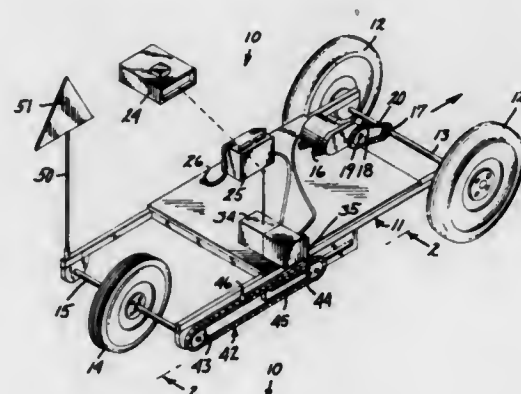
Clifford A. Nordine, Roosevelt, Minn. 56673

Filed Jan. 22, 1973, Ser. No. 325,642

Int. Cl. B62d 5/04

U.S. Cl. 180—98

11 Claims



A pair of self-propelled vehicles are positioned in spaced apart alignment on a field to establish a line of sight for an operator along an initial path of travel of a manually operated powered farm implement. Each of the self-propelled vehicles includes an electrically driven motor connected to a source of power for imparting movement to the self-propelled vehicle. Electrical controls, including a control device, are provided for independently actuating the electrically driven motor of each of the self-powered vehicles, in a selected sequence to impart movement to the self-propelled vehicle in a direction perpendicular to the line of sight to establish a subsequent line of sight. A regulating device on each vehicle deactuates the motor to regulate the length of movement of the vehicle.

3,831,707

SYSTEM TO PREVENT DRUNKEN DRIVING

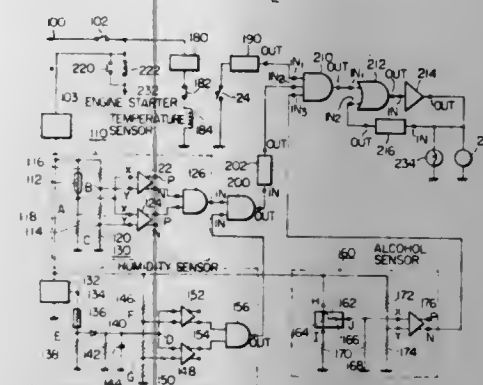
Yasuhisa Takeuchi, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokosuka, Japan

Filed Aug. 13, 1973, Ser. No. 387,651

Int. Cl. B60k 27/08

U.S. Cl. 180—99

16 Claims



A device which tests a vehicle operator for drunkenness and prevents operation of the vehicle in response to a sensed drunken condition.

3,831,708

AIR FILM PALLET

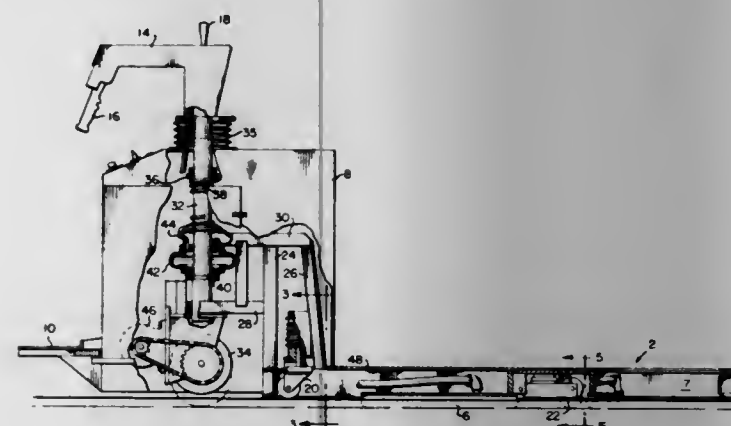
Melvin D. Terry, 707 N. 188th, Seattle, Wash. 98133

Filed Nov. 1, 1972, Ser. No. 302,827

Int. Cl. B60v 1/00

U.S. Cl. 180—119

1 Claim



A powered, air film vehicle adapted for lifting exceptionally heavy loads and moving them with relatively little friction. The pallet includes a positive engagement drive wheel which controls the motion and direction of the vehicle as well as a guiding system at the opposite end of the pallet for controlling drift during movement. When in operation the entire weight of the objects to be moved is carried by a plurality of air bearings and other ground contacting means serve only as motion producing or guide means. A train of connected pallets may be moved by a single powered unit, however, it may be desirable to provide selectively activated guide wheels upon some or all of the pallets and a fixed direction auxiliary drive wheel may be utilized for lateral movement of the entire train.

3,831,709

MOBILE AIRCRAFT SHORING AND MAINTENANCE DEVICE

Alan G. Stanford, Saint Augustine, and George A. Zutell, Jacksonville, both of Fla., assignors to Fairchild Industries Inc., Germantown, Md.

Filed Feb. 16, 1973, Ser. No. 333,121

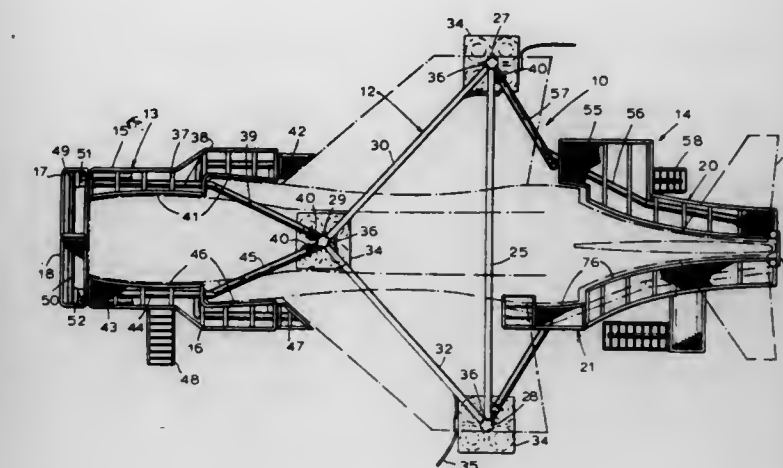
Int. Cl. B60p 3/06; B60v 1/00

U.S. Cl. 180—125

11 Claims

A mobile aircraft shoring and maintenance device including a generally triangular shaped aircraft support structure and

jacks connected to the support structure which are adapted to engage a portion of the underside of an aircraft to permit the aircraft to be mounted on the aircraft support structure. A forward scaffold structure is connectable to the aircraft support structure and the interior portion of the forward scaffold structure is shaped to generally conform to the exterior of the forward portion of the aircraft. An aft scaffold structure is also connectable to the aircraft support structure and the interior portion of the aft scaffold structure is shaped to generally con-



form to the exterior of the aft portion of the aircraft. Both the forward and aft scaffold structures have two sections that are locatable adjacent opposite sides of the aircraft and are pivotally connected to the aircraft support structure to permit the two sections to be pivoted outward away from the aircraft. Air cushion supports are located on the underside of the aircraft support structure that provide cushions of air which raise the aircraft support structure slightly and permit the aircraft support structure to be readily moved about.

3,831,710

SOUND ABSORBING PANEL

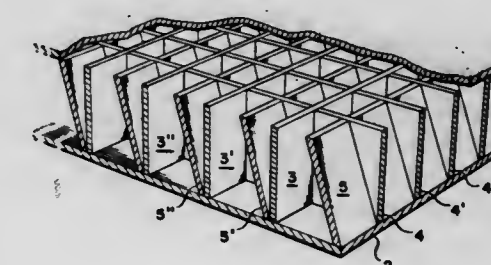
Leslie S. Wirt, Newhall, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Jan. 24, 1973, Ser. No. 326,508

Int. Cl. E04b 1/84

U.S. Cl. 181—33 G

13 Claims

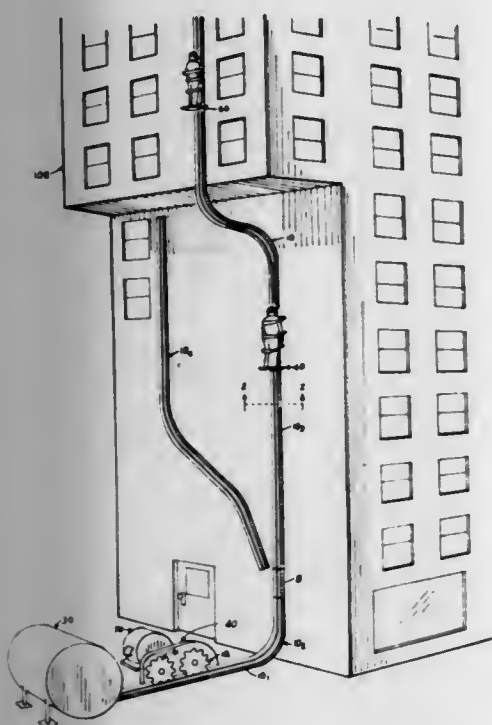


A sound absorbing panel, generally comprising a honeycomb cellular layer, an impermeable backing enclosing one end of the cells, a permeable facing covering the other (open) end of the cells, and wherein adjacent cells are made to have a different resonant frequency. The adjacent, dissimilar, cells each have a predetermined difference in acoustic reactance and are acoustically in parallel. However, they do not act individually since their resonances combine in a useful way such that whichever cell is resonant dominates the acoustic behavior of the pair. The cell geometry is chosen such that one cell is at or near a resonance while the adjacent cell is at anti-resonance. The parallel system acts resonantly whenever either side is near resonance. As a result, sound ab-

sorption remains high over a broad range of frequencies. The functional operation of the panel is relatively independent of the materials from which it is made and may, for example, be fabricated entirely from metal. It is particularly suitable for sound attenuation in jet engines and other applications having adverse environmental conditions, requiring sound absorptive panels, baffles, duct liners, and duct splitters.

3,831,711 EMERGENCY ESCAPE DEVICE FOR HIGH RISE BUILDING

Luther A. Smith, 1914 Delaware Ave., Kenner, La. 70062
Filed June 28, 1973, Ser. No. 374,676
Int. Cl. B66b 9/00; A62b 1/02
U.S. Cl. 182-40 11 Claims



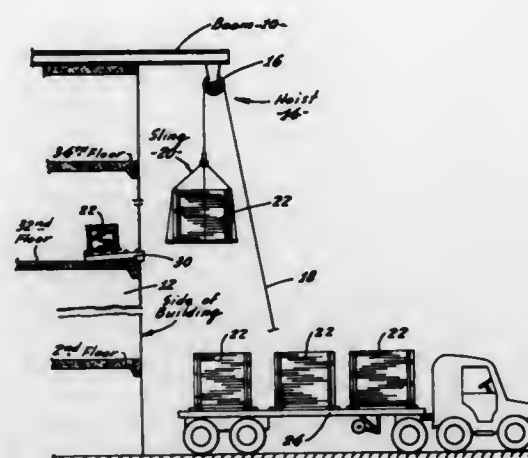
A transport or escape device, particularly adaptable for use in modern high rise buildings, and skyscrapers, as an escape route for use in the rescue of people who may be trapped and prevented from using the conventional stairways and elevators due to some injury, or natural or man-made disaster such as fire, elevator failure, building collapse, etc. The apparatus, or device, particularly useful as a fire escape, comprises the combination of a channel member installed upon the wall of a building which serves as a way, or rail for a roller chain, adapted to carry personnel escorts or carriers. The roller chain is meshed with a sprocket, or sprockets, powered by appropriate motor means such that the roller chain, provided thereto via appropriate connecting means, can be guided and transported via the channel member, or rail, up the wall of the building from a lower level, e.g., ground level, to a higher level, e.g., the roof of the building, and then returned in similar manner. For example, empty personnel escorts can be conveyed to the roof of the building, loaded with people, and then returned to ground level. Suitably, the roller chain is stored upon a drum from which it can be unwound for use, and then rewound for storage. The channel member, or rail, is generally permanently mounted on a wall of the building, while other components can be either permanently mounted, or transportably mounted on a vehicle for use at different locations equipped with the channel members, or rails, installed prior to any emergency use requirement.

3,831,712 MECHANISM FOR TRANSPORTING LOADS INTO A HIGH RISE BUILDING

Tom D. Neely, 4080 W. 1st St., Santa Ana, Calif., and Jack M. Linneen, 8015 Highland Trl., Los Angeles, Calif. 90046
Filed Dec. 22, 1972, Ser. No. 317,633
Int. Cl. B66b 9/18 3 Claims

U.S. Cl. 187-2

3 Claims



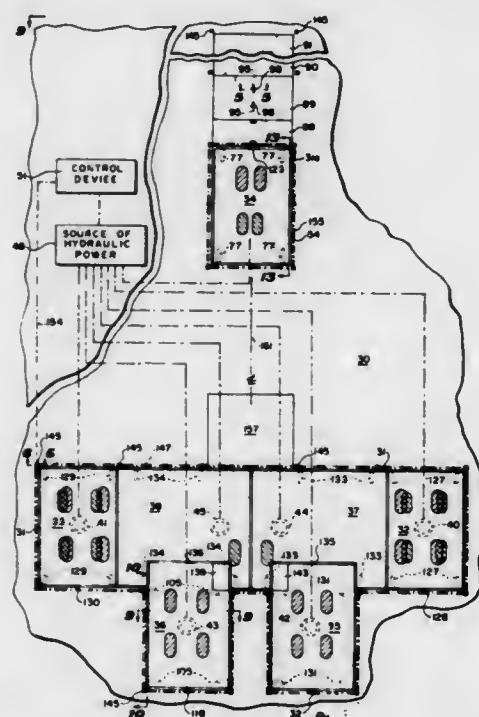
A mechanism is provided for loading heavy loads, such as bundles of wallboards, or other materials, into a multi-story high rise building. The mechanism includes a hoist which lifts the bundles directly from a truck to any floor of the building, and a portable inclined conveyor of a particular construction positioned on the floor on which the bundle is to be unloaded, the conveyor partially overhanging the edge of the building to receive the bundle from the hoist and to transfer the bundle into the interior of the building.

3,831,713 PLATFORM SYSTEM FOR SERVICING AIRCRAFT LANDING GEAR

Jesse E. Clarke, Highland Park, Ill., assignor to Autoquip Corporation, Chicago, Ill.
Filed July 20, 1971, Ser. No. 164,301
Int. Cl. B66f 7/00 10 Claims

U.S. Cl. 187-8.41

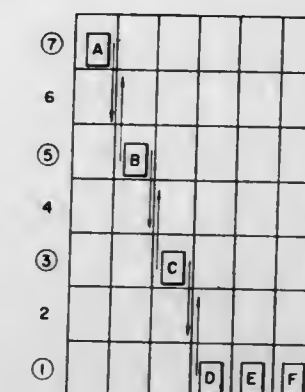
10 Claims



The floor of a servicing bay for large aircraft includes a plurality of wheel support platforms. There is a left wing gear platform, a right wing gear platform, two clearance platforms between the wing platform and each adjacent a respective wing gear platform, two body gear platforms extending rear-

wardly from the clearance platforms and a nose gear platform spaced forwardly from the two clearance platforms. The nose gear platform is on a scissors lift powered by a hydraulic ram. This scissors lift is on a carriage movable in a pit extending longitudinally of the aircraft. The remaining platforms are all supported on vertical hydraulic rams fixedly mounted approximately under the load centers of the respective platforms. Transfer sections are positioned between juxtaposed portions of the respective clearance platform and body gear platform. These transfer sections may be attached either to the clearance platform or the body gear platform and thus provide interchangeability to accommodate various types of aircraft. On each platform are a number of locks which engage vertically fixed portions adjacent the platform to prevent vertical movement of the platforms when the locks are engaged. The locks may be disengaged for vertical movement by the rams.

the elevator cars can stand by at each of the specific floors. The up and down hall call responding zones of each elevator car are determined so that it can respond to up and down hall

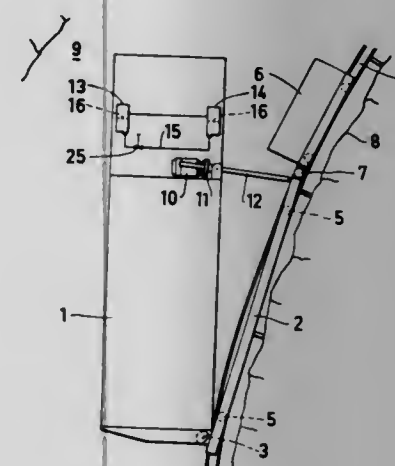


3,831,714 APPARATUS FOR MAINTAINING AN ELEVATOR CAGE IN THE VERTICAL POSITION

Jarl Hedman, and Tage Westerlund, both of Skelleftea, Sweden, assignors to Linden-Alimak AB, Skelleftea, Sweden
Filed Feb. 23, 1973, Ser. No. 335,411
Claims priority, application Sweden, Feb. 24, 1972, 2278/72
Int. Cl. B66b 9/06 2 Claims

U.S. Cl. 187-12

2 Claims



This invention relates to a device for holding the cage of an elevator moving on a curved track in a vertical position. The device comprises adjustment means for holding the elevator cage in a vertical position, and an inclination transmitter, which scans the inclination of the elevator cage and controls the adjustment means.

3,831,715 ELEVATOR CONTROL PROCESS AND SYSTEM

Hideto Matsuzawa; Kikuo Watanabe, and Isao Inuzuka, all of Katsuta, Japan, assignors to Hitachi Ltd., Tokyo, Japan
Filed Feb. 1, 1973, Ser. No. 328,677
Claims priority, application Japan, Feb. 2, 1972, 47-11392; Feb. 21, 1972, 47-17243; Mar. 8, 1972, 47-23209
Int. Cl. B66b 1/18 16 Claims

U.S. Cl. 187-29 R

16 Claims

A process and system for controlling a plurality of elevator cars servicing a plurality of service floor landings in which at least three specific floors are selected beside the basic floor where the number of passengers is largest so that some of these elevator cars can stand by at the basic floor and one of

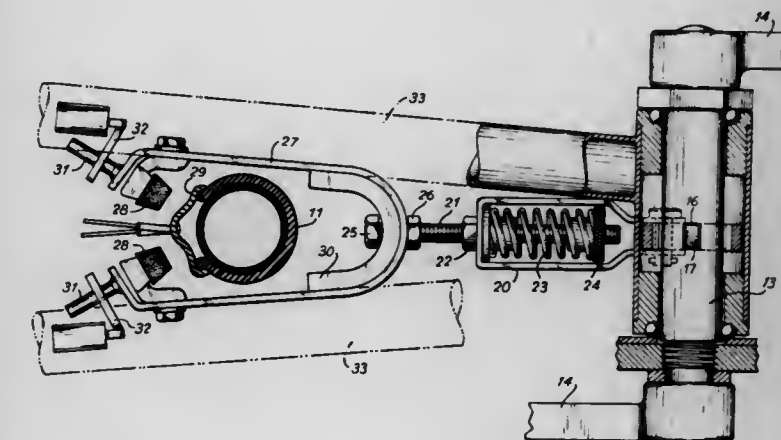
calls originating from the floor at which the elevator car is situated and from the floors lying between this elevator car and the nearest upper and lower elevator cars.

3,831,716 BICYCLE FOOT BRAKES

Hector Mendoza Orozco, Adolfo Prieto No. 1709, Col. del Valle, Mexico (12 D.F.)
Filed June 21, 1973, Ser. No. 372,114
Int. Cl. B62i 5/00 3 Claims

U.S. Cl. 188-24

3 Claims



This invention relates to improvements in foot brakes for bicycles of the type that when turning the pedals in the direction opposite to forward, a mechanism is set in motion which prevents turning of one of the bicycle's wheels. This mechanism consists of lever including an annular portion coupled to the pedal and a lug pivotally fixed at one end of a guiding and joining structure, which slidably housed a portion of a bolt, the other portion of which is fixed to a yoke which is the brake as such.

3,831,717 MOTOR VEHICLE DISC BRAKE HAVING CALIPER RETAINING MEANS

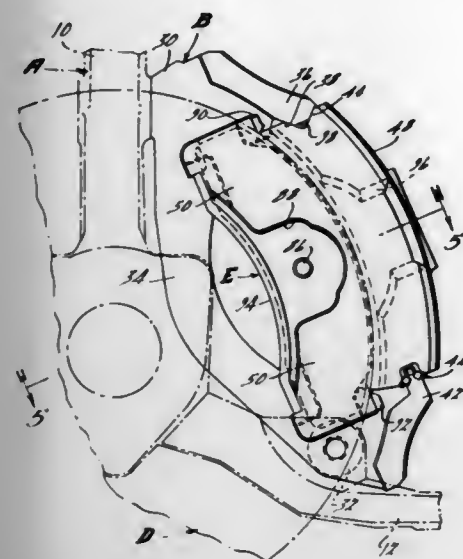
Bernard M. Flaherty, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Continuation of Ser. No. 159,378, July 2, 1971, abandoned.
This application July 2, 1973, Ser. No. 375,996
Int. Cl. F16d 65/02 14 Claims

U.S. Cl. 188-73.3

14 Claims

A disc brake for a motor vehicle having an anchor plate secured to a wheel support member. A brake caliper is slidably supported on the anchor plate and straddles a brake rotor. The caliper is constructed to urge a pair of brake shoes into engagement with the braking surfaces of the brake rotor.

A unique releasable retaining means secures the caliper to the anchor. In the presently preferred embodiment, the caliper



and anchor have interfitting tongue and groove portions. The retaining means comprises spring metal retaining clip interposed between the tongue and groove portions.

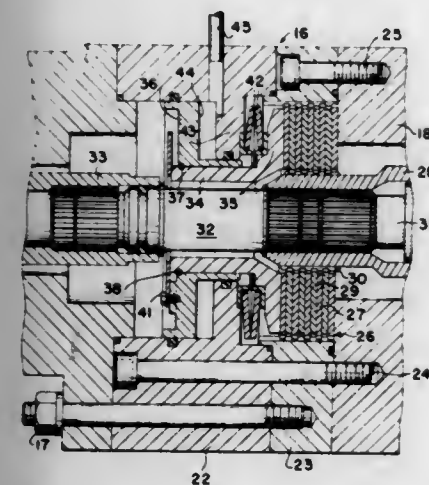
3,831,718

PARKING BRAKE ASSEMBLY FOR TRACK-TYPE VEHICLES

Thomas P. Muller, Aurora, and Ellis A. Sitton, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Nov. 24, 1972, Ser. No. 309,283

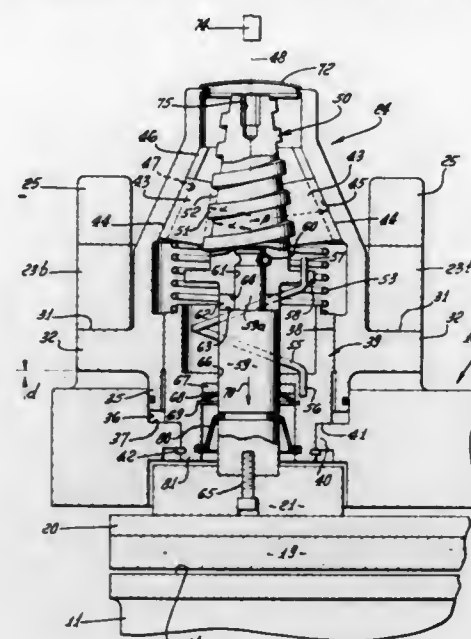
Int. Cl. F16d 65/24

U.S. Cl. 188—170



11 Claims

being a rotary shaft having rotary cam engagement with the wedge means. The shaft transmits braking force from the anvil and wedge means to the brake part, as via a non-rotary stem



subject to retraction by an energizable Belleville spring. A torsion spring tends to rotate the shaft relative to the wedge means, maintaining tight coupling between the anvil and shaft in spite of brake part wear.

3,831,720

DRUM BRAKE ACTUATORS

Malcolm Clarence Williams, Caerleon, Wales, assignor to Girling Limited, London, England

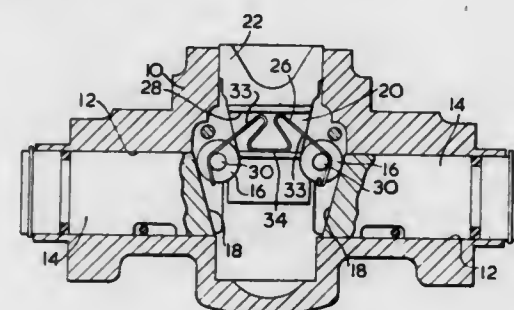
Filed Dec. 8, 1972, Ser. No. 313,523

Claims priority, application Great Britain, Dec. 10, 1971, 57414/71

Int. Cl. F16d 51/18

U.S. Cl. 188—343

7 Claims



The final drive for a track-type vehicle comprises a speed reduction gear train operatively connectible to a hydrostatic drive motor to drive a track engaging sprocket. A parking brake assembly is mounted between the motor and gear train and comprises a piston adapted to disengage the brake by directly engaging a snap ring mounted in an annular groove formed on a reciprocal hub. The hub has a pressure plate secured thereon which, in turn, releases spring-biased friction discs upon disengagement of the brake. A radially disposed end plate is attached to the piston to abut an end of the hub to prevent dislodgement of the snap ring.

3,831,719

BRAKE WEAR COMPENSATION USING THREADED WEDGE INTERLOCK

Samuel J. Martins, Reseda, Calif., assignor to Airheart Products, Inc., Chatsworth, Calif.

Filed Jan. 8, 1973, Ser. No. 321,708

Int. Cl. F16d 65/56

U.S. Cl. 188—196 F

16 Claims

Brake part advancing and wear compensation apparatus includes a lever actuated anvil engaged by wedge means, there

A drum brake roller expander actuator has a wedge member for outwardly displacing a pair of opposed tappets and a pair of spaced parallel rollers, each arranged between a respective tappet and an inclined face of the wedge member. The rollers are coupled to and located relative to the wedge member by resilient retainer means carried by the wedge member and engaging the ends of the rollers.

3,831,721

DUMP VALVE AND FORWARD-REVERSE DRIVE CONTROL EMPLOYING SAME

Daniel B. Shore, Niles, Ill., assignor to International Harvester Company, Chicago, Ill.

Continuation of Ser. No. 689,549, Dec. 11, 1967, Pat. No. 3,458,018. This application Jan. 23, 1969, Ser. No. 818,857

The portion of the term of this patent subsequent to July 29, 1986, has been disclaimed.

Int. Cl. B60k 29/02

U.S. Cl. 192—4 C

1 Claim

Tractor having dump valve and forward-reverse drive control employing same, effective to automatically brake the trac-

3,831,723

ELECTROMAGNETIC SPRING-WOUND CLUTCH

John R. Briar, Dayton, and Frederick M. Grabek, Kettering, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

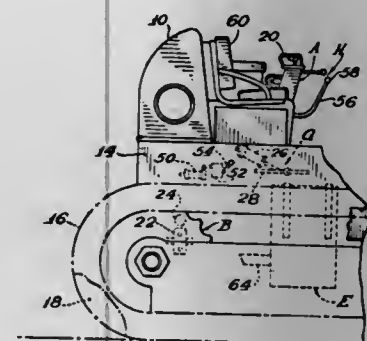
Filed Apr. 18, 1973, Ser. No. 352,089

Int. Cl. F16d 27/10

U.S. Cl. 192—35

7 Claims

tor when the tractor's direction of motion is to be reversed. The tractor has brakes and a reversible transmission controlled by the dump valve, a run detector pump to sense direction of rolling movement of the tractor and having a directionalized pump output, and a range selector valve having a control portion. By suitable interaction with the other components, the dump valve receives against pressure movable end areas thereof an output from the range selector valve and directs control pressure to operate the brakes and transmission in alternation to one another. More specifically, the dump valve: receives against the pressure movable end areas



the directionalized pump output so as to be hydraulically balanced in a centered position operating the tractor with transmission engaged and brakes disengaged; receives against the pressure movable end areas an unbalancing force from the range selector valve control portion (due to reversal of the range valve position) causing the dump valve to shift off center and dump, neutralizing the transmission and setting the brakes; and having valve springs effective to mechanically rebalance the dump valve attendant with slow down of the run detector pump, causing the dump valve to recenter, releasing the brakes and engaging the transmission in an opposite drive setting.

3,831,722

INDEPENDENT POWER TAKE OFF CLUTCH BRAKE

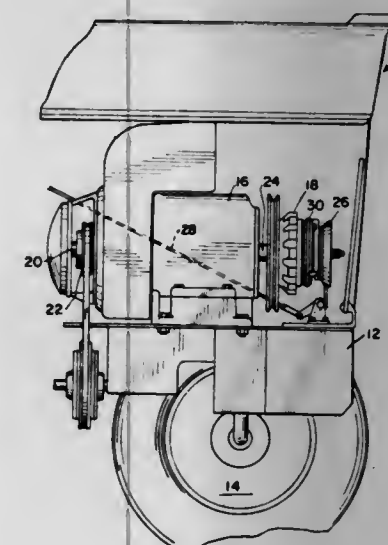
Joseph P. Deschamps, Naperville, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Sept. 27, 1972, Ser. No. 292,584

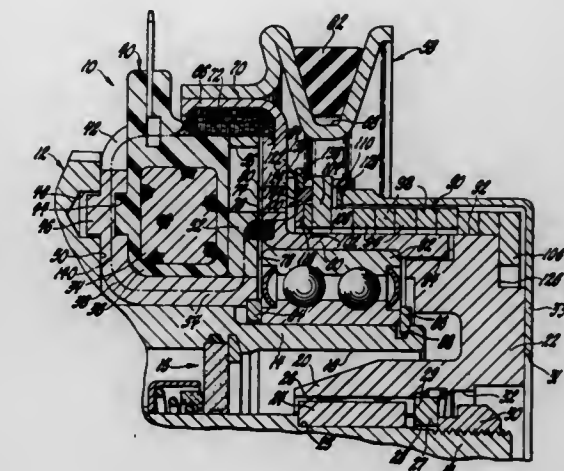
Int. Cl. F16d 67/02

U.S. Cl. 192—18 R

1 Claim



A brake and disengagement assembly for a clutch mechanism which is pivotally connected to the actuation lever such that input forces are evenly distributed.



An improved electromagnetic spring-wound clutch wherein a pair of cooperating clutch armature discs are drawn into contact with a rotating input pole member to cause a pair of interthreaded coil springs to grippingly engage axially aligned driving and driven members in a balanced manner at oppositely disposed sides thereof.

3,831,724

CLUTCH AND COUPLING UNIT

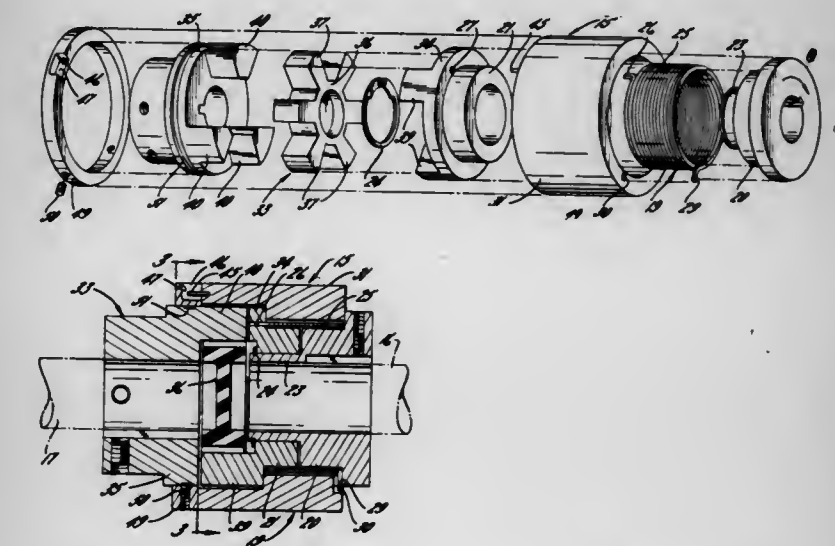
John S. Baer, Bar Harbor, Maine, assignor to Warner Electric Brake & Clutch Company, South Beloit, Ill.

Filed Nov. 6, 1972, Ser. No. 304,089

Int. Cl. F16d 43/20

U.S. Cl. 192—56 C

8 Claims



Power is transmitted between driving and driven shafts by way of a normally engaged helical spring clutch and a torsionally yieldable coupling. When a torque overload is exerted on the driven shaft, the resulting torsional deflection of the coupling is used to release the clutch.

3,831,725

HYDRAULIC CLUTCH PRESSURE MODULATOR

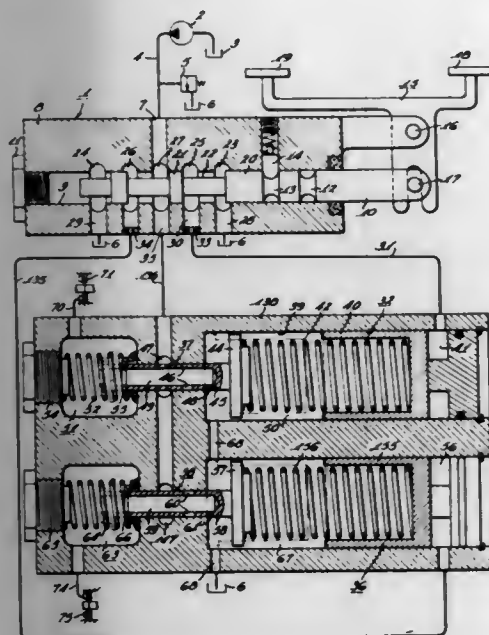
Robert E. Schott, New Berlin, Wis., assignor to Allis-Chalmers Corp., Milwaukee, Wis.

Filed Dec. 18, 1972, Ser. No. 316,364

Int. Cl. F16d 25/10

U.S. Cl. 192-87.13

10 Claims



A pressure modulator for a hydraulic valve to modulate the pressure of the hydraulic fluid supplied to two clutches as the transmission of power is transferred from one clutch to another.

3,831,726

DRIVE TRAIN WITH CONTROLLED SLIPPING CLUTCH

Albert L. Woody, Peoria; Sidney J. Audiffred, and Howard C. Steury, both of Washington, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

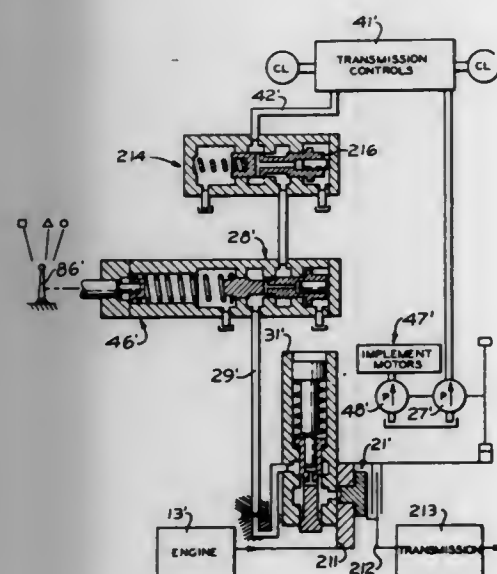
Continuation of Ser. No. 86,793, Nov. 4, 1970, abandoned.

This application Nov. 7, 1972, Ser. No. 304,492

Int. Cl. F16d 23/00

U.S. Cl. 192-103 FA

7 Claims



A drive train for vehicles such as earthmoving machines having a prime mover coupled in driving relation with ground wheels for the machine through a power input member and a power output member. One or more implements are coupled to the power input member. In order to selectively match or mismatch power delivered by the prime mover with varying power requirements for the implements and wheels, a hydraulically operated slipping clutch is arranged between the power

input and output members for adjusting power delivery from the prime mover to the output member and wheels with a manual control for regulating hydraulic operation of the slipping clutch. In other embodiments, the power input and output members are portions of a torque converter, a centrifugal valve also being provided to operate the slipping clutch in response to rotational speed of an element in the drive train and under regulation of the manual control. Another embodiment includes the slipping clutch disposed in a fluid housing subject to variable pressure with the centrifugal valve being responsive to the variable fluid pressure. In another embodiment, controls for a transmission in the drive train are also operative to provide regulation of the slipping clutch.

3,831,727

PRESSURIZING SYSTEM FOR INK JET PRINTING APPARATUS

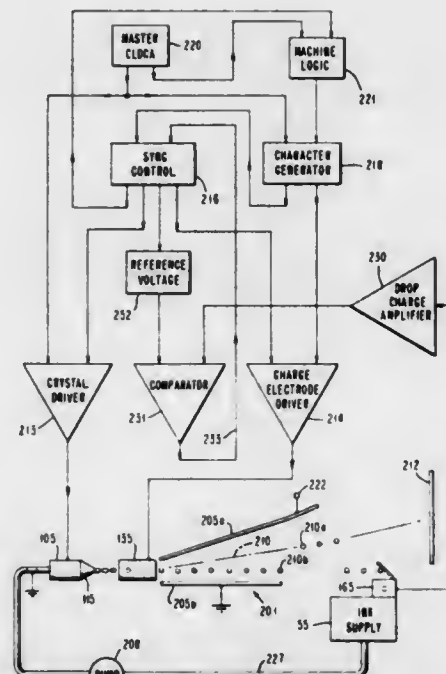
Harry R. Kruspe, and N. Kenneth Perkins, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 21, 1972, Ser. No. 308,365

Int. Cl. G01d 15/18, 18/00

U.S. Cl. 197-1 R

6 Claims



A pressurizing system for an ink jet printer is described that is mounted on a movable carrier, the carrier having an associated nozzle, charge ring, and deflection plates for generating information on a character-by-character basis or on a line-by-line basis, the carrier further including an ink supply reservoir and the entire assembly constituting an efficient structure operable at high speeds.

3,831,728

INK JET PRINTING APPARATUS WITH OVERRUN OF PRINthead TO INSURE BETTER VISIBILITY

Joe W. Woods, and Krikor Yosmali, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 11, 1972, Ser. No. 313,886

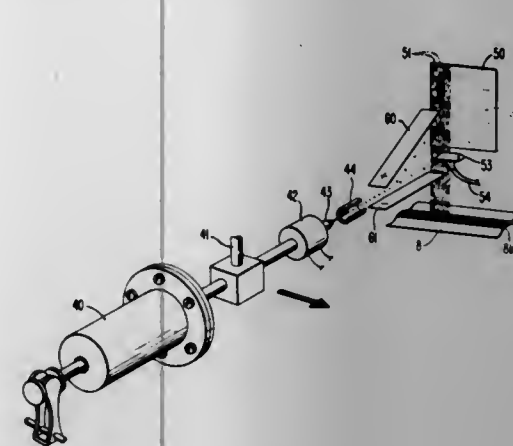
Int. Cl. G01d 15/18

U.S. Cl. 197-1 R

3 Claims

An ink jet printing apparatus has provision for both line printing and character-by-character printing. A directionally oriented grating and associated circuitry is provided to maintain a record of character and ink drop printing locations. Also, provision is made for over-shooting the printhead some distance past each character printed during an incremental

mode and for stopping the printhead to enable better visibility of the character just printed. Upon printing of the next character, the printhead first moves to the left a sufficient distance to get past the character box to be printed and sweeps to the right with the overshoot and stopping as before.



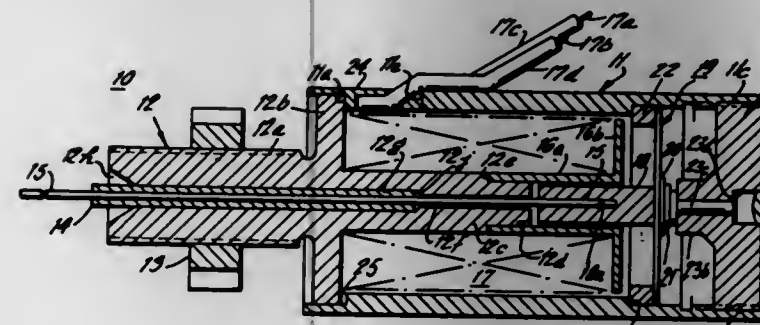
SOLENOID HAVING INCREASED THROW CAPABILITY
Robert Howard, Roslyn, N.Y., assignor to Centronics Data Computer Corp., Hudson, N.H.

Continuation-in-part of Ser. No. 203,230, Nov. 30, 1971, abandoned. This application Jan. 10, 1973, Ser. No. 322,298

Int. Cl. B41j 3/10

U.S. Cl. 197-1 R

14 Claims



A solenoid for actuating a print wire normally biased against the impact direction by novel spiral spring means. Energization of the solenoid coil rapidly moves the print wire in the impact direction against the bias of the spring. Release of the energy supplied to the solenoid coil causes very rapid return of the print wire to the non-printing (i.e., quiescent) position. The novel spiral spring structure experiences a substantially linear spring force upon deflection and provides significantly increased deflection as compared with conventional structures to allow for substantially rapid initial acceleration of the print wire in the impact direction while providing for rapid return of the print wire to the quiescent condition. The mounting of said spring reduces bouncing on overshooting.

3,831,730

KEYBOARDS

Douglas F. Koepp, 924 W. Ave. F, Kingsville, Tex. 78363

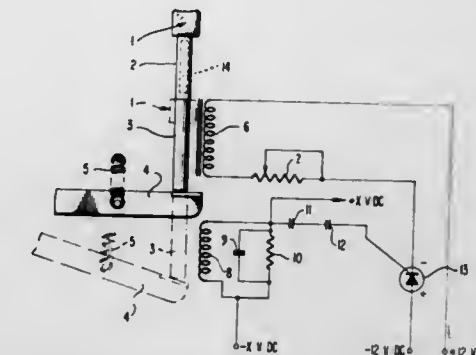
Filed Jan. 31, 1973, Ser. No. 328,239

Int. Cl. B41j 5/08

U.S. Cl. 197-98

5 Claims

Keys of a typewriter or similar machine embodying a keyboard are returned to their elevated inactive positions by a force greater than the force utilized to support the keys in their elevated positions. The increased return force may be



ce" to an advantageous position above the keyboard where they are poised for a more rapid and efficient continuing keyboard operation.

3,831,731

SELF-TENSIONING AND RE-INKING RIBBON CARTRIDGE FOR ENDLESS RIBBONS

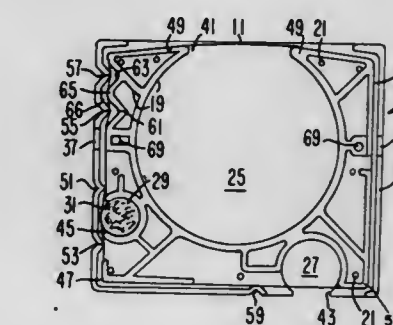
Ronald H. Mack, and John Bortins, both of Plymouth, Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Oct. 27, 1972, Ser. No. 301,641

Int. Cl. B41j 33/10

U.S. Cl. 197-168

15 Claims



A ribbon cartridge having self-contained tensioning and re-inking means is provided with a plurality of cylindrical interior compartments effective for receiving the print wheel and a friction feed roller of an impacting printing device, the cartridge being removably attachable to the printing device by means of a supporting platform such that the print wheel is operably disposed within a first of said cylindrical compartments and the friction feed roller is operably disposed within a second of said compartments, the self-tensioning means of the cartridge serving to hold the ribbon in a taut state in a printing position adjacent the print wheel and to hold the ribbon in frictional contact with a cylindrical re-inking member disposed in a third cylindrical compartment. The inked ribbon in the form of an endless loop is movably disposed within an interior peripheral channel formed in the cartridge and communicating with discontinuities formed in the walls of each of the three cylindrical compartments, the self-tensioning means being comprised of a plurality of ridge-like deformations formed in the channel.

3,831,732

APPARATUS FOR HANDLING AND TRANSPORTING CYLINDRICAL ARTICLES AND THE LIKE

Harvey A. Spies, Baltimore, Md., assignor to Maryland Cup Corporation, Owings Mills, Md.

Filed Nov. 16, 1971, Ser. No. 199,269

Int. Cl. B65g 47/00

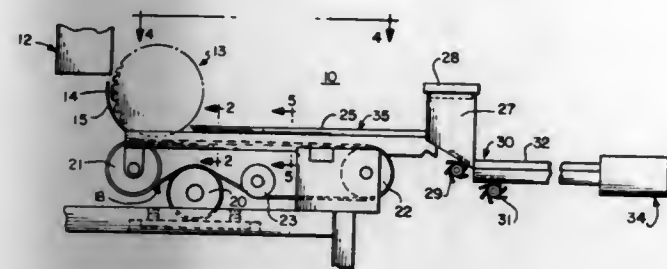
U.S. Cl. 198-20 R

23 Claims

A device for handling and transporting substantially cylindrical elongated objects between a supply station and a work station, such as a wrapping or packaging station, is described.

An intermediate storage means is provided to temporarily store objects in the event that the rate of packaging of said objects falls below the rate of supplying said objects to the trans-

or restraining the articles during their radial discharge from the rotating outer plane. The articles may be stored in reservoirs at the periphery of the outer plane. Modifications of invention include variously configuring rotating planes and



port means. This enables the packaging operation to be shut down without affecting the supply or manufacturing rate of said objects.

3,831,733

DESTACKING APPARATUS

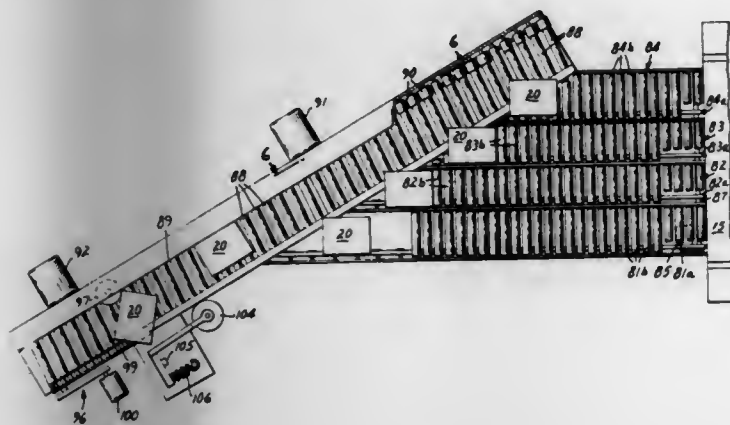
Richard W. Howard, Forest Lake Township, Wash. County, and Roman J. Weier, North Saint Paul, both of Minn., assignors to Wyard Industries, Inc., Forest Lake, Minn.

Filed Oct. 24, 1972, Ser. No. 299,948

Int. Cl. B65g 47/31

U.S. Cl. 198—32

5 Claims



An apparatus for the destacking of containers arranged in a plurality of stacked tiers, each tier containing a plurality of said containers. The apparatus lifts the stack to a position where the top tier is held in place while the stack is again lowered. A plate is placed under the separated tier of containers, the tier is then released to the plate and the plate is moved out of the path of the stack. The separated tier is then moved onto a conveyor. The containers as they move onto the conveyor are separated and directed to a transversely moving conveyor in spaced relation where they are oriented with the containers all spaced and all of the containers in the same position.

3,831,734

CENTRIFUGAL METHOD OF SORTING PARTICULATE ARTICLES

Kurt H. Hoppmann, Falls Church, Va.; George W. Edmunds, Derwood, Md., and Horst A. Schober, Falls Church, Va., assignors to Hoppman Corporation, Springfield, Va.

Filed Mar. 26, 1973, Ser. No. 344,696

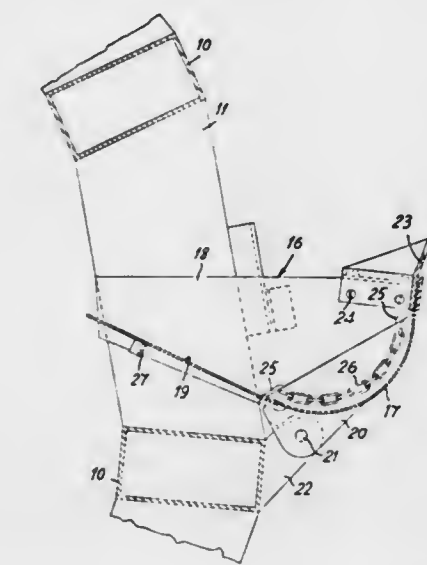
Int. Cl. B65g 47/24

U.S. Cl. 198—33 AA

9 Claims

High speed feeding, counting, orienting and storing of small parts such as candy, machine screws and nuts, ammunition, pills and the like. The articles are accelerated and centrifugally distributed in single file alignment upon a rotating inner plane, then discharged upon an inclined stationary ramp which delivers the articles in single file alignment to a rotating outer plane. The articles are spaced longitudinally by guiding

A reclaiming apparatus comprising a rotatable drum formed by a cage-like frame structure, the said drum being movable relative to a storage pile of particulate raw material. A number of buckets are secured to the cage-like drum. The buckets are disposed in parallel rows extending along the whole length of the drum, the said rows being equiangularly spaced along the drum periphery. Conveyor means are provided inside of the drum for conveying outside of the drum the particulate material discharged into the drum by the said buckets during the operation of the reclaiming apparatus.



3,831,735

BULK MATERIAL BLENDING AND RECLAIMING APPARATUS

Luigi Canella, Genova, Italy, assignor to Italimpianti Societa Italiana Impianti p.a., Genova, Italy

Filed Feb. 28, 1973, Ser. No. 336,525

Claims priority, application Italy, Mar. 4, 1972, 12515/72

Int. Cl. B65g 59/02

U.S. Cl. 198—36

3 Claims

3,831,736

POWER DRIVEN MAGNETIC CONVEYOR

Gerald Barnes, South Orange, N.J., assignor to Amerace Esna Corporation, New York, N.Y.

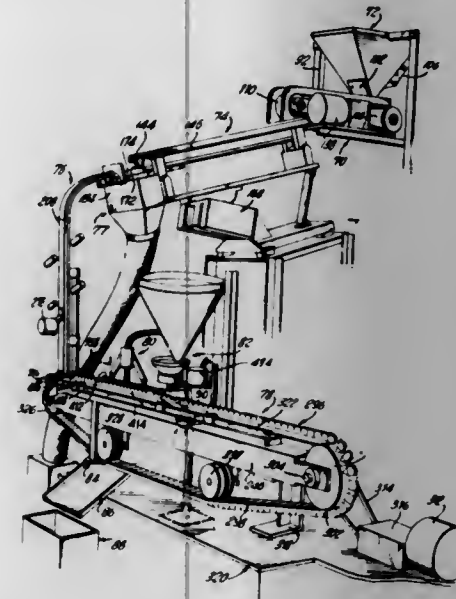
Division of Ser. No. 30,817, April 22, 1970, which is a continuation of Ser. No. 605,769, Dec. 29, 1966, abandoned.

This application July 10, 1972, Ser. No. 270,191

Int. Cl. B65g 17/46

U.S. Cl. 198—41

2 Claims



A magnetic conveyor is provided including a plurality of holding fixtures for articles of magnetic material. The fixtures are adapted to be mounted on a power driven endless belt in relatively close proximity. Each holding fixture utilizes a permanent magnet plate disposed between flat magnetic pole pieces, all of which are adapted to be sandwiched between a pair of non-magnetic members. The permanent magnet plate retains a cylindrically shaped article of magnetic material in position within opposed and aligned notches, which latter are provided in the non-magnetic member and extend below the top face of the pole pieces.

3,831,737

DECORATOR LOADING APPARATUS

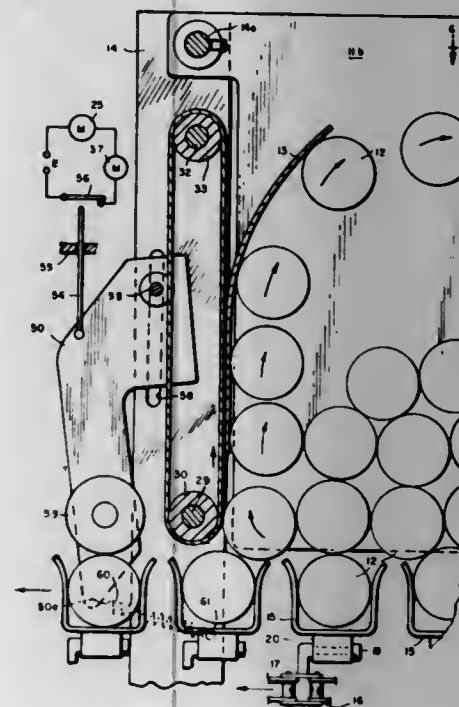
Arthur W. Joyce, Framingham, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.

Filed July 27, 1972, Ser. No. 275,476

Int. Cl. B65g 47/18

U.S. Cl. 198—57

3 Claims



Decorator loading apparatus for loading tubes or the like into carriers. The loader includes a hopper into which the

tubes are initially loaded and thereafter dispensed into tube carriers passing below the open bottom of the hopper. The tubes are either kicked vertically upwards against a deflector positioned in the hopper and deflected to the rear of the hopper or urged downwardly into a tube carrier moving below the hopper.

The above is accomplished by the use of a moving belt which preferably has a relatively high coefficient of friction and which acts on the tubes. In addition, sensor means is provided for detecting out of position tubes to turn off the apparatus to avoid jamming.

3,831,738

BOTTLE ORIENTATION APPARATUS

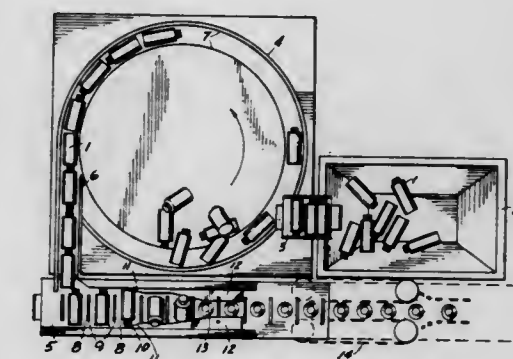
Samuel S. Aidlin, Brooklyn; Stephen H. Aidlin, Valley Stream; Melvin Hartzog, Brooklyn, and John C. Shepard, Jamaica, all of N.Y., assignors to Aidlin Automation Incorporated, New York, N.Y.

Filed Aug. 1, 1973, Ser. No. 384,517

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AC

12 Claims



A bottle orientation apparatus for use with an endless conveyor belt, adapted to receive bottles in a horizontal position from a source of supply. The apparatus is provided with a pair of cooperatively acting orientators each of which is disposed on either side of the belt, and formed of two integral guide members. The bottles being conveyed are engaged at the neck by a sloping, generally elongated, first guide member so as to provide the initial uplift to the bottle. The bottle, as it is being conveyed, is next urged into contact with a second guide member having a "V" shaped opening and continuously associated wall surfaces forming a channel for the final orientation of the bottle into the erect position.

3,831,739

MAGAZINE OR CONTAINER FOR RECEIVING ARTICLES SUCH AS CASELESS PROPELLANT CHARGES OR COMPACTS

Manfred Hartmann, Frastanz, Austria, assignor to Hilti Aktiengesellschaft

Continuation of Ser. No. 16,878, March 5, 1970, abandoned.

This application Aug. 31, 1972, Ser. No. 285,478

Claims priority, application Germany, Mar. 17, 1969, 1913500

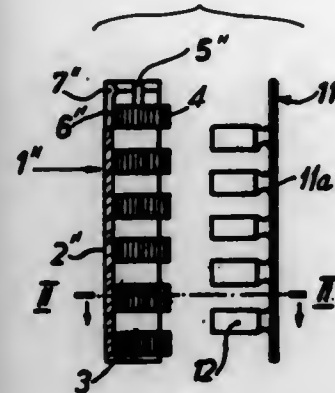
Int. Cl. B65d 85/02; F42b 37/00

U.S. Cl. 206—3

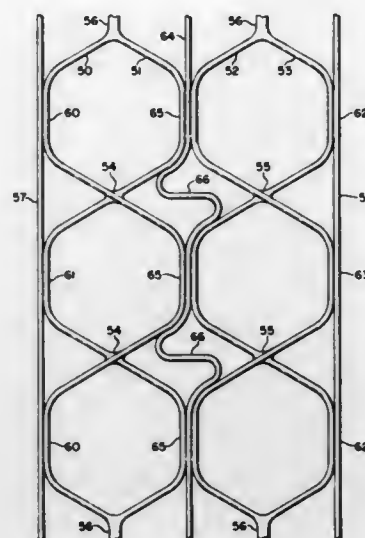
2 Claims

A magazine or container for receiving articles such as caseless propellant charges or compacts includes a tubular member having an internal diameter corresponding substantially to the diameter of the articles which are to be stored therein. The tubular member includes an end which is slotted to form segmental portions which may be deflected outwardly

for removing the articles out this end. The container includes integral stretchable bands. The fusion joints have smooth curvilinear surfaces void of sharp corners. Similarly formed



side of the container and which provides individual spacer elements for maintaining a plurality of said propellant compacts in axially spaced relationship within said container.



strands provide a handle and outer side rails. The carrier is applied to a plurality of cylindrical containers to form a package.

3,831,740

OVER THE SHOULDER GARMENT CARRIER BAG WITH HANGER HOOK SHIELD

Lewis A. Pendergast, Rt. 1, Box 31, Tolleson, Ariz. 85353, and Charles K. Sorensen, 3832 E. Yucca, Phoenix, Ariz. 85028
Filed July 21, 1972, Ser. No. 273,944

Int. Cl. B65d 85/18

U.S. Cl. 206-7 K

8 Claims



Over the shoulder garment carrier comprising a garment bag having a collar-type shield for covering the hook end of a suit hanger when the weight of the garment in the carrier is supported by the hook end of the hanger.

3,831,741

EXTRUDED PLASTIC CARRIER STOCK AND METHODS FOR PRODUCING THE SAME

Ougljesa Jules Poupitch, La Jolla, Calif., assignor to Illinois Tool Works, Inc., Chicago, Ill.

Filed May 5, 1972, Ser. No. 250,535

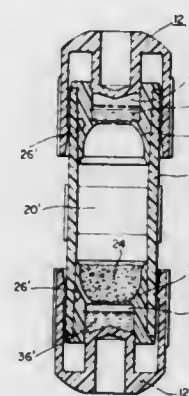
Int. Cl. B65d 71/00; B66f 19/00; D01d 11/00

U.S. Cl. 206-150

4 Claims

Multiple container carrier stock comprising strands of a resilient and deformable plastic material that has been extruded and fused in the molten or semi-molten state to form

A capsule has a hollow body defining a first compartment having an open end which is closed by a retainer, the latter being telescopically mounted within the hollow body. The retainer defines a second compartment having an open end, the second compartment being isolated from the first compartment by a frangible partition, the latter being an integrally molded portion of the retainer. The first and second compartments are utilized for storing first and second ingredients respectively. To seal the second material within the second chamber, a cap having a plunger is telescopically mounted over the capsule body, with the end of the plunger extending into the open end of the second chamber in a sealing relationship therewith. To use the capsule to mix the ingredients, it is compressed endwise so as to force the plunger inwardly to increase the pressure on the second ingredient (preferably liquid), rupture the partition, and eject the second ingredient into the first chamber. The capsule is then shaken to mix the ingredients, and the cap and retainer are pulled from the body as a unit to provide access to the mixture. The capsule may be compressed by hand alone or with the assistance of a special tool.



3,831,742

DENTAL MIXING CAPSULE

John M. Gardella, Matawan, N.J.; Anthony Ciavattoni, New Drop, N.Y., and Robert Albert Kiefer, Toms River, N.J., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed Oct. 16, 1972, Ser. No. 298,077

Int. Cl. B65d 81/32

U.S. Cl. 206-219

7 Claims

A capsule has a hollow body defining a first compartment having an open end which is closed by a retainer, the latter being telescopically mounted within the hollow body. The retainer defines a second compartment having an open end, the second compartment being isolated from the first compartment by a frangible partition, the latter being an integrally molded portion of the retainer. The first and second compartments are utilized for storing first and second ingredients respectively. To seal the second material within the second chamber, a cap having a plunger is telescopically mounted over the capsule body, with the end of the plunger extending into the open end of the second chamber in a sealing relationship therewith. To use the capsule to mix the ingredients, it is compressed endwise so as to force the plunger inwardly to increase the pressure on the second ingredient (preferably liquid), rupture the partition, and eject the second ingredient into the first chamber. The capsule is then shaken to mix the ingredients, and the cap and retainer are pulled from the body as a unit to provide access to the mixture. The capsule may be compressed by hand alone or with the assistance of a special tool.

3,831,743

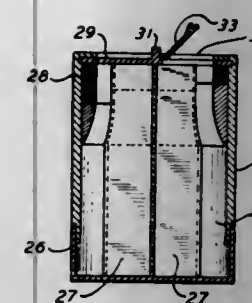
SELECTABLE MULTI-COMPARTMENT MAGNETIC DISPENSER

Robert M. Leedy, 7 Martindale Rd., Short Hills, N.J. 07078
Filed Dec. 26, 1972, Ser. No. 317,931

Int. Cl. B65d 83/00; A45c 11/00

U.S. Cl. 206-338

2 Claims



A dispensing container for magnetizable articles, such as clips, nails, nuts, bolts and similar metallic articles, is provided wherein such container has a plurality of compartments for housing magnetizable articles of different types or sizes, and which are retained by a magnet disposed adjacent an outlet opening of each compartment, so that all housed articles may be selectively removed by the user as desired. Such container may also be provided with a movable top which closes the outlet opening of all compartments except the one selected by the user for removal of a particular desired magnetizable article.

3,831,744

CONTAINERS

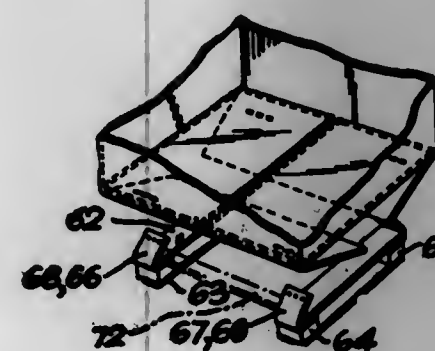
Rex Keith Walden, Hertford; Arthur Henry Tompkins, and Harold Abraham Ross, both of London, all of England, assignors to Ross Bros. (London) Limited, London, England
Filed Oct. 27, 1972, Ser. No. 301,443

Claims priority, application Great Britain, Oct. 29, 1971, 50496/71

Int. Cl. B65d 19/20

U.S. Cl. 206-386

3 Claims



A container for goods is disclosed, wherein the bottom of the container on which the goods are to rest comprises at least two superimposed layers of material and wherein there are provided a plurality of supports to space the bottom of the container from the ground, each of which supports comprises a first part sandwiched between the two layers and a second part disposed beneath the lower of the two layers, which parts are connected by another part which projects through an aperture in the said lower layer. The other part may be integral with either the first part or the second part, and the second parts of the supports may be interconnected by spacing means outside the container.

3,831,745

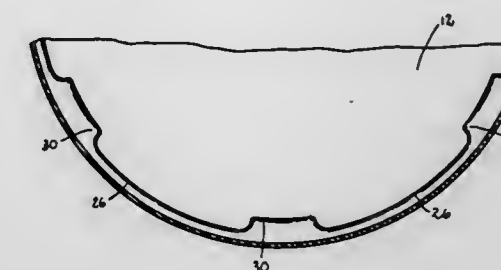
CONTAINER WHICH IS NESTABLE WITHOUT STICKING

John H. Rump, Lisle, and Joseph E. Smith, Palos Hills, both of Ill., assignors to Monsanto Company, St. Louis, Mo.
Filed Nov. 24, 1971, Ser. No. 201,873

Int. Cl. B65d 21/02

U.S. Cl. 206-520

6 Claims



A nestable, cup-like container having special circumferentially extending stacking means formed in its sidewall which includes two sets of inwardly extending supporting projections, each set being intermediate the other, one set extending inwardly further than the other and serving as the primary means of support of a similar container when nested therein, whereas the other set serves as a secondary means of support for such a similar container.

3,831,746

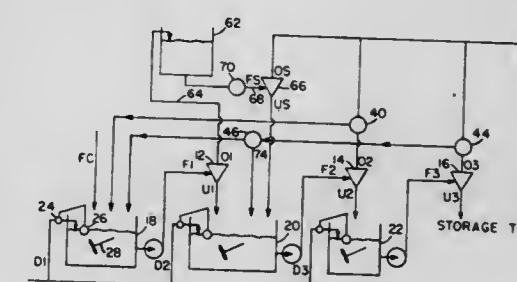
RECOVERING FILTER AID PARTICLES FROM FILTER CAKE

Peter C. Wilson, P.O. Box 561, Evergreen, Colo. 80439, and Robert P. Hughart, 9451 E. Grand St., Englewood, Colo. 80110

Continuation-in-part of Ser. No. 838,826, July 3, 1969, abandoned. This application Aug. 2, 1971, Ser. No. 168,277
Int. Cl. B03b 9/00

U.S. Cl. 209-2

5 Claims



A method of recovering filter aid particles from a filter cake and the reuse of filter aid particles reclaimed from a filter cake. The method of recovering filter aid particles involves separating from a diluted filter cake a substantial part of the filter aid particles by centrifuging the material, sequentially, in a plurality of spiral paths at a force varying between approximately 250-7000 times the force of gravity, while producing a vortex of gradually and constantly decreasing diameter and, prior to each separating step, diluting the filter cake by adding a liquid thereto and agitating and intermixing said material until the filter cake is substantially uniformly distributed throughout the liquid whereby substantially all of the filter aid particles are subjected to the cleansing action of said liquid. The method of recovering filter aid particles also involves the spinning of diluted filter cake, sequentially, in a plurality of paths to produce a vortex of gradually and constantly decreasing diameter at a velocity and for a sufficient period of time to separate from the slurried filter cake a substantial part of the filter aid particles and centrifuge same radially outwardly along the path but at a velocity less than that required to over-

come the drag exerted by the material upon a substantial part of the remaining solids contained in the slurried filter cake, continuously withdrawing a portion of the material including the centrifuged filter aid particles from a point of minimum diameter of each of said paths, causing the balance of the material including entrained filter aid particles, to return freely and without obstruction in the opposite direction through the interior of the vortex to a point removed from the point of minimum diameter of the paths, and processing the balance of the material returned through the interior of the vortex associated with the first path by spinning same in a similar path thereby substantially increasing the amount of filter aid so recovered. The reusable filter aid particles reclaimed from the filter cake have a flow rate of at least approximately 2 1/2% greater than the relative flow rate of the unused filter aid particles used in forming said filter cake, at least approximately 10% greater than the flow rate of the unused filter aid particles used in forming said filter cake where said relative flow rate of said unused filter aid particles was approximately 10 or less, and at least approximately 20% greater than the flow rate of the unused filter aid particles used in forming said filter cake where said relative flow rate of said unused filter aid particles was approximately six or less.

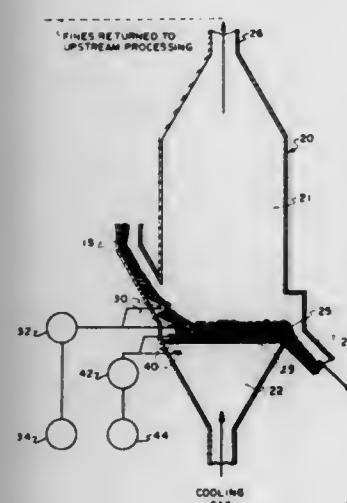
3,831,747

FLUIDIZED BED PROCESSING OF CARBON BLACK
Oscar Thomas Scott, and Bennie Smithers Setliff, both of Borger, Tex., assignors to J. M. Huber Corporation, Locust, N.J.

Filed June 2, 1972, Ser. No. 259,212
Int. Cl. B03b 1/00, 13/00

U.S. Cl. 209-11

8 Claims



An improved manufacturing technique for simultaneously cooling and separating "fines" and/or contaminants from granular materials or powders such as carbon black is disclosed. The process includes the use of a fluidized bed to effect the removal of fines and foreign matter, the quenching of exothermic reactions and extinguishing of fires as they may exist and the continuous cooling of hot granular materials such as pelletized carbon black. Due to the high rate of heat transfer in the fluidized bed, very rapid cooling of the material is accomplished and in a manner such that, for example, cooled carbon black shows no tendency to spontaneously generate heat or to burn or begin or continue rapid oxidation while in bulk storage and/or transporting facilities. Through proper instrumentation of the fluidized bed, the presence of exothermic reactions, such as fires in the dryer as well as the presence of endothermic reactions, such as the presence of "wet" black can be simply and easily detected.

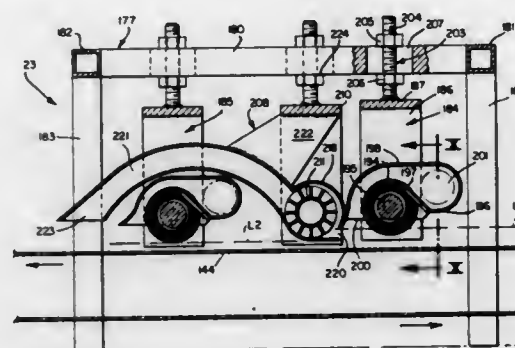
3,831,748 TRASH SEPARATING APPARATUS

Lawrence Berkowitz, Willingboro; Georges Novickis, Lindenwold, both of N.J., and Prafulchandra N. Sheth, Landsdowne, Pa., assignors to Dickson Paper Fibre, Inc., Philadelphia, Pa.

Division of Ser. No. 846,320, July 31, 1969, Pat. No. 3,643,797. This application Feb. 14, 1972, Ser. No. 225,852
Int. Cl. B03b 7/00; B03c 7/08

U.S. Cl. 209-12

3 Claims



A conveyor transports a mixture of shredded paper materials and film along a predetermined path. Spaced electrostatically charged rotary brushes extracts the film from the mixture. A comb removes the film from the brushes and an exhaust duct carries off the thus removed film. An impeller intermediate the brushes removes the paper material and deposits it again on the conveyor downstream of the second brush.

3,831,749

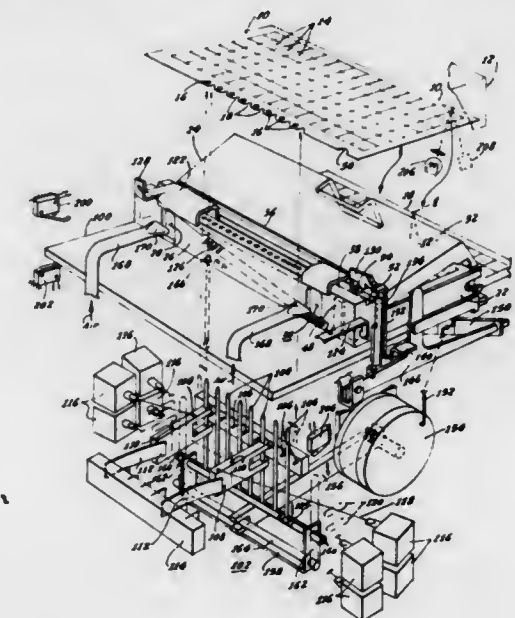
SELECTOR MECHANISM INCLUDING CASSETTE STORAGE

Alfred M. Nelson, Redondo Beach; Robert G. McPherson, and Maurice S. Martin, both of Palos Verdes Peninsula, all of Calif., assignors to Cubic Industrial Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 247,805, April 26, 1972, abandoned. This application July 17, 1972, Ser. No. 272,192
Int. Cl. B07c 3/10

U.S. Cl. 209-110.5

25 Claims



A selector mechanism for use in selecting an individual one from a plurality of cards and wherein each card has an individual code formed by openings through the card and notches extending from a back edge of the card and including a cassette for receiving and storing the plurality of cards adjacent to each other with the openings and notches aligned along parallel axis and including an open front for allowing

forward movement of the cards in planes perpendicular to the parallel axis and with a table for supporting the cassette in a horizontal plane and with the forward movement of the cards in a horizontal direction and with a pin assembly including a plurality of pin members movable along vertical axes coextensive with the vertical axes of the aligned openings and notches of the cards and with the pin members movable in a vertical direction to have the pin members pass through at least one opening in all of the cards except one and with compressed air coupled to the cards for providing horizontal forward movement of the cards and with all of the cards except the one card restrained by the pin members from forward movement.

3,831,750

SEPARATION OF ION EXCHANGE RESINS HAVING DIFFERENT DENSITIES

Vincent Savall, Velizy-Villacoublay; Pierre Treille, Saint-Cloud, and Jean Bouchard, Paris, all of France, assignors to Degremont, Societe Generale D'Epuraton et D'Assainissement, Rueil Malmaison, France

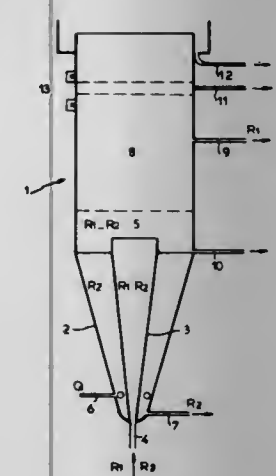
Filed Aug. 7, 1972, Ser. No. 278,284

Claims priority, application France, Dec. 9, 1971, 71.29053

Int. Cl. B03b 3/34

U.S. Cl. 209-160

5 Claims



Improved fluidizing apparatus adapted to separate continuously ion exchange resins having different densities in order to perform their selective classification according to suitable granulometric distributions. The apparatus comprises a first separation chamber and in the lower portion of this first separation chamber a second chamber coaxially thereto having a gradually increasing cross-section from the bottom to the top.

This apparatus is notably applicable to a method of separation if ion exchange resins in movable-bed demineralizing installations in which the resins and their supporting fluid are introduced in the bottom of the second chamber in which they circulate upwards in the first chamber from which they are discharged in different zones depending on their densities.

3,831,751

SEPARATING APPARATUS WITH A DRIVE FOR THE CONVEYOR

Camillo Pirovano, 22052 Cernusco Lombardone, Italy

Filed June 26, 1972, Ser. No. 266,342

Claims priority, application Italy, July 8, 1971, 26743/71

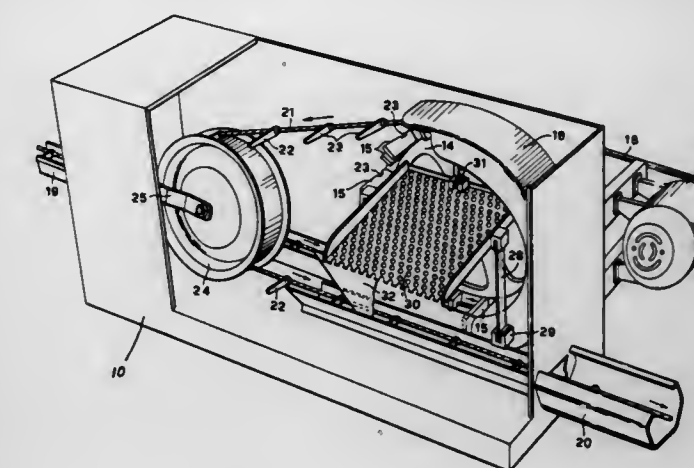
Int. Cl. B07b 1/28, 1/42

U.S. Cl. 209-247

5 Claims

A separating apparatus with a conveyor for loose material comprising an endless flexible element, to which a plurality of radially projecting spaced members are fixed, which are slidable in a guide so as to push and convey the loose material

charged in said guide, and drive means including a rotative cylindrical rotor, having substantially radial blades, said flexi-



ble element being wound on said rotor, so that the blades of the rotor engage the said projecting members, whereby said flexible element is advanced.

3,831,752

GRADING MACHINE FOR BEANS AND OTHER OBJECTS

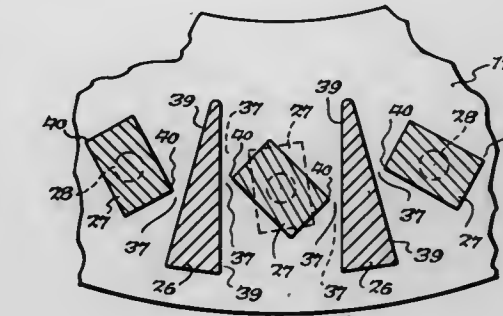
Robert L. Holloway, Snyder, N.Y., assignor to Chisholm-Ryder Company, Inc., Niagara Falls, N.Y.

Filed Jan. 18, 1973, Ser. No. 324,736

Int. Cl. B07b 1/00

U.S. Cl. 209-394

13 Claims



A grader for beans and other products including a generally horizontal drum defined by spaced alternating fixed and movable grader bars oriented to define a cylindrical shell, said fixed and movable grader bars being of a predetermined configuration so that mechanism for pivoting the movable grader bars varies the spacing between said fixed and movable grader bars to provide equal spaces between each movable grader bar and the adjacent fixed grader bars on opposite sides thereof in all pivotal positions of said movable grader bars. A grader drum having fixed and movable grader bars oriented as described above for use in a grader.

3,831,753

SLOTTED IN-LINE SCREEN

Eber W. Gaylord, Pittsburgh; Robert J. Goodwin, Oakmont, and Ernest A. Morl, Hampton Township, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Dec. 18, 1972, Ser. No. 316,348

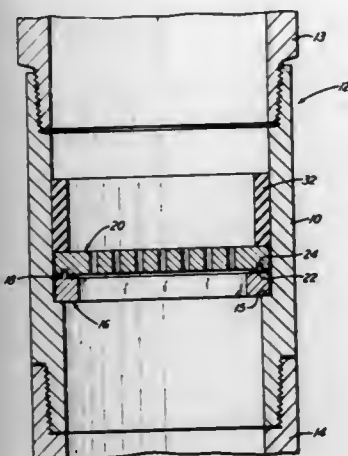
Int. Cl. B07b 1/52; E21b 7/18, 17/00

U.S. Cl. 209-399

10 Claims

A strainer for preventing the passage of oversized particles suspended in an abrasive-laden liquid flowing through a conduit. The strainer consists of a pair of plates, each of which has a plurality of parallel slots extending through it. The plates are oriented with respect to one another in a manner such that the slots are at an angle, preferably of 90°, to provide openings allowing the abrasive-laden liquid to flow through the assembly.

Interlocking means or cement hold the plates in the desired orientation. In a preferred embodiment of the invention, a spacer between the discs provides additional control of the



size of the openings through the assembly. The plates are of tungsten carbide and preferably of a single solid piece of tungsten carbide in which the slots are cut.

3,831,754

FLUID TREATING APPARATUS

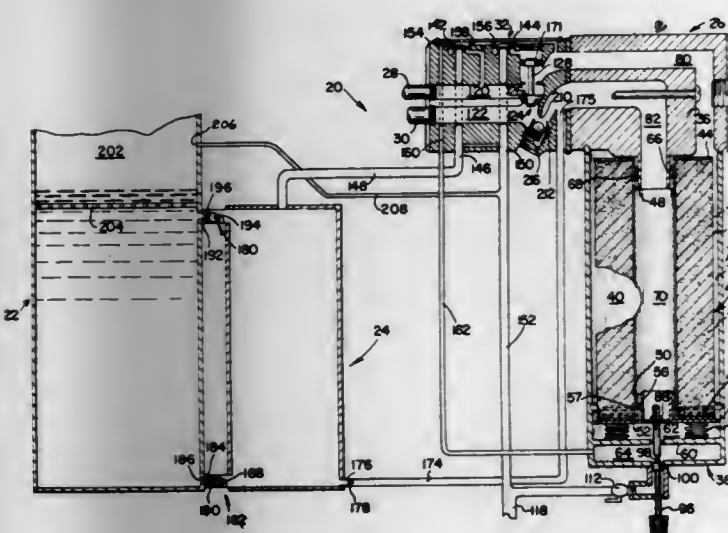
Don Edward Heskett, Villa Park, Ill., assignor to Morton-Norwich Products, Inc., Chicago, Ill.

Filed Aug. 16, 1971, Ser. No. 171,852

Int. Cl. B01d 15/06

U.S. Cl. 210-80

39 Claims



A fluid treating apparatus having a treating cartridge of an active treating material, such as an ion exchange material, which undergoes dimension change upon reduction of its treating capacity as well as upon regeneration of the capacity thereof, a regenerant source (e.g. brine) for regenerating the ion exchange resin, and a dimension sensing mechanism which also operates flow control valves within the apparatus so that the cartridge is regenerated as required by flowing brine or other regenerative material through the cartridge, after which the apparatus automatically returns to its original state. In one described embodiment, the operation of all valves is completely hydraulic and in another embodiment the flow control valves are operated electromechanically. In one embodiment, the apparatus is arranged so that the cartridge dimension is sensed only when fluid flow through the cartridge is interrupted so that regeneration will not occur during use; fluid bypasses the cartridge during regeneration so that flow is not interrupted unintentionally. The active treating material, in a preferred embodiment, is very fine mesh material bound into a cartridge to provide the system with an extremely high rate of exchange.

3,831,755
FILTRATION APPARATUS

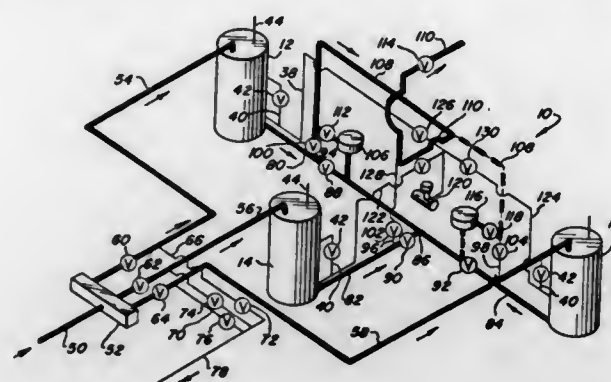
Brian L. Goodman, Overland Park, Kans.; Frank G. Weis, Kansas City, Mo., and Kenneth A. Mikkelsen, Overland Park, Kans., assignors to Ecodyne Corporation, Chicago, Ill.

Filed June 28, 1971, Ser. No. 157,406

Int. Cl. B01d 23/24

U.S. Cl. 210-108

8 Claims



An improved apparatus for the cleaning of filter beds of a filtration apparatus which comprises a plurality of filter units, each of the units having an upper influent zone, a filter bed, and a lower filtrate zone, and including means for pumping liquid from all of the filtrate zones at a given pumping rate. In accordance with the invention, during the service cycle, liquid is pumped by the pump means from the filtrate zones to service, so that it passes through the filter bed in a downflow direction. When one of the filter units requires backwashing, the pump means is employed to pump liquid simultaneously from the filtrate zones of a majority of the filter units, so that the backwash rate is greater than the normal downflow rate through the filter unit. As an alternative to backwashing a minority of the filter unit with liquid from the majority of the units, or in addition thereto, the increased backwashing rate can be provided by increasing the pumping rate beyond the given rate during the backwashing by using booster pump means.

3,831,756

SURFACE TENSION METHOD OF AND APPARATUS FOR SEPARATING IMMISCIBLE LIQUIDS

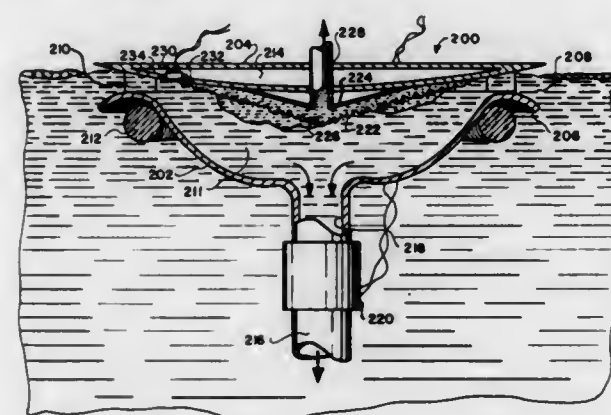
Pravin G. Bhuta, Torrance; Robert L. Johnson, Marina Del Rey, and Douglas J. Graham, Redondo Beach, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Division of Ser. No. 50,640, June 29, 1970, Pat. No. 3,703,463. This application Sept. 13, 1972, Ser. No. 288,593. The portion of the term of this patent subsequent to Nov. 21, 1989, has been disclaimed.

Int. Cl. B01d 21/00

U.S. Cl. 210-109

1 Claim



An apparatus for separating a selected liquid from a second liquid in which the selected liquid is immiscible by a surface tension action utilizing a hollow liquid surface tension separator having a surface tension screen wall is described. The separator is filled with the selected liquid and the outer side of

its surface tension screen is placed in contact with the body of immiscible liquids to be separated, such that each screen pore exposed to the second liquid of the body contains a liquid-liquid interface whose interfacial surface tension resists passage of the second liquid through the pore. A pressure differential, less than the critical pressure differential necessary to overcome the interfacial surface tension force acting across the pore, is established across the screen to drive the selected liquid only through the screen into the separator. The primary application of the invention involves the removal or recovery of oil from a water surface utilizing an oil recovery apparatus which floats on and in some cases is propelled along the water surface and is equipped with one or more surface tension liquid separators for extracting the oil from the water surface.

3,831,757

WATER PURIFYING AND DISTRIBUTING SYSTEM

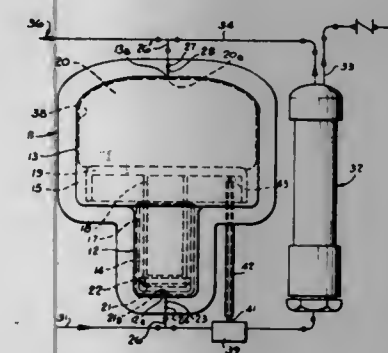
Charles W. Gossett, 14025 Crenshaw Blvd., Hawthorne, Calif. 90250, and William J. Dauenhauer, P.O. Box 487, Gualala, Calif.

Filed Oct. 18, 1972, Ser. No. 298,501

Int. Cl. B01d 31/00

U.S. Cl. 210-143

5 Claims



A system of repetitively replenishing a reserve supply in a reservoir of product water discharged from a reverse osmosis module, the input of which is connected to a valve-controlled conventional water service line and the output of which is in communication with said reservoir and a valve controlled product dispensing line.

3,831,758

WASTE TREATMENT SYSTEM

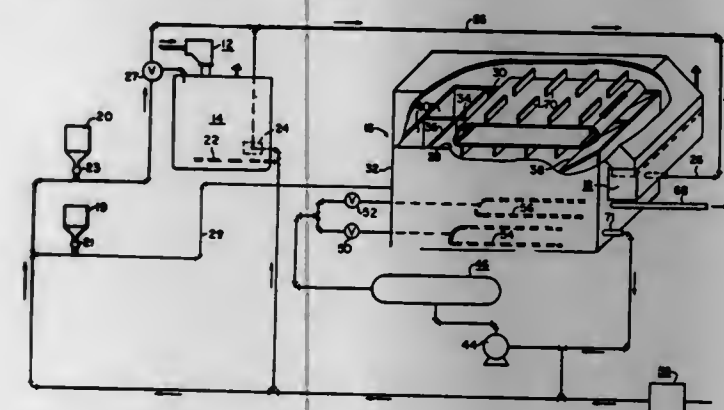
Robert F. Watson, Jr.; Carl Labovitz, and Peter R. Mulik, all of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 129,686, March 31, 1971, abandoned, which is a continuation-in-part of Ser. No. 80,984, Oct. 15, 1970, abandoned. This application July 5, 1973, Ser. No. 376,849

Int. Cl. B03d 1/00; C02c 1/38

U.S. Cl. 210-199

10 Claims



The effluent from a surge-conditioning tank is conveyed through two or more flotation cells flow-coupled in series with stagnation regions therebetween.

3,831,759

FUNNEL WITH MAGNETIC FILTER RETAINER

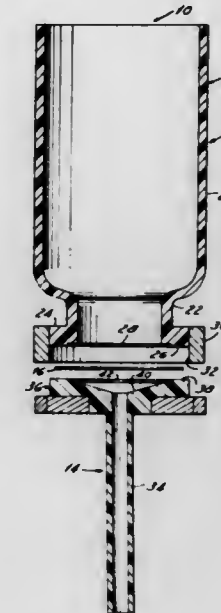
Charles Gelman, and Attila Vadnay, both of Ann Arbor, Mich., assignors to Gelman Instrument Company, Ann Arbor, Mich.

Filed Sept. 29, 1972, Ser. No. 293,427

Int. Cl. B01d 29/10

U.S. Cl. 210-232

12 Claims



A funnel with a spout assembly slidably received in the lower end of a reservoir assembly to releasably retain a filter disc therebetween. The reservoir and spout assemblies are yieldably urged toward each other to retain the disc therebetween by the attraction of a magnet on the spout assembly for a steel ring on the reservoir assembly.

3,831,760

ACTIVATED CARBON CHEMICAL ADSORPTION ASSEMBLY

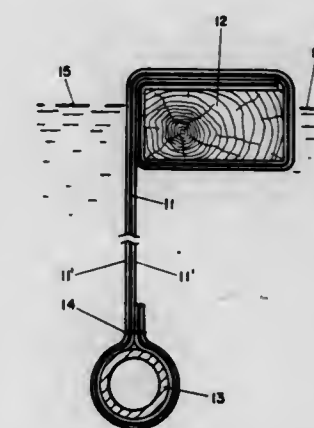
James Economy, Eggertsville, and Ruey Y. Lin, Williamsville, both of N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed June 28, 1972, Ser. No. 266,964

Int. Cl. E02b 15/04

U.S. Cl. 210-242

20 Claims



Activated carbon textile is provided with a buoyant member (floating support) and a sinking weight, for use in controlling chemical spillage on commercial waterways such as rivers, lakes, oceans and other bodies of water. According to various embodiments of the invention, the activated carbon chemical adsorption assembly can be constructed in configurations which are essentially one dimensional, two dimensional, or three dimensional, with various degrees of dimensional stability. Chemical spillage is preferably controlled by the use of a combination of various embodiments, which differ as to convenience and effectiveness, with the more convenient configurations being somewhat less effective, and the more effective configurations being somewhat less convenient to use.

3,831,761

CLEANING SYSTEM FOR A HIGH SPEED FILTER

Robert Chantreau, Thionville, France, assignor to Societe Anonyme dite: Societelorraine de Laminage Continu, Paris, France

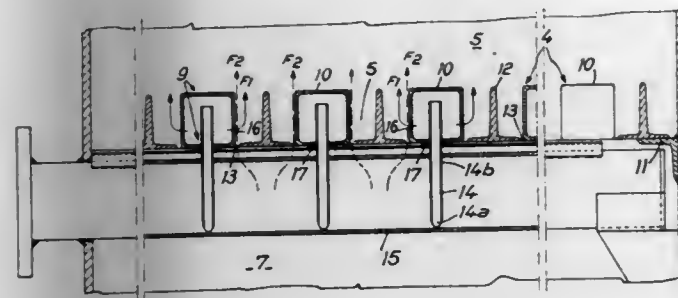
Filed Nov. 14, 1972, Ser. No. 306,189

Claims priority, application France, Nov. 16, 1971, 71.41009

Int. Cl. B01d 23/24

U.S. Cl. 210—274

15 Claims



A cleaning system for a high speed filter using a filter platform of tubular distributor conduits each conduit having an associated dip tube for providing communication between the conduits and a declogging gas distributor pipe.

3,831,762

REMOVABLE SEDIMENT CONTAINER FOR ROTATING FLUID SYSTEM

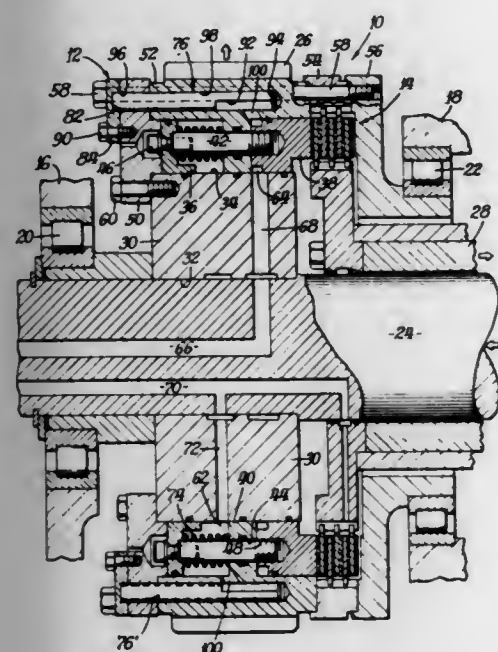
Gunter W. Schulz, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 30, 1973, Ser. No. 346,650

Int. Cl. B01d 35/28

U.S. Cl. 210—297

7 Claims



A removable sediment container mounted within a rotatable fluid housing for collecting suspended deleterious materials which are thrown outwardly by virtue of the rotation of said housing through the impetus of centrifugal force. A plurality of removable sediment containers are disposed in angularly spaced relation about the periphery of the rotatable fluid housing.

3,831,763

SEPARATION APPARATUS

Jacques Breyse, Villeurbanne, and Jean Roget, Lyon, both of France, assignors to Rhone-Poulenc S.A., Paris, France

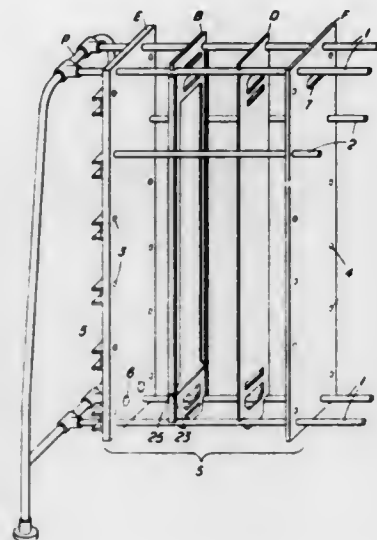
Filed Feb. 24, 1972, Ser. No. 228,887

Claims priority, application France, Feb. 25, 1971, 71.06493; June 1, 1971, 71.19774

Int. Cl. B01d 31/00

U.S. Cl. 210—321

10 Claims



Separation apparatus useful particularly for ultra-filtration in which a series of membranes are mounted in superposed relationship with membrane supports, and, where appropriate, distribution plates therebetween, the membranes being mounted in sub-assemblies so that the flow of fluid through the individual chambers between the membranes of a particular sub-assembly is substantially in parallel.

3,831,764

PUSHER-TYPE CENTRIFUGE

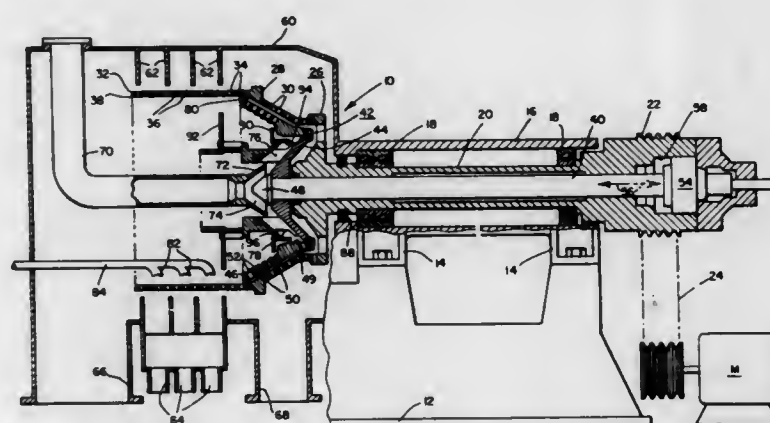
Dean Edson Humphrey, Lansdale, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed June 5, 1973, Ser. No. 367,274

Int. Cl. B01d 33/02

U.S. Cl. 210—376

10 Claims



Annular structure is provided outwardly of the accelerator vanes in the annular feed passageway of a pusher centrifuge. The annular structure recombines into an annular stream the subdivided feed streams flowing outwardly of the accelerator vanes, thereby reducing abrasive wear on the screen of the inner rotor.

3,831,765

FILTER FRAME

Robert E. Flynn, Mascouche, Quebec, and Gordon L. Price, Bath, Ontario, both of Canada, assignors to Domtar Limited, Montreal, Canada

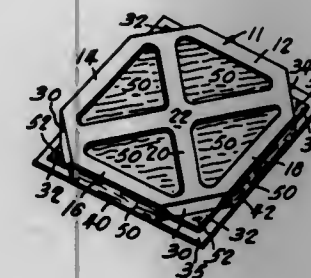
Filed Sept. 18, 1972, Ser. No. 290,252

Claims priority, application Canada, Oct. 7, 1971, 124728/71

Int. Cl. B01d 27/08

U.S. Cl. 210—484

5 Claims



A filter frame is provided by a pair of retaining walls formed of corrugated material and provided with suitable apertures therein with the filter material trapped therebetween. The two frames are spaced by spacing walls which are integrally, foldably connected to at least one of the walls and are secured to the other wall to trap the filter material in place. The retaining walls extend at an angle to each other to prevent collapse of the frame.

3,831,766

FILTER MEDIA

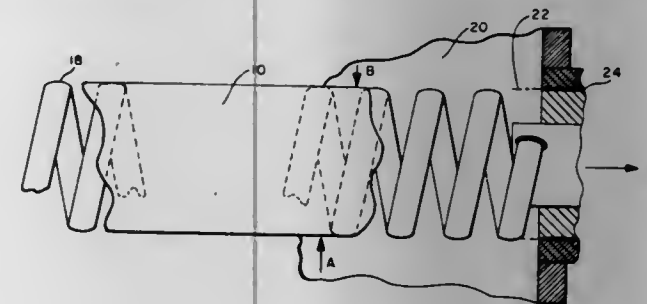
Nicholas S. Newman, West Newton; Robert R. Alexander, Milford, and Donald A. Sheldon, Walpole, all of Mass., assignors to The Kendall Company, Walpole, Mass.

Filed Apr. 9, 1973, Ser. No. 349,118

Int. Cl. B01d 39/18

U.S. Cl. 210—508

4 Claims



Filter media suitable for use in the filtration of fluids under substantial pressure are derived from nonwoven fabrics comprising a blend of fibers which have a low volumetric wet swelling index and fibers which have a high volumetric wet swelling index.

3,831,767

APPARATUS FOR REMOVING SLUDGE FROM A RECTANGULAR FLOTATION TANK

Jean Lefur, Les Etangs; Robert Louboutin, La Celle Saint Cloud, and Vincent Savall, Velizy, all of France, assignors to Degremont Societe Generale D'Epuration et D'Assainissement, Rueil-Malmaison, France

Claims priority, application France, June 20, 1972, 72.22144

Filed May 18, 1973, Ser. No. 361,839

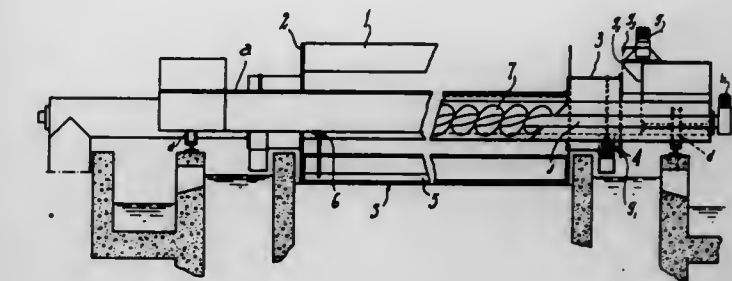
Int. Cl. B01d 43/00

U.S. Cl. 210—526

7 Claims

An apparatus for extracting sludge from a rectangular sewage flotation tank comprises a bridge structure having rotatably mounted thereon a horizontal drum driven for rotation and provided with suitably shaped vanes, the direction of

rotation of the drum and vane assembly being such that at the point of contact thereof with the scraped surface the direction of its velocity vector is opposed to the direction of travel of the bridge structure. The bridge structure also includes a suitably



shaped scraper blade pushing the sludge continuously towards the front of the movable vanes of the drum, whereby the extracted sludge is fed to a discharge device mounted inside the tubular shaft of the drum and provided with means for directing the sludge into a container secured to the bridge.

3,831,768

VARIABLE HEIGHT GARMENT RACK

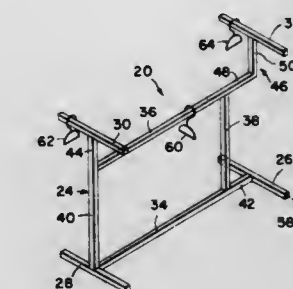
George C. Keller, 35 E. 38th St., New York, N.Y. 10016

Filed Nov. 24, 1972, Ser. No. 309,241

Int. Cl. A47f 5/01

U.S. Cl. 211—1

15 Claims



A garment rack having a fixed frame with several sides and a plurality of rods or sections for garment hangers, or the like, disposed within the frame perpendicularly to provide different heights for different hanger rod sections, in which the hanger rod sections are associated with the sides of the frame so that when the frame is moved with relation to a level support surface to rest on a different side, a hanger rod section will be positioned at a different height from the support surface.

3,831,769

SAUSAGE CASING CLOSURE AND SAUSAGE SMOKING METHOD AND APPARATUS

Joseph J. Frank, 401 Osborne Ave., Brielle, N.J. 08730

Filed Sept. 26, 1969, Ser. No. 861,277

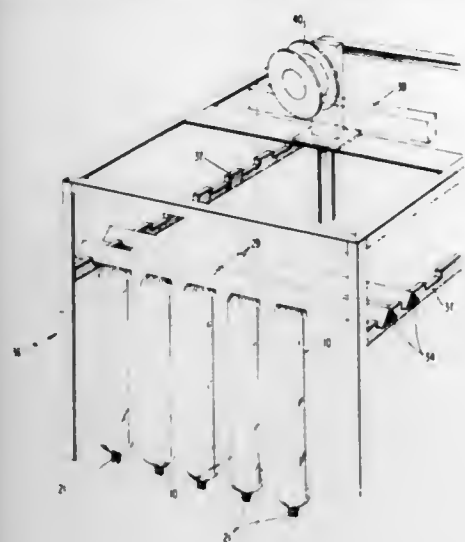
Int. Cl. A47f 5/08

U.S. Cl. 211—113

4 Claims

A novel closure device for the casing of a sausage or the like, such closure device having a flange at the end thereof remote from the sausage whereby the sausage may be hung

upon a smoke stick having a longitudinally disposed dovetail slot adapted to receive the said flanges on the closure devices



of a plurality aligned sausages. The method and apparatus for smoking sausages provided with such closure devices are also claimed.

3,831,770

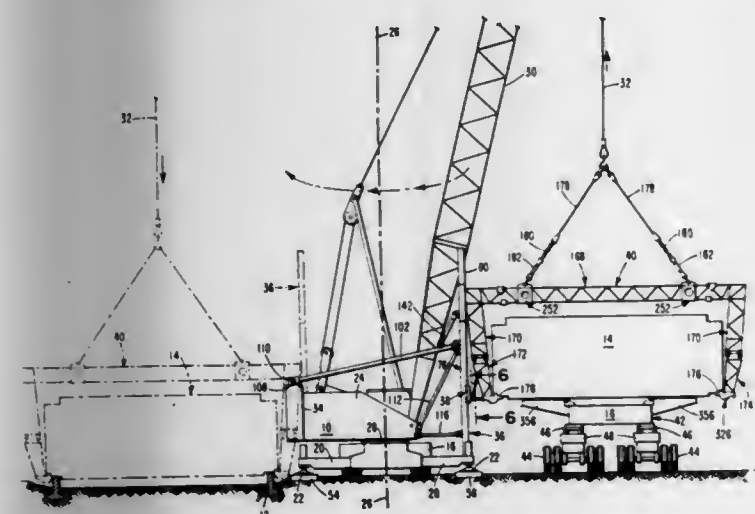
SNUBBING FRAME FOR ROTARY CRANES

C. Robert Gottlieb, Mobile, Ala., and Eugene C. Lewis, Scotch Plains, N.J., assignors to Diamondhead Corporation, Mountainside, N.J.

Filed Dec. 6, 1972, Ser. No. 312,575
Int. Cl. B66c 3/00

U.S. Cl. 212-42.5

15 Claims



A self transportable system and method for placing full size, interiorly finished factory constructed housing units the system having as basic components, a vehicular rotary crane, a snubbing frame mountable on the crane to swing with the boom thereof, a load spreader to be handled by the crane during house placement operations and a transporter to position a housing unit relative to the crane and adapted to receive the spreader for site-to-site travel.

3,831,771

MOBILE CRANE WITH TELESCOPIC BOOM AND JIB AND METHOD FOR CONNECTING THE LATTER

Daniel C. Wiencek, Cedar Rapids, Iowa, assignor to Harnischfeger Corporation, Milwaukee, Wis.

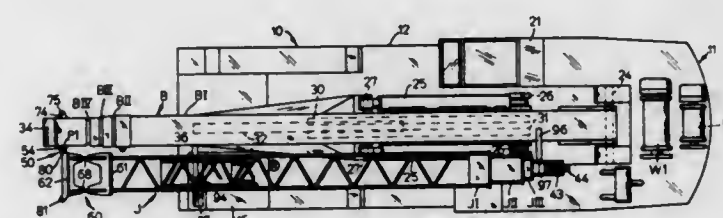
Filed Feb. 16, 1973, Ser. No. 333,377
Int. Cl. B66c 23/06

U.S. Cl. 212-55

22 Claims

A mobile crane comprises a multisection telescopic boom and an optionally usable multisection telescopic lattice type jib (having a base section and axially movable intermediate

and fly sections) which when not in use is telescoped and stored on a support in parallel reverse disposition alongside the boom. Each jib section comprises four hollow tubular longitudinal members (each of rectangular cross-section) arranged in parallel spaced apart relationship with a plurality of angularly disposed tubular cross braces connected between each pair of members to define a jib section of rectangular cross section. Each longitudinal member is rotated on its axis to present opposite inwardly and outwardly facing flat bearing surfaces and also to present two other opposite flat surfaces to which the ends of the cross braces are welded. Bearing means are provided to facilitate relative sliding motion and to transmit thrust forces between adjacent jib sections. The bearing means comprises inwardly facing slide pads mounted at the lower front ends of the base and intermediate sections and outwardly facing slide pads mounted at the upper and lower rear ends of the intermediate and fly sections; each slide pad being mounted on a support secured within the hollow end of



a tubular longitudinal member and engaged with an appropriate bearing surface on an adjacent jib section. To unstore the jib and set it up for use, the foot end of the jib is releasably connected by pivot pin means to the point end of the boom and the boom is partially extended to axially move the jib forward clear of its support. At this stage the unextended jib may be swung 180° about the pivot pin means into axial alignment with the boom and rigidly secured thereto by suitable attachment means. Or, the jib may be partially or fully extended prior to being swung 180° by connecting either the jib intermediate section or the jib fly section, respectively, by releasable rear pin means to the boom base section and by then further extending the boom, either partially or fully, respectively. In all cases, prior to swinging the jib, a guy wire jib mast pivotally attached to the boom point and folded back alongside the boom is swung into upright position. The jib is designed so that it can be rigidly connected at an angle to the boom axis and so that the jib fly section can be rigidly connected at an angle to the jib axis.

3,831,772

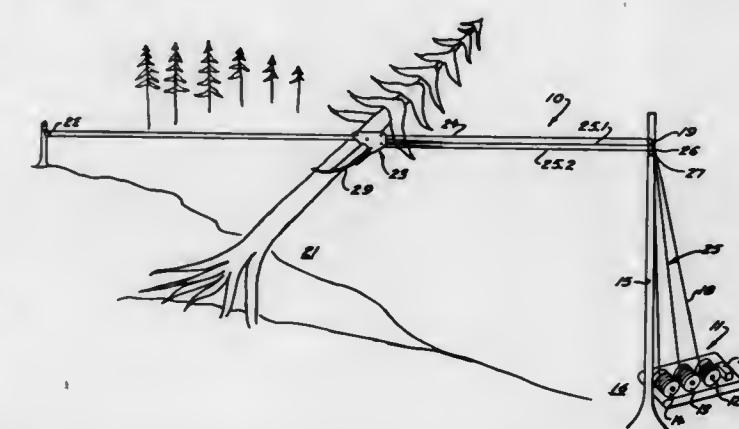
LOGGING GRAPPLE AND HAULING ASSEMBLY

Edward Bjarnie Jorgenson, 574 Lowry Lane, North Vancouver, Canada

Filed Mar. 8, 1973, Ser. No. 339,439
Int. Cl. B66c 21/00

U.S. Cl. 212-84

3 Claims



A logging grapple and hauling assembly having an aerial carriage supported on a cable for controlled movement over a

treed area and which carries a depending grapple the latter being remotely operable between closed and opened positions and having laterally extending grappling arms so as to enable the grapple to grasp a standing tree and the carriage then operated to uproot and drag the tree to the landing site.

3,831,773

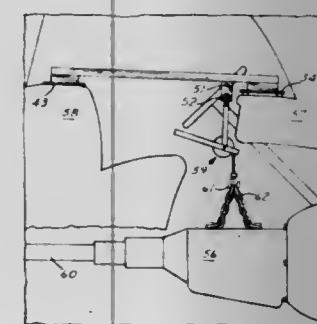
PORTABLE KNOCK-DOWN HOIST APPARATUS

Finley Paul Haley, 431 Zeta - Space 1235, Golden, Colo. 80401

Filed Feb. 12, 1973, Ser. No. 331,673
Int. Cl. B66c 19/00

U.S. Cl. 212-139

9 Claims



Portable knock-down hoist apparatus for use in readily removing and replacing truck transmissions and clutch assemblies without manual lifting or the use of a jack, has an elongated support beam positioned horizontally above the transmission across the ash and back of the seat, the beam being comprised of two telescoping tubular members separable from one another and a locking pin arrangement therefore to adjust the beam length to selected vehicle cab sizes. A channel section open along the bottom is associated with one of the tubular members and carries a depending trolley assembly which is attached via a chain hoist or the like to the truck transmission to suspend the transmission therefrom for a straight line horizontal movement along the vehicle.

3,831,774

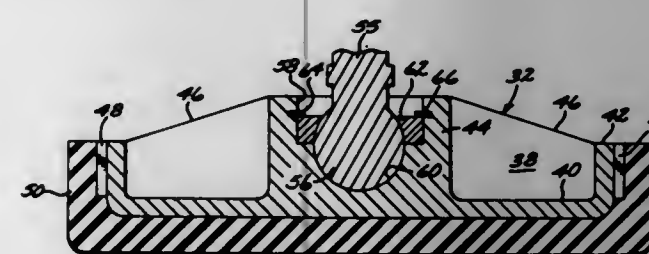
VEHICLE OUTRIGGER PAD STRUCTURE

Harold K. Moore, 4833 Dunrobin Ave., Lakewood, Calif. 90713

Filed Oct. 5, 1973, Ser. No. 404,092
Int. Cl. B66c 23/62

U.S. Cl. 212-145

5 Claims



A pad structure of generally circular configuration for attachment to the stabilizing outriggers of a vehicle such as a backhoe. The structure includes a base and peripheral side wall covered with rubber. Each pad structure is mounted to its associated outrigger by a ball joint which allows the pad to rotate and also to conform to the grade of the supporting surface. The pad is resistant to wear because of the rubber material, because of its configuration, and because of its capacity for rotation. Instead of dragging and digging into the supporting surface and adjacent structures, such as curbs and the like, it moves and thereby continually presents new wearing surfaces. Other features include means enabling ready removal and replacement of worn pads.

3,831,775

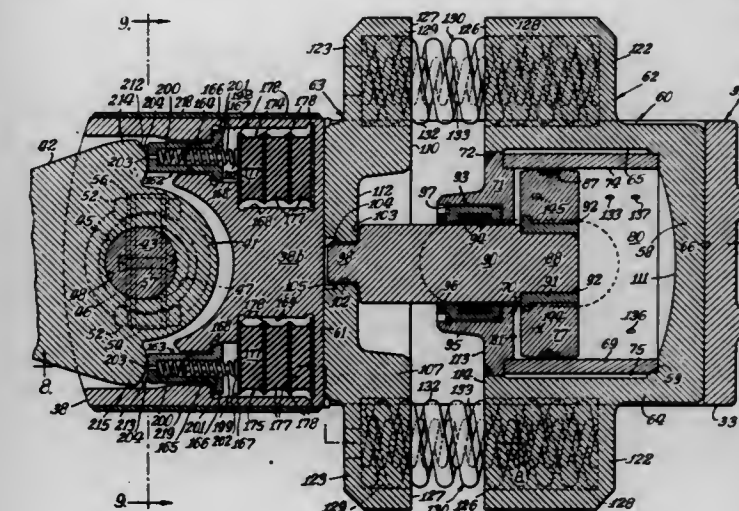
DRAFT GEAR ASSEMBLY FOR LOCOMOTIVES AND THE LIKE

Vaughn T. Hawthorne, Mechanicsburg, Pa., assignor to Keystone Industries, Inc., Chicago, Ill.

Filed Nov. 29, 1971, Ser. No. 202,825
Int. Cl. B61g 9/08, 9/16

U.S. Cl. 213-43

11 Claims



A draft gear assembly for a locomotive or other railroad vehicle, wherein a hydraulic unit is mounted in a yoke and is arranged to cushion the impact of buff and draft loads applied to a coupler connected to the yoke. A plurality of return springs are mounted in the hydraulic unit so that the overall size of the assembly is reduced to fit a conventional locomotive draft gear pocket. A plurality of resilient pads are mounted in cavities in the coupler end of the yoke, and exert an aligning or centering force on the coupler when the coupler swings a predetermined number of degrees in either direction from a centered position. Such aligning or centering force is exerted on the coupler through one or the other of a pair of laterally spaced, longitudinally shiftable alignment plungers in the yoke.

Cushioning and dissipation of the impact force of large buff and draft loads is achieved by restricting the flow of hydraulic fluid in the hydraulic unit of the draft gear assembly, such flow passing through orifices of a particular size and arrangement in the cylinder of the hydraulic unit to an internal reservoir in the unit and then to an external reservoir. Smaller, train handling loads are cushioned primarily through compression of a compressible liquid in the hydraulic unit, when such liquid is utilized as the hydraulic fluid.

3,831,776

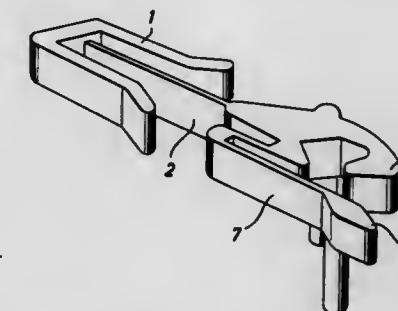
ONE-PIECE COUPLING UNIT FOR MODEL RAILROADS

Julius Antonik, Salzburg, Austria, assignor to Heinz Rossler, Salzburg-Morzg, Austria

Filed Jan. 22, 1973, Ser. No. 325,679
Int. Cl. A63h 19/00; B61g 3/00

U.S. Cl. 213-75 TC

13 Claims



The coupling unit comprises a mounting part attached to a car or locomotive and a coupling part, which is movable in a substantially horizontal plane and carries a coupling hook of

the opposite coupling unit. The coupling part is connected to the mounting part by a resilient tongue and carries a resilient lug, which is laterally disposed relative to the opening in the coupling part and partly closes said opening.

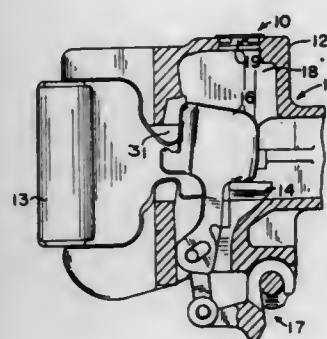
3,831,777

COUPLER LOCKLIFT HOLE CAP

Horst Thomas Kaufhold, Chicago, Ill., assignor to AMSFED Industries Incorporated, Chicago, Ill.
Filed Nov. 19, 1973, Ser. No. 416,984
Int. Cl. B61g 3/04

U.S. Cl. 213-158

4 Claims



A coupler having a housing including a top locklift hole sealed by a removable cap. The cap is made from plastic and includes a post having a cover plate on the upper end overlying and sealing the hole. A plurality of angularly spaced legs wedgingly engage the inwardly diverging side walls defining the hole so that the cap is removable only by force applied upwardly through the lock chamber.

3,831,778

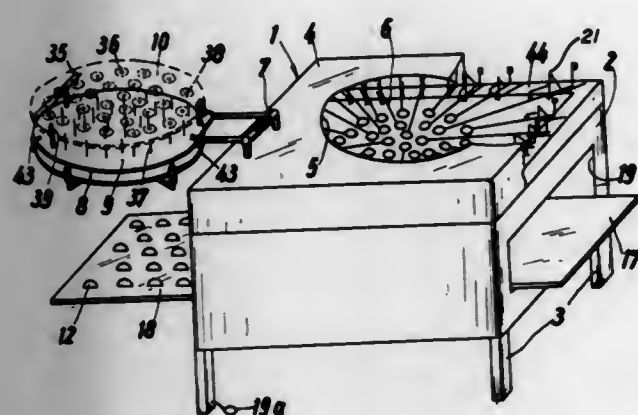
PORTION POSITIONING APPARATUS, ESPECIALLY FOR DOUGH PORTIONS

Rupert Biber, Pappenheim, Germany, assignor to Hans Beck (Stahlbau-Fertigbau), Augsburg, Germany
Continuation-in-part of Ser. No. 104,292, Jan. 6, 1971, abandoned. This application Aug. 16, 1972, Ser. No. 281,039
Claims priority, application Germany, Aug. 17, 1972, 2141168

Int. Cl. B66c 1/24

U.S. Cl. 214-1 BD

37 Claims



Portions, such as dough portions which must retain their bottoms down position are transferred, for example from a kneading machine, to portion receiving means such as a transport band, by means of a cover member adapted to receive a kneading plate and tiltable by about 180° toward a plurality of transfer arms located above said portion receiving means and also tiltable downwardly for about 45° by the weight of a received portion, whereby each portion is delivered to the receiving means with the bottom facing downwardly. Force exerting means such as spring or counterweight return the transfer arms to their portion receiving position. Preferably,

the transfer arms have portion carrying end members shaped as a ring and cooperating with ejector means which reach through the respective ring when the arms are in the portion delivering position.

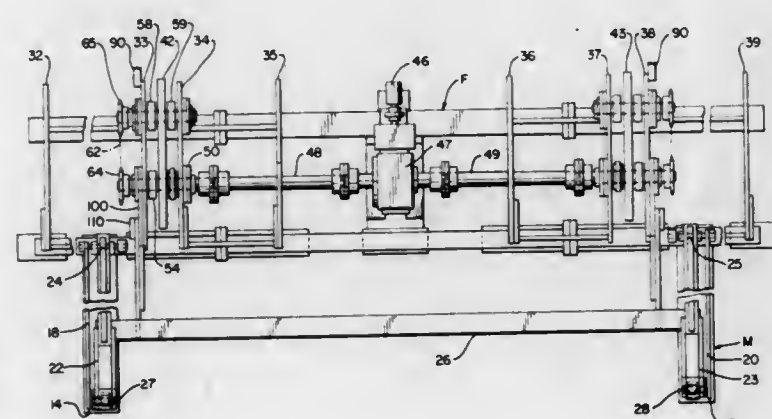
3,831,779

BAR SORTER

William I. Curtis, Middleburg Heights, Ohio, assignor to The Hill Acme Company, Cleveland, Ohio
Filed Feb. 27, 1973, Ser. No. 336,190
Int. Cl. B23q 5/22

U.S. Cl. 214-1 P

7 Claims



A bar sorter for unscrambling elongated bars stacked in parallel horizontal position and delivering them one at a time to a preselected work area. The bar sorter includes a bar holding magazine for holding the bars in stacked horizontal parallel position, and a coating walking beam type feeder mechanism disposed adjacent the magazine for taking bars from the magazine and delivering them one at a time to an associated work station. The feeder includes a plurality of spaced parallel stationary arms disposed adjacent the magazine for supporting the bars in successive preselected stepped positions thereon. The feeder also includes a pair of spaced parallel walking beam type moving arms interposed between the stationary arms for advancing the bars from the magazine thence to the successive preselected stepped positions on the stationary arms in walking beam fashion, one at a time to an associated work area. The steps on the stationary arms may be adjusted to accommodate bars of various cross-sectional sizes. A pusher lever is provided to push extra bars off the stationary steps and back to the magazine in case more than one bar is disposed on a stationary step. The magazine is provided with hydraulically actuated lifting arms to selectively advance the bars to the feeder.

3,831,780

MAGNETIC TRANSFER APPARATUS

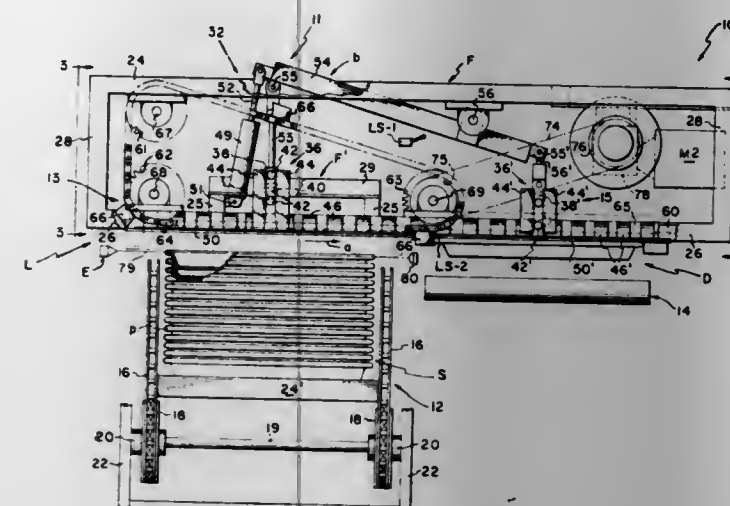
Carl R. Skarin; Kenneth H. Dietzel, both of Saginaw, and Roger J. Gendron, Bridgeport, all of Mich., assignors to Baker Perkins Inc., Saginaw, Mich.
Filed Jan. 12, 1972, Ser. No. 217,391
Int. Cl. B65g 57/04, 60/00

U.S. Cl. 214-6 DS

16 Claims

Transfer apparatus is provided which is, for example, selectively operable to successively stack or unstack magnetizable pans or like articles. The apparatus includes a vertically movable magnetic field producing pickup member at a pan lifting station for gripping a pan at a lowered position and lifting it to a raised position, a pusher member for engaging and moving the raised pan to strip the raised pan from the pickup member

and laterally transfer it to a pan depositing station, a magnetic field producing pan receiving member at the depositing sta-



tion for receiving the pan, and a stripper member which permits stripping of the raised pan from the receiving member.

3,831,781

APPARATUS FOR ASSEMBLING INDIVIDUAL PILES OF PRINTED MATTER INTO STACKS

Nikolai Ivanovich Anikanov, Bolshaya Bronnaya ulitsa, 2/6 kv. 6; Leonid Pavlovich Grachev, ulitsa Serafimovicha, 2, kv. 181, both of Moscow; Samuil Aronovich Goltsman, Borschagovskaya ulitsa, 8, kv. 12, Kiev; Grigory Iosifovich Zax, ulitsa Mechnikova, 14a, kv. 24, Kiev; Alexandr Ivanovich Oleinik, ulitsa Mechnikova, 11, kv. 14, Kiev; Grigory Avramovich Radutsky, 16 Parkovaya ulitsa, 49, korpus 2, kv. 68, Moscow; Kheifets, Brest-Litovskiy prospekt, 162, kv. 30, and Evgeny Arkadievich Baburin, prospekt Romena Rollana, 25, kv. 264, both of Kiev, all of U.S.S.R.

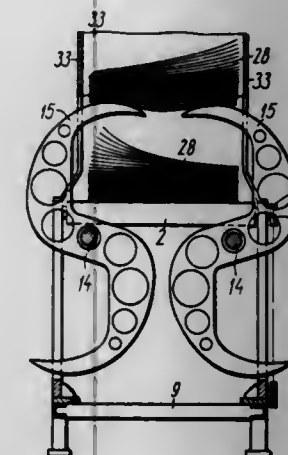
Filed Mar. 20, 1973, Ser. No. 343,163

Claims priority, application U.S.S.R., July 19, 1972, 1811463

Int. Cl. B65g 57/30

U.S. Cl. 214-6 BA

3 Claims



An apparatus for assembling individual piles of printed matter into multi-pile stacks is disclosed wherein a pair of shafts are mounted along a rollerway at both sides thereof, the shafts being synchronously rotatable in opposite directions and non-rotatably carrying thereon S-shaped levers. A retaining mechanism is adapted to arrest these levers in two positions: in the first position the arms of the levers are brought together above the rollerway to support thereon a stack of piles; in the second position the levers are spread apart to clear from below the stack that has been supported thereon, whereby the stack is lowered upon the rollerway.

3,831,782

DRUM OR BARREL PALLETIZER APPARATUS

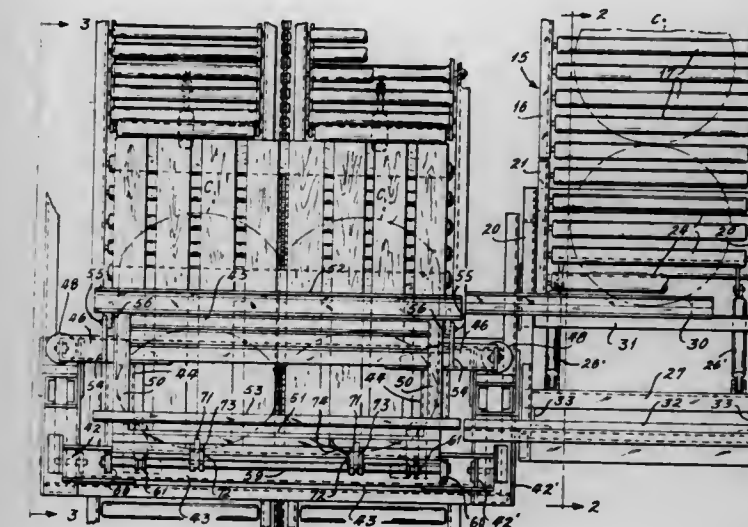
Charles W. Wernitz, Ferguson, Mo., assignor to Alvey, Inc., St. Louis, Mo.

Filed June 11, 1973, Ser. No. 369,068

Int. Cl. B65g 57/28

U.S. Cl. 214-6 P

15 Claims



A palletizer for large heavy drums or barrels which avoids the necessity for employing hoist devices by relying on the much simpler handling apparatus for tilting the drums or barrels to an over-center stable position on a track that is slanted sufficiently to cause the drums or barrels to roll from a receiving station to a pallet loading station. Each of the receiving and loading stations is provided with a tiltable portion of the slanted track, and that portion of the track in the loading station is tiltable to return the drums or barrels to an upright normal position.

3,831,783

COIN WRAPPING MACHINE

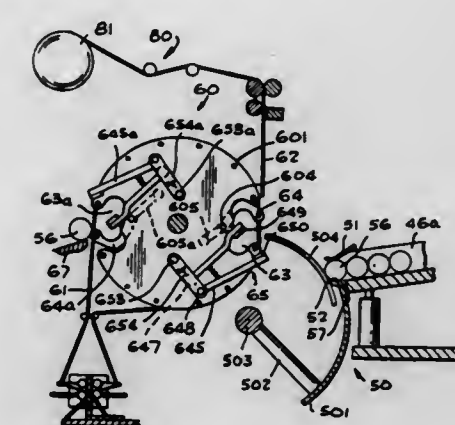
Peter Pilat, Rockaway, N.J., assignor to The National State Bank, Elizabeth, N.J.

Division of Ser. No. 759,322, Sept. 12, 1968, Pat. No. 3,608,271. This application Apr. 29, 1971, Ser. No. 138,773

Int. Cl. B65g 60/00

U.S. Cl. 214-7

18 Claims



A device is disclosed that comprises a means to form a stack of coins from a plurality of loose coins and to transport the stack of coins to a coin wrapping head in a coin wrapping machine. The loose coins are operatively into a plurality of tracks that cause the coins to converge toward a position wherein they are on edge and abutting each other. Gripping means are provided for holding the stack of loose coins at its ends as the coins move toward the wrapping head. Means operatively coupled to the gripping means for separating the gripping means from the coins at the wrapping head.

3,831,784

CARTON MAGAZINE AND MEANS FOR LOADING THE SAME

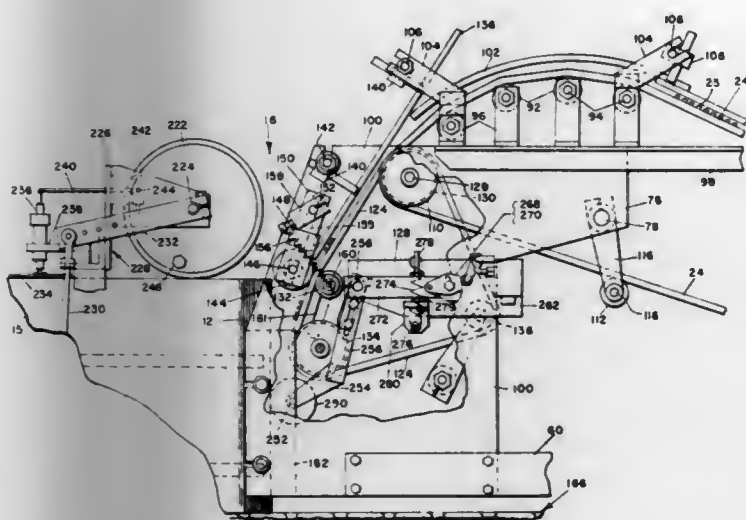
Arthur F. Newell, South Weymouth, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

Filed May 15, 1972, Ser. No. 253,613

Int. Cl. B65g 60/00

U.S. Cl. 214-7

16 Claims



A carton magazine in which successive flat tubular cartons are advanced and withdrawn wherein provision is made for loading successive cartons into the magazine as they are produced and transferred from a carton side seaming machine and wherein provision is further made for controlling the loading operation to maintain a substantially constant supply of cartons in the magazine.

3,831,785

SELF-UNLOADING STRUCTURE FOR WAGON BOXES

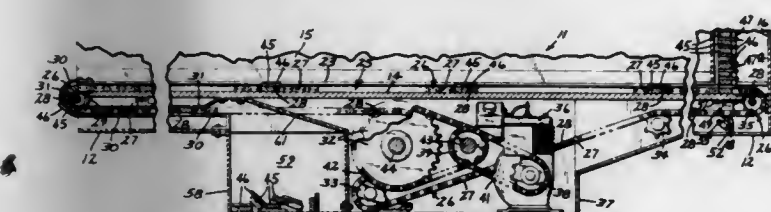
Howard D. Rezac, 403 Spencer St., Gregory, S. Dak. 57533

Filed Sept. 21, 1973, Ser. No. 399,608

Int. Cl. B65g 59/06

U.S. Cl. 214-8.5 G

20 Claims



The disclosure is directed to a flat bed hauling trailer having side walls, and which is equipped with apparatus for automatically unloading material from the flat bed. The unloading apparatus comprises a plurality of elongated unloading slats or bars which are moved in spaced relation by a conveyor over the length of the bed and transverse thereto to carry the loaded material to a discharge point at the back of the trailer. To permit the trailer to be used without the unloading apparatus, the conveyor is constructed and arranged to drop the unloading slats after they have moved around the discharge point into a collecting container one at a time. The transversely movable unloading bed is reformed by placing the unloading slats into a magazine in vertical stacked relation, and releasing the slats one at a time to be picked up and moved by the conveyor in the predetermined spaced relation.

3,831,786

MATERIAL HANDLING APPARATUS

Karl-Heinz Griesenbrock, Duisburg, Germany, assignor to Eaton Corporation, Cleveland, Ohio

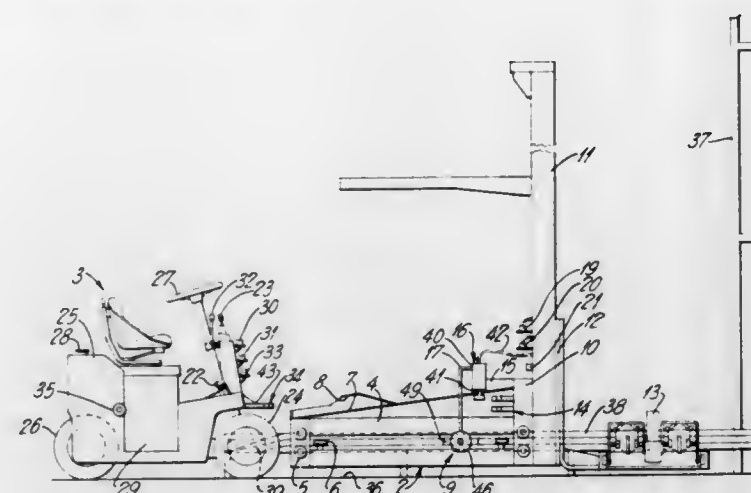
Filed Oct. 12, 1972, Ser. No. 297,108

Claims priority, application Germany, Oct. 19, 1971, 2151940

Int. Cl. B65g 1/10

U.S. Cl. 214-16.4 A

11 Claims



A material handling apparatus comprising a rail supported and guided carriage, preferably including a shuttle assembly for narrow aisle operations, and a separate rubber tired, steerable drive vehicle. The carriage and drive vehicle are adapted to be coupled together with the steered wheel(s) of the drive vehicle lifted off the floor for in-aisle operation. An hydraulic press on the carriage applies a constant downward force on the drive wheels of the drive vehicle when the carriage and drive vehicle are coupled together, and a spring-loaded brake which is automatically released by operation of the hydraulic press acts against the aisle rails to hold the carriage in position for coupling and for safety purposes in case of hydraulic system failure.

3,831,787

DISCHARGE DEVICE FOR DIRECT-REDUCTION SHAFT FURNACE

Rudolf Greuer; Herbert Hickmann, both of Oberhausen, and Hermann Trecker, Hunxe, all of Germany, assignors to Thyssen Niederrhein AG, Hutten- & Walzwerke, Oberhausen, Germany

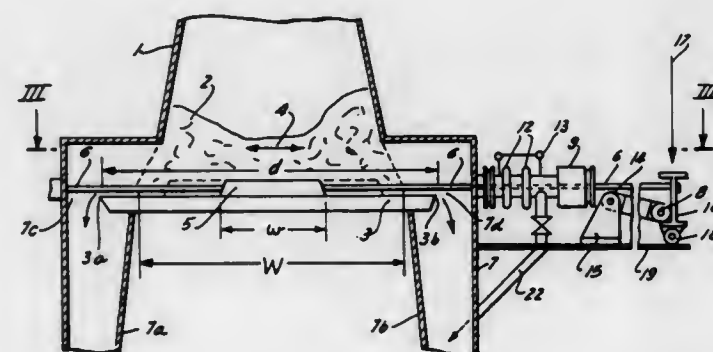
Filed Feb. 20, 1973, Ser. No. 333,743

Claims priority, application Germany, Feb. 24, 1972, 2208775

Int. Cl. F27b 9/22

U.S. Cl. 214-23

6 Claims



A discharge device for a direct-reduction shaft furnace, e.g. of the type used to produce sponge iron from iron ore, comprises a discharge or scraper bar or plate reciprocable beneath the column of charge in the furnace to displace the sponge iron alternately toward one side and the other and thus into

respective outlets. The discharge bar or plate is provided with a pair of rods on each side, the rods extending in the direction of displacement. Floating bearings sealingly engage each rod and are connected to the housing. The floating bearings are provided with gas-type seals, motion-compensating members between the seals and the housing, and means limiting the displacement of the seal or packing structure.

3,831,788

LIFT HAVING SELF-FOLDING PLATFORM

Atwood E. Erlinder, 12221 S. Indiana Ave., Palos Heights, Ill. 60628

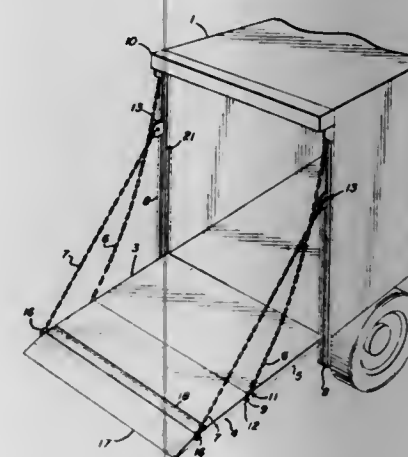
Division of Ser. No. 53,872, July 10, 1970, Pat. No. 3,675,739.

This application Apr. 27, 1972, Ser. No. 248,327

Int. Cl. B60p 1/44

U.S. Cl. 214-75 T

11 Claims



A lift which contains a self-folding platform is disclosed. The rear of a truck may be equipped with the lift to provide a loading and unloading device as well as a tailgate for the truck.

3,831,789

WASTE REMOVAL VEHICLE AND STRUCTURE ASSOCIATED THEREWITH

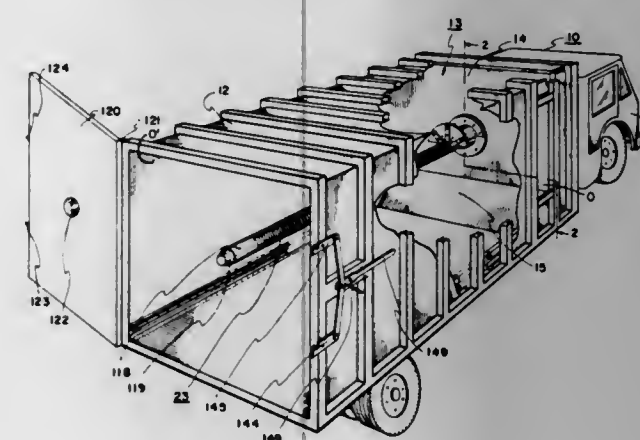
John C. Brewer, Salt Lake City, Utah, assignor to Garbalizer Corporation of America, Salt Lake City, Utah

Filed Dec. 14, 1972, Ser. No. 315,130

Int. Cl. B60p 1/00; B65g 67/26

U.S. Cl. 214-82

4 Claims



The truck type vehicle constructed to receive, transport and dump municipal waste, garbage, industrial debris and so on, and this using for storage a maximum of space within the truck body, notwithstanding the inclusion of apparatus for compacting or packing material preparatory to the taking on of subsequent loads. The subject truck includes a packer panel driven fore and aft within the truck body by a threaded shaft. The shaft is journaled forwardly and also at a rear door rearwardly of and a part of the truck body. The packer panel supports its driven threaded shaft, when the rear door is open, by the packer panel being proximate its rear-most extremity.

Means are provided for keeping the threaded shaft of the truck body clean from debris and bearing surfaces free of dirt or other foreign matter. Means are provided for powering the packer panel, through revolvment of the threaded shaft, either by the power take-off of the truck or by a gear reduced electric motor drive. Safety means are provided such that the packer panel will not exceed its predetermined limits of travel and, also, can be stopped at any time and at any point intermediate of such extremities. Means are provided for keeping clean wear surfaces and caster and track surfaces, as applies to the caster supported packer panel.

3,831,790

BOAT LOADING AND UNLOADING KIT

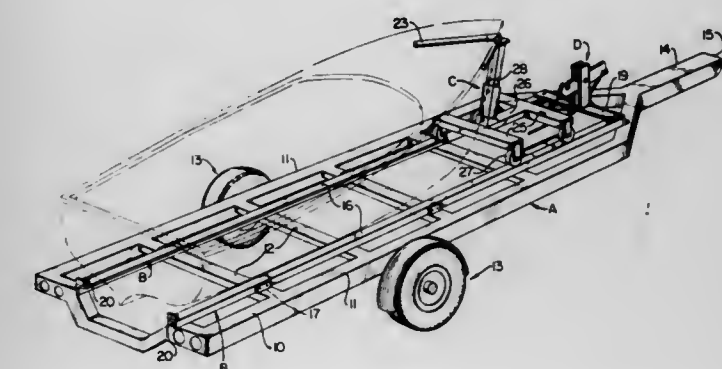
Edward Farris, 16 Coventry, Oroville, Calif. 95965

Filed Oct. 27, 1972, Ser. No. 301,375

Int. Cl. B60p 3/10

U.S. Cl. 214-83.24

7 Claims



A kit comprising a wheeled carriage and rails adapted to be assembled and secured to a boat trailer for facilitating the loading and unloading of a boat therefrom.

3,831,791

CARPET HOIST

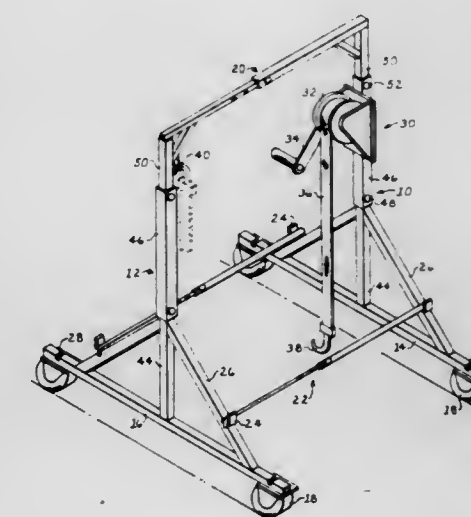
Carmen R. Gonzales, 2619 W. 5th, Plainview, Tex. 79072

Filed Jan. 17, 1973, Ser. No. 324,489

Int. Cl. B60p 3/00

U.S. Cl. 214-396

5 Claims



A straddle-type hoist has four caster wheels. A strap is wound on a winch proximate the top of one of the legs. The hoist may be moved forward over a roll of carpet and sideways as the carpet is rolled sideways to get the strap under the carpet. After the strap and carpet are lifted by the winch, carry bars are placed across the feet of the hoist to support the carpet while it is being moved from one position to another. The crossbar, carry bars and the legs are telescoped for changing the height thereof.

3,831,792

RAILROAD CAR CONSTRUCTION

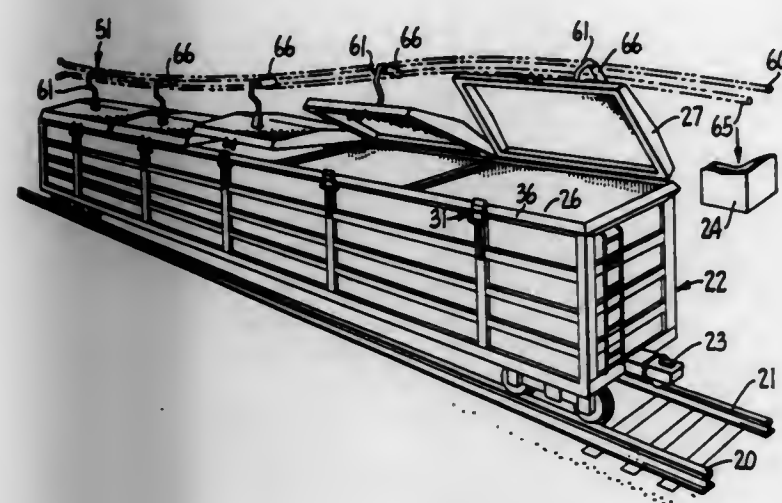
Fred W. Waterman, Daly City; Tadeusz Katyll, San Francisco, and Colin C. Eldridge, Menlo Park, all of Calif., assignors to Otter Trail Power Company, Fergus Falls, Minn.

Filed Jan. 22, 1973, Ser. No. 325,632

Int. Cl. B61d 39/00

U.S. Cl. 214-42 R

8 Claims



An open top gondola or hopper car construction is provided, the car having a plurality of hinged cover doors which are lifted to permit loading as the car is moved continuously along a track. When the loading of a car is completed, the cover doors are returned to closed position in which they are latched until the car arrives at a discharge station where again, with the car moving, the latch is released and the cover is raised a small amount by springs to permit unloading of the car as the car is rotated in a rotary dumper of known construction.

3,831,793

TRUCK TIRE SPARE CARRIER

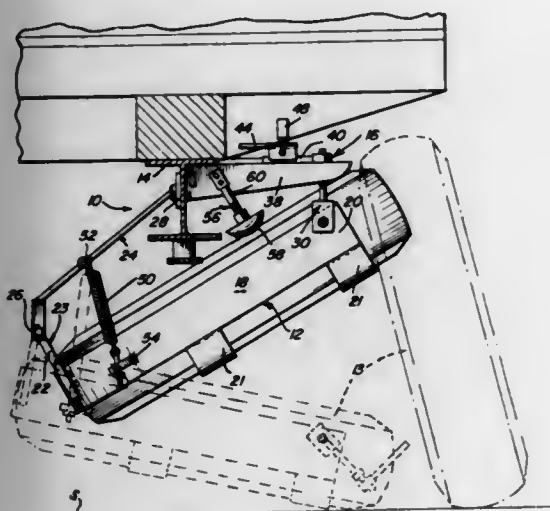
Dennis E. Eller, 331 N. Thovington, Algona, Iowa 50511

Filed Oct. 2, 1972, Ser. No. 294,266

Int. Cl. B62d 43/00

U.S. Cl. 214-454

17 Claims



A spare tire support for vehicles such as trucks and the like has a supporting frame including an arcuate member mounted substantially between its end portions to a chassis of a vehicle by means of a hanger bracket, and arranged for swinging movement beneath the chassis between a loading and unloading position, and a storage position. Clamp elements pivotally mounted on the end portions of the arcuate member cooperate with associated cantilevers mounted on the chassis to selectively retain the frame in its storage position. Coiled

springs are connected to and extended between the hanger bracket and the arcuate member for counterbalancing at least a portion of the weight of the frame and a vehicle tire supported by the frame and bias the frame toward its storage position.

3,831,794

LOAD-CARRIER

Göte Hubert Bohman, Hudiksvall, Sweden, assignor to B. V. Foco Nederland, Bedum, Netherlands

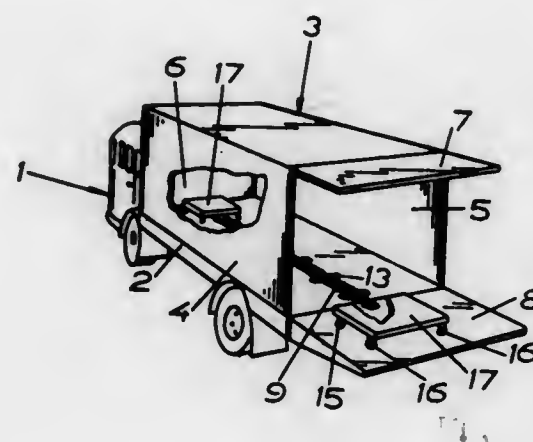
Filed June 4, 1973, Ser. No. 366,418

Claims priority, application Sweden, July 17, 1973, 9372/72

Int. Cl. B60p 1/38

U.S. Cl. 214-516

6 Claims



In a continuous conveyor positioned on goods vehicle platforms and comprising equidistantly spaced carriages, load carrying elements provided with guide rails and blocking means arranged to cooperate with correspondingly shaped guide and blocking means on said carriages for interconnecting said carriages and said carriers whereby the latter may be advanced by means of said conveyor.

3,831,795

SIDE SHIFT CLAMP DEVICE

Kunishisa Kawanishi, Okazaki; Seigo Shimizu, Kagamihara, and Takio Baba, Nakano, all of Japan, assignors to Kabushiki Kaisha Toyoda Tidoshokki Seisakusho, Kariya-shi, Japan

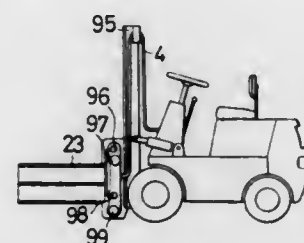
Filed July 12, 1972, Ser. No. 271,200

Claims priority, application Japan, July 13, 1971, 46-51998; July 28, 1971, 46-56659

Int. Cl. B66f 9/14

U.S. Cl. 214-731

7 Claims



A hydraulically operated side shift clamping device for use in a fork lift or light cargo conveying appliance. The device comprises two hydraulically operated cylinders having pistons which pistons operate to open and close clamping arms attached thereto. A first oil passage supplies oil commonly to the space in the hydraulic cylinder rearwardly of the pistons while second and third oil passages are connected respectively to each hydraulic cylinder forwardly of the pistons. A short circuit connection is provided between the second and third oil passages which short circuit connection has a pair of oppositely arranged pilot check valves. A further pilot check valve is provided in the first oil passageway and a pilot connec-

3,831,798

CONTAINER SEALING LID

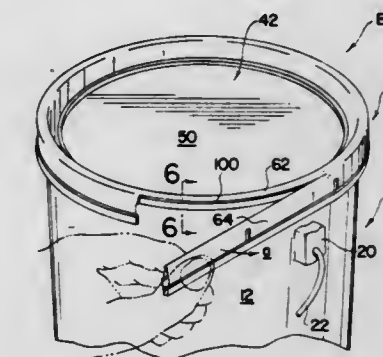
Edgar R. Rowe, Cleveland, and Robert R. Terlop, Brookpark, both of Ohio, assignors to Van Dorn Company, Cleveland, Ohio

Filed July 18, 1972, Ser. No. 272,766

Int. Cl. B65d 41/22

U.S. Cl. 215-256

9 Claims



A container sealing lid particularly adapted for use with a container having a lid supporting and sealing bead extending therearound adjacent the open top end thereof and which lid permits easy removal thereof from its container sealing relationship. The lid includes a bead receiving groove integral therewith which is comprised of an inner wall, a top wall and an outer wall. A zone of reduced wall thickness at the area of the groove joining the top and outer walls permits the outer wall to be torn by hand from its connection with the top wall to thus facilitate lid removal. Elongated slots disposed at spaced intervals around the outer wall provide convenient means for starting the tearing action.

3,831,799

SHEET METAL PANEL ASSEMBLY

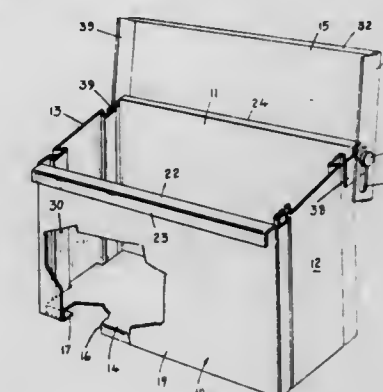
Wallace H. Nutt, Woodstock, Ontario, Canada, assignor to Teledyne Canada, Limited, Rexdale, Ontario, Canada

Filed June 20, 1972, Ser. No. 264,500

Int. Cl. B65d 7/00

U.S. Cl. 220-4 F

6 Claims



In a sheet metal panel assembly, the panels to be secured together are formed with respective elongated, transversely folded, rectilinear marginal portions. The marginal portions respectively define a rectilinear groove or socket and a complementary tongue which is slid into the socket endwise to provide a rigid joint.

3,831,800

FLOATING ROOF PLURAL POSITION SUSPENSION

Donald L. Korn, Sapulpa, Okla., assignor to Tresco, Incorporated, Sapulpa, Okla.

Filed May 22, 1972, Ser. No. 255,841

Int. Cl. B65d 87/18

U.S. Cl. 220-26 R

6 Claims

This invention describes a system by means of which a floating roof inside of a closed roof tank can be supported at two or

tion is made between the intermediate point of connection of the two pilot check valves short circuiting the second and third oil passages and the pilot check valve in the first oil passageway.

3,831,796

SAFETY CLOSURE

Antonius Bernardus Claasen, Sperwerlaan 4, Leende (NB), Netherlands

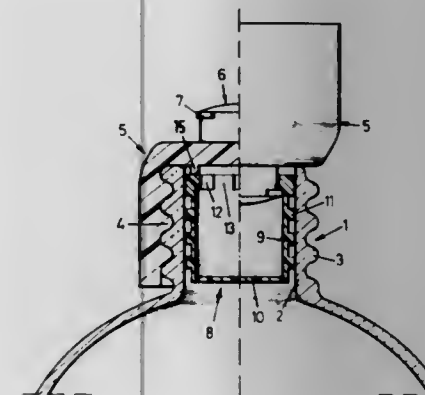
Filed Aug. 23, 1972, Ser. No. 283,166

Claims priority, application Netherlands, Aug. 25, 1971, 7111693

Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215-9

10 Claims



The invention relates to a safety closure for a container mouthpiece having an external screwthread and a cap having an internal screwthread mating therewith and an insertable stopper, and in which the stopper and a top portion of the screwcap are provided with complementary members which co-operate to function in the manner of a bayonet catch whereby the screwcap acts as a means for withdrawing the stopper from the mouth of the container and such that on effecting the withdrawal the stopper remains in attachment with the screwcap.

3,831,797

CHILD RESISTANT SAFETY CLOSURE

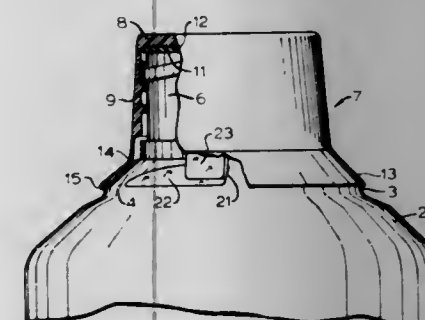
Peter P. Stevens, Jr., P.O. Box 95, Point Reyes, Calif. 94956

Filed Oct. 2, 1972, Ser. No. 293,843

Int. Cl. B65d 55/02

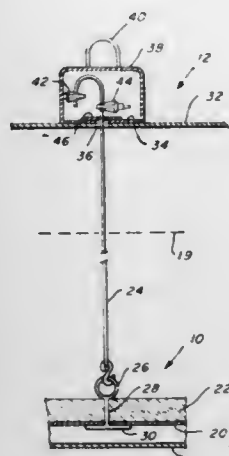
U.S. Cl. 215-9

11 Claims



Child resistant safety closure for containers containing poisonous products found around a home in which the container has latching means and a closure with a skirt portion has latching means cooperable with the latching means on the container. The skirt portion forms an integrally hinged part of the closure and covers the latching means rendering them inaccessible in the latched condition. The hinge connection enables the skirt to be displaced, disengaging the latching means and allowing removal of the closure.

more vertical positions within the tank by means accessible at the fixed roof of the tank. The floating roof is constructed inside of the closed roof tank and is made up of a horizontal plastic-fiberglass plate with foam plastic filler to provide a unitary construction that will float on top of the surface of a



liquid in the tank. There are a plurality of flexible tensile members which are attached to the floating roof and are anchored at a plurality of fixtures on the fixed roof so that the tank can be supported by these tensile members irrespective of the level of the supporting liquid in the tank.

3,831,801

PRESSURE-VACUUM VALVED CAP

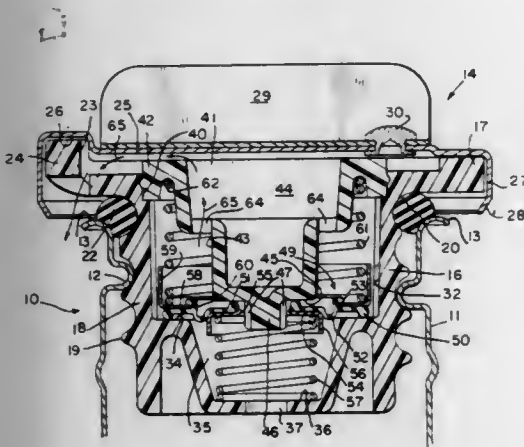
Robert E. Rodgers, Connersville, Ind., assignor to Stant Manufacturing Company Inc., Connersville, Ind.

Filed Nov. 20, 1972, Ser. No. 307,821

Int. Cl. B65d 51/16, 41/04; F16k 17/26

U.S. Cl. 220—39 R

8 Claims



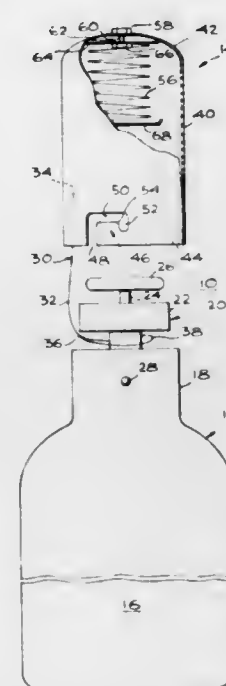
A pressure-vacuum cap for a chamber having a filler neck, the cap comprising a housing proportioned and designed to engage and close the filler neck. The housing provides a passageway extending axially therethrough in communication with the filler neck and, intermediate the ends of the passageway, a concentric annular outwardly facing seat and a concentric annular inwardly facing seat. A gasket closes the passageway, the gasket having an outer peripheral portion in sealing engagement with one of said seats and an inner peripheral portion in sealing engagement with the other of said seats. Springs yieldably urge the gasket into sealing engagement with the seats. The springs are calibrated such that the gasket serves as a two-way valve for normalizing the pressure in such a chamber, venting the chamber to atmosphere when the pressure in the chamber exceeds a predetermined superatmospheric level and when the pressure in the chamber drops below a predetermined subatmospheric level.

3,831,802
PROTECTIVE CAP AND FLUID CYLINDER ASSEMBLY
Harley Edward Chambers, 550 W. 93rd St., Los Angeles, Calif. 90045, and Richard E. Hoagland, 120 S. Sierra Madre Blvd., Pasadena, Calif. 91107

Continuation-in-part of Ser. No. 93,668, Nov. 30, 1970, abandoned. This application Oct. 12, 1971, Ser. No. 188,152
Int. Cl. B65d 41/06

U.S. Cl. 220—40 R

8 Claims



A fluid cylinder body is provided with a protective cap. The cap fits over the cylinder valve handle and has a notch to receive a retainer pin carried on the cylinder. A spring is centrally disposed within the cap and bears against the handle through a pusher plate to releasably secure the pin in the notch and also protect the handle. The pusher plate may be configured to aid in centering the cap around the handle. A second spring may be provided to help bias the pin against a notch detent.

3,831,803

RESILIENTLY MOUNTED RAILWAY HOPPER CAR OUTLET

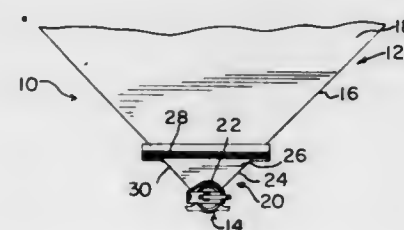
John W. Hutchison, Crown Point, and Marvin Stark, Michigan City, both of Ind., assignors to Pullman Incorporated, Chicago, Ill.

Filed Dec. 4, 1972, Ser. No. 312,162

Int. Cl. B61d 7/14, 7/32; B65g 3/14

U.S. Cl. 220—46 R

9 Claims



An arrangement for discharging materials from a hopper which includes a gate structure having a housing provided with flanges adapted to be connected to the flanges at the lower part of the housing wherein a resilient gasket is disposed in compressed relation between the flanges of the gate housing and the lower part of the hopper, the gasket having side sections running the length of the hopper and end sections running the width of the hopper, each side section having a bevel on the slope sheet side of the hopper to allow for free flow of the lading inside the hopper, the end section having a similar type of bevel except that the bottom is contoured to

hug the vertical end panel of the discharge gate, said gasket further having two dimples running continually therearound to insure airtight seal, and lastly the bottom of the gasket being contoured to make the transition from the vertical end panel to the slope on the side panel without leaving a hole or bulge that could cause an air leak.

3,831,804

AEROSOL SAFETY CAP

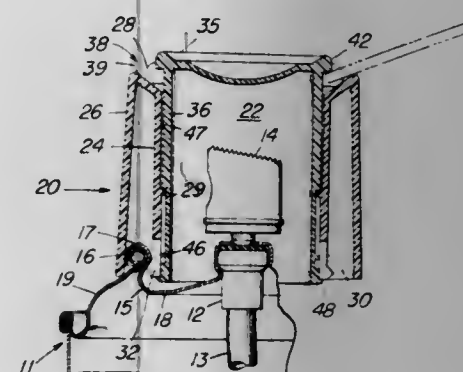
John Richard Focht, Yonkers, N.Y., assignor to Precision Valve Corporation, Yonkers, N.Y.

Filed May 2, 1972, Ser. No. 249,608

Int. Cl. B65d 43/10

U.S. Cl. 220—60 R

16 Claims



An aerosol safety cap for an aerosol container including inner and outer telescoping members. The outer member includes dependent resilient locking means which snap under the interior of the annular bead of the mounting cup of the aerosol container to affix the outer member to the container. When the inner member is telescoped into the outer member, it prevents the resilient locking means from being inwardly deflected thereby preventing removal of the cap assembly from the container. Withdrawal of the inner telescopic member permits deflection of the depending locking means to permit removal of the cap from the container. The inner member cannot be withdrawn without the aid of a prying instrument such as a coin. The cap can be doubly locked by rotating the inner member with respect to the outer member with an instrument such as a coin into a position in which it cannot be pried upwardly.

3,831,805

PORTABLE TOOL CONTAINER OR THE LIKE

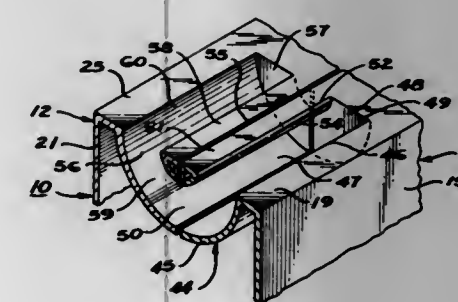
Everett R. Yonce, 259 E. 12th St., Oakland, Calif. 94606

Filed May 6, 1971, Ser. No. 140,860

Int. Cl. A45c 11/26

U.S. Cl. 220—94 A

2 Claims



A portable container adapted to receive and support tool implements or the like therein in a predetermined organization. The container comprises a pair of box-like container sections each of which is open along one side but is otherwise completely closed. The container sections are hingedly

secured to each other for swinging movements between open and closed positions to permit access into the chamber defined within the interior thereof, and a plurality of partitions are pivotally supported within the chamber and effectively divide the same into a plurality of compartments. Each partition and at least certain of the inner surfaces of the container are equipped with support means adapted to releasably secure a plurality of tool implements in an organized array within the container. A handle structure is recessed into at least one of the walls of the container in a manner such that a part of each handle structure is defined by each of the container sections which enables each such section to be supported when the container is carried, thereby relieving the hinge connection of the container sections and any latch mechanism associated therewith from asymmetrical stress.

3,831,806

VENDING MACHINE HAVING PRODUCT LEVEL SENSING SWITCH AND METHOD OF CONVERSION OF MULTI-COLUMN VENDING MACHINES FOR CONJOINT OPERATION OF AT LEAST TWO COLUMNS

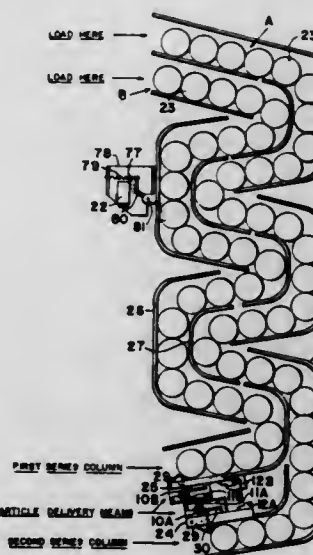
James C. Lindsey, Chattanooga, Tenn., assignor to Cavalier Corporation, Chattanooga, Tenn.

Filed Nov. 3, 1972, Ser. No. 303,360

Int. Cl. G07f 11/10

U.S. Cl. 221—1

14 Claims



A coin operated multi-column vending machine embodies a separate product delivery means for each column of product units and associated circuit components including plural customer-operated product selector switches. One such selector switch is removed from a customary circuit and two product unit columns are placed under control of a product level sensing switch and one selector switch for conjoint operation. The product level sensing switch is mounted approximately midway of one of the two product unit columns and is electrically connected in the control circuit to respond to product depletion in said one column of the connected pair of columns to a predetermined level in the column and transfer dispensing control to the second column of the connected pair. Selective product dispensing from the second column is continued until the second column is empty. Thereafter, dispensing control is automatically transferred back to the first column and the remaining product units in the first column are selectively dispensed until the products in that column are fully depleted. The invention is particularly applicable to vending machines for dispensing carbonated soft drinks or other food products which are subject to staleness if

left too long in the machine. The invention allows for easy modification and conversion of existing multi column vending machines and their associated control circuits in the field.

3,831,807

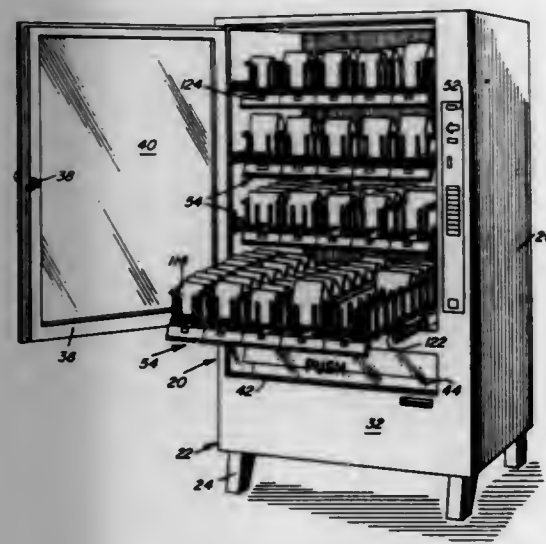
VENDING MACHINE DISPENSING MODULE TRAY

James M. Deaton, and Clarence M. Deaton, both of Conway, Ark., assignors to Vendmart, Inc., Corpus Christi, Tex.
Filed Mar. 28, 1972, Ser. No. 238,816

Int. Cl. G07f 11/58

U.S. Cl. 221-85

3 Claims



An assembly for use in a vending machine in the form of a tray of modular structure for dispensing bagged or packaged products that are loaded into the top of the tray and dispensed by being moved horizontally off of the front edge of the tray and dropped by gravity into an area accessible from the exterior of the dispenser. The tray modules are constructed of transparent material such as clear plastic to enable all of the products to be readily observed through an enlarged window in the front door of the cabinet thereby providing a vending apparatus that enables customer observation of the bagged or packaged products and the highly attractive packages or wrappers normally provided on such products. Each tray module includes a supporting surface on which the articles to be dispensed rest and conveying means including article-engaging fingers or tabs which move the articles off the end of the supporting surface so that they will drop downwardly into an access area. The vending machine includes multiple tray assemblies with the two uppermost tray assemblies being swingable downwardly to an inclined position when they are pulled outwardly at the front of the machine to facilitate loading. Each tray module includes an electrically operated power unit that is automatically engaged when the tray assembly is moved to its operative position and automatically disengaged when the tray assembly is moved to its extended or loading position.

3,831,808

PILL CARTRIDGE FOR A PILL DISPENSER

Louis Bender, 4 Heather Ln., Scotch Plains, N.J. 07076
Division of Ser. No. 189,647, Oct. 15, 1971. This application
Feb. 12, 1973, Ser. No. 331,644

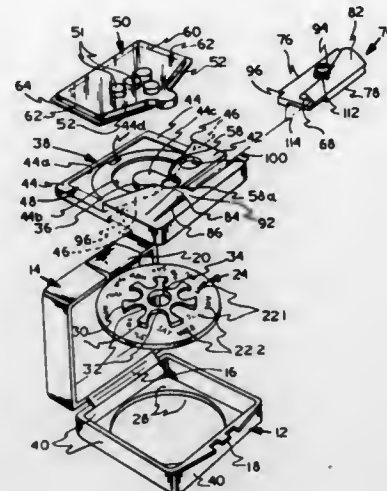
Int. Cl. B65d 83/04

U.S. Cl. 221-197

4 Claims

Mechanisms are disclosed for storing pills and dispensing them one at a time at indicated intervals. The dispenser includes a time interval read-out, and a mechanism for advancing the read-out by one pill time interval whenever a pill is withdrawn from storage. If the mechanism is operated but no

ing the read-out by one pill time interval whenever a pill is withdrawn from storage. If the mechanism is operated but no



3,831,809

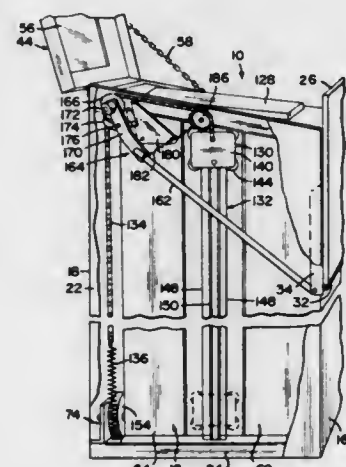
SINGLE-VEND DISPENSING MACHINE

Karl Knickerbocker, 400 Baycrest Dr., Venice, Fla. 33595
Filed May 18, 1973, Ser. No. 361,639

Int. Cl. B65g 59/02

U.S. Cl. 221-227

13 Claims



A single vend periodical dispensing machine configured for use with a coin operated mechanism for dispensing a single item during each cycle of operation. The dispensing machine includes a cabinet housing and periodical support means comprising an elevator platform, means, elevator lift means and elevator release means operatively disposed therein. The elevator release means engages the elevator lift means to relieve the pressure on the stack of periodicals being dispensed to prevent excessive pressure when in dispensing position to facilitate withdrawal from the machine through a dispensing opening. The dispensing machine also includes a thickness control means to control the size of the dispensing opening as the thickness of the periodical varies. In addition, a loading access door is pivotally attached to the top of the cabinet housing and arranged relative to the elevator platform means to permit leading of the periodicals thereon. A dispensing access door is pivotally attached to the front of the cabinet housing to permit withdrawal of the periodical through the dispensing opening. The loading access door houses a dispensing control means arranged relative to the dispensing opening to limit dispensing of a single item each cycle such that when the proper coins are inserted into the coin operated mechanism the dispensing door is released, unlocking the control means to dispense a periodical.

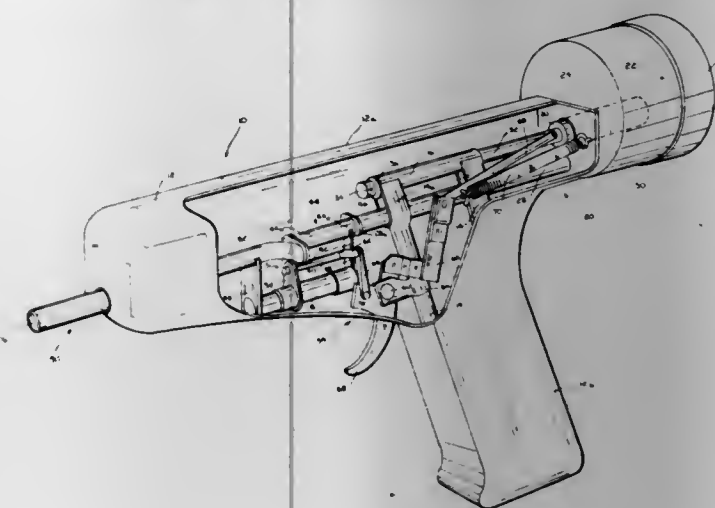
3,831,810

BEARING DISPENSER

Lee F. Hamme, Rt. 2, Warrenton, N.C. 27589
Filed Sept. 11, 1972, Ser. No. 287,783
Int. Cl. B65h 3/30

U.S. Cl. 221-301

2 Claims



In abstract, the present invention relates to a ball bearing dispenser comprising a gun type frame structure; a bearing storage chamber mounted on said frame structure; a metering chamber disposed adjacent said storage chamber and adapted to receive bearings therefrom; a dispensing chamber projecting generally forwardly from said metering chamber and adapted to receive a select quantity of bearings therefrom; and an actuating trigger assembly normally set to allow the metering chamber to be filled with a select quantity of bearings from said storage chamber and operative upon actuation to release the select quantity of bearings contained in said metering chamber.

3,831,811

METHOD OF AND SYSTEM FOR THE EMPTYING OF LIQUEFIED-GAS VESSELS, ESPECIALLY THE TANKS OF A TANK SHIP

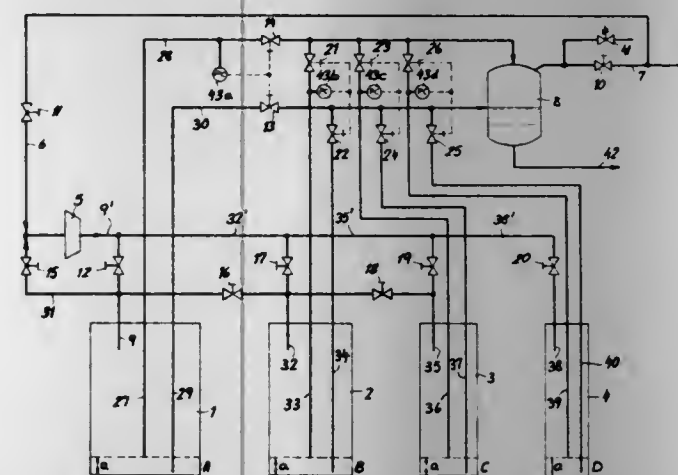
Rudolf Becker, Munich, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany
Filed Dec. 26, 1972, Ser. No. 318,161

Claims priority, application Germany, Dec. 29, 1971, 2165388

Int. Cl. B67b 7/00

U.S. Cl. 222-1

8 Claims



A plurality of liquefied-gas storage or transport tanks, e.g., of a tank ship for carrying liquefied gas, are emptied under applied pressure by introducing a compressed gas into a first tank to drive at least a major portion of the liquefied gas therefrom, the vapor space of the first tank serving as the source of compressible gas to be fed into a subsequently discharged tank as a driving fluid. Consequently, only the last tank remains at a pressure equal to the displacement pressure at the conclusion of emptying of all of the tanks.

3,831,812

FLUID DISPENSING SYSTEM

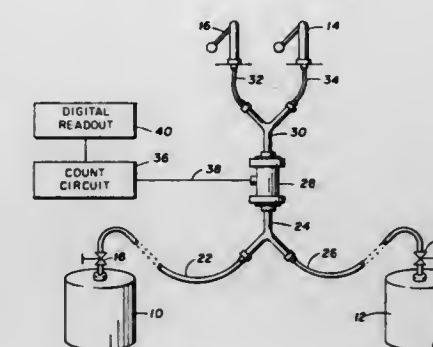
Albert J. Dolan, Dallas, Tex., assignor to Daltronics International, Dallas, Tex.

Filed Sept. 1, 1972, Ser. No. 285,675

Int. Cl. B67d 5/30

U.S. Cl. 222-20

10 Claims



Fluids dispensed in a commercial establishment are metered and/or controlled in accordance with the output of a turbine or vane flow meter in a line interconnecting a fluid bulk container and a dispensing valve. A signal output from the flow meter varies as a sine wave having a periodicity related to flow volume. This sine wave signal is amplified and squared prior to application to a logic circuit responding to the leading edge of each square wave cycle. The logic circuit generates a pulse signal for each cycle of the square wave and these pulses are counted in a digital counter having a numerical display related to the fluid flow through the turbine or vane meter. For control purposes, upon reaching a preselected count in the digital counter, a solenoid is deactivated to close a control valve in the interconnecting line between the bulk container and the dispensing valve.

3,831,813

HIGH-FLOW CAPACITY, SELF-REGULATING BYPASS SPIKE

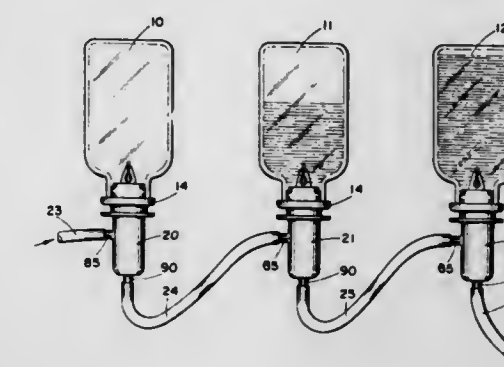
Allen Latham, Jr., Jamaica Plain, Mass., assignor to Haemonetics Corporation, Natick, Mass.

Filed May 11, 1973, Ser. No. 359,243

Int. Cl. B67b 7/26

U.S. Cl. 222-81

16 Claims



A bypass spike suitable for aseptic insertion through a one-holed stopper into a liquid reservoir for withdrawing liquid at a rapid rate therefrom. The bypass spike is particularly suitable for use in a series of liquid reservoirs from which liquids are to be withdrawn sequentially and in which the vent air of the first of the reservoirs is used as vent air for all the remaining reservoirs.

3,831,814

TROCAR-CANNULA

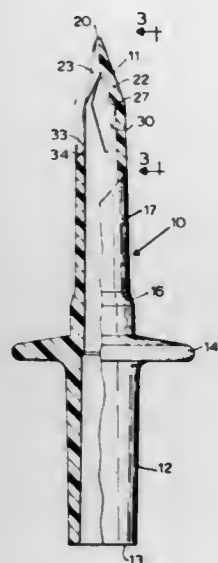
William F. Butler, Oakland, Calif., assignor to Cutter Laboratories, Inc., Berkeley, Calif.

Filed July 25, 1969, Ser. No. 844,946

Int. Cl. G07f 11/00

U.S. Cl. 222-81

9 Claims U.S. Cl. 222-135



A trocar-cannula for piercing a venoclysis diaphragm. A piercing point is provided on the end of a trocar, providing three large openings for passage of fluid into the interior of the cannula tube, as defined by three ribs shaped to provide maximum size of openings, to minimize cutting or tearing action on the diaphragm, to maximize stretching action thereon, and to prevent possible collapse of part of the container from closing off the opening area. Also, a combination trocar-cannula-drip barrel unit is shown.

3,831,815

DENTAL WAX EXTRUDER

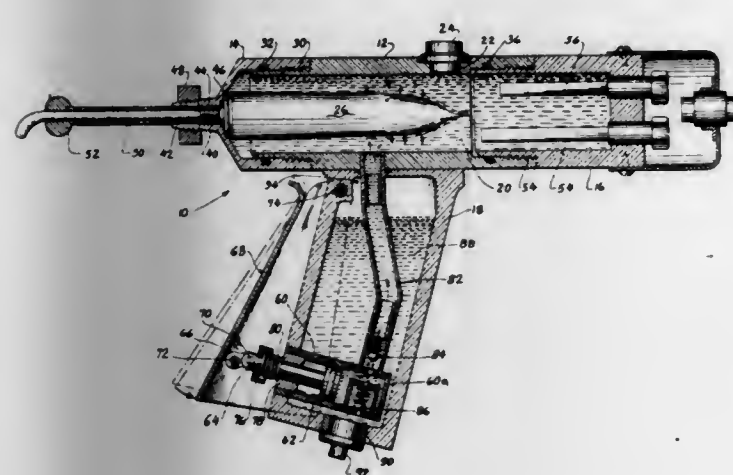
Paul J. Glasgow, Woodmere, N.Y., assignor to Glasgow Products, Inc., Woodmere, N.J.

Filed Nov. 9, 1972, Ser. No. 305,180

Int. Cl. B65d 35/22

U.S. Cl. 222-94

11 Claims



An instrument for heating and extruding dental impression wax or compound and other thermoplastic materials packed in collapsible containers. Heated and pressurized hydraulic fluid is applied to the containers to heat and extrude their contents.

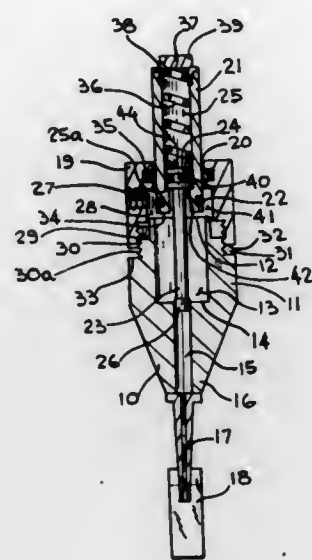
3,831,816
CHEMICAL SYRINGE

Richard S. Pauliukonis, 6660 Greenbriar Dr., Cleveland, Ohio 44130

Filed June 29, 1973, Ser. No. 374,983

Int. Cl. B67d 5/56

12 Claims



A device with improved accuracy, repeatability and reliability in collecting a first fluid such as samples of blood in a syringe or other fluids of various volumes in a dispenser, including volumes of a few lambdas and up to a few ounces, and mixing first fluid volume with a second fluid volume ideally measured in quantities of multiples of 1 to 1,000 times the first fluid volume, which operates by means of a built-in positive displacement with cut-off by a reciprocating plunger containing a telescoping spring loaded piston rod assembly and entering a barrel filled with second fluid with provision of collecting a first fluid by suction into a receiver such as pipette through an elongated passage at the barrel end which can also serve as receiver for the first fluid, simultaneously the plunger moves up from the first discharge position to the second filling position, incorporating a means of filling the barrel only when the plunger is at the barrel top and the barrel is under partial vacuum until the plunger seal disengages the barrel rim to enter larger diameter end cap portion connected to a second fluid supply permitting an instantaneous barrel filling with second fluid and means for control of volumetric displacement by cut-off when plunger starts to descend closing the barrel rim by the plunger seal and subsequently during downstroke pressurizing second fluid trapped in the barrel to simultaneously disengage the piston rod end from the elongated passage at the barrel end discharging the fluids mixed from the barrel during descend of the plunger and also washing the discharge passage with surplus of second fluid exhausting from the barrel after the first fluid was discharged under pressure of the second fluid therefrom by piston rod reentering the elongated passage by the force of a spring when the pressure of the second fluid dropped at the end of the plunger downstroke rendering the device ready to repeat the cycle of simultaneous filling of two different fluids on upward motion of the plunger and their mixing during the discharge on downward plunger motion, such motion controlled externally by mechanical or electromechanical means such device including volumetric adjustment of second fluid discharge therefrom.

3,831,817

STACKABLE LIQUID CONTAINER WITH POUR SPOUT

Vincent L. Leccese, Homerville, Ga., assignor to Standard Container Company, Montclair, N.J.

Filed Feb. 13, 1973, Ser. No. 332,190

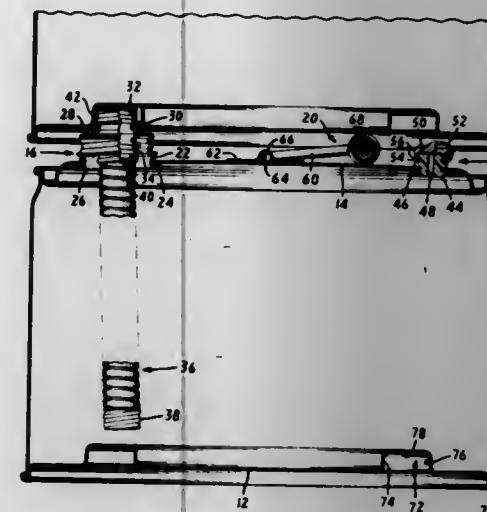
Int. Cl. B65d 21/02

U.S. Cl. 222-143

10 Claims

A liquid container has formed in its bottom wall an annular recess having a radius from the axial centerline of the con-

tainer equal to the radial distance from centerline of a pour spout mounted in the top wall of the container. A carrying handle is mounted on the top wall, having a height which, added to the depth of the recess, equals the height of the pour-



ing spout above the top wall. When these containers are stacked, the upper can is supported by the handle of the bottom can and by the pouring spout of the bottom can extending into the recess in the bottom wall of the upper can and bearing against its floor.

3,831,818

FERTILIZER DISTRIBUTOR

Jacques Dumont, Saverne, France, assignor to Kuhn S.A., Saverne, France

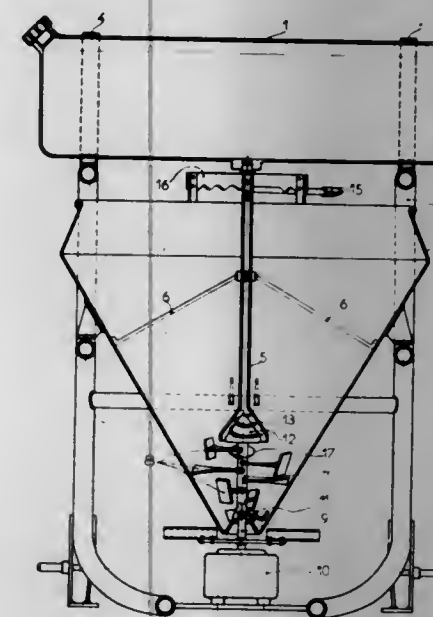
Filed May 3, 1973, Ser. No. 356,794

Claims priority, application France, May 15, 1972, 72.17964

Int. Cl. B67d 5/60

U.S. Cl. 222-145

11 Claims



The disclosure is of a fertilizer distribution device comprising a fertilizer-holding hopper, a reservoir for liquid, a bell-mouthed-conduit for leading the liquid inside and close to the bottom of the hopper, a power-driven rotary stirrer extending up into the bell mouth of the conduit, a clearing spiral on the stirrer for drawing wetted fertilizer out of the said bell mouth, openable shutters controlling openings for the discharge of wetted fertilizer, and means for manually controlling the said shutters and the rate of flow of liquid.

3,831,819

BUILDING ELEMENT ALIGNER AND MORTARIZER

Gordon Norman Bloom, 499 Ontdekkers Rd., Florida Hills, Transvaal Province, Roodepoort, South Africa

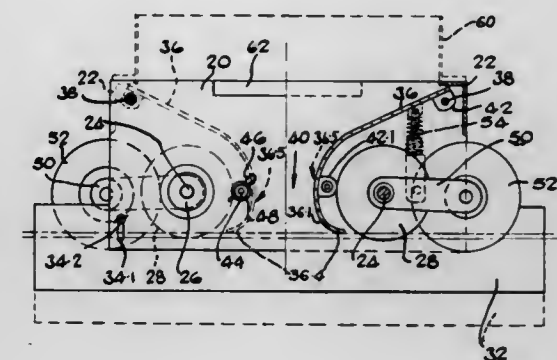
Filed Oct. 2, 1972, Ser. No. 294,265

Claims priority, application South Africa, Oct. 4, 1971, 71/6610

Int. Cl. B67d 3/00

U.S. Cl. 222-176

4 Claims



A method to aid in the construction of walls of bricks or other building elements providing for laying the building elements in random alignment in a course on a layer of mortar, alignment of said building elements with side faces of the wall being built and at the same time applying a layer of mortar on the aligned building elements for the next course of randomly aligned building elements, said aligning and mortar application being by a machine adapted for running on said randomly laid and the aligned and mortared building elements. The machine for applying the method comprises a mortar container having a downwardly diverging mortar outlet, spaced aligning devices and supporting runners which are disposed on opposite sides of the outlet.

3,831,820

CHILDPROOF SAFETY CAP FOR A PRESSURIZED DISPENSER

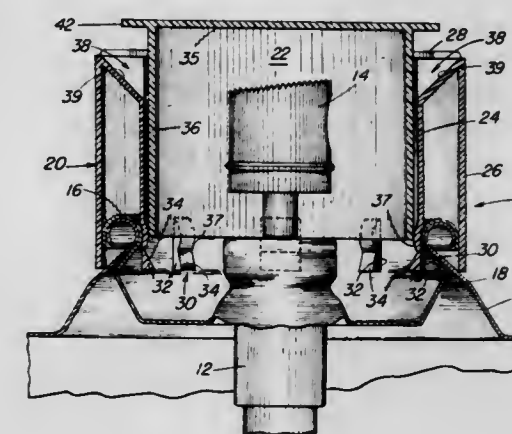
John Richard Focht, Yonkers, N.Y., assignor to Precision Valve Corporation, Yonkers, N.Y.

Filed Apr. 17, 1972, Ser. No. 244,670

Int. Cl. B67d 5/32

U.S. Cl. 222-182

4 Claims



An aerosol safety cap for an aerosol container including inner and outer telescoping members. The outer member includes depending movable locking means which move into conformity with the interior of the annular bead of the mounting cup of an aerosol container when engaged by the telescoped inner member to lock the members in position. Means is provided for gaining access to the inner member to release the locking means.

3,831,821

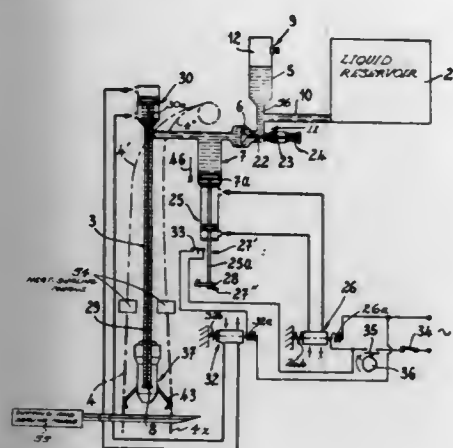
METERING DISPENSER FOR FLOWABLE MATERIAL

Louis Doyen, Lyon, France, assignor to Thimonnier & Cie, Lyon, France

Filed Apr. 9, 1973, Ser. No. 349,050
Int. Cl. B65b 9/12

U.S. Cl. 222-255

11 Claims



A dispenser for periodically discharging a metered quantity of a liquid or other flowable medium from an outlet, e.g. into a series of containers successively formed from a surrounding plastic sheath, includes two valves in tandem in a conduit extending from a reservoir to the outlet. A first branch of the conduit, upstream of the first valve, communicates with a pressure accumulator while a second branch, between the two valves, forms a metering chamber provided with a piston whose discharge stroke is initiated by a timer substantially concurrently with the opening of the normally closed second valve and closure of the first valve which reopens upon the succeeding intake stroke. The second valve, adjacent the outlet, is reclosed by the piston toward the end of its discharge stroke. The storage capacity of the pressure accumulator is less than the pumping capacity of the metering piston to avoid extended residence of any liquid in the accumulator.

3,831,822

SAFETY AEROSOL CAN

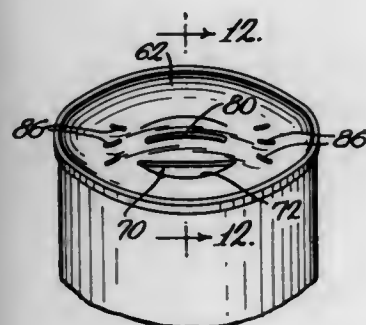
Arthur P. Zundel, Mt. Prospect, Ill., assignor to National Can Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 262,050, June 12, 1973, Pat. No. 3,724,727. This application Mar. 22, 1973, Ser. No. 344,057. The portion of the term of this patent subsequent to Apr. 3, 1990, has been disclaimed.

Int. Cl. B65d 83/14

U.S. Cl. 222-397

21 Claims



The invention disclosed here relates to a safety vent for pressurized containers consisting of a relief pressure area in a wall of the container with crowning means within the relief pressure area that produces a crown when the pressure in the container exceeds a predetermined safe limit. The relief pressure area is defined by a pair of spaced, weakened portions that are separated from each other by unweakened portions. In one embodiment the crowning means is a bead that extends

generally parallel to the weakened portions and in another embodiment a plurality of weakened lines extending generally normal to the weakened portions define the crowning means.

3,831,823

OPENABLE CLOSURE WITH DRIP SITE

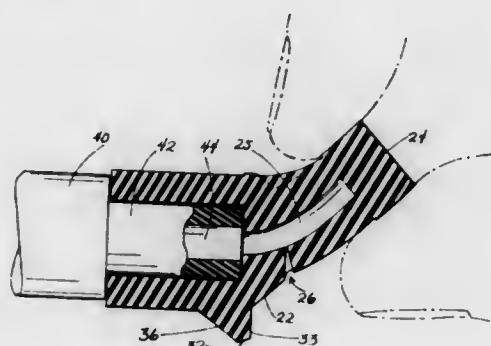
Daniel M. McWhorter, Arlington Heights, and Frank K. Villari, Oak Park, both of Ill., assignors to The Rendall Company, Walpole, Mass.

Filed June 3, 1970, Ser. No. 42,978

Int. Cl. B65d 5/74

U.S. Cl. 222-490

1 Claim



An opening in the form of a slit in the resilient wall of a hollow conduit has a skeg-like protuberance associated with it which tends to collect liquid flowing from said slit and thereby confine its flow off said conduit from a single site.

3,831,824

DISPENSING SYSTEM

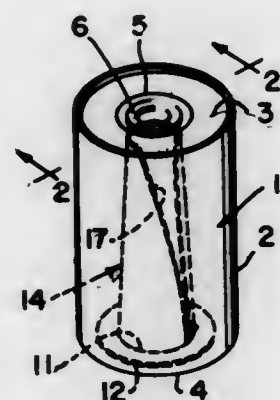
Morris Coppersmith, Laverock, Pa., assignor to Packaging Aids Inc., Erdenheim, Pa.

Filed June 8, 1972, Ser. No. 260,860

Int. Cl. B67d 3/00

U.S. Cl. 222-525

12 Claims



A dispensing system for transporting and guiding the flow of liquid or particulate matter from within a container to some external receptacle. The dispensing system includes a container and a retractable spout member normally located within the container when not in use. The container forms a closure having a removeable member integrally formed on a top wall of the container. The removeable member may be displaced with respect to the top wall along a pre-weakened contour outline thus forming an opening in the top wall of the closure. The spout member may be extracted from within the container through the opening to permit guidance in the pouring of matter from the container. The spout is trough shaped in a substantially conical form. The spout further includes a flange formed on a bottom end which has a greater dimension than the opening to prevent the spout from completely falling through the opening when the container is tilted. A lip formed on an upper end of the spout permits the spout to be manually pulled through the opening in the container.

3,831,825

SLIDING VALVE FOR A CONTAINER OF LIQUID SMELT PROVIDED WITH A LIP

Hans-Joachim Kutzer, Wiesbaden-Rambach, Germany; Gerolf Strohmeier; Bernd Natter, and Karl Sedlatschek, all of Reutte, Austria, assignors to Didier-Werke A.G., Wiesbaden, Germany and Metallwerk Plansee Aktiengesellschaft & Co. KG., Tirol, Austria

Continuation of Ser. No. 57,431, July 23, 1970, abandoned.

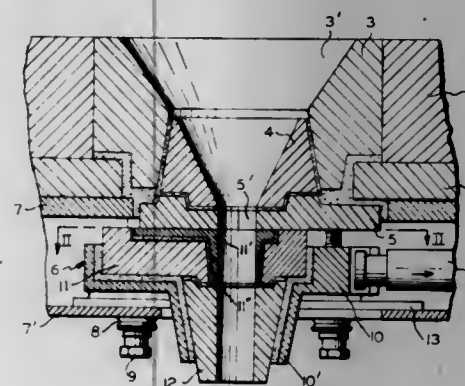
This application Sept. 14, 1972, Ser. No. 288,978

Claims priority, application Germany, July 23, 1970, 1937742

Int. Cl. B22d 37/00

U.S. Cl. 222-561

6 Claims



A sliding valve for a container provided with a lip containing a liquid smelt such as a pouring ladle has an orifice plate mounted on the container in the area of the lip. A valve plate has a flow passage and means are provided for moving the valve plate with a sealing effect against the orifice plate. The valve plate is of refractory material and the flow passage and sealing surface of the valve plate are made of a heat resistant metallic hard material, such as an oxidation stable metal silicide with a high melting point. The flow passage and the sealing surface of the valve plate may be made of a heat resistant powder metallurgical solid solution, such as a solid solution containing zirconium oxide and molybdenum. Up to 40 percent by volume chromium may be added to the metal phase of the powder metallurgical solid solution. The flow passage and the sealing surface of the valve plate may have a coating of a heat resistant metallic hard material.

3,831,826

GARMENT HANGER

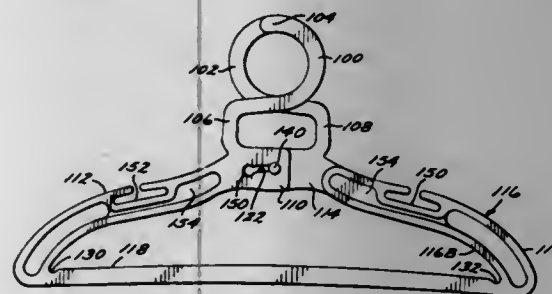
Leonard L. Thomas, 375 N. West Cypress St., Orange, Calif. 92668

Continuation-in-part of Ser. No. 263,727, June 8, 1972, abandoned. This application Aug. 10, 1972, Ser. No. 279,398

Int. Cl. A47j 51/098

U.S. Cl. 223-88

5 Claims



A garment hanger is disclosed which includes two oppositely directed hanger hooks. The hooks are biased in overlapping condition so that the hanger will not be pulled from the rod as an incident to removal of adjacent hangers and which cannot be jostled off of the rod on which it is placed. A biasing arrangement urges the hooks to overlapping relationship and a means is provided for overcoming that bias to move the hooks apart so that it can be installed on and removed from a rod by

a vertical movement. In preferred form the hanger is made of wire which has sufficient resilience so that portions of the wire will yield to an operating force to permit opening of the hook and which will return the hooks to original overlapping condition when the force is removed. The hangers shown are the type that include a yoke that fits into the shoulders of a garment placed on the hanger and the hooks extend upwardly from the upper, inner ends of the yoke halves so that they will extend out of the neck of a garment hung on the hanger. An interlocking arrangement in that connection between yoke and hooks serves to lend rigidity to the hanger and to provide an easy means for operating the hooks while permitting the hooks to open by pivotal action.

3,831,827

PACK FRAME WITH SWIVELING HIP-RIDERS

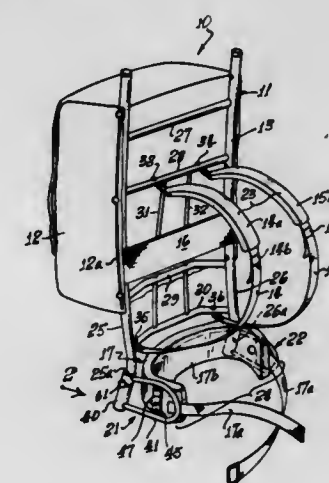
Allan M. Olson, Whittier, Calif., assignor to Camp Ways Inc., Los Angeles, Calif.

Filed Nov. 16, 1972, Ser. No. 307,033

Int. Cl. A45f 3/10

U.S. Cl. 224-25 A

1 Claim



A pack frame assembly combining a pack frame and a suspension means which permits a restricted movement of the pack frame as it is carried on the back of a walking person, which suspension means includes in combination: a pair of flexible shoulder straps attached to the pack frame; and right and left swiveling cantilever arms projecting horizontally from the lower ends of the pack frame to a hip belt, said cantilever arms being pivotally attached to the hip belt.

3,831,828

ARRANGEMENT FOR ALIGNING FABRIC MATERIAL DURING ROLLING-UP AND UNROLLING OPERATIONS

Rene Royon, 15 rue de la Charriere, 4227 Saint Priest en Jarez, and Georges Thillardon, 29 rue des Villas, Residence "Les Edelweiss", 42100 Saint Etienne, both of Loire, France

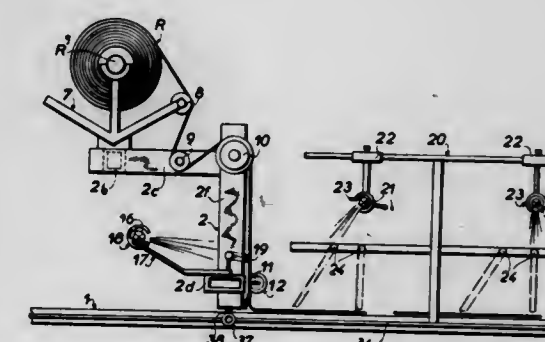
Filed Feb. 14, 1973, Ser. No. 332,303

Claims priority, application France, Feb. 22, 1972, 72.6947

Int. Cl. B65h 25/26

U.S. Cl. 226-16

20 Claims



An arrangement for aligning sheet fabric material while being rolled up or unrolled for processing, in which the fabric

is passed over an aligning roll member. One end of this roll member is pivoted, whereas the other end is displaced by a screw mechanism. The angular disposition of the roll member orients the material in predetermined direction. In conjunction with the angular variation of the roll member, the peripheral diameter of the roll member may be varied by rotating a shaft passing through the center of the roll member. A pair of oppositely-threaded portions on this shaft, mesh with female-threaded members carrying elongated elements which vary the peripheral diameter of the roll member as a function of the displacement of the female-threaded members along the axis of the shaft.

3,831,829

COPY MACHINE FEEDING MEANS

Ladislav Stephan Karpisek, Carlingbah, Australia, assignor to Nashua Australia PTY Limited, St. Leonards, New South Wales, Australia

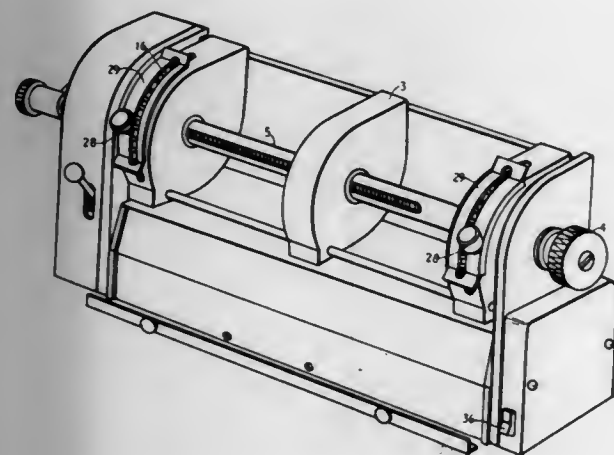
Filed May 14, 1973, Ser. No. 359,664

Claims priority, application Australia, May 16, 1972, 8966/72

Int. Cl. G03b 1/24

U.S. Cl. 226—83

5 Claims



In one form of the invention there is provided a new and improved paper feeding apparatus for photo copying machines and more particularly a paper feeding apparatus for the continuous feeding and copying of computer type continuous paper on flat bed photo copying machines, comprising a main tray assembly for attachment to the underside of a conventional photo copying machine, a paper storing and dispensing tray for attachment to the main tray on one side of a photo copying machine, a drive means situated on the main tray and electrically connected through the machine to move the paper to be copied to and from the copying glass, and a paper receiving tray for receiving the copied paper.

3,831,830

THREAD FEEDING DEVICE FOR TEXTILE MACHINES

Jean Venot, Villerest, France, assignor to Chavanoz S.A., Chavanoz, France

Filed June 18, 1973, Ser. No. 370,725

Claims priority, application France, June 26, 1972, 72.23274

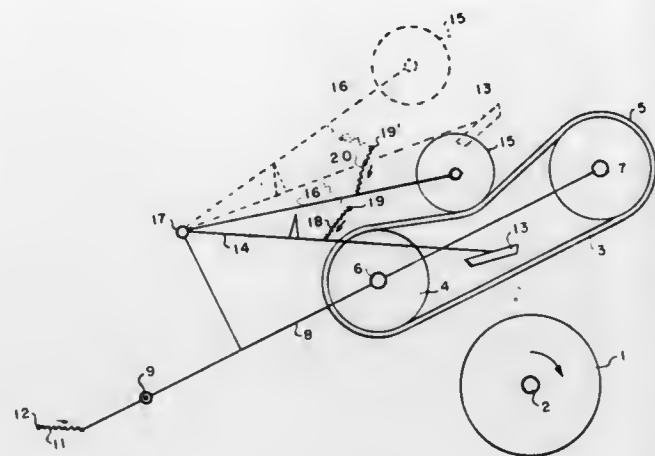
Int. Cl. B65h 17/34

U.S. Cl. 226—171

11 Claims

A thread feeding device for textile machines comprising a rotary driving cylinder and an endless belt which, in normal operation, is applied along an arc of a circle against the cylinder to engage and advance thread passing between the belt and the cylinder wherein the belt is mounted on two idler rollers attached to a pivotable supporting arm, characterized in that the supporting arm is combined with means for posi-

tioning and pretensioning the belt in an intermediate position between an idle and a working position in which position the belt is in contact with the driving cylinder over an embraced



arc and at a pressure much less than that necessary to advance the thread during normal operation.

The invention is particularly adapted for use in texturizing machines, and especially, for those texturizing by false twist.

3,831,831

DATA WEB GUIDING APPARATUS

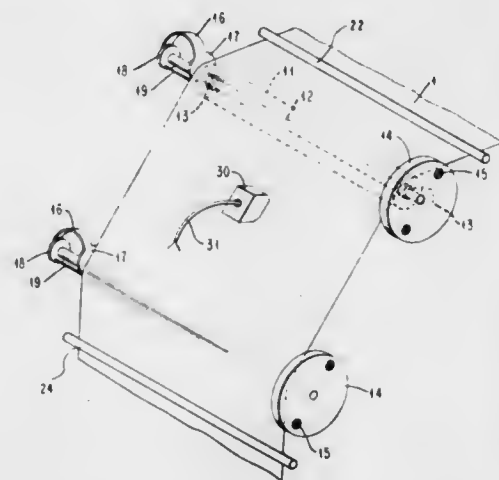
George Burdine Flippen, Jr., and John Wesley Ward, Jr., both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 29, 1973, Ser. No. 364,761

Int. Cl. B65h 23/32

U.S. Cl. 226—198

5 Claims



A data web guiding apparatus is disclosed which allows precision movement of a data web past a reading and writing transducer. A pair of rotatable cylinders are positioned in parallel spaced relation to each other for defining a plane over which the data web is passed. Fixedly mounted in spaced relation to a first end of each of these cylinders is a flange. At the other end of each of these cylinders is mounted a spring rail. The spring rails contact an edge of the data web and bias the web toward the fixed flanges as the web passes over the cylinders. When magnetic tape is used as the data web, precision movement of the tape past the guiding apparatus is achieved, in spite of variations in tape width due to temperature, humidity, or uneven cutting of the edges, with edge wear being held to a minimum under all such conditions.

3,831,832

CONNECTABLE BOX STRUCTURES

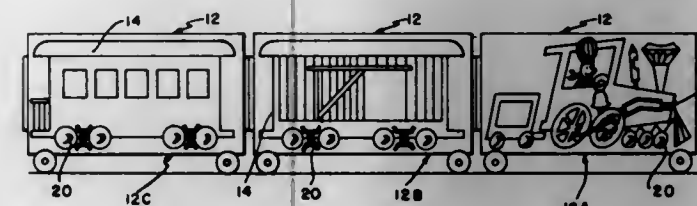
Joseph Roy Gray, Rt. 3, Box 139, Bixby, Okla. 74008

Filed May 8, 1972, Ser. No. 251,328

Int. Cl. B65d 5/00

U.S. Cl. 229—8

3 Claims



This invention relates to box structures and, more particularly, to box structures connectable in such a manner to form a chain of interconnected structures. More, particularly, this invention relates to box structures which are connected through magnetic members so as to simulate the appearance of interconnected cars of an elongated train assembly. The magnetic members may be mounted interiorly or exteriorly of the box structure which, in turn, may have wheel support assemblies for contact and ease of movement on the support surface.

3,831,834

END OPENING CONTAINER WITH IMPROVED STACKING STRENGTH

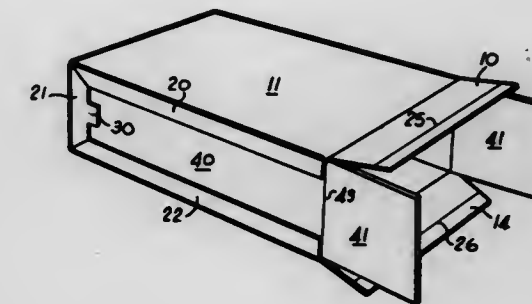
John R. Elward, Novato, Calif., assignor to Fibreboard Corporation, San Francisco, Calif.

Filed Apr. 9, 1973, Ser. No. 349,205

Int. Cl. B65d 5/32

U.S. Cl. 229—23 R

4 Claims



An end opening, end loading container of three-piece construction has strengthened side and end walls, thereby providing improved stacking strength while using a minimum amount of material.

3,831,835

PACKING CASE FOR RECEPTION OF TETRA-HEDRON-SHAPED INDIVIDUAL PACKINGS AND AN APPARATUS FOR PILING UP THE INDIVIDUAL PACKINGS IN THE PACKING CASE

Horst Guhl, Northeim, Germany, assignor to Firma Thimmler Wellpappen KG, Northeim, Germany

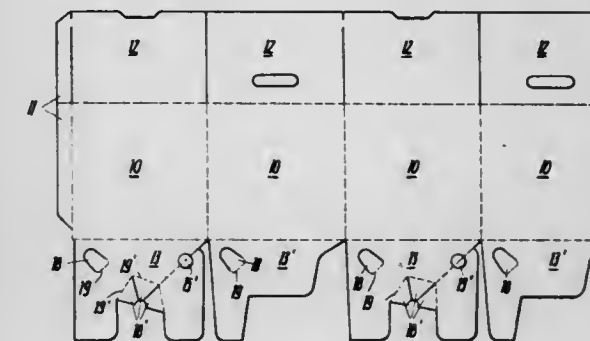
Filed July 7, 1972, Ser. No. 269,813

Claims priority, application Germany, July 7, 1971, 2133826; July 7, 1971, 7126064; May 29, 1972, 7220155

Int. Cl. B65d 5/02

U.S. Cl. 229—37 R

12 Claims



3,831,833

DISPENSING CARTON

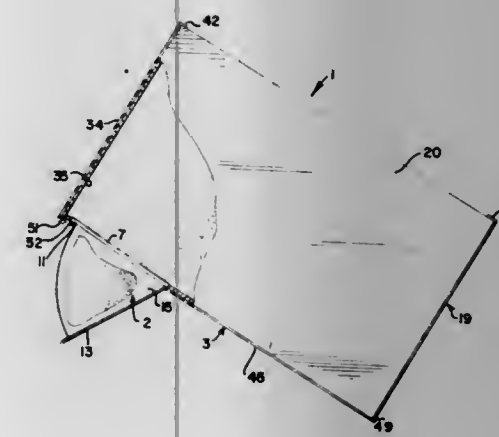
Thomas C. Dressler, c/o John Paluga, 507 Lamar St., Apt. 142, Arlington, Tex. 76010, and Thomas J. Arnold, 4924 Mohawk, Shawnee Mission, Kans. 66205

Filed Sept. 25, 1972, Ser. No. 291,562

Int. Cl. B65d 5/76

U.S. Cl. 229—17 M

2 Claims



A container or carton for the storage and dispensing of particulate or granular dry flowable materials such as soap powder, cereals, powdered milk, soap flakes and the like. The carton includes a hinged spout that moves in an opening of the container and has a chamber of preselected volume. The spout normally closes the opening and the chamber is filled by manipulating the carton and returning it to an upright position. Movement of the spout to a dispensing position closes the opening and permits tilting of the container for pouring out the chamber contents.

A packing casing formed of a folding cardboard blank with rectangular, in particular square cross-section for reception of tetra-hedron-shaped individual packings, in particular soft packings, which comprises a blank including bottom- and cover-flaps. Guide members are also provided. The bottom flaps form the bottom of the packing casing and defining perforations in the corner ranges for the passage through of the guide members controlling the piling up of individual packings. The individual packings have setting edges and are guided during this piling up and at least parts of the perforations are disposed tangentially to the setting edges.

3,831,836

CONTAINER HAVING CORNER POST HOLDERS

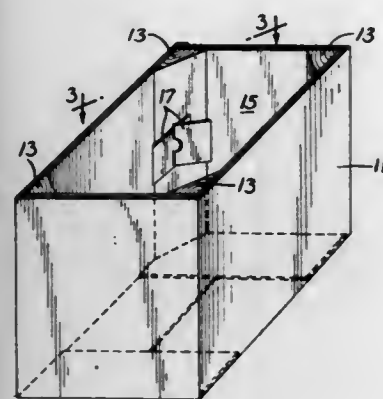
Donald E. Ellison, Clayton, and Larry C. Davenport, Indianapolis, both of Ind., assignors to Inland Container Corporation, Indianapolis, Ind.

Filed Dec. 4, 1972, Ser. No. 311,940

Int. Cl. B65d 61/00

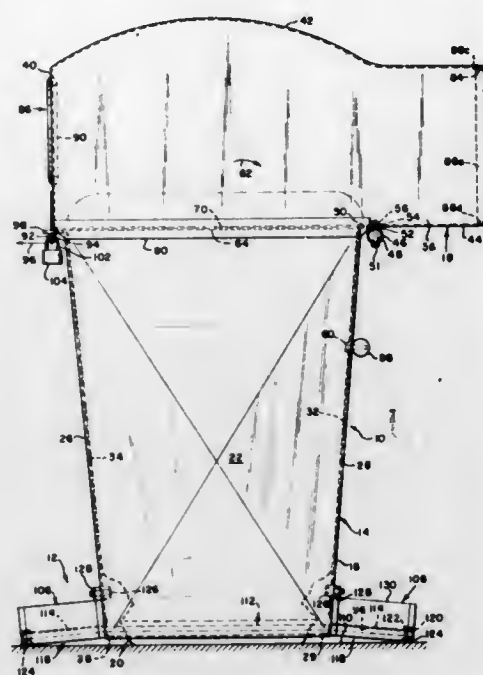
U.S. Cl. 229-49

9 Claims



A container having corner post holders formed from a corrugated fiberboard liner which is laminated to the interior surface of the container outer blank. The holders are tabs which are pulled inward to position the corner post behind them.

tainer in the outer housing. The outer housing is constructed so that litter, etc. can be introduced through it into the



3,831,839

RACING CALCULATOR

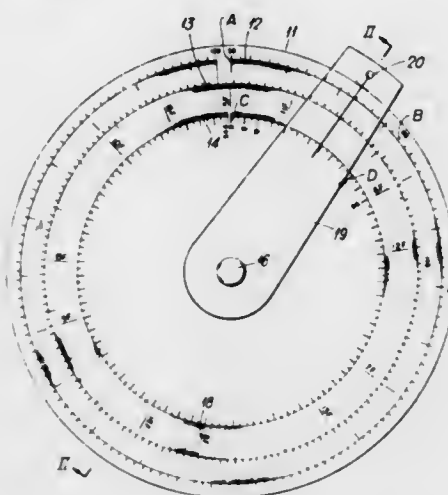
Albert Boardman, 140 Chaldon Way, Coulsdon, England

Filed Dec. 9, 1971, Ser. No. 206,471

Int. Cl. G06c 3/00, 27/00

U.S. Cl. 235-88

9 Claims



A device suitable for use in comparing the form ratings of runners in a race, comprising two elements relatively rotatable about an axis, each element having a scale bearing surface, the surface of the first element bearing circular time and rating scales disposed concentrically about said axis and the surface of the second element having a circular distance scale also concentric with said first surface scales, the scales being disposed radially adjacent to one another so that they can be read simultaneously.

3,831,840

COMPOSITE SLIDE RULE

Pierre Fauchaux, Paris, France, assignor to Etablissement Fresa, Vaduz, Liechtenstein

Filed Feb. 28, 1973, Ser. No. 336,622

Claims priority, application Switzerland, Mar. 1, 1972, 3015/72

Int. Cl. G06c 3/00

U.S. Cl. 235-89 R

1 Claim

A composite slide rule showing for different type breadths defining the number of characters in a printed line the number

3,831,838

RECEPTACLES FOR LITTER AND THE LIKE

Robert H. Kline, and Christian E. Grosser, both of Richmond, Va., assignors to Peli-Can, Inc., Richmond, Va.

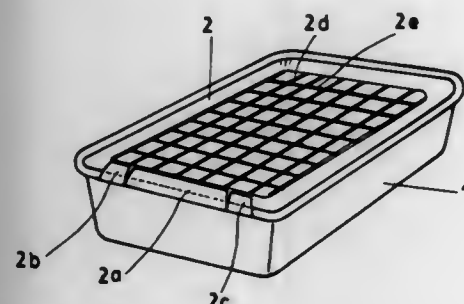
Filed Mar. 2, 1971, Ser. No. 120,184

Int. Cl. B65d 91/00

U.S. Cl. 232-43.2

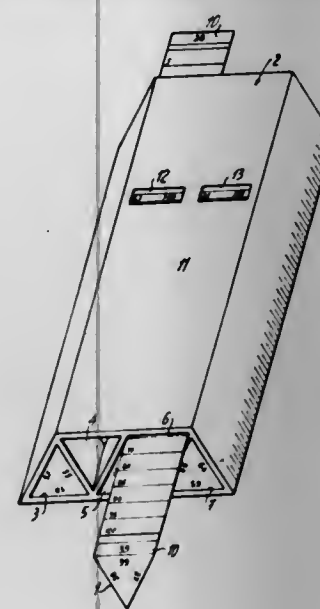
4 Claims

Receptacles for litter and the like which include a base, an outer housing supported by the base, and a disposable con-



Cover construction for an eating bowl. A cover for an eating bowl is made from thin aluminum provides with corrugations arranged parallel to each other and oriented in both the longitudinal direction of the bowl and transversely thereto. In one preferred embodiment the longitudinal corrugations are somewhat deeper than are the transverse corrugations. An opening tab is preferably provided at one longitudinal end of the cover to initiate opening of the bowl by tearing of said cover.

of characters printed for various numbers of lines printed with such types. Advantageously, there is provided an elongated casing with a plurality of parallel channels the cross-section of which is preferably in the shape of a regular polygon such as an equilateral triangle, these channels slidably housing



prismatic slides of a corresponding cross-section, the sides of which carry each along its opposite edges cooperating scales of character and line numbers for a predetermined type breadth. This allows reading, through gates extending through the casing, the corresponding character and line figures for the selected character breadth.

3,831,841

TEMPERATURE CONTROL SYSTEM AND VACUUM MODULATOR VALVE THEREFOR

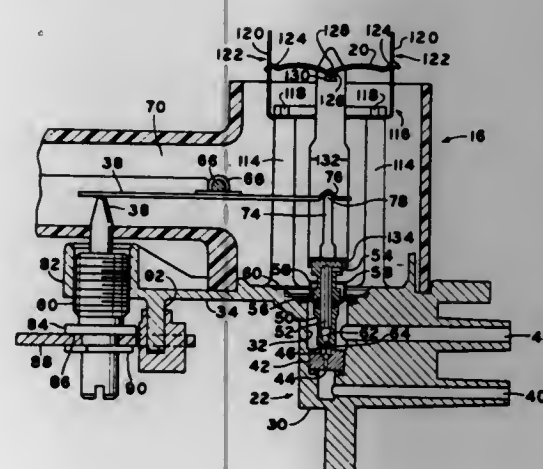
Rudolph J. Franz, Schaumburg, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jan. 30, 1974, Ser. No. 438,507

Int. Cl. B60h 1/02; G05d 11/16, 23/275

U.S. Cl. 236-13

7 Claims



Apparatus is provided for controlling a vacuum motor to regulate the position of an air blend door in an automotive air conditioning system. The apparatus includes a sensor and an aspirator spaced apart from the sensor, with the outlet of the sensor in fluid communication with the aspirated-air inlet of the aspirator. The sensor includes a valve casing, a vacuum supply line, and a vacuum control line connected to the vacuum motor. Valve means is provided within the valve casing so that the vacuum supply line and the vacuum control line are in open communication when the valve means is open. The sensor has a bimetal element mounted in the flow of air at in-car temperatures and an adjustment arm which are independent of each other, but in operative association with the valve means to effect movement thereof.

3,831,842

RAIL FASTENING DEVICE

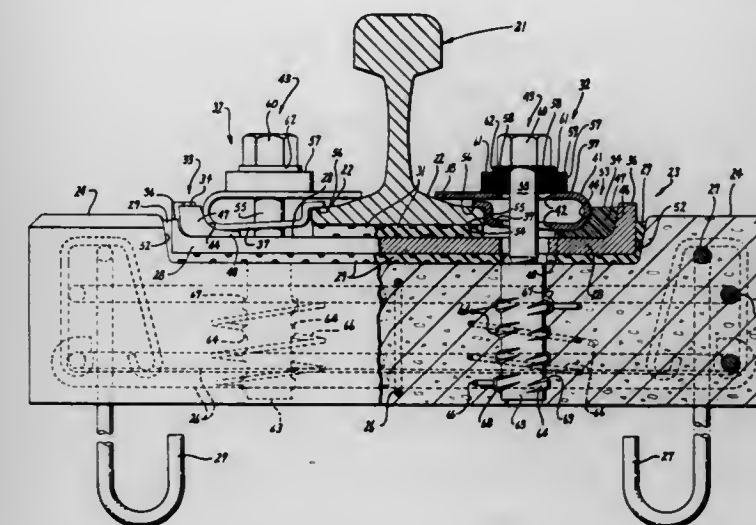
Shigeru Tamura, Tokyo, Japan, assignor to George J. Mura, San Leandro, Calif.

Filed Nov. 2, 1972, Ser. No. 303,226

Int. Cl. E01b 9/66

U.S. Cl. 238-349

15 Claims



A rail fastening device for securement of a longitudinally extending rail means to support structure by spring clip means is disclosed. A rail alignment means, including wedge means, mounted in engagement with the spring clip means and formed to laterally displace the spring clip means, and accordingly the rail means, is provided to enable precise alignment of the rail means and the gauge between adjacent rails. The spring clip means is free for lateral movement, as is the rail, and the alignment means is used to support lateral loading forces as well as align the rail means. The wedge means is formed of electrically insulating material, as is a pad under the rail and sockets into which fasteners for the spring clips are mounted, to insulate the rail means electrically from the supporting structure. A rail fastening device for tracks with and without ballast is shown as well as specific spring clip configurations and a locking washer for the spring clips.

3,831,843

METHOD OF FUEL ATOMIZATION AND A FUEL ATOMIZER NOZZLE THEREFOR

Tadahisa Masai, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

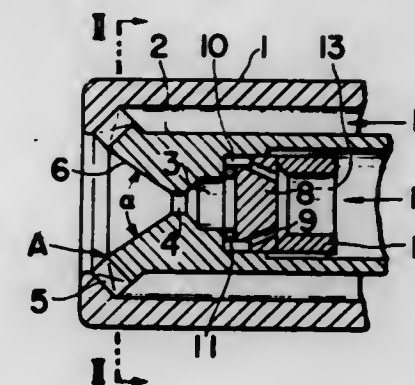
Filed Mar. 3, 1972, Ser. No. 231,702

Claims priority, application Japan, Mar. 3, 1971, 46-10653

Int. Cl. A01n 17/02; A62c 1/12

U.S. Cl. 239-8

7 Claims



A very fine fuel particle size is obtained by atomization resulting from the intersection of a fuel stream from a fuel nozzle and a gas stream from a gas nozzle with respective velocity vectors forming an angle at least as great as 90°, with atomization of an inverse Y-jet type. Preferably, the fuel is

jetted with a whirling motion in an axial direction away from the atomizer, and the gas is whirled inwardly at right angles to its whirling axis or axially either in the same direction as or in the opposite direction as the axial direction of movement for the fuel. The fuel and preferably also the gas will be whirled conically, that is with both a radial and axial component of movement with respect to the whirling axis.

3,831,844

APPARATUS FOR SNOW MAKING

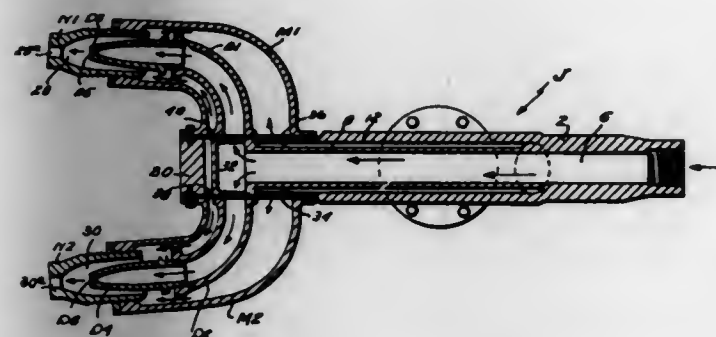
Joseph C. Tropeano, 20 Revere St., and Philip L. Tropeano, 12 Revere St., both of Lexington, Mass.

Division of Ser. No. 227,126, Feb. 17, 1972, Pat. No. 3,761,020. This application Apr. 30, 1973, Ser. No. 355,799

Int. Cl. F25c 3/04

U.S. Cl. 239-14

4 Claims



High velocity streams of compressed air and pressurized water are furnished in a cold ambient atmosphere from two independent sources of supply and precooled by momentarily confining the high velocity streams in elongated passageways formed in a snow-making jet construction whose outer surfaces are exposed to the cold ambient atmosphere. Portions of the passageways in the jet structure are arranged in a manner such that the stream of water is precooled by the cold ambient atmosphere and an inner stream of compressed air undergoes peripheral precooling by means of the precooled stream of pressurized water. The precooled stream of air may undergo successive stages of expansion while in a confined state to further cool the mixture. Regulated quantities of the precooled compressed air may also be injected into the confined stream of water at predetermined points thereby to control snow characteristics. Precooling compressed air and water with the jet construction of the invention produces snow at efficiency levels not heretofore realized in the art of snow making, and the characteristics of the snow crystals or particles being desirably controlled.

3,831,845

FLUID DELIVERY SYSTEM

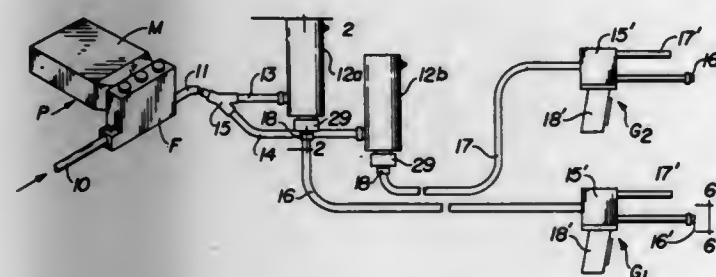
Amos Pacht, Houston, Tex., assignor to Partek Corporation of Houston, Houston, Tex.

Filed Aug. 17, 1973, Ser. No. 389,244

Int. Cl. F16k 21/00

U.S. Cl. 239-76

13 Claims



A high pressure fluid delivery system is disclosed in which two or more guns, each having a high pressure nozzle outlet

and a low pressure dump outlet, may be connected to and operated from the same pump. Pressure responsive control apparatus is provided in the flow line between each gun and the pump and each such apparatus includes a valve responsive to the fluid pressure at its respective gun for directing fluid either directly to such gun when flow is through the gun nozzle, or through an opening through the valve substantially the same size as the nozzle orifice of such gun when the gun is dumping.

3,831,846

FUEL INJECTOR

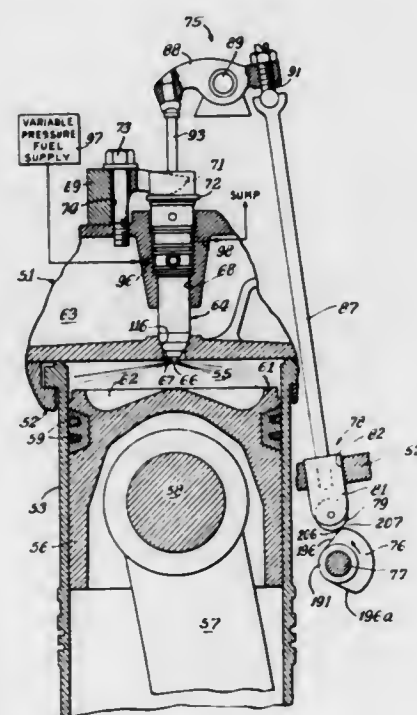
Julius P. Perr, and George L. Muntean, both of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Jan. 15, 1973, Ser. No. 323,624

Int. Cl. F02m 47/02, 45/10

U.S. Cl. 239-89

35 Claims



A fuel injector for an internal combustion engine, comprising an injector body and a plunger reciprocable in said body. An injection chamber in the body receives fuel from a fuel supply, and the plunger is moved in an injection stroke to force fuel from the injection chamber and out of the injector through spray holes in the injector body. A valve in a flow passage between the chamber and the spray holes is normally open to permit fuel flow during injection. The plunger moves the valve toward its closed or seated position during the injection stroke, and when the valve closely approaches the seated position, a hydraulic force develops which forces the valve to its seat and thereby abruptly terminates injection. Release of fuel pressure after termination of injection is attained by opening a spill port, the flow passage for the spilled fuel being restricted in order to obtain a gradual release of the fuel pressure in the chamber. The resulting gradual release of fuel pressure in the chamber holds the valve firmly seated and thus prevents secondary injection.

3,831,847

MAGNETIC VEHICLE BUMPER

Daniel J. Serritella, 7757 S. Narragansett, Burbank, Ill. 60459

Filed Apr. 30, 1973, Ser. No. 355,339

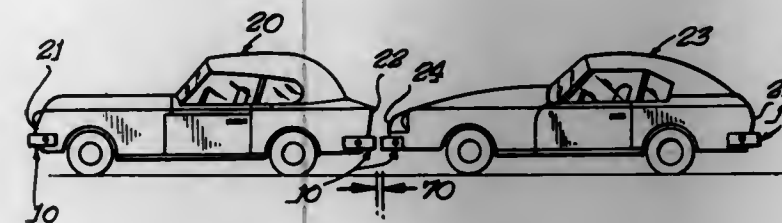
Int. Cl. B60r 19/02

U.S. Cl. 239-1

5 Claims

A vehicle bumper consisting of a pair of bracket members adapted for mounting on the chassis of a vehicle in the conventional bumper location thereon, a rigid channel member

adapted for mounting on a bracket in a manner to extend transversely of the vehicle with the rear surface of the channel member adjacent the vehicle body and the front surface of the channel member projecting away from the vehicle body, a segmented magnetic member extending longitudinally across the front surface of the channel member with each of the mag-



netic segments having the same magnetic pole face portion facing in a forward direction substantially flush with the front surface of the channel member, and a cover adapted for slipping over the magnetic members and channel member and secured thereover by bolts or the like in a manner to protect the channel and magnetic members.

3,831,848

SPRAY BAR WITH GUIDE WHEELS AND STABILIZING POLES

Henry D. Cook, Atlanta, Ga., assignor to K & M Enterprises, Incorporated, Atlanta, Ga.

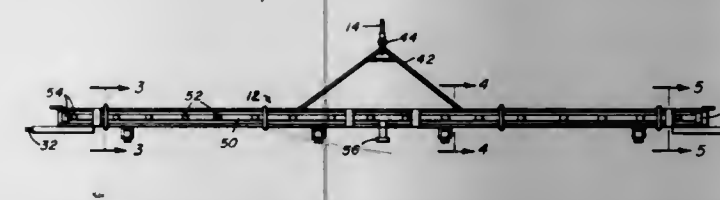
Division of Ser. No. 202,869, Nov. 29, 1971, Pat. No.

3,750,686. This application May 18, 1973, Ser. No. 361,851

Int. Cl. B05b 9/02, 1/28, 15/06

U.S. Cl. 239-104

2 Claims



An elongated spray bar adapted to be suspended from a cable or the like along the side of a building and including a plurality of nozzles for spraying cleaning solution, a plurality of guide wheels for guiding vertical movement of the spray bar and stabilizing poles projecting from each end thereof.

3,831,849

MOBILE SELF CONTAINED PRESSURE SPRAYER

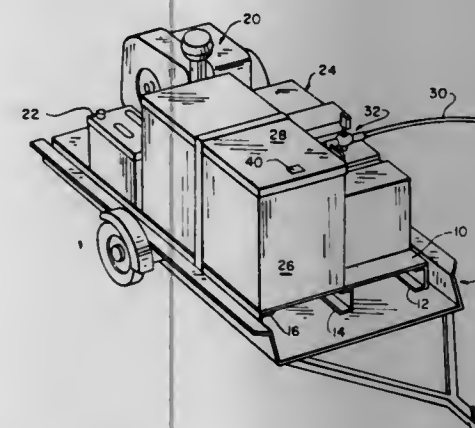
John H. Studinger, 5700 Montview Blvd., Denver, Colo. 80207

Filed June 26, 1972, Ser. No. 266,415

Int. Cl. B05b 9/02

U.S. Cl. 239-127

1 Claim



A skid mounted sprayer assembly having a gasoline engine driving a high pressure pump, includes tanks for fluids ejected by the pump, providing a mobile source of high pressure cleaning and washing fluids.

3,831,850

SPRAY GUN ASSEMBLY HAVING STIR MEANS

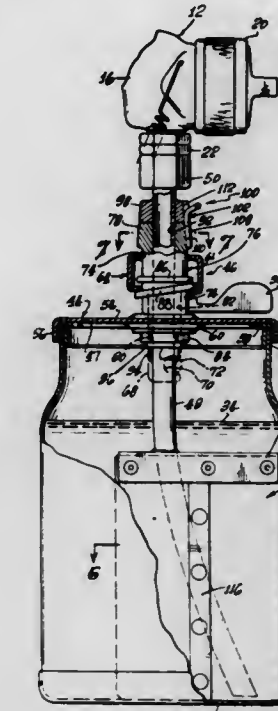
Theodore K. Hunter, 1107 S. Serenade Ave., West Covina, Calif. 91790

Filed May 30, 1973, Ser. No. 365,256

Int. Cl. B01f 9/08

U.S. Cl. 239-144

13 Claims



A pneumatic spray gun container assembly having a suction tube through which a substance to be sprayed, such as paint, feeds from the container proper of the assembly to the spray gun. A stirrer, such as a flexible paddle, is fixed to the suction tube within the container, and the container is rotatable relative to the tube and stirrer to effect stirring of the container contents periodically during spraying operation without opening the container. A finger operated latch is provided for releasably securing the suction tube and container in a fixed relative angular position between stirrings.

3,831,851

SPRAY INSTALLATION FOR HIGHLY-FILLED DISPERSIONS

Hans Peter Gsell, Baar, and Friedrich Kunzler, Roggwil, both of Switzerland, assignors to Tirama AG, Zug, Switzerland

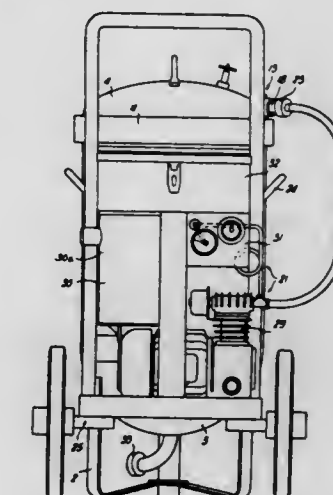
Filed Apr. 14, 1972, Ser. No. 244,181

Claims priority, application Switzerland, Apr. 30, 1971, 6455/71

Int. Cl. B05b 7/26

U.S. Cl. 239-175

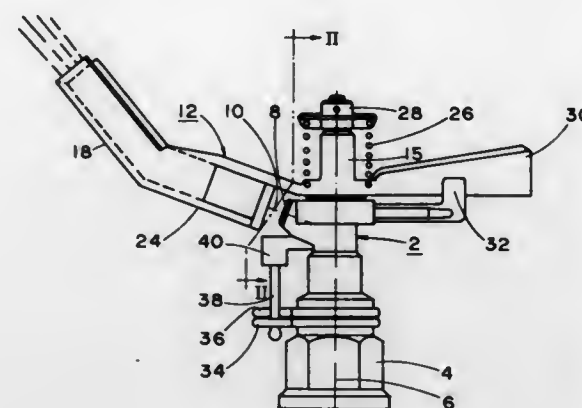
19 Claims



A spray installation for highly-filled dispersions comprising a pressure container for a dispersion which at its lower end

possesses an outlet connection for the dispersion and at its upper end an inlet connection for compressed air. The pressure container further is equipped with a removable cover having a flange bearing against a flange at the container body. The cover is retained at the container body through the agency of a clamping ring closure which engages over the flanges. A compressed air device is connected via a conduit with the inlet connection of the pressure container. There is also provided a blower mechanism and a spray gun. The spray gun is coupled via a dispersion feed line with the outlet connection of the pressure container and via an air conduit with the blower mechanism.

ment of the water jet on the arm produces a rotary torque for oscillating the hammer, while producing relatively little side-



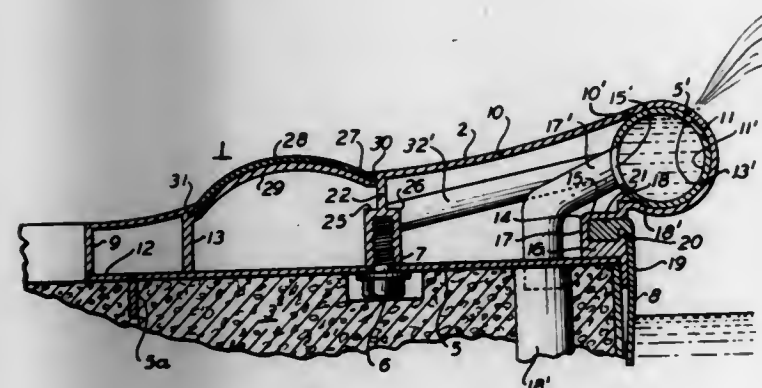
3,831,852

FOUNTAIN SPRAY SYSTEM FOR SWIMMING POOLS
Albert H. Stillman, Jr., 436 Edgewood Ave., Smithtown, N.Y. 11787

Filed Apr. 16, 1973, Ser. No. 351,244
Int. Cl. B05b 15/06, 1/20; E04h 3/20

U.S. Cl. 239-201

5 Claims



3,831,854

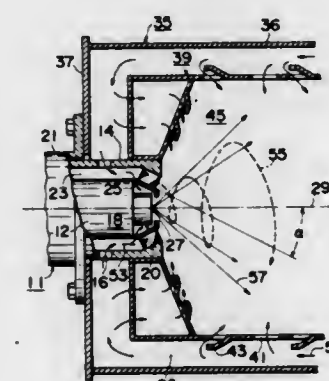
PRESSURE SPRAY TYPE FUEL INJECTION NOZZLE HAVING AIR DISCHARGE OPENINGS

Isao Sato, and Tadahisa Masai, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 23, 1973, Ser. No. 335,312

Int. Cl. F23d 15/00

U.S. Cl. 239-406

6 Claims



A fuel injection nozzle of the type which injects fuel from a nozzle opening with pressure in the form of a conical spray of fuel particles, in which air discharge openings are provided around the nozzle opening. The air discharge openings each have an angle of inclination and an angle of torsion to the axis of the nozzle opening and cause a spiral flow of air which contacts from the outside the outer periphery of the conical spray of fuel particles injected into a combustion chamber and thereby divides coarse fuel particles at the outer periphery of the conical spray into smaller particles. These air discharge openings are communicated with a flow passage of combustion air inside a combustion element.

3,831,855

VARIABLE FLOW, PRESSURE VENTURI NOZZLE
Zenon R. Mocarski, Easton, Conn., assignor to S.R.C. Laboratories, Inc., Fairfield, Conn.

Filed June 8, 1973, Ser. No. 368,353

Int. Cl. B05b 7/00

U.S. Cl. 239-416

9 Claims

A venturi type nozzle that uses pressurized fluid to induce

3,831,853

ROTARY SPRINKLERS

Mordeki Drori, 89 Zahal St., Kiron, Israel

Filed Mar. 26, 1973, Ser. No. 344,831

Claims priority, application Israel, Dec. 12, 1972, 41070

Int. Cl. B05b 3/08

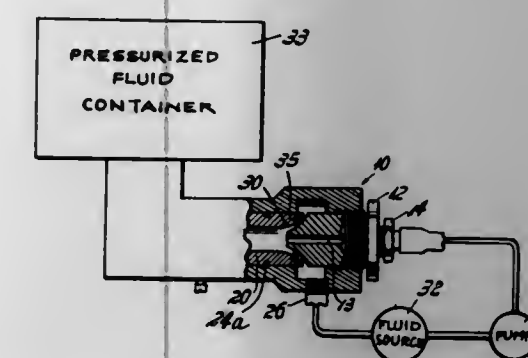
U.S. Cl. 239-230

10 Claims

A rotary sprinkler of the hammer-type is described wherein the arm of the sprinkler impinged by the jet is oscillatingly mounted on a pivotal axis laterally spaced from the vertical axis of rotation of the sprinkler head such that the impinge-

flow of the secondary fluid with the size of the secondary fluid intake being varied in accordance with the difference of pres-

sure existing at the nozzle exhaust and at the secondary fluid intake.



3,831,856

ATOMIZING BURNER

Gunnar Jorgensen, Bagsvaerd, Denmark, assignor to A/S Atlas, Ballerup and F. L. Smith & Co. A/S, Valby, both of, Denmark

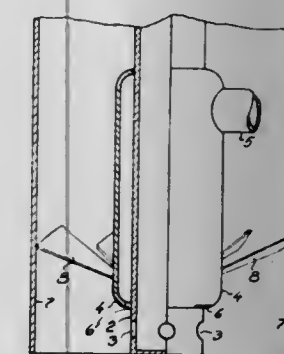
Filed Aug. 16, 1973, Ser. No. 389,003

Claims priority, application Denmark, Aug. 28, 1972, 4251/72

Int. Cl. F23d 11/16

U.S. Cl. 239-422

4 Claims



3,831,858

VENTED-PLUNGER ATOMIZER

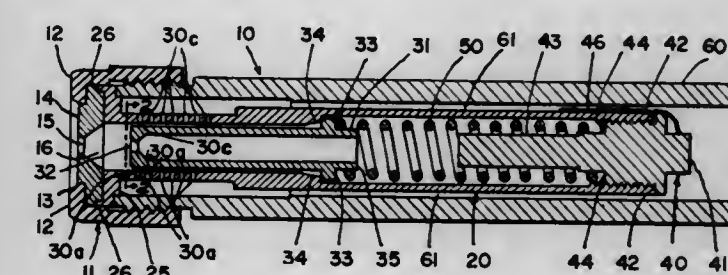
Robert J. Casey, Philadelphia, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 1, 1973, Ser. No. 337,037

Int. Cl. B05b 1/34

U.S. Cl. 239-464

9 Claims



The invention relates to an atomizing burner, particularly intended for incinerating liquid garbage, and consisting of a supply pipe for the garbage, having circumferentially disposed exits, and being enclosed by an inner jacket through which pressurized atomization medium is supplied, and an outer jacket for supply of air for the combustion, in which burner a number of slots are provided, corresponding to the number of exits for the garbage, and being so designed and positioned adjacent the said exits as to force the pressurized medium from each slot over the adjacent exit for the garbage.

Fluid pressure in a variable volume whirl chamber exerts a force that positions a spring biased piston. The positioning of the piston determines the amount of fuel oil supplied to a ship's boiler by an arrangement of ports in a whirl chamber cartridge. The cartridge provides an enclosure for the whirl chamber, a piston and a biasing spring. The fuel is delivered axially along the outside of the cartridge through the ports to the whirl chamber and out an orifice located at the forward end of the whirl chamber.

3,831,859

DISCHARGE MEANS FOR AGRICULTURAL FOAM

Gordon H. Allard, Menomonee Falls, Wis., assignor to Waukesha Foundry Company, Inc., Waukesha, Wis.

Filed Oct. 19, 1972, Ser. No. 298,890

Int. Cl. B05b 1/04

U.S. Cl. 239-592

8 Claims

A group of nozzles for discharging foam to cover a surface completely, in which foam is supplied to the nozzle at right angles to the discharge direction and at a substantial distance from any side or end wall of the nozzle to promote uniform pressure and flow. In addition, an improved nozzle support has a lost motion connection to permit the nozzle to follow the

3,831,857

ASPIRATING NOZZLE WITH QUICK CHANGE LINER

John J. Scott, Niagara Falls, Ontario, Canada, assignor to Norton Company, Worcester, Mass.

Filed June 8, 1973, Ser. No. 368,296

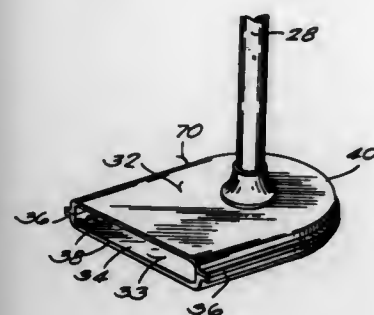
Int. Cl. B05b 7/06; B22d 37/00

U.S. Cl. 239-424

5 Claims

An aspirating nozzle assembly for use in the manufacture of solid ceramic spheres from a fused oxide material such as alumina, including a hollow annular outer housing means and a

surface, secured with a pin for easy changing of the lateral position, the nozzle being slidable on a pair of beams for verti-



cal and axial adjustment. Plows are provided to cover the edges of the foam with dirt. Sideboards shelter the emerging foam from the wind until it is deposited.

3,831,860

LOW FLOW VOLUME SHOWER HEAD

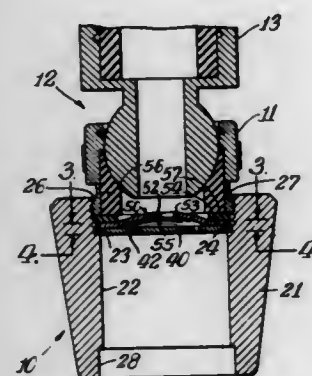
Gilbert V. Gullaksen, Monee, and George W. Jatho, Oak Lawn, both of Ill., assignors to Wrightway Mfg. Co., Chicago, Ill.

Filed Dec. 18, 1972, Ser. No. 316,042

Int. Cl. B50b 1/34; B05b 1/14

U.S. Cl. 239—500

10 Claims



A low flow volume shower head wherein a disk having a flow restricting orifice extends across the water flow passage of the head so as to restrict the flow of water discharged from the head. The flow restricting disk is positioned upstream from a perforated, jet-forming disk that also extends across the flow passage. The area of the orifice in the flow restricting disk is less than the total area of the apertures in the perforated disk by a predetermined amount; the orifice in the flow restricting disk is spaced upstream from the jet-forming disk by a predetermined distance; and the space between the jet-forming disk and a portion of the flow restricting disk having the orifice therein is of a predetermined volume.

3,831,861

LIQUID SPRAY HEAD FOR PRODUCING RECTANGULAR SPRAY PATTERNS

Harold W. Hanson, Jr., Newport Beach, Calif., assignor to Par-Way Mfg. Co., Los Angeles, Calif.

Filed Mar. 23, 1973, Ser. No. 344,074

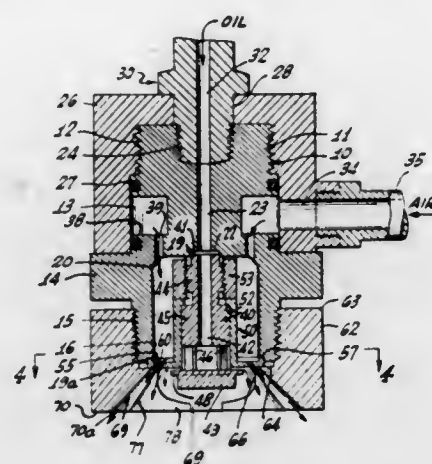
Int. Cl. B05b 1/02, 15/04

U.S. Cl. 239—520

9 Claims

A nozzle for spraying liquids is provided. In a useful example, cooking oil is sprayed into baking pans using a conduit which discharges the oil at a center point between two concentric closely-spaced circular discs, in parallel horizontal planes, the lower disc being smaller than the upper disc, there being a large number of small air passages in a circular pattern extending downwardly through the upper disc, all around the border of the lower disc. The

oil flows radially out from between the discs, and is impinged upon by air under pressure issuing downwardly from the air passages. Thereby the oil film is largely atomized and sprayed downwardly. Oil from between the discs not so atomized reaches the internal surface of a conical skirt, and is guided thereby down the skirt and off the lower



edge thereof in an atomized condition. A solid cone of atomized oil particles is thereby delivered downwardly in a burst of only a few hundredths of a second. A specially contrived skirt produces a square or rectangular pattern of the sprayed liquid.

3,831,862

SPRAY TIP

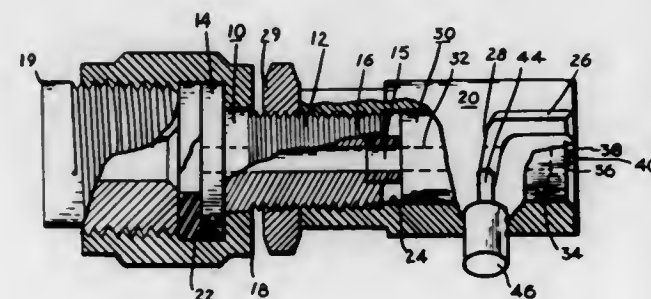
Oliver J. Calder, Orange, Calif., assignor to Airless Spray Tip Manufacturing Co., Orange, Calif.

Filed Apr. 11, 1973, Ser. No. 350,184

Int. Cl. B05b 7/02

U.S. Cl. 239—526

10 Claims



There is disclosed an improvement for mounting of a spray orifice in a pressured liquid spray system in which the orifice is carried by a plug member that fits into a tubular housing and locks therein by a sliding bolt action. The plug can be removed and reversed in its position to permit pressured cleaning of obstructions from the orifice. Preferably, a plurality of plugs are provided with different spray orifices to permit a rapid interchanging of the orifice with other orifices having different spray capacities and/or characteristics.

3,831,863

FUEL INJECTION NOZZLES

Ivor Fenne, Middlesex, England, assignor to C.A.V. Limited, Birmingham, England

Filed Jan. 15, 1973, Ser. No. 323,529

Claims priority, application Great Britain, Jan. 15, 1972, 2018/72

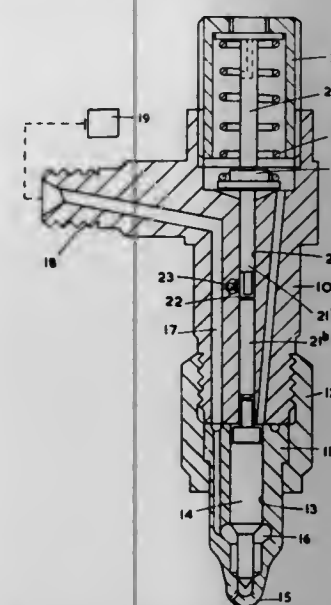
Int. Cl. B05b 1/30

U.S. Cl. 239—533

2 Claims

A liquid fuel injection nozzle unit for an internal combustion engine includes a valve member movable towards a seating to prevent fuel flow through an outlet from an inlet the valve member is engaged by a push rod which is subjected to

the fluid pressure in the inlet by way of a non-return valve, the area of the push rod exposed to the fluid pressure being less



than that of the valve member which is exposed to the fluid pressure whereby the valve member will be lifted from its seating to allow flow through said outlet.

3,831,864

APPARATUS FOR STORING AND DISPOSING OF GRASS CLIPPINGS

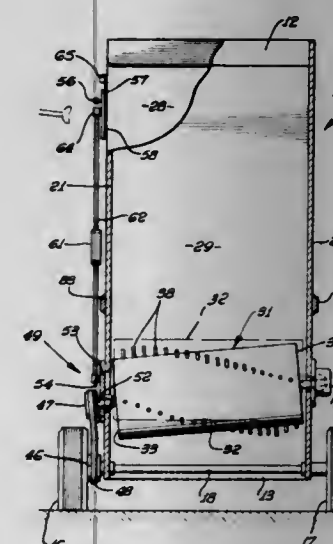
Albert W. Ginther, P.O. Box 311, Arcadia, Calif. 91006

Filed June 14, 1973, Ser. No. 369,895

Int. Cl. A01c 17/00

U.S. Cl. 239—665

6 Claims



A grass clipping receptacle and disposal apparatus is provided in the form of a cart or small trailer to be towed behind a small motorized utility vehicle of the type used in the maintenance of golf courses, parks, cemeteries, etc. The apparatus includes an upstanding bin or hopper having an open top into which the clippings are dumped for temporary storage. A rotatable toothed drum is mounted within an open bottom of the hopper to dispense the clippings held therein at a uniform rate. A belt and pulley drive means is provided for rotating the drum in response to movement of the apparatus, and a manually operated clutch mechanism serves to selectively couple or decouple the belt drive so as to dispose the drum in either a rotating or non-rotating mode during vehicle travel. With this apparatus, clippings from a golf green for example may be temporarily stored in the hopper. Thereafter the clutch mechanism is engaged to cause the rotating drum to discharge the clippings during travel to the next green thus disposing of the cuttings by spreading them over the distance between each green. To insure uniform dispensing of the collected clippings, the rotatable drum is provided with a plurality of staggered teeth or pins which project radially outwardly from a cylindrical drum surface to engage and impel the

clippings outwardly through the bottom of the hopper. An adjustable gate is provided on the hopper adjacent the rotating drum to selectively change the size of the opening through which the grass clippings are dispensed, such that the rate of discharge can be regulated.

3,831,865

SOLID WASTE TRASH GRINDER

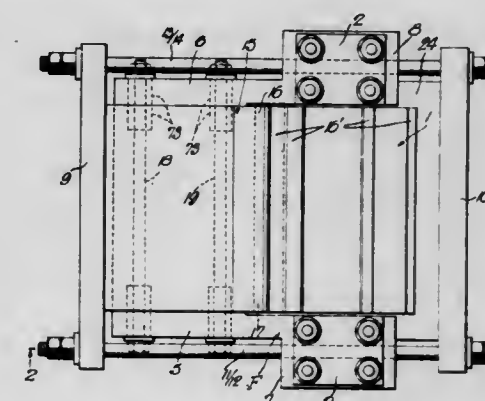
Victor Danberg, 6 Mary Ann Ln., Wallingford, Conn. 06492

Filed Dec. 13, 1971, Ser. No. 207,492

Int. Cl. B02c 18/18

U.S. Cl. 241—32

4 Claims



In a solid-waste chopper, the rotary cutter is fixed and the companion bed cutter is held against a fixed stop by tie rods which under excessive stress from a prohibitive shock load on the chopping cutters will fracture. For interlocking the bed cutter with the fixed stop in normal chopper operation, lock rods transverse to the tie rods extend fittingly through the bed cutter and into abutting frame plates, with these lock rods being sheared at the frame plates under excessive burning stress in the tie rods to thereby release the bed cutter for giving way to a prohibitive shock on the chopping cutters to avoid damage to the latter or to other structure of the chopper.

This invention relates to solid-waste choppers in general, and to choppers with companion rotary and fixed cutters in particular.

3,831,866

METHOD AND APPARATUS FOR SHREDDING CHEESE

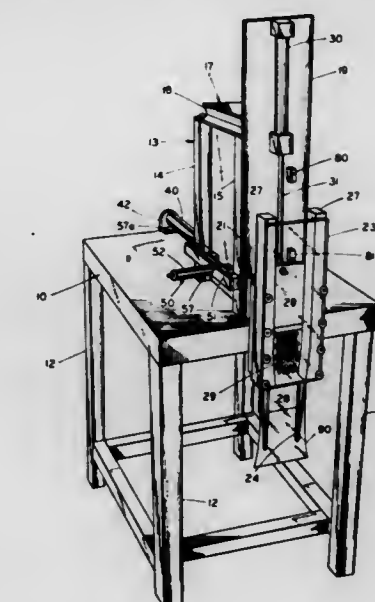
Duane Phillips, Oxford, Wis., assignor to Armour and Company, Chicago, Ill.

Filed Nov. 18, 1971, Ser. No. 200,099

Int. Cl. B02c 23/04

U.S. Cl. 241—63

11 Claims



A method and apparatus for shredding blocks of cheese to fill individual packages each with a predetermined amount of

shredded cheese. In one embodiment the apparatus includes a hopper device for holding a plurality of blocks of cheese in stacked relationship, fluid driven reciprocating mechanism for shredding cheese from the lowermost of these blocks, fluid driven mechanism for pressing the lowermost block in the stack against the reciprocating shredding mechanism with a substantially constant pressure, fluid control mechanism for permitting a next higher block of cheese to fall into place for shredding when the first block being shredded has been expended, and a fluid operated counting device which stops the movement of the reciprocating mechanism when a predetermined number of strokes has been had.

3,831,867

APPARATUS AND METHOD FOR DISTRIBUTING TOXIC AGRICULTURAL CHEMICALS

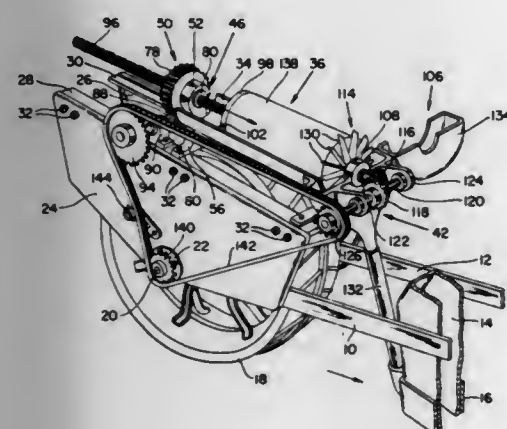
Harold Valentine Hansen, Cordova, Ill., assignor to Deere & Company, Moline, Ill.

Filed Nov. 10, 1972, Ser. No. 305,502

Int. Cl. B02c 18/26

U.S. Cl. 241—101.7

7 Claims



Apparatus and method for distributing toxic agricultural chemicals such as insecticides or the like, the method comprising the steps of forming granules of the chemical into a shape-retaining solid, applying a thin coating of nontoxic substance to the solid to facilitate handling of the chemical, gradually reducing the solid to its granular form at a rate in relation to the speed at which the solid is moved over the ground, and distributing the granules to the ground as they are removed from the solid. The distributing apparatus comprises a mobile, ground wheel supported frame adapted to advance through a field, a support on the frame for supporting the solid chemical, a cutter for engaging the solid and reducing it to its granular form, and mechanism for advancing the solid toward the cutter, both the advancing mechanism and the cutter being driven from a ground wheel whereby the volume of chemical distributed remains proportional to the speed of the apparatus through the field.

3,831,868

GRINDING APPARATUS FOR FIBROUS MATERIAL

Albrecht Kahmann, Weingarten, Germany, assignor to Escher Wyss G.m.b.H., Ravensburg, Germany

Filed Sept. 14, 1972, Ser. No. 288,945

Claims priority, application Germany, Sept. 17, 1971, 2146549

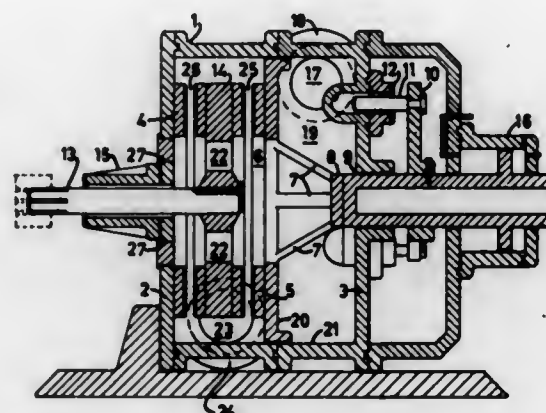
Int. Cl. B02c 7/02, 7/14

U.S. Cl. 241—245

2 Claims

Grinding device, more especially a disc refiner for the paper industry; in a housing having two end covers is a rotor and a stator which is displaceable axially relatively to the rotor and guided in nonrotatable manner on the housing; the stator provided with a central opening for the throughflow of the stock to be handled in the grinding device; the stator being under a

pressure of the stock to be handled in the grinding device also on that wall which is remote from the rotor; the space which lies between that wall of the displaceable stator which is



3,831,869

HOLDING MEANS FOR YARN WINDING CARRIER WHICH IS TO ROTATE AT HIGH SPEEDS

Roland Sartori, Riorges, France, assignor to Rhone-Poulenc-Textile, Lyon Cedex, France

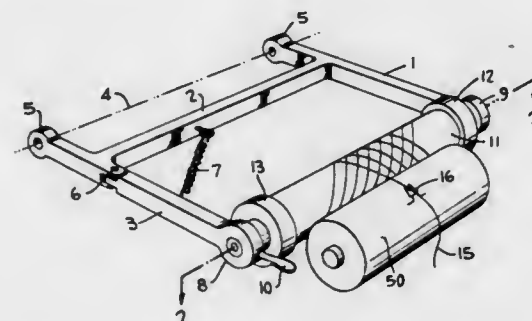
Filed Sept. 7, 1972, Ser. No. 287,080

Claims priority, application France, Sept. 15, 1971, 71.33480

Int. Cl. B65h 54/42, 54/54

U.S. Cl. 242—18 DD

9 Claims



Apparatus for the rotary mounting of a textile yarn winding carrier comprising two members for axially holding the carrier at the extremities of the carrier and at least one supporting surface attached to each member, contacting the external surface of the carrier.

3,831,870

DEVICE FOR WINDING FLEXIBLE ELEMENTS CONNECTED END-TO-END BY A JOINT

Edmond Daniel, Saux-Les-Chartreux, France

Filed Jan. 18, 1973, Ser. No. 324,804

Claims priority, application France, Feb. 1, 1972, 72.03354

Int. Cl. B65h 54/02

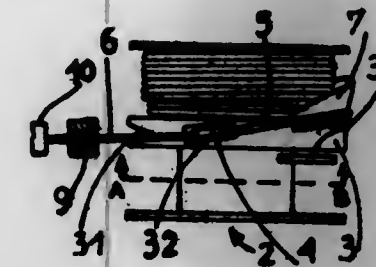
U.S. Cl. 242—18 A

5 Claims

A device for winding flexible elements connected end-to-end by a joint in which a first drum receives the first element, a

pulley carrying a battle-dore operable to extend over and move with the first drum upon arrival of the joint receives the

Circling thrust members are provided to intercept a yarn being reciprocally traversed and forwarded to a bobbin in a winding zone to acceleratively control the reversal displacement of the yarn on the bobbin. A yarn package having a high



regions of the elements to either end of the joint and a second drum, coaxial with the first receives the second element.

3,831,871

DEVICE FOR HOLDING AND RELEASING THE TERMINAL IN WIRE-LIKE OBJECT TAKE-UP APPARATUS

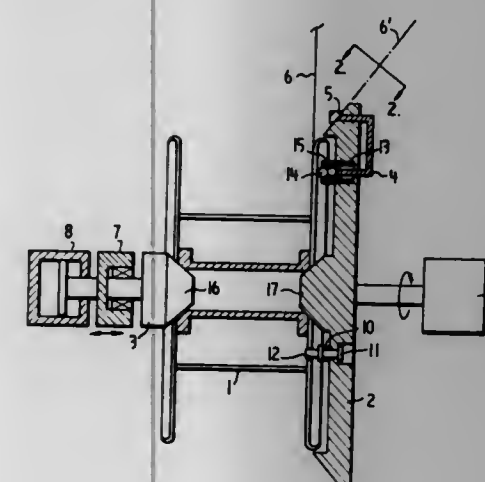
Yoshio Ikegami, and Tadashi Kohge, both of Kobe, Japan, assignors to Kobe Steel, Inc., Kobe, Japan

Filed May 21, 1973, Ser. No. 362,285

Int. Cl. B65h 54/02, 54/44

U.S. Cl. 242—25 R

4 Claims



A device for holding and releasing the terminal of a wire-like object in a take-up apparatus of the wire-like object, wherein a blank bobbin is rotatably supported and is rotated to take up the wire-like object, and the bobbin taking up the wire-like object is replaced with another blank bobbin when it is filled in order to continue the take-up operation, characterized in that when the blank bobbin is being mounted in the wire-like object take-up apparatus, a pawl engageable with the wire-like object is actuated into a condition for holding it, and when the bobbin fully wound with the wire-like object is to be removed from the wire-like object take-up apparatus, the pawl is concurrently released, to thereby allow for automatic handling of the terminal of the wire-like object in the mounting and removal of the respective bobbins.

3,831,872

TRAVERSE WINDING APPARATUS

Don E. Fisher; Paul A. Knauff, and David Bowen, Jr., all of Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

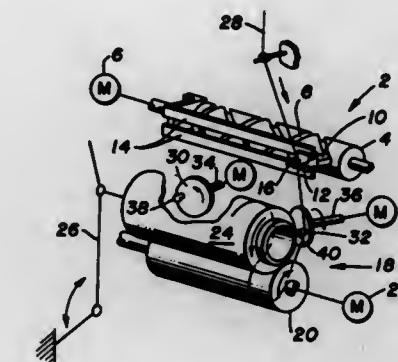
Division of Ser. No. 85,930, Nov. 2, 1970, which is a division of Ser. No. 798,082, Feb. 10, 1969, abandoned. This application Jan. 23, 1973, Ser. No. 325,982

Int. Cl. B65h 54/28

U.S. Cl. 242—43

6 Claims

The invention relates to high-speed yarn traverse winding apparatus, method and product.



resolution of symmetry is produced, the package being characterized in that the majority of the reversal curves of the helical windings are comprised essentially of camber curves generated substantially to a point of projected intersection of the diagonal linear extensions of the helical windings.

3,831,873

TAKE-UP SYSTEM

William M. Bense, Barrington, R.I., assignor to Leesona Corporation, Warwick, R.I.

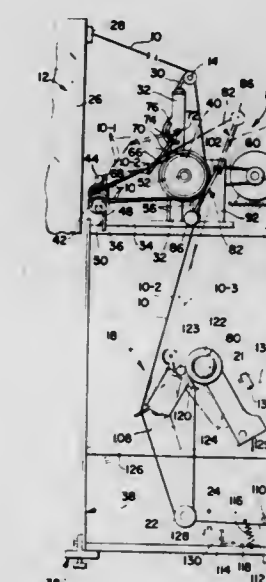
Continuation of Ser. No. 40,548, May 26, 1970, abandoned.

This application June 14, 1972, Ser. No. 262,583

Int. Cl. B65h 51/20, 59/02

U.S. Cl. 242—45

7 Claims



An apparatus is disclosed for taking up one or more strands. The strands are received by a capstan from a strand processing source of supply at a relatively high tension. Each strand is fed by the capstan to a take-up apparatus at a relatively low tension so long as at least a particular minimum force is applied by the take-up apparatus for winding to the particular strand. When this minimum force is no longer applied to the strand the capstan ceases to feed the strand. The capstan is continuously driven at a constant speed. Preferably, a skewed idler roll is provided in association with the capstan for maintaining the strand wraps about the capstan and roll separate and distinct from each other. The tension at which the strands are fed to the winder may be varied by means of adjustable bails for varying the length of contact of the strands with the capstan. One of these bails is provided to obtain substantially equal tension of the strands fed to the take-up apparatus upon start-up of the apparatus, and another of the bails provides for a desired tension of the strands fed to the take-up apparatus during subsequent taking up of the strands. When winding of

any strand stops, for example, when a wound package is full and the strand is cut, or the strand breaks between the capstan and the take-up apparatus the minimum force required for feeding of the strand to the take-up apparatus terminates so that feeding of the strand is automatically stopped while the capstan continues to be rotated.

3,831,874

YARN DRIVE ROLLER

Keith Lenton Andrew, 2419 Cliff Rd., Mississauga, Ontario; John Anthony Charnock, 8 Langmuir Crescent, Toronto, Ontario, and John Prescott Browne, 21 Regan Crescent, Georgetown, Ontario, all of Canada

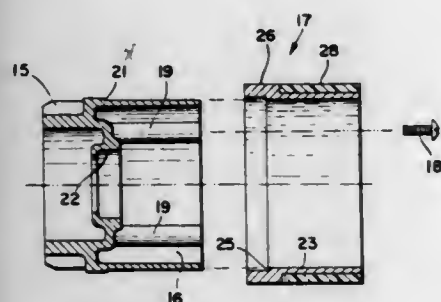
Filed July 5, 1972, Ser. No. 269,177

Claims priority, application Canada, Sept. 22, 1971, 123410

Int. Cl. B65h 51/00

U.S. Cl. 242-47.01

8 Claims



A yarn drive roller having a two-part co-planar drive surface, one part being metallic or of other wear resistant material and the other being a frictional drive surface of synthetic material, rubber, or other composition.

3,831,875

THREAD STORAGE AND SUPPLY DEVICE FOR TEXTILE MACHINES

Kurt Arne Gunnar Jacobsson, Ulricehamn, Sweden, assignor to Aktiebolaget IRO, Vistaholm, Ulricehamn, Sweden

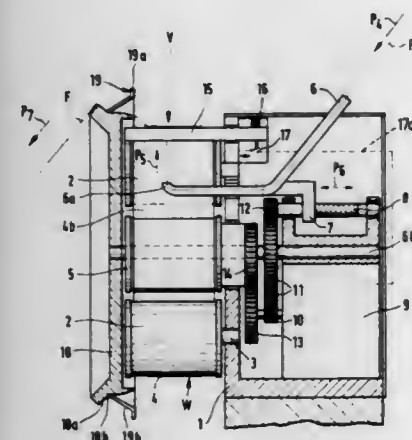
Filed June 11, 1973, Ser. No. 368,668

Claims priority, application Germany, June 16, 1972, 2229529

Int. Cl. B65h 51/20

U.S. Cl. 242-47.13

22 Claims



A thread storage and supply device for a textile machine including a winding body upon which a thread can be wound in a circumferential direction to form two or more layers of stored thread windings, and from which the threads can be removed, such as in the axial direction thereof. A storage surface is associated with the winding body and is movable relative thereto in the circumferential direction thereof. A thread guide device is provided for conducting the thread to the storage surface, which guide device is disposed inside the space defined by the layers of stored thread windings such that the issued thread penetrates between the storage surface and the innermost layer of thread windings.

3,831,876
CONTINUOUS UNWINDING APPARATUS FOR WEB MATERIAL

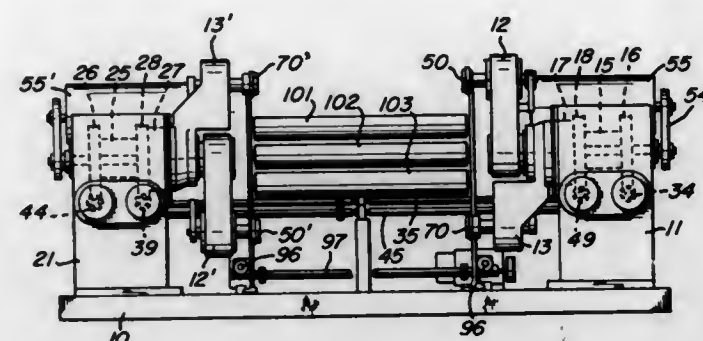
Richard W. Phelps, and Richard S. Tetro, both of Fulton, N.Y., assignors to The Black Clawson Company, Middletown, Ohio

Filed Dec. 11, 1972, Ser. No. 314,142

Int. Cl. B65h 19/14

U.S. Cl. 242-58.3

9 Claims



Continuous unwinding apparatus for web material comprises a pair of opposed end stands, each of which carries a pair of roll-carrying arms mounted for independent rotation on a common axis, and a splicer assembly is mounted for adjusting movement with respect to the end stands to accommodate rolls of definite diameters. There is no center shaft between the end stands, but separate drives couple opposed pairs of arms and provide for driving each coupled pair in either direction in any desired speed. An outstanding characteristic of the apparatus is that the movements of each pair of arms between splicing and final unwinding positions are confined to two quadrants of rotation.

3,831,877

WIRE PULLING APPARATUS

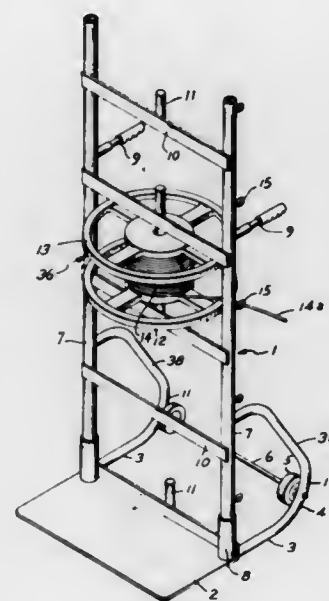
Joseph J. Bennett, 6440 W. 163rd Pl., Tinley Park, Ill. 60477, and Alvin A. Trapp, 9717 S. Melina, Oaklawn, Ill. 60453

Filed May 30, 1972, Ser. No. 258,187

Int. Cl. B65h 75/40, 49/00

U.S. Cl. 242-86.5 R

7 Claims



A portable wire cart for transporting a plurality of wire coils and dispensing wire from the coils, which includes a plurality of horizontally positioned, detachable, rotatable, circular base members, to support the wire coils, independently mounted on the cart's frame structure. Detachably positioned over each base member is a circular guide member to hold the wire coils in place. The wire cart is adapted for use in a vertical position, and wire may be independently added or drawn from any of a plurality of coils which may be placed on the cart.

3,831,878

RESTRAINT BELT RETRACTOR

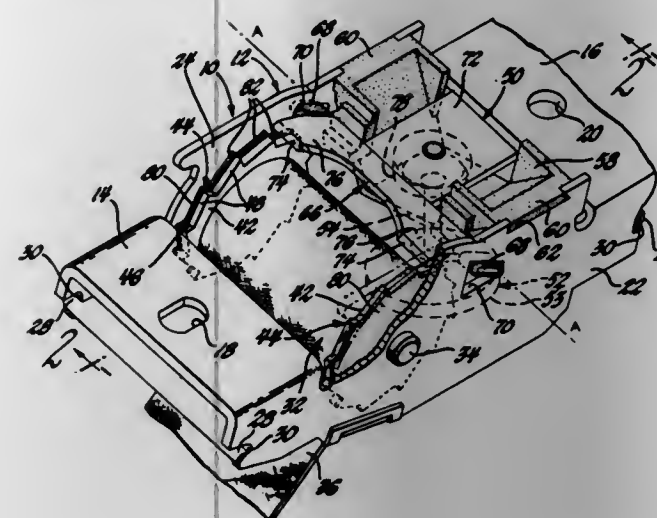
Henry W. Griffin, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 21, 1973, Ser. No. 362,494

Int. Cl. A62b 35/02; B65h 63/04

U.S. Cl. 242-107.4

3 Claims



A vehicle occupant restraint belt retractor including a metallic locking member gravity biased to an unlocked position out of engagement with annular ratchet configurations on metallic end plates of the retractor belt reel to allow unwinding belt rotation of the reel. An inertia member responsive to abrupt horizontal vehicle acceleration or deceleration moves the locking member to a locked position in engagement with radial locking surfaces of the ratchet configurations so as to prevent belt unwinding rotation of the reel. Plastic disks carried by the reel alongside the end plates include cushioning portions which prevent metal-to-metal engagement between the locking member and connecting surfaces of the ratchet configurations that extend generally circumferentially of the reel between the inner and outer ends of adjacent locking surfaces. The plastic cushioning portions thus mitigate rattling noise of the retractor when vertical acceleration pulses move the locking member to locked position, such as during use of the retractor on a vehicle negotiating a bumpy road.

3,831,879

WIRE DISPENSER

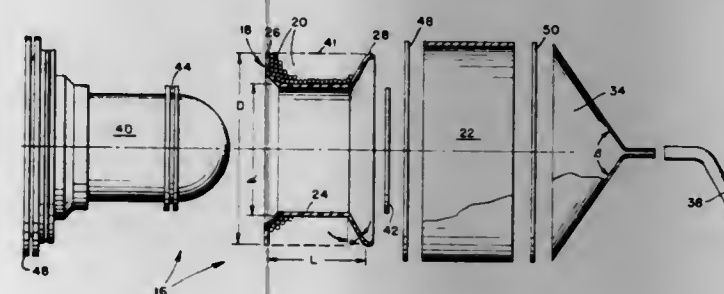
John E. Miller; Eugene L. Shaver, both of Baltimore, and Jack C. Stone, Eldersburg, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 11, 1970, Ser. No. 18,428

Int. Cl. B65h 49/00

U.S. Cl. 242-129

7 Claims



An outside payout wire dispenser including a specially configured spool; wire coiled on the spool under tension; and an insulative coating which binds the outside layer of wire on the spool. The spool may be specially configured with predetermined ratios of hub diameter to flange diameter, hub diameter to flange diameter to length of spool, predetermined flange diameter to length of spool, and predetermined flange diameter to length of spool.

angle, and predetermined pitch angle of the wire wound on the spool. Further, the invention may include a pool cover which has a necked down wire exit portion with a predetermined angle.

3,831,880

STRAND MATERIAL CREEL AND TENSION CONTROL

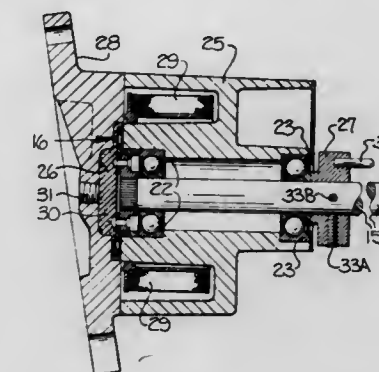
Eugene F. White, and Francis H. White, both of S. Church St., Monroe, N.C. 28110

Filed May 7, 1973, Ser. No. 357,841

Int. Cl. B65h 59/04

U.S. Cl. 242-156

10 Claims



Strand material is dispensed from wound packages under controlled tension conditions by imposing a restraint against rotation of the wound packages as strand material is withdrawn therefrom. The restraint is imposed by controlled coalescence of a body of magnetic particle material subjected to a controllable magnetic flux, with coalesce of the material imposing between a housing and a radially extending rotor forces which resist rotation of the wound package.

3,831,881

DISENGAGEABLE ANTI-BACKUP DEVICE FOR FILM CARTRIDGE

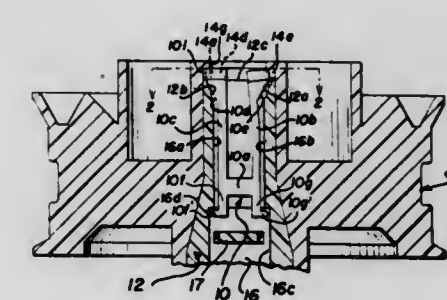
Archie J. Tucker, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 229,924, Feb. 28, 1972, abandoned. This application Jan. 12, 1973, Ser. No. 323,019

Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242-194

8 Claims



An anti-backup device located within a film cartridge insertable into a camera permits the rotation of a film take-up core in a forward direction while securing the core against rotation in a reverse direction so as to prevent "clockspringing" of film when the cartridge is not within a motion picture camera. The anti-backup device comprises a fork-like member located within a hollow core on a rotatable film take-up core. The control member has flexible outwardly extending arms projecting from a body portion. In an engaged position of the control member, the arms thereof slide over internal cam or ratchet surfaces of the take-up core during rotation of the core in the forward (take-up) direction and hence permits such rotation. On the other hand, these arms engage the cam or ratchet surfaces of the core post to block rotation of the core when an attempt is made to rotate the core in the reverse direction.

reverse (unwinding) direction. When the film cartridge is placed within a camera, the member can be moved axially until it is out of engagement with the cam or ratchet surfaces, thereby permitting free rotation of the core in both the forward and reverse direction. This eliminates the "clicking" noise associated with operation of the anti-backup device and also permits filming of fade-and-lap dissolve sequences in cameras having mechanisms for filming such sequences.

3,831,882

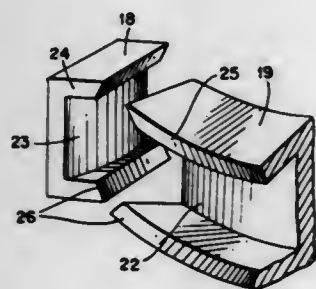
GUIDE MEANS FOR MAGNETIC TAPES WOUND ON FLANGELESS SPOOLS

Horst Fitterer, 3 Buchlerstrasse, 6900 Heidelberg-Hasenleiser, and Norbert Schaeffer, 21C Berliner Strasse, 6700 Ludwigshafen, both of Germany

Filed Dec. 12, 1972, Ser. No. 314,357
Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242-199

6 Claims



A guide element for magnetic tapes to be wound in the form of packs on flangeless spools, particularly for tapes in magnetic tape cartridges, which is arranged in a fixed position near the periphery of the pack at maximum pack diameter and provided with a guide surface and guide flanges. Such elements improve guidance of the turn of tape approaching and/or leaving the pack, resulting in a stable and accurate winding on the spool and in undisturbed tape travel.

3,831,883

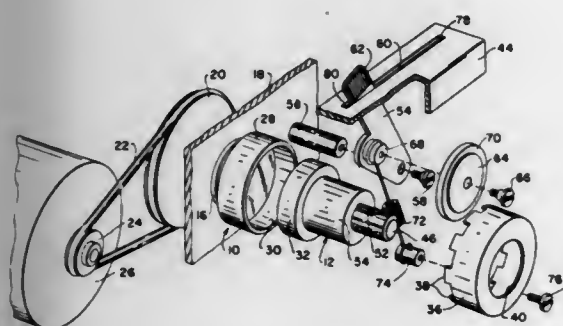
REEL DRIVING DEVICE FOR A WEB TRANSPORTING APPARATUS

Donald O. Easterly, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 3, 1972, Ser. No. 294,709
Int. Cl. B11b 15/32; G03b 1/04

U.S. Cl. 242-207

9 Claims



A web transporting apparatus employs a reel driving spindle incorporating a friction clutch that is influenced by the radial load applied to the spindle. During normal operation of the apparatus, the winding torque that the spindle imparts to the reel is determined by the weight of the reel and the web wound thereon. During a rapid winding mode of operation, an additional radial load is applied to the spindle by a freely rotatable pressure roller or the equivalent to increase the torque transmitted to the reel through the spindle.

3,831,884

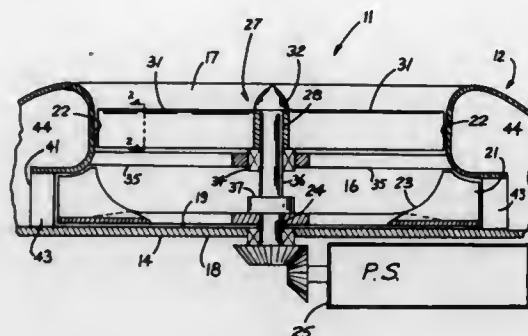
METHODS AND DEVICE FOR GENERATING LIFT

Winfred O. E. Schellin, 1154 Little Lehigh Dr., South, Emmaus, Pa. 18049

Filed Feb. 27, 1973, Ser. No. 336,279
Int. Cl. B64c 29/02

U.S. Cl. 244-12 C

7 Claims



Lift is generated on a lift plane by exposing the underside of the plane to atmospheric air and its pressure. The top surface of the lift plane is partially enclosed by walls forming a chamber with the lift plane. First and second openings in the walls of the chamber permit a flow of air therethrough. Provision is made to establish a flow of air through the chamber. As air enters the chamber, energy is transferred from the air to a turbine to reduce the pressure of the air entering the chamber, thereby reducing the air pressure exerted against the top surface of the lift plane. The difference between pressures against the underside and the top surface of the lift plane amounts to a net lift force on the plane. The energy transferred to the turbine is applied to an impeller to aid in removing air from the chamber, and to aid in maintaining the air flow through the chamber.

3,831,885

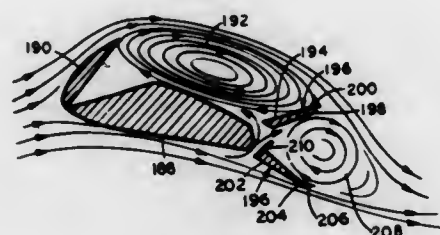
AIRCRAFT WING WITH VORTEX GENERATION

Witold A. Kasper, 1853 132nd Ave. S.E., Bellevue, Wash. 98005

Filed July 11, 1972, Ser. No. 270,652
Int. Cl. B64c 9/28, 23/06

U.S. Cl. 244-40 A

4 Claims



Tail-less airplanes, such as disclosed in U. S. Pat. No. 3,438,597 as a stall occurs or is about to occur, may be flown at very high angles of attack to generate favorable spanwise vortices, flows which augment the swept wing profiles creating resultant wing profiles having better lift characteristics, i.e., the vortices created are lift generating. However, the aircraft is then uncomfortable to be in during such flights at very high angles of attack. Therefore to achieve the benefits of this lift generating vortex flow, without maneuvering such aircraft into a very high angle of attack, the swept wing is equipped with airfoil structures and accessories therefor, which are extended beyond the cruising speed contour of the swept wing, at lower speeds, to create spanwise vortex air flows which selectively enlarge the effective overall airfoil contours as sensed by the passing major air flows. Sustaining aerodynamic lift forces are thereby created at angles of attack well beyond the stall angles of the cruising airfoil contour, and by timely use of such airfoil structures, the vortex air flows are created

soon enough for lift generating, so stable flight conditions may be created without so extensively altering the pitch of the landing and/or slow flying tailless aircraft.

3,831,886

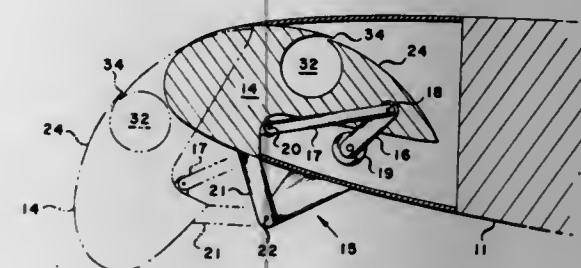
AIRFOIL WITH EXTENDIBLE AND RETRACTABLE LEADING EDGE

Kenneth P. Burdges, Atlanta, and Arthur J. Robertson, Sr., Marietta, both of Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Jan. 26, 1973, Ser. No. 327,113
Int. Cl. B64c 9/24, 21/04

U.S. Cl. 244-42 CC

7 Claims



A leading edge device (referred to as a foreflap) is formed by passing a curved parting line through an airfoil in such a manner as to allow the front part of the airfoil to rotate about a pivot which is close to the wing external contour. When the foreflap is thus extended, the resulting airfoil contour has a large bulbous nose which is formed mainly by the parting line. The exact contour of the resulting nose may be shaped to optimum aerodynamic contour for high lift operation without adversely affecting high speed performance, since the parting surface is inside of the clean airfoil when the foreflap is retracted. The foreflap may be operated by any conventional means, e.g., a simple hinge located at the pivot outside of the airfoil contour.

3,831,887

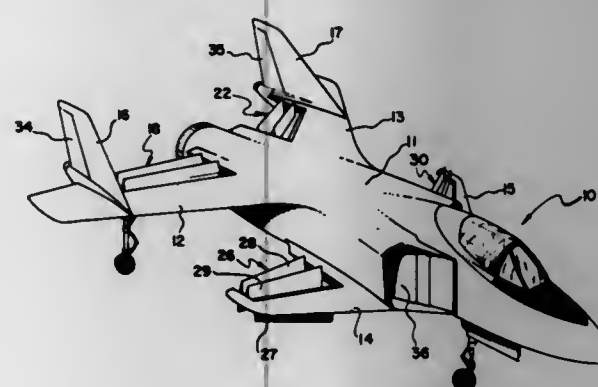
AIRCRAFT CONTROL METHODS

John P. Fosness, Upper Arlington, Ohio, assignor to Rockwell International Corporation, Pittsburgh, Pa.

Filed June 28, 1973, Ser. No. 374,429
Int. Cl. B64c 9/38

U.S. Cl. 244-42 CC

7 Claims



Method of apparatus operation are disclosed for advantageously developing fluid-reaction lift control and also attitude control in improved manners in aircraft systems of the type capable of vertical, hovering, transitional, and conventional modes of flight operation. The apparatus consists of an aircraft system having an airframe with right and left primary airfoils and right and left canard airfoils, spaced apart forward and after rotatable flap members in each airfoil which define a lift ejector diffuser section having a divergence angle, an engine operable at different rotational speeds to produce different corresponding high-energy primary fluid flows and a

duct system for selectively distributing the total primary fluid flow from the engine to the lift ejector diffuser sections in each airfoil. The method of operating the control system comprises the steps of: operating the engine at a constant rotational speed and output power to produce a total primary fluid flow; distributing the total primary fluid flow to the lift ejector diffuser sections in proportions divided equally between said right and left airfoils; and changing the altitude or attitude of the aircraft by rotating the forward and after flap members in opposite directions with respect to each other in each of the airfoils to change the lift ejector divergence angles while the rotational speed, output power and total primary fluid flow of the engine and the proportional distribution of the total primary fluid flow remains constant.

3,831,888

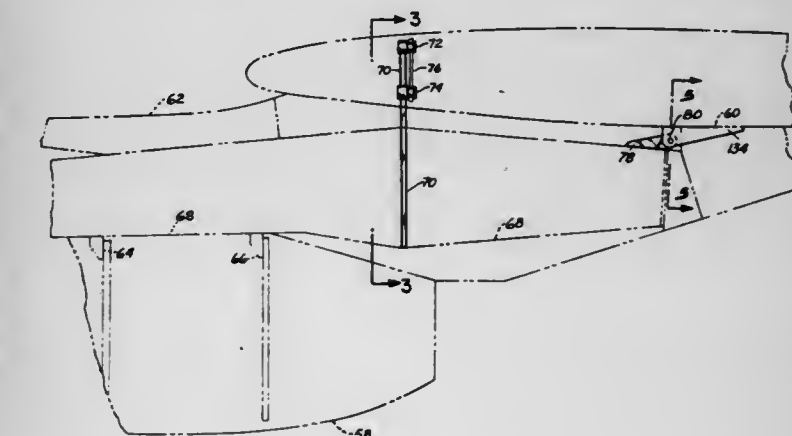
AIRCRAFT ENGINE SUSPENSION SYSTEM

Sherman F. Baker, and Frederick D. Hess, Jr., both of Long Beach, Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed July 27, 1972, Ser. No. 275,805
Int. Cl. B64d 27/18

U.S. Cl. 244-54

5 Claims



A three-point monoball suspension system for attaching engine pylons to aircraft supporting structure. Two of the three points are located forward of the wing front spar. The lower forward point is close to the wing lower plating and the upper forward point is close to the wing upper plating. The aft point is located as far aft as possible to be contained in the pylon and attaches to the wing lower plating and internal wing support structure.

3,831,889

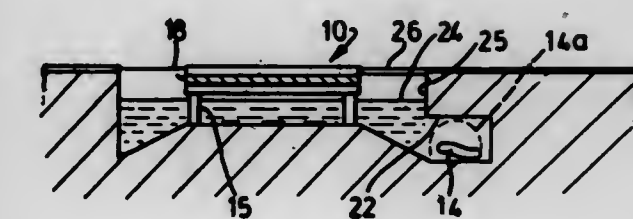
AIRPORT RUNWAY CONSTRUCTION

John H. Deacon, 23 Barduas Ct., Kanata, Ontario, Canada

Filed June 21, 1973, Ser. No. 372,186
Int. Cl. B64f 1/100

U.S. Cl. 244-114

9 Claims



An airport runway has a grid structure for supporting aircraft during take-off and landing. The grid structure extends over a liquid reservoir and comprises bars defining therebetween spacings extending downwardly through the grid structure and in open communication with the reservoir, which has means, e.g. expansible chambers, for raising the

level of liquid in the reservoir through and above the grid structure to remove snow and ice from the latter. Barriers around, and above the level of, the grid structure confine the liquid.

3,831,890

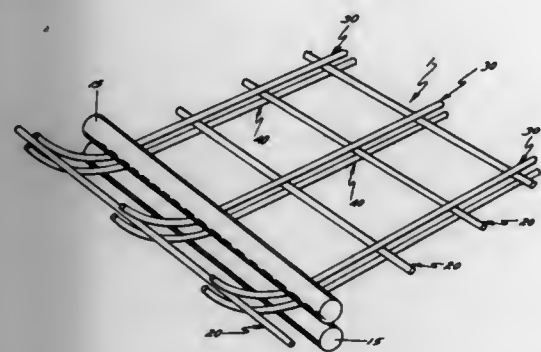
METHOD AND FABRIC FOR FORMING PIPE REINFORCEMENT

Wilbur E. Tolliver, Holland, Mich., assignor to New York Wire Mills Corp., Tonawanda, N.Y.

Filed Feb. 8, 1973, Ser. No. 330,607
Int. Cl. B21f 27/00

U.S. Cl. 245-2

12 Claims



A generally planar fabric for forming into cylindrical reinforcing cages for concrete pipe includes a set of wire strands for forming the longitudinal wires of the cage, a first set of transverse strands for forming the cage circumferentials welded onto one side of the longitudinal defining strands, and a second set of transverse wire strands for forming cage circumferentials welded on the other side of the longitudinal defining strands. Each of the second set strands is preferably but not necessarily, in line with a corresponding first set strand on the opposite side of the longitudinal defining strands. This fabric is formed into a cylindrical cage, and in one embodiment, the inside circumferential strands are narrower in diameter than their corresponding outside circumferential strands.

3,831,891

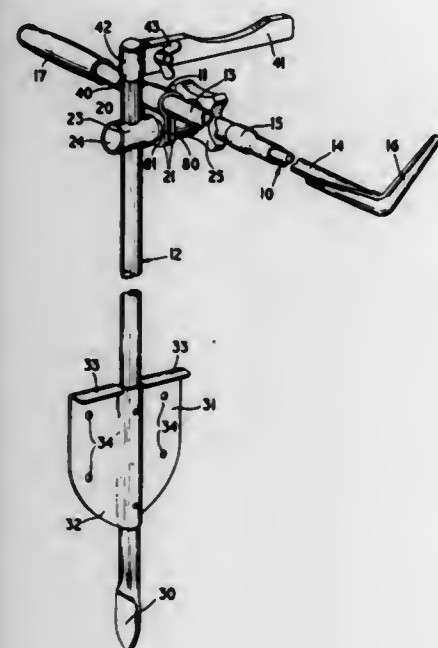
ROD SUPPORTS

William Frederick Jester, Solihull, England, assignor to Incol Presswork Limited, Rickenhill, Solihull, Warwickshire, England

Filed Mar. 7, 1972, Ser. No. 232,572
Int. Cl. A01k 97/10

U.S. Cl. 248-44

7 Claims



A fisherman's rod support has a hermetically-sealed telescopic boom connected to a post by an adjustable mounting.

The post has a profiled plate cross member towards its pointed lower end to facilitate secure erection. The adjustable mounting includes a mounting shaft adjustably secured to the post by a first clamp member and the boom is carried by a second clamp member journaled on said shaft. Both clamp members are controlled by a common actuating member.

3,831,892

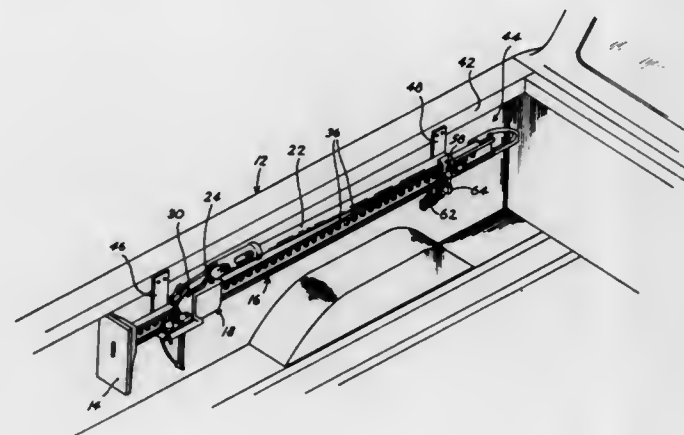
JACK LOCK

David M. Herman, F.O. Box 161, Bonanza, Bonanza, Oreg. 97623

Filed Sept. 4, 1973, Ser. No. 393,911
Int. Cl. A47b 96/06

U.S. Cl. 248-201

5 Claims



A very popular jack is made by a single manufacturer, but sold under three different names, to-wit, "Hi-Lift," "Handyman" and "Lumberman." The present invention provides theft-obstructing means for securely and stably mounting and locking a jack of this type to the inner face of a side wall of a pickup tray, or to any other wall structure.

3,831,893

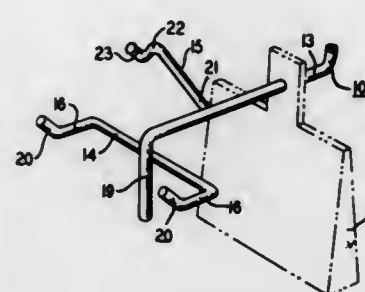
RETENTIVE HANGER BRACKET

Richard L. Zentar, Middletown Twp., Monmouth County, N.J., assignor to T-R Wire Co., Belford, N.J.

Filed Jan. 16, 1973, Ser. No. 324,220
Int. Cl. A47g 23/02

U.S. Cl. 248-223

3 Claims



A hanger bracket for removable mounting on a hanger board having a hanger arm for supporting display items and a yoke and brace for engaging holes in the hanger board.

3,831,894

OVERHEAD LIGHT SUSPENSION HANGER

William D. Newton, II, 1103 E. 60th, Apt. 132, and Darrell L. Smith, 2633 E. 38 St., both of Tulsa, Okla. 74105

Filed Feb. 20, 1973, Ser. No. 334,123
Int. Cl. F16l 3/12; F21o 21/34

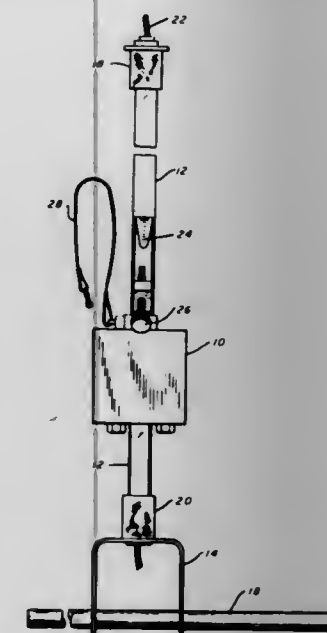
U.S. Cl. 248-327

4 Claims

This abstract describes a vertically adjustable appliance support device, such as those which are used in television studios for the support of lighting fixtures, etc. The device com-

prises a housing which can be removably clamped to a support pipe hanging from the ceiling of the studio. There is a vertically adjustable elongated member or arm which passes through aligned openings in the top and bottom walls of the housing. The lower end of the arm includes fastening means to which appliances of various sorts such as lighting fixtures can be attached.

Inside the housing is a locking means which comprises a hinged plate supported on the bottom surface of the housing,



and urged downwardly by means of a helical spring pressing between the locking means and the top surface of the housing. The locking means presses against the vertically adjustable elongated member or arm and prevents its downward movement. To release the locking member the arm is pushed to the side so that the angle between the locking member and the arm is now less than a value which is required to provide the locking feature. At this smaller angle the arm is capable of sliding down or up and therefore can be quickly adjusted to any desired position.

3,831,895

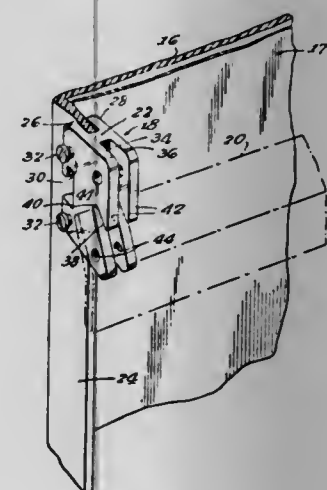
HANGING DEVICE FOR DISPLAY ELEMENTS ON CHANGEABLE COPYBOARDS

Wilfried Schubert, Bensenville, Ill., assignor to National Advertising Company, Bedford Park, Ill.

Division of Ser. No. 220,868, Jan. 26, 1972, Pat. No. 3,738,040. This application Feb. 1, 1973, Ser. No. 328,729
Int. Cl. A47g 11/6

U.S. Cl. 248-475 R

4 Claims



A hanging device for mounting changeable display elements such as letters, characters, and other indicia, particularly pictorial display panels onto changeable copy-boards including an adjustable portion adjustably attachable to the pictorial

panel and a mounting slot opposite the adjustable portion for engaging a hanger bar on the copy-board background, the position of the hanging device being adjustable on the pictorial panel for adjustably aligning the panel on the copyboard background, and fastening members at the adjustable portion for securely attaching the hanging device to the panel. A reversible hanging device in which there are provided on each respective opposite sides thereof both an adjustable portion and a hanger bar mounting slot, so that when in use the adjustable portion and the complementary mounting slot on opposite sides are in use, the hanging device being reversible so that if desired the other adjustable portion and its complementary mounting slot on the opposite side of the hanging device can be used in order that the panel can be hung on any one of several different types of hanger bar copyboard backgrounds corresponding respectively to one of the two mounting slots.

3,831,896

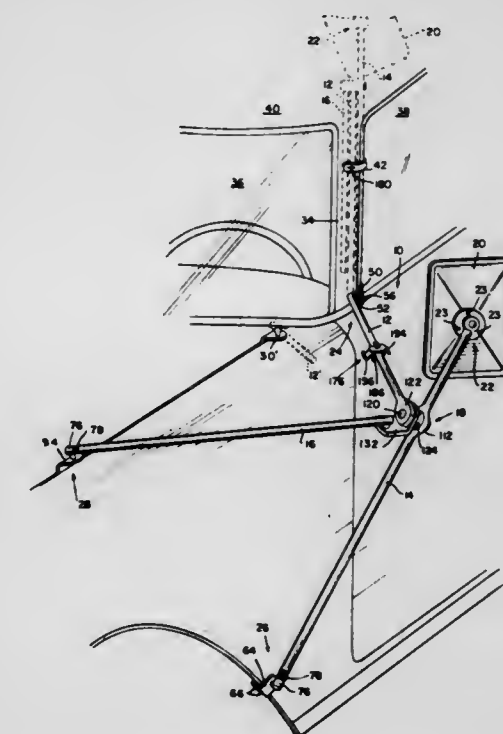
AUXILIARY REAR VIEW MIRROR SYSTEM

Clarence C. Owens, 616 S. Vann Ave., Evansville, Ind. 47714

Filed Oct. 30, 1972, Ser. No. 302,135
Int. Cl. B60r 1/06

U.S. Cl. 248-479

31 Claims



For use on a vehicle, an auxiliary rear view mirror system comprising first, second and third elongated, rod-like support arms, each arm having a proximal end portion and a distal end portion. The distal end portions of the arms are connected together, and a mirror is connected to the distal end portion of at least one of the arms. The proximal end portion of the first arm is connected to the vehicle at a first point adjacent the base of the corner post between the windshield and the front side window. The proximal end portion of the second arm is connected to the vehicle at a second point spaced forwardly of and below the said first point while the proximal end portion of the third arm is connected to the vehicle at a third point spaced forwardly of the first point and above the said second point. In the self-storing embodiment of the invention, the connections of the second and third arms to the vehicle are releasable connections while the connection of the first arm is a permanent jointed connection such that the arms can be folded to extend together along the post in a storage position. In the nonself-storing embodiment, the connections between each of the three arms and the vehicle are manually releasable connections such that the arms can be removed together as an assembly.

3,831,897

SKIMMER THROAT ENTRANCE FORM

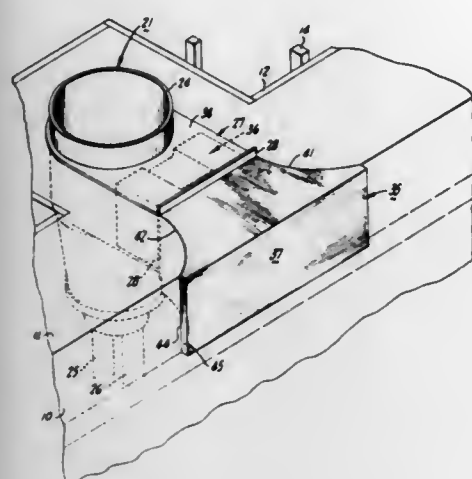
William J. Stegmeier, 1021 Shary Cir., Concord, Calif. 94518

Filed Feb. 26, 1973, Ser. No. 335,953

Int. Cl. E02d 17/00

U.S. Cl. 249-1

10 Claims



A reusable skimmer throat entrance form to provide an inlet opening in an upwardly extending wall of a swimming pool to enable surface water from a filled pool to enter a surface skimmer through the throat thereof which communicates with the inlet opening. The reusable form has at its inner end a plug section removably insertable into the skimmer throat to substantially close the same. At its outer end portion the reusable form has a mouth-forming section extending outwardly from the plug section and enlarging transversely with respect thereto to define in the swimming pool wall an entrance opening of appropriate dimensions, configuration, and orientation. The form is equipped with stop structure adjacent the emergence of the plug and mouth-forming sections for cooperation with the skimmer to positionally relate the form and skimmer. The mouth-forming section of the form is provided with a sheath along at least certain wall surfaces to resist abrasion and impact of wet concrete, the sheath being resilient for the purpose of elastically receiving impact from wet concrete directed thereagainst.

3,831,898

PNEUMATIC MEANS FOR PRODUCTION OF MOLDED STRUCTURES

Carrol C. Sachs, 9938 Clybourn Ave., Sunland, Calif. 91352

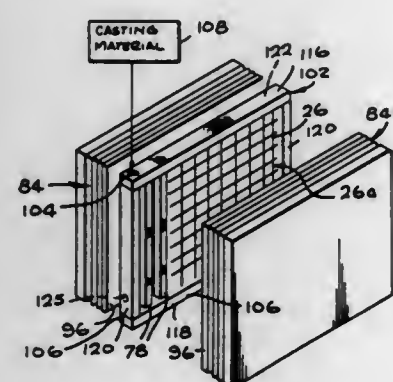
Division of Ser. No. 129,039, March 29, 1971, Pat. No.

3,768,769. This application July 11, 1973, Ser. No. 378,337

Int. Cl. B28b 7/32

U.S. Cl. 249-65

5 Claims



Pneumatic means comprising a hollow mandrel or hollow tube having secured around its outer surface along the length thereof according to one embodiment, a flexible open-cell polyurethane foam sleeve and an outer skin formed of a flexible non-permeable plastic such as a vinyl plastic skin adhesive-

ly secured to the outer surface of the flexible open-cell foam sleeve, and air passages for communication between the interior of the mandrel and the open-cell foam sleeve, the resulting assembly being positioned in a mold for production of cored structural panels. In operation the tool assembly is placed under pressure and expanded to force the plastic skin of the assembly outwardly during pouring and setting of the construction material, e.g., a cement or cement-polymer composition in a mold, and after setting thereof the tool assembly is subjected to reduced pressure or a vacuum to withdraw the plastic skin from the set composition, e.g., in the form of a molded panel, to facilitate removal of the tool from the molded panel, thereby forming a cored construction material or panel. Also included as a feature, pneumatic means in the form of a bellows arrangement comprising an external flexible, e.g., rubber, corrugated member, and in the interior of such corrugated member a permeable open-cell, e.g., polyurethane, foam, and tensioning means, said bellows being inflatable for applying pressure to force a contact, e.g., honeycomb, member mounted on the bellows, against an outer surface of a casting composition in a mold, to form an outer surface for a structural molded panel, and which bellows can be deflated to facilitate removal of the pneumatic tool and associated members from the mold following setting of the panel construction. Also included, means providing a combination or arrangement of a plurality of both said mandrel and bellows assemblies for provision of a cored molded structural panel containing outer surfaces of a predetermined, e.g., smooth or textured, configuration.

3,831,899

CANDLE MOLD WITH RESILIENT WICK HOLDER

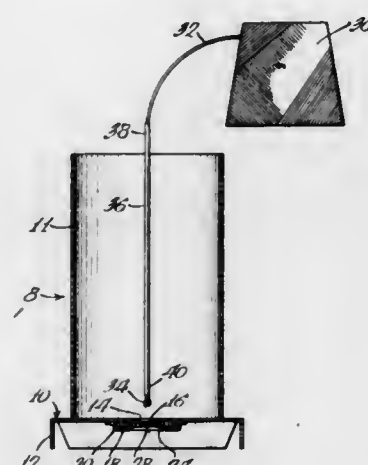
Stuart H. Doig, 1304 Deerpark Rd., Marengo, Ill. 60152

Filed June 5, 1972, Ser. No. 259,377

Int. Cl. C11c 5/02

U.S. Cl. 249-97

5 Claims



A novel candle mold base to facilitate securing a wick therein including a patch of rubber-like material held against the base plate and having a hole therein adapted to contain one end of a wick resiliently in essentially fluid-tight relationship.

3,831,900

VALVE WITH SEALING SEAT ABUTTING A SOFT ANNULAR RING AND STEM

Stephen Matousek, and Ulrich H. Koch, both of Moraga, Calif., assignors to Whitey Research Tool Co., Emeryville, Calif.

Continuation-in-part of Ser. No. 822,678, May 7, 1969, Pat.

No. 3,623,699. This application Nov. 30, 1971, Ser. No.

203,320. The portion of the term of this patent subsequent to

Nov. 30, 1988, has been disclaimed.

Int. Cl. F16k 47/00

U.S. Cl. 251-122

15 Claims

The combination of a valve body with a flow passage therethrough and a stem which projects through an aperture

3,831,902

METHOD OF ERECTING A MULTI-STORY BUILDING AND APPARATUS THEREFOR

Peter M. Vanderklaauw, Miami, Fla., assignor to Research Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 114,455, Feb. 11, 1971, Pat.

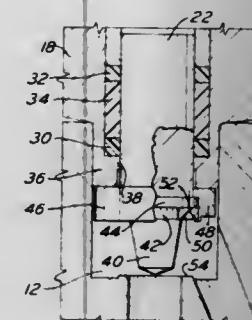
No. 3,692,446. This application Aug. 9, 1972, Ser. No.

279,053

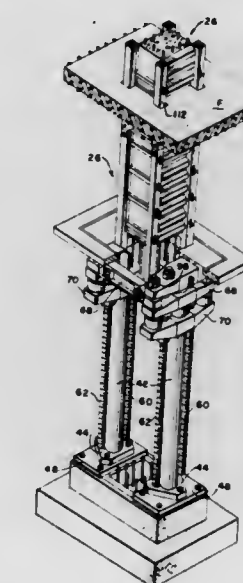
Int. Cl. B66f 1/00

U.S. Cl. 254-105

14 Claims



through the center of the ring and together the shaft flange, nose portion and ferrule portion combine to define said annular recess which is substantially completely filled by the ring. The shaft, ring and ferrule are concentrically mounted and reciprocate as a unit within the valve body between a closed position where the exposed face of the seal ring engages the annular seat and an open position where the seat and ring are spaced apart.



A multi-story building with concrete floor slabs and supporting columns is formed in a roof down fashion and erected in a progressive lifting process from the foundation. Auxiliary columns in the form of sectional steel casings hold fresh concrete to form the columns, support the building while the concrete columns harden and provide means for attachment to lifting devices that are supported on bearing platforms at the foundation. The load of the permanent concrete structure is transferred to the auxiliary columns through interlocking surfaces between the casings and the concrete columns. The auxiliary columns are pushed up by the lifting devices, that act in a climbing fashion, until the concrete therein hardens to a strength to support the weight of the upper part of the building. The sections of the casings are then peeled off and rotated to positions below for reuse so that the bottom part of the building is always supported by the auxiliary columns acting as an interim support structure. When the building has reached the planned height, the lowermost concrete columns are cast solid with the foundation and the auxiliary equipment is removed for reuse in other buildings.

3,831,901

VEHICLE JACK WITH LOCKING MEANS

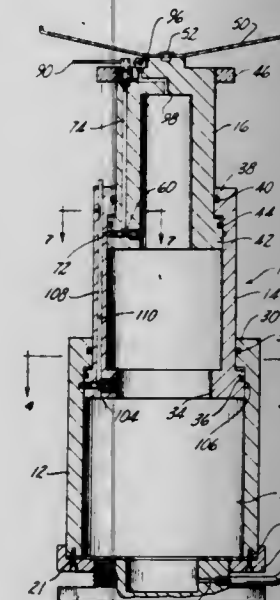
Donald M. Williams, 3283 Spruce, Inkster, and Charles S. Seidel, Royal Oak, both of Mich., assignors to Donald M. Williams, Inkster, Mich.

Filed Oct. 19, 1972, Ser. No. 298,880

Int. Cl. B66f 3/24

U.S. Cl. 254-93 R

5 Claims



A fluid pressure operated vehicle jack comprising telescoping members adapted to be extended upon connection with a container of pressurized air. Automatically actuated safety means are provided which lock the members in the extended position.

3,831,903

ATMOSPHERICALLY ISOLATED MIXING APPARATUS WITH VISCOSITY RESPONSIVE INDICATOR

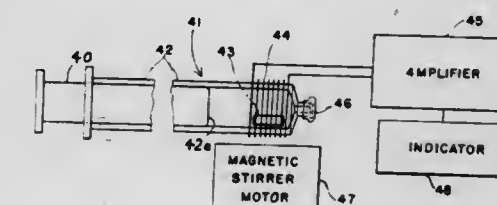
Richard P. Harmel, Jr., 126 Babcock St., Brookline, Mass. 02146

Filed Aug. 3, 1972, Ser. No. 277,678

Int. Cl. B01f 13/08

U.S. Cl. 259-1 R

15 Claims



Disclosed is a mixing apparatus for mixing liquids in a mixing chamber that is isolated from the atmosphere. A water

bath is provided for temperature regulation and a viscosity responsive indicator monitors the condition of the liquids in the chamber.

3,831,904

COMMON PLANE SEQUENTIAL MIXING APPARATUS
Jacques W. J. Appeldoorn, and Robert Sluijters, both of Arnhem, Netherlands, assignors to Akzona Incorporated, Erka, N.C.

Division of Ser. No. 83,402, Oct. 23, 1970, Pat. No. 3,701,619.

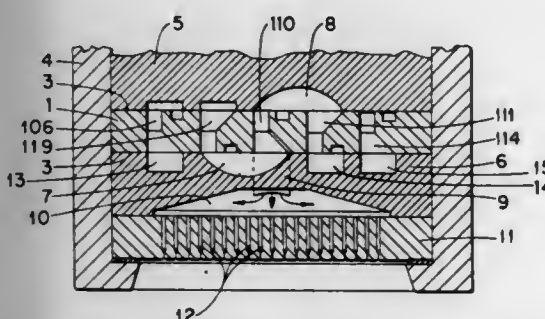
This application Oct. 24, 1972, Ser. No. 300,227

Claims priority, application Netherlands, Nov. 14, 1969, 6917131

Int. Cl. D01d 3/00

U.S. Cl. 259-4

10 Claims



An improved mixer with no moving parts is obtained by arranging mixing elements in side-by-side relationship.

3,831,905

AGITATED REACTOR FOR PROCESSING SEMICONDUCTOR SUBSTRATES

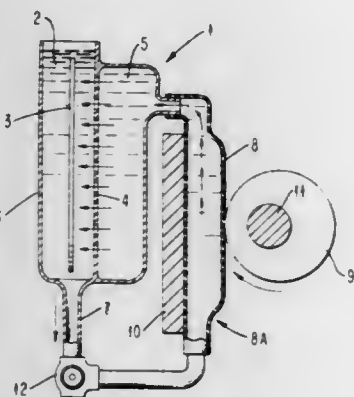
Maung S. Htoo, Poughkeepsie; Claude G. Metreud, Fishkill, and Herman F. Schmitt, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1972, Ser. No. 319,597

Int. Cl. B01f 5/06, 5/12, 15/02

U.S. Cl. 259-4

1 Claim



An agitated liquid reactor whose fluid is recirculated from an outlet through a porous wall structure. Recirculation is effected through a conduit having a flexible conduit portion which is periodically compressed toward the porous wall structure.

3,831,906

INGREDIENT DISPERSING APPARATUS

Alden H. Wakeman, Lake Mills, Wis., assignor to Crepaco, Inc., Lake Mills, Wis.

Filed Nov. 9, 1972, Ser. No. 305,154

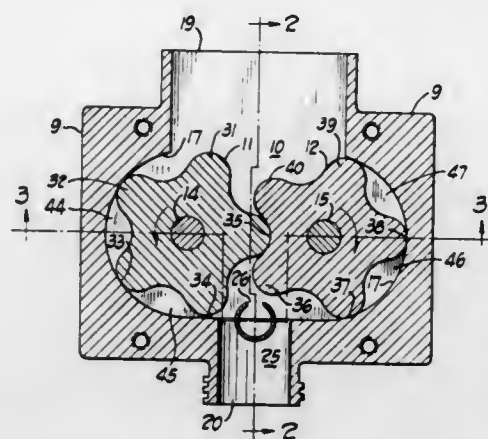
Int. Cl. B01f 7/02, 3/12

U.S. Cl. 259-6

12 Claims

An ingredient dispersing apparatus is disclosed for dispersing a semi-solid ingredient into a viscous fluid in-

gredient to produce a homogeneous dispersion. The invention comprises a mixer such as a gear pump to divide the semi-solid ingredient into discrete volumes and provisions for streaming the viscous fluid to remove the semi-solid ingredient from the mixer. The apparatus is easily cleaned and is desirable for use



with food products such as ice cream, yogurt and the like. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications and is not to be construed as a limitation on the scope of the claimed subject matter.

3,831,907

CONTINUOUS FLOW MIXING APPARATUS
Frans Henri Claes, Edegem, Belgium, assignor to Agfa-Gevaert, Mortsel, Belgium

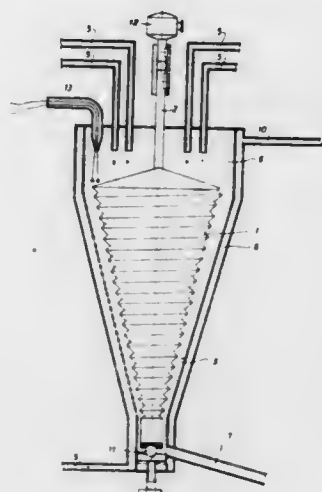
Filed Mar. 31, 1971, Ser. No. 129,751

Claims priority, application Great Britain, Mar. 4, 1970, 15950/70; Mar. 4, 1970, 15948/70

Int. Cl. B01f 7/08

U.S. Cl. 259-7

16 Claims



A continuous flow liquid mixing apparatus in which a rotor is arranged coaxially within a housing with the mutually facing peripheral surfaces thereof defining a clearance space in the form of an annular passage with a gradually and continuously decreasing radial cross-section. This annular passage serves as a mixing zone having an inlet opening at the larger section end and an outlet opening at the smaller section end thereof. The mutually facing peripheral walls of the rotor and housing are continuous and smooth and free of any interruptions or perforations and preferably the radial dimension of the clearance space is not more than 10 mm and optimally not more than 5 mm. Drive means are provided for imparting relative rotation to the rotor or housing to apply shearing forces to liquid passing through the mixing zone. In the region upstream of the mixing zone, the mutually facing peripheral wall sections of the rotor and housing diverge sharply to provide a feeding space which is free of interruptions in the form of baffles, grooves or the like and the liquid or liquids to be mixed are introduced into this feeding space.

3,831,908

PUTTY CONDITIONING METHOD AND APPARATUS

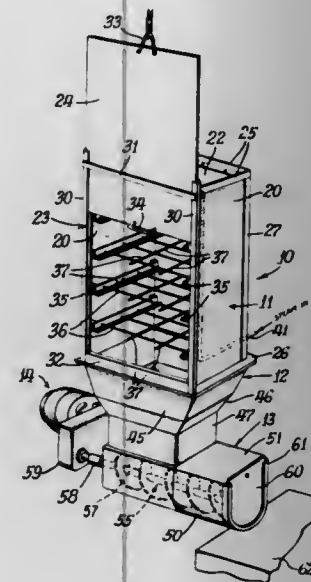
Robert A. Burst, 164, Mission Rd., Winona, Miss. 38967

Filed May 2, 1973, Ser. No. 356,636

Int. Cl. B01f 7/02

U.S. Cl. 259-191

7 Claims



An improved method and exemplary apparatus for plasticizing applique putty materials to a workable state in which normally solidified masses of putty, used in ornamenting picture frame mouldings and the like, are heated on open racks in a live steam chamber. The solidified putty melts in the hot wet atmosphere and gravitationally drips into a hopper communicating with a mixing screw conveyor which agitates and blends the putty into a homogeneous plastic mass for discharge thereby through a gate as needed.

3,831,909

CARBURETOR CHOKE ALTITUDE COMPENSATION

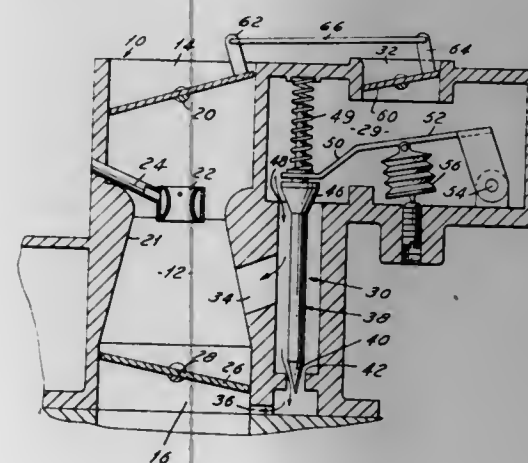
Richard J. Freismuth, Mt. Clemens, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 3, 1972, Ser. No. 303,662

Int. Cl. F02m 1/10

U.S. Cl. 261-39 A

8 Claims



A carburetor has an air passage in a parallel arrangement with the induction passage for supplying supplemental air around the venturi to the air/fuel mixture in response to changes in ambient operating conditions, the air bypass passage being controlled by a first valve sensitive to changes in ambient conditions, the passage including an additional valve connected to the choke valve for restricting additional airflow in proportion to closing of the carburetor choke valve to provide a desired rich starting and running mixture varying with changes in ambient operating conditions.

3,831,910

CARBURETORS

Colin Francis Shadbolt, Linslade, England, assignor to The Zenith Carburettor Company, Limited, Stanmore, Middlesex, England

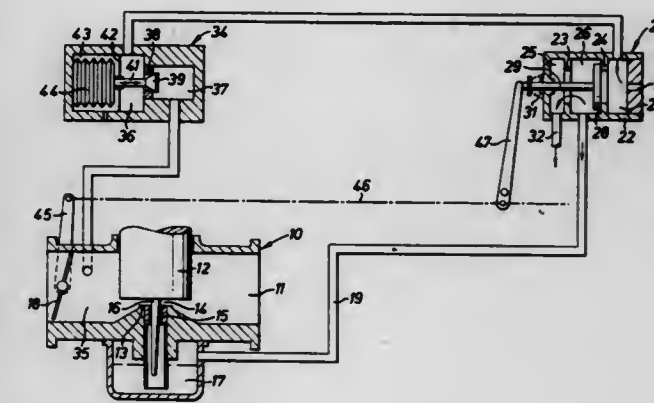
Filed Dec. 11, 1972, Ser. No. 313,794

Claims priority, application Great Britain, Dec. 16, 1971, 58494/71

Int. Cl. F02m 9/06

U.S. Cl. 261-39 A

5 Claims



To provide a carburetor in which the fuel/air proportion in the mixture supplied is not materially affected by ambient atmospheric pressure, without introducing problems during engine idling due to the introduction of excessive fuel vapor into the carburetor induction passage, a valve controlled in common with the engine throttle valve which, when the said throttle valve is open connects the fuel chamber to a controlled source of suction, is moved when the throttle valve is closed to connect said fuel chamber to the ambient atmosphere.

3,831,911

APPARATUS FOR THE AGGLOMERATION OF ORE
Robert Dorville, Paris, France, assignor to Delattre-Levivier, Paris, France

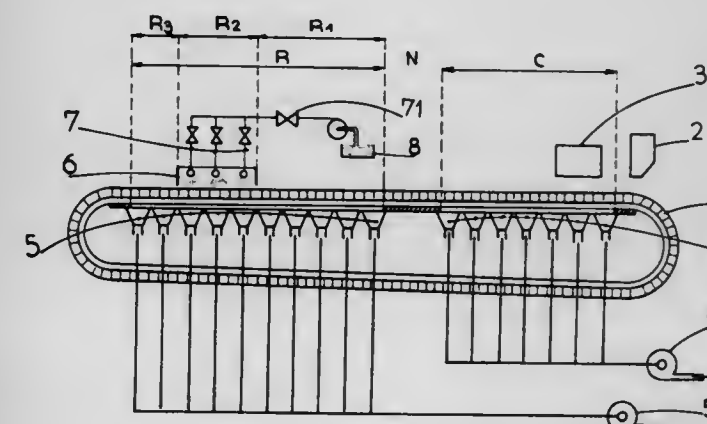
Filed June 29, 1973, Ser. No. 374,997

Claims priority, application France, July 26, 1972, 72.26829

Int. Cl. F27b 9/14

U.S. Cl. 266-21

9 Claims



A plant for the agglomeration of ore, comprising a movable chain passing through an ore cooling zone includes means located in the cooling zone for spraying onto the upper surface of the hot ore a cooling fluid which can be entrained by air passing through the layer ore. The spray cooling part of the cooling zone may be located between two air cooling parts. The cooling fluid may be water.

3,831,912

APPARATUS FOR REFINING SODIUM

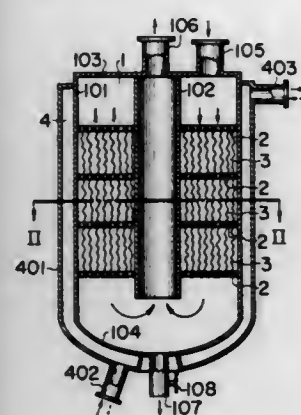
Shigehiro Shimoyashiki, Hitachi; Kiyoshi Makita, Iwaki, and Naoshi Aoki, Hitachi, all of Japan, assignors to Hitachi Ltd., Tokyo, Japan

Filed Sept. 27, 1972, Ser. No. 292,531

Claims priority, application Japan, Sept. 28, 1971, 46-75677

Int. Cl. C22b 3/02

U.S. Cl. 266—22



13 Claims

Refining or the removal of impurities from sodium traveling within a closed circuit for heat exchange of a fast breeder nuclear reactor or the like is obtained by means of a sodium refining chamber as a part of the circuit having therein netlike members disposed against the sodium flow and a heat exchanger for selectively heating and cooling of the sodium as it flows around the netlike members for the precipitation of the impurities during cooling and for the remelting of the impurities during heating. The thus remelted impurities during heating are discharged through a discharge pipe in the lower portions of the sodium flow adjacent the netlike members. The netlike members are constructed of large mesh, knitted wire material having the wire strands constructed of a plurality of fine wires, with the adjacent layers of net having spaces between their faces. The net layers are preferably corrugated, with the direction of corrugation being inclined with respect to the direction of knitting and further being inclined with respect to the corrugations of an adjacent layer. The travel of the sodium through the netlike members is such that it will be in counter flow heat exchange relationship, with the interposition of a heat conductive flow separator, with the flowing liquid sodium that has just passed through the netlike members.

3,831,913

APPARATUS FOR DIRECT IRON REDUCTION

Ryo Ando, and Kokichi Hagiwara, both of Yokohama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

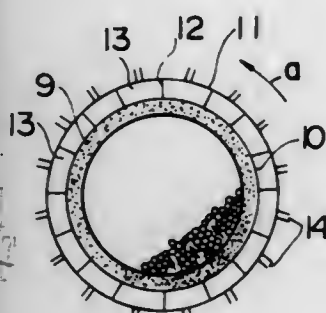
Filed Aug. 8, 1972, Ser. No. 278,820

Claims priority, application Japan, Aug. 12, 1971, 46-61270

Int. Cl. F27b 7/28

U.S. Cl. 266—24

15 Claims



In a direct iron reduction process of the type utilizing a rotary kiln, oxidizing gas is blown into the bed in the rotary kiln

so as to increase the temperature of the bed and to increase the speed of movement of the gas in the bed.

The rotary kiln used in this method has a cross-sectional configuration in the form of a ratchet wheel and is provided with a plurality of inlet ports for oxidizing gas at the roots of the teeth of the ratchet wheel. Partially reduced composite pellets containing iron ore and a carbonaceous material are admitted into one end of the rotary kiln which is provided with a fuel burner at the opposite end. The rotary kiln is further provided with a heat exchanger at said one end to heat the oxidizing gas by the exhaust gas from the rotary kiln.

3,831,914

METALLURGICAL FURNACE

Robert E. Zimmermann, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

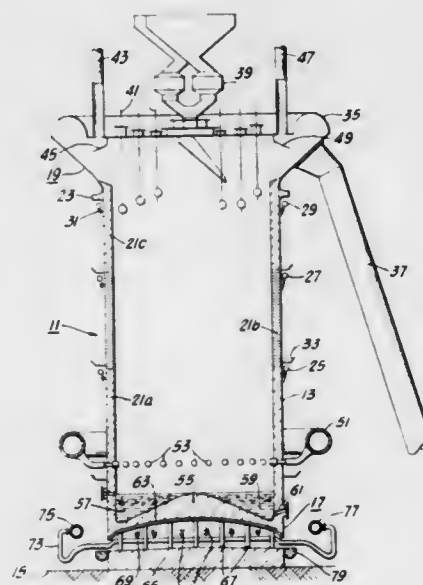
Continuation-in-part of Ser. No. 317,099, Dec. 20, 1972,

abandoned. This application Dec. 10, 1973, Ser. No. 423,575

Int. Cl. C21b 7/10

U.S. Cl. 266—25

9 Claims



A novel metallurgical furnace with a cylindrical shell and a contoured hearth is disclosed in combination. The cylindrical shell is lined with different refractory materials of uniform thickness, and the contoured hearth comprises a crowned sole plate, such as a dished head, covered with stepped refractory bricks. A plurality of columns engage a foundation cap plate, and a plurality of cooling water sprays cool the sole plate.

3,831,915

CLOSURE FOR CRUCIBLES USED FOR ALUMINOTHERMIC REACTIONS

Hans Guntermann, Essen-Steele, Germany, assignor to Elektro-Thermit GmbH, Essen-Steele, Germany

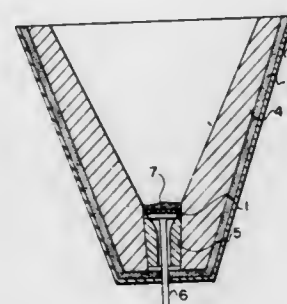
Filed May 21, 1973, Ser. No. 362,310

Claims priority, application Germany, June 22, 1972, 2230430

Int. Cl. C21c 7/00

U.S. Cl. 266—34 R

2 Claims



This invention relates to an improvement in a closure for crucibles used for aluminothermic reactions comprising a tap

pin, a sealing material, and refractory sand, the improvement comprising a sealing material of inorganic fibers covering the tap pin.

3,831,916

STEEL CONVERTER

Natan Frydman, Paris, France, assignor to Fives Lille-Cail, Paris, France

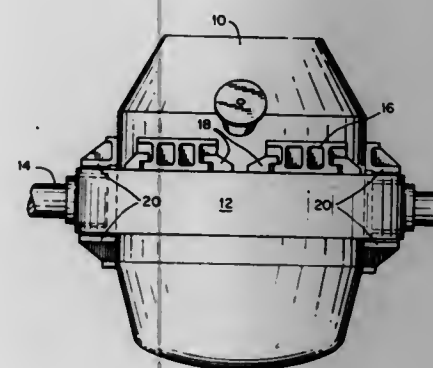
Filed Oct. 3, 1972, Ser. No. 294,666

Claims priority, application France, Oct. 11, 1971, 71.36438

Int. Cl. C21c 5/50

U.S. Cl. 266—36 P

5 Claims



A steel converter vessel, when in the vertical position, is supported on the trunnion ring solely by four seats fixed to the vessel wall and disposed on respective sides of a diametrical vertical plane containing the trunnion axes and symmetrically in respect of a vertical plane perpendicular thereto. Shoulder clamps are fixed to the trunnion ring and arranged to maintain the seats on the ring. Stop means fixed respectively to the vessel and the trunnion ring take up solely forces parallel to the plane of the trunnion ring, the stop means being disposed adjacent the trunnions.

3,831,917

TILTABLE CONVERTER

Peter Moser, Linz-Dornach, Austria, assignor to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria

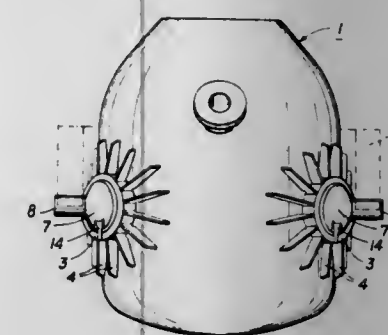
Filed Mar. 8, 1973, Ser. No. 339,302

Claims priority, application Austria, Mar. 15, 1972, 2170/72

Int. Cl. C21c 5/50

U.S. Cl. 266—36 P

5 Claims



The invention relates to a tiltable converter with a carrying ring surrounding at least part of the converter jacket and supporting the converter by carrying means which take up the bearing and tilting forces, said carrying means consisting of annular bearing lugs into which the carrying bodies extend. The annular bearing lugs and the carrying bodies are connected by means of flange connections arranged at a distance from the converter jacket, so that between the flange connec-

tions and the converter jacket a hollow space is formed. Thus, the screw connection is easily accessible for tightening the screws, the carrying bodies are not overheated and the thermal expansibility is not disturbed.

3,831,918

HEAT INSULATING DURABLE TUYERE

Keisuke Mori; Takehiro Yamada, both of Kisarazu; Katsumi Nakamoto, Kimitsu; Hiroshi Onaka; Takeshi Yamamoto, both of Tokyo, and Taizo Kato, Yokohama, all of Japan, assignors to Nippon Steel Corporation and Asahi Glass Company Limited, both of Tokyo, Japan, part interest to each

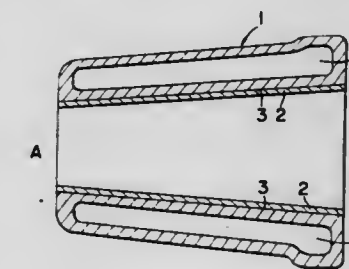
Filed June 13, 1973, Ser. No. 369,595

Claims priority, application Japan, June 13, 1972, 47-58119

Int. Cl. C21b 7/16

U.S. Cl. 266—41

4 Claims



A low expansion ceramic lining is formed on the inner surface of the combustion gas inlet of a tuyere. The low expansion ceramic lining is made of a material which has a thermal expansion coefficient less than 0.5 percent. The low expansion ceramic lining is preferably formed on the inner surface of the tuyere by cementing a low expansion ceramic tube onto the tuyere with a cement consisting of a low expansion ceramic cement or a castable refractory material.

3,831,919

TELESCOPIC GAS SPRINGS

Lawrence George Nicholls, Birmingham, England, assignor to Girling Limited, Birmingham, England

Filed June 5, 1972, Ser. No. 259,578

Claims priority, application Great Britain, June 9, 1971, 19658/71

Int. Cl. F16f 9/24

U.S. Cl. 267—34

2 Claims



A telescopic gas spring comprises a cylinder closed at one end, a piston slidable in the cylinder and a piston rod carrying the piston and extending sealingly through the other end of the cylinder. An auxiliary spring is disposed at the closed end of the cylinder and comes into operation as the piston approaches a position of full compression, to provide additional resistance to further compression of the gas spring. The auxiliary spring may be a coil spring or a gas spring.

3,831,920

NOISE PREVENTING SHOCK ABSORBER

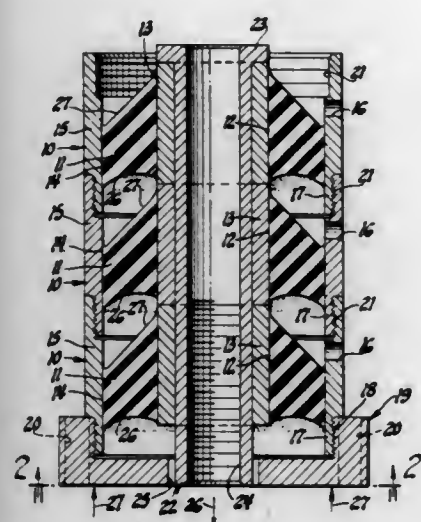
Charles R. Meldrum, Detroit, and Glyn A. Bindon, Oxford, both of Mich., assignors to Ace Controls, Inc., Farmington, Mich.

Filed Jan. 12, 1973, Ser. No. 323,060

Int. Cl. F16f 7/12

U.S. Cl. 267-137

7 Claims



A noise preventing shock absorber adapted for silently absorbing the sound due to noise sources, as when moving machine parts engage mating surfaces and decelerate to zero velocity within a short travel distance or stroke. The shock absorber member includes a unitary resilient member which is dish-shaped in vertical cross section and provided with an axial bore therethrough, with the peripheral surface of the axial bore forming an inner force-transmitting surface. An upper force-receiving means is bonded to the inner force-transmitting surface. The resilient member is provided with a peripheral outer force-transmitting surface concentric with and axially offset downwardly from the inner force-transmitting surface. The resilient member is also provided with an axially inward extended recess on the lower side thereof around the axial bore and within the outer force-transmitting surface. A lower force-receiving means as, for example, an outer tube is bonded to the outer force-transmitting surface. The shock absorber may be used in a stacked arrangement to provide a unit of increased shock absorbing and noise preventing capacity.

3,831,921

COLLISION GUARD DEVICE

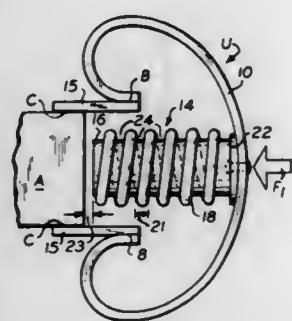
Cesar T. Negado, 25-12 169th St., Flushing, N.Y. 11358

Filed Apr. 13, 1973, Ser. No. 350,941

Int. Cl. B60r 19/08

U.S. Cl. 267-139

6 Claims



A collision guard unit, adapted for attachment to a surface to be protected, which comprises an impact loop having opposite ends which are affixed to the surface to be protected. Interposed between the inner side of the loop and the protected surface is an energy absorption assembly. A plurality of

collision guard units may be connected to a pair of transverse members to enlarge the surface area that can be protected. The transverse members also serve to dissipate the impulsive force of a collision throughout the total system, thereby enhancing its overall efficiency.

3,831,922

SHOCK ABSORBER

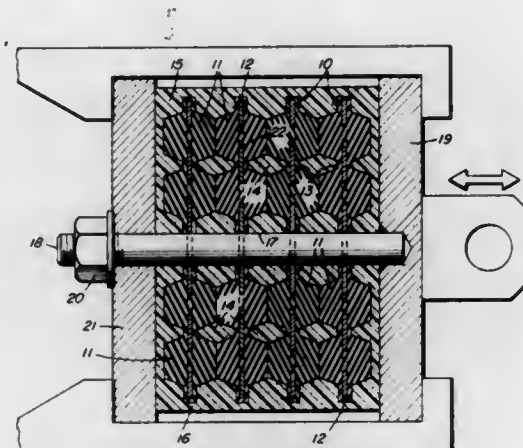
Bernard Simon Appleton, Hewlett, N.Y., assignor to Unilan A.G., Chur, Switzerland

Filed Oct. 6, 1972, Ser. No. 295,539

Int. Cl. F16f 7/12

U.S. Cl. 267-140

9 Claims



A cushioning device particularly well suited for use in a draft gear of a railway vehicle comprises a plurality of rigid plates disposed one over the other and having symmetrically disposed non-porous elastomeric protuberances on each face thereof with interstices between the protuberances being filled with an elastomeric plastic foam which binds the elements together into a unitary structure.

3,831,923

NOISE PREVENTING SHOCK ABSORBER

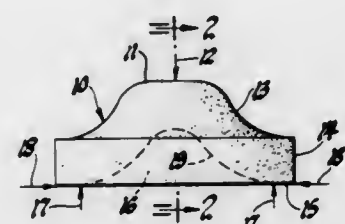
Charles R. Meldrum, Detroit, Mich., assignor to Ace Controls, Inc., Farmington, Mich.

Filed Jan. 12, 1973, Ser. No. 323,061

Int. Cl. F16f 7/12

U.S. Cl. 267-141

37 Claims



A noise preventing shock absorber adapted for silently absorbing the sound due to noise sources, as when moving machine parts engage mating surfaces and decelerate to zero velocity within a short travel distance or stroke. The shock absorber includes a unitary resilient member having an annular force-receiving surface on the lower end thereof and a force-receiving surface on the upper end thereof which is disposed radially within and axially spaced apart from the lower force-receiving surface, and said resilient member being inverted dish-shaped in vertical cross section and provided with an axially inward extended recess on the lower side thereof within the annular lower force-receiving surface. The shock absorber member can be used in a stacked arrangement, with or without an outer casing, to provide a unit of increased shock absorbing and noise preventing capacity.

3,831,924

TORISONAL ENERGY ABSORBER

Robert Ivan Skinner, 31 Blue Mountain Rd., Silverstream, Lower Hutt, New Zealand

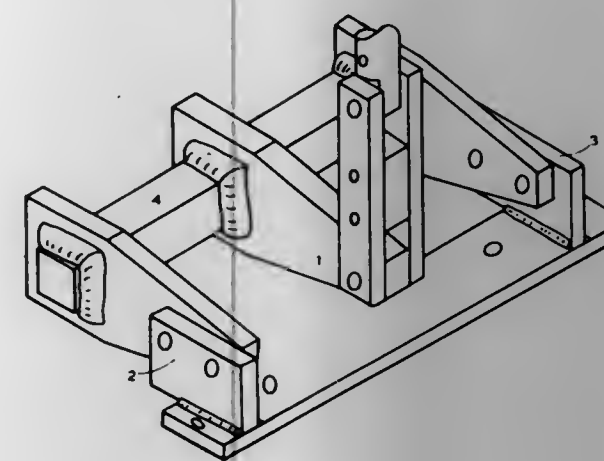
Filed Dec. 26, 1972, Ser. No. 318,279

Claims priority, application New Zealand, Dec. 23, 1971, 165913

Int. Cl. F16f 1/16

U.S. Cl. 267-154

8 Claims



A device is disclosed which absorbs from a structure such as a building energy imparted by an earthquake or a high wind and so inhibits damage to the building. Two members of the structure which move in opposite directions during vibration are coupled by levers to a bar of annealed low carbon steel in such a way that the bar is strained in torsion during vibration. A bar having a square cross-section with a side five inches long strained up to 4 percent in torsion has a capacity of approximately 70,000 N for several hundred cycles. The failure of such an absorber at the end of its useful life is not catastrophic.

3,831,925

SPIRAL SPRING UNITS FOR PRESSING BRUSHES

Toshio Nakamura, and Sadaharu Kawai, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

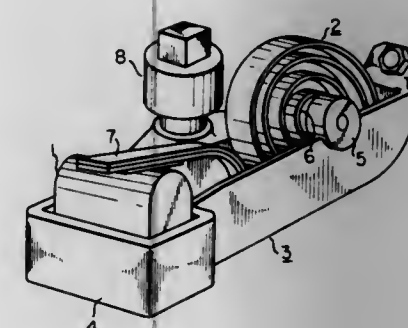
Filed Oct. 4, 1972, Ser. No. 294,804

Claims priority, application Japan, Oct. 6, 1971, 46-77927

Int. Cl. F16f 1/12

U.S. Cl. 267-156

4 Claims



A spiral spring unit for pressing brushes, which consists of a plurality of spiral spring elements bonded together at the opposite ends thereof and which is capable of pressing the brush always with a constant pressure.

3,831,926

UNIVERSAL CLAMP WITH PIVOTING ARM RETENTION MEANS

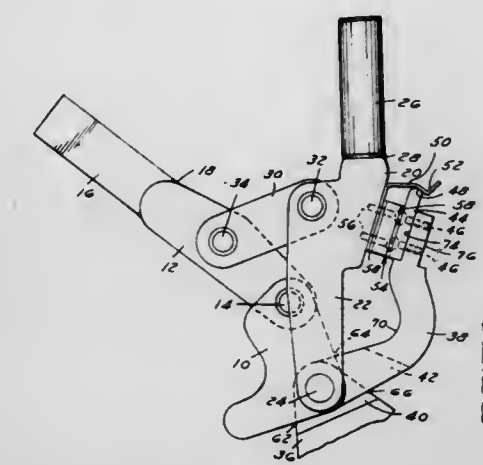
Jack J. Sendoykas, St. Clair Shores, and Alexander W. McPherson, Farmington, both of Mich., assignors to Dover Corporation (De-Sta-Co. Division), Detroit, Mich.

Filed Aug. 28, 1972, Ser. No. 284,038

Int. Cl. B25b 5/12

U.S. Cl. 269-228

8 Claims



A manually operated toggle type clamp suitable for clamping a work piece to a machine bed or the like and having retention means suitable for stopping and holding the clamp in a pre-determined open position. The retention means is mounted on an arm initially pivotally attached to the base of the clamp with complementary engaging means attached to the handle link. When the clamp is set up, the retention means is adjustably positioned as desired and welded to the base. At the same time, the clamp support plates are adjusted and welded to the base in the appropriate position to determine the fully closed position. The clamp is then ready for repeated operation from the adjusted fully closed to the final pre-determined open position with assurance that the clamp is rigidly mounted upon the base with the required closed work clamping position, and the desired opening stroke ending with a hold open retention.

3,831,927

METHOD AND APPARATUS FOR FOLDING SHEETS SUCH AS DRAWINGS

Jozef Marie Van Herten, Venlo, Netherlands, assignor to Oce Van der Grinten N.V., Venlo, Netherlands

Continuation-in-part of Ser. No. 137,549, April 26, 1971, abandoned. This application Apr. 9, 1973, Ser. No. 348,883.

Claims priority, application Netherlands, Apr. 10, 1972, 7204777

Int. Cl. B45h 45/20

U.S. Cl. 270-79

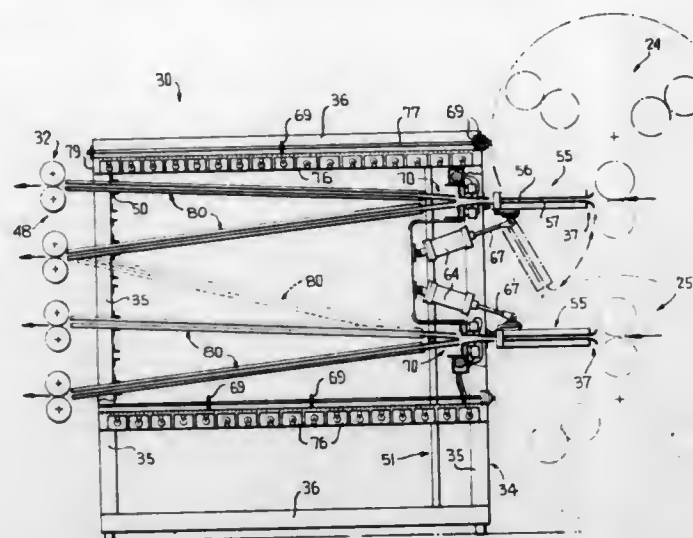
20 Claims

Sheet Length	FOLDING PLAN I	Sheet Length	FOLDING PLAN II
0	50	0	50
50	100	50	100
100	150	100	150
150	200	150	200
200	250	200	250
250	300	250	300
300	350	300	350
350	400	350	400
400	450	400	450
450	500	450	500
500	550	500	550
550	600	550	600
600	650	600	650
650	700	650	700
700	750	700	750
750	800	750	800
800	850	800	850
850	900	850	900
900	950	900	950
950	1000	950	1000

Large sheets such as drawings having any of various lengths are folded into packets of standard length in the direction

transverse to the folds by feeding the sheets individually past length measuring points spaced apart along a pathway to a zig-zag folder which is actuated at intervals determined by a computing control system in response to signals received from sheet detectors located at the measuring points. The detectors sense simultaneously a certain location of the leading edge of each sheet and the presence or absence of the sheet at other points in the pathway, thus determining the folding pattern to be applied to the sheet; and as the sheet is advanced the control system measures the residual length, if any exists, by which the sheet trails a point where its presence was sensed and determines correspondingly the locations of certain folds. When a sheet is longer than the length ranges defined between the detectors, its leading part is folded into panels having the desired packet length until the trailing edge has been brought into a range between two detectors, whereupon the residual length and corresponding fold location(s) are determined.

second and third positions thereof. A portion of the main path and/or an elongated guide element of each secondary path is removable from its normal position to assist in removing



3,831,928

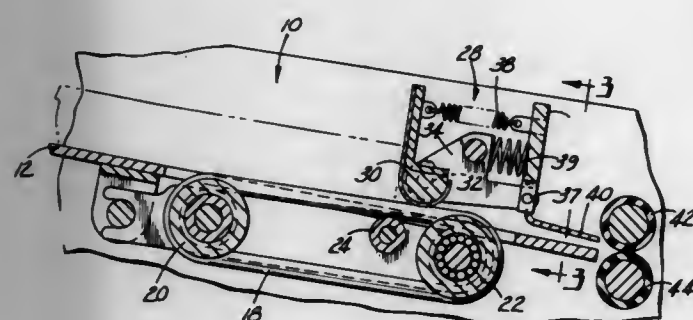
SINGLE SHEET DOCUMENT FEEDER

James W. Davis, Warrensville Heights, Ohio, assignor to Addressograph Multigraph Corporation, Cleveland, Ohio
Filed Mar. 28, 1973, Ser. No. 345,510

Int. Cl. B65h 3/54

U.S. Cl. 271-35

3 Claims



An apparatus for feeding articles from the bottom of a stack of such articles. The relative coefficients of friction of the articles, an endless belt drive and an article limiter are used to restrict movement to one article at a time. The article limiter begins to pivot when the endless belt drive moves. The pivoting produces an additional force perpendicular to the stack of articles to assist in transporting documents toward the article limiter. Separation of the articles in the stack also occurs to varying degrees as a result of the article limiter pivoting.

3,831,929

CORRUGATED SLIT WEB DIVERTER

Ernest W. Hellmer, Chicago, Ill., assignor to Continental Can Company Inc., New York, N.Y.

Filed May 31, 1972, Ser. No. 258,425

Int. Cl. B65h 29/58; B26d 7/06

U.S. Cl. 271-64

19 Claims

This disclosure relates to novel apparatus for diverting slit webs of material, preferably corrugated board, and in one aspect includes a main path of travel for slit webs along a generally horizontal plane beyond which are flaps for diverting the slit webs from the main path to either of a pair of secondary paths of travel, the diverting means including a pair of deflectable flaps mounted for pivotal movement between a first position in diverging relationship in a downstream direction and either of second and third parallel positions each of which is in alignment with a pair of spaced elongated guide elements, and first and second means operable to move respective one or another of the flaps to achieve the respective

jammed corrugated board. The apparatus may further include a full web diverter for feeding either of a pair of tandem slitter-scissors prior to the feed of the corrugated board to the slit web diverter.

3,831,930

PAPER FEEDING APPARATUS FOR USE IN PRINTING MACHINE

Shigeru Shimizu, Osaka, Japan, assignor to Hamada Printing Press Co. Mfg. Co., Ltd., Osaka-shi, Japan

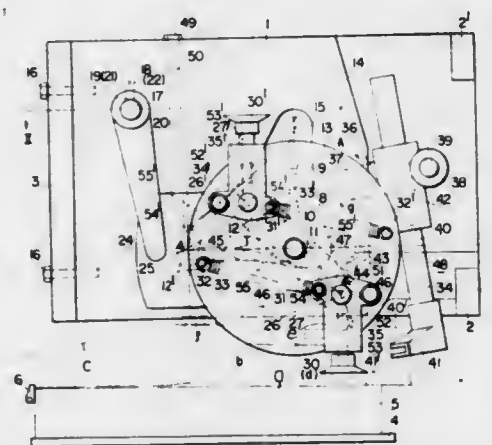
Filed Mar. 19, 1973, Ser. No. 342,409

Claims priority, application Japan, Apr. 14, 1972, 47-37527

Int. Cl. B65h 3/08

U.S. Cl. 271-91

9 Claims



A paper feeding apparatus for use in a printing machine in which the sheets of paper are fed into the printing machine one after the other with the use of a sucker device which is continuously rotated along a modified cycloid curve by means of a cam mechanism including a cam and follower in cooperation with air-suction systems, whereby the disadvantages inherent in a conventional paper feeding apparatus having a reciprocating sucker is substantially eliminated.

3,831,931

SHEET PAPER FEED OUT DEVICE IN COPIER

Takuzo Tsukamoto, Yamato, Japan, assignor to Fuji Xerox Co. Ltd., Tokyo, Japan

Filed June 2, 1972, Ser. No. 259,015

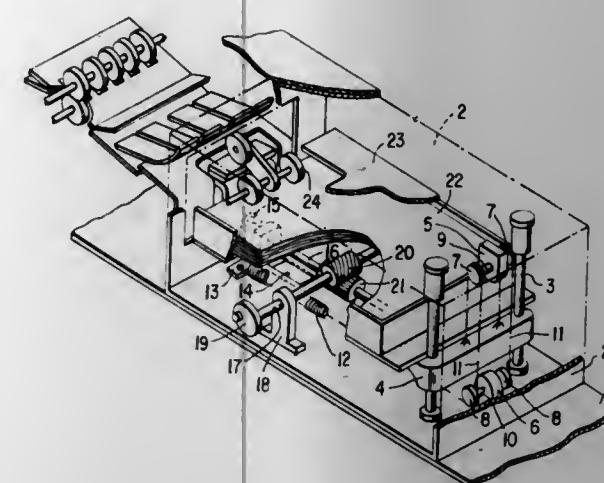
Int. Cl. B65h 1/04, 1/12

U.S. Cl. 271-126

5 Claims

Sheet papers are piled up on a lifter which is spring biased upward and the uppermost paper is in pressed contact with a set of feed out rollers. The feed out rollers are rotatably pro-

vided at a fixed position and the papers are pressed thereon from underneath. The force by which the papers are pressed



on the feed out rollers is controlled to be constant regardless of the number of sheets of papers by controlling the force of the spring for biasing the lifter upward.

3,831,932

TAKE-OFF MECHANISM FOR SHEET DELIVERY APPARATUS USED WITH A PRINTING PRESS

Karl Conrad, Dietzenbach, Germany, assignor to Roland Offsetmaschinenfabrik Faber & Schleicher AG, Offenbach/Main, Germany

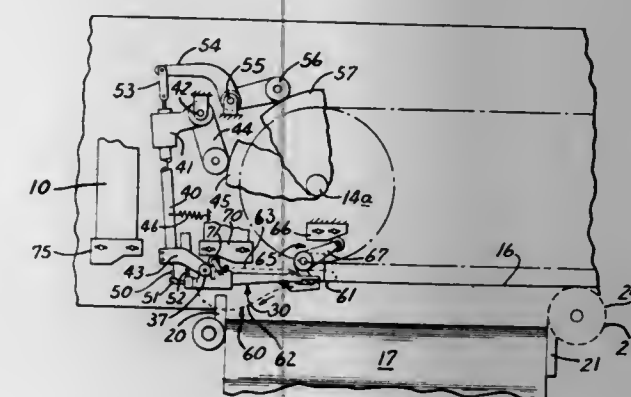
Filed July 20, 1972, Ser. No. 273,620

Claims priority, application Germany, July 23, 1971, 2136810

Int. Cl. B65h 29/10

U.S. Cl. 271-182

9 Claims



A take-off mechanism for delivering a series of sheets from a conveyor onto a delivery pile. Positive transfer of the sheets from the grippers on the conveyor to the jaws of the take-off mechanism is effected by moving the jaws along a take-off path which coincides with the conveyor delivery path and at the same speed as the sheet and by engaging the jaws prior to the time the grippers are released. Stationary cams are used to close and open the jaws adjustable for both the timing and amount of opening. The transport mechanism for the take-off jaws includes cams synchronized with the conveyor for imparting separate horizontal and vertical components of movement to the jaws so that the jaws move in a predetermined closed loop path having transfer, deceleration and return portions.

3,831,933

TAMPER DETECTION AND RECOVERY

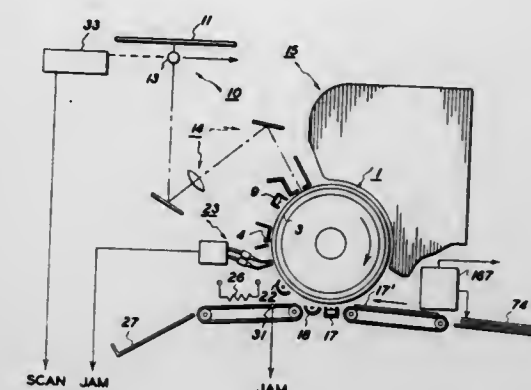
Louis J. Fantozzi, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 6, 1973, Ser. No. 348,829

Int. Cl. B65h 7/04

U.S. Cl. 271-258

9 Claims



Tamper detection apparatus in a machine to which articles are fed in succession at a regular time interval, includes means for detecting the condition where the article supply is running out and generating an out of supply signal, and means for determining from the nature of the out of supply signal whether the out of supply condition occurred actually or was induced artificially. The apparatus may be used in a copier/duplicator machine to determine whether the out of paper supply condition detected during a copy run is due to an actual condition or a falsely induced one.

3,831,934

SECTIONAL CREATIVE TOY

John P. Hancovsky, Shaler Township, Pa., assignor to Hi-Ho Products, Inc., Sharpsburg, Pa.

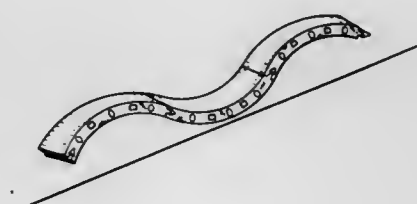
Division of Ser. No. 144,583, May 18, 1971, Pat. No.

3,780,469. This application Aug. 29, 1973, Ser. No. 392,560

Int. Cl. A63g 29/00, 11/00

U.S. Cl. 272-56

7 Claims



The specification discloses a creative toy of light-weight, durable material, such as a low-density polyethylene and plastic composition, which is made up of a plurality of interlocking arcuate sections capable of assembly in a variety of different ways to provide different life-size toys for juveniles, such as a hoop, slide or chair. Each section of the toy comprises a body portion of hollow, thinwalled and substantially rectangular cross-section having a protruding V-shaped tongue at one end and at the opposite end a recess of complementary and interlocking configuration to the tongue. The outer and inner walls of the body portion are curved inwardly and the side walls have shallow cups recessively molded therein for decoration and reinforcement purposes.

3,831,935

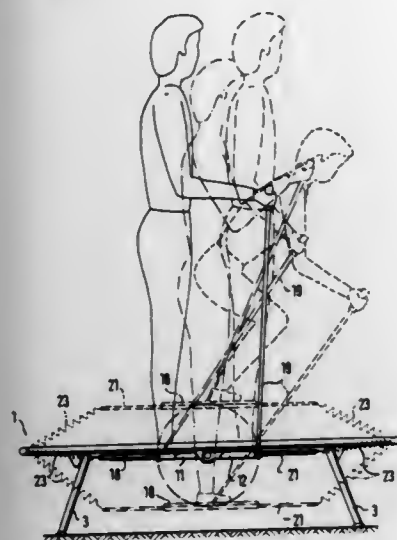
MOVABLE PLATFORM EXERCISER

Hubert Hoffe, Sandrartstrasse 2, Munich, Germany
Filed Sept. 22, 1972, Ser. No. 291,242Claims priority, application Germany, July 23, 1971,
7136204

Int. Cl. A63b 69/18

U.S. Cl. 272—57 B

6 Claims



An exercising device for physical fitness trainings, especially for usage as an at-home exerciser. The exercising device is characterized by two double crank arms attached to a frame and revolving around a horizontal axle. Additionally, the inner arms of the two double crank arms are connected with at least one platform on which a user stands. A handle bar is attached for the user on the outer arm of each double crank arm. When the user stands on the platform and grasps the handle bars, by appropriately shifting his body weight, he can cause the platform to go in a circular motion. This movement is opposed by spring attachments which tend to keep the platform in a horizontal attitude throughout its complete motion. The movements carried out by the user are similar to those of skiing.

3,831,936

TRAMPOLINE FRAME

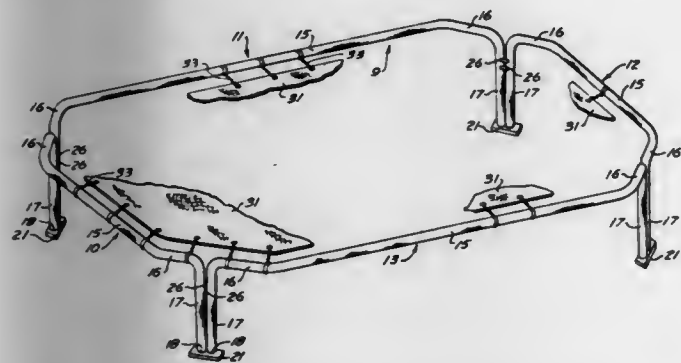
John Samuel Watson; Richard John Watson, and Robert Gordon Watson, all of 2454 W. 13th Ave., Vancouver, British Columbia, Canada

Filed June 11, 1973, Ser. No. 368,574

Int. Cl. A63b 5/18

U.S. Cl. 272—65

1 Claim



A trampoline frame formed of a plurality of frame members formed of lengths of U-shaped tubular metallic pipe disposed with the bases of each length extending in continuous end to end relationship in the same plane and with legs of each length depending in contiguous parallelism. A U-shaped connector is driven into the lower ends of the legs to connect the latter and means are provided for preventing relative lateral movement of upper ends of the legs so as to prevent separation of frame members under load.

3,831,937

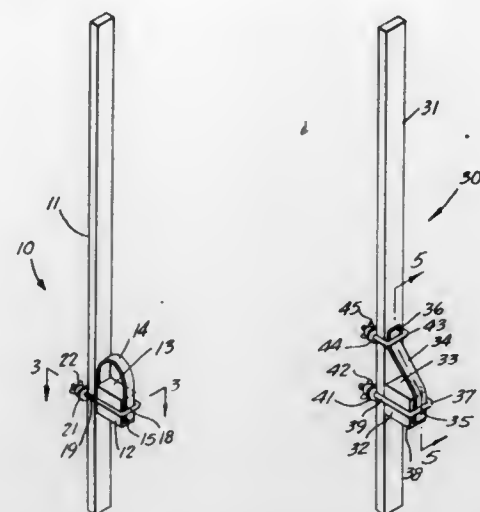
ADJUSTABLE STILT

Massena F. Jones, P.O. Box 616, Vaughan, Miss. 39179
Filed May 30, 1973, Ser. No. 365,147

Int. Cl. A63b 25/00

U.S. Cl. 272—70.1

4 Claims



Stilts for walking at a raised elevation. The stilts include an elongate generally rectangular upright support board having a generally rectangular foot support block vertically adjustably secured thereto by an encompassing U-bolt including a strap connecting the threaded ends of the U-bolts. Wing nuts tighten on the strap to clamp the block to the upright in its vertically adjusted position. A flexible loop is secured to the block by the U-bolt in one form of the invention. In a second form of the invention one end of the flexible strap is secured to the block by the U-bolt and the opposite end of the strap is adjustably connected to the upright by a second generally rectangular U-bolt.

3,831,938

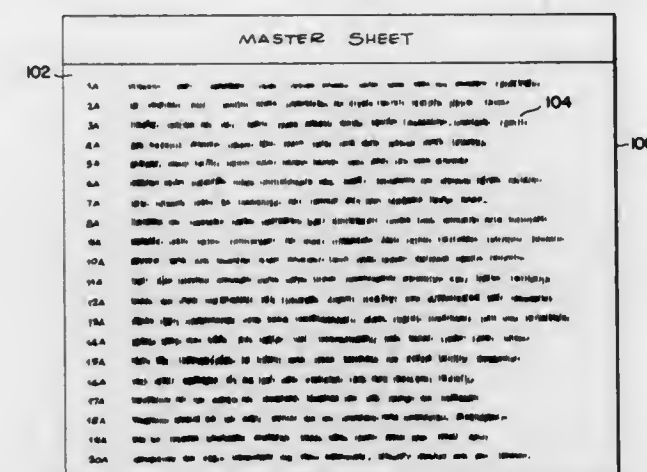
WORD PLUS WORD GAME

Lewis Neubauer, Philadelphia, Pa., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Sept. 28, 1973, Ser. No. 401,825

Int. Cl. A63f 9/00

U.S. Cl. 273—1 R

6 Claims



A word by word game employing the following major components (used as described hereinafter): a master sheet containing twenty messages of twelve words each; forty-eight wood word first pieces, each having a message word on one side and a number identifying the position of this word in the message on the other side; forty eight second pieces divided into four like groups of twelve pieces, each piece in each group carrying a different number from one to twelve inclusive; a plurality of markers each carrying a different one of numbers from one to thirty inclusive; a plurality of chips, each carrying a different one of numbers one through twelve inclusive.

sive thereon; and a plurality of commpoint pieces each having one of the following legends thereon; comm, commu, commun, communi, communic, communica, communicat, communicate and Good Thinking.

cupped member made of a rubber material. The tubing may be manipulated so as to turn the open end of the cupped member downwardly for engagement with the upper end of a football thereby held on the ground in position for a place kick.

3,831,939

BOWLING BALL RETURN MECHANISM

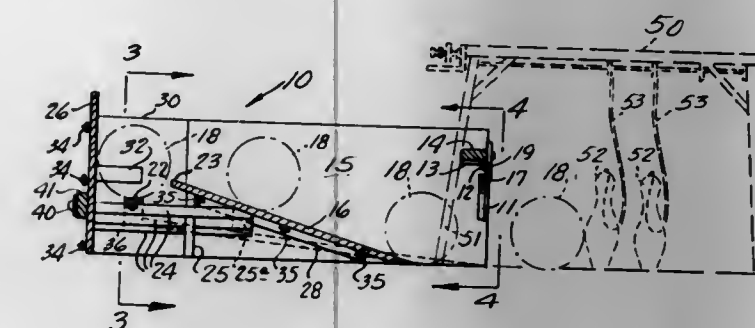
Kenneth Lorber, 5823 Osceola Rd., Washington, D.C. 20016

Filed Jan. 16, 1973, Ser. No. 324,170

Int. Cl. A63d 5/02

U.S. Cl. 273—48

1 Claim



A mechanism for automatically returning a bowling ball to the bowler, in a toy bowling game, is described. The mechanism comprises an inclined apron which the ball travels up after passing through the bowling pin area. If the ball has been bowled with sufficient force, it will pass along the complete extent of the inclined apron and fall off the top of the apron onto a ramp which is inclined downwardly to either side, from its apex which is aligned with the center line of the apron. The ball then passes onto either a right or left hand downwardly inclined ramp from which it rolls back toward the bowler. A one-way gate is provided at the lower end of the apron for permitting the ball to pass onto the apron but preventing the ball from returning into the bowling pin area when the ball has been bowled with insufficient force to carry it to the top of the apron.

3,831,940

DEVICE FOR PLACEMENT OF FOOTBALL

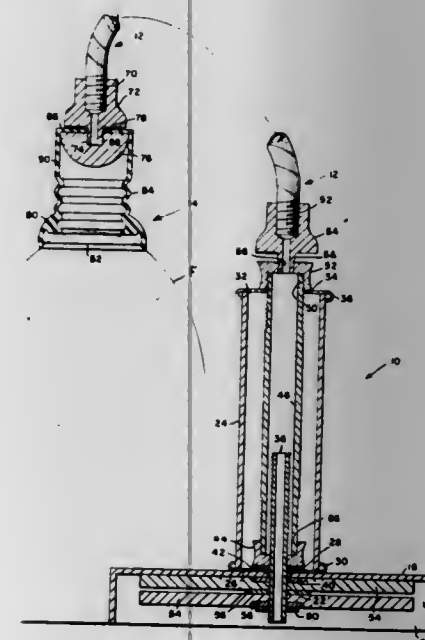
John B. Molettieri, 7047 Paschall Ave., Philadelphia, Pa. 19142

Filed Feb. 22, 1973, Ser. No. 334,629

Int. Cl. A63b 67/00

U.S. Cl. 273—55 B

3 Claims



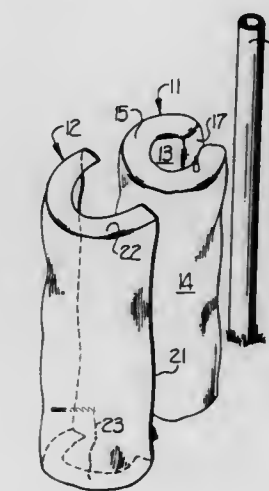
A portable standard is provided with a weighted base. A section of flexible metal tubing extends from the upper end portion of the standard and terminates in a flexible, resilient

3,831,941
PROTECTIVE SHOCK ABSORBING DEVICE FOR GOALPOSTSJ. Norman Pease, 2538 Selwyn Ave., Charlotte, N.C. 28209
Filed Mar. 5, 1973, Ser. No. 338,091

Int. Cl. A63b 71/02

U.S. Cl. 273—55 R

6 Claims



This device is particularly adapted for use with goalposts of the type utilized in active sports and serves to protect the players when they collide with the posts. The device includes an inflatable inner tube which is formed with an opening along one side so that it may be easily removed from and placed in position surrounding the goalpost. A protective outer shell surrounds the inflatable inner tube and is provided with an opening along one side having suitable fastening means to secure the shell in position around the inner tube. The amount of air pressure in the inner tube can be varied to thereby vary the cushioning characteristic when a player collides with the shock absorbing device.

3,831,942

PORTABLE EXERCISE MACHINE

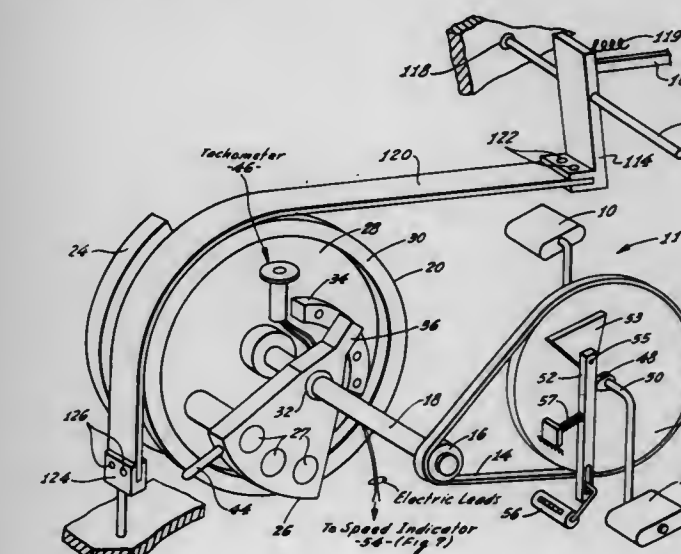
Bruce E. Del Mar, Los Angeles, Calif., assignor to Del Mar Engineering Laboratories, Los Angeles, Calif.

Filed Feb. 13, 1973, Ser. No. 332,149

Int. Cl. A63b 23/04

U.S. Cl. 272—73

6 Claims



A light weight portable exercise machine is provided for maintaining cardiovascular tone and for rehabilitation of

hospital patients confined to bed. Portability and versatility of the machine are enhanced by a mounting frame which is a part of the unit. Light but sustained exercise is accomplished through pedal operation by the feet and legs of the patient while holding the hands to bars on the frame. A number of permanent magnets are moved into exact juxtaposition opposite other magnets in progressive settings across a modified Faraday disc at a plurality of indented positions, and these magnets, with augmented inertia from a heavy rim, serve to achieve prescription exercise amounts for prescription exercise durations automatically terminated at set limits.

3,831,943

SHUTTLECOCKS

Frank William Popplewell, Saffron Walden, England, assignor to Dunlop Limited, London, England

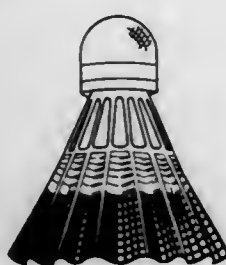
Filed Apr. 23, 1973, Ser. No. 353,436

Claims priority, application Great Britain, Apr. 29, 1972, 20021/72

Int. Cl. A63b 67/18

U.S. Cl. 273-106 A

6 Claims



A shuttlecock of moulded plastics material having improved playing qualities has a skirt which includes an imperforate band of plastics material. This band constitutes an intermediate portion lying between perforate upper and lower portions of the skirt, and has a length which is 25-65 percent of the sum of the lengths of the intermediate and lower skirt portions, of which the following is a specification.

3,831,944

BOARD GAME APPARATUS

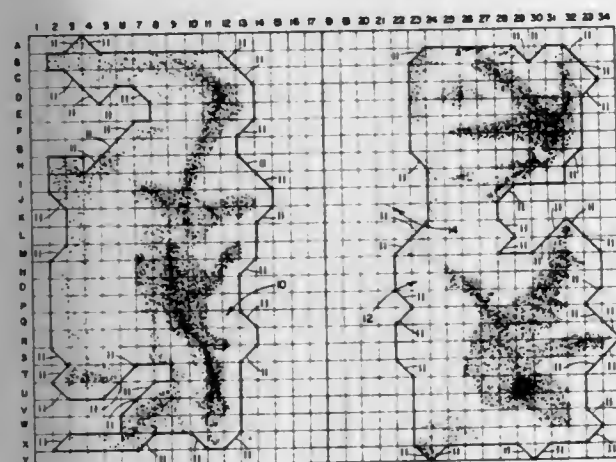
Kurtis D. Upton, P.O. Box 506, Sacramento, Calif. 93610

Filed Apr. 2, 1973, Ser. No. 347,131

Int. Cl. A63f 3/00

U.S. Cl. 273-131 BB

6 Claims



A war game which is played on a pair of boards, each having a grid thereon, the board being divided into three regions, the first region being designated a "friendly island", the second region being characterized as an "enemy island", and the third region, in between said first two regions, being characterized as a "body of water"; the game being played with a plurality of markers having different movement and capture characteristics, said markers being characterized as "tanks", "

headquarters", "P. T. Boats", "barges", "carriers", "pill boxes", "destroyer", "battleship", "big gun", "airplane"; each side having three "headquarters" markers, and each of the markers having, in addition to a predetermined moving ability or disability and a destroying ability, a point value; the objective of the game being to destroy all three of the opponent's headquarters markers or to exceed the opponent's score by more than a predetermined number of points; each player having a separate game board which is kept where his opponent cannot see it and upon which all friendly markers are placed and moved, the players taking turns, each getting a predetermined number of marker moves and a predetermined number of "shots" or attempts to destroy opposing markers per turn.

3,831,945

GAME AND PLAYING ELEMENTS FOR SAME

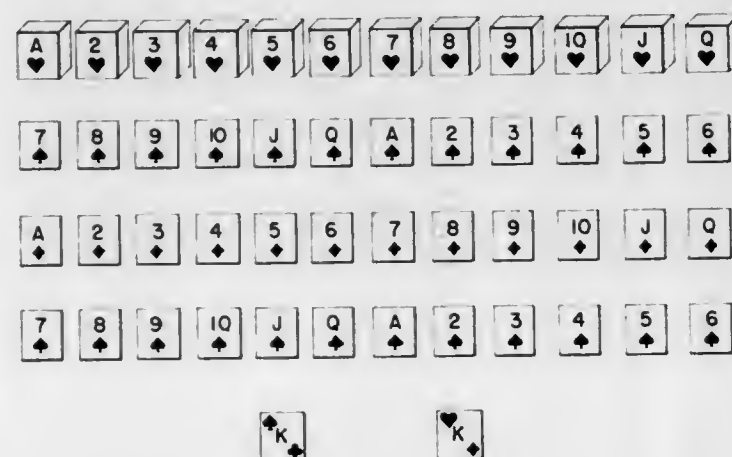
Otto A. Scherini, 2540 N.E. 22nd Ter., Ft. Lauderdale, Fla. 33305

Filed Feb. 13, 1973, Ser. No. 331,736

Int. Cl. A63f 1/00

U.S. Cl. 273-148 R

9 Claims



One form of the game consists of small playing pieces with markings on opposite faces representing the usual playing card markings of diamonds, clubs, hearts and spades. A game assembly contains two duplicate game sets to provide a separate set for each of two opposing players or teams. One of the sets may be provided with variants in color, hue or shape to avoid intermixing, but are otherwise identical in indicia arrangement. Each of the two sets has twenty-five playing pieces or "chips," made up of two similar series of twelve chips each plus an odd twenty-fifth chip with a dual role. One of the series has heart markings on one face of the chip, from the Ace representing the numeral one, continuing with the two, three, etc. on through the Queen, which numerically represents twelve. On the opposite face of these chips is the marking for spades with the markings differing by a selected fixed numerical amount as, for example, six. This places the Ace of hearts opposite the seven of spades, the three of hearts opposite the nine of spades, the Jack of hearts opposite the five of spades, etc. The companion series of twelve chips carry on opposite faces the suits of diamonds, and clubs, arranged like the series of chips carrying the suits of hearts and spades. The odd piece represents the King for all four suits, with both heart and diamond indicia on one face and both club and space indicia on the opposing face, giving the player the option of using either one of the two suits showing face up. The pieces or chips are of such size and preferably flat that they can be mixed in a shaker cup, like a dice cup, and thrown out onto a flat surface. The objective of the game is to arrange the twenty-five pieces of a set, as randomly thrown, into as many pat poker hands as possible and with the highest scoring combinations. A solution of five pat hands is termed a "pentago," a

coined word stemming from the Greek prefix "Pente," a combining form meaning five. The game itself with these pieces may be termed PENTAGO. A simplified form of the game utilizes four different colors in lieu of card suits and reduces the number of chips per set to twenty.

3,831,946

EDUCATIONAL BOARD GAME APPARATUS

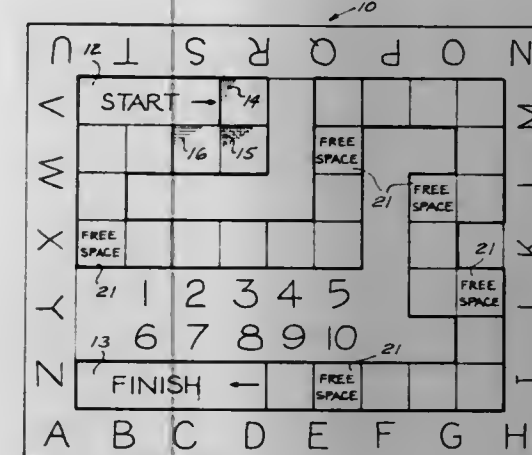
Donna Denalsky, 3 Winthrop St., Tariffville, Conn. 06081

Filed Feb. 28, 1973, Ser. No. 336,796

Int. Cl. A63f 3/00

U.S. Cl. 273-134 AD

3 Claims



Colored squares on a dice throw "move ahead" board determine the choice of color distinguished piles of problem cards from which a problem card is selected for solution. The card shows the problem or question and contains a hidden answer.

3,831,947

GEAR DRIVEN CYLINDRICAL DRUM CHANCE DEVICE

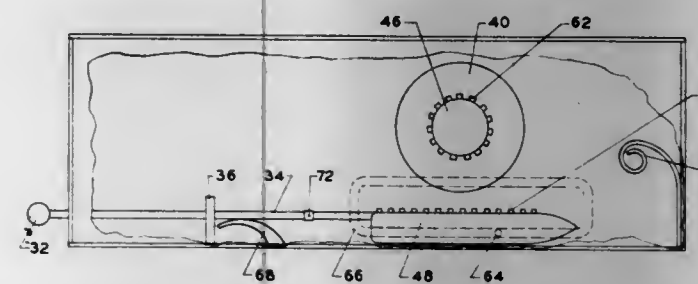
Louis M. Bittner, 1144 W. River Dr., Margate, Fla. 33063

Filed Aug. 23, 1972, Ser. No. 282,966

Int. Cl. A63f 5/04

U.S. Cl. 273-143 R

2 Claims



A mechanical game for simulating playing the game of golf. The device includes a box with a face-plate having a plurality of apertures, each aperture representative of a different golf hole having a different value of par, a rotatable indicia covered cylinder beneath the face-plate for displaying within each aperture a different possible golf score, and a slidable bar coupled adjacent the apertures that is moveable to allow the viewing of said cylinder display through only one aperture. The bar position is determined by the players as to which type hole they are playing at the time, whether it be a par three, par four or par five hole. Cylinder display is randomly moved adjacent the aperture in the face-plate by a spring-actuated rack gear which is moved into and out of engagement with a pinion gear coupled to the cylinder by an elliptically shaped cam track.

3,831,948

AUTOMATIC DICE SHAKING DEVICE

Kataro Suda, Tokyo, Japan, assignor to Yoshi, Ito, Tokyo, Japan

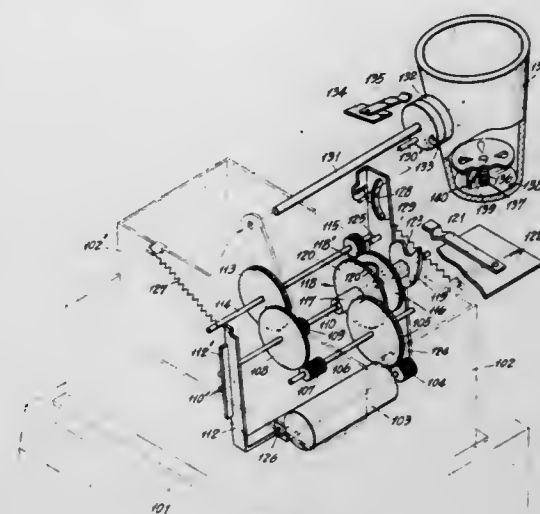
Filed Apr. 19, 1973, Ser. No. 352,636

Claims priority, application Japan, Apr. 24, 1972, 47-48381

Int. Cl. A63f 9/04

U.S. Cl. 273-145 R

8 Claims



An automatic dice shaking and dispensing device comprises a dice cup fixed to a rotary shaft. A switch in the bottom of the cup is activated by the weight of dice dropped into the cup. The switch activates an electric motor which through gear mechanism drives a crank mechanism and timer at two different speeds. The fast driven crank mechanism agitates the dice cup by repeated camming the dice cup on its rotary shaft against restoring spring tension while the slow turning timer has a cam fixed thereto which eventually cams the dice cup far enough to dispense the dice. Finally, the timer and its cam releases the dice cup which is restored to its upright position by the spring tension and the timer deactivates the electric motor.

3,831,949

VARIABLE CONTOUR MINIATURE GOLF DEVICE

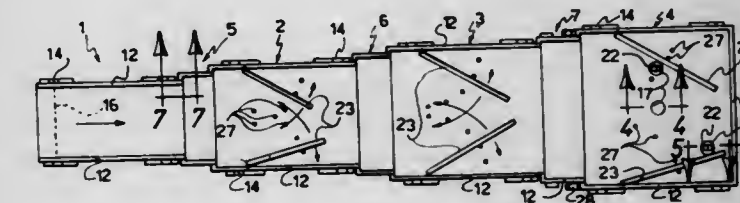
Georges Henning, 2192 Auclair St., Laval, Quebec, Canada

Filed Jan. 9, 1973, Ser. No. 322,105

Int. Cl. A63b 67/02

U.S. Cl. 273-176 H

10 Claims



A foldable unit adapted to play mini-golf by putting thereon and arranged to play a multi-hole game therewith by arranging the same into the desired number of different configurations. A variable mini-golf unit including a plurality of floor sections interconnected by a plurality of connecting ramp sections, the sections being pivoted end to end and having lateral side walls to form a continuous floor path, legs pivoted to each floor section to selectively elevate the latter relative to other floor sections, angularly adjustable deflection bars pivoted onto floor sections onto the floor path to vary the difficulty of putting a ball into a hole, and the sections being of progressively increasing width to be folded one within the lateral confines of the side walls of another to form a compact package.

3,831,950

GASKET FOR CLOSURE SEAL

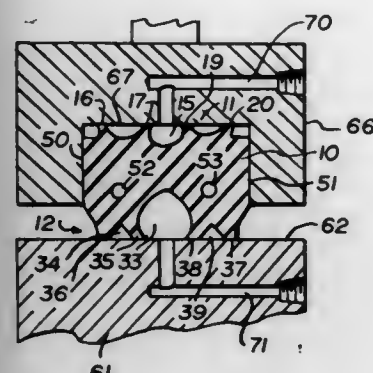
Richard Lee Bentley, and John Wesley Stubert, both of Memphis, Tenn., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Nov. 10, 1971, Ser. No. 197,232

Int. Cl. F16j 15/00

U.S. Cl. 277—75

2 Claims



A sealing gasket in the form of a strip of resilient material having sealing faces on two opposing sides, a pair of longitudinal spaced apart protuberances on each sealing face defining a longitudinal trough therebetween and each protuberance having a pair of ridges defining a groove therebetween, said groove being shallower than the trough on the same sealing face.

3,831,951

FACE TYPE O-RING SEAL GROOVE AND METHOD OF PRODUCING SAME

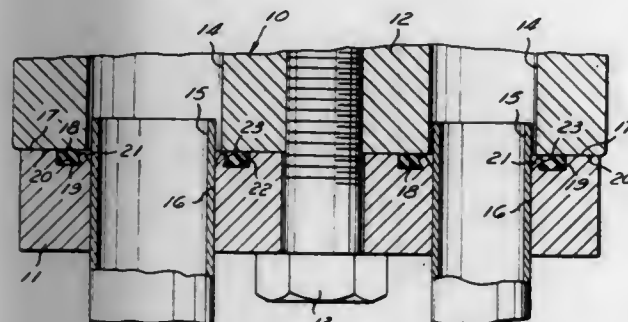
Hiralal V. Patel, Cleveland, and Arthur E. Liggett, Bedford, both of Ohio, assignors to The Weatherhead Company, Cleveland, Ohio

Filed Apr. 26, 1972, Ser. No. 247,724

Int. Cl. F16j 15/10

U.S. Cl. 277—170

3 Claims



A face seal for a planar member and a method of providing such a face seal are disclosed. The face seal includes an O-ring which is trapped within an annular groove having at least a portion of at least one sidewall stressed beyond its elastic limit to form an acute angle with the bottom wall of the groove and to thereby form a trap to retain the O-ring. The sidewall may be stressed by cutting into the face of the planar member concentrically around and/or concentrically within the groove and simultaneously forcing one or both sidewalls into the groove to form the acute angle. Alternatively, only portions of a sidewall may be forced into the groove by deforming localized areas of the planar member adjacent a sidewall. As a further alternative, the sidewall may be stressed by providing a second annular groove in the member surrounding and/or surrounded by the first groove to form an annular wall and then deforming the annular wall into the first groove to form the acute angle. If the O-ring groove closely surrounds a port in the planar member so that a relatively thin wall is defined by the groove and port, the thin wall may be forced into the groove to form the acute angle by a flaring tool inserted in the port to thereby form a trap for the O-ring.

3,831,952

PISTON AND PISTON RINGS UNIT FOR AN INTERNAL COMBUSTION ENGINE

Robert Geffroy, Neuilly-sur-Seine, France, assignor to Sealfire, Luxembourg, Luxembourg, Luxembourg

Division of Ser. No. 705,083, Feb. 13, 1968, Pat. No.

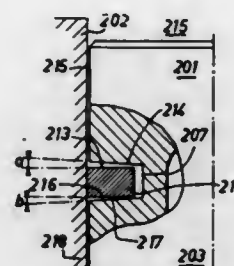
3,759,148. This application May 6, 1971, Ser. No. 141,023

Claims priority, application France, Feb. 17, 1967, 67.95532; June 29, 1968, 68.112517; Jan. 18, 1968, 68.136565

Int. Cl. F16j 9/00; F01b 31/10

U.S. Cl. 277—171

8 Claims



A piston and compression and oil control piston rings unit for internal combustion engines, said unit being placed in a cylinder delimiting a combustion chamber with its head and said piston which comprises a body formed with a head and a skirt, grooves receiving said rings, oil return orifices and a central cavity, each piston ring and its groove comprising a pair of upper contiguous faces and a pair of lower contiguous faces one of said faces of each piston ring being a face assuming the main work of the piston ring, in which:

an efficient sealing means is placed between the face of each piston ring assuming the main work of the piston ring and the contiguous face of its groove, on at least a circle adjoining the inner limit of the face of the piston ring, and an access means is placed on at least one important part of the area between the upper contiguous faces of each piston ring and its groove, for the pressure existing above the piston ring.

3,831,953

SOLENOID OPERATED VALVE ASSEMBLY

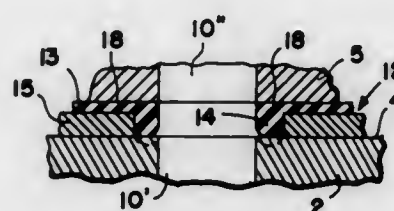
Kurt W. Leibfritz, Norridge, and Lester W. Malinowski, Des Plaines, both of Ill., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Division of Ser. No. 5,410, Jan. 5, 1970, Pat. No. 3,633,624, which is a division of Ser. No. 664,191, Aug. 29, 1967, Pat. No. 3,487,848. This application Aug. 3, 1970, Ser. No. 67,662

Int. Cl. F16l 19/02

U.S. Cl. 277—180

6 Claims



A sealing unit adapted to be clamped between parallel faces of mating valve parts, comprising a sheet-like resilient gasket member engaged with one of said faces, and a uniform thickness plate member engaged with the other of said faces, said gasket member having apertures bounded on one side only by lateral rib means which extend through apertures in said plate member beyond the thickness thereof so that said gasket member is squeezed at the rib means between said parallel faces. The sealing unit herein is further characterized

3,831,956

SELF ADJUSTABLE SKI BINDING

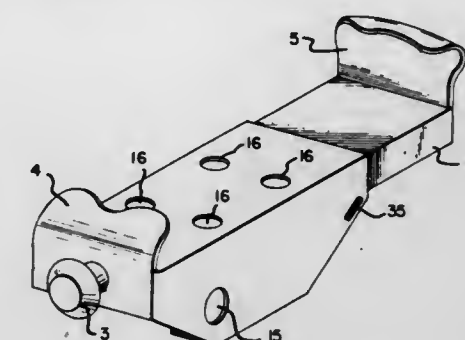
Arthur W. Earl, 451 Essex Ave., Bloomfield, N.J. 07003

Filed July 17, 1972, Ser. No. 272,115

Int. Cl. A63c 9/08

U.S. Cl. 280—11.35 D

9 Claims



The disclosure relates to a self-adjustable ski binding, the binding having a relatively small mounting area on the ski in order to provide maximum flexibility to the ski and decrease the weight sharing capacity of the ski tip and tail.

3,831,957

SAFETY TOE-END DEVICE FOR SKI BINDING

Rene Ramillon, 3 rue Emile Zola, Grenoble, France

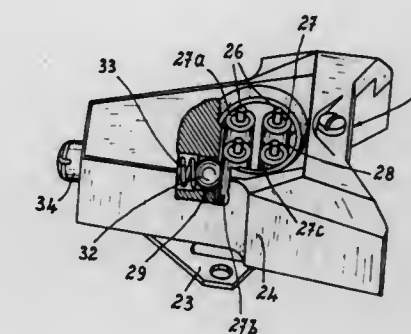
Filed Feb. 16, 1973, Ser. No. 333,297

Claims priority, application France, Mar. 1, 1972, 72.07773; May 16, 1972, 72.17967

Int. Cl. A63c 9/08

U.S. Cl. 280—11.35 T

6 Claims



A safety toe-end abutment device for ski binding, of the type comprising an abutment body pivotally mounted on a shaft extending at right angles to the main ski surface and carried by a support secured to the ski, this abutment body comprises in combination a resilient thrust member acting in a plane parallel to the ski main surface and at least two rollers or like members rotatably mounted on shafts perpendicular to said main ski surface, two of these rollers being engaged by said thrust member carried by said support or by said abutment body, said rollers being carried by said abutment body or said support, respectively.

3,831,958

COLLAPSIBLE CART

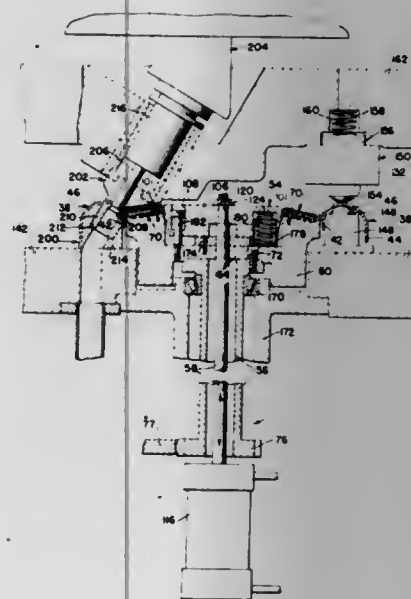
Morgan G. Keaton, 507 Potrero Ave., San Francisco, Calif. 94110

Filed Jan. 2, 1973, Ser. No. 320,239

Int. Cl. B62b 11/00

U.S. Cl. 280—36 C

13 Claims



A pin-type chucking device particularly adapted for use with sheet metal parts, to grip and rotatably drive such parts about an axis is disclosed. The invention is embodied in both external and internal pin chuck constructions.

in that said gasket member has lateral projections extending through other apertures in said plate member into cavities in the mating valve part engaged by said plate member thus to locate said sealing unit between said mating parts.

3,831,954

GASKET JOINT CONNECTIONS

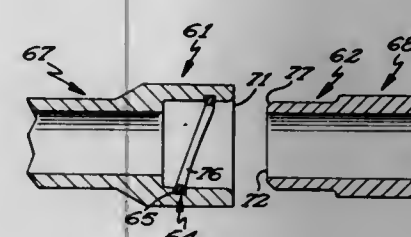
Richard C. Longfellow, Long Lake, Minn., assignor to The Crete Companies, Inc., Elk River, Minn.

Filed Nov. 24, 1972, Ser. No. 309,430

Int. Cl. F16j 15/04

U.S. Cl. 277—207

17 Claims



Accouterments for an improved gasket joint connection particularly useful in piping and the like. To obtain a water tight seal when joining or capping lengths of pipe, rubber or elastomeric gasket materials are utilized in a gasket which is imposed between the joining surfaces. In the improved joint connection the gasket groove and associated gasket are maintained in a fixed relationship relative to the compressing edge of the engaging pipe so that radial compression of the gasket takes place at varying rates around the circumference of the gasket instead of compressing all portions of the gasket at the same time. To accomplish this either the gasket or the compressing edge of the engaging member may be constructed or positioned as curvilinear surfaces, nonparallel multiple planes, or a nonparallel plane which is tilted away from the perpendicular to the longitudinal axis of the joint.

3,831,955

CHUCKING DEVICE

Thomas J. Plotzke, Richmond, Mich., assignor to Johnson Die & Engineering Co., Detroit, Mich.

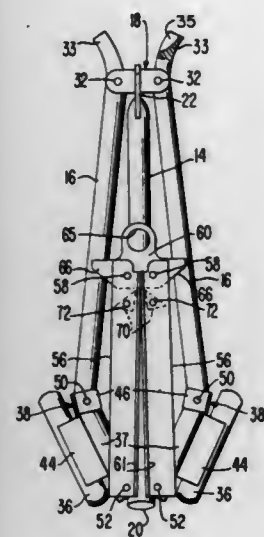
Filed Nov. 22, 1972, Ser. No. 308,706

Int. Cl. B23b 31/40

U.S. Cl. 279—2 A

37 Claims

the latter is in an operative condition. Means is provided to releasably hold the frame in such operative condition. A pair of wheels are carried at the normally lower ends of the lower members by a pair of brackets, to each of which is pivotally connected an article-supporting rail. The rails extend inwardly toward each other and their inner ends are interconnected by



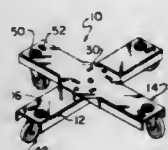
pivot pins so that the rails from a collapsible rail assembly responsive to the collapsing of the frame. The rails are positioned overcenter when they are in their operative locations so as to stabilize the cart and hold the wheels apart. Stop means is provided near the inner ends of the rails to limit their downward path of travel as they move into their operative locations.

3,831,959 TRASH CAN DOLLY

Frank J. Fontana, Stratford, Conn., assignor to Stewart-Warner Corporation, Chicago, Ill.
Filed Nov. 27, 1972, Ser. No. 309,721
Int. Cl. B62b 5/00

U.S. Cl. 280-79.1

6 Claims



The following specification describes a trash can dolly comprising a pair of separable U-shaped arms which are assembled at the site in non-rotatable coplanar relationship by means of spaced integrally formed lips and apertures in the respective arms and nesting offset wall portions adjacent the midportion of each arm. The dolly arms have elongate slots at each end for enabling the arms to be secured in common to a can having appropriately positioned peripheral openings, or the slots are used to secure brackets for nestingly receiving other types of cans. In the latter case, the arms are secured together by means of aligned openings and in the case of a snap-fitted can a retainer is secured in common to the arms for engaging the snap-fitted can. In addition, the arms are provided with appropriate recesses and openings for receiving caster stems and fastening means to avoid interference between the can and the caster stems.

3,831,960 PIVOTABLE SUPPORT FOR A CHAIR FOR SEMI-INVALIDS

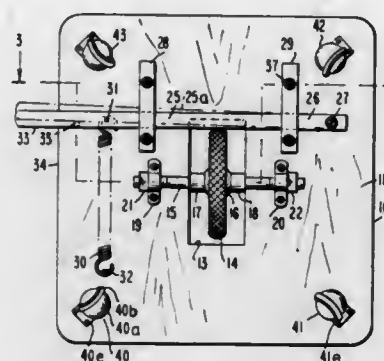
Nelson R. Walton, Tamaqua, Pa., assignor to Eugene S. Durigan, Lehigh, Pa., a part interest

Filed Nov. 27, 1972, Ser. No. 309,730

Int. Cl. B62b 5/00

U.S. Cl. 280-79.1

5 Claims



A rotatable support or platform is provided on which a chair may be placed and used by a semi-invalid or other partially incapacitated person and which may be turned or rotated by such person.

3,831,961 STEERABLE TANDEM AXLE SUSPENSION

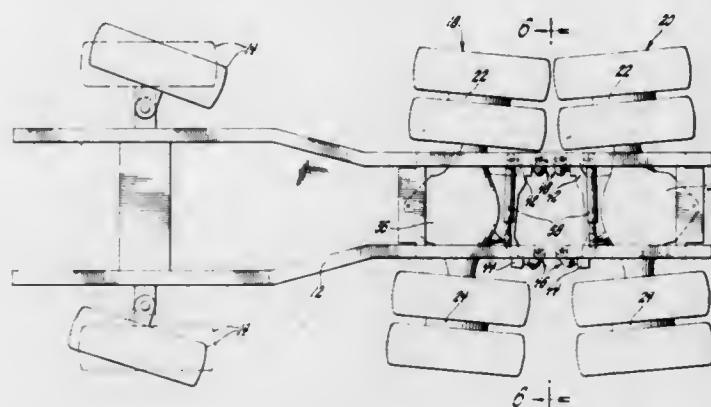
Henry A. Peller, Pepper Pike, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 12, 1973, Ser. No. 396,571

Int. Cl. B62d 13/02

U.S. Cl. 280-81 A

4 Claims



A steerable tandem axle suspension for supporting the rear end of a vehicle frame and including front and rear transversely extending axles each having rotatable wheels at the opposite ends thereof. Each of the axles is formed with a housing having an arm which projects in a direction away from the other axle and a steering cylinder is incorporated with each axle adjacent the other axle. The projecting arm of each axle is connected to the vehicle frame through a spherical connection and serves as a support therefor together with a pair of laterally spaced ride cylinders. The arrangement is such that upon actuation of the steering cylinders, each rear axle is pivoted about a vertical axis passing through the associated spherical connection to provide steering movement of the axles with the ride cylinders being positioned at angles favorable to increased side stability.

3,831,962 STEERABLE TANDEM AXLE SUSPENSION

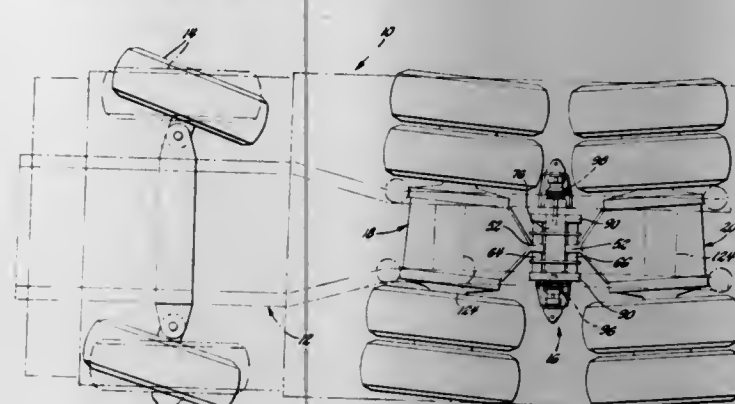
Dennis W. Cator, London, Ontario; Roger W. Campbell, Melbourne, Ontario, and Gerardus L. Felix, London, Ontario, all of Canada, assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 12, 1973, Ser. No. 396,572

Int. Cl. B62d 13/02

U.S. Cl. 280-81 A

4 Claims



A steerable tandem axle suspension for supporting the rear end of a vehicle frame and including first and second transversely extending rear axles each having rotatable wheels at the opposite ends thereof. Each of the axles is formed with a housing having an arm which projects towards the other axle and a steering actuator is located between the axles. The projecting arm of each axle is supported by the steering actuator while the axle housing has an upper portion thereof connected by a swivel assembly to the vehicle frame. The arrangement is such that upon movement of the steering actuator, each rear axle is pivoted about a vertical axis passing through the associated swivel assembly to provide steering movement of the axles.

3,831,963 STEERING ACTUATOR FOR TANDEM AXLES

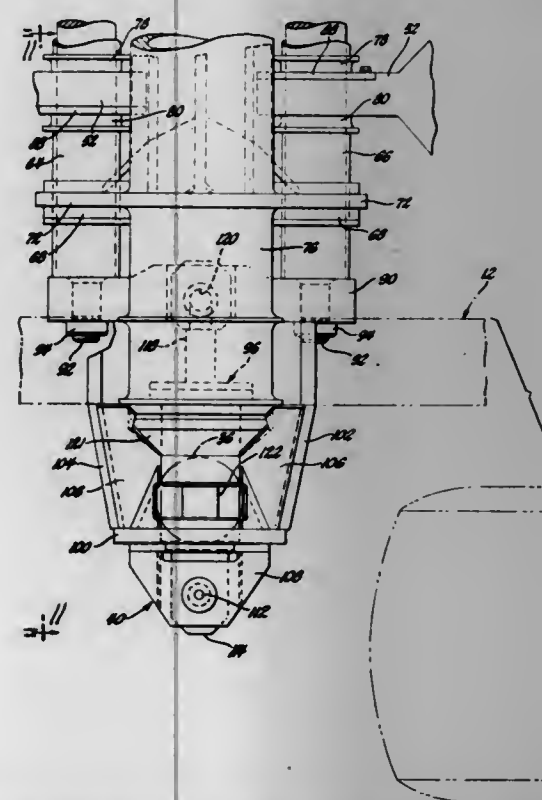
Roger W. Campbell, Melbourne, Ontario; Edvards B. Aukmanis, and Milan Placko, both of London, Ontario, all of Canada, assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 12, 1973, Ser. No. 396,574

Int. Cl. B62d 13/02

U.S. Cl. 280-81 A

3 Claims



A steering actuator for tandem axles in which each axle has a central portion connected to a vehicle frame for movement

about a vertical steer axis. The actuator includes a pair of parallel rods located between the axles and supported for conjoint axial movement along transverse axes. Each axle is joined through a spherical connection to one of the rods and power-operated means are provided for causing the rods to be shifted along their longitudinal axes for simultaneously rotating each axle about its vertical steer axis.

3,831,964 SWIVEL ASSEMBLY FOR STEERABLE AXLE

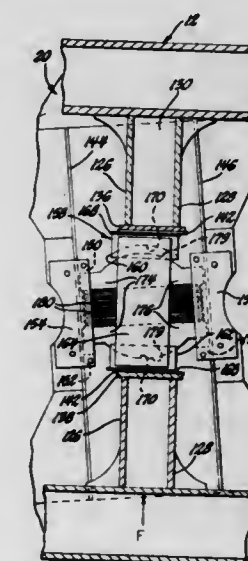
Roger W. Campbell, Melbourne, Ontario; Edvards B. Aukmanis, and Milan Placko, both of London, Ontario, all of Canada, assignors to General Motors Corporation, Detroit, Mich.

Filed Sept. 12, 1973, Ser. No. 396,573

Int. Cl. B62d 13/02

U.S. Cl. 280-81 A

4 Claims



A swivel assembly for connecting a transverse axle member to a vehicle frame member and adapted to be located in a slot formed in one of the members to allow the axle member to be steerable about a vertical steer axis and to oscillate about a horizontal axis. The swivel assembly includes a cushioning device having a plurality of resilient pad members for absorbing side loads on the vehicle.

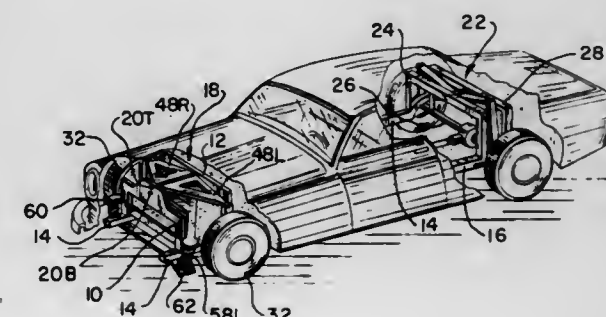
3,831,965 VEHICLE SUSPENSION SYSTEM

Charles V. Dickens, P.O. Box 544, Alamosa, Colo. 81101
Filed Jan. 15, 1973, Ser. No. 323,884

Int. Cl. B60g 3/04

U.S. Cl. 280-96.2 R

10 Claims



This invention relates to a suspension system for automotive vehicles and the like characterized by front and rear pairs of hingedly interconnected dogleg frame elements that coast with one another and with an overhead centrally located longitudinal hinge axis to minimize tilt and sway by transferring the sidewise loads inducing the latter across the vehicle to the springs on the opposite side.

3,831,966

AUTOMOBILE SUSPENSIONS

Albert Grosseau, Chaville/Hauts-de-Seine, France, assignor to
Societe Anonyme Automobiles Citroen, Paris, France

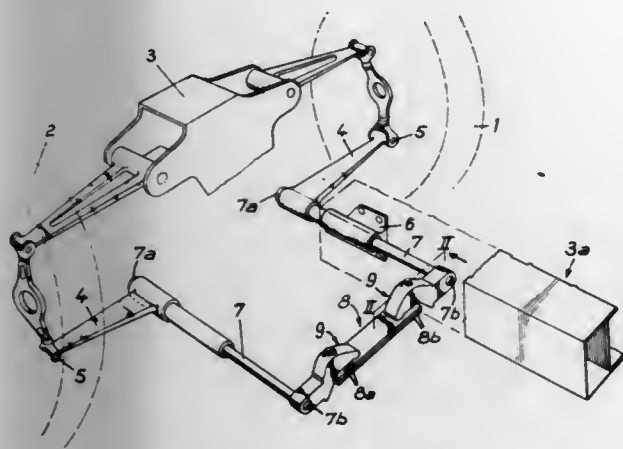
Filed June 19, 1972, Ser. No. 264,258

Claims priority, application France, June 23, 1971,
71.22914

Int. Cl. B60g 11/20

U.S. Cl. 280—124 B

8 Claims



This invention relates to a suspension of a group of wheels of a vehicle, comprising two wheels located respectively on either side of the longitudinal plane of this vehicle and two suspension devices, each being constituted by at least one anti-roll bar and belonging to one of the two wheels, whilst each wheel is connected to one end of its suspension device and an elastic member is fixed to each of the ends of the suspension devices opposite the ends connected to the wheels, by coupling means, which are distinct from said elastic member and which are constituted by a part comprising two support elements between which the elastic member is disposed and by a member for fixing the suspension device in question to said coupling means, wherein the part comprising the two support elements is constituted by an arm which is provided on the one hand with the fixing member, on the other hand with a swell constituting a first of the two elements for supporting said part on a first face of the elastic member, and by a tie-rod integral with the arm and provided with a shoulder which is distant from the face of the arm provided with the swell, disposed opposite the said face and which constitutes the second of the two support elements of the part on a second face of the elastic member, which is opposite the first afore-mentioned face of said elastic member. The suspension described is applicable in particular to the manufacture of automobile vehicles.

3,831,967

WHEEL SUSPENSION FOR VEHICLES

Rudolf Uhlenhaut, Stuttgart; Alfred Rothweiler, Esslingen-Hegensberg, and Erich Waxenberger, Neuhausen, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

Filed Oct. 24, 1972, Ser. No. 300,261

Claims priority, application Germany, Oct. 23, 1971,
2152962

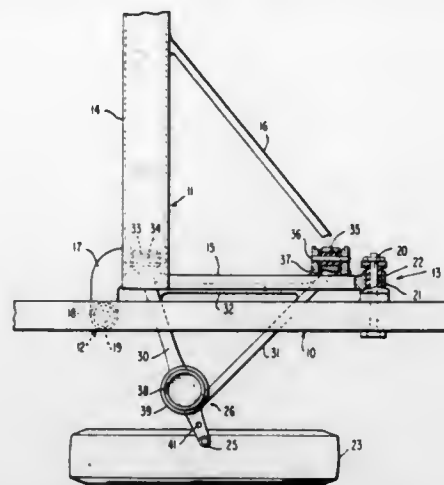
Int. Cl. B60g 3/10

U.S. Cl. 280—124 A

41 Claims

A wheel suspension for vehicles, especially for motor vehicles, in which each wheel of two wheels of a wheel pair disposed opposite one another are elastically supported at the vehicle superstructure by means of two superposed guide members or by means of one guide member and at least one further guide element with the use of a cross bearer member, itself elastically supported at the vehicle superstructure; only

those guide members of the two wheels of the wheel pair of wheels, which are loaded by the vehicle spring system are



thereby elastically supported on the cross bearer member independently of the other guide members which are then supported directly at the vehicle superstructure.

3,831,968

PRESSURE CONTROL VALVE DEVICE WITH A TWO-POSITION CAM ACTUATOR FOR CONTROLLING PRESSURE IN A VEHICLE AIR SPRING

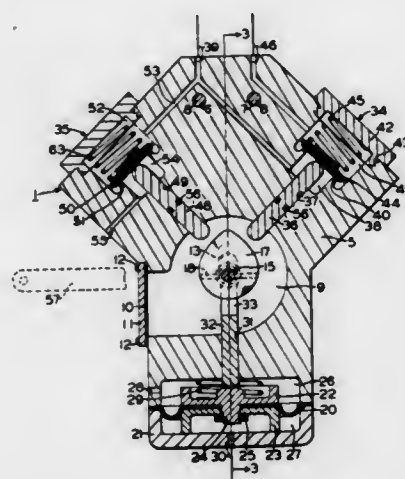
Ronald J. Shaffer, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed July 30, 1973, Ser. No. 383,908

Int. Cl. B60g 17/00

U.S. Cl. 280—124 F

10 Claims



This invention relates to a cam-actuated control valve device for so controlling pressure of fluid in an air spring for interposition between a sprung portion and an unsprung portion of a vehicle as to support the sprung portion at a substantially constant preselected height relative to the unsprung portion irrespective of the load carried by the sprung portion.

A supply valve and a release valve are operated by a cam to supply fluid under pressure to or release of fluid under pressure from the air spring accordingly as the cam is rocked in one direction or in an opposite direction from either one of a pair of neutral positions. The cam is moved from one neutral position to a second neutral position by a fluid motor subject to a brake applying fluid pressure whereby, in the absence of such pressure, limited arcuate or rocking movement of the cam in either direction from its one or corresponding neutral position, resulting from movement of the sprung portion relative to the unsprung portion in response to the shocks, jolts, vertical movement and sidewise rocking experienced by the body or sprung portion of the vehicle while traveling at high speed, is obtainable without effecting operation of either valve to change the pressure in the air spring. On the other hand,

upon the supply of the brake applying fluid pressure to the fluid motor, the cam is so positioned in its second neutral position that any degree of rocking in either direction from this second neutral position causes a change in the pressure in the air spring that is proportional to this degree of rocking.

3,831,969

SYSTEM FOR REGULATING THE HEIGHT OF THE BODY OF A VEHICLE ABOVE THE GROUND AND FOR INCLINING THE VEHICLE Laterally RELATIVE TO THE VEHICLE SUPPORTING MEANS

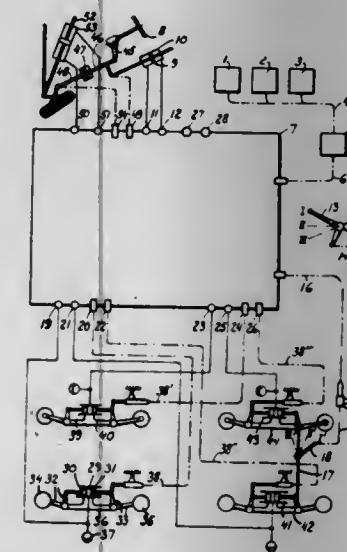
K. Julius Lindblom, Manhemsvagen 11A, 191 45, Sollentuna, Sweden

Continuation-in-part of Ser. No. 104,674, Jan. 7, 1971,
abandoned. This application Sept. 7, 1972, Ser. No. 287,049

Int. Cl. B60g 17/04

U.S. Cl. 280—124 F

14 Claims



A system or apparatus for regulating the height of a vehicle body relative to the ground and for tilting said body laterally in relation to its supporting means including a laterally movable weight which deviates from a desired attitude as a result of the forces acting therein. The weight actuates a distribution valve when moved from its neutral position to distribute pressure medium, responsive to the movement of the weight, to piston-cylinder means adapted to regulate the height of at least one side of the vehicle body in relation to the vehicle body support means. A height regulating valve actuated by means which sense the mean height of the vehicle above the vehicle supporting surface and which supplies pressure medium to piston-cylinders arrangement to effect lifting or lowering of said vehicle body also is provided.

3,831,970

FRONT WHEEL SUSPENSION FOR MOTOR VEHICLES

Alf Muller, Bittenfeld, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

Filed Aug. 15, 1973, Ser. No. 388,658

Claims priority, application Germany, Dec. 30, 1972,
2264300

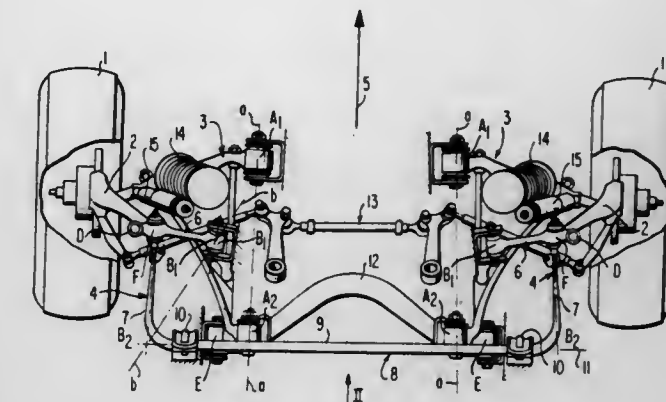
Int. Cl. B60g 11/50

U.S. Cl. 280—124 A

18 Claims

A front wheel suspension for motor vehicles with a wheel guide system formed by two superposed cross guide members on each side of the vehicle of which the lower cross guide member which has a pivot axis extending in the vehicle longitudinal direction includes a substantially transversely extending front arm and an obliquely rearwardly inwardly extending rear arm while the upper cross guide member includes a guide rod extending essentially in the vehicle transverse direction; the upper cross guide member thereby has a pivot

axis extending obliquely outwardly from in front toward the rear while a U-shaped torsion rod is connected with its for-



wardly extending arms to the corresponding guide rods of the upper cross guide members to thereby form in effect the associated rear guide arms of the upper cross guide members.

3,831,971

SAFETY BELT WINDING ENERGY ACCUMULATOR DEVICE FOR USE IN VEHICLES

Yuichiro Kaneko; Fuminori Teraoka; Tatsushi Kubota, and Takehiko Nishikawa, all of Aichi, Japan, assignors to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho, Nishikasugai-gun, Aichi-Dref., Japan

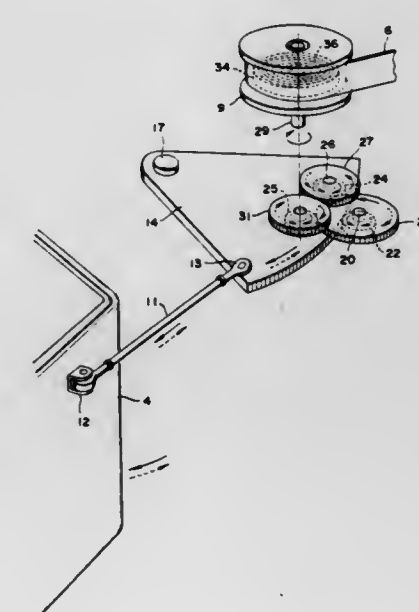
Filed Oct. 27, 1972, Ser. No. 301,491

Claims priority, application Japan, Nov. 4, 1971, 46-87870

Int. Cl. B60r 21/10

U.S. Cl. 280—150 SB

8 Claims



A safety belt winding energy accumulator device for use in a vehicle, which is so designed that when a door of the vehicle is opened and closed, energy is accumulated in a spiral spring through a transmission shaft which is driven by the door opening and closing operation or a motor, and the accumulated energy is supplied to a pulley having a tape connected thereto at one end, the other end of which is connected to a belt webbing, to rotate the pulley, whereby the belt webbing is drawn up from its engaging position by way of the tape.

3,831,972

INFLATABLE GAS CUSHION FOR PASSENGER PROTECTION OF VEHICLES, ESPECIALLY MOTOR VEHICLES

Rudolf Allgaier, Nagold; Luigi Brambilla, Sindelfingen, and Hansjürgen Scholz, Echterdingen, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Germany

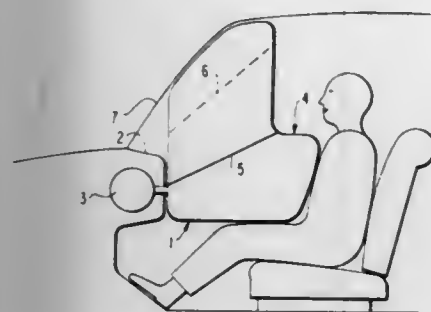
Filed Oct. 6, 1972, Ser. No. 295,572

Claims priority, application Germany, Oct. 8, 1971, 2150257

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

4 Claims



An inflatable gas cushion for the protection of the passengers of vehicles, especially of motor vehicles, in which the side of the inflatable gas cushion facing the user is constructed off-set step-shaped in such a manner that an impact surface for the head of the user which is formed thereby is essentially horizontal or only slightly inclined with respect to the horizontal when the gas cushion is inflated.

3,831,973

VEHICLE OCCUPANT RESTRAINT SYSTEM

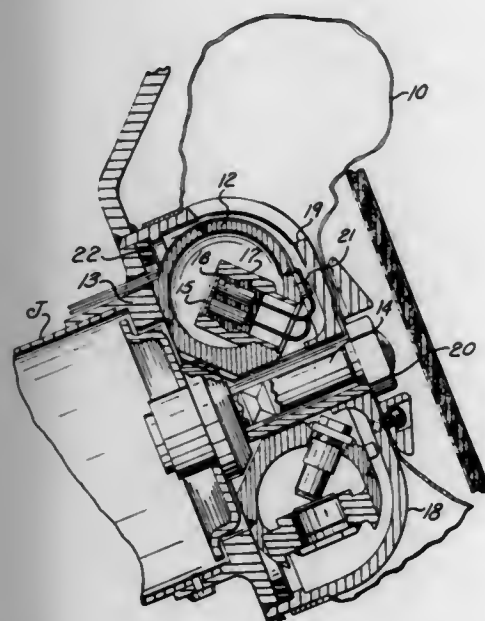
George B. K. Meacham, Birmingham, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 8, 1972, Ser. No. 313,283

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

6 Claims



A safety system for vehicle driver restraint of the type using a collapsed inflatable confinement mounted on the steering column. The confinement is inflated by a collision sensor-actuated explosive charge which activates a fluid pressure source in one embodiment and fluid is discharged to the confinement through a diffuser disposed centrally and annularly about the reservoir. The annular fluid source is nonrotatably attached to the steering column mast jacket and a rotary fluid pressure seal is provided between the diffuser and the steering column mast jacket. In one embodiment of the invention, the

fluid pressure supply is a solid propellant gas generator non-rotatably mounted to the steering column mast jacket. In another embodiment, the fluid pressure source is a toroidally shaped reservoir containing fluid stored under pressure.

3,831,974

PASSIVE RESTRAINT BELT ARRANGEMENT FOR A VEHICLE OCCUPANT

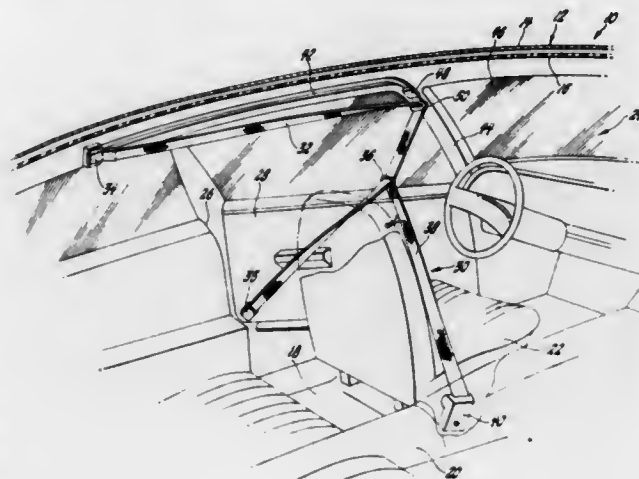
Charles M. Keppel, Holly, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 1, 1973, Ser. No. 366,169

Int. Cl. B60r 21/02

U.S. Cl. 280—150 SB

2 Claims



A vehicle body occupant restraint belt arrangement in which a restraint belt has one end secured to the lower rearward portion of a vehicle door and has its other end secured to the vehicle roof rearward and outboard of a seat adjacent the door. A control member is slidable along the intermediate portion of the restraint belt and attaches one end of a control belt whose other end is received by a vehicle sensitive inertia locking belt retractor positioned inboard of the seat adjacent a lower rearward seat portion. The retractor normally retracts the control belt to pull the control member inward and thereby defines the restraint belt into lap and shoulder belt portions positioned across a seated occupant in a restraining position when the vehicle door is closed. A guide along the upper edge of the door opening mounts a slide member that is movable forwardly and rearwardly by a drive mechanism responsive to an operative condition of the vehicle. The drive mechanism moves the slide member rearwardly when the vehicle is placed in this operative condition so that the belt arrangement moves without any deliberate occupant effort to the restraining position when the door is closed. When the vehicle ceases to be in this operation condition, the drive mechanism moves the slide member forwardly and moves the restraint belt to a generally forwardly pointing easy-enter position so as to free the occupant. Door opening movement then moves the lower portion of the restraint belt to an outwardly extending inclined configuration so that the control member slides upwardly on this belt portion and lifts the control belt to afford an occupant convenient egress from or ingress to the vehicle body free of the belt arrangement.

3,831,975

SAFETY DEVICE FOR MOTOR VEHICLES

Leon Mednikow, 290 9th Ave., New York, N.Y. 10001

Filed Sept. 17, 1973, Ser. No. 397,981

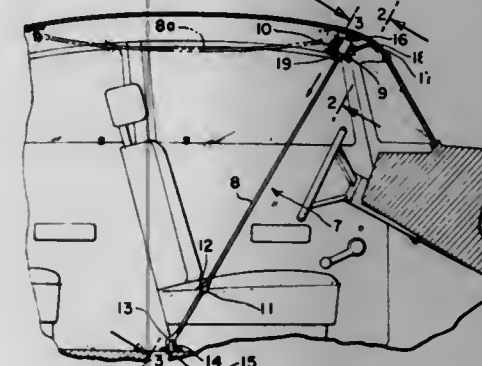
Int. Cl. B60r 21/10

U.S. Cl. 280—150 B

4 Claims

This invention is directed to a safety device for a motor vehicle such as an automobile, a truck or truck cab, a speed boat, an air plane, or the like, which in a preferred embodiment the front seat passenger's seat and driver's seat is made more safe against fatal accidents or injuries of a severe nature to passenger and/or driver in major impact collisions involving

the motor vehicle, the safety device being a safety net which extends between two guide wires extending from a forward overhead ceiling of the automobile to a rearwardly lateral position on either side of the seat along which paired parallel guide wires the net is slidable to open-up the net, the top of the net being anchored at the top of the guide wires or flexible cables and between the guide wires while the base of the net slides down the guide wire, each side of the seat bringing the base of the net and a steel cord having appropriate padding therearound across the lap in the nature of a seat belt, and at the base of the net on each guide wire there being a snap device such that when the net drops it will be locked into the down position but the locking device being an easily releasable locking device for ease in escaping from the net in the event of a serious accident to avoid accidental trapping of the passenger or driver within the automobile compartment (for



example) in the event of fire. The release of the net is brought about or actuated by preferably an inertia switch registering impact above a predetermined level. Also in a preferred embodiment there is included a cartridge element associated with the release mechanism for the net such that upon impact and the predetermined amount of inertia the cartridge is fired to propel the base of the net downwardly thereby increasing the speed with which the net drops and also avoiding any possibility of the net not dropping because offward momentum of the net and therefore friction along the guide members and/or torque in an upward direction. The net as it drops, drops slightly rearwardly of the steering wheel in a preferred embodiment, but forwardly of the upper body and face of the driver and the front-seat passenger, while the steel strap extending along the base of the net serves to further facilitate inhibition of or against the body of the person(s) being thrown forwardly from the seated position.

3,831,976

CARGO TIE-DOWN SYSTEM

Ray J. Iden, Sr., 6744 N. Lightfoot Ave., Chicago, Ill. 60646

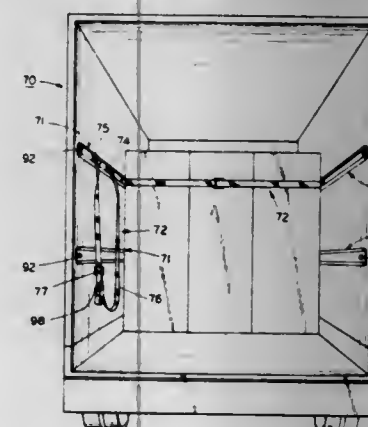
Continuation-in-part of Ser. No. 160,773, July 8, 1971,

abandoned. This application Nov. 17, 1972, Ser. No. 307,576

Int. Cl. B60p 7/00

U.S. Cl. 280—179 A

8 Claims



A cargo tie-down system includes elongated tracks in which a plurality of fittings to which flexible straps are connected are

slidably and irremovably mounted therein for preventing unauthorized removal of the fittings and straps.

3,831,977

SELF-PROPELLING VEHICLE

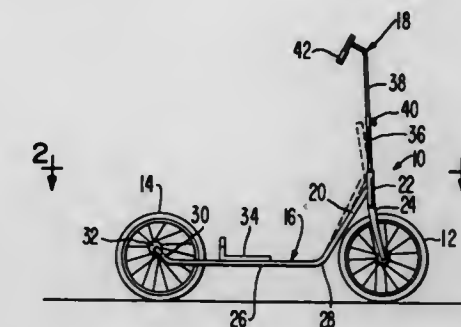
David E. Osborne, 14556 Harvard Ct., Los Altos Hills, Calif. 94022, and Harold M. Knoerle, 950 Continental Dr., Menlo Park, Calif. 94025

Filed June 14, 1972, Ser. No. 262,862

Int. Cl. B62m 1/00

U.S. Cl. 280—229

7 Claims



A vehicle of the type wherein the rider shifts his body up and down to drive an eccentrically mounted wheel mounted on the rear end of a frame composed of a pair of spaced, resilient bars. Each bar has a front, forwardly inclined segment integral with a respective central segment, each front segment being displaceable rearwardly relative to the corresponding central segment to add to the torque applied to the rear wheel during the acceleration phase of each revolution thereof. Adjustable handlebar means is coupled with the front wheel of the vehicle.

3,831,978

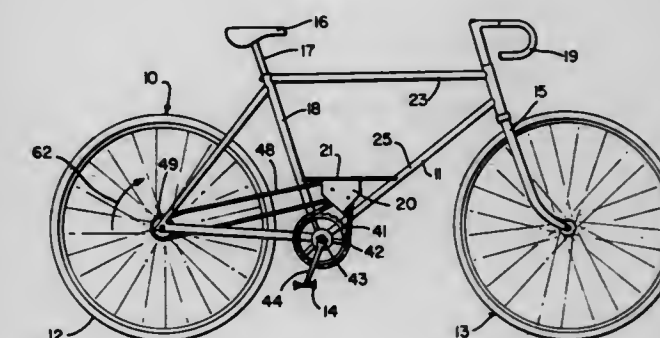
DRIVE TRANSMISSION FOR A BICYCLE OR THE LIKE
David Dunder, Glendora, and Sheldon Wiley, Los Gatos, both of Calif., assignors to Trans World Products, Inc., San Jose, Calif.

Filed Mar. 12, 1973, Ser. No. 340,194

Int. Cl. B62m 23/00

U.S. Cl. 280—238

12 Claims



A drive transmission for a bicycle or the like including a housing having a pair of spaced shafts journaled for rotation within the housing. A sprocket is fixedly secured to each of the shafts and a plurality of spaced cams are mounted off-center on one of the shafts for rotation with respect to the shaft on which they are mounted. A like number of spaced one-way clutches are mounted on the other shaft for free rotation in one direction with respect to the other shaft and fixed rotation in the other direction with respect to the other shaft. The clutches are aligned with their respective cams and resilient means interconnect each of the clutches with its aligned cam. In this manner, when the sprocket on the shaft having the cams thereon is rotated, such as by a bike pedal connected thereto, the clutches are turned in the one-way direction for a short distance on their respective shafts due to the intercon-

necting resilient means. If a resistance to turning is placed on the shaft having the clutches thereon, such as by interconnection of the rear wheel of a bike to the sprocket thereon, more tension is placed on the resilient means than it can overcome. Accordingly, the resilient means, which may be either an extension or compression spring, extends or compresses to rotate clutches to a lesser degree, thereby automatically changing the turning ratio between the pedal sprocket and the rear wheel.

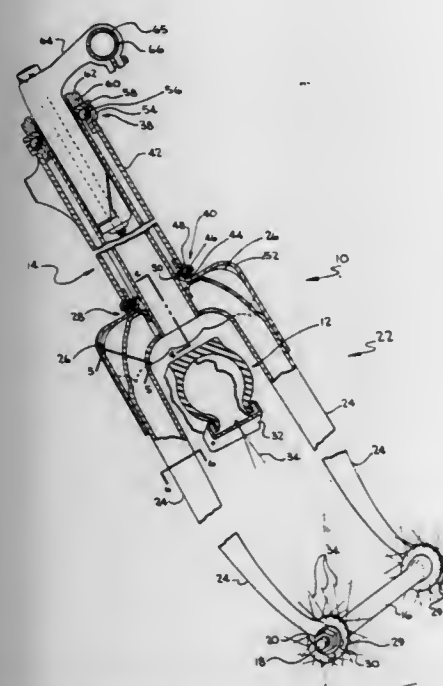
3,831,979

STEERING ASSEMBLY

Martin R. Baginski, Austinburg Township, Ohio, assignor to Ashtabula Bow Socket Company, Ashtabula, Ohio
Filed Nov. 4, 1971, Ser. No. 195,620
Int. Cl. B62k 21/04

U.S. Cl. 280—279

16 Claims



This disclosure relates to a steering assembly for supporting the wheel of a wheeled vehicle for steering movement relative to the frame of the vehicle. The steering assembly includes a tubular member having a central portion, end portions for supporting the wheel of the wheeled vehicle and corner portions connecting the end portions to the central portion. Each of the end portions of the tubular member are formed at an angle with respect to the central portion. The one piece tubular member has continuous inner and outer surfaces along the extent of the corners. The corners have gusset means for reinforcing the corner portions to resist deformation thereof. The central portion of the tubular member has an opening therethrough for receiving the post. The steering assembly also provides means for securing the post to the tubular member. The opening in the tubular member has a portion thereof defined by a surface which is continuous with the outer surface of the central portion. The steering assembly also includes a cap which has an inner surface positioned adjacent to the outer surface of the central portion of the tubular member. The cap has an opening therethrough which is coaxial with the opening of the tubular member and is defined by a post receiving surface continuous with the inner surface of the cap. The cap has an outer surface portion for receiving bearing means thereon to provide a rotational mounting between the wheeled vehicle frame and the steering assembly.

3,831,980

TOW BAR MEANS

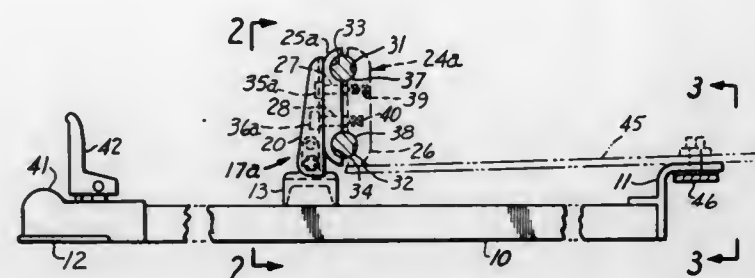
August A. Kniff, 137 S. Eucla, San Dimas, Calif. 91773
Filed Dec. 13, 1972, Ser. No. 314,740
Int. Cl. B62d 53/04

U.S. Cl. 280—402

5 Claims

There is disclosed a tow bar device for towing a four-wheeled vehicle. The tow bar has a tongue at the rear for en-

gagement with a yoke attached beneath the vehicle and a cross-bar at the position of the front end assembly with upstanding supports at the ends of the cross-bar. The upstanding



3,831,981

TOWING CONNECTIONS

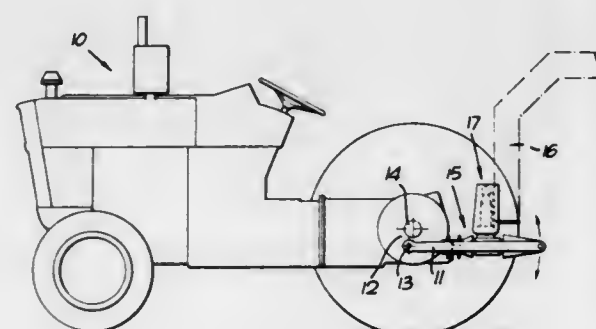
Harold George Poole, Aspenden House, Aspenden, England
Filed Nov. 29, 1972, Ser. No. 310,580

Claims priority, application Great Britain, Nov. 30, 1971, 55545/71

Int. Cl. B60d 1/00

U.S. Cl. 280—479 R

8 Claims



A towing connection comprises two conventional power operated vertically moving swing arms on a tractor between which a first part is mounted to pivot about an axis extending fore and aft of the vehicle. A second part mounted on a tractor is rotatably supported on the first part for rotation about an upright axis. A locking device holds the first and second parts together so that the connection is rigid in a vertical plane and articulation in a vertical plane takes place at the attachment points of the lift arms to the tractor.

3,831,982

UNIVERSAL COUPLING

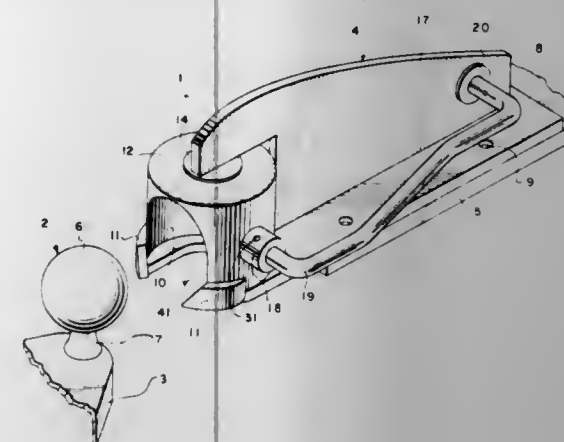
Brian M. Bernhardt, 1226 Bardfield St., Dallas, Tex. 75041, and Edward A. Genzel, 1317 Larry Dr., Dallas, Tex. 75041
Filed Aug. 8, 1972, Ser. No. 278,756
Int. Cl. B60d 1/06

U.S. Cl. 280—511

5 Claims

A spherical coupling that utilizes a ball structure attached to one part to be coupled, and a socket structure that attaches to the other part to be coupled. One embodiment of the improvement structure disclosed utilizes a front opening housing hav-

ing a stationary cam therein and a rotating outer shell that engages the ball and causes it to seat in the socket upon rotation



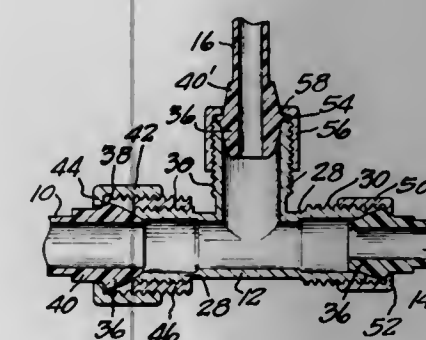
3,831,983

PLUMBING CONNECTION

Charles F. Stickler, 57455 Poppy Rd., South Bend, Ind. 46619
Filed July 20, 1973, Ser. No. 381,253
Int. Cl. F16l 41/00

U.S. Cl. 285—12

5 Claims



A plumbing connection wherein preformed tubes of a selected range of diameters cooperate with a connecting member having a passage of standard diameter. The tubes of all sizes in the selected range have tapered ends, each of whose outer small diameter portions is receivable in said passage and whose innermost large diameter portion is of a diameter greater than the diameter of the passage. Each tube carries slip nuts for pressing said tapered tube ends into circumferential sealing engagement with a connecting member when abutting the large end of a tapered tube portion and screw threaded on said connecting member.

3,831,984

QUICK DISCONNECT COUPLING

Thomas J. Kutina, Mentor-on-the-Lake; James P. Staten, North Madison, and Sydney L. Kershaw, South Euclid, all of Ohio, assignors to Parker-Hannifin Corporation, Cleveland, Ohio

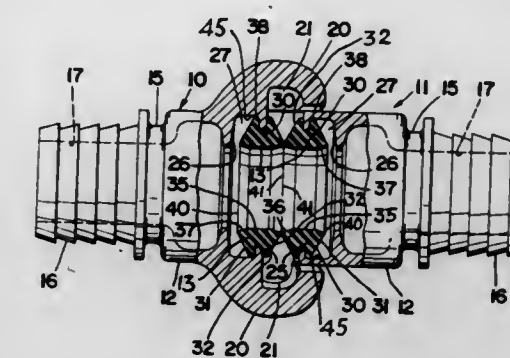
Filed Nov. 8, 1971, Ser. No. 196,629
Int. Cl. F16l 37/24

U.S. Cl. 285—73

2 Claims

A quick coupling comprising a pair of coupling elements adapted to be connected to each other, each element having a deformable annular gasket retained on an intumed flange at an end of the element for sealing engagement with each other at their outer end faces when the coupling elements are connected. The outer and inner end faces of the gaskets are frusto-conical and the gaskets are symmetrical about a central plane so as to be reversible. The gaskets at their inner ends have an initial clearance with transverse and circumferential

walls of the coupling elements to permit rocking of the gaskets about the flange whereby during axial connecting movement of the two elements the frusto-conical outer gasket faces rock and deform into a planar position with a minimum of mass deformation during a major part of the connecting movement



3,831,985

PIPE CONNECTION

Albertus Anthony Oostenbrink, Hardenberg, Netherlands, assignor to Industriële Onderneming Wavin N.V., Zwolle, Netherlands

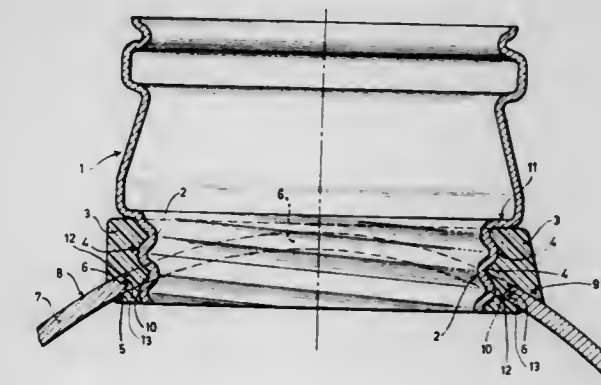
Filed Jan. 4, 1972, Ser. No. 215,293

Claims priority, application Netherlands, Jan. 8, 1971, 7100263

Int. Cl. F16l 41/00

U.S. Cl. 285—162

4 Claims



Pipe connection comprising a pipe and a branch pipe being connected by means of a sleeve having an inner helical profile corresponding to the profile of the branch pipe and a groove for receiving the edge of an opening in the pipe.

3,831,986

CONTAINER HAVING MAGNETIC AND LATCH FASTENING MEANS

Sanzo Kobayashi, No. 34-9, Ryusen 3-chome, Tokyo, Japan (110)

Filed Aug. 9, 1972, Ser. No. 279,182

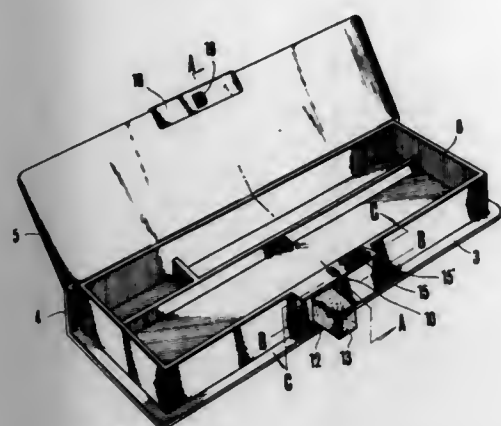
Int. Cl. E05c 3/06

U.S. Cl. 292—201

8 Claims

A container such as a pencil case comprises a bottom tray and a cover which is engagable over the tray and which is advantageously pivotally connected to one side thereof and is positionable in a closed position in which an eyelet portion of a latching mechanism is engaged within a receiving opening of a hollow space in which a latch member is pivotally mounted. The device includes magnetically operable latch means for locking the cover into position closing the tray and which includes the eyelet on one of the parts, e.g., the cover and a

hook mounted in a recess of the other part, i.e., the bottom portion. Spring means are associated with the latch for biasing it toward one of the operating positions, e.g., a latched or closed position and a magnet is employed which may be inserted into a receiving recess of the case for moving the latch to the other of the positions, e.g. an open position. The cover



advantageously includes an additional magnet for holding a plate secured on the cover part in a magnetically closed position. The container advantageously includes an outer cover wall part covering at least some of the inner walls thereof and the top or lid is hinged to the outer portion of the double wall of the part.

3,831,987

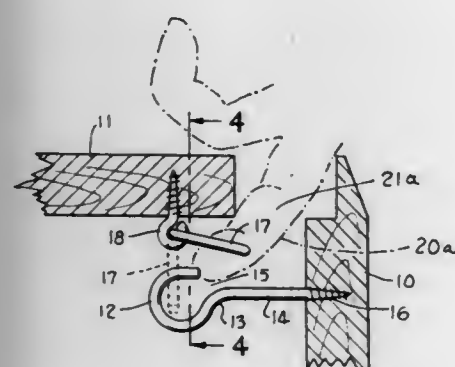
SAFETY FASTENING DEVICE

Ernest L. Misenheimer, III, Rt. 1, Box 60-D, Valdese, N.C. 28690

Filed Mar. 9, 1973, Ser. No. 339,898

Int. Cl. E05c 3/04

U.S. Cl. 292-246



A safety fastening device for use in preventing opening of a storage compartment by a young child and the like has a partially open hook with a shank defining an opening on one side of the shank between the shank end and a free end of the hook and means for suspending a ring from an upper surface of the frame so that the ring extends pivotally downwardly therefrom toward said hook and extends transversely thereof across the opening so that when the closure is partially opened the ring will pass through the opening and be received upon the hook as to require lifting by an instrument inserted through a partially open frame before the frame can be fully opened.

3,831,988

STRIKE PLATE/FACE PLATE FOR DOOR LATCHES

Gerard N. Stelma, Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich.

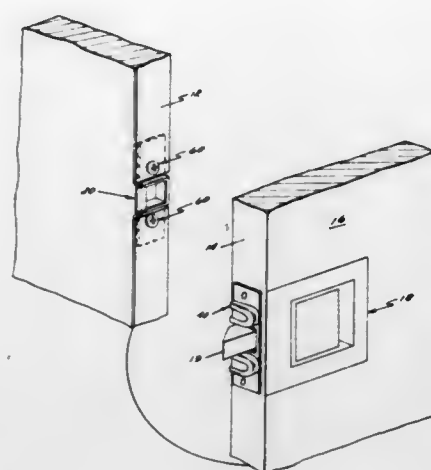
Filed Jan. 23, 1973, Ser. No. 325,992

Int. Cl. E05c 1/06

U.S. Cl. 292-302

A strike plate/face plate combination especially adapted for use with vehicular doors which are subjected to multi-

directional forces tending to both separate the door and door jamb and swing open the door. A low-profile strike plate includes adjustable, shouldered screws which engage an oppos-



3,831,989

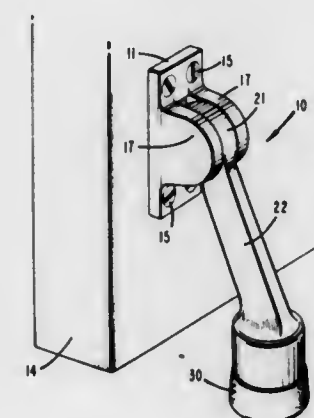
DOOR STOP

Vernon W. Gurzenda, Parsons Hill, Somerset, Pa. 15501

Filed June 8, 1972, Ser. No. 260,803

Int. Cl. E05c 17/44

U.S. Cl. 292-338



A detent spring for holding an arm adapted to be moved in a vertical arc and a door stop having the usual pivoting arm in combination with said spring, said spring holding the arm in adjusted positions and holding the arm within a base attached to the lower portion of a door.

3,831,990

BUMPER GUARD AND SIDEWALL PROTECTOR

Bhupindar Singh, Northridge, and Donald A. Swauger, Chatsworth, both of Calif.

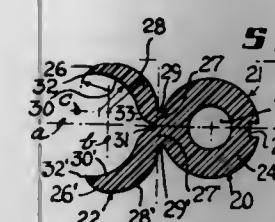
Filed July 26, 1973, Ser. No. 382,905

Int. Cl. B60r 19/00

U.S. Cl. 293-1

A unitary homogenous structure of resilient material on the order of rubber, neoprene and the like in the form of an im-

part absorbing bead on an integral mounting base in which a pair of adhesive bearing crescent-like skirts extend symmetrically rearwardly from the bead at hinge-like segmental por-



tions and tend to have internal stresses when pressed into adherence with any surface on a vehicle body to cling thereto for securing such bead in a foremost impact receiving position therefrom.

3,831,991

APPARATUS AND SYSTEM FOR GAINING ACCESS TO CONFLAGRATIONS

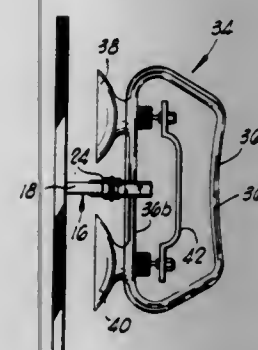
John R. Lukeman, 2809 N.W. Expwy., Oklahoma City, Okla. 73112

Filed Jan. 12, 1973, Ser. No. 322,953

Int. Cl. A47f 7/00

U.S. Cl. 294-64 R

5 Claims



An apparatus for maintaining ready availability of a lifter tool adapted to lift flat floor panels to expose a fire therebeneath, the apparatus consisting of a flat mounting plate adapted for securement to a wall or other vertically extending surface, a clip bracket centrally secured on said plate, and a lifter tool having a pair of spaced lifter elements occupying substantially the same plane, and interconnected by a bridging handle member frictionally engaged by the bracket in a position to face the lifter elements toward the plate. The invention further includes the described apparatus in combination with a room including a vertical wall upon which said apparatus is mounted by securement of the mounting plate thereto, a fire extinguisher exposed on said wall adjacent said apparatus, and a floor in the room comprising a plurality of flat panels supported above a sub-floor to define therewith a space containing electrical cables connected to a computer disposed in the room.

3,831,992

ROLL HANDLING APPARATUS

Dale H. Francois, Salem, Ill., assignor to American Chain & Cable Company, Inc., New York, N.Y.

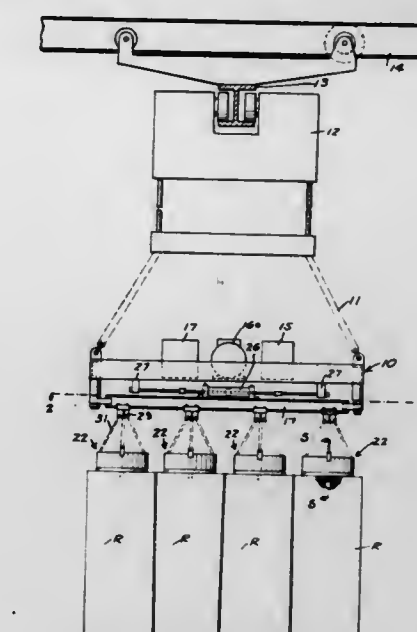
Filed Jan. 26, 1973, Ser. No. 326,613

Int. Cl. B66c 1/02

U.S. Cl. 294-65

An apparatus for handling rolls of wound material which comprises a frame on which a plurality of roll supporting heads are adjustably mounted. Each head is of the vacuum

58 Claims



gages the opening in the center of the end of the roll whereupon the head is actuated to cause vacuum to be applied for lifting the roll.

3,831,993

SPREADER BEAM FITTING

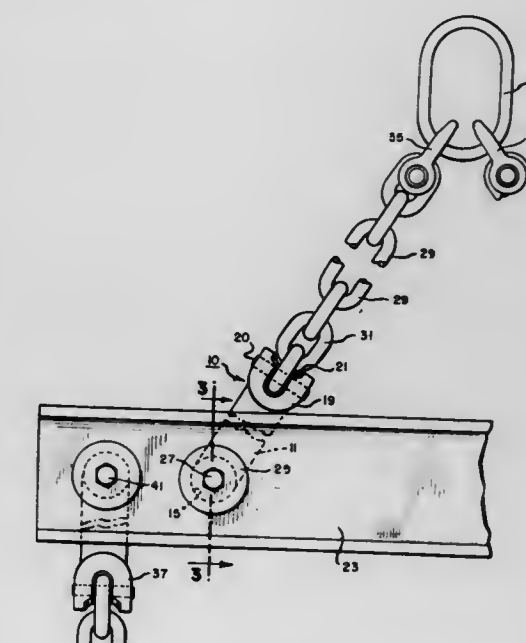
Walker E. Drayton, and Elwood L. Krout, both of York, Pa., assignors to American Chain & Cable Company, Inc., New York, N.Y.

Filed Mar. 15, 1972, Ser. No. 235,004

Int. Cl. B66c 1/16

U.S. Cl. 294-81 R

4 Claims



This invention relates to a spreader beam assembly in which a pair of steel channels are arranged back to back in spaced relation to one another to form a beam. A beam fitting is positioned at each end of the beam in the space between the steel channels. The beam fitting includes an elongated arm with a bridle fitting at one end thereof to which a bridle chain is secured. The other end of the fitting is terminated in a boss portion which has a hole therethrough. The boss portion is inserted through aligned holes in the steel channels with the boss thereby supporting the weight of the steel channels and the force exerted on the channels by the object being hoisted. Bridle chains are attached to the bridle fitting portion of each beam fitting and are secured to a master link at the opposite end thereof by means of a coupler. A similar beam fitting is secured at each end of the beam to which are attached dropper chains which support the load being hoisted.

3,831,994

SAFETY HOOK

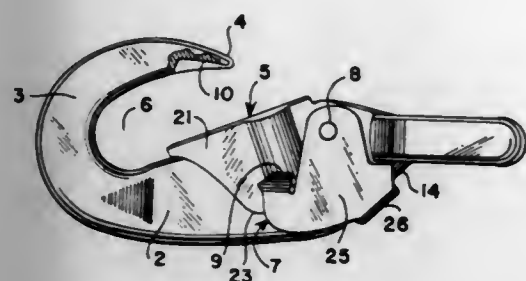
Robert Martin, Fort Smith, Ark., assignor to United States Forgcrafft Corporation, Fort Smith, Ark.

Filed June 4, 1973, Ser. No. 366,269

Int. Cl. B66c 1/36

U.S. Cl. 294-82 R

6 Claims



A safety hook for use in lashing equipment, load supports, safety harness, and the like, include a hook having a shank and a latch member mounted on a pin having its axis transversely of the hook shank and having a tongue engaging the hook nose to normally prevent removal of a connector engaged with the hook. The latch member has a portion engageable by a keeper in first position to prevent opening a hook portion of the shank. The keeper is movable transversely of the shank to a second position to release the latch member for movement thereof for access through the hook opening. Resilient members urge the latch member and keeper toward hook closing positions and maintain same therein until favorably maintained. The latch member and the keeper are movable in substantially normal or perpendicular planes whereby simultaneous accidental movement of both is highly unlikely.

3,831,995

UNCASER CUP

Alex R. Duncan, Scarborough, Ontario, Canada, assignor to The Molson Companies Limited, Rexdale, Ontario, Canada

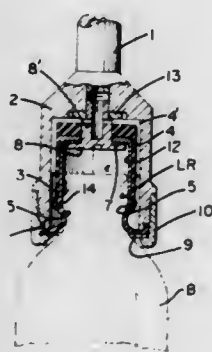
Filed Aug. 8, 1973, Ser. No. 386,808

Claims priority, application Canada, June 8, 1973, 173614

Int. Cl. B66c 1/46

U.S. Cl. 294-90

3 Claims



The invention relates to a bottle pick-up device where a rubber liner within a cup or holder is inflated by air so as to grip the top of the bottle with a metal insert being located within the liner so that inflation of the latter will only occur at its lower operative end instead of throughout its length thereby effecting a more positive gripping action between the top of the bottle and the rubber liner.

3,831,996

STRETCHER SUPPORT ARRANGEMENT ESPECIALLY FOR AMBULANCES

Siegfried Layer, Lorch/Wuerttemberg, Germany, assignor to Binz & Co., Lorch/Wuerttemberg, Germany

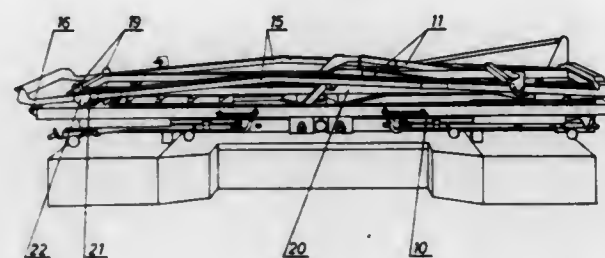
Filed Jan. 4, 1973, Ser. No. 321,043

Claims priority, application Germany, Jan. 8, 1972, 2200814

Int. Cl. A61g 1/00

U.S. Cl. 296-19

14 Claims



A stretcher support arrangement for ambulances in which a stretcher support frame is mounted movable between a substantially horizontal rest position located within the ambulance and an extended position partly outwardly withdrawn therefrom and with the outwardly extending end downwardly tilted on frame means fixed to the floor of the ambulance. Links guided in guide rails are connected to the stretcher support frame to move the latter automatically to its tilted position when the support frame is pulled towards its extended position.

3,831,997

CONTROLLED COLLAPSE VEHICLE FRONT END STRUCTURE

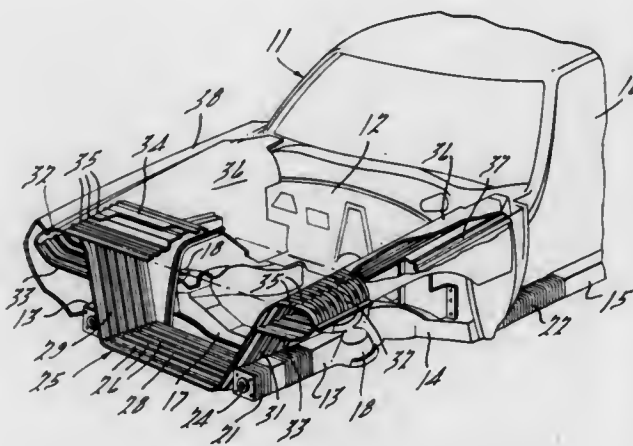
Robert A. Myers, Garden City, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 22, 1973, Ser. No. 343,744

Int. Cl. B62d 25/00

U.S. Cl. 296-28 R

4 Claims



A controlled collapse vehicle front end structure comprising a laterally corrugated loop means extending from the front end of the vehicle frame structure toward the dash panel. Upon a high speed frontal impact, the corrugations fold flat upon themselves providing longitudinal deformation with a constant load rate.

3,831,998

AUTOMOBILE CONSTRUCTION FOR SAFETY OF OCCUPANTS

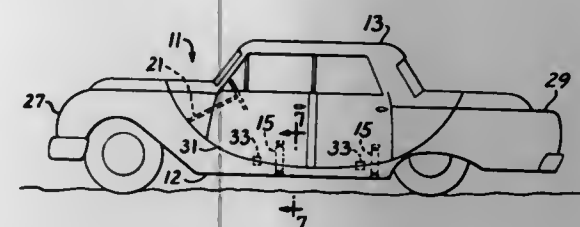
Harlan D. Hewitt, 1210 Astor St., Chicago, Ill. 60610

Filed Mar. 13, 1972, Ser. No. 234,080

Int. Cl. B62d 1/18, 27/06

U.S. Cl. 296-35 R

9 Claims



A safety construction for vehicles wherein a separable passenger compartment is releasably secured to a chassis, a bumper and chassis interlock tie colliding vehicles together as a unit, and a sectioned steering post collapses upon separation of the passenger compartment from the chassis.

3,831,999

LOST MOTION CONNECTION MEANS FOR HYDRAULIC PISTON-CYLINDER DEVICE

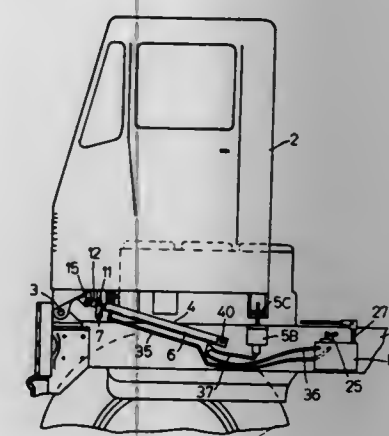
Lambertus Johannes Sonneborn, Oldenzaal, Netherlands, assignor to Applied Power Inc., Milwaukee, Wis.

Filed Dec. 6, 1972, Ser. No. 312,486

Int. Cl. B62d 27/06, 33/06

U.S. Cl. 296-35 R

13 Claims



A hydraulic piston-cylinder device or tilt cylinder for tilting a truck cab relative to its chassis to permit access to the engine positioned below the cab comprises lost motion connection means which permit the main piston to remain stationary relative to the cylinder while permitting slight relative movement of the cab and chassis. One end of the cylinder is pivotally connected to the truck chassis by a pin. The cab is provided with a fixed cylindrical pin for connection to the free end of the piston through the lost motion connection means. In one embodiment, the pin slidably engages a slot provided in a connecting member rigidly secured to the free end of the main piston. In a second embodiment, the pin is connected to a cylindrical hole in the connecting member or sleeve which is slidably mounted on the free end of the piston and the connecting member and is further provided with a slot engageable with another cylindrical pin rigidly secured to the free end of the main piston. In a third embodiment, the connecting member is in the form of a small piston which is slidable in an axial bore provided in the free end of the main piston and the free end of the small piston is provided with a cylindrical hole for engagement with the pin on the cab. The fourth embodiment resembles the third embodiment in comprising a small piston but further comprises a fluid passage in the main piston interconnecting the axial bore and the cylinder and further comprises a free hydraulic piston slidably mounted in the bore between the small piston and the port of the passage.

3,832,000

VEHICLE SAFETY SYSTEM

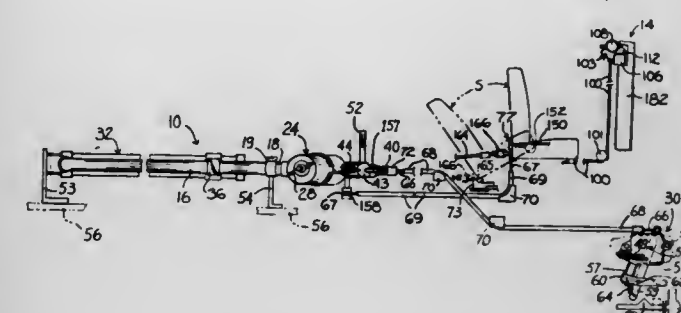
Leo G. McDonnell, 19917 Kinloch, Detroit, Mich. 48240

Filed Jan. 4, 1973, Ser. No. 320,991

Int. Cl. B60r 21/08

U.S. Cl. 296-65 A

18 Claims



In a vehicle safety system for achieving vehicle safety for occupants upon collision of the vehicle, vehicle safety method comprising providing a force capable of moving a vehicle seat and any occupant thereof axially of the vehicle, latching the vehicle seat against the axial movement, latching both a spring powered pulling force and a fluid powered pulling force, both said last-mentioned pulling forces operative upon each other to augment their individual pulling forces, said last-mentioned pulling forces capable of being latched against operation, latching said last-mentioned pulling forces against operation until a collision of the vehicle occurs, sensing a collision of said vehicle, simultaneously unlatching in response to said sensing both the last-mentioned pulling forces upon the happening of the collision, and utilizing the operation of at least one of the last-mentioned pulling forces to unlatch the vehicle seat so that the latter can be moved axially of the vehicle by the force thereon.

3,832,001

COMBINATION OFFICE FURNITURE

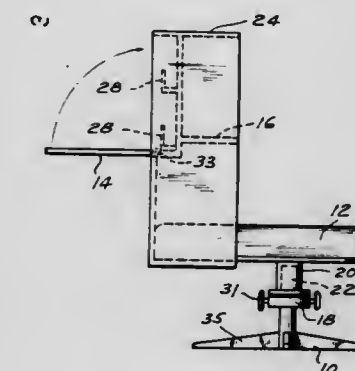
Charles B. Robinson, Lexington, Mass., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Apr. 19, 1973, Ser. No. 352,435

Int. Cl. A47c 7/62

U.S. Cl. 297-188

1 Claim



A combination desk, bookshelf, and ottoman mounted on a base that allows the device to rotate. On one side of the ottoman, a bookshelf is attached. The back of the bookshelf forms a concealed desk top in the form of an extendable rotatable leaf.

3,832,002

AUTOMOTIVE RESTRAINT SYSTEM

Walter S. Eggert, Jr., Huntington Valley, and Michael J. Pavlik, Norristown, both of Pa., assignors to The Budd Company, Troy, Mont.

Filed Mar. 21, 1973, Ser. No. 343,321
Int. Cl. B60r 21/10

U.S. Cl. 297—216

12 Claims



Vehicle seat safety system in which the occupant or passenger is closely restrained in the seat; the seat back is yieldably restrained in attenuation at a first and lower impact range for forward tilting movement with the occupant; and the seat is yieldably restrained in attenuation at a second and higher range for forward movement of the body and seat as a whole—to first allow the upper portion of the body or torso to move forward under lighter impact loadings, and to allow the body as a whole to move forward under greater impact loadings and thus to minimize, as far as possible, the impact loads on the body and to reduce forward and reverse or snap-back loads on the body torso and neck.

3,832,003

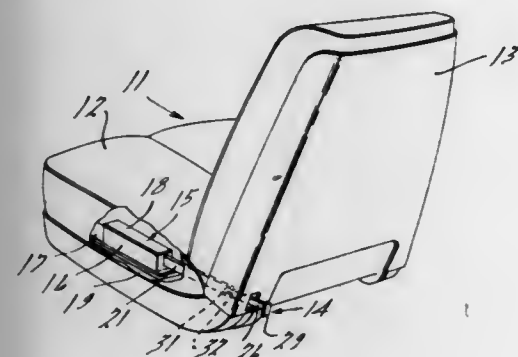
ENERGY ABSORBING SEAT ASSEMBLY

Rudolph M. Horvat, Allen Park, Mich., assignor to The Ford Motor Company, Dearborn, Mich.

Filed Aug. 6, 1973, Ser. No. 383,945
Int. Cl. B60r 21/10

U.S. Cl. 297—216

4 Claims



A vehicle seat assembly includes a generally horizontal seat structure and an upstanding backrest structure pivotally mounted on the seat structure for tiltable movement forwardly over the latter. An energy absorbing device mounted on one of the structures is releasably coupled through a latch device means to the other of the structures. The energy absorbing device is operative, when coupled through the latch device means to the other of the structures, to control forward tilting movement of the backrest structure in response to high external forces acting on the latter.

3,832,004

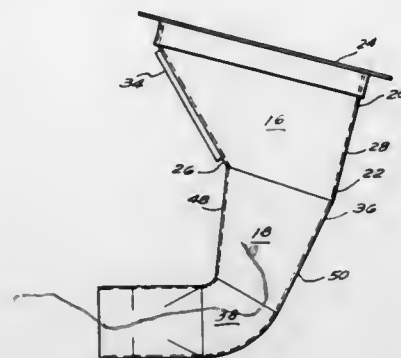
TRANSITION CHUTE

Paul Carwile, Colonial Hts., Va., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Sept. 13, 1972, Ser. No. 288,569
Int. Cl. B65g 53/04

U.S. Cl. 302—28

9 Claims



A transition chute directs tobacco from a tobacco feeder to a pair of pneumatic feed pipes and is designed to prevent choking when tobacco is conveyed through only one or both of the pipes. The chute includes a top section of decreasing cross-sectional area from top to bottom and a lower section connected thereto. The lower section defines a pair of spaced parallel pipe sections at its base for connection to the feed pipes. The lower section cooperates with the top section in providing a venturi effect which eliminates tobacco choking of the chute passageways.

3,832,005

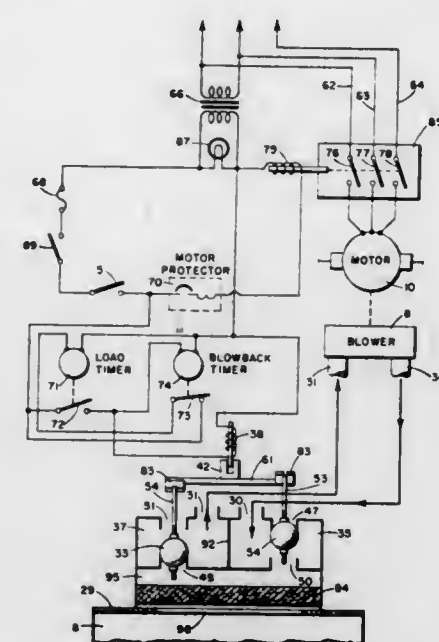
LOADER

Homer C. Hek, Alexandria, Va., assignor to Universal Dynamics Corporation, Woodbridge, Va.

Filed May 24, 1972, Ser. No. 256,270
Int. Cl. B65g 53/40

U.S. Cl. 302—59

11 Claims



A loader of the type particularly useful in a dryer of the type which includes a vacuum operated loading chamber is disclosed. Material is drawn into the loading chamber through the action of a vacuum which is drawn on the loading chamber. The vacuum line, which is connected to the chamber, operates through a filter which prevents the material to be loaded from entering the vacuum line. In accordance with the present invention, the vacuum line is caused to operate through a pneumatic switch which periodically reverses the flow of air through the filter thus cleaning it. The cleaning or blowback operation is an improvement over prior art

3,832,006

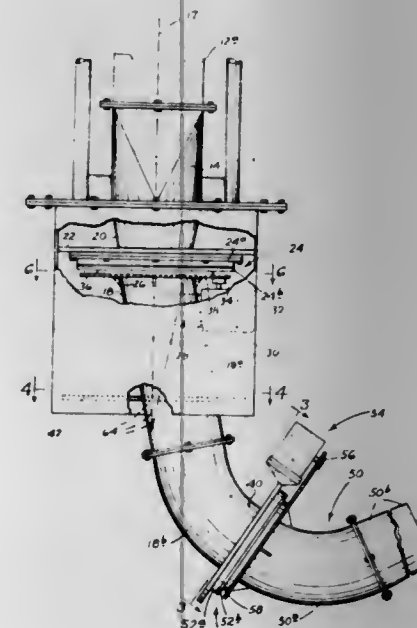
DISTRIBUTING APPARATUS FOR PNEUMATIC CONVEYOR

John A. Johnson, Rt. 2, Box 692E, Coos Bay, Oreg. 97420
Filed Feb. 5, 1973, Ser. No. 329,601

Int. Cl. B65g 53/42

U.S. Cl. 302—60

1 Claim



A pneumatic conveyor system with distributing apparatus for controlling the direction in which pneumatically conveyed material is ejected from the system. The distributing apparatus includes a delivery conduit section normally depending from the discharge end of a pneumatic conveyor conduit, and a nozzle section receiving material from this delivery conduit section. The delivery conduit and nozzle sections may each include elbow or bend portions, with the bend portion of one forming substantially a continuation of the bend portion of the other. Power-operated relative adjustments of the nozzle section with respect to the delivery conduit section, and the delivery conduit section with respect to the pneumatic conveyor conduit, provide means for changing the direction in which material is ejected from the system. The nozzle section and the delivery conduit section form an adjustably positionable, sealed conduit means usable in the controlled discharge of bulk materials.

3,832,007

BLEND BACK PROPORTIONING VALVE

Richard G. Thrush, Cleveland, Ohio, assignor to The Weatherhead Company, Cleveland, Ohio

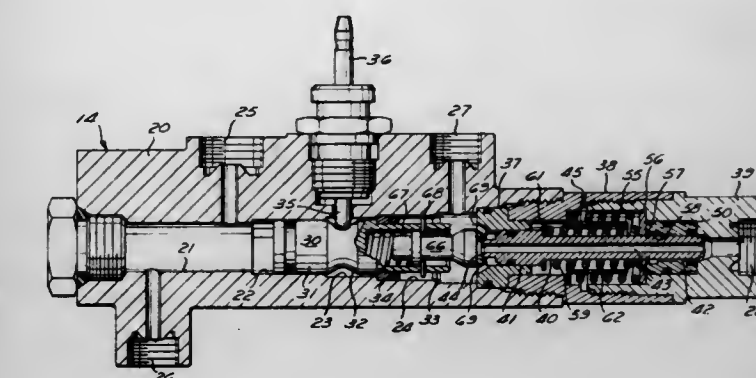
Filed July 17, 1973, Ser. No. 379,931

Int. Cl. B60t 11/34

U.S. Cl. 303—6 C

17 Claims

A motor vehicle hydraulic brake system which includes a front brake circuit and a rear brake circuit. The rear brake circuit includes a blend back proportioning valve which controls the pressure in the rear brake circuit. The blend back proportioning valve includes a pressure reducing sleeve and a pressure intensifying piston. The pressure reducing sleeve in conjunction with the pressure intensifying piston maintains increases in rear brake pressure proportional to but less than increases in master cylinder pressure between a first predetermined pressure and a second predetermined pressure. The



pressure intensifying piston independently of the pressure reducing sleeve maintains increases in rear brake pressure proportional to but greater than increases in master cylinder pressure between the second predetermined pressure and a third predetermined pressure.

3,832,008

ANTI SKID CONTROL SYSTEM

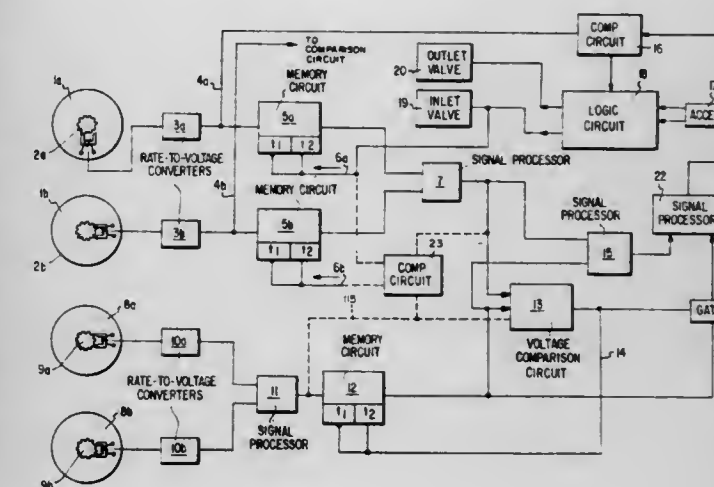
Heinz Leiber, Leimen, and Anton Rodi, Karlsruhe, both of Germany, assignors to Teldix GmbH, Heidelberg, Germany
Filed Feb. 2, 1972, Ser. No. 222,780

Claims priority, application Germany, Aug. 23, 1971, 2142144

Int. Cl. B60t 8/08

U.S. Cl. 303—21 BE

29 Claims



An antilocking control system in which slip signals are generated for brake pressure modulation. In this control system the circuitry for generating slip signals includes a unit for generating a signal proportional to the wheel speed and a memory circuit for generating a reference signal approximating the vehicle speed and having two different discharge time constants. When the second constant is effective, the stored signal follows decreases of the wheel speed very slowly. This constant is made effective, when a locking tendency occurs and the memory circuit is switched back to the first time constant only, if a permissible slip value is reached and particularly the re-acceleration phase is substantially completed. The slip signals are generated by comparing the reference signal from the memory circuit with the signal proportional to the wheel speed.

3,832,009

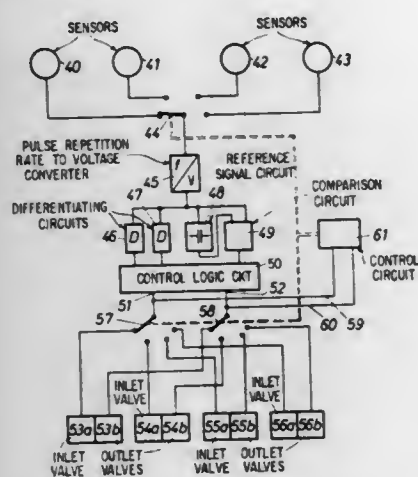
ANTISKID CONTROL SYSTEM

Heinz Leiber, Leimen, and Wolfgang Korasiak, Ketsch, both of Germany, assignors to Teldix GmbH, Heidelberg, Germany
Filed June 2, 1972, Ser. No. 259,029

Claims priority, application Germany, June 7, 1971, 2128181; Apr. 26, 1972, 2220441

Int. Cl. B60t 8/12

U.S. Cl. 303—21 P



An antiskid control system for vehicles includes members for controlling the brake pressure. At least two sensors are operatively associated with different wheels of the vehicle to be braked. These sensors produce signals at their respective outputs which are respectively related to the rotational behavior of respective wheels. A circuit arrangement is coupled between the members for controlling brake pressure and the two sensors and is responsive to output signals therefrom for regulating brake pressure. The circuit arrangement includes a switching circuit and a signal evaluation channel. The switching circuit is operatively arranged to connect each of the sensors in a predetermined sequence to the signal evaluation channel. The output of which is coupled to the members for controlling brake pressure.

3,832,010

BRAKE CONTROL DEVICES FOR PREVENTING LOCKING A BRAKED WHEEL

Albert Grosseau, Chaville, France, assignor to S.A. Automobiles Citroën, Paris, France

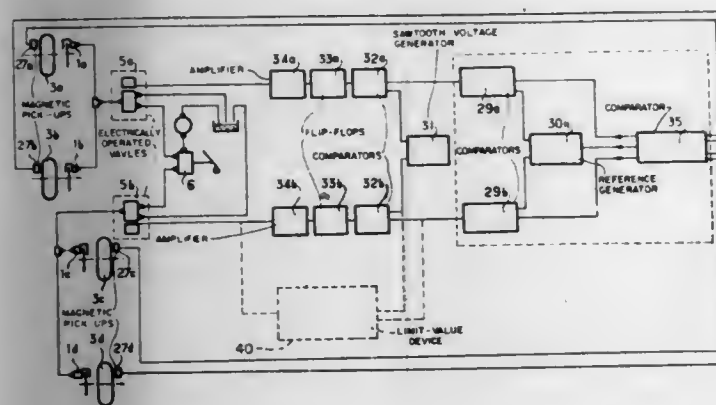
Filed June 6, 1972, Ser. No. 260,318

Claims priority, application France, Dec. 13, 1971, 71.45188

Int. Cl. B60t 8/10

U.S. Cl. 303—21 EB

16 Claims



A brake control device for the wheel of a motor or other vehicle comprises an electrically operated valve incorporated in the braking circuit of the wheel. The valve is controlled by a pulsed current having a frequency or width dependent on the degree of slip of the wheel, and serves to limit the pressure of fluid in the braking circuit during such wheel slip.

3,832,011

ANTI-SLIP OR ADAPTIVE BRAKING SYSTEM

Guy Marouby, Neuilly, France, assignor to Societe Anonyme D.B.A., Paris, France

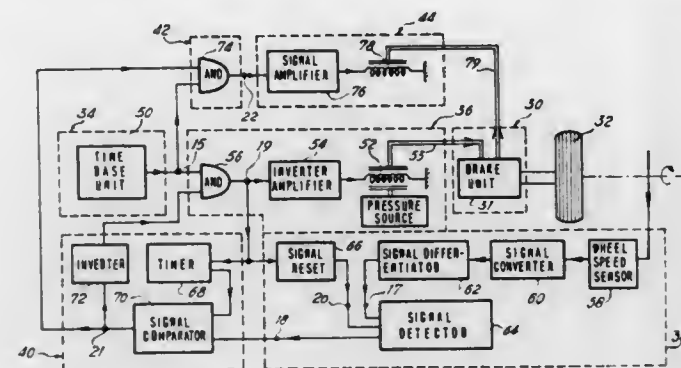
Filed Jan. 5, 1973, Ser. No. 321,494

Claims priority, application France, Dec. 29, 1971, 71.47229

Int. Cl. B60t 8/12

U.S. Cl. 303—21 P

8 Claims



An adaptive braking system for a set of vehicle wheels, of the type comprising a fluid pressure source, braking apparatus associated with the set of wheels, and control apparatus for controlling the fluid pressure acting on the braking apparatus. The fluid pressure supplied to the braking apparatus is automatically controlled by the control apparatus in successive stages of pressure increase and pressure decrease separated from one another by intervals during which the pressure is kept constant. More particularly, a stage of pressure increase is controlled after an interval whenever the deceleration of a wheel has been decreasing or has remained constant during this interval, and a stage of pressure decrease whenever the deceleration has been increasing during the interval.

3,832,012

ANTISKID BRAKING CIRCUIT

Guy Bourgoin, Sceaux, France, assignor to Societe Anonyme D.B.A., Paris, France

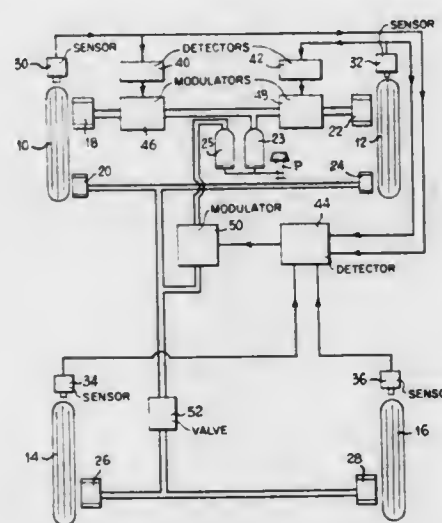
Filed Jan. 12, 1973, Ser. No. 323,167

Claims priority, application France, Jan. 21, 1972, 72.2029

Int. Cl. B60t 8/00

U.S. Cl. 303—21 F

2 Claims



An anti-skid braking circuit for a vehicle having two independent braking circuits, a first circuit including the main brake actuators of the front wheels and a second circuit including supplementary brake actuators of the front wheels and the brake actuators of the rear wheels. Each front wheel is equipped with a speed sensor connected on one hand with an electronic anti-skid logic monitoring a fluid pressure modulator associated with the corresponding main actuator, and on

the other hand with another electronic anti-skid logic monitoring another modulator controlling the fluid pressure in the second circuit. The rear wheels of the vehicle are equipped with speed sensors also connected to the other anti-skid logic.

This invention is particularly applicable to an air brake equipment having a load compensating valve device that provides a brake cylinder pressure that is a function of the load on the vehicle involved.

3,832,013

ANTI-SKID CONTROL SYSTEM FOR FLUID PRESSURE BRAKES

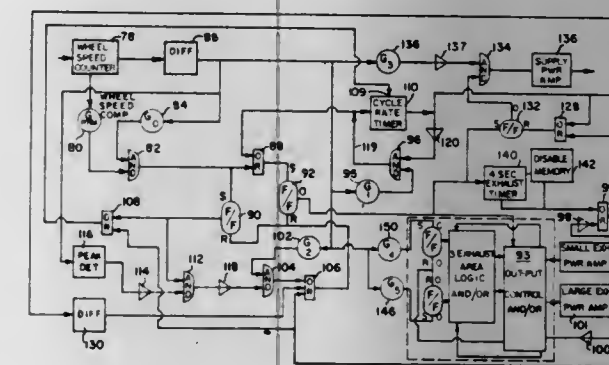
Dennis J. Davis, Oberlin, and John E. Juhasz, Avon, both of Ohio, assignors to The Bendix Corporation, South Bend, Ind. Continuation of Ser. No. 76,665, Sept. 30, 1970, abandoned.

This application Mar. 8, 1973, Ser. No. 338,806

Int. Cl. B60t 8/12

U.S. Cl. 303—21 P

5 Claims



An anti-skid fluid pressure brake control system particularly designed for use under conditions of exceptionally low tire to road co-efficient of friction on the order of wet ice, apparatus being provided to relieve braking pressure upon the simultaneous occurrence of low wheel speed just short of lock up and a predetermined deceleration rate and thereafter continuing pressure relief for a prolonged period of time preferably determined by the length of time it takes the wheel to reach a maximum rate of acceleration whereupon relief is terminated and pressure build up restored. Apparatus are provided for shifting to a regular adaptive mode of brake control should the vehicle encounter less severe road conditions during the brake application.

3,832,014

VARIABLE LOAD BRAKE APPARATUS

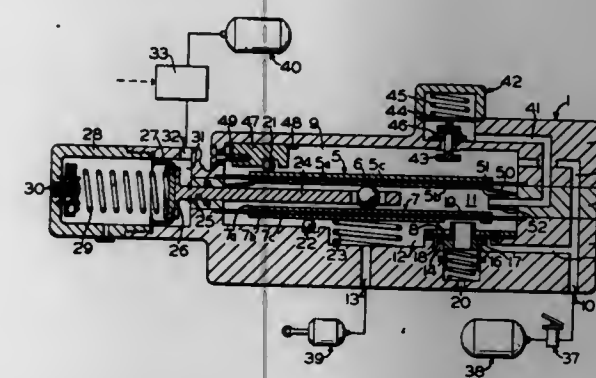
Roger Deschenes, Montfermeil, France, assignor to Wabco Westinghouse, Freinville-Sevan, France

Filed Sept. 4, 1973, Ser. No. 394,253

Int. Cl. B60t 8/18

U.S. Cl. 303—22 R

23 Claims



A device suitable for providing a fluid pressure as a function of two modulating factors. This device is more precisely of the type simultaneously assuring the generation of a force under the effect of an inlet pressure constituting the first factor and acting on a piston, and assuring the modulation of this force as a function of the second factor consisting of lever arms of varying length and the use of this modulated force to activate a supply and release valve device providing a pressure proportional to the value of the modulated force.

3,832,015

CONTROL VALVE UNIT IN PNEUMATIC BRAKING SYSTEM

Siegfried Beck, Stuttgart, and Manfred Siebold, Boblingen, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

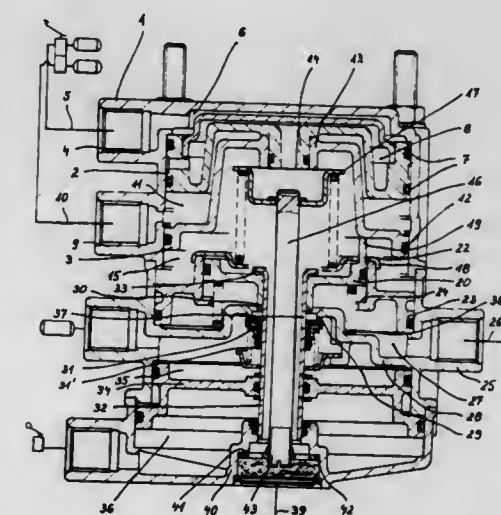
Filed Sept. 19, 1973, Ser. No. 398,772

Claims priority, application Germany, Sept. 21, 1972, 2246242

Int. Cl. B60t 15/02

U.S. Cl. 303—40

11 Claims



A pneumatic braking system includes two first pneumatic braking circuits of a motor vehicle and a second pneumatic braking circuit of a trailer towed by the vehicle and which second braking circuit is to be controlled in dependence upon the operation of the first braking circuits. A control valve unit provides such control and has a housing an outlet of which communicates with the second circuit, and a chamber contains fluid at the pressure of a reservoir. A valve arrangement is displaceable between a first position in which it connects the outlet with the ambient atmosphere, a second position in which it disconnects the outlet from the ambient atmosphere, and a third position in which it connects the outlet with the aforementioned chamber to thereby pressurize the second circuit. A pair of first pistons are shiftable in the housing from a normal rest position to a operated position in response to pressurization of the first circuits during braking of the vehicle. A compound second piston controls the movements of the valve arrangement, and has one piston portion connected with the valve arrangement and shiftable in the housing to thereby displace the valve arrangement sequentially from the first to the second and then toward the third position in response to movement of at least one of the first pistons to the operated position thereof. The second piston also includes another piston portion which is biased away from the one piston portion and which has a surface communicating with the interior of the outlet so that when the second circuit is partially pressurized during movement of the valve arrangement from the second towards the third position and pressure in the outlet exceeds the biasing force, the other piston portion will move into abutment with the one piston portion to thereby slow the shifting of the same and the displacement of the valve arrangement towards the third position thereof.

3,832,016

TWO PIPE TRUCK TRAILER BRAKE SYSTEM WITH MEANS FOR APPLYING FRONT AND REAR TRAILER BRAKES UPON PULL-IN-TWO

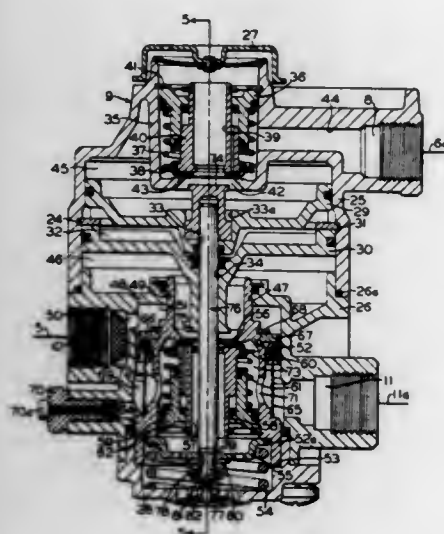
Ewald Pekrul, Am Kappenberg, Germany, assignor to Westinghouse Bremsen-und Apparatebau, GmbH, Hannover, Germany

Filed July 12, 1973, Ser. No. 378,592

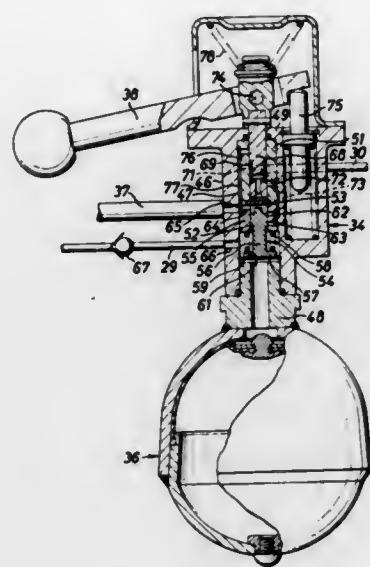
Int. Cl. B60t 15/02

U.S. Cl. 303-40

6 Claims



means providing a constantly acting force tending to apply the same or other brakes on wheels of the vehicle, the brake application control unit including a valve which normally provides a connection between the fluid pressure source and a cylinder



in which fluid pressure acts to oppose the constantly acting applying force and so prevent application of the brakes by said force, the valve being manually operable to allow escape of fluid from the pressure responsive device and thereby enable the brakes to be applied by the said force.

This invention relates to a two-pipe dual brake apparatus for the trailer of a tractor-trailer vehicle in which a trailer control valve device has two coaxial and oppositely disposed pistons forming a chamber therebetween to which fluid under pressure may be supplied through one of the two pipes. These pistons operate a pair of supply and release valve mechanisms one of which controls the brakes on the rear wheels of the trailer and the other the brakes on the front wheels. A pair of storage reservoirs are provided on the trailer and charged from a compressor on the tractor. Fluid under pressure from one reservoir is supplied by one valve mechanism to operate the brakes for the front trailer wheels. Likewise, fluid under pressure from the other reservoir is supplied by the other valve mechanism to operate the brakes for the rear trailer wheels. The control valve device further comprises a third piston operable, upon the subsequent release, via a check valve, of fluid under pressure supplied thereto from the tractor, to effect operation of both valve mechanisms to thereby effect a brake application on both the front and rear wheels of the trailer.

3,832,017

BRAKING SYSTEMS FOR VEHICLES

Duncan William Osborne, Leamington SpA, England, assignor to Automotive Products Limited, Leamington SpA, England

Filed Mar. 19, 1971, Ser. No. 126,126

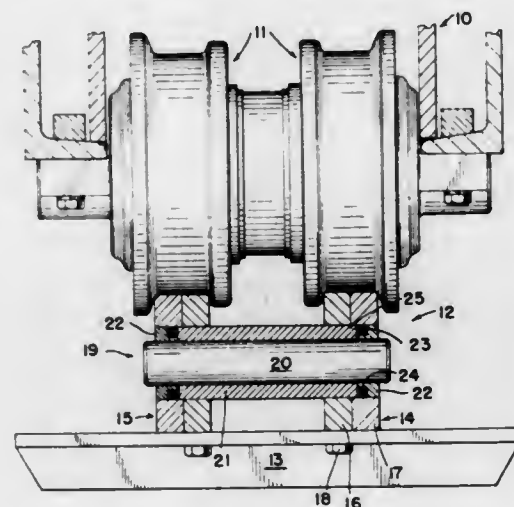
Claims priority, application Great Britain, Mar. 20, 1970, 13496/70

Int. Cl. B60t 15/02

U.S. Cl. 303-68

2 Claims

A brake application control unit for a vehicle braking system including a source of fluid pressure at which fluid pressure is constantly available when the vehicle is in operation to supply fluid pressure for normal operation of the brakes, and



A track-type tractor comprises an endless track assembly having a plurality of shoes articulated together by a pair of laterally spaced link assemblies. Each link assembly comprises a pair of adjacent links pivotally mounted together by a pin and bushing assembly. An annular, hardened insert is press-fitted between the pin and an outboard one of the links to prevent loosening thereof during tractor operation.

3,832,018

TRACK PIN RETAINING INSERT

David V. Nelson, and Roger L. Boggs, both of East Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Aug. 27, 1973, Ser. No. 391,549

Int. Cl. B62d 55/20; F16g 13/06

U.S. Cl. 305-39

8 Claims

3,832,019

DOVETAIL SLIDE

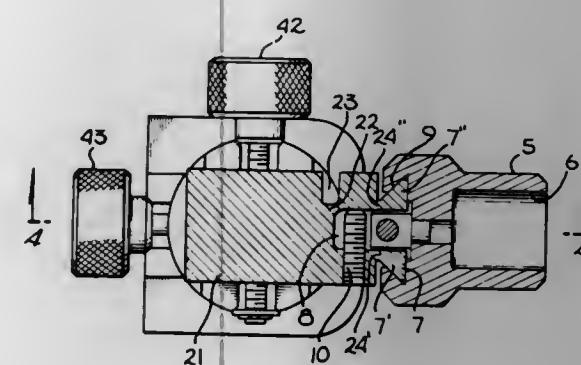
Vincent J. Alessi, 835 Seagull Ln., Newport Beach, Calif. 92660

Filed Apr. 7, 1972, Ser. No. 241,973

Int. Cl. F16c 21/00

U.S. Cl. 308-3 A

8 Claims



A dovetail or ball bearing slide comprised of a tenon and mating mortise, said tenon being divided into two ears by a slot. One of the ears is rendered flexible by thinning the material on one side of the slot near the root of the slot. A screw threaded through one ear of the tenon and bearing against the other ear adjusts the tenon size to exactly fit the mortise and thus allows a slide to be made with no play and any desired stiffness of fit.

3,832,021

NECK SEAL

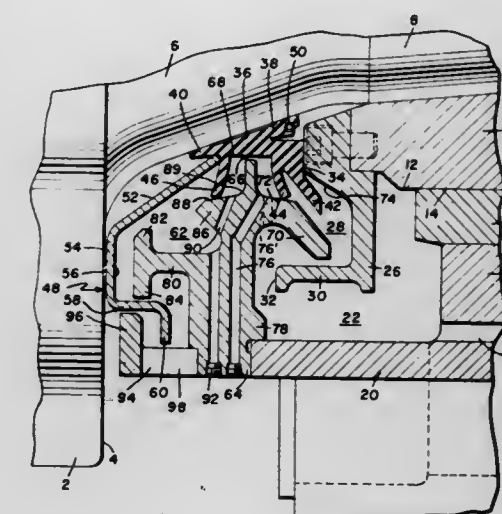
Lewis C. Jennings, Boylston, and Samuel S. Rickley, West Boylston, both of Mass., assignors to Morgan Construction Company, Worcester, Mass.

Filed Nov. 16, 1972, Ser. No. 307,155

Int. Cl. F16j 15/40

U.S. Cl. 308-36.1

10 Claims



In a machine having a bearing-supported rotary element, a bearing seal for preventing each of two different fluids used in the operation of the machine from contaminating one another.

3,832,022

DUAL SEAL ARRANGEMENT FOR A SPHERICAL JOINT

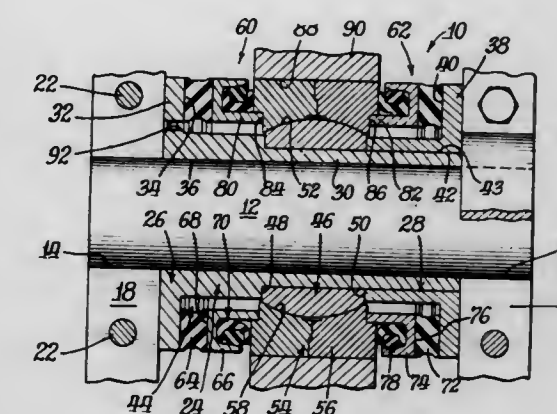
Harold L. Reinsma, Dunlap, and Lowell P. Iverson, Aurora, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 30, 1973, Ser. No. 355,476

Int. Cl. F16c 33/72

U.S. Cl. 308-36.1

28 Claims



A joint includes a ball associated with a shaft and a socket body disposed thereabout. Retainer means are disposed about the shaft and define a pair of retainer surfaces spaced apart from the socket body. First annular seal means are disposed between one retainer surface and one side of the socket body, and second annular seal means are disposed between the other retainer surface and the other side of the socket body. The seal means are bonded to the respective retainer surfaces, and are in slidable sealing relation with the socket body to allow full 360° rotation of the socket body about the longitudinal axis of the shaft. The seal means also allow a degree of rotation of the socket body about axes of rotation perpendicular to the longitudinal axis of the shaft. The shaft may be associated with the retainer means so as to be relatively freely removable therefrom.

3,832,020

ANTI-FRICTION BALL BEARING ASSEMBLY

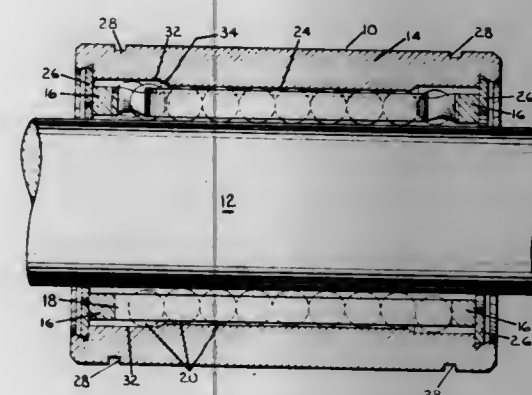
Albert R. McCloskey, Fairfield, Conn., assignor to Heim Universal Corporation, Fairfield, Conn.

Filed Aug. 31, 1972, Ser. No. 285,201

Int. Cl. F16c 29/06

U.S. Cl. 308-6 C

2 Claims



An anti-friction ball bearing assembly adapted for mounting on a shaft comprising an outer sleeve and an inner sleeve concentrically fitting within the outer sleeve, the inner sleeve having a number of tracks defining paths for the circulation of a number of plastic load carrying balls between the shaft and the bearing assembly. The plastic load carrying balls may be provided with a metallic or hardened plastic core.

3,832,023

BALL-BEARING RETAINERS

Winthrop H. Fairbank, Sudbury, Mass., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Feb. 7, 1973, Ser. No. 330,224

Int. Cl. F16c 33/38

U.S. Cl. 308—201

6 Claims



A ball-bearing retainer for suppressing gross oscillations of the retainer, balls, and raceways of high speed bearings. The retainer has a generally cylindrical shape and has a plurality of ball pockets. It is designed for insertion between two relatively rotating members which have confronting coaxial cylindrical surfaces. These surfaces may be formed integrally with the rotating members themselves or may be raceways placed between the rotating members for accommodating the balls held in the retainer. Formed upon a surface of the retainer and extending toward one or the other of the relatively rotating members is a plurality of lands or portions extending radially from the retainer. The lands are three in number symmetrically disposed about the inner or outer peripheral walls of the retainer. The centers of the lands are a nominal 120° apart and each land subtends an angle of 30° or less. Clearance between the surface of the lands and the confronting surface of one of the rotating members is typically of the order of tens of thousandths of an inch.

3,832,024

ROTATION PREVENTIVE DEVICE

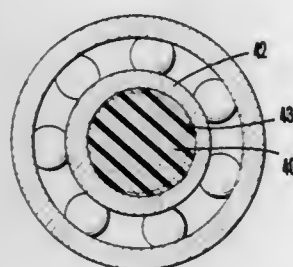
Hideo Nishikawa, Sakai, Japan, assignor to Wada Seiko Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 234,083, March 13, 1972. This application Apr. 26, 1973, Ser. No. 354,884

Int. Cl. F16c 35/06

U.S. Cl. 308—236

3 Claims



A device for securing two members, one is a metallic product and the other a plastic product, so that they can not rotate relative to each other. In one embodiment a groove which is eccentric to the axis of the metallic product is provided on the outer cylindrical surface of the metallic product and the inner cylindrical surface of the plastic product is tightly fitted to the outer cylindrical surface of the metallic product in such a manner that a part of the inner cylindrical surface of the plastic product is filled in the groove. In another embodiment a groove which is eccentric to the axis of the metallic product is provided on the inner cylindrical surface of the metallic product and the outer cylindrical surface of the plastic product is tightly fitted to the inner cylindrical surface of the metallic product in such a manner that a part of the outer cylindrical surface of the plastic product is filled in the groove.

3,832,025
CARTRIDGE TAPE PLAYER DOOR MOUNTING ASSEMBLY

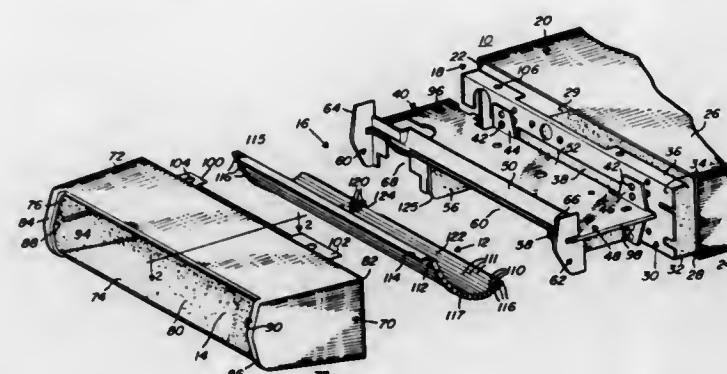
Marcus M. Artner, Chicago, and Paul D. McGee, Medinah, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Nov. 20, 1972, Ser. No. 308,085

Int. Cl. A47b 81/06

U.S. Cl. 312—297

12 Claims



A mounting arrangement for a flexible, "roll top" door member covering the cartridge receiving opening in a tape player housing includes a first, outer housing member having bottom, top and side walls with front and rear openings. Lip portions formed with the side walls at the front thereof extend in opposing relation to block off portions of the front opening. A second, inner housing member is received in the first housing member through the rear opening thereof. The second housing member includes a pair of spaced guide rail members shaped complementarily to the lip portions to form channels therebetween. The edges of the door member are captured between corresponding lip portions and guide rail members at the sides of the housing members for movement in the channels defined thereby between open and closed positions with respect to the front opening of the first housing member. A pair of descending walls on the second housing member define a cartridge passageway. One of the descending walls coacts with spaced tabs provided on the inner surface of the door member to form a track, to guide the latter when the door member is in an open position.

3,832,026

HOLOGRAPHY USING LIGHT OF LIMITED COHERENCE

Francois Mottier, Zurich, Switzerland, assignor to BBC Brown Boveri & Company, Limited, Baden, Switzerland

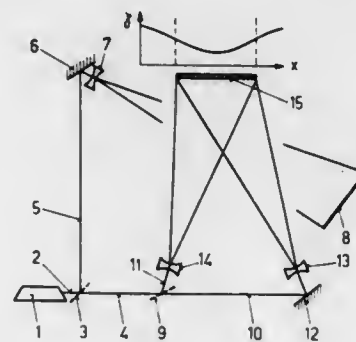
Filed May 11, 1972, Ser. No. 252,253

Claims priority, application Switzerland, May 14, 1971, 7180/71

Int. Cl. G02b 27/00

U.S. Cl. 350—3.5

4 Claims



A method is disclosed for forming good quality holograms using light of only limited coherence. According to the method, a hologram plate is illuminated by a reference laser beam and by laser light scattered from an object of which a hologram is to be formed. Local intensity fluctuations having maxima and minima are formed at the object for each

frequency of light in the laser beam. Good holograms are formed provided that the intensity maxima belonging to one frequency of the laser light do not predominantly coincide with the intensity maxima of any other frequency of the laser light.

3,832,027

SYNTHETIC HOLOGRAM GENERATION FROM A PLURALITY OF TWO-DIMENSIONAL VIEWS

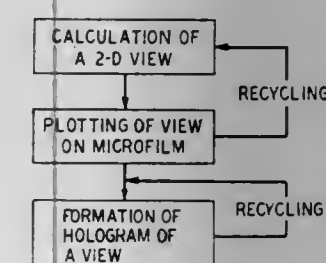
Michael C. King, Basking Ridge, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 12, 1969, Ser. No. 806,661

Int. Cl. G02b 27/00

U.S. Cl. 350—3.5

9 Claims



A three-dimensional computer display system is described that allows one to generate holograms of computer stored information without having to calculate the hologram. The system uses a computer to calculate and a microfilm plotter to display a multitude of two-dimensional views of a three-dimensional object stored in a computer. These views in turn are recorded sequentially to form a composite hologram comprised of many smaller holograms. While satisfactory images can be reconstructed from such a hologram simply by using a penlight in combination with a monochromatic filter, much better images can be reconstructed in white light from an image hologram formed from the composite hologram.

3,832,028

COUPLER FOR OPTICAL WAVEGUIDE LIGHT SOURCE

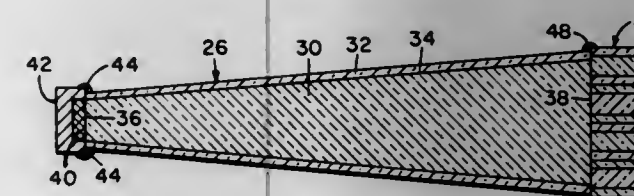
Felix P. Kapron, Elmira, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 30, 1972, Ser. No. 239,744

Int. Cl. G02b 5/14

U.S. Cl. 350—96 WG

13 Claims



A light coupler for transferring optical wave energy to or from light transmitting means including at least one optical waveguide. The coupler comprises a tapered core of transparent material of refractive index n_1 and a layer of transparent cladding material of refractive index n_2 disposed upon the surface of the tapered core, n_1 being greater than n_2 . The tapered core has a large diameter end which is aligned with an end of the light transmitting means and a small diameter end which is disposed adjacent to electro-optic energy conversion means such as a light emitting diode, a light detector or the like. When used at the transmitting end of an optical communication system, the small diameter end of the tapered core receives light from a source, and the coupler functions to collimate those light rays which enter the small diameter end and which reflect from the core-cladding interface thereof.

3,832,029

SELF-IMAGING WITH AN OPTICAL TUNNEL FOR IMAGE FORMATION

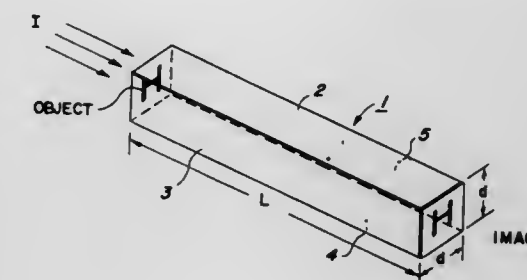
Olof Bryngdahl, Cupertino, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 17, 1972, Ser. No. 298,205

Int. Cl. G02b 17/06, 27/00

U.S. Cl. 350—96 T

18 Claims



The present invention relates to the formation of images by self-imaging through the use of an optical tunnel. An optical tunnel is provided which has dimensions defined so as to satisfy a criterion for the production of self-imaging of an object located along its optical axis. The object in the preferred embodiment is located in an object plane at one end of the optical tunnel and is illuminated by means of a monochromatic light source. In the object plane, outside of the optically denser medium within the tunnel, virtual images are formed which act as virtual objects from which a self-image of the object is formed at the other end of the optical tunnel.

3,832,030

DELAY EQUALIZERS FOR MULTIMODE OPTICAL FIBERS

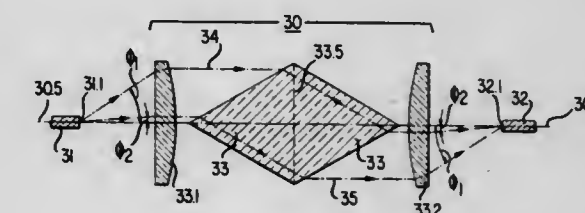
Ottel Christoph Gloge, Red Bank, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 23, 1973, Ser. No. 363,023

Int. Cl. G02b 5/14

U.S. Cl. 350—96 WG

4 Claims



The outputs of multimode optical fibers (i.e., fibers which support the simultaneous propagation of more than a single optical mode) suffer from signal distortion due to mode delay dispersion, that is, different modes travelling through the fibers at different forward velocities.

In order to reduce this mode delay distortion in multimode optical fibers, a pair of back-to-back curvilinear conical lenses is located between two similar fibers. These lenses convert large angle modes to small angle modes, and vice versa; thereby the variation in the total delay of all modes propagating through the two fibers i.e., the mode delay dispersion, is reduced by these lenses.

3,832,031

PROJECTION SYSTEM

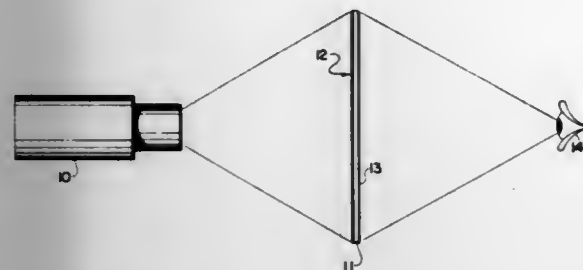
Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 24, 1969, Ser. No. 887,996

Int. Cl. G03b 21/56

U.S. Cl. 350-117

5 Claims



A projection system, particularly a rear, or back-lighted, projection system, wherein the screen is composed of a synthetic polymeric film, at least one surface of said film having been contacted with a solvent therefor for a time sufficient to impart translucency to said film.

3,832,032

LENTICULAR REAR PROJECTION SCREEN

Satoshi Shimada, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

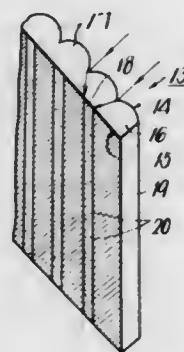
Filed Apr. 20, 1973, Ser. No. 352,974

Claims priority, application Japan, Apr. 25, 1972, 47-49418

Int. Cl. G03b 21/60

U.S. Cl. 350-128

9 Claims



A rear projection screen in a projector which uses a cathode ray tube as an image light source has one side of the screen formed with a multiplicity of parallel lenticular ridges, while the other side of the screen has a plane surface provided with a plurality of light diffusing stripe-like areas arranged alternately thereacross. The lenticular ridges and the light diffusing stripe-like areas cooperate to provide light emerging from the screen with a horizontal diffusing angle that is controllably greater than the vertical diffusing angle thereof, and the light absorbing stripes are operative to absorb ambient light and thereby avoid deterioration of the contrast of an image projected through the screen onto the plane surface thereof.

3,832,033

REGULAR FERROELECTRICS-LIQUID CRYSTAL COMPOSITE OPTICAL ELEMENT

Yoshio Furuhashi, Tokyo, and Kazuhisa Toriyama, Hitachi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 18, 1972, Ser. No. 315,782

Claims priority, application Japan, Dec. 17, 1971, 46-101898

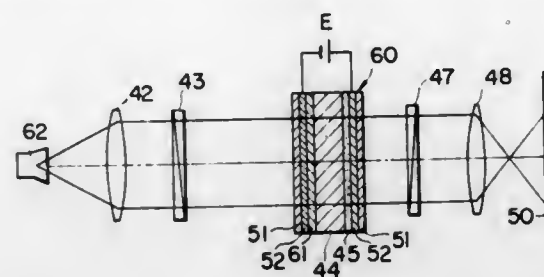
Int. Cl. G02f 1/16

U.S. Cl. 350-160 LC

17 Claims

This invention relates to a regular ferroelectric-liquid

crystal composite optical element characterized in that a film of a cholesteric liquid crystal or a nematic liquid crystal with



negative dielectric anisotropy is interposedly provided on the surface of a regular ferroelectric single crystal substrate.

3,832,034

LIQUID CRYSTAL DISPLAY ASSEMBLY

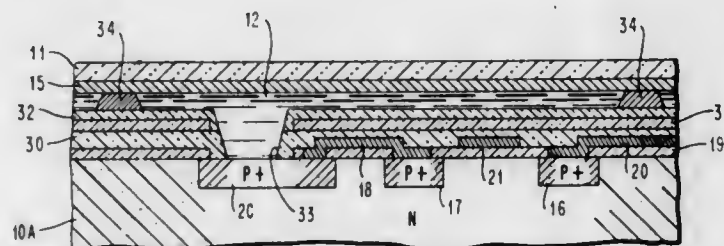
Harold D. Edmonds, Hopewell Junction, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 6, 1973, Ser. No. 348,551

Int. Cl. G02g 1/28

U.S. Cl. 350-160 LC

45 Claims



A liquid crystal cell in which one of a pair of opposed spaced electrodes is circumscribed by a dielectric shield or mask having a hue, chroma and brightness substantially the same as the color of either the circumscribed electrode or of the scattered state of the liquid crystal material disposed between the electrodes.

3,832,035

WIDE ANGLE, RETROFOCUS-TYPE PHOTO-TAKING LENS

Tomowaki Takahashi, Kawasaki, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

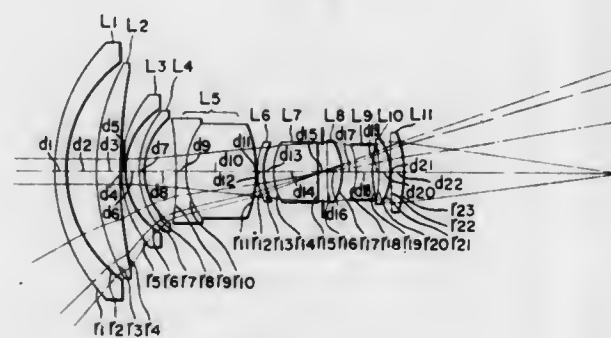
Filed Aug. 21, 1972, Ser. No. 282,172

Claims priority, application Japan, Aug. 21, 1971, 46-63366; Oct. 30, 1971, 46-86,634; Dec. 27, 1971, 46-1264; Dec. 27, 1971, 46-1265; Dec. 27, 1971, 46-1266; Dec. 27, 1971, 46-1267; Dec. 27, 1971, 46-1268

Int. Cl. G02b 9/64

U.S. Cl. 350-189

18 Claims



A wide angle, substantially distortion-free inverted telephoto-type photo-taking lens system comprises a forward divergent group, a forward convergent group preceding a diaphragm, and a rearward convergent group succeeding the

diaphragm. Any one surface in the forward divergent group may be a non-spherical surface whose non-sphericity is within a predetermined range. The lens system satisfies a predetermined condition of the center thicknesses of lenses or the air spaces between lenses.

lens or biconcave compound lens, and seventh and eighth components of positive lenses, and which system is defined by the following five conditions, i.e.

3,832,036

FILM FEED SYSTEM FOR A CONVERTIBLE MOTION PICTURE PROJECTOR

Akira Ashida, and Tateo Yamada, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

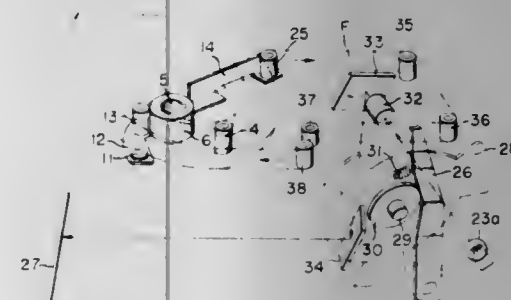
Filed June 28, 1973, Ser. No. 374,420

Claims priority, application Japan, July 6, 1972, 47-67814

Int. Cl. G03b 1/00

U.S. Cl. 352-166

5 Claims



A motion picture projector is equipped to use both reel-to-reel film feed and endless film cartridges by providing a pivoted film guide arm in the cartridge arranged to press the film against a feed roller of the projector under control of film feed tension and arranging the projector so that the take-up reel drive for reel-to-reel operation can be converted to use as the aforesaid feed roller for endless film cartridge operation, by locking the take-up reel friction drive. This conversion may also include slipping an elastic roller over the take-up reel shaft.

3,832,037

SUPER WIDE-ANGLE LENS SYSTEMS

Jihei Nakagawa, Tokyo, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

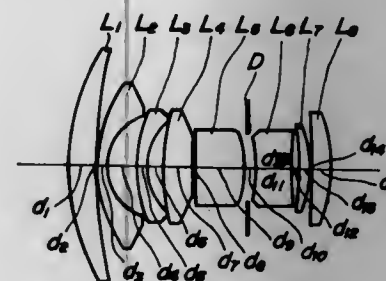
Filed Nov. 24, 1972, Ser. No. 309,597

Claims priority, application Japan, Dec. 8, 1971, 46-98616

Int. Cl. G02b 9/64

U.S. Cl. 350-214

2 Claims



A super wide-angle lens system small in size and having a small F number, which is constructed as eight components and eight lenses and consists of a first component, of positive meniscus lens that has at its object side a convex surface, second and third components of negative meniscus lenses that have at their object sides convex surfaces, a fourth component of biconvex lens, a fifth of positive meniscus lens that has at its image side a convex surface, a sixth component of biconcave

$$1. 0.35f < f_{23} < 0.7f, \text{ and } f_{23} < 0,$$

$$2. 0.2f < d_4 + d_6 < 0.5f,$$

$$3. 0.5f < f_{45} < f,$$

$$4. 0.35f < d_7 + d_9 < 0.7f, \text{ and}$$

$$5. 0.1f < d_{v1} < 0.4f$$

where f is the composite focal length of the total lens system, f_{23} is the composite focal length of the second and third components, f_{45} is the composite focal length of the fourth and fifth components, d_4 is the air space between the second and third components, d_6 is the air space between the third and fourth components, d_7 is the axial thickness of the fourth component, d_9 is the axial thickness of the fifth component, and d_{v1} is the axial thickness of the sixth component.

3,832,038

HAND RETROVIEWER

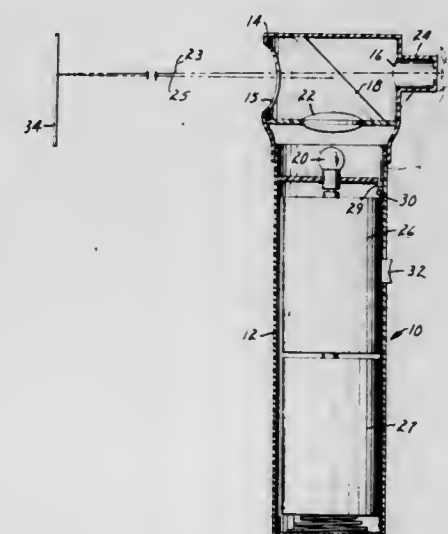
Edgar G. Johnson, Maplewood, Minn., assignor to Minnesota Mining Manufacturing Company, St. Paul, Minn.

Filed Aug. 9, 1972, Ser. No. 278,990

Int. Cl. G02b 27/02

U.S. Cl. 350-236

8 Claims



A hand retroviewer for use in verifying a document having a retro-reflective image bearing layer which is substantially transparent under ordinary diffuse light viewing conditions to provide viewing of images on an underlying surface. The viewer housing has a viewing passageway therethrough and a beam splitter having a specular reflectance of at least 60 percent is mounted in the viewing passageway. A lamp and a condensing lens which combine to produce a virtual image of the light source that has an area less than .5 square inch are positioned to transmit light to the beam splitter. Light reflected from the beam splitter is retro-reflected from the image bearing layer of a document held spaced from the viewer along the illumination axis and a portion of the retro-reflected light is transmitted through the beam splitter for viewing to verify the document by its retro-reflected image.

3,832,039

MIRROR HAVING VARIABLE CONVEX LOWER PORTION

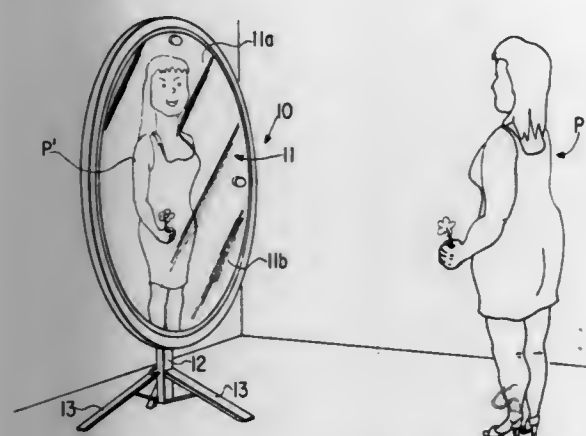
Milton A. Doolittle, Simsbury, Conn., assignor to Select-A-Size Ltd., Syracuse, N.Y.

Filed Apr. 13, 1973, Ser. No. 351,045

Int. Cl. G02b 5/10

U.S. Cl. 350—295

19 Claims



A mirror for providing an image representative of a person after a loss of weight. The upper portion of the mirror which reflects the head of a person remains planar, while the lower portion which reflects the body is variably curved. The mirror is provided with an adjustable support so that the planar upper portion may be moved vertically to accommodate persons of different heights.

3,832,040

FIXING DEVICE FOR A COMPONENT OF A SYSTEM

Jacques Paul Elie Ciabrini, Chateaufort, France, assignor to Engins Matra, Paris, France

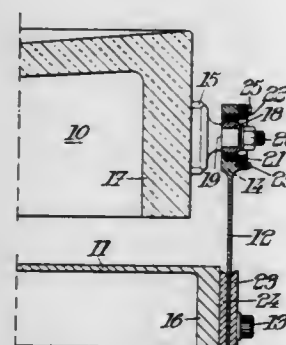
Filed Mar. 15, 1973, Ser. No. 341,328

Claims priority, application France, Apr. 14, 1972, 72.1331

Int. Cl. G02b 5/08

U.S. Cl. 350—310

8 Claims



The device comprises a plurality of thin elastic strips distributed at equal angular intervals on a circle centered on the axis of the component. The large surface of the strips is positioned in the plane tangential to the circle parallel to the axis of the component, each of said strips having a tightly securing connection to the support (or the component) and a universal connection to the component (or the support). The device is particularly useful for fixing a component of an optical system in a satellite.

3,832,041

OPHTHALMOLOGICAL APPARATUS FOR USE IN AN EXAMINING ROOM

David M. Lieberman, 174 8th Ave., Brooklyn, N.Y. 11215

Filed Dec. 3, 1971, Ser. No. 204,468

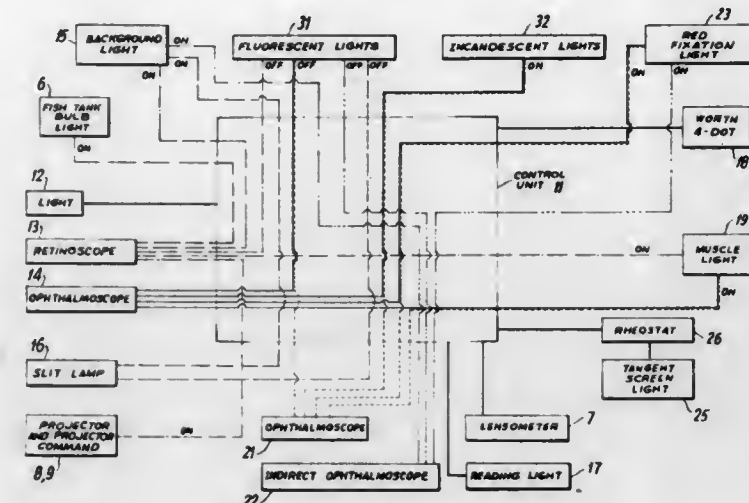
Int. Cl. A61b 3/00, 3/10; H05b 37/00

U.S. Cl. 351—1

10 Claims

A system for use by an ophthalmologist for the examination of a patient basically comprises a plurality of environmental

devices such as lights, fixation devices, and the like, in combination with the various ophthalmological instruments employed by the ophthalmologist, all of said environmental



devices and instruments being interconnected to a central control system whereby the ophthalmologist is afforded optimum environmental conditions for the several tests which he conducts during an examination.

3,832,042

INTERNAL READING DEVICE FOR OPHTHALMOLOGICAL INSTRUMENTS

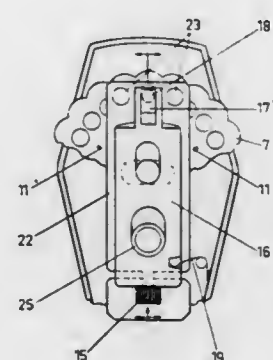
Helmut A. Heine, Herrsching/Upper Barrenia, Germany, assignor to Propper Manufacturing Co., Inc., Long Island City, N.Y. and Optotechnik Heine KG, Herrsching, Germany, part interest to each

Filed Nov. 20, 1972, Ser. No. 308,254

Int. Cl. A61b 3/12; G02b 27/34, 5/14

U.S. Cl. 351—6

5 Claims



An ophthalmological instrument in which selected parameters of the optical function of the instrument may be varied during use is provided with an internal optical system under control of the user whereby figures, symbols, scales or other indicia identifying the momentary value of the variable parameters are rendered visible to the user in the instrument viewing aperture while the instrument is in use.

3,832,043

SPECTACLES POSITIONING APPARATUS

Michael D. Usdan, 3771 N. Swan Ridge Cir., Memphis, Tenn. 38122

Filed Apr. 26, 1973, Ser. No. 354,647

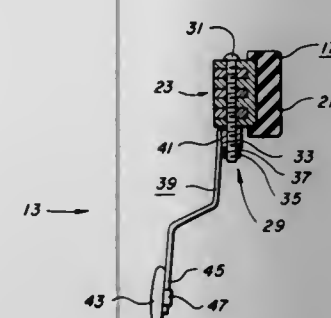
Int. Cl. G02c 5/14

U.S. Cl. 351—123

1 Claim

Apparatus for positioning standard spectacles so that no portion of the spectacles contacts the nose or adjoining facial tissue of the person wearing the spectacles. A pair of support pads formed of flexible, resilient plastic are positioned ad-

jacent the malar-bones of the person wearing the spectacles and are mounted to each of the hinge members of the specta-



cles thereby holding the frame front of the spectacles away from the nose and adjoining facial tissue of the person wearing the spectacles.

3,832,044

FILM LOOP CONTROL SYSTEM FOR SOUND MOTION PICTURES

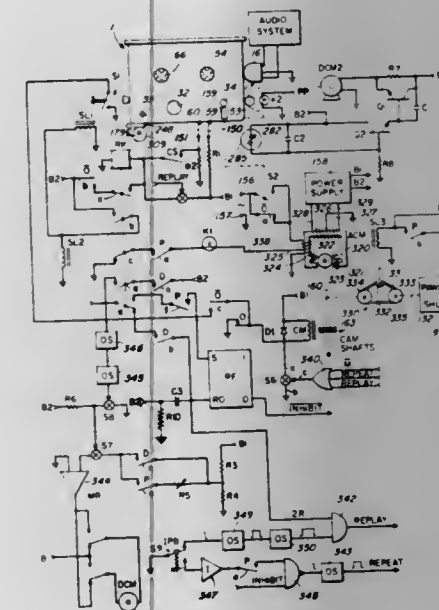
Robert H. Deeran, Derry, N.H., assignor to Poloroid Corporation, Cambridge, Mass.

Filed June 28, 1973, Ser. No. 374,637

Int. Cl. G03b 31/00

U.S. Cl. 352—14

10 Claims



A film transport control system for a sound motion picture production and sound editing system, comprising a combined motor and transformer which serves to supply power to the apparatus, including power for the projection lamp, to drive a program control shaft that controls operation of the system for photographic processing, projection and rewinding operations, and to drive an incremental film advance pawl. A DC motor drives a capstan, to move the film at uniform speed past a transducer head, under the control of a photocell illuminated at times by a loop formed in the film between the sound head and the projection drive pawl driven by the combined motor and transformer. The photocell controls the motor through a two stage amplifier comprising two filtering capacitors to provide a long time constant control over the average speed of the capstan to reduce wow and flutter.

3,832,045

WIDEBAND FREQUENCY COMPENSATION SYSTEM IN A SOUND MOTION PICTURE PROJECTOR

Stewart W. Wilson, 30 Lang St., Concord, Mass. 01742, and Edwin K. Shenk, 24 Edsel Rd., Littleton, Mass. 01460

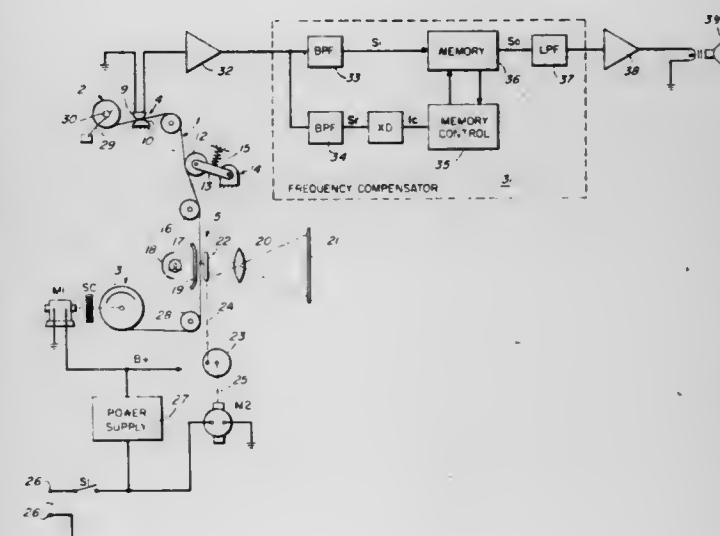
Continuation of Ser. No. 294,488, Oct. 2, 1972. This

application Oct. 1, 1973, Ser. No. 401,988

Int. Cl. G03b 31/02

U.S. Cl. 352—25

18 Claims



A frequency deviation compensation system in which an information signal is recorded on a record medium simultaneously with a pilot reference signal. A reproducing system is provided in which samples of the recorded information are read from the record into a storage register at a rate determined by the reproduced pilot signal, and read out of the storage register at a fixed rate to compensate for differences in the speeds at which the information is stored on, and retrieved from, the record.

3,832,046

PANORAMIC PROJECTOR AND CAMERA

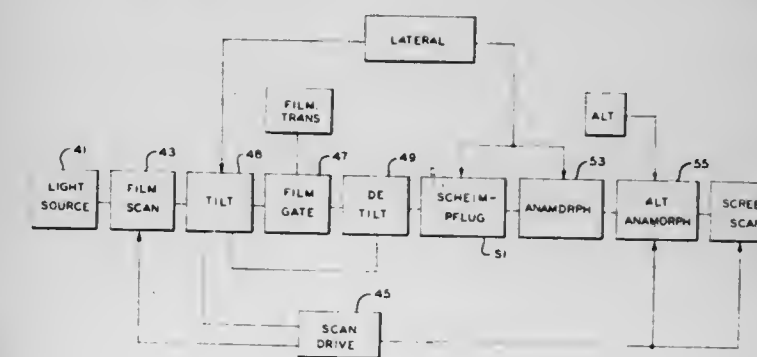
Richard A. Mecklenborg, Binghamton, N.Y., assignor to The Singer Company, Binghamton, N.Y.

Filed Nov. 13, 1972, Ser. No. 305,792

Int. Cl. G03b 37/00

U.S. Cl. 352—69

49 Claims



screen. For use in situations, e.g., in flight simulators, where perspective transformations are required, means are provided to tilt the scanning slit in order to pick up the required image information and then to detilt it afterwards. Translation corrections are then obtained by Scheimpflug and anamorphic correction means and placed in the optical path prior to projection. A panoramic camera is also described.

3,832,047

SEQUENTIAL PICTURE APPARATUS WITH OSCILLATORY OPTICAL COMPENSATOR

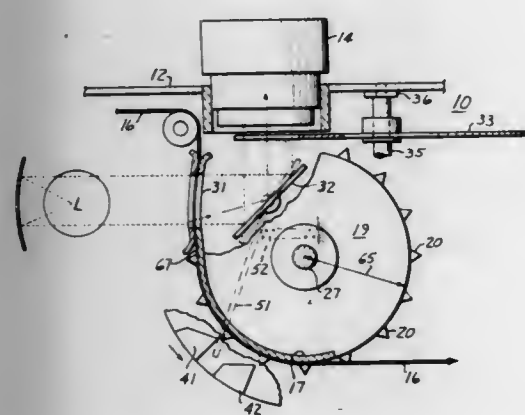
Robert Haake, Monrovia, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed July 7, 1972, Ser. No. 269,682

Int. Cl. G03b 41/10

U.S. Cl. 352—109

18 Claims



A sequential picture apparatus, such as a motion picture camera, projector, viewer or scanner, or a microfilm reader, employs a continuously moving film and an oscillatory optical compensator device for compensating the continuous film motion. The optical compensator is oscillated with the aid of a rotating circular array of actuating elements as well as a mechanism or device, such as an arm, for translating rotary motion of the actuating elements into oscillatory motion of the compensator device. The optical compensator is mounted for oscillatory motion at a location spaced by a predetermined distance from an axis about which the actuating elements are rotated. In accordance with one aspect of this invention, this predetermined distance is smaller than the radius of the circular array of actuating elements. According to another aspect of the invention, each actuating element has a projecting edge for engaging the compensator actuating device to the exclusion of other actuating element portions. Novel shutters and shutter mechanisms are also disclosed.

3,832,048

PROCESSING COMPOSITION RELEASE MECHANISM FOR FILM CASSETTE COMPRISING SELF-CONTAINED FILM PROCESSING SYSTEM

John F. Batter, Jr., Lincoln; Paul B. Mason, Magnolia; Joseph A. Stella, West Peabody; Paul W. Thomas, Jr., Duxbury, and Joseph H. Wright, Peabody, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 227,092, Feb. 17, 1972, Pat. No. 3,785,725. This application July 31, 1973, Ser. No. 384,217

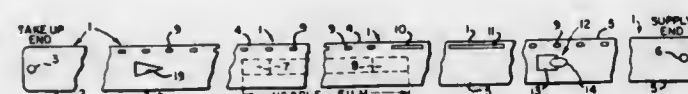
Int. Cl. G03c 11/00

U.S. Cl. 352—130

1 Claim

Apparatus for controlling the release of processing composition in a film cassette comprising a roll of film and con-

taining a film processing system. A container of film processing composition within the cassette is initially sealed by a tear strip that is pulled away, to release the composition for coating on the film, by an arm initially held in an inactive position. The arm is moved to a position adapted to engage a cam formed on a spool about which the film is coiled. The cam



engages the arm to detach the tear-tab and release the processing composition when the spool is rotated in a predetermined sense.

3,832,049

SLIDE TRANSPARENCY PROJECTING AND SIMULTANEOUS SOUND REPRODUCING DEVICE

Shinichi Sato, No. 33-10, Miyasaka 3-chome, Setagaya-ku, Tokyo, Japan

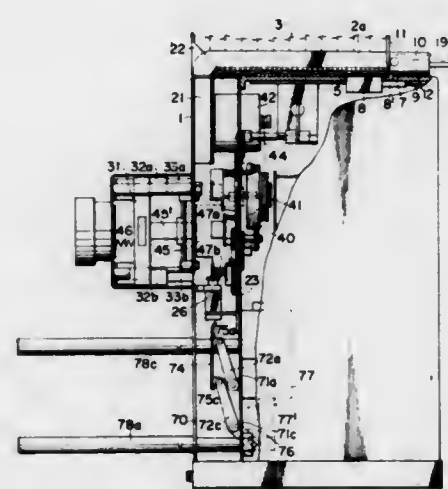
Filed Dec. 28, 1971, Ser. No. 213,012

Claims priority, application Japan, Dec. 31, 1970, 45-126045

Int. Cl. G03b 31/06

U.S. Cl. 353—19

4 Claims



A slide transparency projecting and simultaneous sound reproducing device adapted to sequentially project a plurality of slide transparencies each incorporated in a tape cassette is provided, and simultaneously with projection, the sound reproduction is effected.

Such tape cassettes each incorporating a slide transparency are sequentially and automatically fed to a projection and sound reproduction position in a device consisting of, say, a combination of a slide transparency projector and a sound reproducing device (for example, a cassette tape recorder). Accordingly, one can watch the projected screen and at the same time can listen to the text of the illustration being projected. This device provides a useful combination of a slide transparency projector and sound device which have remained desirable hitherto.

3,832,050

INDICATING MECHANISM FOR A PROJECTION APPARATUS

Hans Werner Johannsen, Eichenau, Germany, assignor to Braum A.G., Frankfurt, Germany

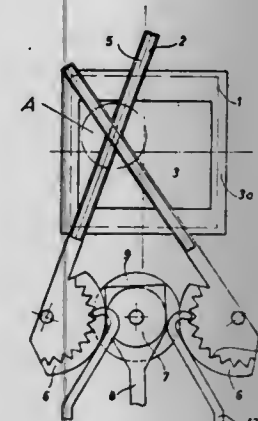
Filed Feb. 7, 1972, Ser. No. 224,030

Claims priority, application Germany, Feb. 12, 1971, 2106602

Int. Cl. G03b 11/02, 21/26

U.S. Cl. 353—42

11 Claims



In a picture projection apparatus operable with an objective and an optical arrangement placed along an optical axis for projecting a picture placed between the objective and the optical arrangement the provision of an indicating mechanism including a pair of elongated flat indicating bars of a transparent material extending into the path of the light in a plane between the picture plane and the objective, the indicating mechanism including a drive arrangement for operating the indicating bars by causing each of the indicating bars to sweep the entire picture window area and for bringing the indicating devices to an intersection at any position over the picture area, the indicating bars carrying a thin strip of less transparent material which during the intersection creates a darker field over the picture detail on the screen without covering such detail.

3,832,051

PROJECTOR DISSOLVE CONTROL

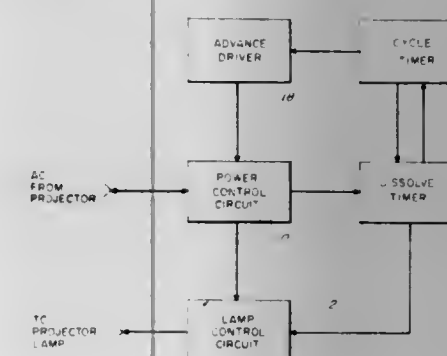
Allen K. Swanson, Walpole, Mass., assignor to Hamton Engineering Associates, Inc., Norwood, Mass.

Filed Oct. 16, 1972, Ser. No. 297,948

Int. Cl. G03b 23/16

U.S. Cl. 353—86

20 Claims



An adapter for insertion into the remote function receptacle of a conventional slide projector to receive operating power therefrom and for providing a gradual fading in and out of the picture displayed by each slide. The adapter includes one timing circuit for providing automatic slide advancement having adjustable means for controlling the time interval between slides, and another timing circuit for controlling the rate at which the fading in and out, or dissolve, of the picture takes place.

3,832,052

ELECTROMAGNET DRIVING SWITCH ARRANGEMENT FOR ELECTRONIC CAMERA SHUTTERS

Koichiro Watanabe, Funabashi, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

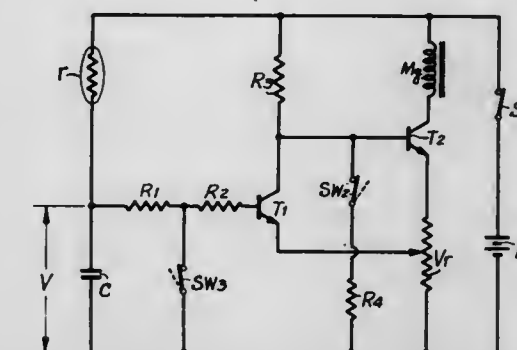
Filed May 8, 1973, Ser. No. 358,265

Claims priority, application Japan, May 15, 1972, 47-55570

Int. Cl. G03b 7/08

U.S. Cl. 354—51

7 Claims



A camera which has an electromagnet for initiating closing of a camera shutter when the electromagnet is deenergized. A switching circuit is electrically connected with the electromagnet for determining the instant when the latter becomes deenergized in accordance with an information signal received by the switching circuit. A control circuit is electrically connected with the switching circuit for placing the latter in a condition which prevents energizing of the electromagnet as long as a switch of the control circuit remains closed. It is only upon opening of this latter switch that it becomes possible for the electromagnet to become energized. This latter switch is opened after initiation of the shutter opening operation and just prior to the opening of the shutter, whereby the electromagnet will remain deenergized during light measurement and other preparatory operations and will only be energized just prior to the opening of the shutter.

3,832,053

BELT TRANSFER SYSTEM

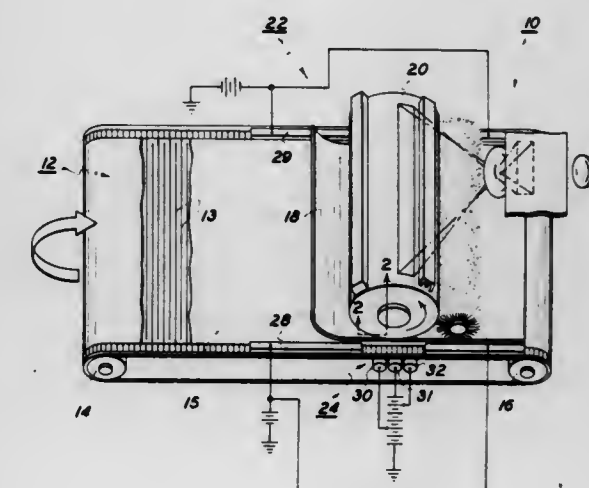
Narendra S. Goel, Henrietta, and Gerald M. Fletcher, Pittsford, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 3, 1973, Ser. No. 421,177

Int. Cl. G03g 15/14

U.S. Cl. 355—3 R

12 Claims



An electrostatic copying system in which an image is formed on an imaging surface and transferred at a transfer station to a copy sheet, where the copy sheet is transported through the transfer station on a belt which has a pattern of very closely spaced discrete conductive strips which are electrically biased to provide a pattern of electrostatic fringe fields

holding the sheet onto the belt. The same conductors may be variably biased in the transfer station to effect tailored transfer fields.

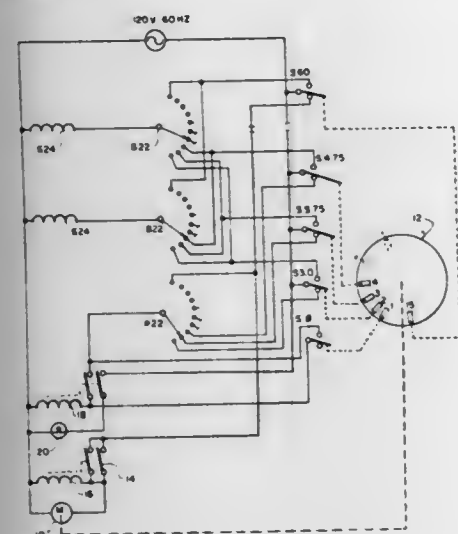
3,832,054

PHOTOGRAPHIC PRINT TIMER

Arthur J. Sable, Boulder, Colo., assignor to Sable Photo Works, Inc., Boulder, Colo.

Filed June 6, 1973, Ser. No. 367,487
Int. Cl. G03b 27/76

U.S. Cl. 355—35



This invention relates to a multiple-event timer that presents the user with a limited number of preselected time interval choices for two or more related events which bear a precise and known relationship to one another such that the effect of a change in the time interval for one such event has a predictable effect on its relationship to the companion events. More particularly, the instant invention relates to a timer specifically suited for use in timing the three primary color exposures of a color print being made by the tri-color printing method wherein the several available discrete time intervals presented to the user are preselected and separated from one another by the same equal fraction of a photographic stop.

3,832,055

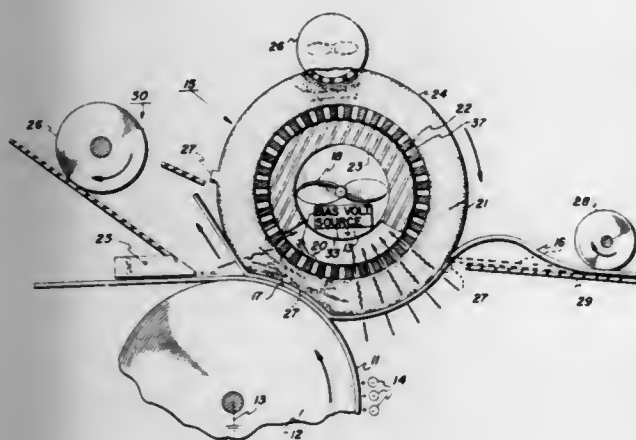
FORAMINOUS VACUUM BIAS ROLL TRANSFER SYSTEM

Ralph A. Hamaker, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed June 5, 1973, Ser. No. 367,279
Int. Cl. G03g 15/16

U.S. Cl. 355—3 R

17 Claims



In electrostatographic apparatus for applying a high bias voltage between a bias roller electrode and an original support surface to provide an electrical field for development material transfer to a cut sheet therebetween without arcing or un-

desired corona, a roller electrode having an electrically conductive core to which said high voltage is applied and a normally thick roller body of foraminous convolute open cell material compressed between the conductive core and the support surface and a vacuum applied through said foraminous material to hold said cut sheet against said roller electrode.

3,832,056

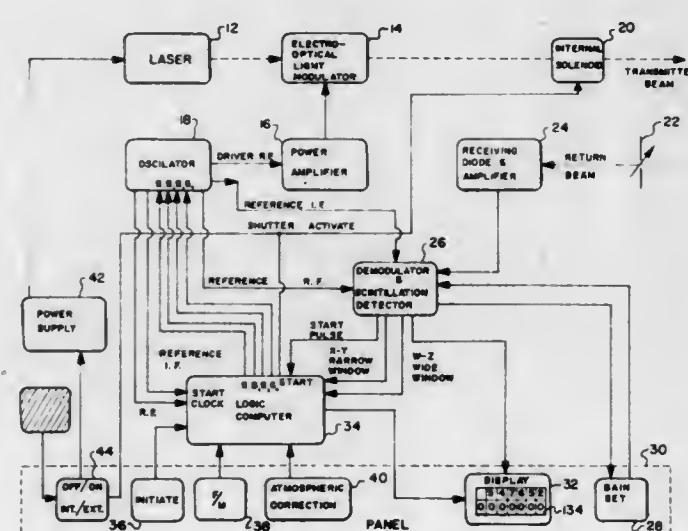
DISTANCE MEASURING DEVICE USING ELECTRO-OPTICAL TECHNIQUES

John I. Shipp; Robin H. Hines; William L. Hollinshead, and Thomas D. Broadbent, all of Tullahoma, Tenn., assignors to AGA Corporation, Secaucus, N.J.

Filed Mar. 13, 1972, Ser. No. 234,018
Int. Cl. G01c 3/08; G06m 7/00

U.S. Cl. 356—5

19 Claims



An electro-optical surveying instrument for measuring distance utilizing a frequency modulated laser beam is provided with special positioning of lenses so that there is an internal calibration for the lenses utilized so that an exact measurement can be made of a distance from the plumb point of the instrument to the retroreflector at the point from which the distance is being measured. A digital signal level indicator is provided to give the operator of the instrument an exact indication of the strength of the return beam so that he knows exactly whether a reading can be made under a given condition. Electronic logic is provided within the instrument to cancel all second harmonic distortions. The surveying instrument itself is provided with a photo optical switch which allows the instrument to be turned on or off without the need for touching the instrument so as not to in any way affect the exact position of the instrument when a reading is being made. Further, a minimum number of frequencies are utilized to modulate the laser beam while receiving the same range as with instruments utilizing greater numbers of frequencies to modulate the laser.

3,832,057

SCANNING APPARATUS

David K. Shogren, Ontario, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed June 2, 1972, Ser. No. 259,181
Int. Cl. G03g 15/04

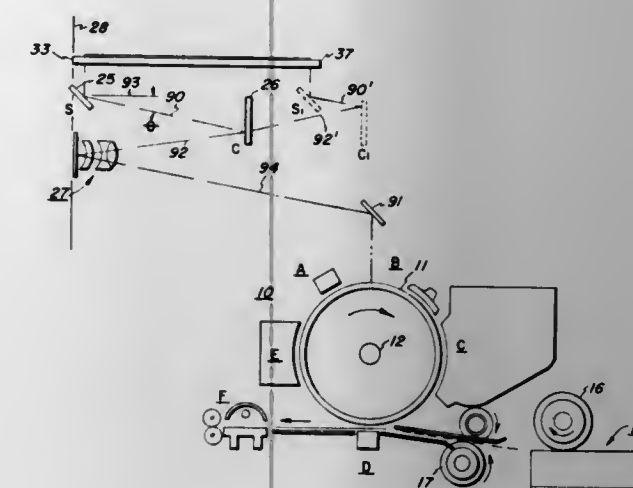
U.S. Cl. 355—8

14 Claims

Apparatus is herein disclosed for compressing the optics of a scanning system for producing a flowing light image of a stationary original. A scanning mirror is arranged to sweep past the stationary original at a predetermined rate to create a series of incremental images thereof. A stationary half lens is positioned below the scanning mirror in the start of scan posi-

tion and is arranged to redirect received light back in the direction of scan. A second compensating mirror is moved in

focal length of the selected lens, and are compared with the actual distances; and the motors are controlled as the results of the comparisons of the actual and the desired distances.



cooperation with the scanning mirror which continually redirects the reflected light rays from the scanning mirror back to the lens along the lens receiving optical axis.

3,832,058

PROCESS AND APPARATUS FOR SETTING A REPRODUCTION CAMERA

Eckart Gusovius, Auiwiese, Germany, assignor to Thefiem "Dr. Boger Diplomat Apparate KG", Holstein, Germany

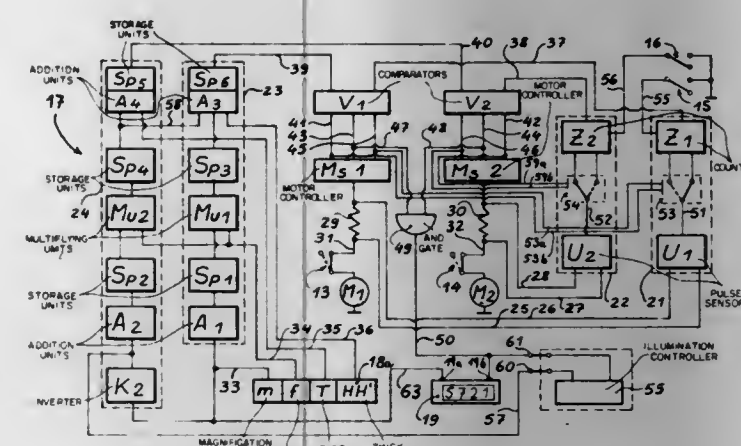
Filed Mar. 26, 1973, Ser. No. 344,882

Claims priority, application Germany, May 25, 1972, 2225416

Int. Cl. G03b 3/10, 27/34

U.S. Cl. 355—56

21 Claims



A reproduction camera has a carrier for a replaceable objective lens and a carrier for the image plane, both carriers being movable to different distances from a copy holder by electric motors, and an electronic digital computer, which determines the actual distances of the carriers from the holder by counting electrical pulses generated upon incremental movements of the carriers (as by pole passages of the motors, or directly); the desired distances for sharp focus, corrected for T (distance of the objective lens from the objective carrier) and HH' (distance between principal focal points) are computed on the basis of the desired magnification and the

3,832,059

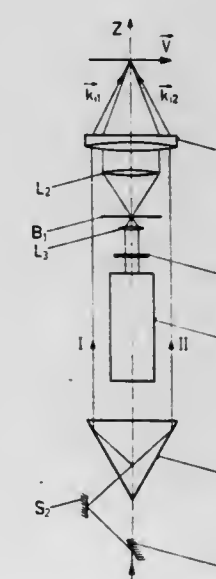
FLOW VELOCITY MEASURING ARRANGEMENT UTILIZING LASER DOPPLER PROBE

Paul Dominik Iten, Oberrohrdorf, Switzerland, assignor to BBC Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Continuation-in-part of Ser. No. 146,162, May 24, 1971, abandoned. This application June 5, 1973, Ser. No. 367,148
Claims priority, application Sweden, May 29, 1970, 8047/70
Int. Cl. G01p 3/36

U.S. Cl. 356—28

5 Claims



Apparatus for measuring the velocity in fields of flow by means of a self-adjusting laser-doppler probe serving to receive back-scattered signals which includes a single lens which functions both as a transmission and also as a receiving lens. Two coherent laser beams, obtained from a single primary laser beam are fed to this lens symmetrically and parallel to the optical axis of the lens at an axial distance which is smaller than the lens radius and the back-scattering measuring point lies in the focus of the lens and thus in the meeting point of the two beams having different directions after refraction by the lens. The back-scattered light containing the two doppler-shifted frequency components is focussed after passing through the lens by means of an additional optical system coaxial with the optical axis and is then fed to a detector for mixing and heterodyning of the two doppler-shifted frequency components thus to produce an electrical signal which is dependent only upon the doppler differential frequency and hence on the velocity of scattering particles.

3,832,060

METHOD OF PREPARING ANALYTE MATERIAL FOR SPECTROCHEMICAL ANALYSIS

Ralph L. Dahlquist, Santa Barbara, Calif., assignor to Applied Research Laboratories, Inc., Sunland, Calif.

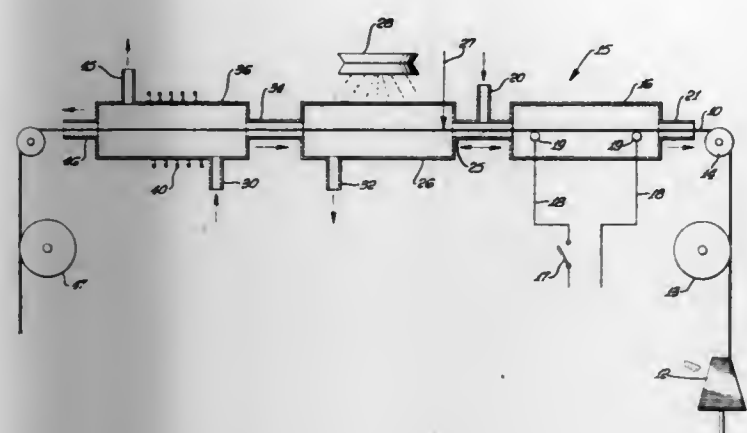
Filed Aug. 10, 1972, Ser. No. 279,619
Int. Cl. G01n 1/00

U.S. Cl. 356—36

12 Claims

An analyte material is prepared for spectrochemical analysis by depositing it in solution or electrostatically precipitating it upon a previously purged yarn of finely divided carbon fibers, desiccating it in situ, and electrically heating the yarn

sufficiently to vaporize the analyte material while passing a gas stream over it in which the analyte material is condensed in



particles of sufficiently small size to form an aerosol which is then conducted to any of a variety of excitation sources for spectrochemical analysis.

3,832,061

SPECTROMETERS

Stanley Desmond Smith, Midlothian; Roland Andrew Wood, Edinburgh, and Richard Benson Dennis, Midlothian, all of Scotland, assignors to National Research Development Corporation, London, England

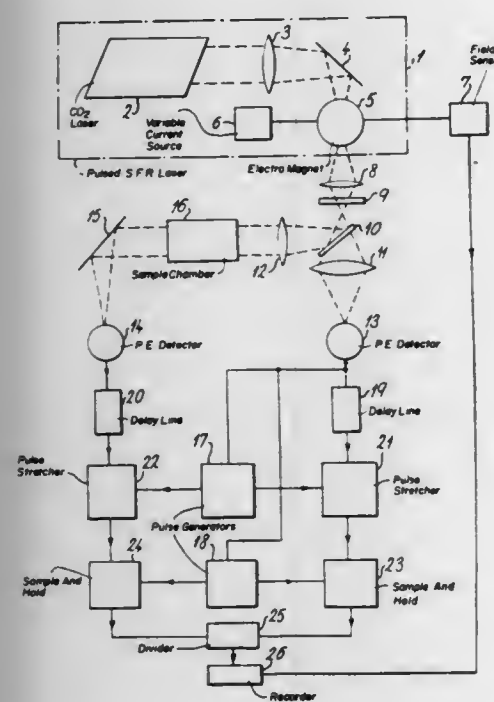
Filed Feb. 13, 1973, Ser. No. 332,222

Claims priority, application Great Britain, Feb. 18, 1972, 7616/72

Int. Cl. G01j 3/42

U.S. Cl. 356-88

2 Claims



In a spectrometer using a tunable pulsed spin-flip Raman laser as the radiation source, the output of the laser is split into sample and reference beams which are arranged to fall on separate detectors. The ratio of the outputs of the two detectors is computed for each pulse from the laser by means of an electronic system triggered by pulses derived from one of the detectors.

3,832,062 SPECTROPHOTOMETRIC APPARATUS FOR DETERMINING DOSING SUBSTANCES IN A LIQUID

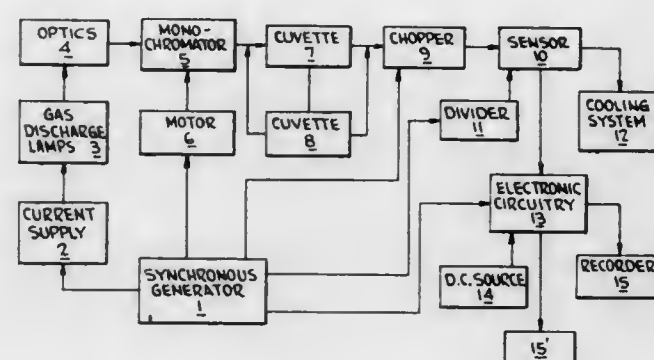
Francois J. G. Van Den Bosch, 11 Hillcrest Rd., Cedar Grove, N.J. 07009

Filed Mar. 27, 1973, Ser. No. 345,354
Claims priority, application Belgium, Mar. 29, 1972, 115738

Int. Cl. G01j 3/42

U.S. Cl. 356-97

7 Claims



Spectrophotometric apparatus for determining substances present in a liquid by a visual indication or display of the differences between a spectrum of the liquid and a standard liquid. A spectrum of the liquid and a reference liquid is analyzed by scanning the band-width of luminous radiation from the ultraviolet to the near infra-red. The spectra are alternatively chopped and compared with a reference voltage. The output representing the difference between the spectra is obtained from an operational amplifier having a feedback circuit including a light generating element for generating a light output proportional to the difference between the spectral and a light sensitive element responsive to the light output of the light generating means. Alternatively the apparatus may be used to compare a previously made recording with a standard recording so that the differences therebetween can be displayed for immediate analysis as an aid in the diagnoses of blood, etc.

3,832,063

LENS AXIS DETECTION USING AN INTERFEROMETER

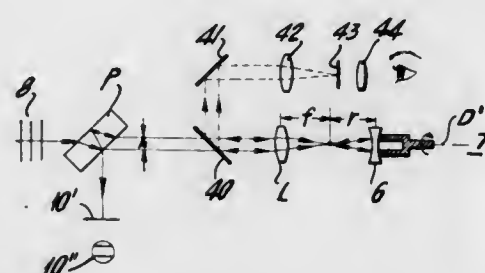
Kazuya Matsumoto, Yokohama, and Mikichi Ban, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 31, 1973, Ser. No. 328,297
Claims priority, application Japan, Feb. 1, 1972, 47-11706; Apr. 14, 1972, 47-37455

Int. Cl. G01b 9/02

U.S. Cl. 356-109

10 Claims



In the detection of the position of the axis of a lens, a coherent beam of light is divided, by a beam splitter, into two beams which are bent to intersect at a line and in the paths of which is positioned the lens to be examined at a location such that the center of curvature of a front surface coincides with the point of intersection of the two beams so that the two beams illuminate two portions on the curved surface of the lens. The two coherent beams strike the curved surface per-

pendicularly, after which they are returned along the same paths to the beam splitter and are superimposed thereby, at a line, to produce a pattern of interference fringes. During the detection, an axis of rotation, about which the lens to be examined is rotated, is selected so as to satisfy the condition that the pattern of interference fringes does not vary with rotation of the lens. When this condition is obtained, the position of the lens axis is determined.

3,832,064

PATTERN LENGTH MEASUREMENT AND CONTROL BY CONTINUOUS-STATISTICAL-CORRELATION

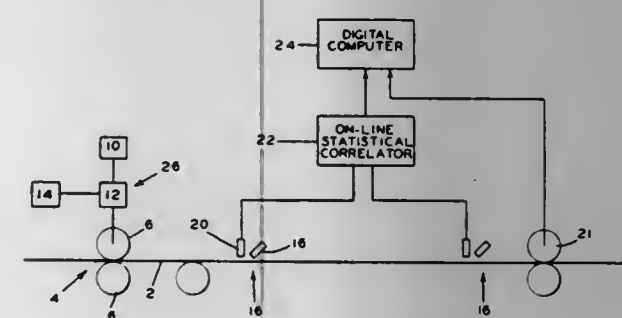
Robert L. Horst, Lancaster, and Dennis L. Wolgemuth, Mount Joy, both of Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

Filed Dec. 29, 1972, Ser. No. 319,777

Int. Cl. G01b 11/00

U.S. Cl. 356-163

7 Claims



An apparatus and a method are provided for measuring repeat length of a repeated design pattern on goods as an inspection technique and quality control system. A pair of photoelectric scanner sensors are positioned apart a distance which is a multiple of the basic pattern repeat length. The output from the scanner sensors is correlated, and a signal is provided which gives an indication of the time shift between the scanned signatures of the repeat pattern which is picked up by the scanner sensors. This value of the time shift is then used with the speed of the goods in on-line calculations to determine the repeat length and/or to control repeat length.

3,832,065

DRUM TRACK DETECTOR

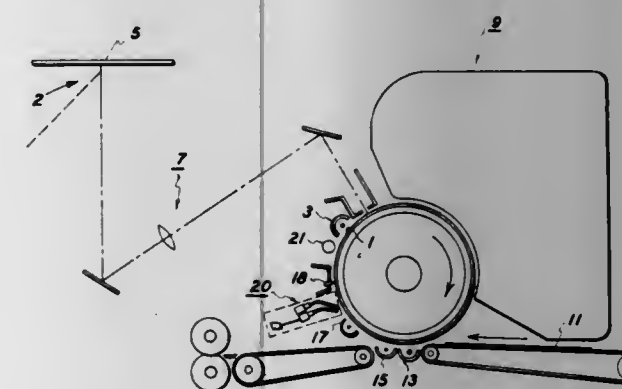
Bernard J. Sullivan, Webster, and David G. Baxter, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 23, 1973, Ser. No. 344,322

Int. Cl. G01n 21/48, 21/16

U.S. Cl. 356-210

32 Claims



A method of and an apparatus for detecting a medium includes means or steps for providing a light beam and means or steps for detecting the light after it is reflected from the medium. The light providing means is positioned to direct a light beam onto a substantially planar surface at a predetermined

angle of incidence. The presence of a sheet medium that may be laid on the planar surface is detected by detecting a portion of the light reflected by the sheet medium. Preferably, the detecting means is positioned so that it senses a portion of light scattered or diffused by the paper but is positioned outside of the path of the reflected light from the planar surface so that it does not detect the reflected light. In this manner, the apparatus is rendered to be capable of detecting the presence of sheet medium that diffuses the light but avoid detecting the reflected light from a planar surface. The ability to discriminate is enhanced by pulsing the light at a given repetition rate and by providing an amplifying arrangement in the photodetecting means that is tuned to the repetitive rate of the pulsed light. The discrimination capability is further enhanced by choosing a light beam that has an energy spectrum which is substantially transparent to the planar surface, i.e., is substantially absorbed by the planar surface but which is non-transparent to the sheet medium; i.e., is bounced back and diffused substantially by the sheet medium.

3,832,066

APPARATUS AND METHOD FOR ANALYZING SPHERO-CYLINDRICAL OPTICAL SYSTEMS

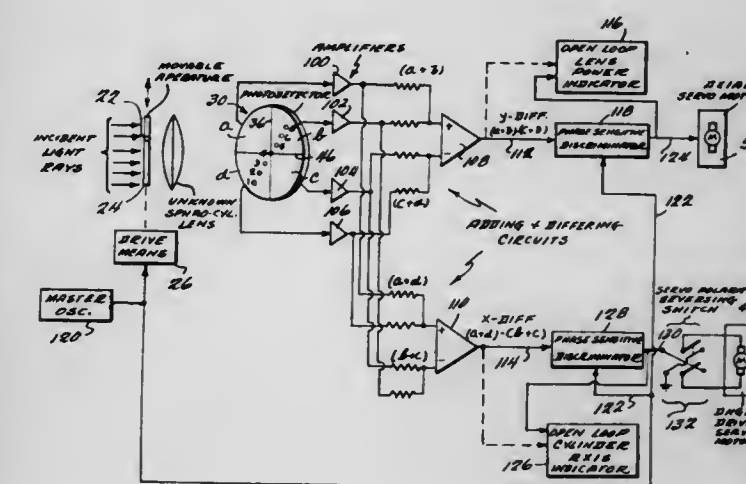
Tom N. Cornsweet, Washington, D.C., assignor to Acuity Systems, Incorporated, McLean, Va.

Filed Oct. 27, 1972, Ser. No. 301,366

Int. Cl. G01h 9/00

U.S. Cl. 356-127

24 Claims



An apparent line source of collimated light is projected through a spherocylindrical lens under test onto a quadrant photodetector and is then relatively rotated in the plane of the detector to provide substantial alignment of the line source with one of the parting axes of said detector to define and orient the cylindrical axis of said lens. Subsequent movement of the detector along the optical axis of the system defined by the line source, the lens under test and the intersection of the parting axes of the detector provides a phase reversal or other null point of the signal generated in said detector as it moves through the focus of the lens. The position of the focus thus provides the power of the lens.

3,832,067

COLORIMETER FOR DETECTING BLOOD LEAKS IN AN ARTIFICIAL KIDNEY MACHINE

J. David Kopf, Tujunga; Cole D. Bacon, Encino, and Teryl W. Schwartz, Tujunga, all of Calif., assignors to David Kopf Systems, Tujunga, Calif.

Filed Nov. 24, 1972, Ser. No. 309,152

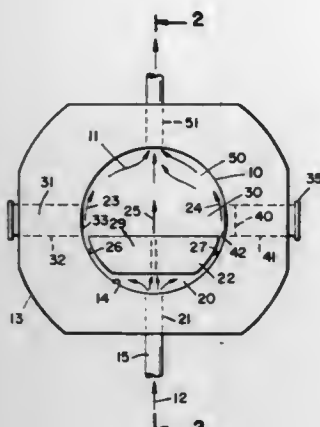
Int. Cl. G01j 3/50

U.S. Cl. 356-181

6 Claims

A colorimeter is provided that senses the presence of a contaminant opaque to light of a specific color which is carried in a fluid flowstream. As the flowstream passes through the

colorimeter, a photocell on one side of the flowstream is illuminated only by light of the specific color which originates on



the opposite side of the flowstream, the photocell sensing a change in intensity of transmitted light caused by presence of the contaminant.

ERRATUM

For Class 356—209 see:
Patent No. 3,832,070

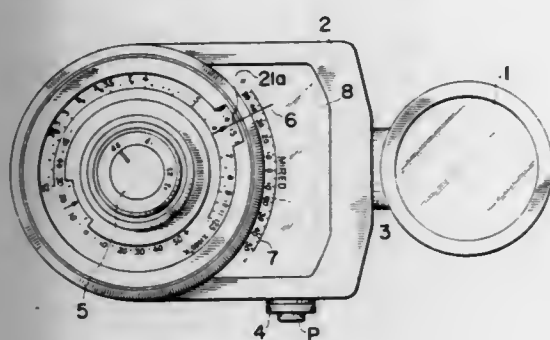
3,832,068

THREE COLOR METER WITH A CALCULATOR

Mikio Naya; Haruki Yamaguchi, both of Toyokawa, and Izumi Horie, Toyohashi, all of Japan, assignors to Minolta Camera Co., Ltd., Osaka-fu, Japan

Continuation of Ser. No. 117,893, Feb. 23, 1971. This application Nov. 20, 1972, Ser. No. 307,829
Int. Cl. G01j 1/42

U.S. Cl. 356—173



A three color meter with a calculator in accordance with the present invention is so constructed that the whole measuring range of a color meter is divided into a plurality of divisional measuring ranges; and a pointer and a scale graduated at equal intervals with the mired unit and common to every range are provided; and an indicating means for indicating the color temperature value as deviation for the central value of every range shown by the mired unit and the R-G index, first and second scale disks corresponding thereto, a manual operation member for the division setting member, and a transparent scale disk concentric with said first and second scale disks are equipped; the linear relation between the color temperature value of said indicating means and the logarithm of the spectral energy ratio is arranged to be held by compensating an electrical circuitry; and further in measuring R-G spectral energy ratio it is possible to obtain in high precision the color temperature conversion filter coefficient and the green wave length compensation filter coefficient for an illumination source suitable for a photosensitive material to be used in color photographing by artificial illumination, making use of the approximation based on the Wien formula.

3,832,069

CLEANING APPARATUS

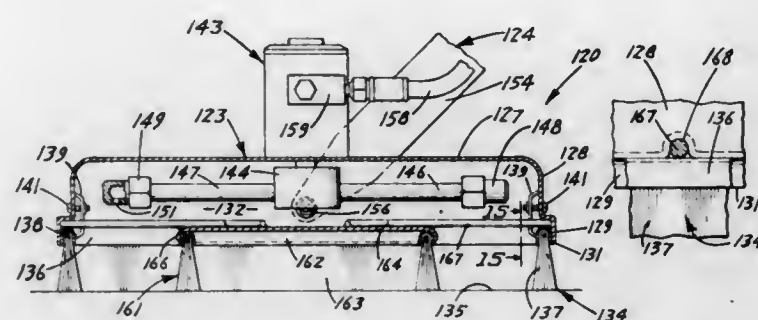
Harold A. Petsch, Excelsior, Minn., assignor to Chaska Chemical Company, Inc., Savage, Minn.

Continuation-in-part of Ser. No. 222,836, Feb. 2, 1972. This application Nov. 16, 1972, Ser. No. 307,043

Int. Cl. A47i 13/10

U.S. Cl. 401—289

12 Claims



A cleaning apparatus having a p-n shaped housing carrying brushes engageable with a surface to be cleaned. Mounted on the top of the housing is a spinner assembly having a body containing a longitudinal passage. A tubular shaft rotatably mounted in the passage carries tubular arms located within the housing. The fluid flows from the hollow shaft into the arms and is discharged through the orifices in nozzles mounted on the ends of the arms. The shaft has a head located in a chamber at one end of the passage. The diameter of the head is larger than the diameter of the passage and is dynamically balanced by the flow of fluid under pressure through the passage and chamber into the hollow shaft. A guard carrying a center brush attached to the housing protects the arms and nozzles of the spinner assembly.

3,832,070

CALIBRATION SYSTEM FOR REFLECTION DENSITOMETERS

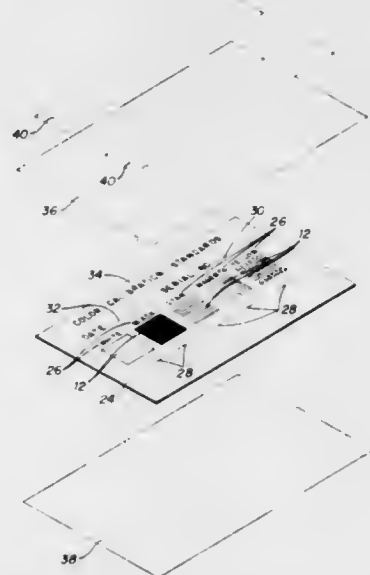
James R. Cox, Richardson, Tex., assignor to Cosar Corporation, Garland, Tex.

Filed Apr. 27, 1973, Ser. No. 355,023

Int. Cl. G01n 21/48

U.S. Cl. 356—209

18 Claims



In a reflection densitometer calibration system, a calibration standard comprises a paper sheet having color zones printed thereon, including the colors white, black, and shades of blue, red and yellow. The paper sheet is laminated between two transparent plastic sheets which enclose the paper sheet and form a protective covering over the color zones. Strips of a transparent writing accepting material are then secured to the outer surface of the plastic layer which overlies the color zones.

After the calibration standard is fabricated, the optical densities of the color zones are determined by means of a master reflection densitometer. An indication of the optical density of each color zone is then written on the portion of the writing accepting strip adjacent the color zone. The calibration standard is then ready for use in calibrating reflection densitometers.

3,832,071

DISPENSER FOR ERROR CORRECTING FLUIDS

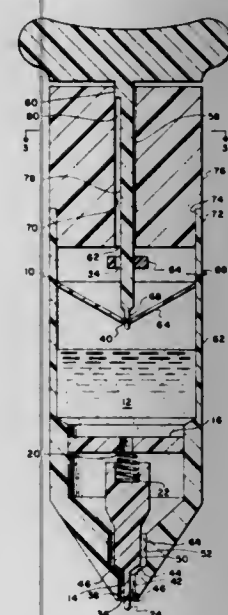
Preston E. Chaney, 6144 Waggoner Dr., Dallas, Tex. 75230

Filed Mar. 21, 1973, Ser. No. 343,370

Int. Cl. B43k 1/06

U.S. Cl. 401—260

10 Claims



A pigmented volatile fluid dispenser having a chamber for holding the fluid which has a valve dispensing end and a vent for equalizing the pressure between the chamber interior and the dispenser environment.

3,832,072

CLAMP ASSEMBLY

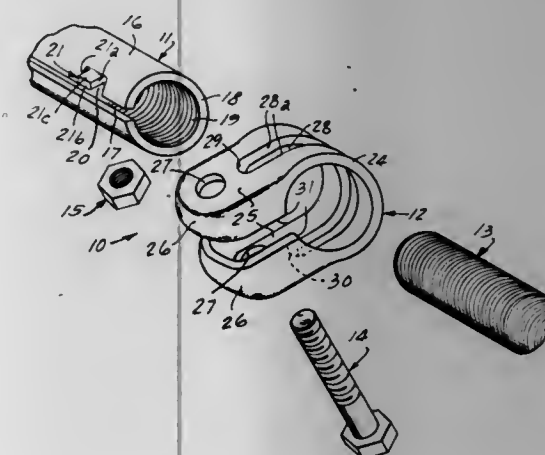
Sylvester Stanislaus Mazur, Detroit, Mich., assignor to TRW Inc., Cleveland, Ohio

Filed Apr. 23, 1973, Ser. No. 353,906

Int. Cl. F16b 7/06

U.S. Cl. 403—46

12 Claims



The location of a draw bolt clamp on an adjusting sleeve assembly for tie rods of automotive steering linkages is controlled by a tab on the slotted tube of the assembly projecting into a slot in the clamp to hold the clamp against axial shifting on the tube and to prevent rotation of the loose clamp to a position where any portion of the clamp could enter the tube slot when the clamp is tightened on the tube. The assembly

3,832,073

SWIVEL JOINT CONNECTION

Leopold J. Castellanos, Houston, Tex., assignor to Esso Production Research Company, Houston, Tex.

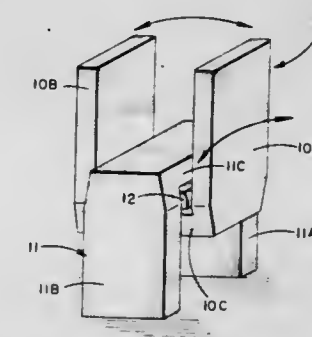
Division of Ser. No. 23,663, March 30, 1970, Pat. No.

3,636,716. This application July 28, 1971, Ser. No. 166,961

Int. Cl. F16c 11/00

U.S. Cl. 403—121

5 Claims



A swivel joint for use in a buoyant articulated offshore platform. Two U-shaped interlocking links, each having a contact surface formed on the intermediate section connecting the two parallel extending sides, are oriented at 90° to each other. A plate is positioned between the two contact surfaces and the surfaces of the U-shaped links bear against a contact surface on each side of the plate when tensile forces are applied in opposite directions to the links. At least one of each of the contact surfaces bearing against each other is curved. The disposition of the curved bearing surfaces permits one of the links to rock against the intermediate plate in one plane whereas the other link can rock in a plane at 90° to the one plane. This arrangement permits the outer end of the link to swing in any direction with respect to the outer end of the mating link.

3,832,074

LINKAGE QUICK-CONNECT DEVICE

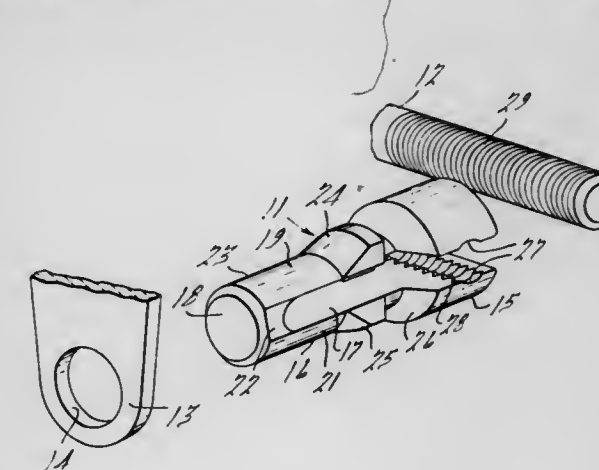
David C. Dehar, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed July 25, 1973, Ser. No. 382,624

Int. Cl. F16c 11/00

U.S. Cl. 403—163

4 Claims



A linkage quick-connect device for coupling a threaded link rod to a lever member having an aperture therein. The quick-connect device comprises a swivel pin having a cylindrical head and a shank, the latter being adapted to have snap-fit into the aperture in the lever and to be retained therein. The swivel pin is axially slotted through its head into the shank, the

slot terminating short of the shank end remote from the cylindrical head whereby the symmetrical body portions are hingedly connected for flexing movement toward and away from each other. The cylindrical head has a cylindrical recess extending in a direction normal to the swivel pin axis and has gripping means engageable with the threaded link rod to prevent axial disengagement of the latter from the swivel pin head in a direction axially of the longitudinal axis of the link rod.

3,832,075

MECHANICAL CONNECTING DEVICE

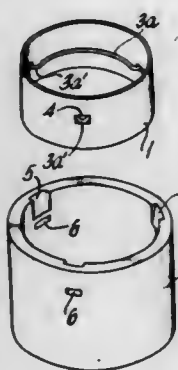
Akira Arai, 76, 2 chome, Soshigaya Setagaya-ku, Tokyo, Japan
Filed July 25, 1972, Ser. No. 275,030

Claims priority, application Japan, July 27, 1971, 46-66642; Aug. 5, 1971, 46-70016

Int. Cl. F16b 21/09

U.S. Cl. 403—328

4 Claims



A separable coupling includes a female coupling member having a first circular peripheral wall provided with circumferentially spaced coplanar first slots and cam faces leading radially inwardly from the outer edge of the peripheral wall towards respective slots. A male coupling member has a second circular wall which slideably telescopes the first peripheral wall and has slots registering with the first slots. A locking member formed of resilient wire is located in the male coupling member and has integrally formed outwardly directed ears with outwardly converging side edges engaging corresponding pairs of registering slots. The peripheral walls may be conical or cylindrical and may be continuous or interrupted along their lengths. In joining the coupling members they are axially brought together with the cam faces contracting the ears until they register with and expand in the slots and by twisting one of the members relative to the other the ears are contracted out of the female slot permitting uncoupling.

3,832,076

SPLINED ASSEMBLY WITH RETAINING RINGS

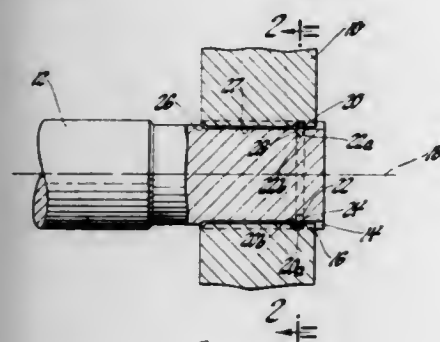
Glenn F. Gehrke, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 25, 1972, Ser. No. 291,897

Int. Cl. F16d 1/10

U.S. Cl. 403—359

3 Claims



Male and female spline members are retained together by a retaining ring which is urged by ramps on one end of the

splines of one of the members into an assembly-disassembly position in an annular groove on the other member and on proper mating of the members assumes a retention position in the first mentioned groove and in another groove in the one member which is ramped on one side to provide for disassembly by reversal of this assembly operation.

3,832,077

DEVICE FOR FIXING TEETH TO TOOTH HOLDERS IN EARTH-MOVING MACHINES

Juan Puertas Von Mehren, Barcelona, Spain, assignor to Elementos Para Traccion Y Excavacion, S.A. (E.T.E.S.A.), Madrid, Spain

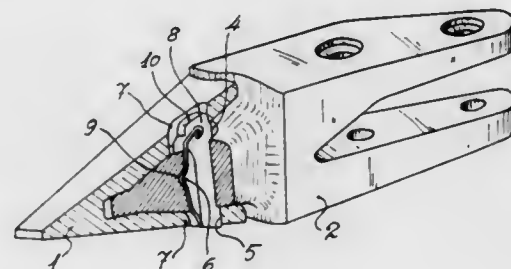
Filed July 18, 1972, Ser. No. 272,731

Claims priority, application Spain, July 20, 1971, 171,010

Int. Cl. F16b 7/00

U.S. Cl. 403—379

5 Claims



The most important characteristic of this invention consists of the employment of a cotter pin of a special form that tends to endow it with maximum elasticity, which is housed in the conjugated cavity of the tooth-holder, while it rests on the tooth, thus acting as a fixing element and a shock-absorbing element simultaneously, permitting an automatic fit, which absorbs the wear and tear that may be produced by working stresses.

3,832,078

METHOD AND APPARATUS OF MANUFACTURING NON-SLIP PAVEMENT BLOCKS AND PRODUCT THEREOF

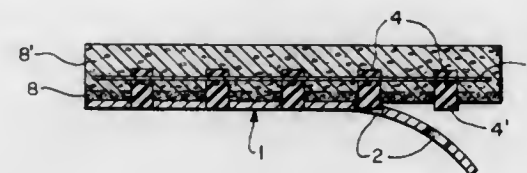
Fukuzo Nakayama, Hyogo, Japan, assignor to Japan Non-Slip Pavement Co., Inc., Osaka, Japan

Filed Aug. 18, 1972, Ser. No. 281,767

Int. Cl. E04b 5/04

U.S. Cl. 404—44

5 Claims



This invention relates to a method and apparatus for manufacturing pavement blocks and the product resulting therefrom in which said blocks have rubber tips projecting from the surfaces thereof, and includes inserting a perforated plate and introducing projection elements into the perforation and against the base plate, thereafter introducing filler material, compressing the ingredients, removing the compressed unit from, including the base, the frame and thereafter removing the base plate and perforated plate.

3,832,079

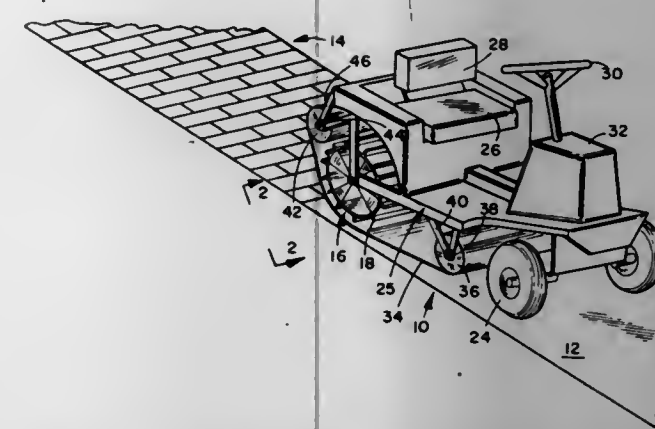
CONCRETE FORMING APPARATUS AND PROCESS
William V. Moorhead, 33052 Marina Vista Dr., Dana Point, Calif. 92629

Filed Aug. 10, 1972, Ser. No. 279,709

Int. Cl. E01c 7/35

U.S. Cl. 404—72

5 Claims



A concrete or paving forming apparatus and process comprising laying a concrete or paving material and allowing it to cure into a substantially plastic condition and then imprinting it with a pattern impressed therein in a continuous process. A plastic film, or other suitable release agent permits the forming apparatus to be driven into the concrete in a manner whereby it will not remove the surface of the concrete when it is withdrawn.

The apparatus generally comprises a roller with a series of patterns formed by means of blades that conform to the pattern that is to be pressed into the concrete. The roller effectively rolls in the pattern while at the same time a sheet of plastic film is laid down on the concrete ahead of the roller. Thus, as the roller is impressed into the concrete and removed, it will not gouge the concrete. Other release agents such as the silicones or the tetrafluoroethylenes can be sprayed on the roller blades or on the concrete to prevent binding and gouging of the pavement.

3,832,080

VIBRATOR, ESPECIALLY A SELF PROPELLED REVERSIBLE TAMPER

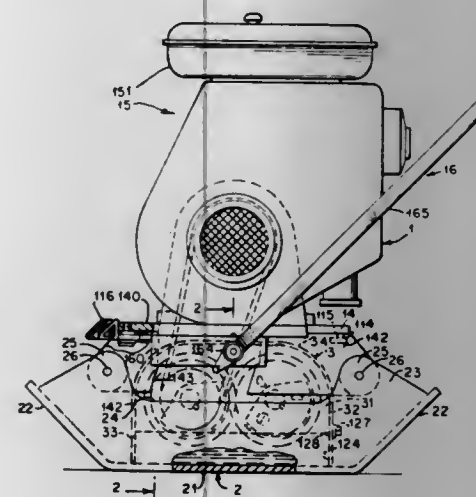
Karl M. Stoecker, Mt. Arlington, N.J., assignor to Heinrich Machinery & Tool Mfg. Co., Inc., Stanhope, N.J.

Filed June 28, 1972, Ser. No. 267,127

Int. Cl. E01c 19/35

U.S. Cl. 404—133

11 Claims



A vibrator, especially a self propelled reversible tamper having a base plate that is turned up at both ends, comprising a housing, a driving shaft and a driven shaft journaled in the housing, each shaft having an eccentric mounted thereon and a gear on each shaft for rotating them in opposite directions at

the same speed. The eccentric on one shaft has a fixed connection with respect to its gear in a single angular relation thereto. The eccentric on the other shaft has a selective connection with respect to its gear in a plurality of angular relations thereto and the selective connection can be changed by suitable means from one angular relation to another during operation of the vibrator. This enables the tamper to be self propelling in two opposite directions. A handle pivoted to the base plate for movement through an arc from an operating position at one end to an operating position at the opposite end of the base plate may be provided to guide the moving tamper.

3,832,081

PNEUMATIC COMPACTING TOOL

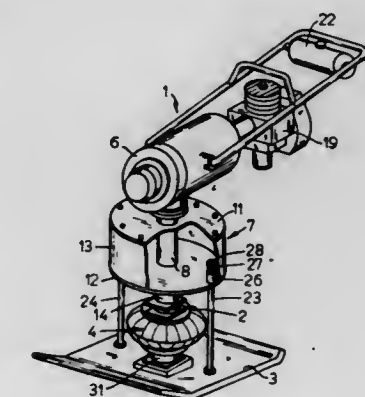
Rudolph G. Opderbeck, New Berlin, and Horst H. Mattern, Milwaukee, both of Wis., assignors to Wacker Corporation, Milwaukee, Wis.

Filed June 28, 1973, Ser. No. 374,672

Int. Cl. E01c 19/34

U.S. Cl. 404—133

10 Claims



In a pedestal type of compaction tool a pneumatic power transmitting connection between a reciprocating drive plunger and a vibratory compacting shoe is established by means of an air spring which is cyclically collapsed and extended in response to back and forth movement of the plunger relative to the compacting shoe. The resonant frequency and amplitude of the compacting shoe vibrations may be varied by increasing and decreasing the pressure to which the air spring is inflated.

3,832,082

SERVO CONTROL FOR MANUFACTURING STATIONS

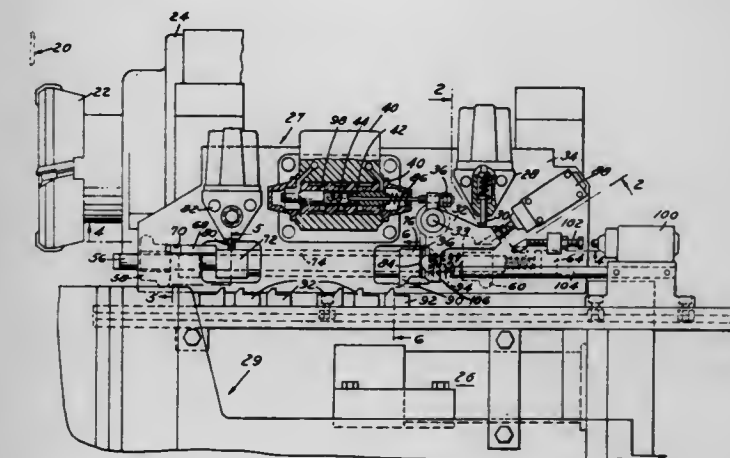
Edward E. Judge, Jr., 2104 Cumberland Rd., Lansing, Mich. 48906

Filed Nov. 10, 1972, Ser. No. 305,510

Int. Cl. B23b 49/04, 47/22; B23c 3/00

U.S. Cl. 408—10

18 Claims



The invention comprises a feed back control device for repetitive production machining of similar parts which senses

the position of each part at a machining station, modulates rapid and gradual movement of a machining carriage into accurate relationship with the part, compensating for any size variation between parts, controls the machining operation and the retraction of the carriage from the part. In one of the preferred embodiments the servo mechanism positions the carriage at one of a plurality of distinct part size positions the selection of which depends upon the end position of the part sensed and controls a machining operation at a corresponding accurately fixed position independent of minor variations in the sensed end position. In the other preferred embodiment the servo mechanism senses the part end position, and in response thereto controls the carriage position for beginning the machining operation on the part. The invention includes hydraulic valve means having fast forward, fast reverse and modulation modes. The valve means is controlled by mechanical linkage engageable by part sensing means, all of the above moving in coordination with the movement of the carriage. Upon the sensing of a part, the linkage actuates the valve means into modulation mode to position and control the operation of the machining head on the part. The control features hydraulic feed with mechanical lead screw accuracy of feed rate during the valve modulated machining phase together with rapid advance and retract phases under full unmodulated flow.

3,832,083

APPARATUS FOR PREPARING FURNITURE BACKS AND CUSHIONS FOR TUFTING

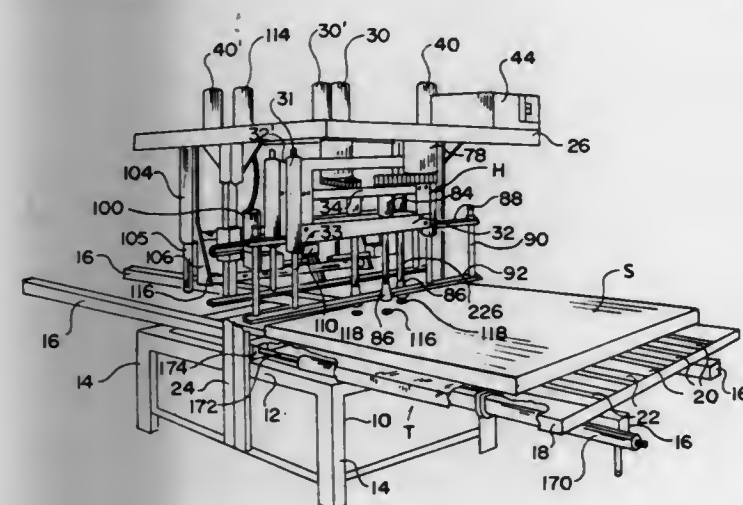
Benjamin F. Dockery, P.O. Box 452, High Point, N.C. 27261, and Jack H. Mason, 1822 Pershing St., High Point, N.C. 27260

Filed June 2, 1972, Ser. No. 259,196

Int. Cl. B27c 5/06

U.S. Cl. 408—24

23 Claims



A horizontally reciprocal table carrying a foam rubber or polyurethane slab on the surface thereof is indexed past a vertically reciprocal operating head having mounted thereon a plurality of sets of rotary cutters and saws, each set, when operated, forming a portion of a prescribed pattern, whereby as the slabs index past the operating head selected sets of cutters and/or saws are activated in response to a switch means engaged by activating elements on said table to form holes or slots in said slab according to said prescribed pattern.

3,832,084

PIVOT FOR ROTATING MOLECULAR PUMPS

Louis Maurice, Paris, France, assignor to Compagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France

Filed Nov. 16, 1972, Ser. No. 307,231

Claims priority, application France, Nov. 16, 1971, 71.40995

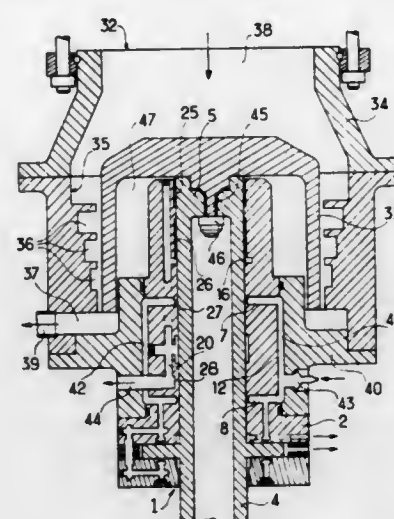
Int. Cl. F01d 1/36

U.S. Cl. 415—90

24 Claims

Pivot for rotating molecular pumps comprising a stator element fixed to the stator of the pump, a rotor element coupled

to the rotor of the pump, and in the space comprised between the rotor and stator elements, a dynamic molecular seal, a



dynamic viscous seal, several gas bearings, a gas stop and a gas counter-stop.

3,832,085

AUTOMOTIVE FAN SHROUD

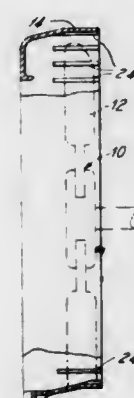
Raymond Henry DeFauw, Dearborn, and Raymond G. Murley, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Oct. 4, 1972, Ser. No. 295,048

Int. Cl. F01d 25/04

U.S. Cl. 415—119

3 Claims



A shroud enclosing an automotive type fan has ridges projecting from the internal surface equally spaced circumferentially to provide a circumferentially undulating pattern to the axial flow of air forced through the space between the shroud and the fan to reduce the noise level of the shroud-fan combination.

3,832,086

PARTICLE SEPARATOR WITH SCROLL SCAVENGING MEANS

Thomas Neil Hull, Jr., and James Leroy Nye, both of Marblehead, Mass., assignors to General Electric Company, Lynn, Mass.

Continuation of Ser. No. 201,421, Nov. 23, 1971, abandoned. This application Apr. 16, 1973, Ser. No. 351,622

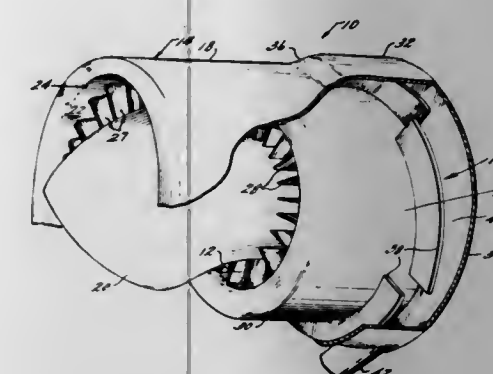
Int. Cl. B04b 1/04; F04d 29/00

U.S. Cl. 415—121 G

6 Claims

A particle separator for removing extraneous matter from the inlet flow to the compressor of a gas turbine engine has improved efficiency provided by a scroll type of scavenging means. The scroll scavenging means provides for removal of the particles from the collection chamber of the separator and limits the circumferential travel of the particles within the col-

lection chamber before removal, so as to reduce the likelihood that the particles will be rebounded back out into the engine



inlet. The invention herein described was made in the course of or under a contract or subcontract thereunder, (or grant) with the Department of the Army.

3,832,087

AXIAL TURBINE COMBINED WITH REVERSE TURBINE

Paavo Lohonen, and Olof Karlsson, both of Finspong, Sweden, assignors to Stal Laval Turbin AB, Finspong, Sweden

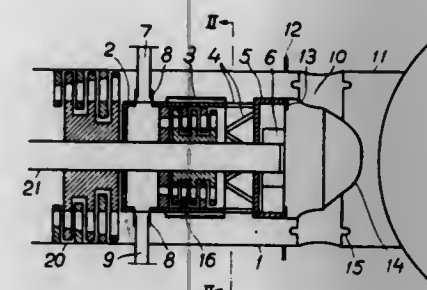
Filed Oct. 15, 1973, Ser. No. 406,557

Claims priority, application Sweden, Oct. 20, 1972, 13563/72

Int. Cl. F01d 1/30, 1/04

U.S. Cl. 415—153

5 Claims



A main axial turbine combined with a reverse turbine, the rotors of both turbines being mounted on the same common rotor shaft, with the reverse turbine housing suspended coaxially within the outlet portion of the main axial turbine by a symmetrical system of support plates or vanes, is disclosed.

3,832,088

MODULAR PNEUMATIC SURGICAL DRILL

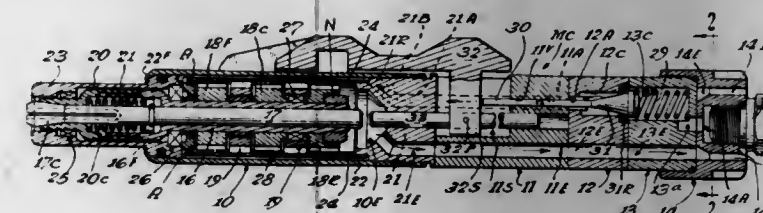
Harry W. Cromie, Pittsburgh, Pa., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Sept. 20, 1971, Ser. No. 181,999

Int. Cl. A61c 1/05; F01d 1/10; A61b 17/32

U.S. Cl. 415—199 R

11 Claims



A pneumatically driven turbine type drill has a modular casing that provides an air supply passage leading from a rear inlet and including an annular chamber leading to a front annular entry to the turbine and that provides an air exhaust passage leading from a sump at the rear of the turbine through a straight bore to a rear exit.

3,832,089

TURBOMACHINERY AND METHOD OF MANUFACTURING DIFFUSERS THEREFOR

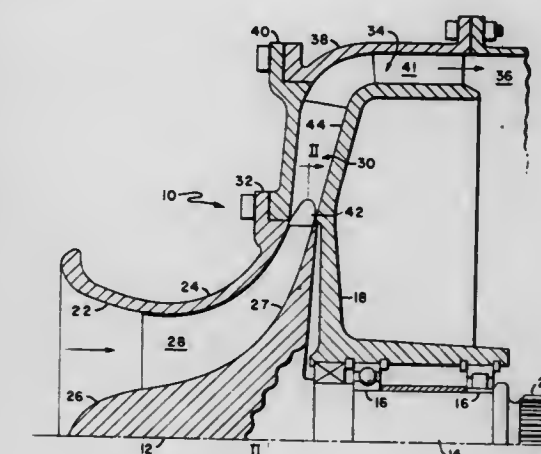
Heinz F. Moellmann, New Haven, Conn., assignor to Avco Corporation, Stratford, Conn.

Filed Aug. 28, 1972, Ser. No. 284,144

Int. Cl. F04d 29/44, 29/54

U.S. Cl. 415—207

1 Claim



A radial flow compressor is described which includes a diffuser having an annular entrance chamber surrounding the circumferential discharge of the impeller of the compressor. Diffuser channels extend from this annular chamber to an axial flow diffuser from which the compressed air is discharged into a collection chamber. The annular chamber is provided with contoured nodes from which the channel diffusers respectively extend at relatively low angles, tangentially in relation to the periphery of the impeller.

3,832,090

AIR COOLING OF TURBINE BLADES

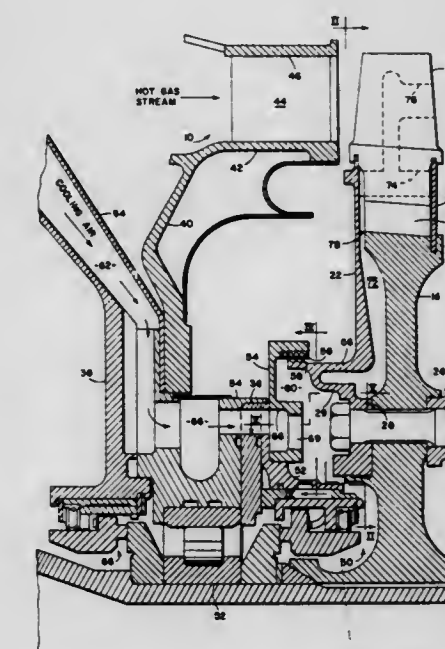
Lawrence R. Matto, Shelton, Conn., assignor to Avco Corporation, Stratford, Conn.

Filed Dec. 1, 1972, Ser. No. 311,290

Int. Cl. F01d 5/08

U.S. Cl. 416—95

4 Claim



A gas turbine engine is described, particularly the turbine portion thereof and the bearing for journaling this turbine. Cooling air is directed along passageways extending through the bearing mounting and discharged into an entry chamber the inner portion of the rotor. The rotor includes an annular plate spaced from a disc on which the rotor blade is mounted. The inner periphery of the plate defines the

trance of a passageway means for the flow of cooling air from the entry chamber to and through the blades to cool them. Cooling air as it is directed into the entry chamber at an angle such that its tangential vector approximates the peripheral speed of the cooling air passageway entrances. Further, vanes are provided on the blades to facilitate flow of cooling air through the rotor passageway means.

3,832,091

FAN HUB AND SHAFT ASSEMBLY

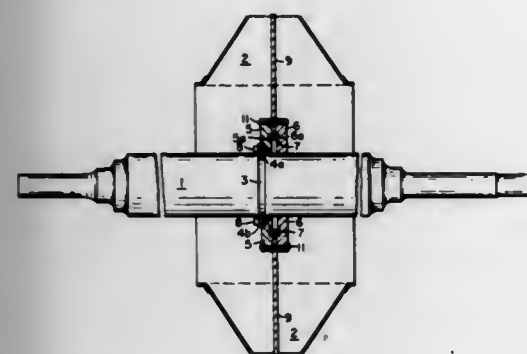
Joseph H. Hoffman, Norwood, Mass., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 27, 1973, Ser. No. 401,523

Int. Cl. F04d 17/08

U.S. Cl. 416—184

5 Claims



An apertured fan disc, hub and shaft assembly including a split ring located within a recess on the shaft, a principal hub shrunk onto the ring to secure the ring and the hub to the shaft, and the fan disc secured to the principal hub. If desired, a secondary hub complementary to the principal hub may be mounted on the shaft with the fan disc secured thereto between both the principal hub and the secondary hub. Also, the disc may be provided with a boss on the periphery of its aperture to be secured between the hubs.

3,832,092

DEVICE FOR LOCKING TURBOMACHINERY BLADES

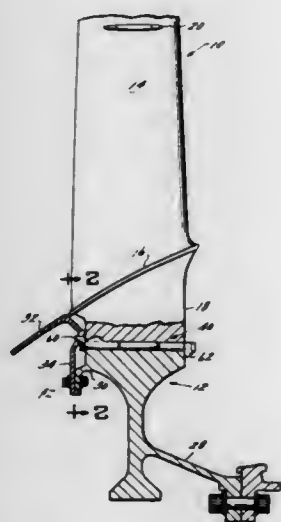
Gary B. Manharth, Milford, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Oct. 19, 1973, Ser. No. 407,946

Int. Cl. F01d 5/32

U.S. Cl. 416—220

13 Claims



A blade-locking device, for locking radially projecting blades on a rotor, includes a spacer having a passage therethrough. The passage is accessible by means of an axial separation occurring at one side of the spacer; and the spacer is resiliently deformable to permit spreading of the separation from its undeformed position and returning the separation to its undeformed shape. A locking pin, having enlarged oblong

integral ends at opposite extremities thereof, is formed and dimensioned so as to reside within the passage in a friction fit with each of the aforementioned ends projecting beyond the respective spacer extremity. The pin is disposed within the passage by deforming the spacer to enlarge the separation beyond the width necessary to receive the thickness of the pin and placing the pin therein. The pin is rotatable within the passage to a first position wherein one of the ends may pass freely with the spacer through a gap left between a blade tang and rotor slot to be interlocked. In a second position, the ends serve to engage and retain, respectively, the rotor and the blade tang.

3,832,093

PORTABLE PUMP

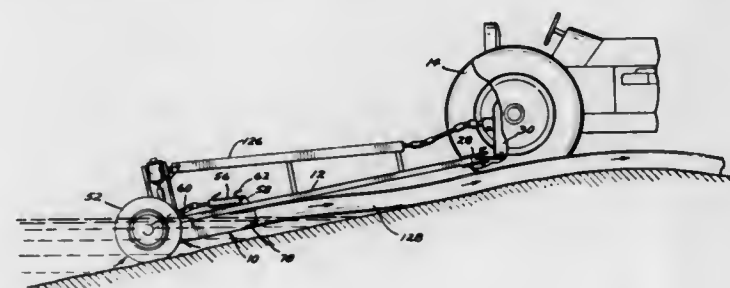
Daniel E. Shirek; Robert J. Shirek, and Charles J. Ryba, all of Michigan, N. Dak.

Filed Aug. 9, 1972, Ser. No. 278,937

Int. Cl. F04b 35/06

U.S. Cl. 417—231

9 Claims



A portable centrifugal pump for moving or displacing large quantities of water in a relatively short time. The pump includes a volute casing having an inlet opening and a discharge opening. The casing is secured to a wheeled frame, such frame in turn being detachably connected to a tractor or similar vehicle. An impeller is rotatably mounted within the casing, and it is operatively connected to the power take-off of the tractor.

3,832,094

HYDRAULIC PUMP

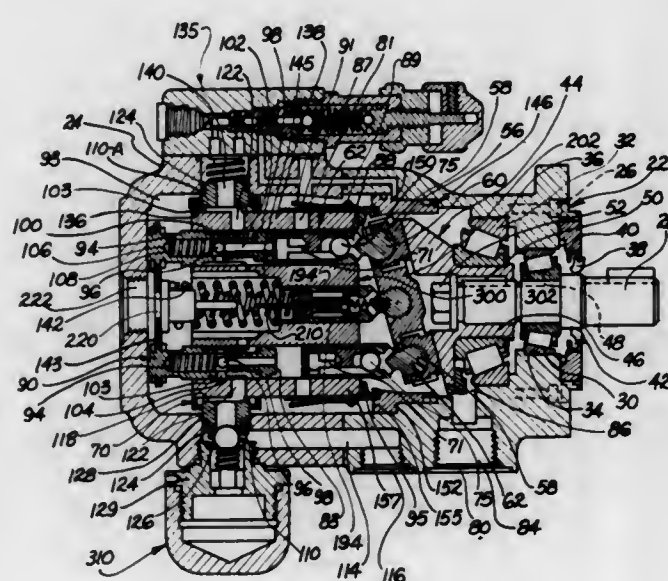
Robert E. Raymond, Zanesville, Ohio, assignor to International Basic Economy Corporation, New York, N.Y.

Filed Mar. 23, 1973, Ser. No. 344,339

Int. Cl. F04b 1/00

U.S. Cl. 417—222

8 Claims



A piston type hydraulic pump characterized by a relief clutch apparatus which functions to detect the occurrence of contaminants in the pumping oil and to automatically protect

the internal working components of the pumping mechanism from damage by such contaminants. More specifically, the relief clutch is arranged to automatically and substantially instantly relieve the pumping pistons from the forces of the piston driving cam upon the occurrence of any abnormal forces imposed on any one of the pistons by binding action of the contaminants. Hence actuation of the pistons is automatically stopped prior to the occurrence of irreparable damage to the machine.

3,832,095

FLUID PRESSURE ACCUMULATING APPARATUS

Akira Akima, Tokyo; Masao Nishikawa, Niiza; Makoto Sato, Saitama; Hiromitsu Miyahara, both of Tokyo, and Yoshitaka Miyakawa, Kawagoe, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Chuo-ku, Japan

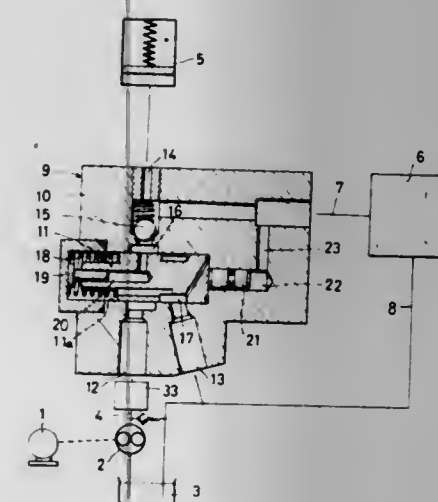
Filed Aug. 29, 1972, Ser. No. 285,096

Claims priority, application Japan, Aug. 30, 1971, 46-65822; Aug. 31, 1971, 46-66291

Int. Cl. F04b 49/08

U.S. Cl. 417—307

2 Claims



Fluid pressure accumulating apparatus in which a supply conduit is connected between a fluid pressure pump driven by an internal combustion engine and an accumulator, a control valve being provided in the supply conduit such that when the pressure within the accumulator reaches an upper limit the valve responds thereto to form a short-circuit between the supply conduit and a return conduit whereas when the pressure within the accumulator reaches a lower limit the valve responds thereto so as to remove the short circuit. The control valve can be formed as a spool valve which is urged to a closing position by a spring acting on one end thereof and is urged to an opening position by the pressure within the accumulator acting on the other end thereof.

3,832,096

MULTITUBE PERISTALTIC PUMP WITH INDIVIDUAL PROGRAMMING CONTROL

Daniel Gelfand, Brooklyn, N.Y., assignor to Buchler Instruments Division, Nuclear-Chicago Corporation, Fort Lee, N.J.

Division of Ser. No. 120,644, March 3, 1971, Pat. No. 3,723,030. This application July 19, 1972, Ser. No. 272,464

The portion of the term of this patent subsequent to Mar. 27, 1990, has been disclaimed.

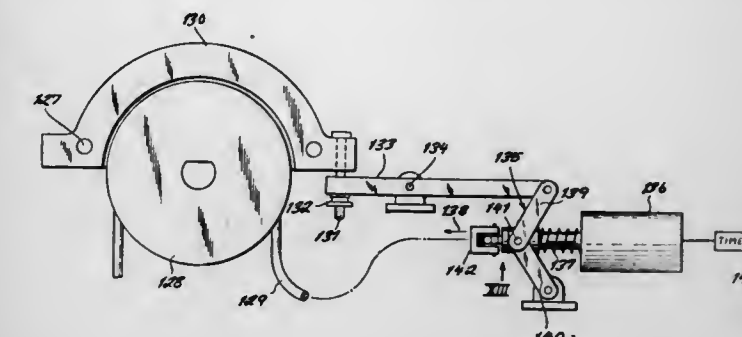
Int. Cl. F04b 43/08, 45/06, 43/12

U.S. Cl. 417—475

1 Claim

A multitube peristaltic pump with individual programming

control has a head provided with axially offset array of rollers against which respective tubes are held by pivotal bar seg-



ments. Individual programmable controls are provided for controlling the swinging movement of the bars.

3,832,097

PUMP FOR CONCRETE AND OTHER SLUDGING MATERIALS

Karl Schlech, Bernhausen B. Stuttgart, Germany, assignor to Putzmeister Interholding GmbH, Basel, Switzerland

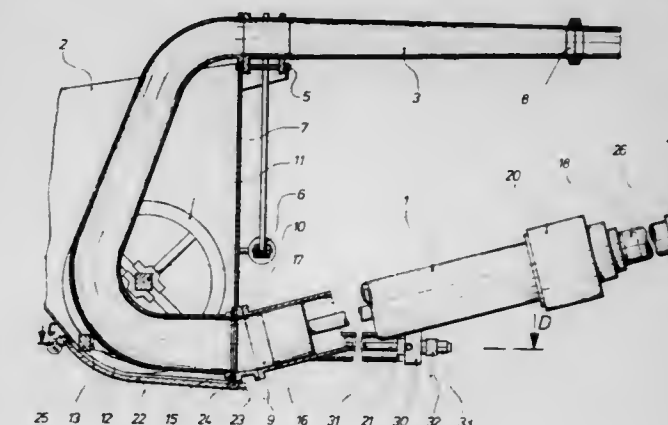
Filed Dec. 7, 1972, Ser. No. 313,128

Claims priority, application Germany, Dec. 16, 1971, 2162406

Int. Cl. F04b 15/02

U.S. Cl. 417—516

16 Claims



A pump for concrete and other sludgy materials comprises a hopper with two parallel pump cylinders connected to the hopper, the open (head) ends of the cylinders opening to the interior of the hopper. A C-shaped discharge pipe is disposed in the hopper with its upper end connected to a delivery pipe which is disposed above the pump cylinders and which has its inlet end facing in the same direction as the head ends of the cylinders. The discharge pipe is oscillated to and fro about an axis above and parallel to the pump cylinders to bring the lower end of the discharge pipe into register with the open ends of the two pump cylinders alternately. Means may be provided for pressing the lower end of the discharge pipe against the open ends of the pump cylinders to minimize leakage.

3,832,098

EPICYCLIC HYDROPNEUMATIC DRIVE WITH INTERNAL-MESH GEARING

Daniil Andreevich Dudko, pereulok Mechnikova, 3, kv. 7; Mikhail Danilovich Sur, ulitsa Vladimirskaia, 98, kv. 52, and Grigory Bagradovich Asoyants, Bulvar Lesi Ukrainki, 2, kv. 16, all of Kiev, U.S.S.R.

Filed Feb. 23, 1972, Ser. No. 228,668

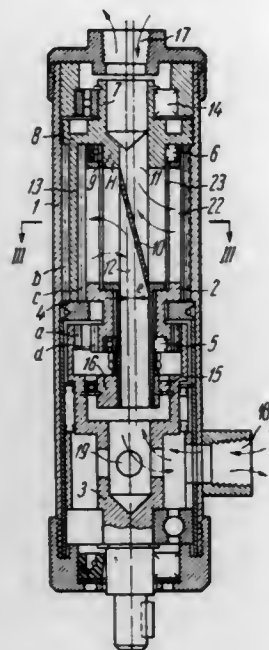
Int. Cl. F03c 3/00

U.S. Cl. 418—63

4 Claims

An epicyclic hydropneumatic drive is disclosed which includes a stationary sun wheel (b) and a movable sun wheel (a) with internal toothing. The housing (1) of the drive is made in-

tegral with the stationary sun wheel (b). The planet pinion (2) having two tooth rims (c and d) meshes with the sun wheels (a, b). The rims (c, d) of the planet pinion (2) are isolated from each other by the fixed partition (4). The planet pinion (2) is loosely set on the eccentric journal (9) of the pinion carrier (H) to form by its tooth rim (c) together with the stationary sun wheel (b) an interteeth working space having two zones



(A,B), said zones intercommunicating with the pipelines to let in and out the actuating medium. The pinion carrier (H) has a longitudinal passageway which is subdivided into two chambers (11,12) within the zone of intermeshing of the stationary sun wheel (b) with the tooth rim (c) of the planet pinion (2). The chambers are hermetically separated from each other and adapted to communicate with the respective zone of the interteeth working space.

ERRATA

For Classes 418—113 and 418—154 see:
Patent Nos. 3,832,104 and 3,832,105

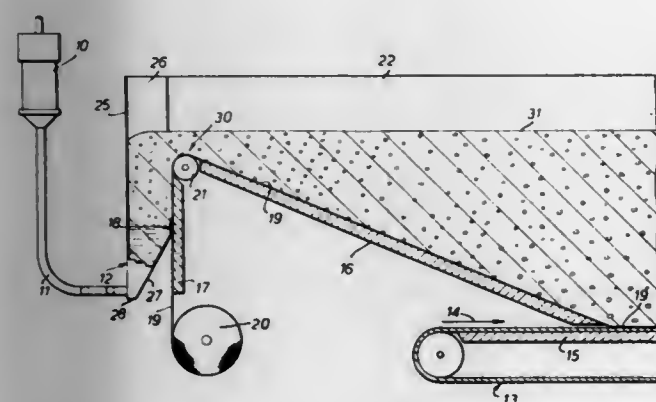
3,832,099

APPARATUS FOR PRODUCING POLYURETHANE FOAM
Laader Berg, Spjelkavik, Norway, assignor to Uniform AG, Glarus, Switzerland

Division of Ser. No. 174,412, Aug. 24, 1971, Pat. No. 3,786,122. This application May 22, 1973, Ser. No. 362,839
Int. Cl. B29d 27/00

U.S. Cl. 425—4 C

20 Claims



Apparatus for producing continuous polymeric foam slabs or strands, characterized in that the liquid foam reactants are initially introduced into the bottom of a vessel and the resulting foam is allowed to expand upwardly in the vessel owing to

chemical reaction between the reactants. Prior to completion of the expansion of the foam mixture, the partially expanded foam is allowed to flow from the vessel over a weir structure, whereupon the foam completes the expansion process in a channel-shaped conveyor in which the foam is continuously moved away from the weir structure. According to one embodiment, the foam that flows over the weir moves down an inclined fall plate surface during completion of the foam expansion. In another embodiment, the expanding foam passes over the weir directly onto the horizontal reach of a conveyor.

3,832,100

TOOLING FOR RECEIVING AND SUPPORTING A QUANTITY OF POWDER MATERIAL TO BE PRESSED INTO A SELF-SUPPORTING COMPACT

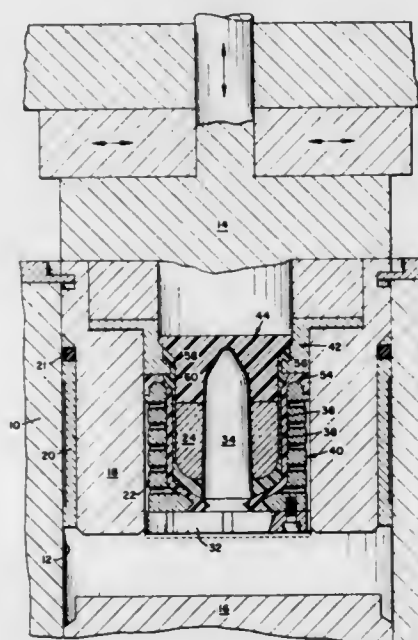
Kenneth C. Baxendale, Macedon, N.Y., assignor to The Gleason Works, Rochester, N.Y.

Filed Jan. 5, 1973, Ser. No. 321,437

Int. Cl. B30b 5/02, 11/02; B29d 15/00

U.S. Cl. 425—78

12 Claims



Isostatic tooling for receiving and supporting a quantity of powder material which is to be pressed into a self-supporting compact having a bore extending therethrough is described with reference to isostatic compacting techniques which utilize such tooling. The tooling includes a relatively rigid base member for supporting and positioning a core rod element extending into a deformable mold which can be suspended in a pressure vessel for receiving a high force for compacting a quantity of powder material contained within the deformable mold.

3,832,101

MOLDULAR CONSTRUCTION MULTI-STATION MOLDING APPARATUS

Dewey Rainville, Westfield, N.J., assignor to Rainville Company, Inc., Middlesex, N.J.

Filed June 4, 1973, Ser. No. 366,321

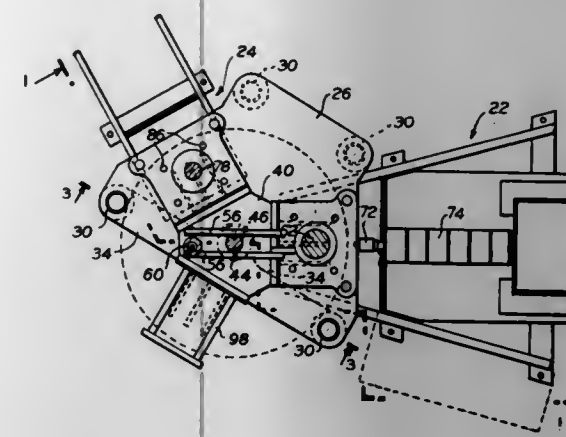
Int. Cl. B29d 23/03

U.S. Cl. 425—242 B

15 Claims

This invention is a multi-station molding machine of modular construction. Sections of a machine, such as an injection station; a pre-blow station; a full flow station; and a stripper station are made as individual performance units that can be assembled in different relations with respect to a central indexing unit and to each other. The individual performance units are shaped so that they can be fitted together in different ways to make complete molding machines from the standardized unit sections assembled in different ways according to the sequence of operations that are to be carried out for making a particular article. When the sections comprising the

performance units are joined by detachable fastening means to a connector plate, they can be re-arranged as desired to providing means for preventing the tilting of the mold as it is inserted into the cylinder. Additionally, the means for



change their machine from a three-step to a four or five step machine according to changes in the number of operations required for the article that is to be produced.

3,832,102

THERMOFORMING MACHINE WITH ARTICLES TRIMMED IN-PLACE

John D. Alroy, 380 Mountain Rd., Union City, N.J. 07087

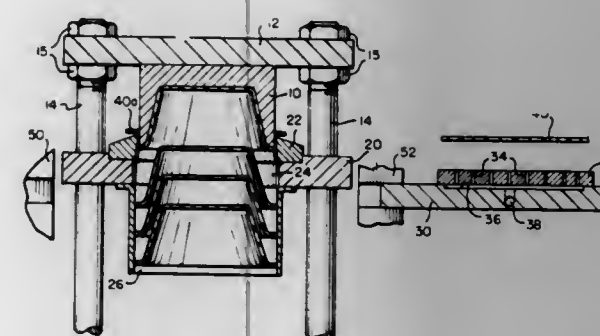
Division of Ser. No. 88,805, Nov. 12, 1970, abandoned. This

application Mar. 6, 1973, Ser. No. 338,554

Int. Cl. B29c 17/04, 17/08

U.S. Cl. 425—292

9 Claims



Apparatus for thermoforming plastic articles in which the articles have their edges trimmed while still being held in a mold cavity by moving the mold within a cutting die to produce a shearing cut of the plastic, the apparatus operating on a multiple basis so that an article is being formed while another is being trimmed, and an arrangement for batching the trimmed articles in groups of a predetermined amount.

3,832,103

ISOSTATIC PRESS

Arnold G. Bowles, Warren, Pa., assignor to National Forge Company, Irvine, Pa.

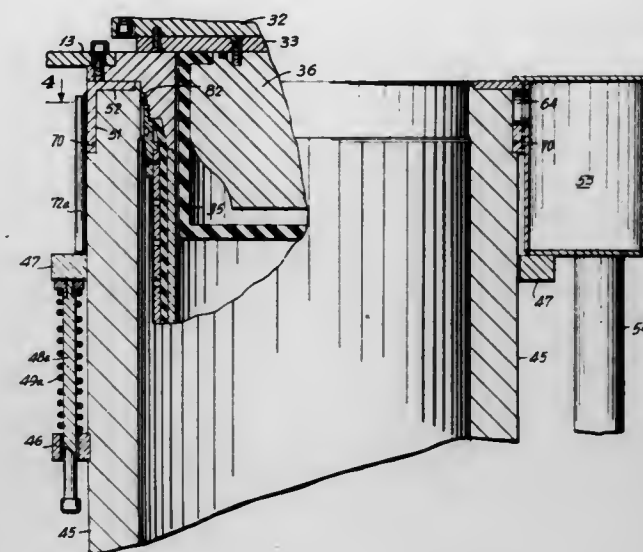
Filed Sept. 13, 1972, Ser. No. 288,703

Int. Cl. B30b 5/02, 11/02; B28b 3/00

U.S. Cl. 425—405 H

14 Claims

An improvement for use in combination with an isostatic press of the type wherein a mold is inserted into a pressure cylinder having liquid therein. The improvement resides in



preventing tilting may also be employed to insure that liquid overflowing from the cylinder is not discharged onto other parts of the machine.

3,832,104

ROTARY PISTON INTERNAL COMBUSTION ENGINE

Heinz Lamm, Esslingen-St. Bernhard, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Untertierkheim, Germany

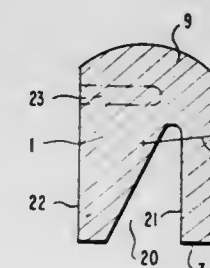
Filed May 6, 1970, Ser. No. 35,177

Claims priority, application Germany, May 7, 1969, 1923231

Int. Cl. F01c 19/02; F04c 15/00, 27/00

U.S. Cl. 418—113

13 Claims



A rotary piston internal combustion engine, particularly of trochoidal construction, which includes a rotating piston equipped at its corners with sealing bars which are constructed relatively wide for reducing wear and which are provided with slots and/or apertures for increasing their elasticity.

3,832,105

FLEXIBLE BLADE ROTARY PUMP

Kenryu Takahashi, 3-go, 22-ban, 1-chome, Higashitateishi, Katsushika-ku, Tokyo, Japan

Filed July 21, 1972, Ser. No. 273,813

Claims priority, application Japan, Apr. 14, 1972, 47-36963

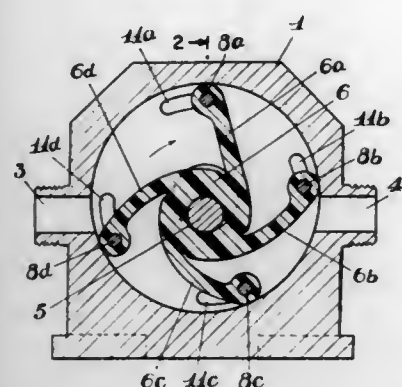
Int. Cl. F01c 5/00; F03c 3/00; F04c 5/00

U.S. Cl. 418—154

1 Claim

The present invention provides a rotary pump having a rotor between two rotary parallel plates, said rotor having at

regular intervals plural flexible blades and fixing at an eccentric shaft, said plate having along its circumference arc guide



holes as many as said blades, said guide hole inserted by a rod to pass through a hole of an end of said blade and to insert into another opposite guide hole.

3,832,106

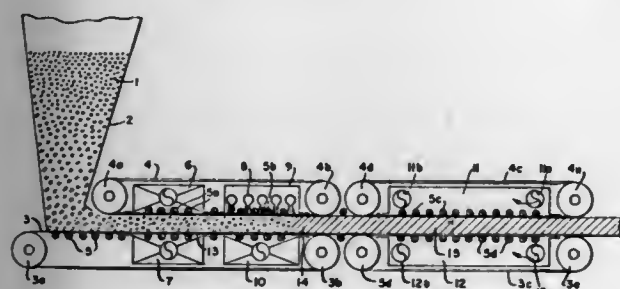
APPARATUS FOR THE PRODUCTION OF SHAPED ARTICLES OF EXPANDED COHERED GRANULES OF THERMOPLASTIC MATERIAL, IN PARTICULAR POLYSTYRENE

Andre Rivat-Lahousse, Paris, France, assignor to Saint-Gobain, Neuilly-sur-Seine, France
Division of Ser. No. 69,905, Sept. 8, 1970, Pat. No. 3,709,651, which is a division of Ser. No. 781,372, Dec. 5, 1968, abandoned. This application Sept. 15, 1972, Ser. No. 289,420
Claims priority, application France, Dec. 6, 1967, 67.131156

Int. Cl. B29d 27/02

U.S. Cl. 425-4

11 Claims



Polystyrene sheet is made by continuously expanding and autogenously joining discrete particles of polystyrene, the granules being arranged in a moving layer of uniform thickness through which a series of heating gases are blown. The sheet may be compressed. The first heating is to about softening without major expansion of the particles, the second accomplishes the expansion. Penetration by the hot gases of the forming sheet is assisted by vacuum. Cooling of the formed sheet is by flow of cooling fluid parallel to its surfaces.

3,832,107

APPARATUS FOR MAKING ARTICLES FROM PARTICULATE MATTER

Arthur R. Cox, Jupiter, and Paul R. Holiday, Juno Beach, both of Fla., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed June 29, 1973, Ser. No. 375,306

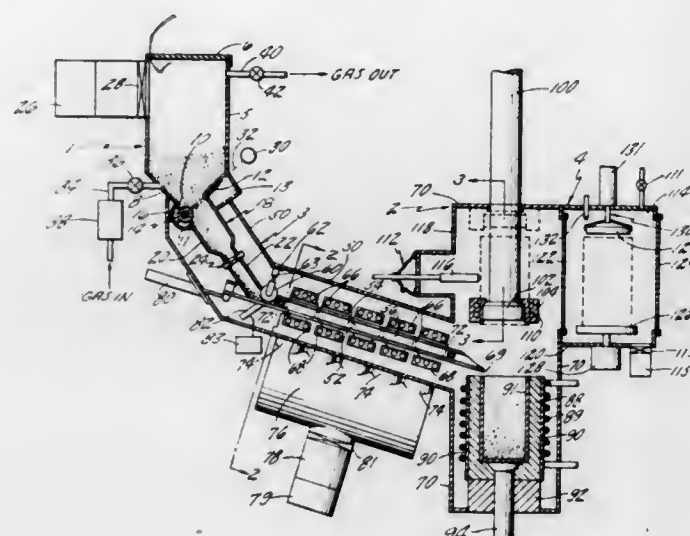
Int. Cl. B30b 11/02

U.S. Cl. 425-78

17 Claims

An apparatus for receiving particulate matter of metal and producing a compact article therefrom. While the formation of a billet is shown, a contoured article could be produced if the proper configuration was formed on mating die faces. Particulate material is received in a hopper where it can be

treated by gasses to aid in removing bulk water. To remove any gasses which would react with the material in an undesirable way, means are provided to place the hopper and transfer means under a vacuum for outgassing. Means are provided to transfer the metal particulate to a press means, at a controlled rate, while placing the particulate matter at the desired pres-



sure and proper temperature. The press means also includes means for receiving a container. The container will encase the billet after the particulate matter has been compacted. Means are provided to remove the completed billet after a top has been placed on the container and sealed. This sealing can be done by welding the top, or cap, thereon under vacuum condition.

3,832,108

INSTALLATION FOR FORMING MOLDED MEMBERS OF FIBROUS MATERIAL

Heinz Posch, Berlin; Wolfgang Nauert, and Werner Lohner, both of Beckum, all of Germany, assignors to AMIANTUS AG, Niederurnen, Switzerland

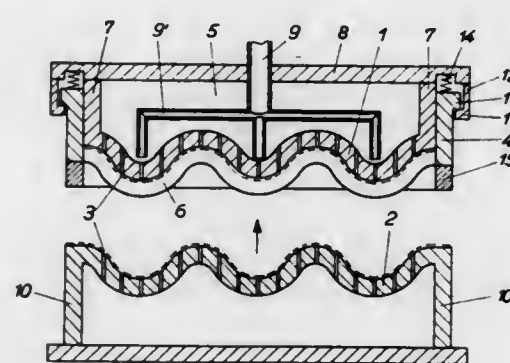
Filed Dec. 11, 1972, Ser. No. 314,039

Claims priority, application Germany, Dec. 10, 1971, 2162030

Int. Cl. B29j 5/00; B28b 3/02

U.S. Cl. 425-85

8 Claims



An installation for forming members of a fibrous material including cooperatively operating liquid-pervious basic and pressing forms forming a layer of material therebetween by expelling through the forms liquid from a solution containing the fibrous material; and a movable adjustable frame encompassing the basic form so as to control the extent of movement and pressing between the basic and pressing forms.

3,832,109

SPRUE SEALER

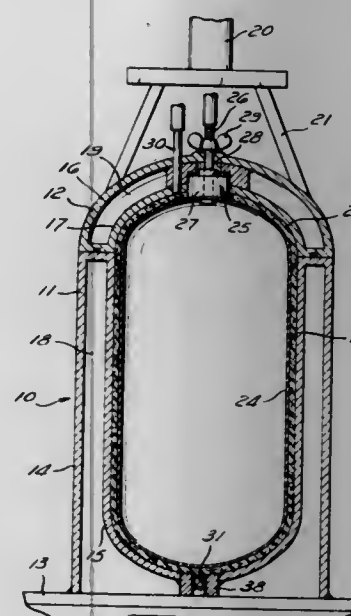
Henry U. Ranallo, Cleveland, and Edward T. LeBreton, Mentor, both of Ohio, assignors to Structural Fibers, Inc., Chardon, Ohio

Filed May 10, 1973, Ser. No. 359,208

Int. Cl. B29c 1/00

U.S. Cl. 425-112

4 Claims



A sprue or resin drain closure assembly for use in apparatus employed to mold resin impregnated fiber articles is disclosed. Part of the assembly also serves as a device for removing molded articles from the mold. According to the invention, a stop or anvil is spaced laterally from a closure head, and the head is axially movable toward the stop. Movement of the head toward the stop seals a flexible extension of a sprue insert disposed therebetween. The stop may be pivoted away to permit the removal of the flexible extension from the sprue insert and the connection of a fluid supply thereto for providing a mold removal lifting force on the molded article through the sprue opening.

3,832,110

INJECTION MOLD FOR AN INJECTION MOLDING MACHINE FOR MANUFACTURING TWO-COMPONENT PLASTIC OBJECTS

Karl Hehl, Siedlung 183, D-7291, Lossburg, Germany

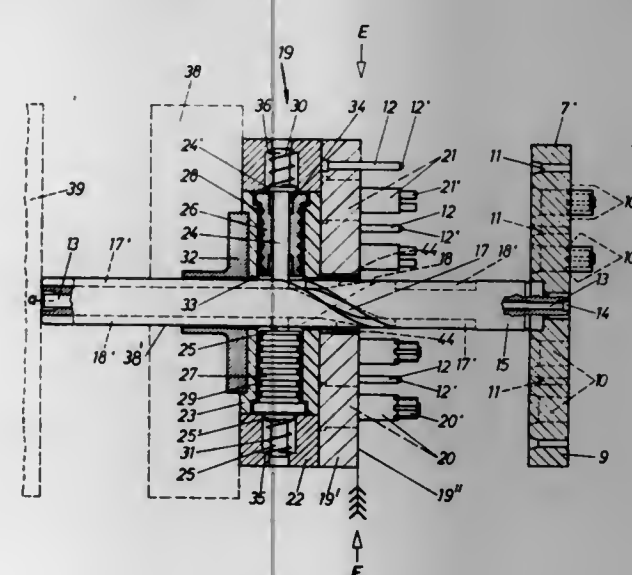
Filed June 16, 1972, Ser. No. 263,471

Claims priority, application Germany, June 16, 1971, 2129752

Int. Cl. B29f 1/12

U.S. Cl. 425-130

17 Claims



An injection mold for an injection molding machine for manufacturing two-component plastic objects. The mold in-

cludes a movable mold half having a core supporting profile plate, and a stationary mold half having a cavity plate and a transporting member. The profile plate has at least two diametrically disposed mold cores and the cavity plate has an equal number of diametrically disposed cavities. The shape of one-half of the mold cavities formed by the cores and cavities corresponds to the shape of part of the two-component object, and the shape of the other half of the mold cavities formed corresponds to the whole of the two-component object. The transporting member is pivotally mounted in the mold on an axis which is parallel to the opening direction of the mold and effects the transporting of the partly formed two-component object from its respective mold cavity into a mold cavity which forms the whole of the two-component object after the mold has been opened. The transporting member is configured as a plate separate from the profile plate and the cavity plate and is movable in the opening direction of the mold relative to the stationary mold half and to the movable mold half.

3,832,111

APPARATUS FOR MAKING COMPONENT PARTS OF SHOES AND THE LIKE COMPRISED OF THERMOPLASTIC SHEETING

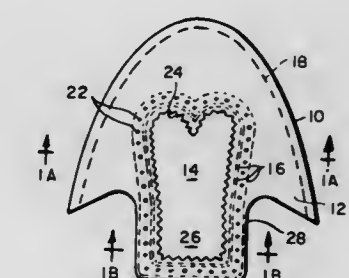
Robert B. Dunlap, Medway, and Adrian E. Balfour, Framingham, both of Mass., assignors to Compo Industries Inc., Waltham, Mass.

Continuation-in-part of Ser. No. 128,975, March 29, 1971, abandoned. This application Mar. 13, 1972, Ser. No. 234,033

Int. Cl. B29c 3/00

U.S. Cl. 425-174.2

14 Claims



The method of making relatively thin parts with a thermoplastic face having a predetermined surface configuration comprising providing a mold with the surface configuration desired to be imparted to the face, pressing and heating the material of the face in contact with the surface of the mold at a temperature such as to cause the material fused to take the impression of the mold and while the material is in a fused condition controlling flow of the material within the perimeter of the mold and cooling it to make permanent the impression imparted to the material.

The apparatus for carrying out the method comprises a mold embodying the surface configuration to be imparted to the part, a press and a heat generator for fusing and applying molding pressure to the part. The mold is comprised of a material having a lower dielectric constant than the material of the part to be molded, preferably silicone rubber or a silicone containing material. Heating is effected in a high frequency field, preferably by connecting the platens of the press to the terminals of a high frequency generator. Optionally, two presses may be employed, one to effect fusing and molding and another to effect cooling while holding the part at molding pressure. If a single press is employed the platens of the press are preferably provided with cooling coils. Optionally, the part and the mold may be preheated.

3,832,112

APPARATUS FOR MAKING CERAMIC SHINGLES FROM EXTRUDED HOLLOW BLOCKS OF SOFT CLAY

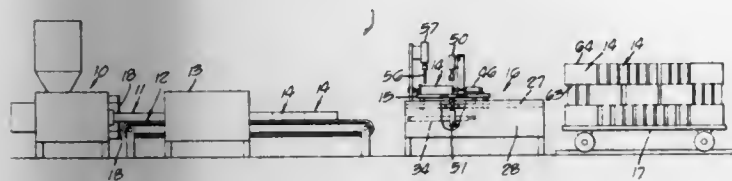
Homer S. Dye, Hacienda Heights, Calif., assignor to Pacific Clay Products, Los Angeles, Calif.

Filed Jan. 2, 1973, Ser. No. 320,153

Int. Cl. B29c 17/14

U.S. Cl. 425—291

8 Claims



Ceramic shingles are produced from hollow blocks of soft clay cut from an extrusion. Each block is die formed at one end to produce an inward directed lip which will form the lower portion of a shingle. The blocks are stacked on parallel side edges while being heated to vitrify the clay, and afterwards portions of each block are discarded to produce two substantially duplicate ceramic shingles. Apparatus for die forming the hollow blocks of soft clay include internal and external dies to form the inward directed lips.

3,832,113

DEVICE FOR THE MANUFACTURE OF SMALL STICKS OF DOUGH-LIKE MATERIAL

Willem Hendrik Willemsen, Westervalle 83, Warffum, Netherlands

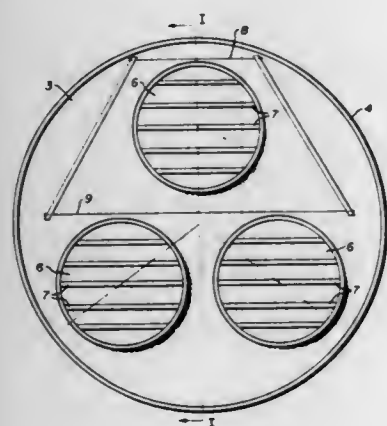
Filed Aug. 15, 1972, Ser. No. 280,748

Claims priority, application Netherlands, June 6, 1972, 7207636

Int. Cl. A21c 11/18

U.S. Cl. 425—311

1 Claim



A device for the manufacturing of small sticks of dough-like material having different dimensions and different shapes by pressing said dough-like material out of a container having a bottom plate provided with at least one aperture subdivided by ribs into slots of different dimensions and shapes. Cutting means being provided under said plate for cutting off the dough-like material pressed through said slots by means of a piston arranged in said cylinder.

3,832,114

CUTTER SHAFT DEVICE IN A PELLETIZING APPARATUS FOR SYNTHETIC RESINS

Minoru Yoshida, Hiroshima, Japan, assignor to Japan Steel Works Ltd., Tokyo, Japan

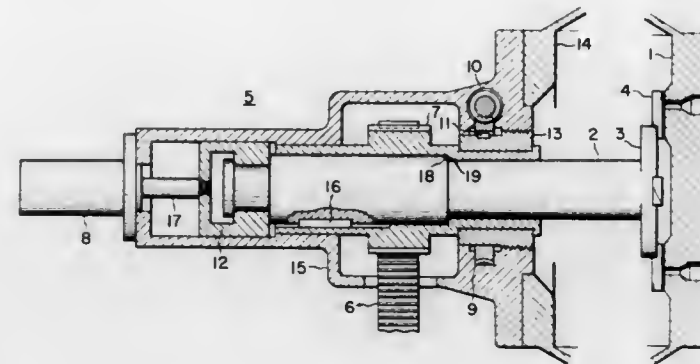
Filed Feb. 5, 1973, Ser. No. 329,834

Claims priority, application Japan, May 12, 1972, 47-46437

Int. Cl. B29b 1/03

U.S. Cl. 425—313

7 Claims



In a pelletizing apparatus for synthetic resins, the coarse and fine adjustments of the gap between a cutter knife and a die are effected through coarse and fine shiftings of the cutter shaft caused by the operation of separate means adapted for the coarse and fine shiftings, respectively.

3,832,115

APPARATUS FOR COMPRESSING CHIPBOARDS

Hubert Ettel, Teichhute, Germany, assignor to Wilhelm Mende & Co.

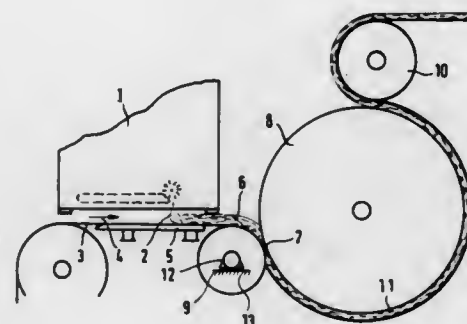
Filed May 23, 1972, Ser. No. 256,108

Claims priority, application Germany, May 29, 1971, 2126935

Int. Cl. B29j 5/08; B30b 5/04

U.S. Cl. 425—373

3 Claims



Improved apparatus for the production of chipboard wherein the gap width between two heated pressing members at the commencement of the pressing operation is smaller than the thickness of the chipboard to be manufactured.

3,832,116

POROUS DIE PLATE EXTRUDER

Pierre Claude Marcel Delorme, Chalon-sur-Saone, France, assignor to Pont-A-Mousson S.A., Nancy, France

Filed Nov. 24, 1972, Ser. No. 309,405

Claims priority, application France, Nov. 29, 1971, 71.42633

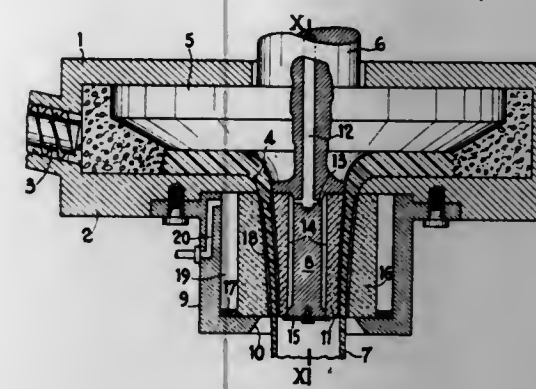
Int. Cl. B29f 3/012

U.S. Cl. 425—381.2

4 Claims

Plate extruder comprising a fixed plate and a rotatable plate mounted in a body and a die head structure associated with

the body. The die head structure comprises a wall which defines the passage for the flow of the extruded material and is



of a material permeable to a gaseous fluid. Passage means put the side of the wall opposed to the passage in communication with a source of fluid under pressure.

3,832,117

UNIT FOR APPLYING COVERING SHEET FOR USE IN VACUUM SEALED MOLDING

Itsuo Hijikata, Nagoya; Masayoshi Kasazaki, Toyokawa; Hideto Terada, Toyokawa, and Takao, Inoue, Toyokawa, all of Japan, assignors to Sintokogio, Ltd., Nagoya, Japan

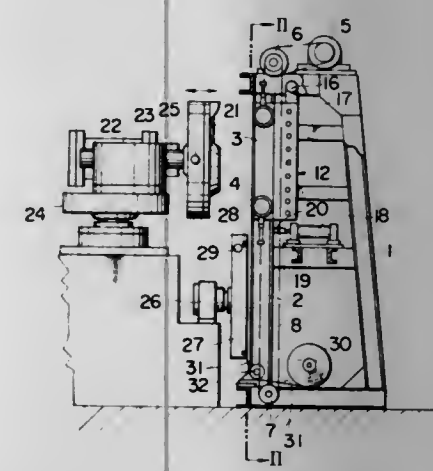
Filed Oct. 11, 1973, Ser. No. 405,422

Claims priority, application Japan, Oct. 12, 1972, 47-102458; Oct. 12, 1972, 47-102459

Int. Cl. B29d 17/00

U.S. Cl. 425—388

11 Claims



A covering sheet applying unit and a method for heating said covering sheet in which a covering sheet holding frame is movably provided between a pattern plate for vacuum sealed molding mold and a heating means for uniformly heating the covering sheet to be applied on the surface of said pattern plate, a pressing plate is disposed at the end of the moving range of said holding frame, the covering sheet drawn from the web of the covering sheet is held on said holding frame and then moved in the vicinity of said pattern plate, and the covering sheet is, after being uniformly heated, applied on the pattern plate.

3,832,118

APPARATUS FOR PRODUCTION OF CAST CONCRETE MEMBERS

William E. Mitchell, Franklin, Tenn., assignor to Span-Deck, INC., Franklin, Tenn.

Filed May 8, 1972, Ser. No. 251,358

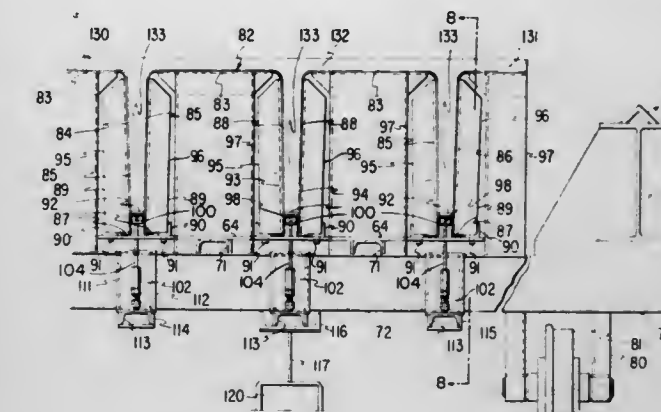
Int. Cl. B28b 7/10

U.S. Cl. 425—443

31 Claims

Prestressed cast concrete structural members which are T-shape or multiple T-shape in cross section are cast in a metal

mold. Each T portion of the mold comprises inverted L-shape form members, the depending portions of which have pin members affixed thereto. The pin members are cooperatively received in diagonal slots of a horizontally movable cam plate. Movement of the cam plate causes the depending portions to move laterally away from one another to enable stripping of the cast member from the form. A separately constructed ver-



tically movable horizontal pallet member forms the bottom surface of the form and includes a roller transfer assembly supported on an elevator mechanism. By cam action, the cast member is raised and then transferred to a roller conveyor which engages the bottom surfaces of the extending arms of the cast member. The roller conveyor transfers the member to another work area.

3,832,119

VIBRATILE MOLD WITH PALLET CLAMPING APPARATUS

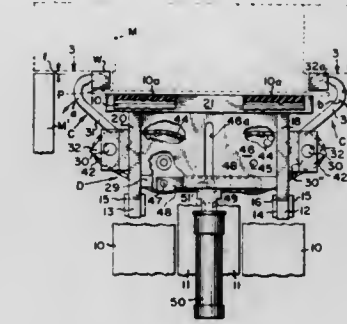
Robert J. Woelk, Alpena, Mich., assignor to Besser Company, Alpena, Mich.

Division of Ser. No. 33,248, April 30, 1970, Pat. No. 3,660,004. This application Mar. 13, 1972, Ser. No. 234,423

Int. Cl. B28b 1/08

U.S. Cl. 425—432

10 Claims



Concrete block molding machinery having apparatus for moving a block receiving pallet against a mold assembly which is used in forming building blocks. The apparatus includes rotatable clamp arms and clamp receiving members having cooperating wedging surfaces, the clamp arms being movable into and out of engagement with the clamp receiving members to move the pallet supporting members toward and away from the mold assembly to clamp and unclamp the pallet to and from the mold.

3,832,120

INTERNAL DECKLE STRUCTURE

Ronald L. Shaffer, Downingtown, Pa., assignor to Beloit Corporation, Beloit, Wis.

Filed Oct. 19, 1972, Ser. No. 299,043

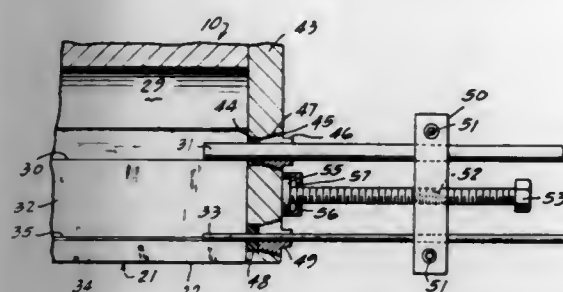
Int. Cl. B29d 7/04

U.S. Cl. 425—466

10 Claims

Internal deckle structure for extruder dies for plastic film. The deckle structure includes a primary deckle placed in the

pre-land area of the die to disrupt the edge of the molten plastic material and minimize edge bead and to serve as a seal for the melt flow passageway. A second deckle is placed in the transition area of the die between the pre-land area and the final land area defining the discharge orifice of the die. The deckles may be horizontally adjusted along the pre-land area of the die dependent upon the width of the film extruded



either independently of each other or together to provide a most effective arrangement for sealing and necking down the plastic film as it leaves the die. A clamp and screw structure is provided for adjustably moving the deckles in and out along the die and conical split locking nuts are provided for locking the deckles in fixed relation with respect to each other and with respect to the die, where required.

3,832,121

FUEL INJECTOR FOR BLAST FURNACE

Paul Metz, Luxembourg; Victor Koch, and Robert Schockmel, all of Esch/Alzette, Luxembourg, assignors to Acieries Reunies de Burbach-Eick-Dudelange S.A.-ARBED, Luxembourg, G.D. de Luxembourg

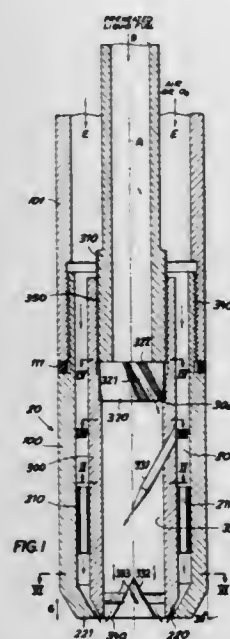
Filed Jan. 29, 1973, Ser. No. 327,835

Claims priority, application Luxembourg, Jan. 28, 1972, 64674

Int. Cl. F23c 5/00

U.S. Cl. 431-8

20 Claims



An injector for a combustible mixture, to be discharged across the tuyeres of a blast furnace, has an inner tube for the passage of a stream of liquid fuel and an outer tube traversed by a flow of oxidizing gas (air or oxygen) under pressure, the fuel stream passing through an obliquely perforated insert which directs it along helicoidal paths onto the peripheral tube wall to form a layer progressing toward the discharge end of the injector. Between that discharge end and the insert, the fuel layer is subjected to radially outwardly acting pressure from a gas, which may be branched off the surrounding flow of oxidizing gas, admitted generally tangentially into the inner tube through a set of nozzles extending skew to the tube axis, thereby reducing the thickness of the fuel layer. The surrounding gas flow, also set in swirling motion by passing through a

fluted or perforated ring, impinges upon this thinned fuel layer at the discharge end and atomizes it. The exit speed of the fuel stream may be increased by disposing an inwardly pointing axial cone in the discharge end of the inner tube, leaving a narrow annular channel through which the fuel and its entraining gas pass into contact with the surrounding gas flow exiting through a narrow gap between the tubes.

3,832,122

REDUCTION OF NITROGEN OXIDES FROM PRODUCTS OF HYDROCARBON COMBUSTION WITH AIR

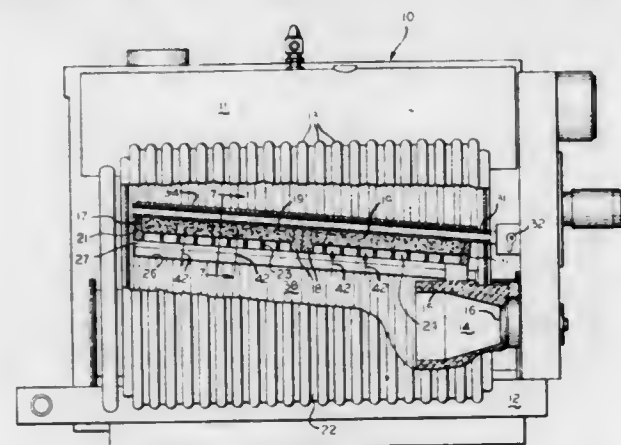
Paul G. La Haye, Cape Elizabeth, Maine; Glenn D. Craig, Menomonee Falls, and Joseph L. Turecek, Shorewood, both of Wis., assignors to Aqua-Chem, Inc., Milwaukee, Wis.

Continuation-in-part of Ser. No. 198,767, Nov. 15, 1971. This application Jan. 6, 1972, Ser. No. 215,762

Int. Cl. F231 9/00

U.S. Cl. 431-10

20 Claims



Fuel is burned in a primary combustion zone so that a substantial quantity of unburned hydrocarbons, such as carbon monoxide (CO) is produced along with some nitrogen oxides (NOx) and whereby essentially no oxygen remains at the completion of the combustion process. The gaseous combustion products are conducted through a gas dispersion matrix or bed in which the unburned hydrocarbons and NOx react to produce carbon dioxide (CO₂) and nitrogen (N₂). Air is then injected into the gases in a secondary combustion zone to oxidize the residual unburned hydrocarbons to CO₂ in which case the exhaust gases are substantially free of air polluting CO and NOx.

3,832,123

BURNER CONTROL SYSTEM

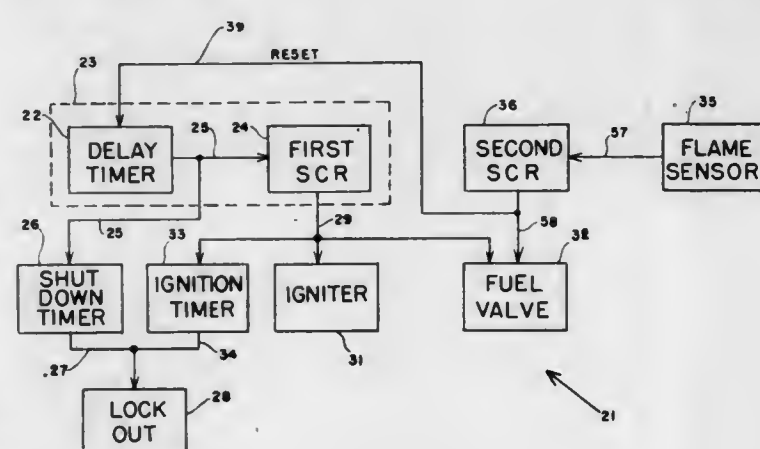
Lyman H. Walbridge, Ashland, Mass., assignor to Walter Kidde & Company, Inc., Clifton, N.J.

Filed Nov. 15, 1972, Ser. No. 306,591

Int. Cl. F23h 5/00

U.S. Cl. 431-78

26 Claims



Disclosed is a fail safe burner control system with a valve controller for operating a burner, a flame rectification flame

detector and a spark igniter apparatus. A first electronic switch opens the valve and starts the igniter. Upon the occurrence of flame, a second electronic switch, in response to the rectification detector, disables the first switch thus stopping the spark, but holds the valve open as long as flame is sensed. If flame is lost, the first switch is enabled automatically. In the event of failure to reignite after a loss of flame, the continued operation of the sparking igniter causes a circuit breaker to lock out the system.

3,832,124

PHOTOFLASH LAMP

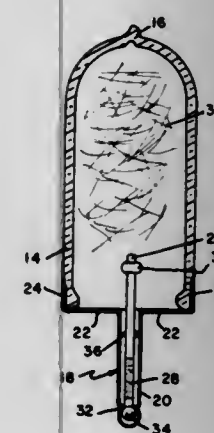
Frederick Loughridge, 10 Goldfinch Way, Ipswich; Frederick Koury, 26 Eastern Ave., and Warren Hay, 399 Asbury St., both of Hamilton, all of Mass.

Filed Oct. 2, 1972, Ser. No. 294,308

Int. Cl. F21k 5/02

U.S. Cl. 431-93

6 Claims



A percussive-type photoflash lamp having an envelope comprised of a glass having a low coefficient of thermal expansion and a depending metal primer tube which is sealed to the glass envelope in a manner placing the glass under compression.

3,832,125

PHOTOFLASH LAMP

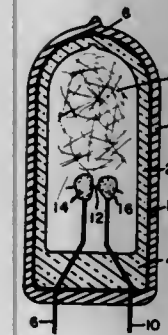
Thomas P. McDonough, Allenwood, and John W. Shaffer, Williamsport, both of Pa., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed Nov. 20, 1972, Ser. No. 308,167

Int. Cl. F21k 5/02

U.S. Cl. 431-94

9 Claims



A photoflash lamp having a thin film coating of highly adherent, low elongation polymeric resin on the exterior surface of its glass envelope, with a much thicker and higher elongation polymeric coating covering the thin film coating.

3,832,126

LIQUEFIED GAS FUELED LIGHTER

Nobuyoshi Moriya, Urawa, Japan, assignor to Mansei Kogyo Kabushiki Kaisha, Kawaguchi-shi, Saitama, Japan

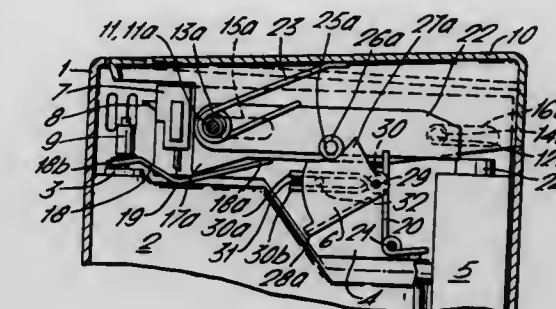
Filed May 26, 1972, Ser. No. 257,187

Claims priority, application Japan, June 8, 1971, 46-48075

Int. Cl. F23q 7/12

U.S. Cl. 431-131

26 Claims



A liquefied gas fueled lighter comprising a housing, a normally closed gas fuel discharge valve and a piezoelectric high voltage generation device disposed within the housing, an actuating member, a hammer rotatably secured to the actuating member, means for slidably interconnecting the actuating member and the housing whereby the actuating member may be substantially linearly displaced from a first position to a second position whereat the rotation of the hammer will result in the hammer striking the piezoelectric device, a spring interposed intermediate the hammer and the actuating member, means for opening the normally closed fuel gas discharge valve and for subjecting the spring to a compressive force having at least a predetermined magnitude and selective direction as the actuating member is displaced from the first to the second position thereof, and means for releasing the hammer when the actuating member is at the second position whereby the hammer will be forcefully propelled towards and impact against the piezoelectric device whereby a spark will be generated proximate the fuel gas discharge valve for igniting the discharged gas fuel.

3,832,127

IGNITION DEVICE

Nobuyoshi Moriya, Urawa, Japan, assignor to Mansei Kogyo Kabushiki Kaisha, Saitama, Japan

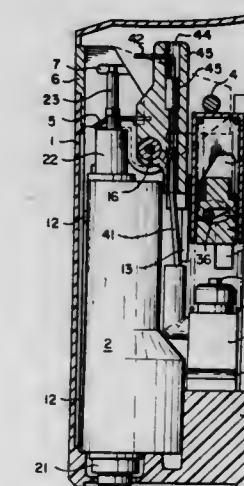
Filed June 20, 1973, Ser. No. 371,758

Claims priority, application Japan, June 20, 1972, 47-72733

Int. Cl. F23q 2/16

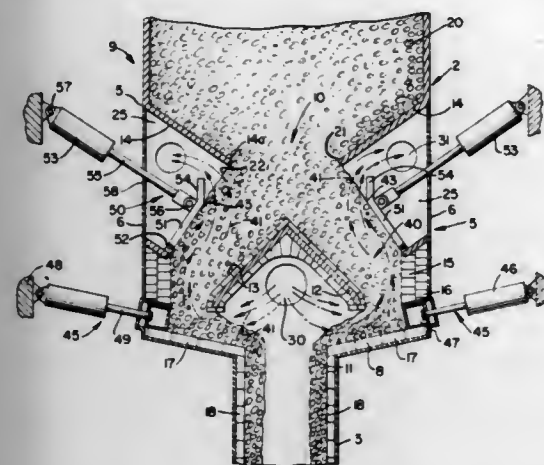
U.S. Cl. 431-344

16 Claims



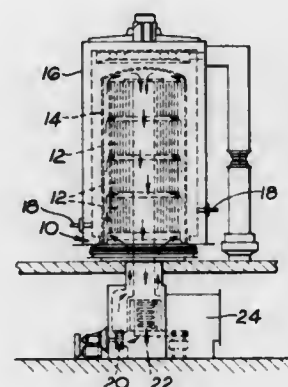
An ignition device comprises a casing formed of two halves which are integrally secured to each other and which are provided with a support arrangement for holding thereon a high voltage generating means and other elements.

3,832,128
PROCESS AND APPARATUS FOR PREHEATING SOLID PARTICULATE MATERIALS
 Kermit D. Paul, Bethlehem, Pa., assignor to Fuller Company, Catasauqua, Pa.
 Filed July 11, 1973, Ser. No. 378,289
 Int. Cl. F27b 1/10
 U.S. Cl. 432-17



A method and apparatus for preheating solid particulate materials such as limestone and materials used in the process of making sealed surface lightweight aggregate. It includes a vessel having an inlet for solid particulate material and an outlet for solid particulate material, an inlet for hot gases and an outlet for gases. A preheating zone is defined by a bridge, the floor of the vessel and the vessel sidewalls. A valve arrangement is provided for controlling the length of the gas flow path through the preheating zone. When the valve is in one extreme position, the flow path through the gas-solids contact zone is the longest, and when the valve is in the other extreme position, the flow path through the gas-solids zone is at its shortest. The position of the valve may be controlled in response to either the pressure drop across the preheating apparatus or the temperature of the material discharged from the preheater.

3,832,129
COIL ANNEALING FURNACES
 Alfred Derbyshire; Kenneth William Ivins, and Edward Thomas Whetton, all of Sutton Coldfield, England, assignors to Wellman Incandescent Furnace Company Limited, Worcester, England
 Filed Apr. 5, 1973, Ser. No. 348,455
 Claims priority, application Great Britain, Apr. 6, 1972, 15859/72; Jan. 19, 1973, 2826/73
 Int. Cl. F27b 11/08
 U.S. Cl. 432-77



The invention provides a coil annealing furnace in which atmosphere is circulated out of a cover enclosing the coils and via an external circuit before returning to the cover, in which a heat exchanger is located in the external circuit but is physically movable so that when moved out of the circuit there is no impediment to free circulation through the circuit such as is inevitably provided when the heat exchanger is in the circuit, and with a seal between the cover and furnace structure comprising a compressed rubber ring which is watercooled, so as to prevent seal failure through pressure fluctuations when the heat exchanger is moved into the circuit.

3,832,130
METHOD AND COMPOSITION FOR PREVENTING DETERIORATION OF HIDES FROM FRESHLY SLAUGHTERED ANIMALS

Elmer A. Weaver, Spring Mount, William J. Hopkins, Philadelphia, and Alfred H. Korn, Maple Glen, Pa., assignors to the United States of America as represented by the Secretary of Agriculture
 No Drawing. Filed July 28, 1972, Ser. No. 275,988
 Int. Cl. C14c 1/00

U.S. Cl. 8-94.18 **9 Claims**
 Hides from freshly slaughtered animals are preserved and prevented from deteriorating by treatment with a synergistic mixture of water, acetic or propionic acid, and N,N'-bis(methoxy)methyl uron. Sodium acid sulfate is also used in place of the acetic or propionic acid. A surfactant is usually added to the mixture for wetting or emulsifying purposes. However, it is not an essential element for the synergistic action. The amount of water can be varied greatly, from 10 to 100%, based on the weight of the hide, without affecting the efficacy of the treatment. Excellent results are obtained with a mixture containing 10% water, 0.03% surfactant, 1.0% acid and 0.2% uron derivatives, all amounts based on the weight of the hide.

3,832,131
TREATMENT OF FIBRES
 Derek James Rowland Massy and Kenneth Winterbottom, Cambridge, England, assignors to Ciba-Gelby AG, Basel, Switzerland
 No Drawing. Filed Mar. 15, 1972, Ser. No. 235,036
 Claims priority, application Great Britain, Apr. 19, 1971, 9,767/71
 Int. Cl. D06m 15/54, 15/36

U.S. Cl. 8-115.6 **8 Claims**
 Cellulosic textiles are treated with an ester which contains, on average, at least two mercaptan groups per molecule, and with an aminoplast which is free from ethylenic unsaturation, and the aminoplast is cured. The treated textiles have enhanced dimensional stability, resistance to creasing, and may have permanent creases imparted, whilst having a fuller, softer handle and increased tear strength compared to cellulosic textiles treated with the aminoplast alone.

Typically, the ester is prepared by the reaction of
 (a) a compound containing at least two carboxylic acid groups,
 (b) a compound containing at least two alcoholic hydroxyl groups and, optionally,
 (c) a compound containing not more than one carboxylic acid group or alcoholic hydroxyl group, especially a monomercaptomonocarboxylic acid or a monomercaptomonohydric alcohol.

3,832,132
PROCESS FOR IMPROVING THE DIMENSIONAL STABILITY OF WOOL-CONTAINING FABRICS
 Giuliana C. Tesoro, Dobbs Ferry, N.Y., and Stephen B. Sello, Cedar Grove, and Rudolf F. Wurster, Weehawken, N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.
 No Drawing. Filed Nov. 8, 1968, Ser. No. 774,499
 Int. Cl. D06m 13/38
U.S. Cl. 8-127.6 **7 Claims**
 This invention concerns a novel process for modifying proteinaceous substrates comprising treating said sub-

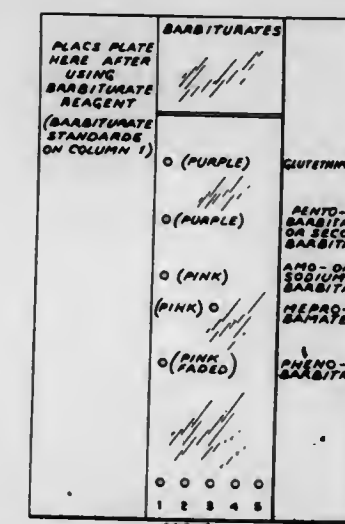
CHEMICAL

strates with polyfunctional reagents derived from urea and heating the treated substrate until the desired modification takes place.

3,832,133
PROCESS FOR SHRINKPROOFING WOOL
 Billy M. Culbertson, Burnsville, Edward A. Sedor, Bloomington, and William J. McMillip, Minneapolis, Minn., assignors to Ashland Oil, Inc.
 No Drawing. Filed Mar. 21, 1969, Ser. No. 809,393
 Int. Cl. D06m 13/42

U.S. Cl. 8-127.6 **9 Claims**
 Linear addition polymers having multiple aliphatic isocyanate functionality are employed to impregnate a wool or wool-containing substrate to provide a treated substrate exhibiting excellent dimensional stability characteristics.

3,832,134
TLC METHOD AND DEVICE FOR DETECTING THE PRESENCE OF TARGET SUBSTANCES IN UNKNOWN SOLUTIONS
 David Sohn, 8 Muriel Ave., Lawrence, N.Y. 11559
 Filed Oct. 4, 1971, Ser. No. 186,268
 Int. Cl. G01n 31/08, 33/16
U.S. Cl. 23-230 B **5 Claims**



TLC method and device for testing urine or other body fluids for the presence of target substances. The device includes (1) a thin layer chromatographic plate into which target standards have been incorporated at selected starting points and (2) a photodiagram showing the appearance of a developed plate which had been prepared with the same target standards. Comparison, after development, of the plate to which a test solution had been applied, to the photodiagram verifies the test procedure while also determining the presence or absence of the target substances in the test solution.

3,832,135
AUTOMATIC CLINICAL ANALYZER
 Robert J. Drozdowski, Mount Arlington, Peter F. Connolly, Boonton, Italo M. Massaglia, Middletown, and John Rudolph Chlupsa, Paterson, N.J., assignors to Becton, Dickinson and Company, East Rutherford, N.J.
 Filed Apr. 5, 1972, Ser. No. 241,113
 Int. Cl. G01n 1/14, 1/18
U.S. Cl. 23-230 R **11 Claims**
 An automatic clinical analyzer for automatically transporting an identifiable sample of fluid to be tested to a distribution point where the sample is aliquoted to a series

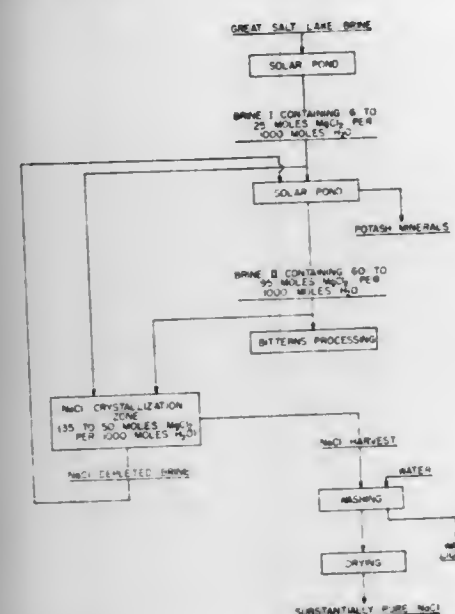
3,832,143

CRYSTALLIZATION OF SODIUM CHLORIDE

Ulrich E. G. Neltzel, Heringen (Werra), Germany, assignor to Irving Trust Company, as trustee

Continuation-in-part of application Ser. No. 735,840, June 10, 1968, now Patent No. 3,589,871, and a continuation-in-part of Ser. No. 756,071, Aug. 28, 1968, now Patent No. 3,592,615, and this application is a continuation of Ser. No. 807,573, Mar. 17, 1969, now Patent No. 3,615,259. This application June 22, 1971, Ser. No. 155,596

Int. Cl. B01d 9/02; C01d 3/06; C01f 5/30
U.S. Cl. 23—296 8 Claims



Substantially pure sodium chloride of relatively fine crystal size is crystallized by mixing two brines saturated with respect to NaCl and containing different concentrations of $MgCl_2$.

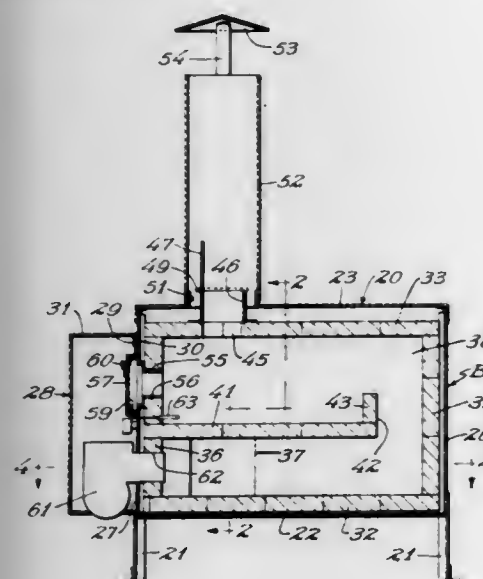
3,832,144

SMOKE ELIMINATOR

Robert H. Wicken, West St. Paul, and Harland C. Potter, White Bear Lake, Minn., assignors to Temperature Control Inc., St. Paul, Minn.

Filed Sept. 21, 1972, Ser. No. 290,834

Int. Cl. F23c 9/04; F23g 7/06
U.S. Cl. 23—277 C 4 Claims



A smoke eliminator is connected to the chimney usually leading from an incinerator or the like. The elim-

inator includes a chamber capable of withstanding high temperatures. A power burner is provided to pre-heat the chamber. The temperature is sufficient to burn out the major portion of the impurities caused by the firing of the incinerator as the gases travel a tortuous path.

3,832,145

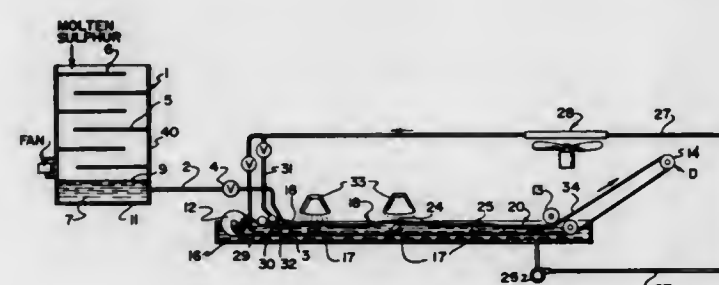
METHOD AND APPARATUS FOR THE SOLIDIFICATION OF MOLTEN SULPHUR

Ernest Ralph Ellithorpe and Ronald Bruce Fletcher, Calgary, Alberta, Canada, assignors to Vennard & Ellithorpe Ltd., Calgary, Alberta, Canada

Filed Dec. 14, 1971, Ser. No. 207,909

Claims priority, application Canada, Dec. 24, 1970, 101,481

Int. Cl. C01b 17/02, 17/14
U.S. Cl. 23—293 S 4 Claims



A method of solidifying molten sulphur involves forming on a belt at least one undulation which is shaped to permit the formation of a pool of molten sulphur. Molten sulphur is fed onto the belt so that a pool is formed on the undulation. The speed of the belt is controlled in relation to the feed rate of the sulphur and in relation to the angle and length of the surface of the undulation remote from a feeding section for the sulphur so that molten sulphur is caused to form into a layer and solidify on the belt as it passes through the pool. Cooled or partially cooled sulphur is then delivered from the surface of the belt. The angle of undulation extending upwardly and away from the feeding section is normally within the range of one half a degree to about three degrees. Apparatus for use in the solidification of molten sulphur is also provided. A cooling tank assembly provided with a plurality of generally transversely disposed baffles includes means for directing a supply of air into the assembly with an air deflector embodied in the cooling tank structure.

3,832,146

HIGH PRESSURE HYDROTHERMAL GROWTH OF QUARTZ WITH HIGH "Q" VALUES

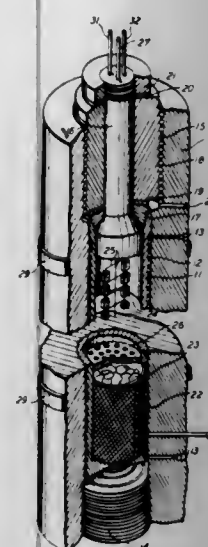
Eileen E. Bresnahan, North Andover, and Nicholas C. Lias, Lowell, Mass., and Ernest D. Kolb, New Providence, and Robert A. Laudise, Berkeley Heights, N.J.; said Eileen E. Bresnahan and said Lias assignors to Western Electric Company, Incorporated, New York, N.Y.; said Kolb and said Laudise assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 16, 1972, Ser. No. 263,568

Int. Cl. B01j 17/04
U.S. Cl. 23—301 R 8 Claims

Hydrothermal growth of high acoustic quartz (Q greater than 10^6) at fast rates of about 100 mils per day

(2.5 mm./da.) is made possible by the utilization of temperature which is encountered during electronic tube manufacturing. The first element is metallurgically bonded along a common interface to a second metallic alloy element that does not undergo phase changes within the foregoing temperature ranges. The second element has coefficient of expansion which approximately matches the first element after it has undergone the phase change at the higher temperature. The material is deformed by a predetermined amount to a predetermined pattern to enable a contact to be made with another element of an electronic tube.



3,832,149

GASOLINE COMPOSITION

Robert H. Kozlowski, Berkeley, and Joel W. Rosenthal, El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed June 25, 1971, Ser. No. 163,514
Int. Cl. C101 1/06

U.S. Cl. 44—56 5 Claims
A motor fuel comprising 1–40 volume percent oxylate and 99–60 volume percent alkylate.

The oxylate consists of tertiary butyl alcohol, isopropyl alcohol, and methyl alcohol. Preferred composition for the oxylate is about 20–90 volume percent tertiary butyl alcohol, 5–40 volume percent isopropyl alcohol, and 5–40 volume percent methyl alcohol.

The alkylate used in the motor fuel composition can be obtained, for example, from sulfuric or hydrofluoric acid alkylation. The oxylate improves the octane of the alkylate gasoline more than expected, and also the oxylate has an unexpectedly high blending octane number in the alkylate over a wide range of percentage amounts of oxylate in the alkylate.

COMPOSITE ARTICLE COMPRISING THREE DISSIMILAR METALS

James L. Forand, Jr., Kunkletown, Monroe County, Polk Township, Pa., assignor to Bethlehem Steel Corporation

Continuation-in-part of abandoned application Ser. No. 867,014, Oct. 16, 1969. This application Jan. 18, 1972, Ser. No. 218,802

Int. Cl. B23p 3/06
U.S. Cl. 29—191 1 Claim

A method for producing a composite article having a ferrous substrate and at least one non-ferrous metal, for example, copper or aluminum, clad thereto on one surface or on both surfaces. The method includes cold rolling the substrate and cladding to effect a reduction of about 5%, heating the composite thus formed to a temperature in the range of a minimum of 600° F. and a maximum which is about 100° F. below the temperature at which the clad metal will melt, and rolling the composite within this temperature range to effect a reduction of about 20% to about 50%. The composite may be further reduced to obtain final gage. The product produced by cladding copper and aluminum on the surfaces of a ferrous substrate is also described and claimed.

ERRATUM

For Class 29—191 see:
Patent No. 3,832,136

3,832,148

BIMETALLIC MATERIAL FOR ELECTRONIC TUBE APPLICATIONS

Arnold J. Gottlieb, Colonia, and George A. Majesko, Glen Ridge, N.J., assignors to Wilbur B. Driver Company

No Drawing. Continuation-in-part of application Ser. No. 206,124, Dec. 8, 1971, now Patent No. 3,743,485. This application June 25, 1973, Ser. No. 373,400

Int. Cl. B23p 3/00
U.S. Cl. 29—195.5 5 Claims

A bimetallic material suitable for parts utilized in electronic tubes is disclosed. The material consists essentially of a first metallic alloy element that undergoes a first phase change at a temperature which is below ambient temperature and a second phase change at an elevated

3,832,151

PROCESS AND APPARATUS FOR DISPOSAL OF PLASTIC WASTES

Yoji Kitaoka, Katsuhide Murata, Kotaro Hama, Michio Hashimoto, and Kenji Fujiyoshi, Chiba, Japan, assignors to Mitsui Shipbuilding and Engineering Co., Ltd., and Mitsui Petrochemical Industries Limited, both of Tokyo, Japan

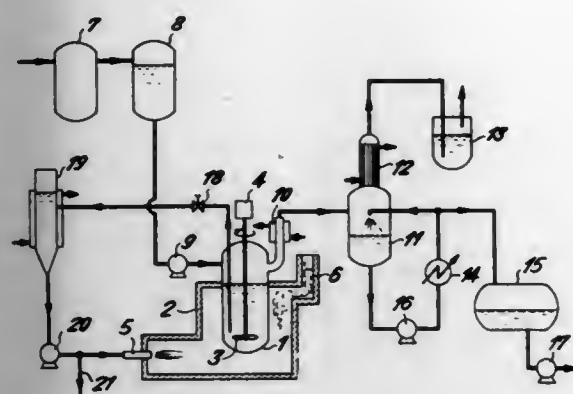
Filed Feb. 28, 1973, Ser. No. 336,473

Claims priority, application Japan, Mar. 18, 1972, 47/27,967

Int. Cl. C10j 3/00; F23g 7/00
U.S. Cl. 48—111 4 Claims

A process for plastic wastes disposal characterized in that plastic wastes are thermally decomposed, the product is cooled and separated into gaseous product and liquid

product, and carbon sludge in the reactor content is dispersed to avoid the deposition of such carbon sludge and



a part of the reactor content is discharged to reduce the carbon sludge in the reactor.

3,832,152 CARBURETION ATOMIZER SCREEN FOR INLET MANIFOLD SYSTEMS

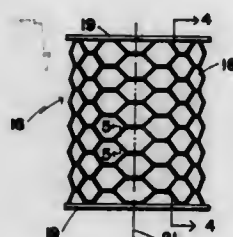
Bohdan Prygocki, Winnipeg, Manitoba, Canada, assignor to Remsoh Enterprises Ltd., Winnipeg, Manitoba, Canada

Filed June 28, 1972, Ser. No. 267,032

Int. Cl. F02m 29/00

U.S. Cl. 48—180 C

1 Claim



By making a screen of expanded metal through which the air/fuel mixture passes on the way to the intake valve, the angle of inclination of the flat strips which are in the form of a hollow cylinder made of expanded metal is such that far greater atomization and thus far greater intimate mixing of the fuel/air mixture is accomplished than by the use of conventional screen material normally used in an intake manifold system for internal combustion engines.

3,832,153 ADJUSTABLE FORM FOR SHAPING SHEETS OF PLASTIC MATERIAL, IN PARTICULAR, GLASS

Albert Bezombes, Paris, France, assignor to Saint-Gobain Industries, Neuilly-sur-Seine, France

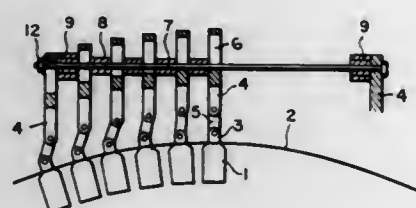
Filed May 15, 1972, Ser. No. 253,273

Claims priority, application France, May 14, 1971, 7117490

Int. Cl. C03b 23/02

U.S. Cl. 65—291

1 Claim



An adjustable form for press-shaping sheets of plastic material such as hot glass, and comprising a plurality of

straight bars disposed in parallel, side-by-side relation, each mounted individually for translation with respect to the others. Means are provided for unitizing the bars in desired relation wherein their free surfaces conjointly define or determine a surface of desired form or radius of curvature, usable as one of two complementary forms between which the sheet may be shaped.

3,832,154 PRODUCTION OF CHLORIDE-FREE POTASSIUM PHOSPHATES

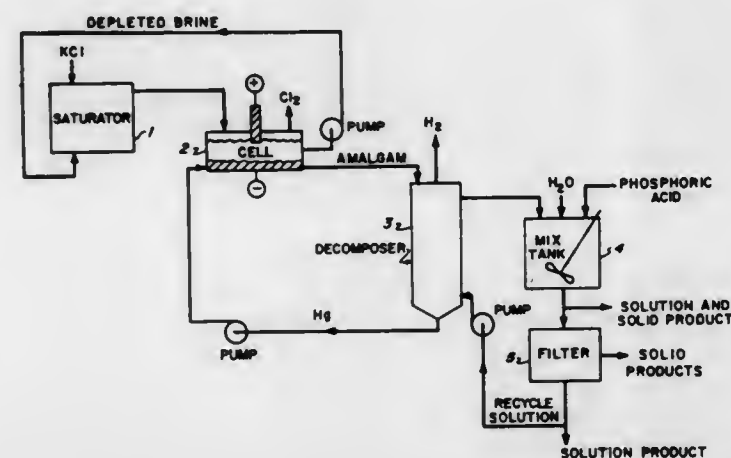
Travis P. Hignett, Sheffield, and Anthony J. Smith, Florence, Ala., assignors to Tennessee Valley Authority

Continuation-in-part of application Ser. No. 296,296, Oct. 10, 1972. This application June 18, 1973, Ser. No. 370,980

Int. Cl. C01d 11/00; C05b 7/00

U.S. Cl. 71—34

5 Claims



A process for the production of chloride-free potassium phosphate fertilizers, chlorine and hydrogen, including a method of treatment of impure saturated potassium chloride solution wherein a pure or impure brine is electrolyzed at high current efficiency. Chlorine is formed at the anode and potassium amalgam, at the cathode. Said amalgam is subsequently reacted with orthophosphoric acid or polyphosphoric acid solution and water to produce hydrogen and potassium orthophosphate or potassium polyphosphate solution, solids, and solution with solids; or amalgams of other metals, such as sodium, lithium, and zinc are produced at high current efficiency from their respective similarly treated impure chloride brines for subsequent processing.

3,832,155 N-ALKOXYALKYLIDENESULFONAMIDE COMPOUNDS AS HERBICIDES

James R. Beck, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

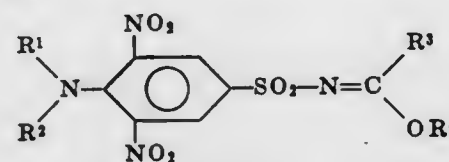
No Drawing. Original application Nov. 3, 1970, Ser. No. 86,619, now Patent No. 3,681,406. Divided and this application Mar. 6, 1972, Ser. No. 232,288

Int. Cl. A01n 9/14

U.S. Cl. 71—103

13 Claims

The present invention is directed to novel compounds of the formula



which compounds are useful as herbicides. In the above and succeeding formulae herein, R¹ represents hydrogen or R², and each R² independently represents loweralkyl of C₁-C₄, loweralkenyl of C₃-C₄, loweralkynyl of C₃-C₄, or radical of the formula —CH₂—CH₂(CH₂)_nY, where-

in n represents 0 or 1, and Y represents methoxy, cyano, bromo, or chloro, subject to the limitation that the groups represented by R¹ and R² together contain from 2 to 8, both inclusive, carbon atoms; R³ represents hydrogen, loweralkyl of C₁-C₂, or phenyl; and R⁴ represents alkyl of C₁-C₈, allyl, or 2-chloroethyl.

3,832,156 POWDERED METAL PROCESS

Stanmore V. Wilson, Princeton, and Paul E. Matthews, Trenton, N.J., assignors to United States Bronze Powders, Inc.

No Drawing. Filed Sept. 27, 1972, Ser. No. 292,734

Int. Cl. B22f 1/00

U.S. Cl. 75—0.5 B

20 Claims

Malleable metal powders having low green strength can be converted to high green strength, irregularly shaped particles according to a process comprising mechanically working, as by ball milling, the low green strength powders to flake form, annealing the flakes above the recrystallization temperature thereof in a non-oxidizing atmosphere to agglomerate the flake particles into a sinter cake susceptible of subsequent break-up and mechanically disintegrating the sinter cake into the irregularly shaped particles. According to this process, blends of low green strength spherical elemental powders may be converted to high green strength, high transverse strength, high hardness alloy particles.

3,832,157

METHOD OF PRODUCING REFRACTORY METALS AND REFRACTORY METAL COMPOUNDS IN POWDER FORM

Elis Kjell Ake Svanstrom, Nynashamn, Sweden, assignor to Rederiaktiebolaget Nordstjernan, Nynashamn, Sweden

No Drawing. Original application May 21, 1971, Ser. No. 145,922, now Patent No. 3,723,601. Divided and this application Oct. 30, 1972, Ser. No. 302,117

Int. Cl. C22b 39/00, 51/00, 57/00

U.S. Cl. 75—5 BB

1 Claim

Refractory metals are produced using a gaseous halide process in which the process is accelerated by employing crystallization seeds in the reaction.

3,832,158

PROCESS FOR PRODUCING METAL FROM METAL OXIDE PELLETS IN A CUPOLA TYPE VESSEL

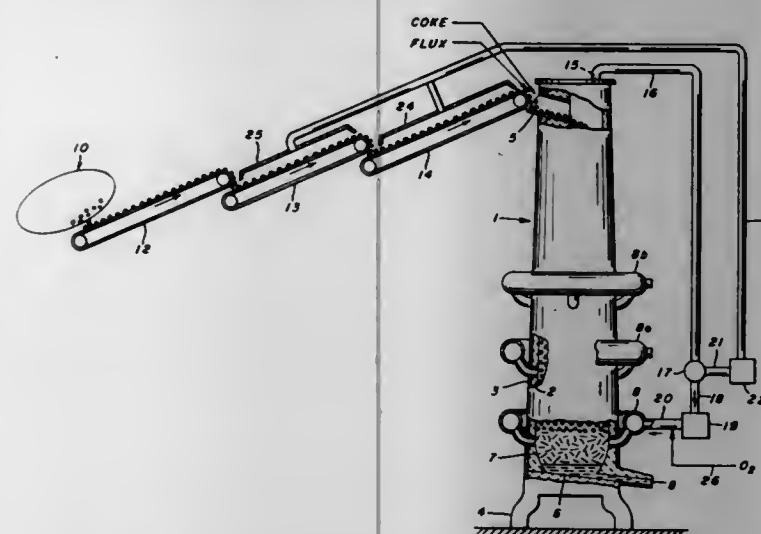
Richard F. Obenchain, 3340 Comanche Road, Pittsburgh, Pa. 15234

Filed May 31, 1973, Ser. No. 365,503

Int. Cl. C21b 13/00

U.S. Cl. 75—38

15 Claims



Metal is produced from metal oxide in a cupola-type vessel by the reduction of carbon-containing metal oxide

pellets. Following formation of a coke bed in a cupola-type vessel, alternate layers of metal oxide pellets, the pellets containing sufficient carbon to reduce the metal oxide of the pellet, and layers of coke are fed to the cupola-type vessel. Flux material is also added and, upon ignition of the coke bed, the metal oxide pellets are reduced in a self-contained system. The coke bed and the coke added to replenish the bed in alternate layers are used for the supplying of heat to the metal oxide carbon-containing pellets to initiate the reduction of the metal oxide therein, with the metal oxide reducing to molten metal which is then passed through the ignited coke bed, collected, and withdrawn from the cupola-type vessel at predetermined intervals or continuously. The carbon content of the resulting molten metal can be controlled by enriching the air fed to the coke bed with oxygen, with the oxidation of impurities and carbon being effected to produce a controlled carbon content metallic product.

3,832,159

PROCESS FOR MONITORING AND CONTROLLING THE SEQUENCE OF REACTIONS IN A BASIC OXYGEN STEEL PRODUCTION PROCESS

Erich Höffken, Dinslaken, and Gerd Kreyss, Breitscheid, near Düsseldorf, Germany, assignors to August Thyssen-Hütte, Düsseldorf, Germany

Filed Dec. 8, 1971, Ser. No. 206,087

Int. Cl. C21c 7/00; G01m 3/04

U.S. Cl. 75—60

2 Claims

An oxygen blow lance for a metal refining process carries a lever pivotally attached to an outer tube of the lance and guidably attached for displacement along an inner tube of the lance, the lever undergoing pivotal movement in proportion to relative longitudinal displacement of the tubes during the refining process. The lever carries a plunger which cooperates with an induction coil fixed to the outer tube to produce an electrical signal indicative of the relative longitudinal displacement between the tubes. The electrical signal is fed to a recorder where the relative longitudinal displacement between the tubes is plotted as a function of time to produce a curve from which the sequence of reactions can be observed.

3,832,160

DECARBURIZING MOLTEN STEEL

Harry L. Bishop, Jr., Pittsburgh, Pa., assignor to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of abandoned application Ser. No. 864,279, Sept. 30, 1969. This application Dec. 30, 1971, Ser. No. 214,446

Int. Cl. C21c 5/32

U.S. Cl. 75—60

22 Claims

The application describes a method for decarburizing molten steel. It comprises the steps of introducing oxygen into a vessel containing a liquid bath of metal, in a manner which precipitates a reaction between carbon within the metal and oxygen, analyzing the gases exiting from the vessel, determining whether the lance is submerged from the analysis of the exiting gases, and lowering the lance responsive to the gas analysis should it not be submerged, so that oxygen is only being introduced by submerged means.

3,832,161

METHOD OF BLOWING-IN THROUGH BLAST PIPES SUBMERGED IN A METALLIC BATH

Pierre Leroy, Saint-Germain-en-Laye, France, assignor to Creusot-Loire, Paris, France

Filed July 18, 1972, Ser. No. 272,878

Int. Cl. C21c 5/34

U.S. Cl. 75—60

8 Claims

A metallic bath is refined by blowing oxygen into the bath by submerged blast pipes. A primary jet is centered in each blast pipe for a gas containing droplets in suspen-

sion to reduce or suppress metallic oxide fumes otherwise produced in the bath by the oxygen.

3,832,162 RECOVERY OF COPPER AND ZINC FROM AUTOMOBILE SCRAP

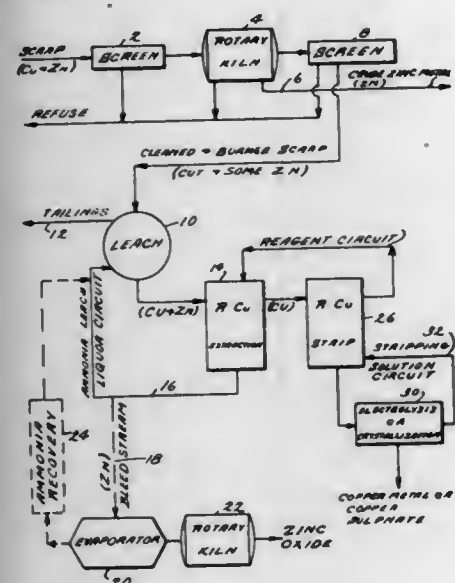
Edwin D. Smith, 1951 Wallace Road,
Allison Park, Pa. 15101

Filed Mar. 26, 1969, Ser. No. 810,670

Int. Cl. C22b 13/04, 15/10

U.S. Cl. 75—63

10 Claims



Copper and zinc are recovered from scrap derived from automobiles by first removing the bulk of the ferrous materials, burning the organic material, separating the bulk of the zinc as liquid metal, contacting the residue with aqueous ammonia to leach out the copper and residual zinc, treating the ammoniacal solution with a water immiscible organic liquid containing a copper specific ion exchange reagent to separate the copper from the zinc, stripping the organic copper containing solution with aqueous liquid, and recovering the separated copper and zinc.

3,832,163 PROCESS FOR CONTINUOUS SMELTING AND CONVERTING OF COPPER CONCENTRATES

Nicholas John Themelis, Beaconsfield, Quebec, and
George Clement McKerrow, Noranda, Quebec, Canada,
assignors to Noranda Mines Limited, Toronto, Ontario,
Canada

Filed Aug. 13, 1971, Ser. No. 171,705

Claims priority, application Canada, Feb. 1, 1971,
104,111

Int. Cl. C22b 15/00

U.S. Cl. 75—74

16 Claims

A process for the continuous smelting and converting of copper concentrates to metallic copper involves charging concentrates into a reactor which is maintained at a temperature at which a molten bath of slag, matte and metallic copper is formed. An oxidizing gas is injected into the molten bath and the charge of the concentrates is controlled in balanced relationship to an injection control rate of the gas such that the gas is sufficient to oxidize substantially all significant iron and sulphur in the concentrate so that smelting and converting is effected in the same zone of the reactor. The injection of the gas is such as to maintain a turbulent state of the molten bath and produce metallic copper. Slag and metallic copper are withdrawn from the reactor. The apparatus used for carrying out the process embodies a charging port, injection means, a copper settling area and a sump in the base thereof. Control means are provided for the oxidizing gas and means are also provided to control the

introduction of concentrates through the charging port. Interlocking control means are adapted to control the introduction of oxidizing gas and the introduction of concentrates in a desired balanced relationship.

3,832,164 PRODUCTION OF ALUMINUM AND ITS ALLOYS

László Kapolyi, Budapest, and Ferenc Kaszanitzky, Ferenc
Lázár, and György Vámos, Tatabánya, Hungary, as-
signors to Tatabányai Szebanyak, Tatabánya, Hungary
Filed Mar. 29, 1971, Ser. No. 128,870

Claims priority, application Hungary, Apr. 2, 1970,
TA-1,053

Int. Cl. C22b 21/02

U.S. Cl. 75—68 B

5 Claims



A process is disclosed whereby aluminum and its alloys is produced from oxidic materials, e.g. coal slag or other low-grade aluminum-containing materials, by mixing carbon with the starting material in an amount in excess of that required for reducing the oxides. A melt is then formed of said material which is applied and maintained over the wall surface of a reaction zone in the form of a continuous protective coating while contacting the melt with aluminum trihalogenide gases at a temperature above 1300° C. This coating inhibits the corrosion of said wall surface. The aluminum subhalogenide gases which form in the reaction zone are removed, condensed at a temperature between 600 and 1000° C., and metallic aluminum and alloys thereof are recovered from the condensate.

3,832,165 PROCESS FOR RECOVERING MANGANESE FROM ITS ORE

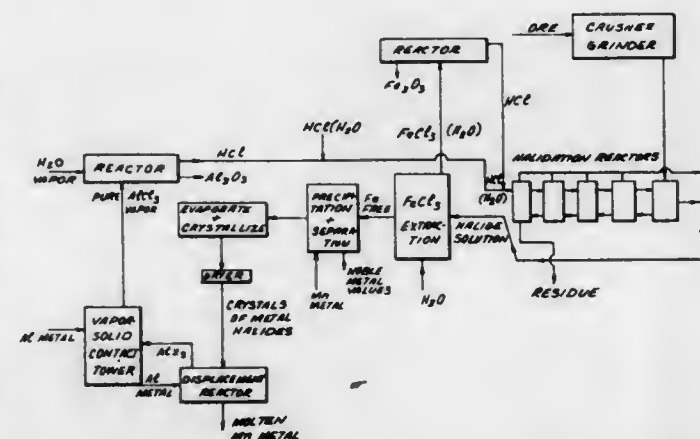
William S. Kane, Wicomic, and Paul H. Cardwell, Zanoni,
Va., assignors to Deepsea Ventures, Inc.

Filed Feb. 28, 1973, Ser. No. 336,547

Int. Cl. C22b 47/00

U.S. Cl. 75—80

19 Claims



This invention provides a process for obtaining high purity manganese, in the molten state, from manganese oxide ores containing iron. The process comprises halidating the ore with a hydrogen halide and leaching to obtain a leach solution comprising manganous and ferric halides and the elemental halogen; extracting the ferric halide

from the solution; separating anhydrous manganese halide from the solution; reducing the anhydrous manganese halide in the molten state with aluminum to form molten manganese metal and aluminum halide; reacting the aluminum halide with water vapor to form hydrogen halide and aluminum oxide; and recycling the hydrogen halide.

Usually, where the ore also contains a nonferrous metal more noble than manganese, the halide of such nonferrous metal is removed from the leach solution, after the ferric halide is removed, by precipitation.

3,832,166 STEEL SHEET HAVING EXCELLENT RUST RESISTANCE

Hideya Okada, Yokohama, and Haruo Shimada and
Kazuo Yamamoto, Tokyo, Japan, assignors to Nippon
Steel Corporation, Tokyo, Japan

No Drawing. Filed Nov. 30, 1972, Ser. No. 310,846

Claims priority, application Japan, Dec. 4, 1971,
46/97,572

Int. Cl. C22c 39/54

U.S. Cl. 75—125

1 Claim

A steel having excellent rust resistance comprising 0.001 to 0.15% of carbon, 0.01 to 1.0% of silicon, 0.01 to 1.0% of manganese, 0.01 to 0.5% of copper, 0.003 to 0.3% of sulfur and titanium in an amount enough to attain a Ti/S ratio of 2 or more, with the balance being iron and unavoidable impurities.

3,832,167 NICKEL ALLOY WITH GOOD STRESS-RUPTURE STRENGTH

Stuart Walter Ker Shaw, Sutton Coldfield, and Nigel
Anthony James, Birmingham, England, assignors to
The International Nickel Company, Inc., New York,
N.Y.

No Drawing. Filed Feb. 22, 1972, Ser. No. 228,294

Claims priority, application Great Britain, Feb. 23, 1971,
5,225/71

Int. Cl. C22c 19/00

U.S. Cl. 75—170

4 Claims

A hardenable nickel alloy containing special percentages of chromium, aluminum, titanium, hafnium, yttrium, molybdenum, tungsten, carbon, etc., offers enhanced stress rupture strength over the intermediate temperature range of 600° C.—900° C. while retaining a satisfactory level of ductility.

3,832,168 METAL FINISHING ALLOY OF NICKEL-COPPER- PHOSPHORUS

Michael Gulla, Newton, Mass., assignor to
Shipley Company, Inc., Newton, Mass.

Continuation-in-part of abandoned application Ser. No.
207,697, Dec. 13, 1971, which is a division of abandoned
application Ser. No. 119,661, Mar. 1, 1971. This appli-
cation June 21, 1973, Ser. No. 372,430

Int. Cl. C22c 19/00

U.S. Cl. 75—170

6 Claims

This invention relates to a new metal coating useful as a protective and decorative finish which finish also has unusual functional properties and to a metal plating solution capable of depositing said coating. The coating is an electroless nickel copper-phosphorus alloy substantially free of co-deposited sulfur which coating is deposited from an electroless nickel solution characterized by the presence of a small amount of copper ions. The copper ions provide an extremely smooth deposit resulting in a lustrous surface appearance. Moreover, copper ions in the monovalent cuprous state, added to the electroless nickel solution, provide the secondary advantages of stabilizing the plating solution and substantially improving corrosion resistance of the deposit. Copper ions in either the monovalent cuprous state or the divalent cupric state added to the electroless nickel solution co-deposit with the nickel providing the electroless alloy deposit of nickel, phosphorus and copper.

3,832,169 METHOD OF ELECTROPHOTOGRAPHY WITH A PHOTOCONDUCTIVE LAYER MANIFESTING PERSISTENT INTERNAL POLARIZATION

Koichi Kinoshita, Narashino, and Shiro Uehara and
Hiroshi Nagame, Tokyo, Japan, assignors to Katsura-
gawa Denki Kabushiki Kaisha, Tokyo-to, Japan

Continuation of abandoned application Ser. No. 798,647,
Feb. 12, 1969. This application Sept. 28, 1971, Ser. No.
184,638

Claims priority, application Japan, Feb. 14, 1968,
43/9,254

Int. Cl. G03g 5/02

U.S. Cl. 96—1 R

8 Claims

A method of electrophotography comprising the step of applying a first field across a photosensitive element including a transparent highly insulative layer and a photoconductive layer manifesting persistent internal polarization integrally bonded to the highly insulative layer to deposit an electric charge of a first polarity opposite to that of the majority carriers of the photoconductive layer on the surface of the highly insulative layer. An image of a screen is projected upon the photoconductive layer from the side of the photosensitive element opposite the highly insulative layer concurrently with the application of the first field. The screen may be integral with or separate from the photosensitive element. The photoconductive layer has a thickness such that light portions of the screen image do not cause substantial excitation of the photoconductive layer on the side adjacent the insulative layer. A second field is applied across the photosensitive element to deposit an electric charge of polarity opposite to the first polarity on the surface of the highly insulative layer and a light image is projected upon the photoconductive layer through the highly insulative layer concurrently with the application of the second field whereby to form a latent image corresponding to the light image on the surface of the highly insulative layer.

3,832,170 METHOD AND APPARATUS FOR ELECTRONIC COLOR PHOTOGRAPHY AND PHOTOSENSITIVE MEMBER USED FOR THE SAME

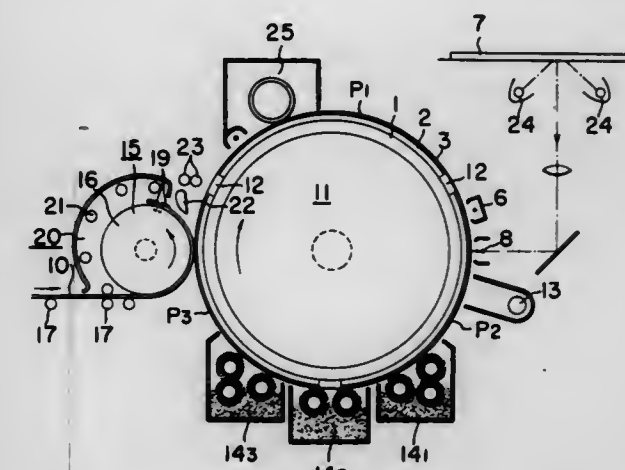
Katsumi Nagamatsu and Takashi Saito, Tokyo, Japan,
assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 1, 1970, Ser. No. 24,734

Int. Cl. G03g 5/04, 13/22

U.S. Cl. 96—1.2

14 Claims



The photosensitive member consists basically of a supporting base, a photoconductive layer and an insulating layer dyed in a desired color for providing a color filter effect. Such photosensitive members having different color filter effects are provided for polychromatic reproduction on a single transferable material.

3,832,171

RECORDING PROCESS AND ELEMENT EMPLOYING AS PHOTOCONDUCTIVE MATERIAL DUPLO - DIHYDROQUINOLINE COMPOUNDS

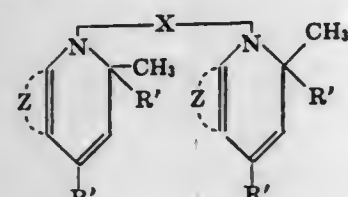
Wilhelmus Janssens, Aarschot, Johannes Josephus Vanheertum, Zandhoven, Albert Lucien Poot, Kontich, and Robert Joseph Pollet, Vremde, Belgium, assignors to AGFA-Gevaert N.V., Mortsel, Belgium
No Drawing. Filed Dec. 10, 1971, Ser. No. 206,872
Claims priority, application Great Britain, Dec. 11, 1970, 59,094/70

Int. Cl. G03g 5/06

U.S. Cl. 96—1.5

29 Claims

Photoconductive elements containing a monomeric organic photoconductive compound corresponding to the following general formula:



wherein:

Z represents the necessary atoms to close an adjacent aromatic nucleus or ring system,
R' represents a (C₁-C₄) alkyl radical, and
X represents an alkylene group, or an alkylene chain interrupted by bivalent aromatic group, are described. The described photoconductors can be chemically and spectrally sensitized and charged either negatively or positively.

3,832,172

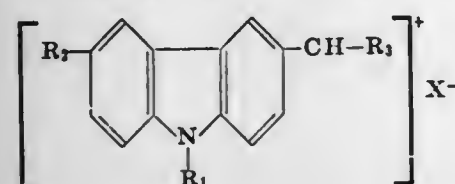
PHOTOSENSITIVE MATERIAL FOR ELECTROPHOTOGRAPHY

Katsuhiko Nishide, Yokohama, Teruo Yamanouchi, Fujisawa, and Kikuo Kinjo, Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 27, 1972, Ser. No. 318,886
Int. Cl. G03g 5/06

U.S. Cl. 96—1.6

3 Claims

A photosensitive material for electrophotography comprises an organic photoconductive material and a diaryl-methane type coloring matter having the formula



wherein R₁ is a member selected from the group consisting of hydrogen, alkyl, aralkyl, aryl, acyl and substituted aryl having, as the substituent, a member selected from the group consisting of alkyl, alkoxy, dialkylamino, nitro and halo; R₂ is a member selected from the group consisting of hydrogen, hydroxy, alkyl, aroyl, alkoxy, amino, substituted amino, nitro, halo, aryloxy, acyl aryl, and cyano; R₃ is selected from the group consisting of carbazolyl, substituted carbazolyl, p-anilinophenyl and substituted p-anilinophenyl; and X⁻ is an inorganic or organic anion.

3,832,173

NOVEL PHOTOGRAPHIC PRODUCTS AND PROCESSES

Leon D. Cerankowski, Carlisle, and Neil Mattucci, Billerica, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

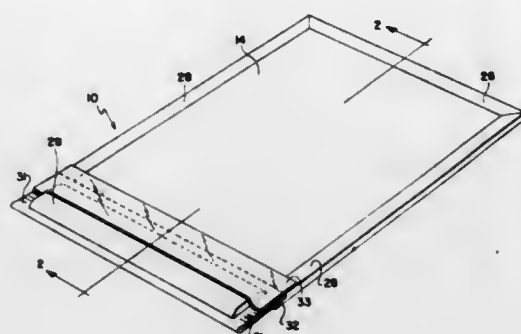
Filed Dec. 12, 1972, Ser. No. 314,405
Int. Cl. G03c 7/00, 5/54, 1/40, 1/10

U.S. Cl. 96—3

32 Claims

The present invention relates to specified solid material dispersions, particularly to photographic film units

employing such dispersions and, more particularly, to diffusion transfer process photographic film units which comprise a photosensitive element adapted to provide, by diffusion transfer photographic processing, selective dye image recordation of incident actinic radiation as a function of the point-to-point degree of photosensitive element exposure, which film unit includes a plurality of essential layers including a photosensitive silver halide



layer having associated therewith diffusion transfer process dye image-forming material disposed in the unit as a solid dispersion formulated in accordance with the present invention, a layer adapted to receive dye image-forming material diffusing thereto; and to specified processes for the production of and the employment of the dispersions including photographic processes such as diffusion transfer photographic processes employing film units containing such dispersions.

3,832,174

PHOTOGRAPHIC PROCESSES AND ELEMENTS

Hobson Joseph Bello, Jr., and Albert Charles Smith, Jr., Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed June 7, 1972, Ser. No. 260,617
Int. Cl. G03c 7/16, 7/32, 7/40

U.S. Cl. 96—22

10 Claims

Processes for providing photographic reproductions wherein silver negative images are developed in imagewise exposed photographic elements having at least two superposed hydrophilic colloid emulsion image recording layers containing silver halide and color forming couplers wherein at least one of the silver halide emulsion image recording layers contains from about 0.5 to 10 mole percent iodide, based on the total amount of halide in the emulsion layer. Development of the imagewise exposed negative photographic elements in a photographic color developer containing a silver halide solvent and removal of silver and silver halide from said negative elements result in color negatives having improved interimage characteristics.

3,832,175

AROMATIC COMPOSITIONS FOR TREATING SILVER IMAGES

Rodney J. Kemp, London, England, assignor to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed Sept. 7, 1972, Ser. No. 287,197
Claims priority, application Great Britain, Sept. 12, 1971, 42,274/71

Int. Cl. G03c 5/54; G03f 7/02

U.S. Cl. 96—29 L

21 Claims

A composition for treating a silver image, such as that obtained by the photographic silver salt diffusion transfer process on a hydrophilic surface, comprises an acidic aqueous solution containing:

- (a) a long chain organic aromatic cationic compound, such as a long chain organic quaternary ammonium compound, or a long chain organic sulphonium compound,

- (b) iodide ions, and
(c) a heterocyclic organic compound which has a nitro group bonded to an aromatic nucleus, such as 1-(2',4'-dinitrophenyl) pyridinium chloride, or an organic cationic compound having an aromatic group but no nitro group.

A printing plate comprising a hydrophilic surface having a silver image thereon which has been treated with this composition, and a process for preparing said plate comprising contacting a silver image on a hydrophilic surface with this composition, are taught.

3,832,176

NOVEL PHOTORESIST ARTICLE AND PROCESS FOR ITS USE

Jerome A. Verstraete, John M. Noonan, and Richard W. Neubert, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 6, 1973, Ser. No. 348,579

Int. Cl. G03c 1/76

U.S. Cl. 96—67

19 Claims

An article is disclosed having an insulative support on which is positioned an etchant destructible plating layer having a thickness of less than 10,000 Angstroms and, preferably, less than 5,000 Angstroms. A photoresist layer overlies the plating layer. A protective layer can overlie the photoresist layer. Unexposed areas of the photoresist layer are capable of being removed by a non-etching solvent to leave the plating layer substantially micro-residue free. This permits plating a metal layer over the uncovered portions of the thin plating layer without employing a cleaning etchant capable of destroying or damaging the plating layer. The plated metal layer can be electroplated or electrolessly deposited onto the plating layer to form a tenaciously adherent coating.

3,832,177

PROCESS FOR THE PREPARATION OF PRINTING PLATE OF PHOTOSENSITIVE RESIN

Kiyoshi Akamatsu, Tokyo, Masayasu Maruta, Ohi, and Yasushi Yonekura, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Original application June 12, 1970, Ser. No. 45,745, now Patent No. 3,687,785. Divided and this application June 14, 1972, Ser. No. 262,826

Claims priority, application Japan, June 16, 1969, 44/46,817

Int. Cl. G03c 5/00

U.S. Cl. 96—35.1

1 Claim

An apparatus for the preparation of a printing plate comprising a layer of photo-sensitive liquid resin, wherein the improvement comprises an application means for laminating an anti-wrinkle plastic sheet on the resin surface upon being doctored and at the same speed with that of the doctor.

3,832,178

FILM DEVELOPING PROCESS

Max Jacobson, 56 E. 87th St., New York, N.Y. 10028
Continuation-in-part of applications Ser. No. 142,396 and 142,413, both dated May 11, 1971, both now abandoned. This application May 3, 1973, Ser. No. 356,791

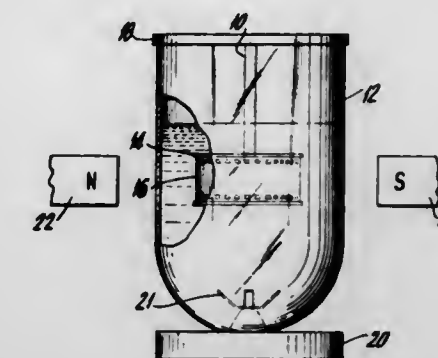
Int. Cl. G03c 5/24, 5/26

U.S. Cl. 96—50 R

7 Claims

The quality of silver halide images is enhanced and/or film developing time reduced by the relative displacement

of developer to film in the presence of a magnetic field. A feature of the invention is also disclosed in which during



3,832,179

INHIBITION OF FOG IN PHOTOGRAPHIC COLOR DEVELOPMENT

Charles O. Edens, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 24, 1973, Ser. No. 326,353

Int. Cl. G03c 7/00

U.S. Cl. 96—56

10 Claims

In processing multilayer color photographic elements the formation of fog is suppressed by carrying out the development of the element in a color developer solution containing a nitro-substituted benzoic acid, such as 3,5-dinitrobenzoic acid. The nitro-substituted benzoic acid functions effectively to suppress magenta and yellow fog and, to a lesser extent, to suppress cyan fog.

3,832,180

PHOTOGRAPHIC MATERIAL

David Ramsay Douglas, 23 Roden St., Ilford, Essex, England

No Drawing. Continuation-in-part of abandoned application Ser. No. 49,993, June 25, 1970. This application Oct. 12, 1971, Ser. No. 188,464

Claims priority, application Great Britain, June 30, 1969, 32,955/69

Int. Cl. G03c 1/06, 1/48, 5/30

U.S. Cl. 96—66.3

5 Claims

This application describes a process for the production of developed photographic material which comprises subjecting photographic lith material containing a latent silver image in a silver halide emulsion layer to development by means of a formaldehyde/bisulphite/hydroquinone lithographic developer, the process being characterized in that the development takes place in the presence of a water-soluble polyethylene oxide chain $[-CH_2CH_2O-]_n$ where n is an integer from 5-200 and an organic mercapto compound selected from dialkyl substituted thioureas and heterocyclic nitrogen compounds containing a mercapto group attached to a carbon atom which is in the alpha position with respect to a nitrogen atom in the heterocyclic ring.

3,832,181
PHOTOSENSITIVE SILVER HALIDE MATERIAL CONTAINING A HYDROPHILIC COLLOID HARDENED WITH A COMBINATION OF FORMALDEHYDE AND BIS(VINYLSULFONYLMETHYL)ETHER

Dale S. Dallan and Mary K. Deseyn, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
 No Drawing. Filed May 7, 1973, Ser. No. 358,237
 Int. Cl. G03c 1/30

U.S. Cl. 96—67 5 Claims
 Certain blends of

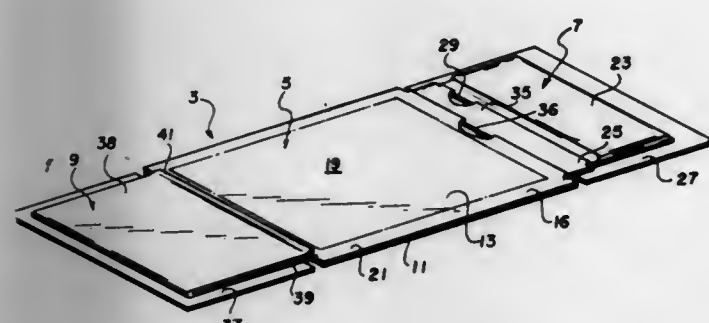
- (a) formaldehyde, plus
 (b) bis(vinylsulfonylethyl)ether

exhibit synergism with respect to controlling beneficially the "afterhardening" this is usually observed when, for example, gelatin-containing compositions are chemically hardened. The hardened gelatin compositions are particularly useful as emulsion layers in photographic elements.

3,832,182
FILM UNIT

John A. Mathews, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
 Filed Sept. 7, 1971, Ser. No. 178,235
 Int. Cl. G03c 1/48

U.S. Cl. 96—76 C 17 Claims



A photographic film unit of the self-processing type, including an image-recording portion, and means in communication with the image-recording portion for accommodating a processing fluid. The accommodating means preferably includes a fluid supply mechanism, such as a pod, and a collecting mechanism, such as a trap, that initially extend outwardly from the leading and trailing ends of the image-recording portion, respectively, but that are foldable to positions behind a print-viewing side of the recording portion after processing has been initiated. Such folding improves the appearance of the processed film unit without generating any necessarily disposable waste. The foldable portions are substantially flat when folded and, in accordance with one feature, are approximately equal in combined area to the area of the image-recording portion, to evenly cover the entire side of the image-recording portion opposite from the print-viewing side.

3,832,183
POLYMER ENCAPSULATED SILVER HALIDE GRAINS

Howard G. Rogers, Weston, and Lloyd D. Taylor, Lexington, Mass., assignors to Polaroid Corporation, Cambridge, Mass.
 Original application Feb. 17, 1971, Ser. No. 115,985, now Patent No. 3,697,279. Divided and this application May 4, 1972, Ser. No. 250,357
 Int. Cl. G03c 1/40, 1/02, 1/10, 1/72, 1/28

U.S. Cl. 96—77 16 Claims

This invention is directed to microscopic capsules comprising a continuous synthetic polymeric layer surrounding a nucleus composed of photosensitive silver halide

grains wherein the polymeric layer is of sufficient thickness to substantially overcome the attractive forces of said silver halide grains for adjacent silver halide grains. Thus, the present invention contemplates individual grains of photosensitive silver halide which are spatially separated from adjacent grains by means of a polymeric layer encasing the grains. The present invention is also directed to methods for providing such encapsulated products and to photographic products employing said capsules.

3,832,184
FOGGED DIRECT POSITIVE SILVER HALIDE EMULSION CONTAINING A CYANINE DYE HAVING A 2-ALIPHATIC, CHLORINE, OR HYDROGEN-SUBSTITUTED INDOLE NUCLEUS

Akira Sato, Tadashi Ikeda, Akira Ogawa, Kelsuke Shiba, and Masanao Hinata, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
 No Drawing. Filed Dec. 26, 1972, Ser. No. 318,047
 Claims priority, application Japan, Dec. 24, 1971, 46/935

Int. Cl. G03c 1/08, 1/28, 1/36 20 Claims

Direct positive silver halide emulsions which contain at least one dimethinecyanine dyes in which the 3-position of the indole nucleus having a hydrogen atom, chlorine atom, lower alkyl group, carboxyl group or lower alkoxy-carbonyl group in the 2-position thereof joins to the 1-, 2-, 3- or 4-position of the cyanine heterocyclic nucleus through a dimethine chain, with the proviso that only when the cyanine nucleus is isoquinoline is the joining to the 1- or 3-position, and when joining is to the 4-position, the cyanine nucleus comprises a quinoline or pyridine ring.

3,832,185
SYNTHETIC SILVER HALIDE EMULSION BINDER

Maurice J. Fitzgerald, Canton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
 No Drawing. Filed Jan. 2, 1973, Ser. No. 320,448
 Int. Cl. G03c 1/72

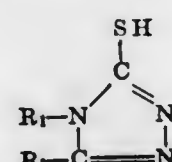
U.S. Cl. 96—114 29 Claims
 A photosensitive silver halide emulsion wherein the emulsion binder comprises a quaternary ammonium acrylate carboxybetaine polymer or copolymer.

3,832,186
HEAT DEVELOPING-OUT PHOTOSENSITIVE MATERIALS

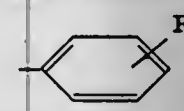
Takao Masuda, Kinji Ohkubo, and Tadao Shishido, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
 No Drawing. Filed Apr. 26, 1973, Ser. No. 354,584
 Claims priority, application Japan, Apr. 26, 1972, 47/41,967

Int. Cl. G03c 1/72, 1/34 30 Claims
 Heat developing-out photosensitive materials consisting of the following components:

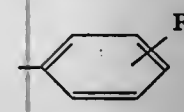
- (a) a support, and
 (b) a layer comprising the following ingredients:
 (1) silver benzotriazole,
 (2) a silver halide obtained by the reaction of silver benzotriazole and an inorganic halide,
 (3) as a reducing agent, ascorbic acid, a derivative thereof or a 3-pyrazolidone derivative,
 (4) a binder, and
 (5) a compound of the formula



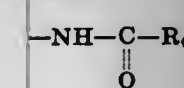
wherein R₁ represents hydrogen or an alkyl group or a group of the formula



R₂ represents an alkyl group or a group of the formula



and R₃ stands for hydrogen or an amino group or a group of the formula



and R₄ stands for an alkyl group.

3,832,187
SINGLE-PHASE FILM-FORMING PHOTO-CROSS-LINKABLE SYSTEMS

Wolfgang Kleeberg, Erlangen, Roland Rubner, Rottenbach Uber Forchheim, and Eberhard Kuehn, Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany
 No Drawing. Filed June 20, 1972, Ser. No. 264,569
 Claims priority, application Germany, June 22, 1971, P 21 30 904.6

Int. Cl. G03c 1/68 7 Claims

A single-phase, solid film-forming photo-cross-linkable resinous system comprised of a component containing allyl-ester groups and a component containing one or several N-maleic imide groups with a ratio of the allyl double bond equivalent to the maleic imide double bond equivalent equal to or greater than 1. The resinous systems are especially useful as compositions for use in photoprinting applications, for example, as in production of printed circuits.

3,832,188
PHOTOSENSITIVE POLYAMIDE COMPOSITIONS
 Yasuo Bamba, Kyoto, and Masao Iwamoto, Otsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan
 No Drawing. Filed Aug. 14, 1972, Ser. No. 280,484
 Claims priority, application Japan, Feb. 29, 1972, 47/20,133

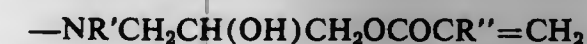
Int. Cl. C03c 1/70 8 Claims

A photosensitive polyamide composition consisting essentially of

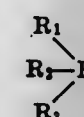
- (I) about 40–90% by weight of an alcohol soluble linear polyamide,
 (II) about 10–60% by weight of a photopolymerizable unsaturated compound having at least one group selected from the group consisting of



and



wherein R' and R'' are members selected from the group consisting of hydrogen and a hydrocarbon group having 1 to 12 carbon atoms,
 (III) about 0.01–10% by weight of a phosphorous compound having the formula



wherein R₁ is phenyl or its derivatives and R₂ and R₃ are members selected from the group consisting of alkyl, aryl and aralkyl having 1 to 15 carbon atoms.

3,832,189
SILVER HALIDE PHOTOGRAPHIC SUPER-SENSITIZED EMULSIONS

Kelsuke Shiba, Masanao Hinata, Akira Sato, Akira Ogawa, and Takashi Ikeda, Kanagawa, Japan, assignors to Fuji Photo Film Co. Ltd., Kanagawa, Japan
 Filed Nov. 24, 1972, Ser. No. 309,531
 Claims priority, application Japan, Nov. 24, 1971, 46/94,266

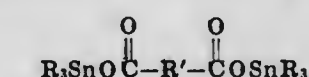
Int. Cl. G03c 1/14 17 Claims
 U.S. Cl. 96—124
 A green-sensitive silver halide photographic emulsion for color photographic materials super-sensitized by a combination of a specific benzimidazole oxacarbocyanine dye and a specific oxacarbocyanine dye.

3,832,190
ANTI-FOULING PAINT FOR SHIP'S BOTTOM AND STRUCTURES UNDER SEA WATER

Hiroshi Fujimura, Osaka, Yoshio Nose, Hiroshima, and Tetsuchi Kanazawa, Shimizu, Japan, assignors to Kumiai Chemical Industry Co., Ltd., Tokyo, Japan
 No Drawing. Continuation of abandoned application Ser. No. 64,958, Aug. 19, 1970. This application June 2, 1972, Ser. No. 259,344

Int. Cl. C09d 5/14, 5/16 11 Claims

U.S. Cl. 260—15 AF
 An anti-fouling paint for ship's bottom and structures under sea water comprises an effective amount for controlling sea organisms of a tin compound having the general formula



wherein R is an alkyl or a phenyl radical and R' is a halogenated ethylene or a halogenated phenylene radical, and a coating film forming material.

3,832,191
SILICATE BONDED FOUNDRY MOLD AND CORE SANDS

Donald B. Bolding and Hilton S. Williams, Houston, Tex., assignors to NL Industries, Inc., New York, N.Y.
 No Drawing. Filed Sept. 20, 1972, Ser. No. 290,721
 Int. Cl. B28b 7/34

U.S. Cl. 106—38.3 26 Claims
 Mixtures of a refractory material with an alkali metal silicate and humic acid produce a foundry sand composition for use in making molds and cores which is re-useable upon breaking up, re-milling and re-wetting the used molds and which is re-useable upon re-wetting and re-milling dried out sand. A unique foundry sand binder comprising a solid, water-soluble alkali metal silicate and humic acid is also disclosed.

3,832,192
CERAMIC DIELECTRIC PORCELAINS

Charles Michael McIntosh, Cold Spring, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
 No Drawing. Continuation-in-part of abandoned application Ser. No. 855,731, Sept. 5, 1969. This application Aug. 6, 1971, Ser. No. 169,813
 Int. Cl. C04b 33/26; H01g 3/135

U.S. Cl. 106—46 1 Claim
 Production of sintered ceramic porcelain dielectrics having a predominant spinel phase and air sintered between 800–900° C. from a green sheet providing uniform dielectric properties and compressibility for lamination of stacked green sheets into a unitary laminate which may be provided with internal patterns of electrical conductors extending therein. The structure is obtained by blending the ceramic particulate with a suitable glass and low temperature firing or sintering the composition between said 800–900° C. Densification of the green module and metalization, glass bead sealing of the pins, and hardening of the pins by oxidation were accomplished in a single air-cofiring in the above temperature range.

3,832,193

REFRACTORY COMPOSITIONS CONTAINING DIAMMONIUM PHOSPHATE

Joseph R. Parsons, Park Forest, and Harold L. Rechter, Chicago, Ill., assignors to Chicago Fire Brick Company, Chicago, Ill.

No Drawing. Filed Feb. 25, 1972, Ser. No. 229,571

Int. Cl. C04b 35/10, 35/18

U.S. Cl. 106—65

10 Claims

A refractory composition comprising refractory particles, water, diammonium phosphate and an acid or acid salt mixed therewith in amount to give a pH below 7.0 and not less than 3.0, the refractory particles including alumina, bentonite, clay and bauxite; the acid including phosphoric acid, sulfuric, acetic and citric acids, and the acid salt including monoaluminum phosphate and aluminum sulfate. The compositions, by varying proportions and water content, may be used as ramming, gunning and patching mixes, mortar, and for plastic, brick, block and the like. They form phosphate bonded refractory products capable of high temperature service.

3,832,194

BINDER FOR HIGH ALUMINA REFRACTORY BRICK

Stanley Ronald Pavlica, Irwin, and Ernest Paul Weaver, Pittsburgh, Pa., assignors to Dresser Industries, Inc., Dallas, Tex.

No Drawing. Filed Mar. 2, 1973, Ser. No. 337,326

Int. Cl. C04b 35/10

U.S. Cl. 106—65

6 Claims

A non-basic refractory brick with a binder consisting essentially of either chromium lignosulfonate or aluminum lignosulfonate.

3,832,195

PETALITE-SPODUMENE-POTASSIUM SILICATE CEMENT FOR BONDING METAL TO GLASS

Miles F. Butler, 67 Perry Ave., Corning, N.Y. 14830, and John T. Corcia, 43 Tall Meadow Spring Pond, Painted Post, N.Y. 14870

Filed June 16, 1972, Ser. No. 263,683

Int. Cl. C04b 35/16

U.S. Cl. 106—74

2 Claims

This invention is concerned with the production of a cement which is singularly suitable for bonding metal to glass. More particularly, this invention provides a cement consisting essentially of petalite, spodumene, and potassium silicate which is quick setting at ambient temperatures, exhibits good green and fired strength, and is capable of being used at temperatures up to 800° C. with no apparent degradation.

3,832,196

HIGH TEMPERATURE, LOW DENSITY CEMENT COMPOSITION

Pat J. Broussard, Shreveport, La., and Arnold Fincher, Laurel, Miss., assignors to Halliburton Company, Duncan, Okla.

No Drawing. Filed Jan. 24, 1972, Ser. No. 220,439

Int. Cl. C04b 7/12

U.S. Cl. 106—89

12 Claims

An oil well cementing composition consisting essentially of a hydraulic cement, a pozzolanic material, and calcium hydroxide.

3,832,197

HARDENING-RELEASE OF CROSSLINKING IONS FROM A COMPLEX IN AN EMULSION

Joseph De Witt Overman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 26, 1971, Ser. No. 192,567

Int. Cl. C08f 45/24; C09h 7/00

U.S. Cl. 106—125

4 Claims

Polymeric emulsions are hardened by crosslinking with multivalent cations that are initially present in the emulsions in the form of complexes with complexing agents. Hardening of the emulsions occurs when the crosslinking cations are released from the complexes, e.g., by displacement with other cations.

3,832,198

GELATIN COMPOSITION CONTAINING A HALO-METHYL KETONE OF BENZYLOXYCARBONYL PHENYLALANINE

Elliott N. Shaw, Shoreham, N.Y., assignor to Polaroid Corporation, Cambridge, Mass.

No Drawing. Original application May 22, 1972, Ser. No. 255,709, now Patent No. 3,778,276. Divided and this application July 9, 1973, Ser. No. 377,782

Int. Cl. C08h 7/00

U.S. Cl. 106—135

7 Claims

Aqueous solutions of gelatin and gelatin-containing layers such as photographic silver halide emulsions containing benzyloxycarbonyl phenylalanine chloromethyl ketone and benzyloxycarbonyl phenylalanine bromomethyl ketone to control enzyme activity and decelerate bacterial growth and reproduction. A phenolic biostat may optionally be added for improved results.

3,832,199

PHOSPHOR SUSPENSION CONTAINING HYDROXYETHYL CELLULOSE

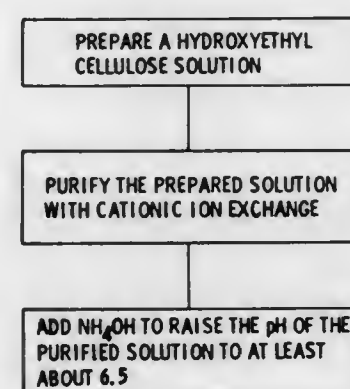
Robert W. Repsher, Bloomfield, N.J., and William A. Tarleton and William E. Wilson, Fairmont, W. Va., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 1, 1973, Ser. No. 411,887

Int. Cl. C08b 21/24, 27/04

U.S. Cl. 106—183

3 Claims



Method of preparing a suspension in a vehicle for use including discharge lamp envelopes, wherein an aqueous solution of hydroxyethyl cellulose is prepared, filtered and purified by using a cation ion exchange resin to remove the sodium ions of the sodium acetate impurity, but leave the acetate ions. Ammonium hydroxide is then

added to raise the pH to at least of 6.5 and to react with the acetate ions to form ammonium acetate to inhibit mold growth. Preferably ammonium hydroxide is added to essentially neutralize the purified solution and a basic solution such as triethanolamine is then added to raise the pH of the solution to about 8.5-9.0, whereby bacteria growth is inhibited.

3,832,200

METHOD FOR THE PREPARATION OF BITUMINOUS PAVING COMPOSITIONS AND COMPOSITIONS OBTAINED THEREBY

Michel Kennel, Le Havre, and Joseph Quiquerez, Sainte-Adresse, France, assignors to Societe Anonyme dite Compagnie Francaise de Raffinage, Paris, France

Continuation-in-part of abandoned application Ser. No. 98,974, Dec. 17, 1970. This application June 14, 1972, Ser. No. 262,542

Claims priority, application France, Dec. 17, 1969, 6943680; June 15, 1971, 7121713

Int. Cl. C08h 13/00, 17/02

U.S. Cl. 106—281 R

5 Claims

Bituminous paving compositions comprising a dry mineral aggregate, a dry filler, a preheated bituminous binder and hard asphalts in the form of a non-preheated powder are prepared by mixing said components in any order at a temperature in the range of about 140° C. to about 210° C., preferably 180° to 205° C. The hard asphalts preferably contain at least 40% by weight of hard asphaltenes and no more than 30% by weight of carboids. The hard asphalts may be precipitated around particles of filler by adding normal hexane to a suspension of the filler in a benzene solution of asphalts.

3,832,201

PROCESS FOR MAKING ASPHALT PAVING COMPOSITIONS

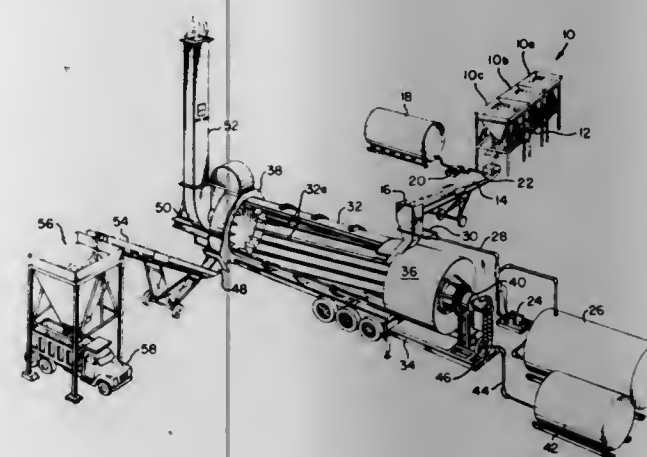
Herbert N. Shearer, Everett, Wash., assignor to Pavement Systems, Inc., Seattle, Wash.

Continuation-in-part of application Ser. No. 167,702, July 30, 1971, which is a continuation-in-part of Ser. No. 60,284, Aug. 3, 1970, both now abandoned. This application Nov. 3, 1972, Ser. No. 303,309

Int. Cl. B28c 5/06; C08h 13/00, 17/02

U.S. Cl. 106—281

6 Claims



Particulate emissions during production of asphalt concrete are controlled by contacting wet aggregate with an asphalt composition at or before introduction of the aggregate into a heated mixing and drying zone wherein the asphalt-aggregate mixture is moved through a relatively high velocity, heated gas stream in the mixer flowing parallel to the direction of movement of the asphalt mixture through the mixing and drying zone. The process, in addition to control of particulate emissions, results in less

damage to the asphalt due to aging or hardening, and the ability to achieve a more uniform mixture compaction of the said asphalt concrete because the parallel flow enables more uniform temperature control of the asphalt and aggregate mixture on discharge from the mixing and drying zone. Means for automating production of the paving compositions are disclosed.

3,832,202

LIQUID SILICA SOURCE FOR SEMICONDUCTORS

Kim Ritchie, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

No Drawing. Filed Aug. 8, 1972, Ser. No. 278,833

Int. Cl. C09k 3/00

U.S. Cl. 106—287 SE

6 Claims

There is disclosed a liquid silica source for semiconductor diffusions which comprises in combination 54-64% ethyl alcohol, 11-21% ethyl acetate, 13-63% tetraethyl-orthosilicate, and 3-10% water and 1-8% vinyl trichlorosilane, said percentages being by weight. The liquid silica source may be readily coated onto the semiconductor wafer either by painting, spraying or preferably spinning.

3,832,203

WATER REPELLENT PROCESS AND COMPOSITION

Frederick Charles Saunders, Midland, Mich., and Charles Smith, Glamorgan, Wales, assignors to Dow Corning Limited, Berkshire, England

No Drawing. Filed Jan. 21, 1972, Ser. No. 219,902

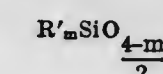
Claims priority, application Great Britain, Feb. 3, 1971, 3,834/71

Int. Cl. C08g 47/02; C14c 9/00

U.S. Cl. 106—287 SB

5 Claims

A composition for treating leather to impart durable water repellency thereto. The composition comprises a solvent solution of (1)(a) from 15 to 50 percent by weight of Ti(OR)₄ or Zr(OR)₄, or partial hydrolysate thereof in which R is an aliphatic hydrocarbon or hydroxylated hydrocarbon radical, (b) 5 to 70 percent by weight of a copolymer of trimethylsiloxane and SiO₂ units (c) 15 to 80 percent of a polysiloxane of average unit formula



in which R' alkyl, alkenyl or aryl and m is 2 to 2.9 and (2) from 0.5 to 30 percent by weight of an aminoalkyl substituted silane or siloxane.

3,832,204

SILICATE POLYMER VEHICLES FOR USE IN PROTECTIVE COATINGS AND PROCESS OF MAKING

Donald P. Boaz, 5854 Preston View, Dallas, Tex. 75240

No Drawing. Continuation-in-part of application Ser. No. 70,215, Sept. 8, 1970, now Patent No. 3,730,746, which is a continuation-in-part of abandoned application Ser. No. 749,587, Aug. 2, 1968. This application Feb. 8, 1973, Ser. No. 330,696

The portion of the term of the patent subsequent to May 1, 1990, has been disclaimed

Int. Cl. C07g 17/00; C09d 5/10

U.S. Cl. 106—287 SE

19 Claims

Silicate polymer vehicles are obtained by partially hydrolyzing alkyl silicate and reacting the resultant composition with a vinyl resin, such as polyvinyl butyral and one or more additives such as an alkyl orthoborate, an ambifunctional silane, or a Lewis Acid metal salt and ethyl cellulose to produce a vehicle for use in protective coatings of various kinds and particularly coatings for use on metal.

3,832,205

PIGMENTS OF SUBSTANTIALLY TERNARY SYSTEM HAVING OXIDES OF COLUMBIUM AND TRANSITIONAL ELEMENTS

Harold E. Lowery, Garfield Heights, Ohio, assignor to Ferro Corporation, Cleveland, Ohio

No Drawing. Filed Apr. 5, 1973, Ser. No. 348,099

Int. Cl. C08h 17/04

U.S. Cl. 106—288 B

14 Claims

Pigments are disclosed comprising a substantially ternary system including a rutile-type supporting lattice and oxides of columbium and a transitional element selected from the group consisting of nickel, chromium, cobalt, manganese, vanadium, and mixtures thereof. The molar ratios of the oxides of columbium and the transitional element may vary much more widely than previously thought possible for added components while still obtaining stable pigments having acceptable color strength and durability. In a preferred form, the pigments comprise ternary oxide system having titania as the rutile-type supporting lattice and are free of heavy metals like lead, antimony, mercury, and the like. Optionally, the rutile-type supporting lattice may be replaced in part by an oxide of barium, magnesium, strontium, zinc, calcium or mixtures thereof.

3,832,206

PREPARATION OF A COMPOSITE PIGMENT CONTAINING TiO₂ AND CaCO₃

John J. Libera, Afton, and Charles R. Trampier, Jr., Webster Groves, Mo., assignors to NL Industries, Inc., New York, N.Y.

No Drawing. Filed Sept. 12, 1972, Ser. No. 288,391

Int. Cl. C09c 1/36

U.S. Cl. 106—300

2 Claims

A new composition of matter comprising a coalesced composite pigment containing from 50% to 80% titanium dioxide, the remainder being calcium carbonate, said coalesced composite pigment having an alkaline pH above 8.0.

3,832,207

CALCIUM SULFITE COMPOSITIONS FOR PLASTIC COMPOSITE

Sueo Machi, Takasaki; Yasushi Matui, Saitte-Machi; Hirodo Kurihara, Takasaki; Yoshiharu Hibi, Yokohama; Toshiaki Yagi, Takasaki; Takayuki Shinano, Yokohama, and Masaaki Takehisa, Takasaki, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Maruzen Oil Company Limited, Osaka, and Mitsubishi Kakoki Kaisha Ltd., Tokyo, Japan

No Drawing. Filed Dec. 29, 1972, Ser. No. 319,753

Claims priority, application Japan, Dec. 29, 1971, 46/3,441; Jan. 14, 1972, 46/5,900

Int. Cl. C08h 17/00; C08j 1/34, 1/36

U.S. Cl. 106—308 M

12 Claims

A calcium sulfite composition having affinity with a thermoplastic resin is obtained by adhering a polysulfone resin to the surface of a calcium sulfite powder. The composition is suitable for preparing a calcium sulfite-plastic resin composite.

3,832,208

NACREOUS PIGMENTS TREATED WITH METHACRYLATOCHROMIC CHLORIDE FOR IMPROVED HUMIDITY RESISTANCE

Julius Jackson, Westfield, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Application Mar. 9, 1972, Ser. No. 233,287, which is a continuation-in-part of abandoned application Ser. No. 129,565, Mar. 30, 1971. Divided and this application May 22, 1973, Ser. No. 362,738

Int. Cl. C09c 1/36

U.S. Cl. 106—308 Q

4 Claims

Titania-coated micaceous pigments are treated with methacrylatochromic chloride. Coating compositions containing such treated pigment provide improved resistance to weathering, particularly high humidity conditions.

3,832,209

DISPERSION COMPRISING PIGMENT, ORGANIC LIQUID AND POLYMERIC DEFLOCCULATING AGENT

Elizabeth Ann Baker, Glen Iris, Victoria, David Jankiel Wluka, Balacava, Victoria, and Howard William Tankey, Box Hill North, Victoria, Australia, assignors to Imperial Chemical Industries of Australia and New Zealand Limited, Victoria, Australia

No Drawing. Continuation of abandoned application Ser. No. 143,246, May 13, 1971. This application June 20, 1973, Ser. No. 371,879

Claims priority, application Australia, May 26, 1970, 1,323/70

Int. Cl. C08h 17/00; C09c 3/02

U.S. Cl. 106—308 Q

11 Claims

A dispersion comprising a pigment, an organic liquid and a polymeric deflocculating agent comprising a backbone chain having incorporated in, or dependent from it, firstly a group of internal salt structure and secondly a solubilizing group.

3,832,210

METHOD OF PREPARING A BIAS FABRIC

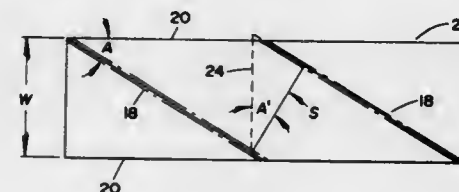
Raymond A. Rohlfing, Englewood, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Original application July 17, 1970, Ser. No. 57,378, now abandoned. Divided and this application June 19, 1972, Ser. No. 263,838

Int. Cl. B41k 3/68

U.S. Cl. 117—4

1 Claim



A method of preparing a bias fabric from a tubular fabric having selvages, which method reduces or minimizes wrinkling or puckering of the fabric when it is stretched, pantographed or calendered. The bias fabric is cut from the tubular fabric in a manner that controls occurrence of selvages across the width of the bias fabric.

3,832,211

METHOD OF LACQUERING CATHODE RAY TUBE PANELS

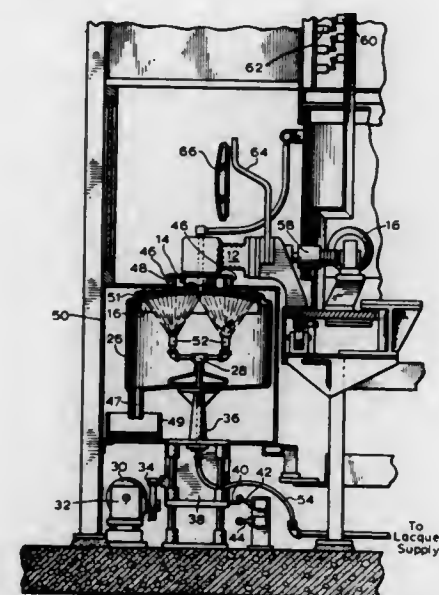
Charles A. Cook, Buffalo Grove, and Thaddeus J. Hajduk, Chicago, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Dec. 29, 1972, Ser. No. 319,970

Int. Cl. B05c 11/10; B44d 1/08; C03c 17/10

U.S. Cl. 117—33.5 C

1 Claim



This disclosure depicts improved method and apparatus for automatically processing front panels of cathode ray

tubes in a continuous step-by-step fashion including spraying a lacquer coating onto a phosphor coating on the panels. The front panels are loaded in a front-side-up attitude onto an annular endless conveyor which is stepped around a plurality of discrete work stations disposed around the perimeter of the conveyor, each of the work stations being adapted to perform at least one predetermined operation on the panels. Lacquer applicator means is situated in at least one of said work stations for applying a lacquer coating on the panels. Enclosure means are provided for enclosing the lacquer applicator and associated drying stations to prevent escape of lacquer vapors to the environment. Vertically movable shroud means are provided at the lacquer application station for enshrouding the panels during the lacquer applying operation to minimize air currents which might disturb the surface of the wet lacquer coating.

3,832,212

HEAT-SENSITIVE COPYING SYSTEMS

Philip W. Jenkins, Donald W. Heseltine, and John D. Mee, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Application Jan. 13, 1971, Ser. No. 106,231, now Patent No. 3,770,451, which is a division of application Ser. No. 766,307, Oct. 9, 1968, now Patent No. 3,615,432. Divided and this application Nov. 8, 1972, Ser. No. 304,674

Int. Cl. B41m 5/00

U.S. Cl. 117—36.7

17 Claims

Heat sensitive compounds containing heterocyclic nitrogen atoms substituted with an —OR group fragment under the influence of various forms of energy to form a dye base, a proton and an aldehyde, these materials being useful in image reproduction.

3,832,213

METHOD FOR APPLYING GLUE TO LEADING AND TRAILING EDGES OF A WRAPPER SHEET

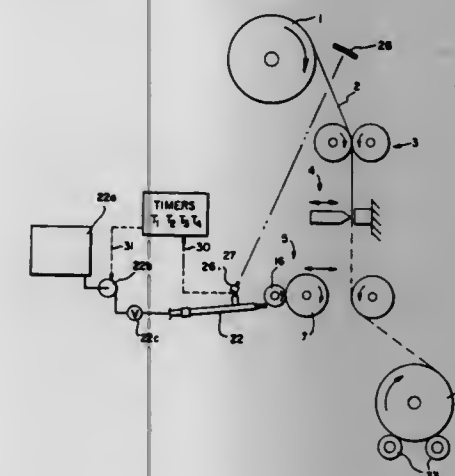
Lawrence A. Bremer, West Chester, Pa., assignor to Beloit Corporation, Beloit, Wis.

Original application Mar. 13, 1970, Ser. No. 19,419, now Patent No. 3,688,735. Divided and this application May 9, 1972, Ser. No. 251,843

Int. Cl. B05c 1/00; B41k 1/22

U.S. Cl. 117—44

5 Claims



Glue is applied to a roller by means of a glue supply head which traverses the length of the roller. The flow of glue can be initiated and terminated at predetermined times during a single traverse thus providing a layer of glue on the roller neatly and occupying a predetermined length of the roller. The layer is then transferred to the wrapper sheet. Where the glue is to be transferred to a

leading edge, the glue flow is initiated and terminated at times to give a glue layer which is less in width than the width of the wrapper sheet. When the glue is to be transferred to a trailing edge, the width of the glue layer is equal to the width of the wrapper sheet. The device preferably includes photodetector means moveable with the glue supply means to initiate and terminate the glue flows a set time after the side edges of the wrapper sheet are detected by the photodetector means.

3,832,214

ELASTOMERIC FILM AND PRODUCT THEREFROM

Wu Lan Wang, Newark, N.J., assignor to Tenneco Chemicals, Inc.

No Drawing. Original application June 6, 1968, Ser. No. 734,887, now Patent No. 3,634,184. Divided and this application June 28, 1971, Ser. No. 157,716

Int. Cl. B29d 27/04; B44d 1/09

U.S. Cl. 117—47 R

6 Claims

Supple, microporous, breathable elastomeric films with a system of intercommunicating cells are described. The films which optionally contain inert organic or inorganic particles varying in size from about 0.02 micron to 150 microns are prepared by deposition from a solution spread on a suitable surface. Deposition is effected by exposure of the solution to a liquid which is miscible with the solvent but which does not dissolve the elastomer. The use of the film in the preparation of leather replacement compositions by integration as a grain layer in and on the surface of suitable substrates is described. For this use the selected substrate is wet with a liquid in which the elastomer is insoluble, coated with a solution of the elastomer in a solvent which is miscible with the liquid used to wet substrate, and the wet, coated substrate is treated with additional liquid to deposit the elastomer extending into the upper strata of the substrate and above its surface.

3,832,215

METHODS OF MANUFACTURING WATER-PROOF CABLE

Edward L. Franke, Jr., Perry Hall, and William J. Hyde, Baltimore, Md., assignors to Western Electric Company, Incorporated, New York, N.Y.

Continuation of application Ser. No. 155,055, June 21, 1971. This application June 13, 1973, Ser. No. 369,653

Int. Cl. B05c 3/12; H01b 13/06

U.S. Cl. 117—61

3 Claims

A cable core having stranded twisted pairs of insulated conductors is moved axially through a series of in-line chambers having interconnect dies to facilitate the evacuation of air from voids of the interstitial structure of the core and the pressure-application of a water-proofing compound of jelly-like consistency into the air-evacuated voids.

3,832,216

METHOD OF CAST-COATING PAPER

Philo Burton Cressey, Jr., Gorham, Maine, assignor to Scott Paper Company, Delaware County, Pa.

No Drawing. Filed Jan. 14, 1972, Ser. No. 218,012

Int. Cl. B44d 1/44

U.S. Cl. 117—64 C

5 Claims

A method of cast-coating paper using an aqueous paper coating composition wherein the adhesive consists essentially of latices, at least one being alkali-swellable or alkali-soluble and at least one not being alkali-swellable or alkali-soluble, the pH of the composition being such

that the alkali-swellable or alkali-soluble latex remains in the unswelled or undissolved condition.

3,832,217

PROCESS FOR FORMING EXTERIOR FINISH COATING FILMS FOR AUTOMOBILE BODIES

Kozo Sato, Eizo Nakatani, and Kiyoshi Ichimura, Hiroshima, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

No Drawing. Filed Dec. 15, 1971, Ser. No. 208,404

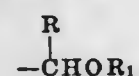
Claims priority, application Japan, Dec. 15, 1970, 45/111,234

Int. Cl. B32b 15/08

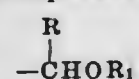
U.S. Cl. 117—74

20 Claims

Coating composition for forming pigmented exterior finish coatings which comprise a thermosetting resin composition (I) comprising of about 40 to about 90 parts by weight of a thermosetting acrylic copolymer (A) having (a) a carboxylic acid hydroxyalkyl ester structural unit in which the hydroxyalkyl has 1-8 carbon atoms, (b) a carboxylic acid amide structural unit in which at least one hydrogen atom of the amide is substituted by a group represented by formula



wherein R and R₁ each represents a hydrogen atom or lower alkyl group having 1-8 carbon atoms, (c) a carboxylic acid structural unit and (d) another monomer structural unit different from (a), (b) and (c), (B) about 4 to about 50 parts by weight of aminoplast resin and (C) about 30 parts by weight or less of cellulose acetate butyrate in which the total amount is 100 parts by weight, and a coloring pigment (II). Exterior coating films comprising an undercoating film of the above composition and a top clear coating film of a thermosetting acrylic resin composition (III) which comprises about 40 parts to 96 parts by weight of an acrylic copolymer (F) containing about 4 to about 30 parts by weight of a carboxylic acid hydroxyalkyl ester structural unit, about 15% by weight or less of a carboxylic acid amide structural unit in which at least a hydrogen in the amide is substituted by a group represented by the formula



wherein R and R₁ are hydrogen or a lower alkyl group having 1-8 carbon atoms and about 0.1% to about 10% by weight of a carboxylic acid structural unit, 4-50 parts by weight of aminoplast resin (G) and 30 parts by weight or less of cellulose acetate butyrate (H). A process for forming an exterior finish coating comprising applying a pigmented enamel (I) comprising a thermosetting acrylic resin composition (D) and a coloring pigment (II) to a substrate treated with a primer, setting, applying a thermosetting acrylic resin composition (III), and thereafter baking the coated substrate at a temperature and for a time sufficient to crosslink said thermosetting resins.

3,832,218

LIGHT-INTERCEPTING PAPER FOR PHOTOGRAPHIC FILM

Yoshihiro Seto, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed July 25, 1972, Ser. No. 275,004

Claims priority, application Japan, July 27, 1971, 46/56,138

Int. Cl. D21h 1/28; G03c 3/02

U.S. Cl. 117—76 P

4 Claims

A light-intercepting paper for a photographic film comprising a paper having on at least one side of said paper

a light-intercepting layer comprising carbon black dispersed in a copolymer of ethylene and at least one ester selected from the group consisting of acrylic esters, methacrylic esters and mixtures thereof, wherein the alkyl



moiety of said esters has from 1 to 8 carbon atoms, and wherein said copolymer has a copolymerization molar ratio of said esters to ethylene of from 5:95 to 40:60 is disclosed.

3,832,219

METHODS OF TREATING STEEL SURFACES TO MODIFY THEIR STRUCTURE

Richard Stuart Nelson, Goring-on-Thames, David John Mazey, Abingdon, and John Adrian Hudson, Radley, England, assignors to United Kingdom Atomic Energy Authority, London, England

No Drawing. Filed Mar. 27, 1972, Ser. No. 238,619

Claims priority, application Great Britain, Apr. 7, 1971, 9,013/71

Int. Cl. C23c 11/00, 15/00

U.S. Cl. 117—93.3

3 Claims

A method of treating a steel surface to modify the surface to improve its hardness or resistance to corrosion characterised in that the surface is subjected to the implantation of selected ions adapted so to modify the surface structure as to improve its hardness or corrosion resistance.

3,832,220

METHOD OF COATING PLASTIC FOAM SCRAP

William H. Plumb, Snyder, N.Y., assignor to National Gypsum Company, Buffalo, N.Y.

No Drawing. Filed Apr. 27, 1972, Ser. No. 248,245

Int. Cl. B44d 1/02

U.S. Cl. 117—100 C

3 Claims

A method is disclosed for improving the fire resistance of chopped plastic foam, such as polyurethane foam, which include tumbling together an aqueous slurry of calcined gypsum and the chopped plastic foam particles.

3,832,221

METHOD OF COATING SINTERED HARD METAL BODIES AND HARD METAL BODY COATED ACCORDING TO THE METHOD

Carl Sven Gustaf Ekemar, Lannersta, Sweden, assignor to Sandco Limited, Ottawa, Canada

No Drawing. Filed Feb. 13, 1970, Ser. No. 11,294

Claims priority, application Sweden, Feb. 21, 1969, 2,401/69

Int. Cl. C23c 11/00

U.S. Cl. 117—106

1 Claim

The invention resides in an improved method of applying to a surface of a sintered hard metal body a thin layer of an extremely hard and wear-resistant metallic carbide. The method consists in heating the body to an elevated temperature in an atmosphere of a gas mixture composed of hydrogen, a gaseous compound of the metal from which said metallic carbides is to be formed and an amount of a gaseous hydrocarbon so restricted as to be

unable to supply a major proportion of the carbon necessary for the development of said metallic carbide.

3,832,222

CHEMICAL VAPOR DEPOSITION OF URANIUM AND PLUTONIUM

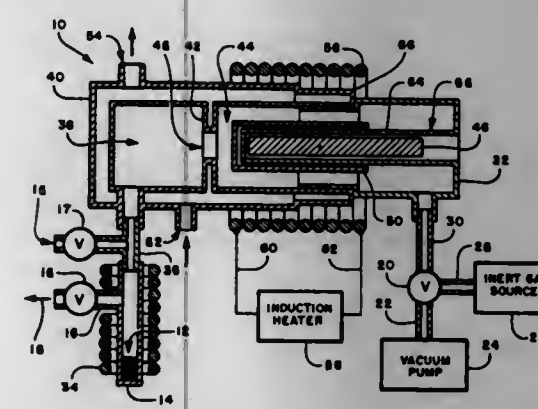
Larry R. Crisler, Arvada, and William G. Eggerman, Boulder, Colo., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 27, 1972, Ser. No. 318,807

Int. Cl. C23c 11/02

U.S. Cl. 117—107.2 R

6 Claims



Uranium (U) or plutonium (Pu) is deposited upon a substrate by vaporizing trisyclopentadienyluranium (IV) chloride (Cp₃UCl) or plutonium (III) trisyclopentadienide (PuCp₃), heating the substrate upon which the Pu or U is to be deposited to from about 600° C. to about 950° C., and contacting the vaporized compound with the heated substrate to deposit a coating of U or Pu respectively.

3,832,223

METHOD OF TREATING FRESH HYDRAULIC CEMENTITIOUS COMPOSITIONS

Sanford M. Wohl, Cleveland, Ohio, assignor to The Tremco Manufacturing Company, Cleveland, Ohio

No Drawing. Filed May 22, 1972, Ser. No. 255,829

Int. Cl. C04b 25/02

U.S. Cl. 117—123 E

5 Claims

Method of curing and waterproofing a body of fresh hydraulic cementitious composition, e.g. concrete, by separately directing toward an exposed surface of the fresh body, an aqueous emulsion of a film forming material, e.g. rubberized asphalt, and a chemical coagulant for the emulsion thereby forming a coagulum in situ on the exposed surface of the body in the nature of a membrane having low vapor transmitting properties and/or resistance to liquid water penetration.

3,832,224

METHOD OF COATING PRESSED VERMICULITE WITH A GLAZE COMPOSITION

Patrick Michael Brown, Baltimore, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Nov. 17, 1972, Ser. No. 307,752

Int. Cl. C03c 17/02, 25/00

U.S. Cl. 117—123 A

1 Claim

The invention disclosed provides a novel glaze composition comprising as essential components from about 18 to about 30 parts by weight of boron oxide, from about 35 to about 55 parts by weight of silicon dioxide, from about 5 to about 20 parts by weight of aluminum oxide, from about 7 to about 15 parts by weight of calcium oxide from about 1.0 to about 3.0 parts by weight of sodium oxide, from about 0.5 to about 2.0 parts by weight of potassium oxide, from about 1.0 to about 8 parts by weight of zinc oxide. When fired as a coating on a pressed

vermiculite body, the glaze components fuse to form a glaze coated article which, after cooling, typically has increased strength, excellent hardness, and improved resistance to moisture permeation. The glazed article is es-



pecially useful in the form of a panel for interior or exterior construction.

3,832,225

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

Toshiro Matsui, Tokyo, Masashi Nakagawa, and Tadashi Utagawa, Yokohama, and Makoto Tokunaga, Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

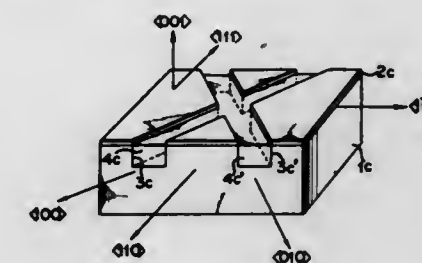
Filed Aug. 19, 1970, Ser. No. 65,262

Claims priority, application Japan, Aug. 21, 1969, 44/65,681

Int. Cl. B44d 1/18

U.S. Cl. 117—212

2 Claims



A method of manufacturing a semiconductor device in good reproducibility and yield which comprises providing a single crystal semiconductor substrate of zinc blende type having a (001) plane in which a <001> orientation is defined as a fourfold rotation inversion axis, coating the (001) plane with a protective film, removing by means of a reaction-limited etching solution that part of the protective film which is disposed between two straight lines parallel with the direction in which the aforementioned (001) plane can be etched at a uniform speed so as to form an etched groove, and forming an epitaxially grown layer of another single crystal semiconductor in the etched groove.

3,832,226

METHOD FOR DRY ELECTROSTATIC COATING

Taizo Kondo and Keizo Inamura, Hiratsuka, Japan, assignors to Kansai Paint Company Limited, Amagasaki-shi, Hyogo-ken, Japan

No Drawing. Original application May 13, 1969, Ser. No. 824,280, now abandoned. Divided and this application Apr. 27, 1971, Ser. No. 137,995

Claims priority, application Japan, May 21, 1968, 43/34,472

Int. Cl. B05b 4/02; B44d 1/92, 1/94

U.S. Cl. 117—17

7 Claims

A method for dry electrostatic coating of base metal surfaces to provide continuous, even, resin films free of pin-holes and cissings without the necessity of pre-heating the base metal by coating the surface of the base metal

with a primer comprising a vehicle and an electroconductive particulate material having a particle size of not more than 100μ , such as aluminum powder, in an amount necessary to produce a dry film having a volume resistivity of 10^9 to 10^{14} ohm-cm., and drying the film.

3,832,227

USE OF TRIAZINYLAMINOALKYL PHOSPHONATES FOR THE FLAMEPROOFING OF TEXTILES

Edward D. Well, Hastings-on-Hudson, and Ralph Fearling, Bardonia, N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

No Drawing. Original application June 26, 1970, Ser. No. 50,364, now Patent No. 3,755,323, dated Aug. 28, 1973. Divided and this application Oct. 2, 1972, Ser. No. 293,973

Int. Cl. C09d 5/18

U.S. Cl. 117-136

3 Claims

A process for the flameproofing of textiles by treating the textile with a novel class of triazinylaminoalkyl phosphonates and the crosslinking of the phosphonates to yield a fire retardant finish for the textile is disclosed. These triazinylaminoalkyl phosphonates are found to be low in cost and of minimal toxicity and their use for the flameproofing of textiles provides highly durable finishes.

3,832,228

PROCESS FOR RENDERING KERATINOUS FIBERS RESISTANT TO SHRINKAGE

William Gardiner, Glamorgan, Wales, and Frederick Charles Saunders, Midland, Mich., assignors to Dow Corning Limited, Whitehall, London, England

No Drawing. Filed Aug. 25, 1972, Ser. No. 286,518

Int. Cl. D06m 3/02, 3/08

U.S. Cl. 117-141

7 Claims

Process for treating keratinous fibers with one or more organosiloxanes having in the molecule organic substituents containing both imino and amino radicals. The process finds application in rendering wool and other keratinous fibers resistant to shrinkage on laundering.

3,832,229

METHOD OF USING LATEX POLYMER FORMULATIONS FOR SEEPAGE CONTROL

Paul L. Du Brow, Chicago, and Alvin J. Frisque, La Grange, Ill., assignors to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed Oct. 6, 1972, Ser. No. 295,633

Int. Cl. E02b 3/00

U.S. Cl. 117-161 UA

10 Claims

A method of seepage control which comprises contacting a surface with either: (1) water-in-oil emulsion containing dispersed throughout a finely-divided water-soluble vinyl addition polymer; or (2) a stable liquid dispersion of a water-soluble anionic vinyl addition polymer and a water-soluble cationic polymer.

3,832,230

METHOD FOR IMPROVING GLASS ADHERENCE TO GOLD FILM

Lewis E. Terry, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Original application July 24, 1970, Ser. No. 58,102. Divided and this application Mar. 6, 1972, Ser. No. 231,812

Int. Cl. B44d 1/14, 1/18; C03c 15/00

U.S. Cl. 117-217

4 Claims



A method for improving the adherence of glass to a gold film is disclosed. A layer of a metal such as tantalum

is deposited on the gold film. The metal layer is heated in an oxidizing atmosphere to convert the metal to a metal oxide. A layer of glass is then deposited on top of the metal oxide layer.

3,832,231

METHOD OF RENDERING CHLOROSULFONATED POLYETHYLENE RUBBER RESISTANT TO ADHERENCE OF DIRT, AND THE DIRT RESISTING PRODUCTS THEREOF

Paul Otis Nicodemus, Chelmsford, Mass., assignor to General Electric Company

No Drawing. Filed Aug. 21, 1972, Ser. No. 282,403

Int. Cl. H01b 3/28

U.S. Cl. 117-218

14 Claims

A method of inhibiting the adherence of dirt to the surface of chlorosulfonated polyethylene rubber bodies comprising applying thereto a coating of methyl-methacrylate resin, and the resin coated, dirt resistant chlorosulfonated polyethylene product. This invention is particularly concerned with rendering Hypalon type rubber electrical appliance power cords resistant to the adherence of defacing soiling materials.

3,832,232

PROCESS FOR PRODUCING CONTACT METAL LAYERS CONSISTING OF ALUMINUM ALLOY ON SEMICONDUCTOR COMPONENTS

Heinrich Sohlbrand, Munich, Germany, assignor to Siemens Aktiengesellschaft, Erlangen and Berlin, Germany

Continuation of abandoned application Ser. No. 123,186, Mar. 11, 1971. This application Feb. 26, 1973, Ser. No. 335,726

Claims priority, application Germany, Mar. 13, 1970, P 20 12 063.2

Int. Cl. H01l 1/14

U.S. Cl. 117-227

9 Claims



A method of producing contact metal layers consisting of aluminum alloys on semiconductor components. The surface of the semiconductor body is provided with an organic varnish solution containing the metal compound. The latter is transferred by thermolysis into a pure metal layer. The appropriate metal alanate compounds are used for producing the aluminum containing alloy contacts. The method is particularly suited for producing titanium or silver containing aluminum contacts on semiconductor crystal surfaces.

3,832,233

METHOD FOR REMOVING THE FAT FROM FAT-CONTAINING RAW MATERIALS

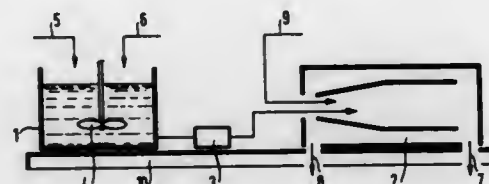
Hartwig E. Fritze, Ravensburg, Germany, assignor to Escher Wyss GmbH, Ravensburg, Germany

Filed Mar. 3, 1972, Ser. No. 231,535

Int. Cl. C11b 1/10; C13l 1/02

U.S. Cl. 127-68

8 Claims



Process for de-fatting fat-containing, dryly degerminated seed material, such as corn grits, which involves

soaking a ground fraction of the seed material with a fat solvent and separating the solvent from the de-fatted seed material. The process is especially applicable to obtaining starch from corn grits.

3,832,234

METHOD OF CLEANING VEHICLES WITH A THICKENED ACID COMPOSITION

Joseph V. Otrhalek, Dearborn, and Robert E. Gansser, Wyandotte, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Continuation-in-part of application Ser. No. 288,772, Sept. 13, 1972, now Patent No. 3,793,221. This application Sept. 20, 1973, Ser. No. 399,091

Int. Cl. B08b 7/00

U.S. Cl. 134-4

2 Claims

A method for removing siliceous and/or oily soils from vehicles such as railroad rolling stock by applying a thickened acid composition consisting essentially of an aqueous hydrochloric acid, an organic acid, a nonionic surfactant, an anionic surfactant, and water; allowing the composition to remain in contact with the vehicle for a period of time; and rinsing twice with water.

3,832,235

VAPOR SOLVENT PAINT REMOVING METHOD

Joseph Cooper, and William J. Corbett, Cincinnati, Ohio, assignors to Chemed Corporation, Cincinnati, Ohio

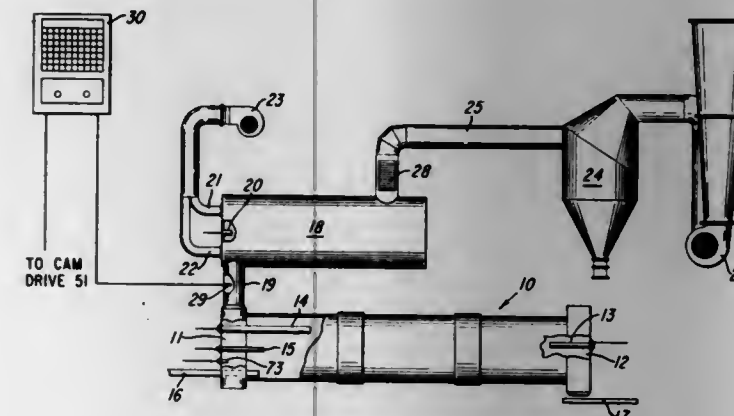
No Drawing. Application May 28, 1971, Ser. No. 148,213, now Patent No. 3,743,542, which is a division of application Ser. No. 817,160, Apr. 17, 1969, now Patent No. 3,629,004. Divided and this application Jan. 31, 1973, Ser. No. 328,574

The portion of the term of the patent subsequent to Dec. 21, 1988, has been disclaimed

Int. Cl. B08b 5/00, 7/00; C23g 5/02

U.S. Cl. 134-31

7 Claims



A method is disclosed for removing paint from metal surfaces by boiling a solvent or solvent mixture and contacting the painted metal surface with the vapors of the solvent mixture.

3,832,236

PHOTOCONDUCTIVE CELL STRUCTURE

Hiroshi Tomita, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka-shi, Osaka-fu, Japan

Filed Aug. 24, 1972, Ser. No. 283,282

Claims priority, application Japan, Aug. 28, 1971, 46/77,183

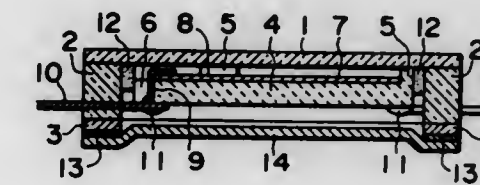
Int. Cl. H01l 15/02

U.S. Cl. 136-89

9 Claims

A photoconductive cell wherein a plurality of small projections are formed on one surface of an insulating thin plate provided with a number of notched portions on its periphery. The number of small projections are low and uniform in height and are made of a material similar to that of the insulating thin plate. A thin layer of a photoconductive material is formed on one surface of the thin

insulating plate, exclusive of the portions at which the small projections are formed. Conductive layers are disposed in spaced relationship from each other on the photoconductive surface to constitute electrodes and extend through the notched portions, the small projections which extend upwardly from the photoconductive layer



are spacer elements between the photoconductive surface and a transparent plate, when the insulating plate is inserted within the casing so that the photoconductive surface confronts the transparent plate of the casing. Lead wires are enclosed through the insulating side walls of the casing and electrically and mechanically connected with electrodes within the notched portions.

3,832,237

EXCHANGEABLE ELEMENTS FOR A STORAGE BATTERY

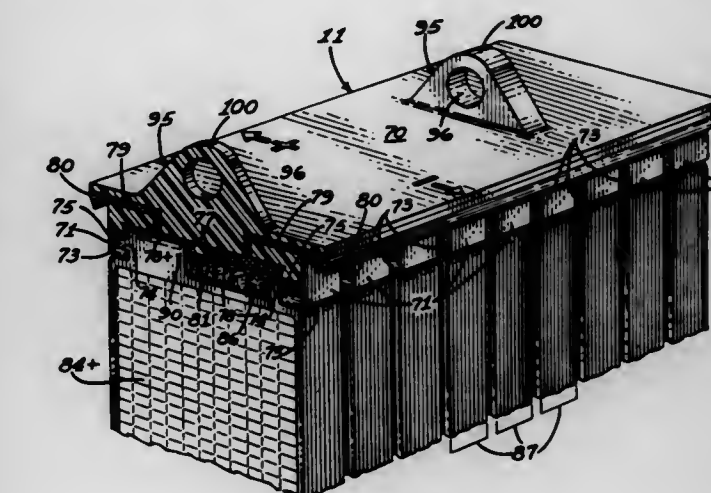
Lewis R. Kinsey, 108 S. 25th St., Phoenix, Ariz., 85034

Original application Feb. 18, 1971, Ser. No. 116,400. Divided and this application Oct. 24, 1972, Ser. No. 299,913

Int. Cl. H01m 13/10

U.S. Cl. 136-134

4 Claims



A rebuildable, rechargeable wet cell storage type battery employing a novel replaceable modular plate structure.

3,832,238

GAS RECOVERY DEVICE FOR STORAGE BATTERIES

Takao Marui, and Atsusi Yokogi, Takatsuki, Japan, assignors to Yuasa Battery Company Limited, Takatsuki, Japan

Continuation of abandoned application Ser. No. 161,243, July 9, 1971. This application Aug. 27, 1973, Ser. No. 392,079

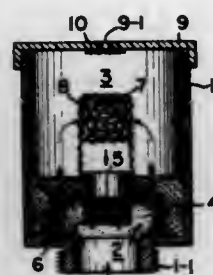
Int. Cl. H01m 1/06

U.S. Cl. 136-179

14 Claims

Gas recovering devices for storage batteries comprise a catalyst body disposed in a housing defining a gas recovering chamber which is isolated from the gas space within the storage battery by a sintered, porous, explosion preventing structure disposed between the body of catalyst and an opening from the housing disposed for intercommunicating the latter and the interior of the battery. The sintered, porous, explosion preventing structure includes a water-repellent portion and a water-perme-

able portion. The water-permeable portion is disposed beneath the catalyst body for returning water produced in the catalyst to the interior of the battery through the



opening. The water-repellent portion is disposed to facilitate the passage of gases developed in the battery during the charging of the latter into contact with the catalyst body.

3,832,239 PRODUCTION OF CLEAR, SEALED ANODIZED FILMS

Geraldine M. Hoch, Chatsworth, and Kenneth E. Weber, Granada Hills, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

No Drawing. Continuation-in-part of application Ser. No. 881,884, Dec. 3, 1969. This application Dec. 26, 1972, Ser. No. 318,522

Int. Cl. C23c 5/50

U.S. Cl. 204—35 N

2 Claims

It is conventional to seal anodized films produced on aluminum surfaces by electrolysis in a sulfuric acid electrolyte by neutralizing such films, washing them and then contacting them with a sealing solution. An effective solution for sealing such films so that they are corrosion resistant and so that they are substantially clear in appearance can consist essentially of 0.1 to about 5% by weight of chromic oxide present in the form of a compound selected from the group consisting essentially of chromic acid and ammonium and alkali metal chromate and dichromate salts and mixtures thereof and from about 0.5 to about 10% by weight of tungstate ions present in the form of a compound selected from the group consisting essentially of ammonium and alkali metal tungstate and metatungstate salts and mixtures thereof. The solution used may contain an alkali metal hydroxide or similar pH adjusting agent and should have a pH of from about 4.5 to about 8 and should be at a temperature of from about 130° F. to immediately below the boiling point of the solution.

3,832,240 PRODUCTION OF EXTENDIBLE RODS

Moritada Kubo, Tokyo-to, and Yasuo Nogiwa, Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa-ken, Japan

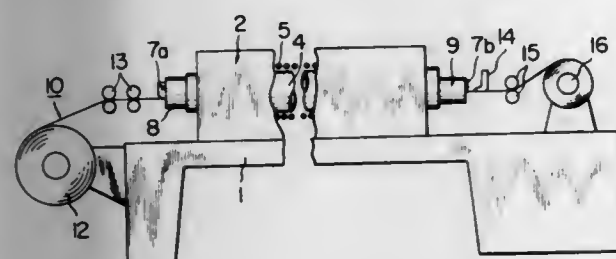
Filed Aug. 2, 1971, Ser. No. 168,217

Claims priority, application Japan, Aug. 1, 1970, 45/67,586, 45/67,587

Int. Cl. C22f 1/08

U.S. Cl. 148—11.5 R

7 Claims



A ribbon foil spring material protected by a layer of a reinforcing material is passed through an inlet die and

through an annular heat treatment passageway formed between a cylinder and a mandrel disposed therewithin, the cylinder being disposed within a furnace, thereby to deform plastically the foil spring material into a tubular shape and to harden the same permanently as wrinkling thereof is prevented by the reinforcing material, which is finally burned and dispersed in the heat-treatment passageway.

3,832,241 COPPER-BASE ALLOY CONTAINING TITANIUM AND ANTIMONY

Donald J. Nesslage, Old Bridge, and Lin S. Yu, Franklin Park, N.J., assignors to Phelps Dodge Industries, Inc., New York, N.Y.

Original application Sept. 25, 1972, Ser. No. 292,186, now Patent No. 3,773,505. Divided and this application Aug. 8, 1973, Ser. No. 386,508

Int. Cl. C22c 9/00; C22f 1/08

U.S. Cl. 148—12.7

4 Claims

Disclosed are alloy compositions consisting essentially of copper and small amounts of titanium and antimony within stated ranges. These compositions have high electrical conductivity, high strength and high ductility as compared with copper alloys containing either titanium or antimony. The disclosed ranges of alloy compositions provide a class of copper-base alloys having a unique flexibility with regard to electrical, mechanical and physical properties. By varying the relative and total amounts of titanium and antimony, copper-base alloys having predictable and differing properties may be obtained. Methods for the heat treatment and fabrication of the alloys are also disclosed.

3,832,242 BRAZING AND SOLDER COMPOSITIONS COMPRISING A CHELATING AGENT

Stanley G. Cuthbert, Munster, Ind., assignor to SCM Corporation, Cleveland, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 57,822, July 23, 1970. This application Aug. 17, 1972, Ser. No. 281,543

Int. Cl. B23k 35/34

U.S. Cl. 148—24

10 Claims

Improved brazing or soldering paste compositions comprising a metalliferous or brazing solder powder and a fugitive resinous binder have been developed. The improvement comprises a chelating agent dispersed therein in a proportion of about 0.3–10% by weight of the binder, the chelating agent being selected from the group consisting of tetrakis hydroxyalkyl derivatives of alkylene diamines, tetrakis carboxy alkyl derivatives of diamine, alkali metal salts of tetrakis carboxy alkyl derivatives of alkyl diamines and hydroxy carboxylic acids.

3,832,243 SHAPE MEMORY ELEMENTS

Hendrik Cornelis Donkersloot and Johannes Hendrikus Nicolaas van Vucht, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed Jan. 14, 1971, Ser. No. 106,554. Claims priority, application Netherlands, Feb. 25, 1970, 7002632

Int. Cl. C22c 9/00

U.S. Cl. 148—32

5 Claims

Intermetallic compounds which, upon cooling below a characteristic temperature T_f , are subjected to a so-called martensite crystal transformation to a crystal structure having a closer packing may be used as shape memory elements. Shape memory elements have the property that, after deformation at a temperature below T_f , they resume their original shape by heating above T_f .

3,832,244 STAINLESS STEEL

Kenneth E. Pinnow, J. M. Mehta, and A. Moskowitz, Pittsburgh, Pa., assignors to Crucible Inc., Pittsburgh, Pa.

No Drawing. Original application May 28, 1968, Ser. No. 732,542, now Patent No. 3,778,316. Divided and this application Jan. 11, 1971, Ser. No. 105,690

Int. Cl. C22c 39/14

U.S. Cl. 148—37

5 Claims

This invention relates to a stainless steel and a method for producing the same, whereby material particularly adapted for use in structural applications such as the manufacture of cargo boxes is achieved. Specifically, the material is characterized by an improved combination of strength and toughness that is achieved by producing hot-band material having a substantially martensitic microstructure of a composition consisting of .10 max. percent carbon, 2 max. percent manganese, 1 max. percent nickel, 9.5 to 13.5 percent chromium, and the balance iron. This material has a maximum titanium to carbon ratio of about 8. With titanium to carbon ratios of between 4 to 8, nickel must be present within the range of .5 to 1 percent. For optimum weld-toughness the maximum titanium to carbon ratio is about 4, either with or without nickel. To achieve the desired combination of strength and toughness, the material in hot-band gage is annealed for a time at temperature to achieve a hardness of at least 80 R_b and preferably 82 to 92 R_b.

3,832,245 METHOD OF MANUFACTURING AN OBJECT OF SILICON STEEL HAVING LOW SULPHUR CONTENT

Carl-Artur Akerblom, Surahammar, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Filed May 30, 1972, Ser. No. 257,781

Claims priority, application Sweden, June 14, 1971, 7,658/71; May 5, 1972, 5,910/72

Int. Cl. H01f 1/04

U.S. Cl. 148—113

3 Claims

In manufacturing objects of silicon steel such as strip, sheet and rods for electrical equipment, there is applied to the surface of the material particles of a hydroxide of an alkaline earth metal or aluminium and/or a carbonate of an alkaline earth metal and/or oxide of alkaline earth metal or aluminium in combination with a vanadium compound. The object is then subjected to a heating at a temperature of at least 850° C., and preferably 1000–1300° C.

3,832,246 METHODS FOR MAKING AVALANCHE DIODES

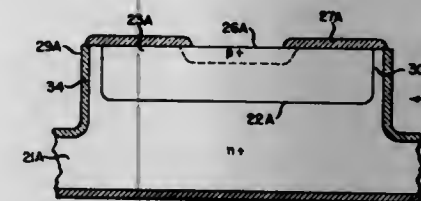
William Thomas Lynch, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 22, 1972, Ser. No. 255,575

Int. Cl. H01l 5/00, 7/36, 7/44

U.S. Cl. 148—175

10 Claims



Edge breakdown in an epitaxial avalanche photodiode is eliminated by using the mesa etch technique to define the active device, and then doping the mesa sidewalls to a relatively high resistivity with impurities of the substrate conductivity type. In one embodiment, deposited silicon

dioxide surrounds the mesa to give a planar external configuration; and in another embodiment, anisotropic etching of the mesa produces a vertical sidewall against which incident light may be directed.

3,832,247 PROCESS FOR MANUFACTURING INTEGRATED CIRCUITS

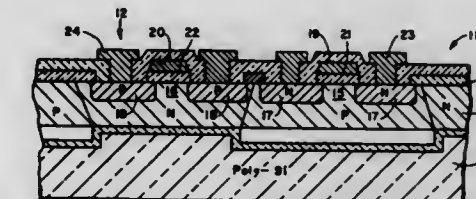
Ivan R. Saddler, Scottsdale, and John A. Fisher, Mesa, Ariz., assignors to Motorola Inc., Chicago, Ill.

Filed June 22, 1973, Ser. No. 372,892

Int. Cl. H01l 7/36, 27/02

U.S. Cl. 148—175

3 Claims



A process of manufacturing integrated circuits, particularly complementary integrated circuits, in an N-type semiconductor material which is formed upon an insulating substrate. The process includes steps of patterning a doping oxide such as aluminum oxide upon the semiconductor material; forming a dielectric layer over the semiconductor material and the doping layer; and then forming a polycrystalline silicon handle thereon. Following removal of most of the original semiconductor material, a heating step causes an up-diffusion from the doping layer into and through the semiconductor body to form P-type regions or tubs, therein.

3,832,248 METHOD OF FABRICATION OF INSULATED GATE FIELD EFFECT TRANSISTORS

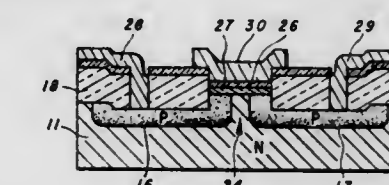
Bernard Bazin, Paris, and Jean Albert, Cagnes-sur-Mer, France, assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 3, 1971, Ser. No. 112,190

Int. Cl. H01l 7/44

U.S. Cl. 148—187

3 Claims



An insulated gate field effect transistor having a self-aligned gate, reduced capacitance, and lower surface step heights is fabricated with the use of a silicon nitride layer which serves first as a diffusion mask, then as an oxidation barrier, and ultimately as a gate dielectric. In an alternate embodiment, lower threshold voltages are achieved by replacing the initial gate dielectric with a thinner dielectric having a reduced surface state density.

3,832,249 SAFE EXPLOSIVE CONTAINING DICYANO- FUROXANE AND METHOD

Richard H. Homewood, Andover, Val J. Krukons, Lexington, and Raymond C. Loszewski, Methuen, Mass., assignors to AVCO Corporation, Cincinnati, Ohio

No Drawing. Filed Mar. 21, 1973, Ser. No. 343,333

Int. Cl. C06b 17/00

U.S. Cl. 102—23

5 Claims

The present invention relates to a unique explosive composition, more precisely to an organic composition of carbon, nitrogen, and oxygen, viz., dicyanofuroxane, a com-

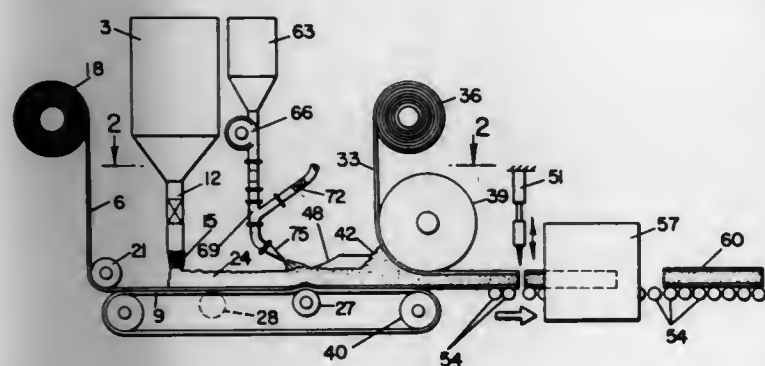
pound which has been found to be a safe castable material for forming shaped explosives.

3,832,250 METHOD OF FORMING GYPSUM BOARDS WITH HARDENING EDGES

Howard Brent Pearson, Las Vegas, Nev., assignor to Johns-Manville Corporation, New York, N.Y.
Filed July 24, 1972, Ser. No. 274,535
Int. Cl. B32b 30/04, 31/00

U.S. Cl. 156—39

5 Claims



A process is described for the incorporation of corn syrup into the edges of gypsum boards to harden those edges. An aqueous corn syrup solution of defined concentration is injected into the edge of a stream of semifluid gypsum "mud" or paste simultaneously with vibration of that mud. The mud is thereafter molded and compressed to form a gypsum board and the impregnated portion of the mud forms the edges of the board. The board is then heated to dry the gypsum and the resulting dried board is found to have edges which are significantly harder than the edges of untreated gypsum boards.

3,832,251 METHOD FOR MANUFACTURING THE EDGE AND LOWER PLATE OF A SKI FROM WOOD

Agu Yanovich Aarna, bulvar Karla Marxa, 15, kv. 6; Karl Ritsovich Kilsler, Yakhimekhe Tee, 26, kv. 1; Peep Gerkhardovich Kristyanson, Sjutiste Tee, 34, kv. 38; Juri Albert-Mikhaelovich Tanner, Sjutiste Tee, 34, kv. 22; Juri Felixovich Vabaoya, ulitsa Suurtjuki, 5, kv. 1; all of Tallin, U.S.S.R., and Iosif Gershonovich Vaitenberg, Rzhskoe shosse, 49, kv. 6; Juri Khindrekovich Rokk, Tallinskoe shosse, 4, kv. 27, and Toomas Oskarovich Matvere, Rzhskoe shosse, 98, kv. 2, all of Pärnu Estonskoi, U.S.S.R.

No Drawing. Filed Dec. 30, 1971, Ser. No. 214,470
Claims priority, application U.S.S.R., Mar. 25, 1971, 1631037

Int. Cl. B32b 21/14; B44d 1/26

U.S. Cl. 156—60

6 Claims

A method including impregnation of wood with a mixture of a resorcinol monomer and dimethylol-carbamide, taken in a molecular ratio of 1:0.4-1.5 and dissolved in a mixture of water and organic solvents; drying at a temperature not exceeding 60° C. and glueing at a temperature of 80-120° C. and under a pressure of 5-50 kg./cm.².

3,832,252 METHOD OF MAKING A DRUG-DELIVERY DEVICE

Takeru Higuchi, 2811 Schwarz Road, Lawrence, Kans. 66044; and Harold M. Leeper, 1040 Gest Drive, Mountain View, Calif.

Original application Sept. 29, 1970, Ser. No. 76,499, now Patent No. 3,710,795. Divided and this application Oct. 2, 1972, Ser. No. 293,919

Int. Cl. A61j 3/00

U.S. Cl. 156—86

4 Claims

Drug-delivery device for releasing drug at a controlled rate for a prolonged period of time is formed from a solid

inner matrix material having drug dispersed therethrough. Surrounding the inner matrix is an intimately contacting outer polymeric membrane, insoluble in body fluids, which contracts about the matrix as the matrix decreases in volume upon drug release. Both the inner matrix material and the outer polymeric membrane are permeable to passage of the drug by diffusion but the drug diffuses through the outer polymer membrane at a lesser rate so that passage through the polymeric membrane is the drug release rate controlling step. The integrity of the intimate contact between the membrane and the matrix is assured even upon matrix depletion immediately following manufacture and for an extended period of time by reason of the reserve elastic recovery stress in the membrane.

3,832,253 METHOD OF MAKING AN INFLATABLE BALLOON CATHETER

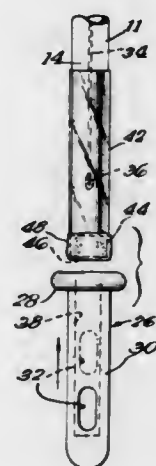
Giorgio Di Palma, Hanover Park, and Henry M. Gajewski, Winnetka, Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Mar. 21, 1973, Ser. No. 343,606

Int. Cl. B29c 27/00

U.S. Cl. 156—86

9 Claims



A method is disclosed for making an inflatable balloon catheter. The method employs a number of heat shrinkable sleeves and adhesive to attach a catheter tip to a catheter shaft.

3,832,254 METHOD OF MAKING A MULTIPLE GLAZED UNIT HAVING A THERMOPLASTIC, SPACER- DEHYDRATOR ELEMENT

George H. Bowser, New Kensington, and Renato J. Mazzoni, Tarentum, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

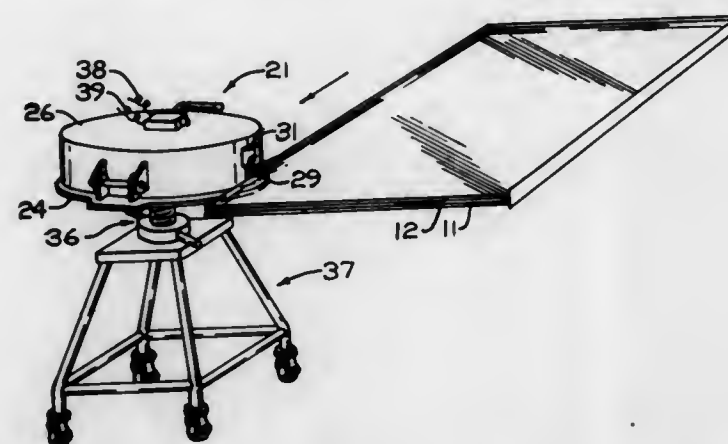
Filed Dec. 14, 1972, Ser. No. 315,042

Int. Cl. B32b 1/04, 17/00; E04b 2/28; E06b 3/64;

C03c 27/00

U.S. Cl. 156—107

22 Claims



In one embodiment of the invention, multiple glazed units are fabricated by heating a thermoplastic, spacer-

dehydrator element. The element is heated to a temperature sufficient to make the element plastic and render the element surfaces viscid. A pair of glass sheets are positioned about the heated element and urged toward each other against the element to form a hermetic seal. In another embodiment, a composite strip composed of a strip of precured, mastic sealant material having a bendable carrier tape adhered to one surface and a thermoplastic, spacer-dehydrator element adhered to the opposite surface is heated. The composite strip is heated to a temperature sufficient to make the element plastic. A segment of the composite strip is applied to a pair of glass sheets held in spaced relationship to each other. The segment is applied in such a manner that the element is inserted between opposed, marginal edges of the glass sheets with the sealant material facing the peripheral edges of the glass sheets. Thereafter, the carrier tape is pressed so as to flow portions of the sealant material into hermetically sealing contact with the edges of the glass sheets to produce a finished unit. In still another embodiment, the composite strip, instead of including a precured, mastic sealant material, includes a curable, mastic sealant material. The composite strip is heated to a temperature sufficient to make the element plastic. Before the sealant material cures, the composite strip is applied, as before, to the pair of glass sheets. Thereafter, the pressing step is performed to produce a finished unit.

3,832,255

METHOD OF FABRICATING AN IMPROVED PLASTIC BEARING

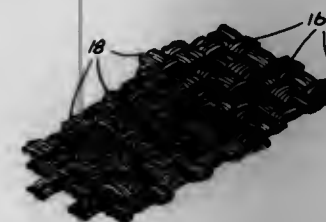
Samuel Merle Shobert, Walkerton, Ind.
(17760 Dagoon Trail, Mishawaka, Ind. 46544)

Application Jan. 9, 1970, Ser. No. 1,833, which is a continuation-in-part of abandoned application Ser. No. 800,955, Feb. 20, 1969. Divided and this application Sept. 8, 1972, Ser. No. 287,566

Int. Cl. D03d 1/00

U.S. Cl. 156—148

11 Claims



A reinforced plastic bearing comprising a generally cylindrical structure of plastic reinforced with glass fiber, provided with a tubular layer of polytetrafluoroethylene fibers embedded and secured in the plastic. In the fabrication of this bearing, the polytetrafluoroethylene fibers are intertwined and formed into a cord having an irregular outer surface. The intertwining binds the fibers into position to inhibit relative motion thereof such that the cord is characterized by multiple length portions of the fibers in the outer cord surface, having opposite end portions anchored in position. This cord is formed into a woven fabric which becomes said tubular layer and which is impregnated with the aforesaid plastic in liquid form, the plastic flowing into the irregularities and interstices in the fabric and cord so as intimately to enrobe substantial portions of the cords and fibers, thereby securing them in position relative to each other.

Retention of the polytetrafluoroethylene fibers against delamination is, in one preferred method, maximized by use of a mandrel having a highly polished layer of polytetrafluoroethylene thereon. In removing the hardened bearing composite from the mandrel, the integrity of the

plastic matrix which secures the polytetrafluoroethylene fibers in place is maintained.

3,832,256

FABRIC AND METHOD FOR MANUFACTURING THE SAME

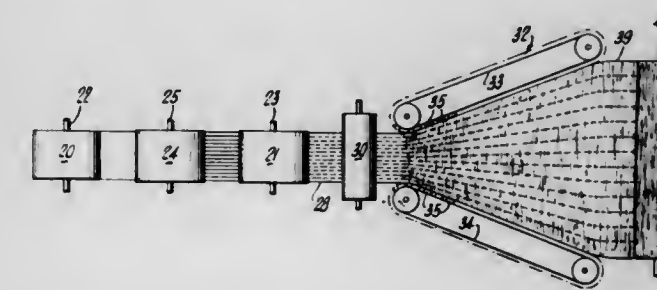
Frank Kalwaites, Gladstone, N.J., assignor to Johnson & Johnson

Filed Nov. 3, 1971, Ser. No. 195,184

Int. Cl. B32b 5/02, 31/16

U.S. Cl. 156—179

1 Claim



A new fabric comprising yarns embedded in substantially unoriented thermoplastic polymer film with the yarns extending in the longitudinal direction of the fabric. Adjacent yarns are connected to each other by transversely oriented film areas preferably in the form of filaments or fibers. My new fabric is manufactured by placing an un-oriented film on each side of a set of yarns and heating the laminate to combine the yarns and film. The laminate is transversely stretched to orient the film between the yarns into a plurality of highly molecularly oriented areas.

3,832,257

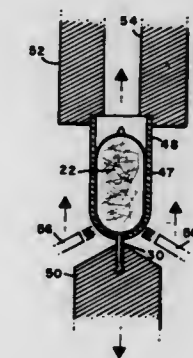
METHOD OF COATING PHOTOFLASH LAMP Warren H. Hay, South Hamilton, Mass., assignor to GTE Sylvania Incorporated

Filed Sept. 15, 1972, Ser. No. 289,446

Int. Cl. B29c 17/00

U.S. Cl. 156—198

14 Claims



A method of coating the glass envelope of a photoflash lamp with a thermoplastic material, the method comprising: applying a thin film of mold release on the exterior surface of the glass envelope; locating the film coated glass envelope in a dried, preformed sleeve of thermoplastic material; drawing a vacuum in the space between the sleeve and the envelope; heating the assembly incrementally lengthwise to gradually form the sleeve onto the envelope; constricting and tipping off the sleeve at the conclusion of the heating process; and after the glass and thermoplastic have cooled, heating a narrow band of the thermoplastic coating longitudinally and/or circumferentially to relieve the stresses in the thermoplastic coating and thereby predictably control the compressive loading on the glass envelope of the lamp.

3,832,258

METHOD AND APPARATUS FOR APPLYING FILM-LIKE MATERIAL TO OBJECTS

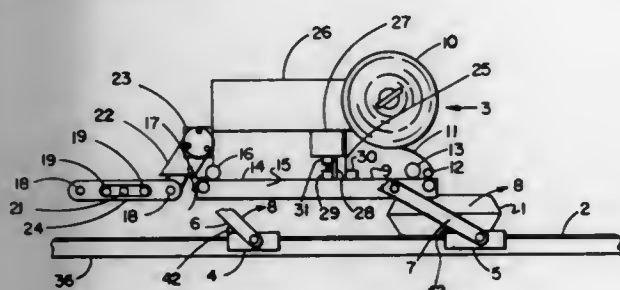
John T. Roberts, Simpsonville, S.C., and John G. Waller, College Park, George E. Harris, Marietta, and Richard L. Ovrick, Chamblee, Ga., assignors to W. R. Grace & Co., Duncan, S.C.

Filed June 14, 1972, Ser. No. 262,886

Int. Cl. B32b 31/00

U.S. Cl. 156—257

5 Claims



This invention is a method and apparatus for applying film-like material to objects, particularly thermoplastic film segments such as printed labels to planar objects such as egg carton lids. The method comprises the steps of conveying an object in a predetermined path; placing the free end of a length of film in the path of the object; wedging said free end between a movable surface and the object to grip the film therebetween; and, continuing the conveying of said object in contact with said movable surface until the desired length of film has been applied to the surface. Preferably, the film-like material is heat-shrinkable with a heat activated adhesive applied to one surface thereof, and the movable surface is heated to activate the adhesive thereby bonding the film material to the carton. The film is severed between cartons.

In one embodiment, the film is applied across a cavity in the surface of the object and heat bonded to each side of the cavity. While being heat bonded, the film also is heat shrunk, thus stretching it tightly across the cavity.

In the apparatus, the movable surface is a driven, heated belt which contacts the object for a sufficient period of time to heat bond and heat shrink the film.

3,832,259

METHOD FOR MANUFACTURING A TRANSVERSELY OR HELICALLY GROOVED PLASTIC TUBE WITH A SMOOTH INNER WALL

Cornelis van Zon, Zwolle, Netherlands, assignor to Industriële Oudeeneming Wavin N.V., Zwolle, Netherlands

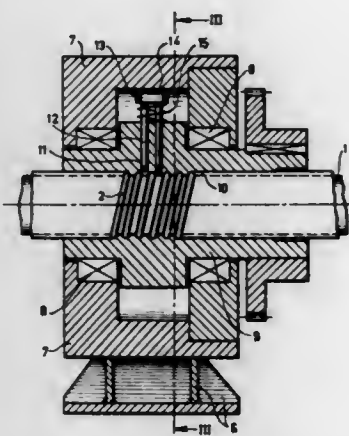
Continuation-in-part of abandoned application Ser. No. 860,205, Sept. 23, 1969. This application Jan. 10, 1972, Ser. No. 216,587

Claims priority, application Netherlands, Sept. 30, 1968, 6813975

Int. Cl. B29d 3/00

U.S. Cl. 156—293

6 Claims



The invention relates to a method of manufacturing a composite plastic tube whereby an inner plastic tube with

a smooth inner wall is positioned into an outer plastic tube provided with transverse or helical grooves and pins are acting upon part of the valleys of the outer tube. In this way the inner and outer tube are deformed and connected in a non-slidable way.

3,832,260

METHOD AND APPARATUS FOR SIMULTANEOUSLY APPLYING TO AN EXTENDED CYLINDRICAL OBJECT A COATING AND A PLASTIC FILM WRAPPING TO RETAIN THE COATING

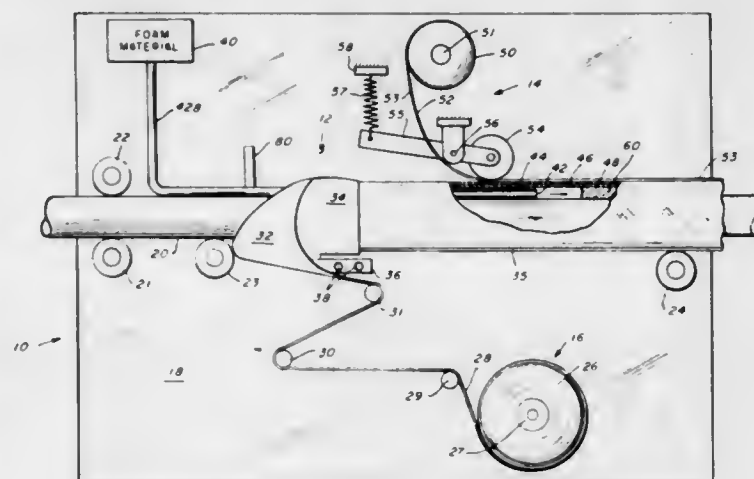
Clemens F. Straughan and Charles A. Schad, Tulsa, Okla., assignors to CFS Corporation, Tulsa, Okla.

Continuation-in-part of application Ser. No. 142,452, May 12, 1971. This application May 17, 1972, Ser. No. 253,943

Int. Cl. B29f 1/10

U.S. Cl. 156—390

19 Claims



This invention describes a method of placing a coating of material circumferentially about an extended cylindrical object and holding the material in place by means of a longitudinally folded and sealed plastic coating. This is accomplished by folding and wrapping a plastic film about the long object. The diameter of the resulting plastic cylinder is greater than that of the object, so as to provide sufficient space in the annulus for the coating material. The two edges of the plastic are sealed either by cementing one to the other or by applying a sealing strip over the edges. The coating material is applied into the annulus through a pipe between the object and the film cylinder. By the use of a heat shrinkable plastic film the film can be shrunk to tightly fit the coating material.

3,832,261

MATERIALS HANDLING ASSEMBLY

Wilhelm Brey, Cuyahoga Falls, Ohio, William Hostettler, Santa Ana, Calif., and Earl Ferdinand Loeffler, Akron, Hubert Ernest Kolm, Louisville, and Fred Grove Elder, Atwater, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Original application Feb. 11, 1970, Ser. No. 10,579, now U.S. Patent No. 3,700,526. Divided and this application Sept. 15, 1971, Ser. No. 180,833

Int. Cl. B29h 17/28; B60c 9/14

U.S. Cl. 156—405

2 Claims

A fully automatic machine for producing "green tires" or unvulcanized tire carcasses, especially suitable for making tubeless tires. The machine comprises a plurality of interconnected and dependent assemblies or stations where specialized operations, normally done semi-automatically or by hand, are carried out by mechanical devices acting in sequence. The machine includes a plurality of conventional tire building drums continuously moving between horizontally disposed, stationary table assemblies where innerliner and chafer strips, and first

and second ply material are successively wrapped on the drums as they move across the table on which the material is positioned. The wrapped drums from these assemblies, are sent to turret units where they are arcuately positioned for receiving beads, tread cushion,

them together. The contoured roll has a medial rib of rubber to press the new strip into the medial groove along the ski sole.

3,832,263

THERMAL INSULATING BARRIER OF CELLULAR POLYMER BLOCKS

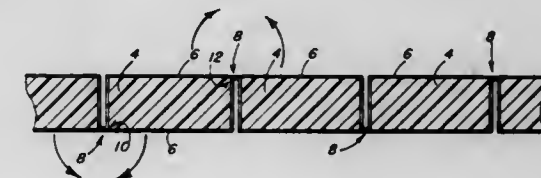
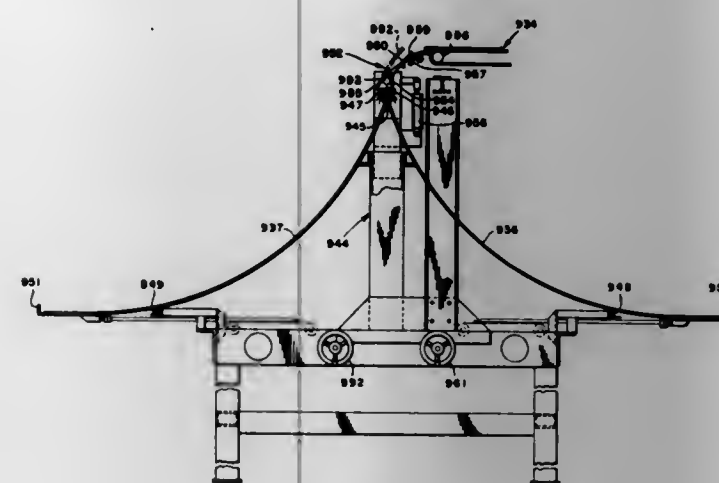
Bruce B. Cleveland, San Pedro, and Thomas P. Dougan, Corona Del Mar, Calif., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation of abandoned application Ser. No. 141,775, May 10, 1971. This application Mar. 26, 1973, Ser. No. 344,888

Int. Cl. B32b 3/16, 31/10

U.S. Cl. 161—37

1 Claim



stitching, strips of whitewall, if required, and are discharged from the collapsed drums for removal and storage. The stripped drums, or drums from which tires are removed, are automatically expanded and recycled through the assemblies for building more tire carcasses.

3,832,262

APPARATUS FOR RENOVATING SKIS

Gerard Rene Rubaud, Megeve, Haute-Savoie, France, assignors to International Ski Service Establishment, Vaduz, Liechtenstein

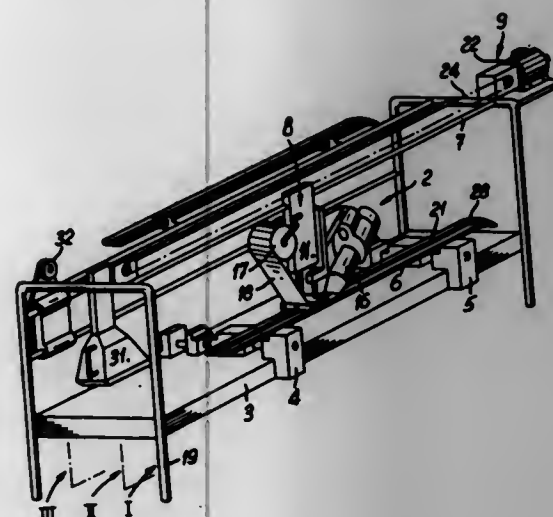
Filed Mar. 7, 1972, Ser. No. 232,444

Claims priority, application France, Nov. 24, 1971, 7142772

Int. Cl. B32b 1/10

U.S. Cl. 156—468

6 Claims



Apparatus for renovating the grooved soles of skis, comprises a holder for the ski with the sole of the ski up and exposed and a slideway guiding a carriage for movement parallel to and above the ski. The carriage has two relatively vertically movable supports, the forward support mounting a first roller and a hot air blower, the second or rear support mounting a second roller which is contoured like ski sole and spring-urged downwardly and a roll for a strip of plastic material. As the carriage moves along the ski sole, the blower heats the region of application of the strip to the sole and the strip of plastic is trained about the forward roll and under the contoured roll, which apply the new strip to the heated ski to bond

A thermal insulating barrier is provided which can be folded into compact form for transportation, and which is especially useful in fabricating foundations for roads, runways, buildings and the like, on permafrost or any terrain which is subject to periodic thawing. The barrier comprises a plurality of rigid cellular polymer blocks each of which is encased in a form-fitting envelope of water-imperious film (e.g. polyethylene). The skin covered blocks are joined one to another by, for example, heat welding the edge of skin along the longitudinal edges of one block to the corresponding skin edge on the neighboring blocks. The connections between blocks serve to hold them in parallel relationship but also act as hinges about which the barrier can be folded into compact form. In a preferred embodiment, the rigid cellular polymer blocks are substantially rectangular and the blocks are joined via the skin at diametrically opposed edges. The resulting barrier can then be folded in accordion pleat-like fashion into a compact portable form for transportation.

3,832,264

SELF-REINFORCED PLASTIC ARTICLES WITH CORE ENVELOPMENT

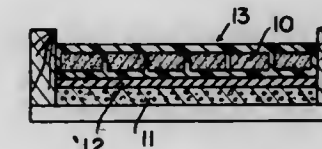
Stanley Ronald Barnette, 90 Cherokee St., Miami Springs, Fla. 33166

Continuation of abandoned application Ser. No. 648,728, June 26, 1967, which is a division of Ser. No. 254,851, Jan. 14, 1963, now Patent No. 3,328,500, which in turn is a continuation-in-part of Ser. No. 808,599, Apr. 24, 1959, now Patent No. 3,072,973. This application Feb. 5, 1971, Ser. No. 113,099

Int. Cl. B32b 3/10

U.S. Cl. 161—41

14 Claims



An ornamental panel comprising at least a first and second layer of resinous material adhered together, a plurality of relatively rigid blocks of core media material encased between said layers, at least one of said layers having particles intermixed therein, and wherein chips substantially larger than said particles embedded in the exterior surface.

3,832,265
BALLISTIC ARMOR OF PLIES OF NYLON FABRIC AND PLIES OF GLASS FABRIC
 Maurice R. Denomme, Franklin, Mass., assignor to the United States of America as represented by the Secretary of the Army
 No Drawing. Filed Sept. 20, 1973, Ser. No. 399,772
 Int. Cl. D03d 11/00

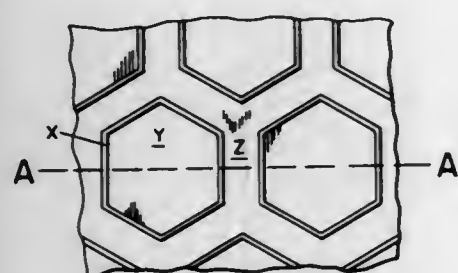
U.S. Cl. 161-92 **7 Claims**
 An armor material formed of a plurality of plies of woven nylon ballistic fabric and a plurality of plies of woven roving fiberglass fabric bonded together with a polyester resin to produce a dimensionally stable, lightweight, ballistic-resistant material.

3,832,266
FIBERGLASS LAMINATE BACKED CERAMIC ARMOR
 Paul B. Archibald, Pleasanton, Calif., assignor to the United States of America as represented by the Secretary of the Army
 No Drawing. Filed Dec. 5, 1972, Ser. No. 312,398
 Int. Cl. B32b 7/00

U.S. Cl. 161-93 **2 Claims**
 A fiberglass laminate which may be utilized in conjunction with a ceramic as a backing material, constructed of commercially available fiberglass cloth having a temporary or compatible size, and having applied in addition thereto a small amount of a silicone oil finish.

3,832,267
EMBOSSSED FILM
 Chia-Seng Liu, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.
 Filed Sept. 19, 1972, Ser. No. 290,309
 Int. Cl. B29g 7/24

U.S. Cl. 161-116 **3 Claims**



Embossed, biaxially oriented propylene polymer films having great tear strength for their thickness can be prepared if certain critical limitations are followed. The process comprises embossing a sheet of propylene polymer having a crystallinity of from about 40% to 65% and containing at least 80% of repeating units derived from propylene monomer to a depth of from about 50% to 75% of its thickness with at least 4 but not more than 600 uniform raised bosses per square inch, each boss enclosed by a raised lip, the valley areas separating individual bosses constituting from about 20% to 40% of the surface of the embossed film and subjecting the thus embossed film to biaxial drawing of at least 2.5 to 5.0 times in both the machine and cross-machine directions.

3,832,268
REINFORCED PLASTIC STRUCTURES CONTAINING CURED POLYESTER RESIN
 Clarence R. Smith, Pennell, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.
 No Drawing. Continuation-in-part of abandoned application Ser. No. 218,463, Jan. 17, 1972. This application Apr. 17, 1972, Ser. No. 244,892
 Int. Cl. B32b 5/16, 17/04, 27/08

U.S. Cl. 161-162 **3 Claims**
 Reinforced plastic structures are formed from thermoplastic substrates having bonded thereto a cured polyester

of a composition comprising an ethylenically unsaturated curable polyester and a monomer mixture of a copolymerizable unsaturated carboxylic acid or anhydride and a different copolymerizable monomer. The plastic structures are characterized by improved bonding between the substrate and cured polyester.

3,832,269
ANTI-DUST SHEETS
 Richard Butler Macmillan, Welwyn, and Iolo Llewelyn Lewis, Welwyn Garden City, England, assignors to Imperial Chemical Industries Limited, London, England
 No Drawing. Filed July 24, 1972, Ser. No. 274,617
 Int. Cl. B32b 15/08, 27/08, 27/32

U.S. Cl. 161-162 **7 Claims**
 A laminated thermoplastic sheet having an anti-dust surface, comprises at least one foil containing carbon black (preferably containing at least 10 parts by weight of carbon black per 100 parts by weight of thermoplastic) preferably sandwiched between other foils not containing carbon black which provide the anti-dust surface. The anti-dust surface is preferably situated less than 2.3 mm. from the nearest surface of a foil containing carbon black. The invention is particularly useful for poly(vinyl chloride) sheeting.

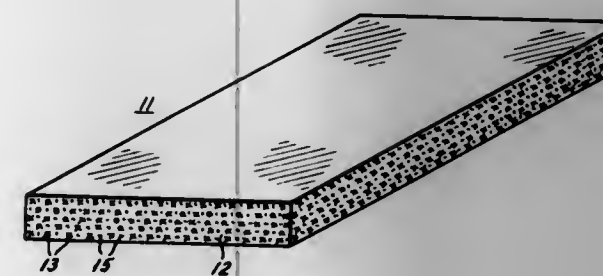
3,832,270
HEAT SHRINKAGE, ORIENTED LAMINATED PLASTIC FILM
 Henry G. Schirmer, Spartanburg, S.C., assignor to W. R. Grace & Co., Duncan, S.C.
 Application Mar. 23, 1970, Ser. No. 21,793, now Patent No. 3,754,063, which is a continuation-in-part of applications Ser. No. 659,940, Aug. 11, 1967, now Patent No. 3,607,505, and Ser. No. 768,955, Sept. 23, 1968, now Patent No. 3,808,304, which is a continuation of abandoned application Ser. No. 355,522, Mar. 18, 1964. Divided and this application Dec. 4, 1972, Ser. No. 312,247
 Int. Cl. B32b 27/30

U.S. Cl. 161-165 **4 Claims**
 A laminated, tubular, thermoplastic film having excellent packaging and shipping abuse characteristics produced by continuously extruding a layer of an ethylene vinyl acetate copolymer onto a tubular substrate of a predominantly ethylene polymer material and continuously extruding an admixed isotactic polypropylene, polybutene-1 and atactic polypropylene polymer layer as the outer layer thereon and then orienting the resulting laminate.

3,832,271
PLASTIC COMPOSITE WITH WIRE REINFORCEMENTS
 Darral V. Humphries, Allentown, Pa., assignor to Bethlehem Steel Corporation
 Continuation-in-part of application Ser. No. 132,017, Apr. 7, 1971, now Patent No. 3,687,798, which is a continuation-in-part of application Ser. No. 853,071, Aug. 26, 1969, now abandoned, and a division of application Ser. No. 247,390, Apr. 25, 1972, which in turn is a division of application Ser. No. 854,721, Sept. 2, 1969, now abandoned. This application Aug. 28, 1972, Ser. No. 284,196
 Int. Cl. B32b 5/16

U.S. Cl. 161-170 **21 Claims**
 A wire fiber reinforced plastic composite is formed from a styrene type resin such as polystyrene or acrylonitrile-butadiene-styrene (ABS) resin and thin ferrous metal wires or fibers. The ferrous wires or fibers are prevented from corroding at the surface of the plastic by the provision of either sacrificial wires formed from a metal such as zinc, or alternatively, ferrous wires coated with a sacrificial metal such as zinc. The ferrous wires are prevented from corroding in the interior of the composite by a tight adherent bond formed between the sur-

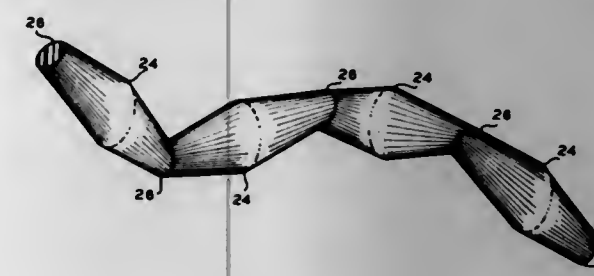
face of the ferrous wires and the styrene or ABS resin by a binder of ABS resin between the ferrous metal and the plastic matrix. The tight bonding of the ferrous wires



to the matrix plastic also enables a very smooth surface finish to be attained upon the finished plastic articles. In some cases the sacrificial metal may not be included in the composite.

3,832,272
FILAMENTS OF VARYING CROSS-SECTIONAL AREA
 Paul D. Hann, Bartlesville, Okla., assignor to Phillips Petroleum Company
 Application June 25, 1970, Ser. No. 49,739, now Patent No. 3,647,330, which in turn is a division of application Ser. No. 560,714, June 27, 1966, now Patent No. 3,538,206. Divided and this application Nov. 15, 1971, Ser. No. 198,761
 Int. Cl. D02g 3/22

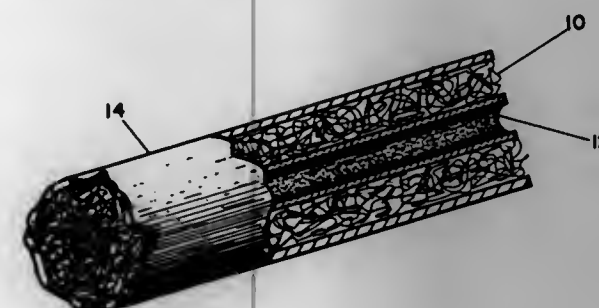
U.S. Cl. 161-173 **2 Claims**



Filaments are produced having a cross section which varies along the length thereof, for example, filaments having a cross section alternating between circular and marquise.

3,832,273
COMPOSITE REFRACTORY ARTICLES
 Michael P. O'Connor, Jr., Livonia, Mich., assignor to The Carborundum Company, Niagara Falls, N.Y.
 Filed May 15, 1972, Ser. No. 253,482
 Int. Cl. B32b 1/08, 15/14

U.S. Cl. 161-182 **1 Claim**



The invention provides a porous, fibrous substrate and composite refractory articles in which the substrate serves as a re-enforcement against thermal and shock stresses. The substrate is made from refractory inorganic fibers, the substrate serving as a base for the deposition of a suitable layer of refractory material which may be applied

by any of several known methods. The substrate and adhering refractory layer may then be dried together to produce a composite refractory article or the dried article may be fired to give a composite article with a densified refractory layer. In either case the substrate remains firmly attached to the refractory layer and functions as a mechanical re-enforcing and thermal insulating substrate for the resulting composite refractory article. The articles may be further strengthened by providing a layer of re-enforcing metal over the outer surface of the composite article. The metal layer may be a casting or a sheet metal casing shaped to enclose and provide support for the article at its point of use.

3,832,274
FAST CURING ADHESIVES
 William J. Owston, Edinboro, Pa., assignor to Lord Corporation, Erie, Pa.
 No Drawing. Filed June 6, 1973, Ser. No. 367,506
 Int. Cl. C08c 11/12, 11/18; C08f 15/04

U.S. Cl. 161-183 **28 Claims**
 Improved, fast curing, flexible industrial adhesives with and without fillers, and articles bonded therewith, are described which adhesives comprise (A) about 1 to about 30% of an elastomeric polymer selected from the group consisting of (1) poly(butadiene) homopolymer, (2) a copolymer of butadiene with at least one copolymerizable monomer selected from the group consisting of styrene, acrylonitrile and methacrylonitrile, and (3) a copolymer of butadiene selected from the group consisting of homopolymer (1) and copolymers (2) modified by inclusion in the polymer of trace amounts up to about 5% of a functional monomer; (B) about 25 to about 85% of at least one polymerizable acrylic monomer selected from the group consisting of the acrylates, methacrylates, acrylonitrile and methacrylonitrile; (C) from 0 to about 50% of at least one ethylenically unsaturated non-acrylic monomer; (D) from 0 to about 60% of a polymer having an intrinsic viscosity in the range from about 0.1 to about 1.3 derived from at least one of said (B) and (C) monomers; (E) from about 5 to about 20% of methacrylic acid and (F) about 0.04 to about 4% of the reducing component of a redox catalyst polymerization system; said adhesives being compounded by selecting ingredients and proportions within the foregoing limits to produce a composition having a handleable cure time of not more than about 15 minutes and which is preferably within the range from about 4 to about 12 minutes.

3,832,275
LAMINATE AND METHOD OF PREPARATION
 Paul R. Matvey, Akron, and John R. Gage, Stow, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
 No Drawing. Filed Nov. 16, 1970, Ser. No. 90,069
 Int. Cl. B32b 27/40

U.S. Cl. 161-190 **4 Claims**
 A composite of a vulcanized diene rubber with a low vapor transmission layer having a polyurethane outer layer suitable for use in making containers where the container is to be subjected to a wide range of temperature variation and it is needed to protect materials such as powder from moisture and other deleterious substances.

3,832,276
DELIGNIFICATION AND BLEACHING OF A CELLULOSE PULP SLURRY WITH OXYGEN
 Sunanda K. Roymoulik, Newburgh, and Kenton J. Brown, Suffern, N.Y., assignors to International Paper Company, New York, N.Y.
 Filed Mar. 7, 1973, Ser. No. 338,862
 Int. Cl. D21c 9/10

U.S. Cl. 162-65 **15 Claims**
 Cellulose pulp is continuously bleached and delignified by oxygen, without requiring the use of a cellulose de-

polymerization protective agent, whereby an alkaline aqueous pulp slurry of a consistency of from about 2 to 10%, having a pH of between about 9 and 14, a reaction temperature of between about 70° and 120° C., with the oxygen dissolved and intimately dispersed and subdivided into the slurry so that no agglomerated bubbles are formed and the oxygenated pulp slurry has substantially no bubbles exceeding about $\frac{1}{16}$ inch in diameter, and thereafter continuously introducing the slurry into the lower region of a vertical elongated tower and flowing the slurry upwardly through the tower without any substantial agitation, so as to gradually decrease the pressure to which the slurry is subjected and continuously withdrawing treated slurry from the upper region of said tower.

3,832,277

HYDROXYLAMINE TREATED HEMICELLULOSE-CONTAINING REGENERATED CELLULOSE PRODUCT

Frederick R. Smith, Wilmington, Del., and Joseph W. Schappel, Morton, Pa., assignors to FMC Corporation, Philadelphia, Pa.

No Drawing. Filed Feb. 24, 1972, Ser. No. 229,193

Int. Cl. D21c 9/00

U.S. Cl. 162—70

6 Claims

A hemicellulose-containing cellulose product treated with hydroxylamine or a hydroxylamine salt to reduce yellowing when the cellulose product is heated to a temperature above 100° C. A specific examples of said cellulose product is a hemicellulose-containing regenerated cellulose product.

3,832,278

PREHYDROLYSIS AND DIGESTION OF BAGASSE FIBERS

Eduardo J. Villavicencio, New York City, N.Y., assignor to Process Evaluation and Development Corporation, New York, N.Y.

No Drawing. Original application June 1, 1971, Ser. No. 149,000, now Patent No. 3,738,908. Divided and this application Feb. 28, 1973, Ser. No. 336,493

The portion of the term of the patent subsequent to June 12, 1990, has been disclaimed

Int. Cl. D21c 3/00, 3/12

U.S. Cl. 162—80

1 Claim

Pulp, suitable for production of newsprint, is prepared from sugarcane bagasse by controlled prehydrolysis under acid conditions followed by digestion under alkaline conditions in the presence of an alkali metal bisulfite and thereafter adding to the pulp, prior to blowdown, sufficient amounts of alkali metal silicate.

3,832,279

INTEGRATED KRAFT PULPING PROCESS, INCLUDING HYDROGEN SULFIDE PRETREATMENT OF WOOD CHIPS AND SULFUR DIOXIDE TREATMENT OF BLACK LIQUOR TO LOWER pH THEREOF PRIOR TO COKING

Howard V. Hess, Glenham, Edward L. Cole, Fishkill, and William F. Franz, Gardiner, N.Y., assignors to Texaco Inc., New York, N.Y.

Filed Aug. 7, 1972, Ser. No. 278,681

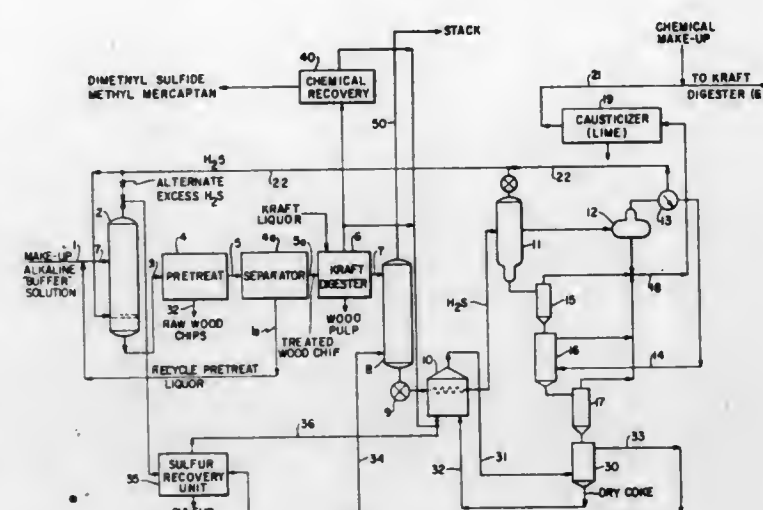
Int. Cl. D21c 3/00

U.S. Cl. 162—82

9 Claims

Disclosed is an improved and integrated Kraft pulping process wherein the wood chips are pretreated in an alkaline "buffer" medium containing H_2S at a partial pressure of about 90 to 110 p.s.i.g. at about 260° F. The hydrogen sulfide is produced by coking in the liquid phase

a spent Kraft pulping liquor that has been made acid with absorbed SO_2 . This SO_2 is generated by burning sulfur-



containing coke resulting from coking the acid spent Kraft liquor.

3,832,280

COATING ASBESTOS FIBER WITH ALUMINUM SULFATE PRIOR TO FORMING A CEMENT-ASBESTOS SLURRY FROM THE TREATED FIBERS TO ENHANCE THE FILTERING CHARACTERISTICS OF THE SLURRIES

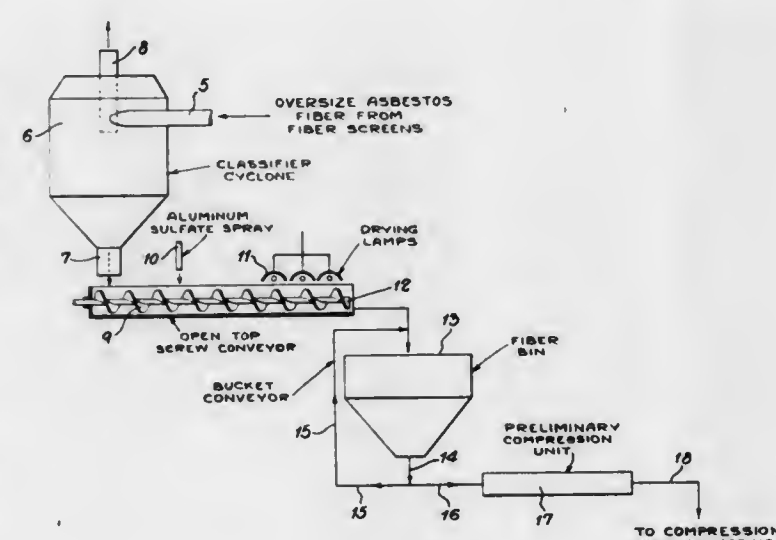
Charles Ernest Stiefken, Westfield, N.J., assignor to American Smelting and Refining Company, New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 226,218, Feb. 14, 1972, which is a division of Ser. No. 869,754, Oct. 27, 1969, now Patent No. 3,644,138. This application Apr. 23, 1973, Ser. No. 353,259

Int. Cl. D21h 5/18

U.S. Cl. 162—154

4 Claims



Asbestos fiber having aluminum sulfate deposited on its surfaces and especially well suited for forming fast-filtering asbestos-cement slurries, the preparation of such fiber, and the production of water-laid asbestos-cement products involving the formation of the fast-filtering asbestos-cement slurries utilizing the asbestos fiber having the aluminum sulfate previously deposited thereon. Such asbestos fiber product is preferably dry but can be only partially dry or wet.

3,832,281

PAPER OR NON-WOVEN FABRIC OF REGENERATED CELLULOSE FIBERS AND METHOD FOR PRODUCING THE SAME

Atsushi Kawai, Takehiro Katsuyama, Migaku Suzuki, and Hidenori Ohta, Otake, Japan, assignors to Mitsubishi Rayon Company Limited, Tokyo, Japan

Filed June 30, 1972, Ser. No. 267,994

The portion of the term of the patent subsequent to Feb. 27, 1980 has been disclaimed

Int. Cl. D21h 1/30

U.S. Cl. 162—157 C

1 Claim

A method is provided for producing a paper or non-woven fabric of regenerated cellulose fibers which product is composed of film state parts and fiber state parts. The method comprises generally the steps of:

- (a) dispersing spun and stretched viscose fibers comprising hydroxymethyl cellulose xanthate (HMCX) in an aqueous medium,
- (b) forming the dispersed fibers into a web by a wet forming method,
- (c) dehydrating the web to the extent that the water content of the web becomes lower than 700%,
- (d) subjecting at least a portion of the surface of dehydrated web to pressure thereby fusing and decomposing the HMCX in the pressed portions and simultaneously bonding the fibers in the portions to each other, and
- (e) subjecting the pressed web to a regeneration treatment to decompose the remaining HMCX into cellulose.

3,832,282

SUBMERGED TWIN WIRE PAPER FORMER

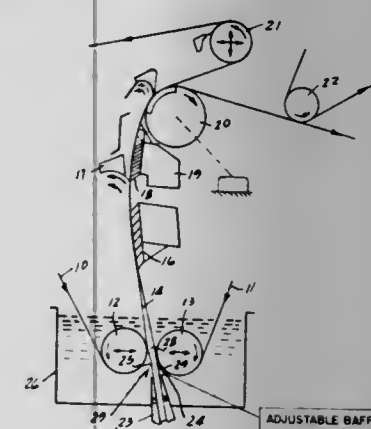
Joseph D. Parker, Roscoe, Ill., assignor to Beloit Corporation, Beloit, Wis.

Filed Oct. 6, 1971, Ser. No. 187,062

Int. Cl. D21f 1/00, 1/06, 1/08

U.S. Cl. 162—203

10 Claims



A twin wire paper web forming machine wherein the wires are guided into a forming throat over breast rolls and then into a forming run with the slice opening delivering a stock jet into the throat and a container containing white water on both sides of the stock jet so as to submerge it and maintain water on the offrunning side of the breast rolls. The basis weight profile can be controlled by adding to or interfering with the stock jet before it enters the throat. This is accomplished by employing an additional stock jet or placing adjustable baffles in a position to block a portion of the jet and reduce its thickness.

925 O.G.—51

3,832,283

METHOD FOR PRODUCING NONWOVEN FABRICS

Thomas S. Bartley, Mobile, Ala., and John Gilbert Descary, Lachine, Quebec, R. James Fletcher, Beaconsfield, Quebec, and R. Gopala Krishnan, Montreal, Quebec, Canada, assignors to International Paper Company, New York, N.Y.

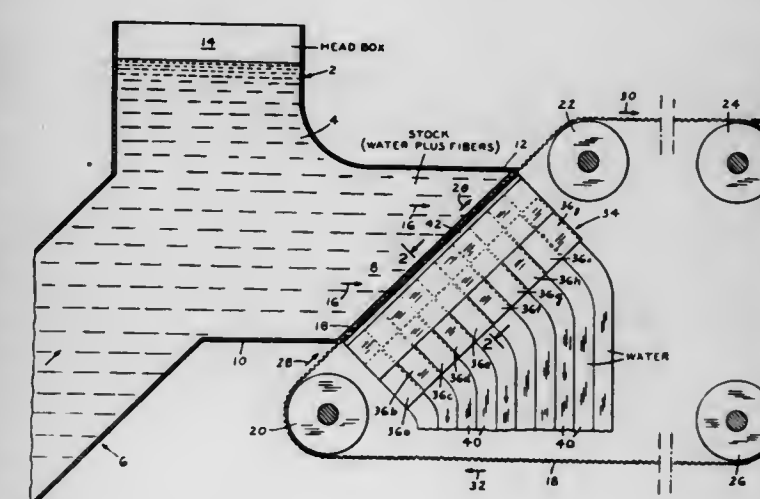
Continuation of application Ser. No. 164,499, July 21, 1971, now Patent No. 3,764,465, dated Oct. 9, 1973. This application Aug. 15, 1973, Ser. No. 388,438

The portion of the term of the patent subsequent to Oct. 9, 1990, has been disclaimed

Int. Cl. D21f 11/02

U.S. Cl. 162—211

1 Claim



A method for making nonwoven fabrics wherein water and fiber stock is delivered to a Fourdrinier wire moving endlessly through a stock tank, the fibers being deposited on the wire in a forming zone and the water passing through said wire into a suction box comprising a plurality of adjacent and individually controlled compartments, each of said compartments having a bottom sloping in a direction transverse to the direction of travel of said wire and each of said compartments having a flow restricting device such as a baffle mounted therein, wherefor a substantially uniform pressure differential through the moving wire across its width is obtained so as to result in an even deposit of fibers thereon.

3,832,284

METHOD FOR MANUFACTURE OF α -GALACTOSIDASE BY MICROORGANISMS

Hideo Suzuki, Harumi Kobayashi, Yoshiko Ozawa, and Akira Kamibayashi, Chiba, Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

No Drawing. Filed Mar. 30, 1972, Ser. No. 239,741

Int. Cl. C12d 13/10; C13j 1/00

U.S. Cl. 195—11

6 Claims

Mycelia having strong α -galactosidase activity and very weak invertase activity are obtained by culturing a mold belonging to the genus Absidia in a culture medium incorporating therein at least one member selected from the group consisting of lactose, melibiose, raffinose and galactose. When beet molasses is treated with the said mycelia, raffinose contained in the molasses is decomposed into sucrose and galactose. Thus, the yield of sucrose can be increased.

3,832,285 METHOD OF PRODUCING MALTOSE OF HIGH PURITY

Masashi Kurimoto, Okayama, Japan, assignor to Hayashibara Biochemical Laboratories Incorporated, Okayama, Japan

No Drawing. Filed May 24, 1972, Ser. No. 256,364
Claims priority, application Japan, May 31, 1971,
46/36,968

Int. Cl. C12b 1/00

U.S. Cl. 195—31 R

5 Claims

Very pure maltose is obtained from starch predominantly consisting of amylopectin by reaction with β -amylase free from significant amounts of α -amylase, maltase, glucamylase, and isoamylase, dialysis of the reaction mixture through a membrane having an effective pore size of 5 A. to 30 A. against pure water before significant amounts of trisaccharides or oligosaccharides of lower molecular weight are formed, and recovering the maltose from the dialyate.

3,832,286 SISOMICIN AND METHODS FOR ITS PRODUCTION

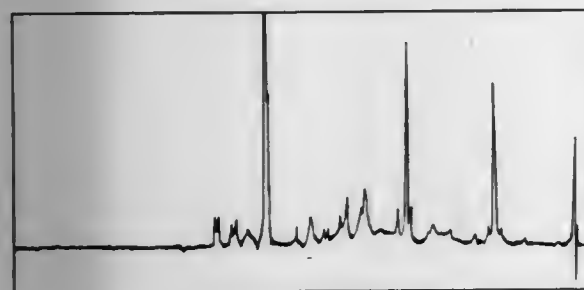
Marvin J. Weinstein, East Brunswick, George M. Luedemann, Glen Ridge, and Gerald H. Wagman, East Brunswick, N.J., assignors to Schering Corporation, Bloomfield, N.J.

Application Feb. 3, 1971, Ser. No. 112,368, which is a continuation-in-part of application Ser. No. 797,304, Dec. 16, 1968, which in turn is a continuation-in-part of application Ser. No. 740,742, June 27, 1968, all now abandoned. Divided and this application June 26, 1973, Ser. No. 373,838

Int. Cl. C12b 1/00

U.S. Cl. 195—80

5 Claims



Antibiotic 66-40, a new broad spectrum antibiotic having an adverse effect upon the growth of Gram-positive and Gram-negative bacteria is described together with its method of production via the fermentation of *Micromonospora inyoensis*, a new species of *Micromonospora*.

3,832,287 DIPEPTIDE ANTIBIOTIC AND METHOD FOR THE PRODUCTION THEREOF

Richard M. Gale, and David H. Lively, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Original application Mar. 2, 1972, Ser. No. 231,386, now Patent No. 3,780,016, dated Dec. 18, 1973. Divided and this application July 5, 1973, Ser. No. 376,473

Int. Cl. C12b 1/00

U.S. Cl. 195—81

1 Claim

Dipeptide antibiotic fumarylcarboxyamido-L-2,3-diaminopropionyl-L-alanine is produced by culturing the organism *Streptomyces collinus* NRRL 5332 under submerged aerobic fermentation conditions and is isolated by chromatography of the filtered fermentation broth over activated carbon, followed by chromatography of the active fractions obtained therefrom over acid-washed alumina. The antibiotic displays significant activity against *Salmonella gallinarum* and *Trichomonas vaginalis*.

3,832,288 ENTERIC BACILLI DIFFERENTIAL MEDIA

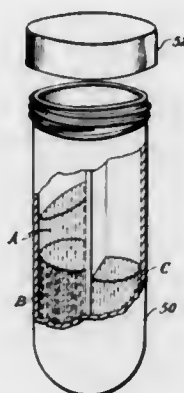
William Rollender, 272 Glen Ave., Sea Cliff, N.Y. 11579, and Orville A. Beckford, 853 E. 216th St., Bronx, N.Y. 10467

Continuation of application Ser. No. 14,805, Mar. 2, 1970, which is a continuation of application Ser. No. 624,810, Mar. 21, 1967, both now abandoned. This application May 24, 1973, Ser. No. 256,328

Int. Cl. C12k 1/10

U.S. Cl. 195—139

15 Claims



A test media is provided for the positive identification of enteric bacilli by means of distinctive chemical and enzymatic reactions.

3,832,289 PREHEATERS

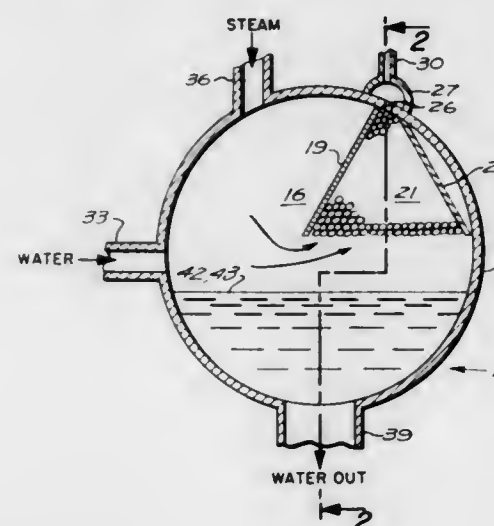
David D. Kays, Claremont, Kurt F. Frank, Pomona, and Paul A. Longwell, San Gabriel, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

Continuation-in-part of abandoned application Ser. No. 10,233, Feb. 10, 1970. This application Dec. 3, 1971, Ser. No. 204,757

Int. Cl. C02b 1/06

U.S. Cl. 202—174

5 Claims



A preheater for use in a multieffect distillation system comprising a housing having a plurality of chambers with a conduit means extending axially through each of the chambers for carrying feed liquor to a multiple effect evaporator. First inlet means is provided for introducing hot vapors into each of the chambers, second inlet means is provided for introducing superheated condensate into each of the chambers, and outlet means is provided for removing condensate from each of the chambers. The superheated condensate flashes to form more hot vapor which combines with the hot vapor introduced by the first inlet means. The combined vapor heats the conduit means which is, typically, a bundle of tubes. Baffle means is associated with the conduit means to maintain a high vapor velocity thereacross.

3,832,290 METHOD OF ELECTROFORMING A ROCKET CHAMBER

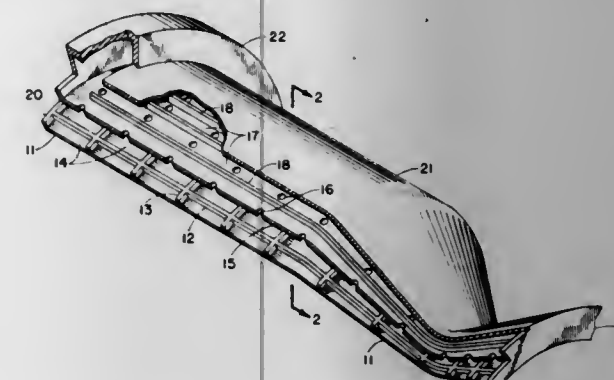
Anthony Fortini, Cleveland, Ohio, assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Sept. 14, 1972, Ser. No. 289,050

Int. Cl. C23b 7/02; F02k 11/02

U.S. Cl. 204—9

7 Claims



A transpiration cooled rocket chamber is made by forming a porous metal wall on a suitably shaped mandrel. The porous wall may be made of sintered powdered metal, metal fibers sintered on the mandrel or wires woven onto the mandrel and then sintered to bond the interfaces of the wires. Intersecting annular and longitudinal ribs are then electroformed on the porous wall. An interchamber wall having orifices therein is then electroformed over the annular and longitudinal ribs. Parallel longitudinal ribs are then formed on the outside surface of the interchamber wall after which an annular jacket is electroformed over the parallel ribs to form distribution passages therewith. A feed manifold communicating with the distribution passages may be fabricated and welded to the rocket chamber or the feed manifold may be electroformed in place.

3,832,291 METHOD OF PREPARING SURFACES FOR ELECTROPLATING

Donald A. Arcilesi, Detroit, Mich., assignor to M & T Chemicals Inc., Greenwich, Conn.

No Drawing. Original application Aug. 20, 1971, Ser. No. 173,645, now Patent No. 3,751,289. Divided and this application Mar. 23, 1973, Ser. No. 344,101

Int. Cl. C23b 5/20

U.S. Cl. 204—40

1 Claim

This invention relates to adherent copper films formed by immersion, or electrolytically on metallic objects from an aqueous solution of (1) a nonoxidizing acid, (2) a copper salt of a nonoxidizing acid, and (3) a polyether exhibiting at least 5 ether oxygen atoms per molecule; to processes for coating said films; and to compositions for the deposition of said adherent copper films.

3,832,292 CATALYTIC CATHODIC HARDENING OF OXIDE FILMS

William Heald Sutton, Stourbridge, Thomas Ernest Evans, Solihull, and Anthony Christopher Hart, Sedgley, England, assignors to The International Nickel Company, Inc., New York, N.Y.

No Drawing. Filed Oct. 30, 1972, Ser. No. 301,810
Claims priority, application Great Britain, Oct. 12, 1972,
47,048/72

Int. Cl. C23b 11/00

U.S. Cl. 204—56 R

12 Claims

Oxidic films on stainless steel and similar alloys formed by treatment of the alloys in aqueous solutions of sulfuric

acid and pitting inhibiting oxidizing agents are hardened by being treated as cathodes in aqueous electrolytes containing hexavalent chromium and a substance capable of promoting the deposition of oxidic chromium deposits at the cathode in preference to chromium metal.

3,832,293 PROCESS FOR FORMING A COATING COMPRISING A SILICATE ON VALVE GROUP METALS

Rudolf J. Hradcovsky, Long Beach, and S. Heagan Bayles, Jr., Sands Point, N.Y., assignors to D & M Technologies, Inc., New York, N.Y.

Filed Mar. 1, 1973, Ser. No. 337,149

Int. Cl. C23b 9/02, 11/02

U.S. Cl. 204—56 R

17 Claims

Metals and alloys which have the property of electrolytic rectification are coated by immersion in an aqueous bath comprising an alkali metal hydroxide, an alkali metal silicate and a catalyst and application of a sufficiently high voltage to obtain spark discharge at the surface to be coated thereby to provide a durable coating on the surface.

3,832,294 ANTI-FERMENTATION AND NEUTRALIZING AQUEOUS SOLUTION FOR THE PURIFICATION OF WATERS, DRINKS AND/OR THE PRESERVATION OF LIQUID OR SOLID FOODS

Marie-Helene Praud nee Durupt, Domaine Sainte-Anne, 85190 Aizenay, France

No Drawing. Filed Jan. 24, 1973, Ser. No. 326,486

Int. Cl. C02b 1/18, 3/06

U.S. Cl. 252—175

2 Claims

The present invention is directed to an anti-fermentation and neutralizing aqueous solution for the purification of waters, drinks and/or the preservation of liquid or solid foods. The components which are added together to form this solution are carefully selected and measured. These components comprise:

sulfur flour—S—in the amount of 5%;
magnesium oxide (roasted magnesia); MgO=15%;
sodium chloride—NaCl=50%;
20% pure ammonia—NH₃=20%;

Dilution in water to provide 1000 cc. The water used is a spring water which is particularly pure and which gushes in a specific location. The solution thus obtained possesses antiseptic, bactericidal properties and is an excellent antidote particularly against arsenious acids. The composition can also be used as a relaxing agent and also as a fertilizing agent when added to the sprinkling water used in gardening.

3,832,295 FUSED SALT ELECTROLYSIS TO OBTAIN MANGANESE METAL

Bruce E. Barton, Houston, Tex., and Paul H. Cardwell, Zanoni, Va., assignors to Deepsea Ventures, Inc.

Filed Nov. 27, 1972, Ser. No. 309,624

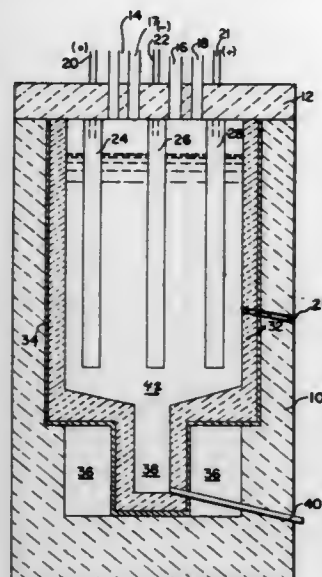
Int. Cl. C22d 3/02, 3/18

U.S. Cl. 204—64 R

12 Claims

This invention provides a method for obtaining molten manganese metal by electrolyzing a molten mixture of metal halides comprising a manganese halide and a bath mixture comprising a halide of a reactant metal, an alkali metal halide and an alkaline earth metal halide. Manganese metal is obtained in a molten phase below the molten mixture of metal halides and elemental halogen is evolved at the anode. The reactant metal is electrolytically re-

duced at the cathode. The anode and cathode are both inert and immersed in the molten mixture of metal halides. The halides are preferably chlorides, bromides or

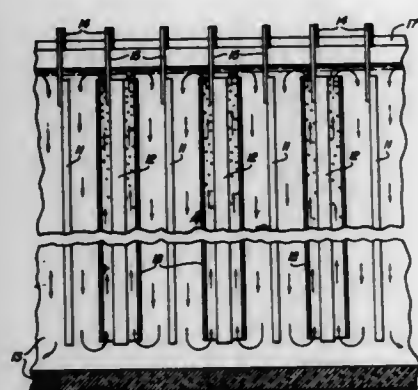


iodides. The reactant metal can be any cathodically reducible metal which can replace manganese from manganese halide in the molten salt bath, but is preferably aluminum or magnesium.

3,832,296
ELECTROWINNING CELL AND METHOD WITH PROVISION FOR ELECTROLYTE CIRCULATION
David L. Adamson, and William M. Tuddenham, Salt Lake City, Utah, assignors to Kennecott Copper Corporation, New York, N.Y.

Filed Aug. 7, 1972, Ser. No. 278,220
Int. Cl. C22d 1/02, 1/16
U.S. Cl. 204—106

8 Claims



An electrolytic cell and method for electrowinning metal values, such as copper, from an electrolyte solution. Each of the anode electrodes of the cell is surrounded by a porous shield, preferably constructed of a material known as plastic frit. Each shield is open at top and bottom, to provide, in effect, a chimney around the anode, extending upwardly from a point above the cell bottom to a point below the surface of electrolyte solution in the cell. The oxygen evolved at the surface of the insoluble anode during operation of the cell rises upwardly in the electrolyte within the shield and induces upward flow of such electrolyte, resulting in circulation thereof from bottom to top of the cell within the shield and from top to bottom of the cell exteriority of the shield. The electrolyte flows upwardly in close proximity to the anode, over the top of the shield, and downwardly across the face of the adjacent cathode, thereby maintaining a high concentration of available metal ions at the cathode-solution interface to improve deposition quality and to achieve higher current density in the cell. The porosity of the shield permits ions in the electrolyte to pass

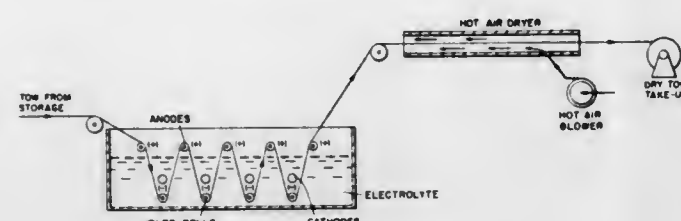
through the shield in either direction, thereby avoiding excessive ohmic resistance between the electrodes.

3,832,297
PROCESS FOR ELECTROLYTIC TREATMENT OF GRAPHITE FIBERS

James T. Paul, Jr., Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed Mar. 9, 1973, Ser. No. 339,694
Int. Cl. B01k 1/00

U.S. Cl. 204—130

13 Claims

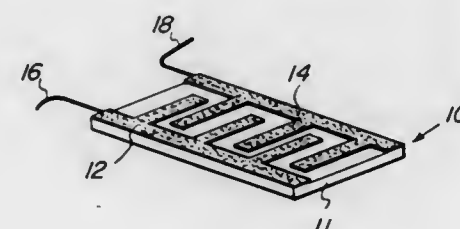


This invention is an improved process for the electrolytic surface treatment of graphite fiber. In the process of this invention organic or inorganic ammonium compounds which are water-soluble and which decompose to gaseous products below about 250° C. are employed. Residual material present in the fiber surface following electrolytic treatment is easily removed by heating of the fiber to volatilize residual material.

3,832,298
METHOD FOR PRODUCING A PHOTOCONDUCTIVE ELEMENT
Armin K. Weiss, and Robert G. Spahn, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed June 5, 1972, Ser. No. 259,705
Int. Cl. C23c 15/00; G03g 5/00
U.S. Cl. 204—192

10 Claims



A photoconductive element can be formed by sputtering doped or undoped orthorhombic and tetragonal lead monoxide layers onto a support from a powdered target within an atmosphere of reduced pressure. The product produced has essentially no fatigue, low dark conductivity, high spatial frequency response and microsecond response when exposed to activating radiation.

3,832,299
GAS DETECTING ELECTRODE ASSEMBLY
Imanuel Bergman, Sheffield, England, assignor to National Research-Development Corporation, London, England
Continuation of abandoned application Ser. No. 839,887, July 8, 1969. This application Mar. 30, 1972, Ser. No. 239,440
Claims priority, application Great Britain, July 18, 1968, 34,237/68

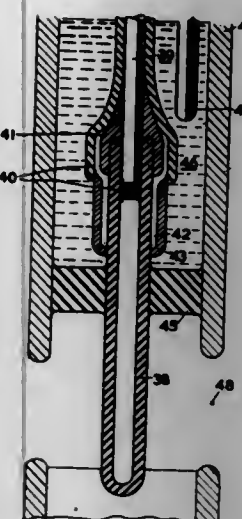
Int. Cl. G01n 27/30, 27/46
U.S. Cl. 204—195 P

9 Claims

An electrical cell with a non-porous gas-permeable membrane having a large surface area for forming an interface with a liquid containing a dissolved gas com-

municating with a membrane electrode, whose effective area is small when compared with the surface area of the

tween the valve metal anode supporting plates and the steel cathode wave supporting plates.



3,832,300
BIPOLAR DIAPHRAGM ELECTROLYZER WITH CATHODE WAVES IN HORIZONTAL PLANE

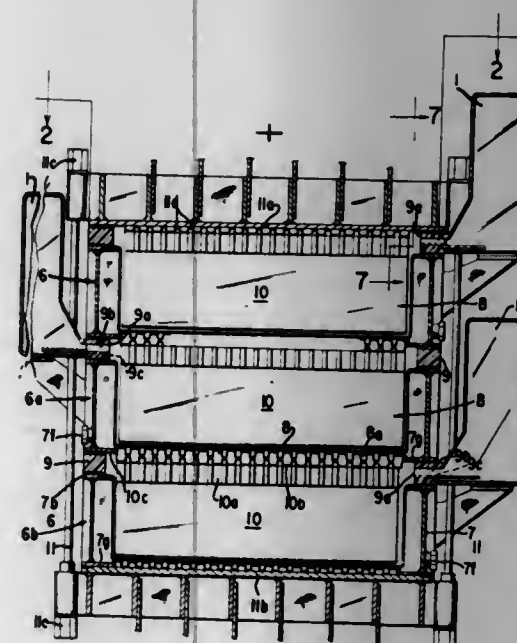
Georg Messner, 7 Latemar Strasse, 8000 Munich, 90, Germany, Oronzio de Nora, Piazza della Repubblica 19, Milan, Italy, and Vittorio de Nora, Sandringham House, Nassau, Bahama Islands

Filed Oct. 3, 1972, Ser. No. 294,034
Claims priority, application Italy, Nov. 9, 1971, 30,858/71

U.S. Cl. 204—256

Int. Cl. B01k 3/10

20 Claims



Describes a bipolar electrolysis cell with diaphragm covered steel cathodes in wave form mounted substantially horizontally in cathode frames and with dimensionally stable valve metal anode blades or waves extending into each of the cathode waves and forming an electrolysis gap therebetween, and bipolar connections be-

3,832,301
POLYMERIC SOLVENT COMPOUNDS FOR CHANGING THE SALT CONCENTRATION OF WATER

Leon Lazare, Stamford, Conn., and Stephen Z. Jakabhazy, Weston, Mass., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Filed Sept. 22, 1972, Ser. No. 291,233

Int. Cl. B01d 11/00

U.S. Cl. 210—21

9 Claims

Novel polymeric solvent compounds and their use for changing the salt concentration of water are herein described.

3,832,302
METHODS FOR INHIBITING SCALE FORMATION

Robert W. Lansford and Tommy R. Gardner, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

No Drawing. Filed Jan. 17, 1972, Ser. No. 218,597

Int. Cl. C02b 5/06

U.S. Cl. 210—58

18 Claims

A composition for inhibiting scale and methods of using said composition consisting of a relatively water-insoluble organic precipitate formed by the reaction of a water-soluble polyelectrolytic organic polymer having an average molecular weight in the range of from about 1,000 to about 100,000 and a water-soluble organic cationic surface active compound.

3,832,303
POLYPHENYL THIOETHER LUBRICATING COMPOSITIONS

Frank S. Clark, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Dec. 30, 1970, Ser. No. 102,969, now Patent No. 3,748,269, dated July 24, 1973. Divided and this application Feb. 5, 1973, Ser. No. 329,954

Int. Cl. C10m 1/48

U.S. Cl. 252—46.6

2 Claims

Lubricating compositions comprising polyphenyl thioethers, polyphenyl ethers-thioethers or mixtures thereof and containing small amounts of a polar organic compound and an organic phosphinic acid or ester have improved lubricating properties. These compositions are useful as lubricants over wide temperature ranges.

3,832,304
HYDROCRACKED LUBES STABILIZED WITH AROMATIC AZO COMPOUNDS

George Suld, Springfield, Pa., assignor to Sun Research and Development Co., Philadelphia, Pa.

No Drawing. Filed Mar. 3, 1972, Ser. No. 231,749

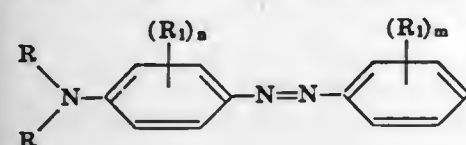
Int. Cl. C10m 1/32

U.S. Cl. 252—51.5 A

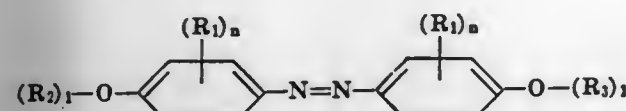
12 Claims

The light stability of hydrocracked lube oils is improved by incorporating therein a minor amount such as from

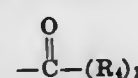
0.05 to 0.20 wt. percent of certain azo or azoxy compounds. The azo compounds have the formula:



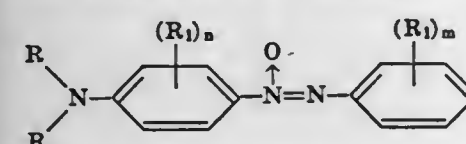
or



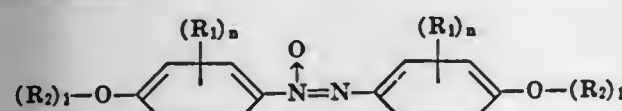
wherein the Rs are alkyl groups containing from 1 to 10 carbon atoms, n is a number from 0 to 4, m is a number from 0 to 5, R_1 is an alkyl group of from 1 to 5 carbon atoms, R_2 is an alkyl group of from 1 to 10 carbon atoms and R_3 is either an alkyl group of from 1 to 10 carbon atoms or a group of the formula



wherein R is an alkyl group of from 1 to 10 carbon atoms. The azoxy compounds have the formula:



where R , R_1 , n and m have the meanings defined above, or the formula:



wherein R_1 , R_2 and n have the meanings defined above.

3,832,305

HALOGENATED ALKYLENE GLYCOL ARYL ETHER STRIPPING COMPOSITION AND METHOD

Donald P. Murphy, Madison Heights, Mich., assignor to Oxy Metal Finishing Corporation, Warren, Mich.

No Drawing. Filed Jan. 17, 1973, Ser. No. 324,280

Int. Cl. C11d 7/06

U.S. Cl. 252—158

8 Claims

Disclosed is a method and composition useful for stripping organic coatings. The stripping composition contains a ring halogenated alkylene glycol aryl ether of improved efficiency compared to the unhalogenated compound.

3,832,306

PROCESS FOR THE PREPARATION OF ACTIVE CARBON FROM HALOHYDROCARBONS

Homer L. Hackett, Lake Charles, La., and Charles M. Starks, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed Sept. 11, 1972, Ser. No. 287,955

Int. Cl. C01b 31/08

U.S. Cl. 252—422

1 Claim

A process for producing active carbon and hydrogen halide by mixing a haloalkane with a Lewis acid catalyst in an inert atmosphere and gradually increasing the temperature to initiate and maintain evolution of hydrogen halide, and recovering hydrogen halide and a carbon mass containing highly crystalline carbon.

3,832,307

HYDROGENATION CATALYST

Walter H. Seitzer, West Chester, Pa., assignor to Sun Research and Development Co., St. Davids, Pa.

No Drawing. Original application Apr. 29, 1971, Ser. No. 138,750, now Patent No. 3,723,298, dated Mar. 27, 1973. Divided and this application Nov. 13, 1972, Ser. No. 306,063

Int. Cl. B01j 11/40

U.S. Cl. 252—455 Z

2 Claims

Hydrogenation of a mineral oil containing aromatic hydrocarbons by use of a hydrogenation catalyst comprised of a Y-zeolite containing arsenic.

3,832,308

ELECTRICALLY CONDUCTIVE COMPOSITION ELEMENT AND METHOD OF MAKING THE SAME

Curtis L. Holmes, Elkhart, Ind., and Lynn J. Brady, Edwardsburg, Mich., assignors to CTS Corporation, Elkhart, Ind.

Filed Aug. 2, 1968, Ser. No. 749,890

Int. Cl. C22b 11/00; H01b 1/02

U.S. Cl. 252—514

4 Claims

An electrically conductive composition mixed with a screening agent, is deposited on a substrate and fired at an elevated temperature to form a termination bonded to the substrate. The composition comprises a homogeneous mixture of approximately 70–95% by weight coprecipitated platinum-gold alloy particles, coprecipitated palladium-gold alloy particles or coprecipitated platinum-palladium-gold particles and approximately 5–30% by weight of glass frit.

3,832,309

DETERGENT FORMULATIONS

Walter E. Foster, and Paul Kobetz, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 111,721, Feb. 1, 1971. This application Aug. 7, 1972, Ser. No. 278,555

Int. Cl. C11d 3/26

U.S. Cl. 252—527

10 Claims

To assist in obviating eutrophication of water, detergent builder systems based on the combination of citrates and nitrilotriacetates are used. Conventional detergent actives may be used with these builder systems.

3,832,310

DETERGENT COMPOSITIONS CONTAINING AMINOPOLYURETHYLENE RESIN AND OPTICAL BRIGHTENERS

Paul Sheldon Grand, South Bound Brook, N.J., assignor to Colgate Palmolive Company, New York, N.Y.

No Drawing. Original application Nov. 16, 1970, Ser. No. 90,154, now Patent No. 3,726,815. Divided and this application Nov. 22, 1972, Ser. No. 308,885

Int. Cl. C11d 1/48, 1/50, 3/26

U.S. Cl. 252—543

8 Claims

Detergent compositions comprising a mixture of 2% to 99% by weight of a water-soluble organic detergent, 0.5% to 5% by weight of an aminopolyurethane resin having a molecular weight in the range of about 300 to 100,000 and 0.05% to 5% by weight of an active material which is an ultraviolet absorber or a fluorescent brightener.

3,832,311

FLAME-RESISTANT POLYURETHANE FOAMS

Erwin Windemuth, Leverkusen, Manfred Dahm, Bergisch-Neukirchen, Karl Hartwig Richert, Leverkusen, and Dieter Maassen, Dormagen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of abandoned application Ser. No. 106,283, Jan. 13, 1971. This application June 6, 1972, Ser. No. 260,342

Int. Cl. C08g 22/44

U.S. Cl. 260—2.5 AT

5 Claims

Flame-resistant polyurethane foams are disclosed which are prepared by reacting a polyether polyol having a molecular weight of from about 750 to about 10,000 in which at least 10% of the hydroxyl groups are primary hydroxyl groups, with a polyisocyanate which is a solution of from about 10 to about 70% by weight of an organic polyisocyanate containing at least one N,N'-disubstituted allophanic acid ester group dissolved in a liquid polyisocyanate which is free from allophanic acid ester groups.

3,832,312

PROCESS FOR MAKING FOAMED STYRENE POLYMERS PHOTODEGRADABLE

Harold A. Wright, Murrysville, Pa., assignor to Arco Polymers, Inc.

No Drawing. Filed Mar. 12, 1973, Ser. No. 340,162

Int. Cl. C08c 17/10

U.S. Cl. 260—2.5 HB

1 Claim

Expandable styrene polymer particles which are photodegradable are produced by suspending styrene polymer particles in an aqueous medium and impregnating a blowing agent into the particles in the presence of 0.05–3.0 parts of benzophenone per 100 parts of polymer particles.

3,832,313

WATER SOLUBLE FILMS FROM HEMICELLULOSE

Marten Reintjes and Laurence Dean Starr, Shelton, Wash., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

No Drawing. Filed Dec. 18, 1972, Ser. No. 316,065

Int. Cl. C08b 19/00, 25/00

U.S. Cl. 260—9

6 Claims

Water soluble films are prepared from hardwood hemicelluloses by reacting the hemicelluloses in an alkaline medium with epichlorohydrin and an alkanolamine or glycerol. The reaction product upon purification, and neutralization, can be dried to form strong, flexible, non-hygroscopic, water soluble films. The hemicelluloses are extracted from hardwood or separated from pulp bleaching and refining effluents by known methods.

3,832,314

SEGMENTED COPOLYESTER ADHESIVE AND COATING COMPOSITIONS

George L. K. Hoh and Akira Tsukamoto, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 151,477, June 9, 1971, which is a continuation-in-part of application Ser. No. 100,291, Dec. 21, 1970, both now abandoned. This application Aug. 10, 1972, Ser. No. 279,370

Claims priority, application Canada, Dec. 9, 1971, 129,800

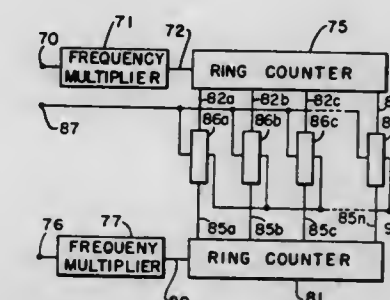
Int. Cl. C08g 11/16, 39/00

U.S. Cl. 260—26

30 Claims

Thermoplastic adhesive and coating compositions which comprise (A) about 1 to 99 percent by weight of thermoplastic segmented copolyester elastomer con-

sisting essentially of a multiplicity of recurring short chain ester units and long chain ester units joined through ester linkages, said short chain ester units amounting to about 15 to 75 percent by weight of said copolyester and being derived from aromatic dicarboxylic acid such as terephthalic acid, or a mixture of terephthalic and isophthalic acids, and an organic diol such as butanediol and said long chain ester units amounting to about 25 to 85 percent by weight of said copolyester and being derived from aromatic dicarboxylic acid such as terephthalic acid, or a mixture of terephthalic and isophthalic acids, and



3,832,315

LIGHT SCATTERING POLYMERIC MASSES

Frederick J. Bueche, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

No Drawing. Filed Feb. 1, 1971, Ser. No. 111,735

Int. Cl. C08f 45/52

U.S. Cl. 260—28.5 R

10 Claims

Mixtures of a paraffin such as docosane in a polymer such as ethyl methacrylate are produced by admixing the paraffin in a monomer of the polymer and then polymerizing the monomer by conventional polymerization techniques. The result is an intimate mixture of microscopic domains of the paraffin in the polymer. The paraffin polymer mixtures have a wide variety of uses, e.g., they can be employed as the image portion (screen) of conventional display devices.

3,832,316

MELAMINE-DICYANDIAMIDE-BASE RESIN SOLUTIONS

Subhash C. Juneja, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada

No Drawing. Filed June 1, 1972, Ser. No. 258,905

Int. Cl. C08g 51/24

U.S. Cl. 260—29.4 R

5 Claims

Resin solutions suitable particularly for fire-retardant and adhesive applications are prepared from melamine, dicyandiamide, formaldehyde and an oxy-acid of phosphorus. The melamine and dicyandiamide are dissolved in a heated alkaline formaldehyde solution, the solution cooled, and the oxy-acid of phosphorus slowly added, resulting in clear solutions of long pot-life. Fire-retardant and adhesive properties are evaluated.

3,832,317

PROCESS FOR REDUCING ACRYLIC ESTER MONOMER RESIDUES IN ACRYLATE LATICES
Bela K. Mikofalvy, 327 Erieview Blvd., Sheffield Lake, Ohio 44054, and Donald P. Knechtges, 1556 S. Durkee Road, Grafton, Ohio 44044
No Drawing. Original application Sept. 14, 1970, Ser. No. 72,106. Divided and this application Apr. 21, 1972, Ser. No. 246,388

Int. Cl. C08f 29/46

U.S. Cl. 260—29.6 RB 4 Claims
By including a small amount of a vinyl halide monomer in an acrylic ester emulsion polymerization which may additionally contain one or more other polymerizable comonomers it is possible to obtain improved acrylate polymer latices wherein acrylic ester monomer residues are significantly reduced or completely eliminated so that the latex and the isolated polymer have essentially no objectionable acrylate odor.

3,832,318

SUSPENSION EMULSION INTERPOLYMERS
Ruth E. Gallagher, Dobbs Ferry, N.Y., Charles L. Harrington, Newark, Del., and Melvin Wachtel, North Massapequa, N.Y., assignors to Stauffer Chemical Company, Westport, Conn.
No Drawing. Continuation of application Ser. No. 182,160, Sept. 20, 1971, which is a continuation-in-part of application Ser. No. 101,159, Dec. 23, 1970, both now abandoned. This application Mar. 22, 1973, Ser. No. 343,993

Int. Cl. C08d 9/10; C08f 37/18, 29/24

U.S. Cl. 260—29.7 UP 14 Claims
Rubber-containing interpolymers are prepared by the suspension polymerization of vinyl chloride in the presence of an aqueous emulsion of particles comprising a crosslinked acrylic rubber having a T_g of less than about 25° C. The resulting interpolymer particles are particularly useful as high impact plastics and as modifiers for the reinforcement of relatively rigid types of plastics.

3,832,319

PROCESS AND COMPOSITION FOR STABILIZING SILICONE RESINS IN SOLUTIONS
Duane F. Merrill, Ballston Spa, N.Y., assignor to General Electric Company
No Drawing. Filed Aug. 10, 1972, Ser. No. 279,525
Int. Cl. C08g 51/36

U.S. Cl. 260—31.2 R 18 Claims
A process for stabilizing a solution of a silicone resin comprising adding to said solution 5 to 20% based on the weight of the resin solids of a stabilizing additive of the formula,



wherein in the above formula, R¹⁰ is selected from monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals and G is selected from divalent hydrocarbon radicals. The most preferred stabilizing additive is butyl Cellosolve.

3,832,320

MODIFIED POLYBENZOTHAZOLE-BASED ADHESIVE
Theodore J. Aponyi and Edward A. Arvay, Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the United States Air Force
No Drawing. Filed Nov. 7, 1972, Ser. No. 304,585
Int. Cl. C08g 20/32, 33/02

U.S. Cl. 260—32.6 NT 3 Claims
An adhesive is provided that consists essentially of (1) a polybenzothiazole modified by reaction with 4-aminophthalimide, (2) aluminum and (3) zinc oxide. The adhesive is particularly useful in bonding structural members, e.g., those fabricated from stainless steel or titanium, that are subjected to high temperatures as in the operation of high performance aircraft.

U.S. Cl. 260—33.8 UA 16 Claims
Disclosed herein is a process for the preparation of a poly(vinyl-acetate-dialkyl maleate-acrylic acid) textile size which comprises (1) inter-polymerizing the monomers at a temperature of from 40 to 60° C. to form a latex using a surfactant system comprising a phosphate ester of an alkyl phenol-ethylene oxide condensate wherein the alkyl group contains 7 to 11 carbon atoms; and (2) dissolving the resulting latex in a solvent to form the size.

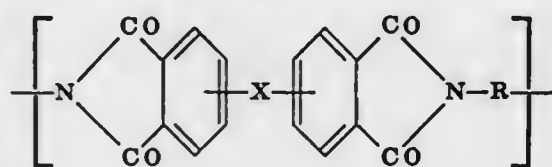
3,832,321
PROCESS FOR THE PREPARATION OF A POLY (VINYL-ACETATE-DIALKYL MALEATE-ACRYLIC ACID) TEXTILE SIZE
Albert E. Corey, East Longmeadow, and Donald D. Donermeyer and Joel Fantl, Springfield, Mass., and Charles R. Williams, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Continuation-in-part of application Ser. No. 98,914, Dec. 16, 1970, now Patent No. 3,716,547, dated Feb. 13, 1973. This application Dec. 29, 1972, Ser. No. 319,246

The portion of the term of the patent subsequent to Feb. 12, 1990, has been disclaimed
Int. Cl. C08f 45/30

U.S. Cl. 260—37 N 13 Claims
A thixotropic B-component for the production of polyurethane elastomers is disclosed whereby the B-component is comprised of an inert filler and a polyether polyol reactant wherein at least 1% by weight of the polyether polyol reactant is a polyether polyol wherein from about 5% to about 55% of the hydroxyl groups have been replaced with amino groups.

3,832,322
AROMATIC FLUORO-POLYIMIDES
John Phillip Critchley, Farnham, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
No Drawing. Filed Oct. 15, 1971, Ser. No. 189,793
Claims priority, application Great Britain, Oct. 21, 1970, 49,945/70; Aug. 19, 1971, 38,942/71
Int. Cl. C08g 51/04, 51/78

U.S. Cl. 260—37 N 18 Claims
Aromatic fluoropolyimide co-polymer compositions suitable for use as high temperature adhesives are provided which include the repeating unit:



wherein X is a divalent linking atom or group, advantageously, a direct link, —O—, —S—, —CO—, —SO₂—, —CH₂—, or —(CF₂)_n— where n is an integer from two to eight inclusive and R represents divalent aromatic groups having the formulae:



wherein Y is a divalent linking atom or group and is advantageously —O—, —S—, —CO—, —SO₂—, —CONH—, —CH₂—, or —(CF₂)_n— where n is as integer from two to eight inclusive and about 10 to 50 moles percent of said divalent aromatic groups have at least one direct nuclear substituent selected from organo-carbonylamino groups, preferably acylamino groups, a carboxylic acid group, and alkoxy-carbonyl groups. Preferably there are present, a first direct nuclear substituent which is an organocarbonylamino group, preferably acylamino and a second direct nuclear substituent which is a carboxylic acid group or an alkoxy-carbonyl group, the said first and second direct nuclear substituents being present in substantially equimolar proportions, and being attached to separate aromatic nuclei.

3,832,323

THIXOTROPIC B-COMPONENT FOR POLYURETHANE ELASTOMERS
Bobbie Joq Ramey and Philip Hotchkiss Moss, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Filed Mar. 12, 1973, Ser. No. 339,993

Int. Cl. C08g 22/20, 51/04

U.S. Cl. 260—37 N 13 Claims
A thixotropic B-component for the production of polyurethane elastomers is disclosed whereby the B-component is comprised of an inert filler and a polyether polyol reactant wherein at least 1% by weight of the polyether polyol reactant is a polyether polyol wherein from about 5% to about 55% of the hydroxyl groups have been replaced with amino groups.

3,832,324

COMPOSITION FOR COATING SOLID SURFACES
Dean B. Parkinson, Redwood City, and Irvin A. Illing, Milpitas, Calif., assignors to McCall Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 810,100, Mar. 24, 1969, now Patent No. 3,554,392. This application July 6, 1972, Ser. No. 269,473

Int. Cl. C08g 45/08

U.S. Cl. 260—38 15 Claims
A rapidly curable composition which contains no volatile solvent or diluent except one which reacts with the system and does not volatilize which includes a polymerizable cycloaliphatic polyepoxide, a phenol-aldehyde resin hardening agent and a polyvalent metal salt of a phenolic material or a polysiloxanol as a catalyst is useful as a glass coating composition and as a printing ink.

3,832,325

WEAR RESISTANT COMPOSITION BRAKE BLOCK
Franklin W. Eschen, Evergreen, Colo., assignor to Johns-Manville Corporation, Greenwood Village, Colo.
No Drawing. Filed Apr. 23, 1973, Ser. No. 353,830
Int. Cl. C08g 51/04

U.S. Cl. 260—38 14 Claims
Compositions useful as railroad brake blocks are composed of SBR or nitrile rubber in combination with low (0.1–2%) zinc oxide, asbestos fiber, cast iron chips, a lead component, thermosetting resin, sulfur, and minor components. Such compositions show unexpectedly low and constant wear rates when compared to composition railroad brake blocks of the prior art.

3,832,326

FLAME RETARDANT COMPOSITIONS
Joyce A. North, Somerset, N.J., and Gerard W. Kuckro, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 153,120, June 14, 1972. This application June 1, 1972, Ser. No. 258,679

Int. Cl. C08f 45/04

U.S. Cl. 260—42.29 5 Claims
Crosslinkable ethylene-vinyl acetate copolymer compositions containing silane-treated hydrated inorganic fillers illustrating improved moisture, heat resistance and flame retardance. An electrical conductor coated with such a copolymer composition is a particularly important application.

3,832,327

ALKALI METAL ALUMINO SILICATES, METHODS FOR THEIR PRODUCTION AND COMPOSITIONS THEREOF
Lowell E. Hackbarth, Bel Air, Md., and Joseph T. Crockett, Auburn, Ala., assignors to J. M. Huber Corporation, Borger, Tex.

No Drawing. Application Feb. 3, 1971, Ser. No. 112,469, now Patent No. 3,746,559, which is a continuation-in-part of application Ser. No. 730,892, May 21, 1968, now Patent No. 3,582,379. Divided and this application July 20, 1972, Ser. No. 273,674

Int. Cl. C08c 11/12

U.S. Cl. 260—42.37 1 Claim
The subject matter of the following specification concerns the production of finely divided materials useful as pigments, moisture conditioners, paper fillers, and in rubber reinforcement and the like. Considering present economics, perhaps the most practical embodiment of the subject matter employs the reaction of a soluble sodium silicate and aluminum sulfate in producing precipitates commonly known and identifiable as sodium aluminosilicates, the precipitate being ultimately collected as a dried particulate material of sub-micron particle size. The disclosed process involves conducting this general type of reaction in the presence of calculated quantity of sodium sulfate from the outset of the reaction whereby economics are improved and highly refined modifications in the characteristic of the final materials become obtainable. The reaction may be varied according to several conditions, such as pH, temperature, concentration, manner of feeding materials and the like whereby to better adapt the new materials to highly specialized needs, such as in rubber compounding and paper production.

3,832,328

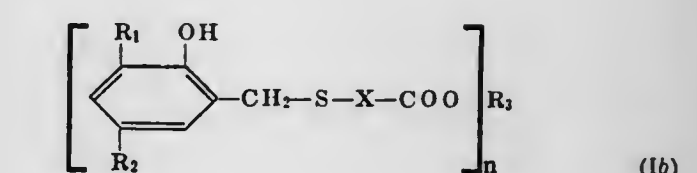
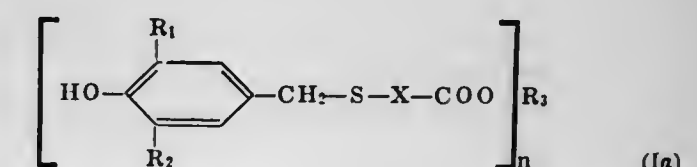
ORGANIC COMPOSITIONS STABILIZED WITH PHENOLIC THIOCARBOXYLIC ACID ESTERS
Heinz Eggensperger, Gaderndorf over Bensheim, Volker Frenzen, Heidelberg, Horst Muller, Furth-Odenwald, and Hans Stephan, Bensheim, Germany, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 883,314, Dec. 8, 1969, which is a division of application Ser. No. 661,213, Aug. 17, 1967, now Patent No. 3,637,802, dated Jan. 25, 1972. This application Aug. 9, 1971, Ser. No. 170,313

Claims priority, application Germany, Aug. 18, 1966, D 50,874

Int. Cl. C08c 27/66; C08f 45/58; C08g 51/58
U.S. Cl. 260—45.85 B 13 Claims

Compounds of the formulae



are used as stabilizers for organic compositions.

In the formulae

n is an integer from 1 to 4

R_1 and R_2 are alkyl

R_3 for $n=1$, is a member of the group consisting of sulfur interrupted alkyl, oxygen interrupted alkyl, alkyl, phenyl, benzyl and phenyl having alkyl substituents; for $n=2$, alkylene; for $n=3$, alktriyl and for $n=4$, alk-tetrayl and

X is alkylene.

3,832,329

POLYESTERS PREPARED FROM HYDROXY-ARYLTHIO ANHYDRIDES

Emil J. Geering, Grand Island, and Norman W. Dachs, Buffalo, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

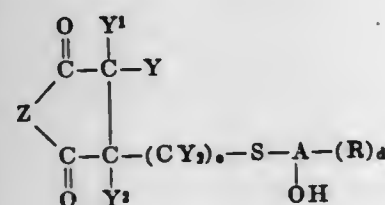
No Drawing. Original application Aug. 5, 1968, Ser. No. 749,952, now abandoned. Divided and this application Feb. 16, 1971, Ser. No. 115,778

Int. Cl. C08g 17/08

U.S. Cl. 260—47 C

7 Claims

Novel compounds of the formula:



wherein e is from zero to one and d is from zero to about six, provided that when e is zero, Y^1 is hydrogen; and that when e is one, Y^2 is hydrogen; Y , Y^1 and Y^2 are of zero to about 20 carbon atoms and are independently selected from the group consisting of alkyl, aryl, alkaryl, aralkyl, hydrogen, cyano, and halogen; Z is selected from the group consisting of $-\text{NH}-$, $-\text{O}-$, $-\text{S}-$ and $-\text{CH}=\text{CH}-$; A is aryl of six to 18 carbon atoms; and R is of zero to about 20 carbon atoms and is selected from the group consisting of alkyl, aryl, alkaryl, aralkyl, carbalkoxy, carbaryloxy, alkoxy, aryloxy, alkylthio, arylthio, hydroxy, mercapto, cyano, carboxy and halogen. Said compounds have utility as polymer additives. Novel polyester derivatives of the hydroxyarylthio succinic anhydride and thioanhydride compounds and a process for preparing said polyesters.

3,832,330

POLYMERIZATION OF TETRACARBOXYLIC ACID DERIVATIVES AND UREA OR URETHANE DERIVATIVES OF DIAMINES

David Rodney Dixon, Dunstable, John Brewster Rose, Letchworth, and Cecil Nigel Turton, Harpenden, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation of abandoned application Ser. No. 751,768, Aug. 12, 1968. This application Oct. 18, 1971, Ser. No. 190,172

Claims priority, application Great Britain, Aug. 18, 1967, 38,220/67

Int. Cl. C08g 20/32

U.S. Cl. 260—47 CP

8 Claims

Mixtures of aromatic tetracarboxylic dianhydrides and urethane or urea derivatives of aromatic diamines and soluble and fusible prepolymers obtained therefrom are useful intermediates for fabricating polyimide articles.

3,832,331

POLYSULPHONES PREPARED FROM 3-(4-CHLORO-PHENYLSULPHONYL)PHENOL AND METHOD OF PREPARATION

Alan Branford Newton, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

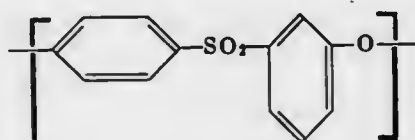
No Drawing. Continuation of abandoned application Ser. No. 803,961, Mar. 3, 1969. This application May 17, 1972, Ser. No. 254,036

Int. Cl. C08g 23/00

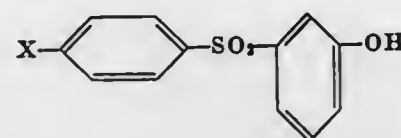
U.S. Cl. 260—49

8 Claims

New polymers and copolymers containing units of formula



may be made by nucleophilic poly-condensation of alkali metal salts of alho-phenols of formula



(where X is halogen) which are also new chemical compounds.

3,832,332

POLYAMIDE POLYMER OF DIAMINO METHYL ADAMANTANE AND DICARBOXYLIC ACID

Robert M. Thompson, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.

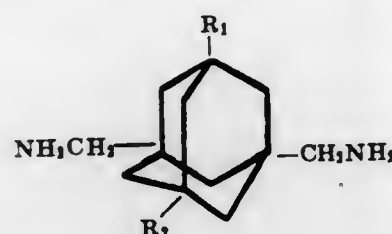
No Drawing. Filed Oct. 22, 1971, Ser. No. 191,833

Int. Cl. C08g 20/20

U.S. Cl. 260—78 R

13 Claims

A novel polyamide polymer is prepared by the condensation of an alkyladamantane diamine of the structure:



wherein each of R_1 and R_2 is an alkyl radical having 1-10 carbon atoms and a dicarboxylic acid having the following structure, $\text{HOOC}-(\text{R})_n-\text{COOH}$ wherein R is one of the following: $-\text{CH}_2-$ with $n=2-12$ or a cyclic radical with $n=1$. The polymer is useful in forming films, transparent molded articles, sheets and fibers and other similar thermoplastic products.

3,832,333

LACTONE REACTION PRODUCTS

Wen-Hsuan Chang, Gibsonia, and Roger L. Scriven, Pittsburgh, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Oct. 16, 1973, Ser. No. 407,017

Int. Cl. C08g 22/00

U.S. Cl. 260—77.5 C

11 Claims

Novel lactone reaction products are obtained by reacting a lactone with urea or a polyureido compound. These

reaction products are useful in elastomeric coating formulations and in high-solids coating formulations.

3,832,334

CYANOACRYLATE ADHESIVE COMPOSITIONS HAVING IMPROVED THERMAL RESISTANCE

Denis J. O'Sullivan and David P. Melody, Dublin, Ireland, assignors to Loctite (Ireland) Limited, Dublin, Ireland

No Drawing. Filed Dec. 29, 1971, Ser. No. 213,839

Int. Cl. C08f 15/02

U.S. Cl. 260—78.5 R

11 Claims

Cyanoacrylate adhesive compositions containing maleic anhydride produce rapid bonds which possess increased thermal resistance.

3,832,335

BARRIER POLYMERS HAVING HIGH HEAT DISTORTION TEMPERATURES

John William Bayer, Toledo, Ohio, assignor to Owens-Illinois, Inc.

No Drawing. Filed May 1, 1972, Ser. No. 249,361

Int. Cl. C08f 15/40

U.S. Cl. 260—80.81

19 Claims

Polymer compositions prepared by the interpolymerization of an intimate mixture of acrylonitrile, vinylidene chloride and acrylate monomers which are useful in the fabrication of packaging materials. The interpolymers of this invention can be readily formed by solvent casting, compression molding, calendering, extrusion, and blow molding techniques into films or containers having outstanding oxygen barrier properties thereby affording excellent protection against oxygen degradation to oxygen sensitive materials packaged therein. Films and containers prepared from many of the preferred interpolymers of this invention also have surprisingly high heat distortion temperatures. This unique combination of properties makes these preferred polymeric materials ideally suited for the fabrication of hot-fill containers used in the packaging of oxygen sensitive foodstuffs, such as ketchup.

3,832,336

CURING AND POLYMERIZING PROCESSES EMPLOYING β -SUBSTITUTED DIPEROXYKETALS

Jurgen Groepper, Gunzburg, Germany, and Jose Sanchez, Grand Island, N.Y., assignors to Pennwalt Corporation, Philadelphia, Pa.

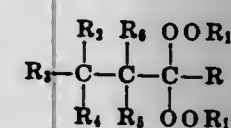
No Drawing. Original application June 3, 1970, Ser. No. 43,208, now Patent No. 3,686,102. Divided and this application Feb. 18, 1972, Ser. No. 227,600

Int. Cl. C08f 3/56, 7/04

U.S. Cl. 260—89.1

4 Claims

Improvements in the polymerization of ethylenically unsaturated monomers, the curing of unsaturated polyester resin compositions, and the curing (preferably curing and foaming) of elastomer compositions are achieved by the use of certain β -substituted diperoxyketals of the formula



such as 2,2-di(t-butylperoxy)-4-methylpentane and 4,4-di(t-butylperoxy)heptane.

3,832,337

PEPTIDE ENZYME INHIBITORS

Miguel A. Ondetti, North Brunswick, and Josip Pluscec, East Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Continuation-in-part of applications Ser. No. 58,686, July 28, 1970 and Ser. No. 61,794, Aug. 6, 1970, which is a continuation-in-part of application Ser. No. 20,860, Mar. 18, 1970, all now abandoned. This application June 1, 1972, Ser. No. 258,714

Int. Cl. A61k 27/00; C07c 103/52

U.S. Cl. 260—112.5

13 Claims

The enzymatic conversion of angiotensin I into angiotensin II is inhibited by a peptide or an acylated peptide having one of the following amino acid sequences:

1. An acylated tripeptide of the formula

Cac-Phe-Ala-Pro

wherein Cac is chloroacetic acid;

2. A tetrapeptide of the formula

pGlu-Trp-Ala-Pro or pGlu-Lys-Trp-Ala;

3. An acylated tetrapeptide of the formula

Dac-Fly-Phe-Ala-Pro or A-Lys-Phe-Ala-Pro

wherein Dac is diazoacetic acid, and A is chloroacetic acid, cyclobutylcarboxylic acid, cyclopentylcarboxylic acid or cyclohexylcarboxylic acid;

4. A pentapeptide of the formula

pGlu-B-Phe-Ala-Pro

wherein B is Lys, Nle, Glu or Gln;

pGlu-C-Trp-Ala-Pro

wherein C is Nle, His, Orn or Arg;

N^pGlu-Lys-Trp-Ala-Pro; pGlu-Lys-E-Ala-Pro

wherein E is His, Ile, Pro, Ser or 3-amino-4-phenyl-butyric acid;

pGlu-Lys-Phe-F-Pro

wherein F is Gly, Pro or Lac;

pGlu-Lys-Phe-Ala-G

wherein G is Ala, Asp or Glu;

pGlu-Lys-Trp-H

wherein H is Ile-Pro, Thr-Pro, Ala-Gly or Ala-Sar;

pGlu-Trp-Pro-J-Pro

wherein J is His, Lys or Gly;

5. An acylated pentapeptide of the formula

Dac-Gly-Gly-Phe-Ala-Pro

wherein Dac is diazoacetic acid;

6. A hexapeptide of the formula

pGlu-Lys-Phe-Ala-Pro-Pro; pGlu-K-Trp-Pro-Arg-Pro

wherein K is Asn, Nle or Ser;

pGlu-Nle-Trp-Pro-L-Pro

wherein L is His or Gly;

pGlu-Asn-Trp-Pro-M-Pro

wherein M is Lys or Gly;

7. An octapeptide of the formula

pGlu-Ile-Pro-Pro-Lys-Phe-Ala-Pro;

8. An acylated octapeptide of the formula

N-O-Pro-Arg-Pro-Gln-Ile-Pro-Pro

wherein N is cyclobutylcarboxylic acid, cyclopentylcarboxylic acid or cyclohexylcarboxylic acid and O is Trp, Tyr,



Phe, Gly, Leu, or D-Trp;

N-Trp-Pro-Gly-Pro-Lys-βHphe-Ala-Pro

wherein N is as defined above and βHphe is 3-amino-4-phenylbutyric acid;

9. A nonapeptide of the formula

pGlu-Trp-Pro-P-Pro-Q-Ile-Pro-Pro

wherein P is Arg, His, Lys or Gly and Q is Gln or Asn;

pGlu-Trp-Pro-R-Pro-S-T-Ala-Pro

wherein R is Arg or Orn, S is Nle or Gln and T is Ile or Phe;

pGlu-Trp-Pro-Orn-Pro-S-T-Pro-Pro

wherein S and T are as defined above;

pGlu-O-Pro-Arg-Pro-Gln-Ile-Pro-Pro

wherein O is as defined above;

pGlu-Trp-Pro-Arg-Pro-Nle-T-Pro-Pro

wherein T is as defined above;

pGlu-Trp-Pro-Arg-Pro-Glu-Phe-Pro-Pro;

pGlu-Trp-Pro-Arg-Pro-Lys-Phe-Ala-Pro;

pGlu-Trp-Pro-D-Arg-Pro-Gln-Ile-Pro-Pro;

pGlu-Trp-Pro-Arg-Pro-Gln-Phe-Pro-Pro;

pGlu-Trp-Pro-Gly-Pro-Glu-Ile-Pro-Pro;

pGlu-Lys-Phe-Ala-Pro-Gln-Ile-Pro-Pro;

10. A decapeptide of the formula

pGlu-K-Trp-Pro-P-Pro-Q-Ile-Pro-Pro

wherein K, P and Q are as defined above;

pGlu-U-Trp-Pro-Arg-Pro-Gln-Ile-Pro-Pro

wherein U is Lys or Glu;

11. An undecapeptide of the formula

pGlu-Trp-Pro-Arg-Pro-V-Pro-W-Ile-Pro-Pro

wherein V is Thr or Gly and W is Gln or Glu;

12. A tridecapeptide of the formula

pGlu-Gly-Gly-Trp-Pro-Arg-Pro-Gly-Pro-W-Ile-Pro-Pro

wherein W is as defined above.

3,832,338

ORGOTEIN PRODUCTION USING A BUFFER SOLUTION CONTAINING DIVALENT METAL SALTS

Wolfgang Huber, San Francisco, and Thomas L. Schulte, Woodside, Calif., assignors to Diagnostic Data, Inc., Mountain View, Calif.

No Drawing. Continuation-in-part of application Ser. No. 237,507, Mar. 23, 1972, now Patent No. 3,758,682, which is a continuation-in-part of application Ser. No. 15,883, Mar. 2, 1970, which is a continuation-in-part of application Ser. No. 3,538, Jan. 16, 1970, which is a continuation-in-part of application Ser. No. 576,454, Aug. 31, 1966, which in turn is a continuation-in-part of application Ser. No. 494,048, Oct. 8, 1965, all now abandoned. This application Feb. 7, 1973, Ser. No. 330,401

The portion of the term of the patent subsequent to May 18, 1988, has been disclaimed

Int. Cl. A61k 17/00; C07g 7/04

U.S. Cl. 260—113

10 Claims

The isolation of orgotein from an aqueous solution of a mixture of proteins comprising it is facilitated by con-

ducting the isolation in an aqueous solution containing a divalent metal having an ionic strength of 0.60 to 1.00 A., preferably copper, zinc or both.

3,832,339

POLYAZO PIGMENTS OF THE 2 - HYDROXY-NAPHTHALENE-3-CARBOXYLIC ACIDARYLIDE SERIES

Emil Stocker, deceased, by Heidi Berta Stocker-Boller, representative, Riehen, Ernfried Schnabel, Reinach, and Georg Anton Klein, Bottmingen, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

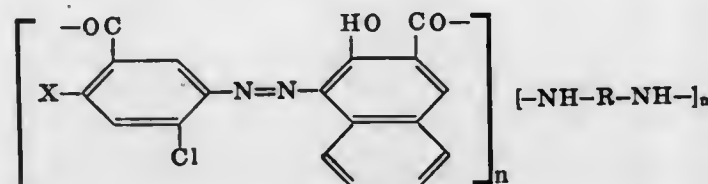
No Drawing. Filed June 22, 1971, Ser. No. 155,612

Int. Cl. C09b 43/12; D06p 1/52, 3/54

U.S. Cl. 260—144

2 Claims

Polyazo pigments of the formula



wherein R is an arylene group, the bonds to which are not in the ortho-position, X is hydrogen or chlorine atom and n is a whole number greater than 3, are useful for coloring plastics and lacquers, especially soft polyvinyl chloride in red shades with good light and sublimation fastness properties.

3,832,340

SALTS OF NITROGEN BASES AND POLYSACCHARIDE SULFATES

Pierre Charles Wirth, Paris, France, assignor to Societe Generale de Recherche et d'Applications Scientifiques Sogeras, Paris, France

No Drawing. Filed Apr. 9, 1971, Ser. No. 132,831

Int. Cl. C07c 69/32, 129/18

U.S. Cl. 260—210 E

6 Claims

Salts formed between pharmaceutically active nitrogenous organic bases such as noscapine or papaverine and various polysaccharide sulphates such as arabogalactan sulphates or agarose sulphate. These salts have a longer duration of therapeutic activity than the bases themselves.

3,832,341

PURINE NUCLEOSIDE NITRATES

Robert Duschinsky, Pully, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed May 4, 1972, Ser. No. 250,218

Claims priority, application Switzerland, Sept. 10, 1971, 13,298/71

Int. Cl. C07d 51/54

U.S. Cl. 260—211.5 R

14 Claims

Purine nucleoside nitrate derivatives and a process for the manufacture thereof are described. The purine nucleoside nitrates are cardiac agents.

3,832,342

INHIBITED STARCH PRODUCTS CONTAINING LABILE AND NON-LABILE CROSS-LINKS

Morton W. Rutenberg, North Plainfield, Martin M. Tessler, Edison, and Leo Kruger, Kendall Park, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Filed Sept. 11, 1972, Ser. No. 287,887

Int. Cl. C08b 19/04

U.S. Cl. 260—233.5

9 Claims

Granular starch is inhibited with two different cross-linking agents, one producing a labile cross-linkage and the other a non-labile cross-linkage. The thus produced starch derivatives display utility in food products.

3,832,343

PROCESS FOR OBTAINING AN EXTRACT OF ARNICA MONTANA

Bernard Majole, Dijon, France, assignor to Societe de Recherches Industrielles S.O.R.I., Paris, France

No Drawing. Filed Sept. 21, 1972, Ser. No. 290,826

Claims priority, application France, Sept. 22, 1971, 7134172

Int. Cl. C07g 17/00

U.S. Cl. 260—236.5

11 Claims

The invention provides a process for extracting *Arnica montana*, in which the plant is extracted with at least one solvent chosen from petroleum ether, diethyl ether, acetone, chloroform, ethanol, water and their mixtures, the resulting filtrate or filtrates are treated with methanol, and polar substances are removed by filtration after treatment of the solution obtained with ethyl acetate. The extract so obtained has activity in preventing the coagulation of blood.

3,832,344

PROCESS FOR PRODUCING 1-SUBSTITUTED BENZODIAZEPINE DERIVATIVES

Tadashi Okamoto, Ashiya, Takeshi Akase, Nishinomiya, Takahiro Izumi, Takarazuka, Mitsuhiro Akatsu, Ikeda, Yoshiharu Kume and Shigehito Inaba, Takarazuka, and Hisao Yamamoto, Nishinomiya, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

No Drawing. Filed Oct. 15, 1971, Ser. No. 189,754

Claims priority, application Japan, Oct. 17, 1970, 45/91,354; Nov. 7, 1970, 45/98,046, 45/98,048;

Dec. 25, 1970, 45/129,009

Int. Cl. C07d 53/06

U.S. Cl. 260—239 BD

4 Claims

1-Alkyl-substituted-1,4-benzodiazepine or 1,4-benzodiazepin-2-one derivative is prepared by alkylating corresponding 1-unsubstituted-derivative with corresponding alkyl halide or dialkyl sulfate in the presence of a hydrocarbonlithium compound. According to the process, there are prepared such valuable compounds as central nervous-controlling agents as 1-cyclopropylmethyl-5-phenyl-7-chloro - 2,3-dihydro-1H-1,4-benzodiazepine, 1-methyl-5-phenyl - 7 - chloro-2,3-dihydro-1H-1,4-benzodiazepine, 1-methyl-5-phenyl-7-chloro-1,3-dihydro - 2H - 1,4-benzodiazepin-2 - one and 1 - cyclopropylmethyl - 5 - (o-fluorophenyl)-7-chloro-1,3-dihydro - 2H - 1,4-benzodiazepin-2-one.

3,832,345

17-DESOXY STEROIDAL PYRAZOLES AND PROCESSES OF PREPARING THEM

Ralph F. Hirschmann, Scotch Plains, N.J., and John Fried, Palo Alto, Calif., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 505,986, Nov. 1, 1965, which is a continuation-in-part of application Ser. No. 476,160, July 30, 1965, both now abandoned. This application June 5, 1970, Ser. No. 43,961

Int. Cl. C07c 173/10

U.S. Cl. 260—239.5

2 Claims

The invention disclosed herein is concerned generally with novel [3,2-c] pyrazole compounds of the pregnane series, and with the process of preparing the same. More particularly, it relates to 4-pregneno-, 5α-pregnano-, and 4,6-pregnadieno- [3,2-c] pyrazoles which are unsubstituted at the 17α-position, and to processes of making these 17-desoxy-steroidal pyrazoles of the pregnane series by reacting the corresponding 17α-hydroxy 21-alkanoyloxy-steroidal pyrazole with a lower alkanolic solution of a mineral acid to form the corresponding 17-desoxy-21,21-dialkoxy analog, and reacting the latter with a reducing agent followed by a hydrolyzing agent to produce the corresponding 17-desoxy-20-hydroxy-21-aldehyde derivative, and reacting the latter compound with an alkali

metal bisulfite followed by an alkali metal alkoxide to produce the corresponding 17-desoxy-20-keto-21-hydroxy-steroidal pyrazole.

3,832,346

2'-(4-PYRIDYL) - 6,16α - DIMETHYL - 20-OXO-11β,17α,21 - TRIHYDROXY-PREGNA - 4,6-DIENO (3,2-c) PYRAZOLE AND INTERMEDIATES IN THE PRODUCTION THEREOF

John Hannah, Matawan, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 167,802, July 30, 1971. This application Sept. 11, 1973, Ser. No. 396,287

Int. Cl. C07c 173/00

U.S. Cl. 260—239.5

4 Claims

The invention disclosed herein relates to the novel compound 2' - (4-pyridyl)-6,16α-dimethyl-20-oxo-11β,17α,21 - trihydroxy-pregna-4,6-dieno[3,2-c]pyrazole and its pharmacologically acceptable salts, characterized as having high anti-inflammatory activity on topical administration with relatively low systemic action, and to pharmaceutical compositions thereof adapted for topical use. This new topical anti-inflammatory steroid is prepared by reacting 4-hydrazino-pyridine with 2-hydroxy-methylene - 6,16α - dimethyl - 11β - hydroxy-17,20:20,21-bis(methylenedioxy)-pregna-4,6-diene-3-one, thereby forming 2'-(4-pyridyl)-6,16α-dimethyl-11β-hydroxy-17,20:20,21-bis(methylenedioxy)-pregna - 4,6 - dieno[3,2-c]pyrazole, and reacting the latter compound with an acidic hydrolyzing agent.

3,832,347

IMINO-HALIDES OF 3-AMIDO - 2 - HALO-1-(1'-PROTECTED CARBOXY - 2'-METHYL-1'-PROPENYL)-4-AZETIDINONES

Stjepan Kukolja, Indianapolis, and Steven R. Lammert, Greenwood, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Sept. 21, 1971, Ser. No. 182,556

Int. Cl. C07d 25/02, 99/10

U.S. Cl. 260—239 A

4 Claims

Imino-halides of 3-amido-2-halo-1-(1'-protected carboxy-2'-methyl-1'-propenyl)-4-azetidinones, and a process for preparing bicyclic thiazoline azetidinones by reacting the above imino-halides with hydrogen sulfide or a thioalkanoate ion in the presence of a base in an aprotic solvent. The thiazoline azetidinone compounds are useful in processes for making amido-thiazole compounds which are useful as antibacterial and antifungal agents.

3,832,348

N-(THIO)-GLUTARIMIDES AND N-(THIO)-ADIPIMIDES

Aubert Yaucher Coran and Joseph Edward Kerwood, Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Division of application Ser. No. 29,717, Mar. 27, 1970, a division of application Ser. No. 714,445, Mar. 20, 1968, now Patent No. 3,546,185, dated Dec. 8, 1970, which is a continuation-in-part of application Ser. No. 579,493, Sept. 15, 1966, a continuation-in-part of application Ser. No. 549,730, May 12, 1966, and a continuation-in-part of application Ser. No. 459,466, May 27, 1965, all now abandoned. Divided and this application Nov. 13, 1972, Ser. No. 306,021

Int. Cl. C07d 29/20, 41/02

U.S. Cl. 260—239.3 R

10 Claims

Sulfenamides characterized by carbonyl adjacent to the sulfenamide nitrogen of the formula R—S—A in which A is glutarimidyl, dialkylglutarimidyl, and adipimidyl and R is alkyl, aryl or cycloalkyl are inhibitors of premature vulcanization of vulcanizable elastomers.

3,832,349

SUBSTITUTED NAPHTHO[2,1-b]PYRYLIUM
PERCHLORATESShoji Maruyama, Tomio Kubota, Katue Kojima, and
Masahide Harada, Tokyo, Japan, assignors to Ricoh
Co., Ltd., Tokyo, Japan

Filed Dec. 23, 1971, Ser. No. 211,418

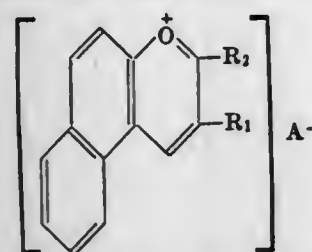
Claims priority, application Japan, Dec. 29, 1970,
45/130,212, 45/130,218

Int. Cl. C07d 7/24

U.S. Cl. 260—240 D

4 Claims

Naphthopyrylium salts represented by the formula (I):



wherein R₁ is selected from the group consisting of, p-alkylstyryl in which the alkyl has 1 - 3 carbon atoms, p-alkoxystyryl in which the alkyl has 1 - 2 carbon atoms, 3,4-dialkoxystyryl in which the alkyl has 1 - 2 carbon atoms, 3,4,5-trialkoxystyryl in which the alkyl has 1-2 carbon atoms, p-dialkylaminostyryl in which the alkyl has 1-4 carbon atoms, p-nitrostyryl, p-halogenostyryl, p-carboxystyryl; R₂ is selected from the group consisting of, p-alkoxyphenyl in which the alkyl has 1 - 2 carbon atoms, styryl, p-alkylstyryl in which the alkyl has 1 - 3 carbon atoms, p-alkoxystyryl in which the alkyl has 1 - 2 carbon atoms, 3,4-dialkoxystyryl in which the alkyl has 1 - 2 carbon atoms, 3,4,5-trialkoxystyryl in which the alkyl has 1-2 carbon atoms, p - aminostyryl, p - dialkylaminostyryl in which the alkyl has 1 - 4 carbon atoms, p-nitrostyryl, p - halogenostyryl, 2 - (α-pyrrolyl)ethenyl, 2-(α-thienyl)ethenyl, 2-(β-indolyl)ethenyl, 2-(α-furyl)ethenyl and 2-(4'-alkoxynaphthyl)ethenyl in which the alkyl has 1-2 carbon atoms and 2-(1-naphthyl)ethenyl, and A⁻ is an anion functional group, and their use as a sensitizer for organic photoconductors.

3,832,350

METHOD FOR THE MANUFACTURE OF A DE-
COLORIZED DERIVATIVE OF BENZOPYRYLIUM
SALTShoji Maruyama, Tomio Kubota, Katue Kojima, and
Hiroshi Tamura, Tokyo, Japan, assignors to Ricoh
Co., Ltd., Tokyo, Japan

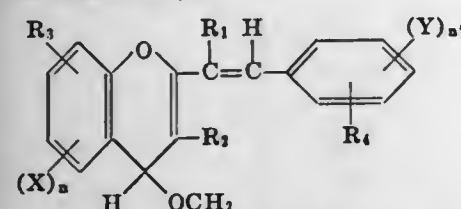
Filed Dec. 23, 1971, Ser. No. 211,419

Claims priority, application Japan, Dec. 26, 1970,
45/129,623

Int. Cl. C07d 7/32

U.S. Cl. 260—240 D

3 Claims

A method for the preparation of a decolorized deriva-
tive having the formula (I)

where X is halogen, nitro or nitrile group; Y is halogen, nitro, nitrile or carboxyl group; R₁ is hydrogen or alkyl group having 1-4 carbon atoms; R₂ is hydrogen or phenyl group; R₃ and R₄ are hydrogen, alkyl group having 1-2 carbon atoms, or methoxyl group; n and n' are 0, 1 or 2, but at least one of n and n' is not zero, wherein a benzopyrylium salt is heated in a mixed solvent of methanol-benzene containing alkali, and the solution

is then concentrated and poured into a mixture of crushed
ice water.

3,832,351

AROMATIC IMIDOCARBONATES

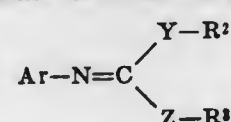
Shizuya Tanaka, Minoo, Toshiaki Ozaki and Akihiko
Mine, Toyonaka, Katsutoshi Tanaka, Takarazuka,
Sigeo Yamamoto, Toyonaka, Tadashi Ooishi, Takara-
zuka, Naganori Hino, Toyonaka, and Takeo Satomi,
Takarazuka, Japan, assignors to Sumitomo Chemical
Company, Limited, Osaka, JapanNo Drawing. Continuation-in-part of abandoned applica-
tion Ser. No. 133,744, Apr. 13, 1971. This application
Mar. 27, 1972, Ser. No. 238,537Claims priority, application Japan, Apr. 21, 1970,
45/34,457; Nov. 22, 1971, 46/93,874

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 E

7 Claims

Novel imidocarbonate derivatives having the formula:



wherein Y and Z, which may be the same or different, are individually an oxygen or sulfur atom; Ar is an unsubstituted or a halogen- or lower C₁-C₄ alkyl (straight or branched)-substituted benzene or pyridine nucleus, the number of the substituents being 1 to 3; R₁ is a C₁-C₁₈ alkyl (straight or branched), C₁-C₁₈ alkyl (straight or branched) having 1 to 3 hydroxy radicals or 1 to 3 alkoxy-carbonyl (the alkoxy has 1 to 4 carbon atoms) radicals in the carbon chain, a C₃-C₁₀ cycloalkyl, a C₂-C₅ alkenyl alkyl (straight or branched), C₁-C₁₈ alkyl (straight or branched), a phenylalkyl, the benzene nucleus of which may be unsubstituted or substituted by 1 to 4 halogen atoms, 1 to 4 lower C₁-C₄ alkyl (straight or branched) radicals or a nitro radical, or a halogen- or lower C₁-C₄ alkyl (straight or branched)-substituted phenoxyalkyl; R₂ is a C₁-C₁₈ alkyl (straight or branched) having 1 to 3 hydroxy radicals or 1 to 3 alkoxy-carbonyl (the alkoxy has 1 to 4 carbon atoms) radicals in the carbon chain, a C₂-C₅ alkenyl (straight or branched), a C₃-C₈ alkynyl (straight or branched) or a phenylalkyl, the benzene nucleus of which may be unsubstituted or substituted by 1 to 4 halogen atoms, 1 to 4 lower C₁-C₄ alkyl (straight or branched) radicals, a nitro radical or a C₂-C₄ alkylene radical, provided that in case Ar is an unsubstituted or substituted benzene nucleus and R₂ and R₃ are phenylalkyl groups, the benzene nucleus of at least one of said phenylalkyl groups has a substituent, have strong microbicidal activities on a wide scope of microorganisms.

3,832,352

2-(THIOXO-3-IMIDAZOLYL(2)-
TETRAHYDROIMIDAZOLESAtso Ilvespää, Neuallschwil, Switzerland, assignor to
Ciba-Geigy Corporation, Ardsley, N.Y.

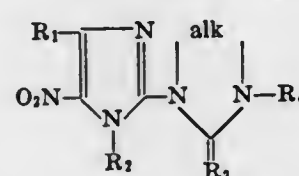
No Drawing. Filed May 2, 1972, Ser. No. 249,598

Claims priority, application Switzerland, May 3, 1971,
6,467/71; Nov. 3, 1971, 15,983/71; Feb. 8, 1972,
1,808/72

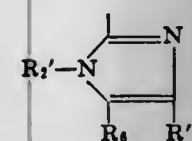
Int. Cl. C07d 49/36

U.S. Cl. 260—309.7

10 Claims

The present invention relates to nitro-imidazoles of the
formula I

(I)

wherein R₁ is hydrogen or lower alkyl, R₂ is lower alkyl
or hydroxy-lower alkyl, R₃ is oxo or thioxo, R₄ is hydro-
gen, lower alkyl, lower alkanoyl or the group

wherein R₁' and R₂' are the same as R₁ and R₂ and R₃ is
nitro, and alk is 1,2-ethylene, 1,2-propylene, 2,3-butylene
or 2-methyl-1,2-propylene group, or a physiologically
tolerable salt thereof, which are suitable for treating
Gram-negative bacteria, protozoa and worms.

3,832,353

2H-THIAPYRANS

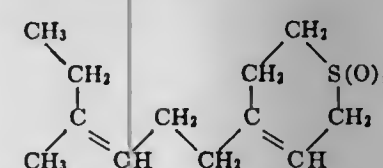
Daniel Hainaut, Villemomble, Edmond Toromanoff,
Paris, and Jean-Pierre Demoute, Montreuil-sous-Bois,
France, assignors to Roussel-UCLAF, Paris, France
No Drawing. Filed July 25, 1972, Ser. No. 275,107
Claims priority, application France, July 27, 1971,
7127448

Int. Cl. C07d 65/08

U.S. Cl. 260—327 TH

2 Claims

Novel 2H-thiapyrans of the formula:



wherein n is 0 or 1 and especially the Z isomers which
have remarkable insecticidal properties and are intermedi-
ates in the synthesis of juvenile hormone and their prepa-
ration.

3,832,354

4-HYDROXY-5-PHENYL-3-THIOPHENE ACETIC
ACIDS AND THEIR DERIVATIVESFulvio Gadiant and Andre Stoll, Birsfelden, and Rudolf
Suess, Bettingen, Switzerland, assignors to Sandoz Ltd.,
Basel, SwitzerlandNo Drawing. Continuation-in-part of abandoned applica-
tion Ser. No. 277,126, Aug. 1, 1972. This application
Feb. 22, 1973, Ser. No. 334,671

Int. Cl. A61k 27/00; C07d 63/16

U.S. Cl. 260—332.2 A

29 Claims

The invention concerns substituted or non-substituted
4-hydroxy-5-phenyl-3-thiophene acetic acids which are
useful as antiphlogistics and anti-arthritis agents.

3,832,355

CATALYTIC OXIDATION PROCESS

Gerald Myer Jaffe and Edward John Plevin, Verona,
N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Continuation-in-part of abandoned applica-
tion Ser. No. 37,020, May 13, 1970. This application
Mar. 28, 1972, Ser. No. 238,940

Int. Cl. C07d 15/04

U.S. Cl. 260—340.7

13 Claims

In the catalytic oxidation of a ketal of a sugar alcohol
to a ketal of an aldonic acid in an aqueous alkaline
medium with oxygen or an oxygen containing gas, utiliz-
ing a noble metal catalyst, the catalyst life is extended
and the yields are increased by controlling the amount
of oxygen passed through the reaction medium during
the entire reaction to eliminate the presence of excess
oxygen in the reaction medium and to maintain the per-
cent of oxygen consumed from the inlet gas at a
value during the reaction at least as great as that value at
the start of the reaction when the presence of excess
oxygen in the reaction medium was substantially elimi-
nated.

3,832,356

ACETAL DIMERS OF CYCLIC ACETALS

Glenn M. Nakaguchi and Ting-I Wang, Fullerton, and
Frederick F. Caserio, Jr., Laguna Beach, Calif., as-
signors to Atlantic Richfield Company, Philadelphia,
Pa.No Drawing. Original application July 15, 1969, Ser. No.
841,983, now Patent No. 3,714,202, dated Jan. 30,
1973. Divided and this application Oct. 24, 1972, Ser.
No. 300,046

Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

1 Claim

The acetal dimer of the cyclic acetal of a triol is a
useful intermediate in the catalytic synthesis of two classes
of vinyl cyclic acetal compounds, 2-methyl-5-vinyloxy-
1,3-dioxane and 2-methyl-4-vinyloxymethyl-1,3-dioxolane.

3,832,357

PROCESS FOR PREPARATION OF 3-HYDROXY-
2-ALKYL-4-PYRONEMasaru Higuchi and Tadashi Yamada, Ohimachi, and
Ryosho Suzuki, Kawagoe, Japan, assignors to Daicel
Ltd., Osaka, JapanNo Drawing. Filed May 24, 1972, Ser. No. 256,538
Claims priority, application Japan, May 26, 1971,
46/35,982; Dec. 22, 1971, 46/104,332

Int. Cl. C07d 7/16

U.S. Cl. 260—345.9

12 Claims

A process for the preparation of 3-hydroxy-2-alkyl-4-
pyrone in which the alkyl is methyl or ethyl, which com-
prises reacting a β,δ-dioxoaldehyde dialkylacetal in which
the aldehyde is selected from caproaldehyde and enanthal-
dehyde, with an aryl iodosodicarboxylate to form an oxi-
datively acyloxylated product, subjecting the acyloxylated
product to thermal decomposition or treatment with an
acidic condensing agent, and hydrolyzing the same suc-
cessively or concurrently with said thermal decomposition
or treatment with an acidic condensing agent.

3,832,358

DESHYDROXYMETHYL DERIVATIVES OF
MONENSINJames W. Chamberlin, Indianapolis, Ind., assignor to Eli
Lilly and Company, Indianapolis, Ind.

No Drawing. Filed Jan. 15, 1973, Ser. No. 323,600

Int. Cl. C07d 7/46

U.S. Cl. 260—345.7

2 Claims

Deshydroxymethyl derivatives of monensin and nigeri-
cin are disclosed. The new compounds are useful as coc-
cidicides.

3,832,359

PRODUCTION OF MALEIC ANHYDRIDE BY
CATALYTIC OXIDATION OF SATURATED
ALIPHATIC HYDROCARBONSMarshall C. Freerks and Michael Suda, St. Louis, Mo.,
assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Oct. 6, 1971, Ser. No. 187,114

Int. Cl. C07d 5/04

U.S. Cl. 260—346.8

6 Claims

Maleic anhydride is produced by the catalytic vapor
phase oxidation of a saturated aliphatic hydrocarbon, e.g.,
n-butane, in the presence of a catalyst comprising phos-
phorus, vanadium, iron and oxygen.

3,832,360

PROCESS FOR THE CONTINUOUS PREPARATION
OF TRIMELLITIC ACID ANHYDRIDEAlbert Hirz, Kurt Handrick, and Georg Kölling, Essen,
Germany, assignors to Bergwerksverband GmbH,
Essen-Kray, Germany

Filed June 18, 1970, Ser. No. 47,459

Claims priority, application Germany, June 19, 1969,
P 19 30 934.3

Int. Cl. C07c 63/32

U.S. Cl. 260—346.3

3 Claims

A process for the continuous preparation of trimellitic
acid anhydride by thermal dehydration of the acid at

temperature in the range of about 210–260° C., which comprises passing trimellitic acid through an inclined rotating kiln having a plurality of compartments formed by vertical partitions, all compartments with the exception of the one at the discharge end being filled to about one-fifth to one-thirtieth of their volume by a plurality of balls. The invention also relates to an apparatus for carrying out the process.

3,832,361 AZIDES

Clive A. Henrick and John B. Siddall, Palo Alto, Calif., assignors to Zococon Corporation, Palo Alto, Calif.

No Drawing. Original application Feb. 16, 1971, Ser. No. 115,725. Divided and this application Aug. 18, 1972, Ser. No. 281,898

Int. Cl. C07d 109/00
U.S. Cl. 260—349 4 Claims
Polyunsaturated aliphatic hydrocarbon thioesters, nitriles, amines, halides, alcohols and derivatives thereof, synthesis thereof, for the control of arthropods.

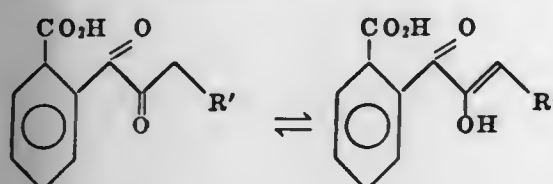
3,832,362

EPOXIDIZED ALKYLIDENE AND ARYLIDENE INDANDIONES

Willy Leimgruber, Montclair, and Manfred Weigle, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed May 18, 1972, Ser. No. 254,601

Int. Cl. C07d 1/00
U.S. Cl. 260—348 R 2 Claims
Method for the preparation of compounds of the formula



wherein R' is lower alkyl or aryl,

useful as intermediates for fluorometric reagents, comprising condensation of 1,3-indandione with a lower alkyl or aryl aldehyde, epoxidation and basic cleavage.

3,832,363

METHOD OF EPOXIDIZING OLEFINIC COMPOUNDS USING AN OXYBORON CATALYST

Lloyd C. Fetterly and George W. Conklin, Oakland, and Nathan C. May, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Sept. 7, 1965, Ser. No. 485,563

Int. Cl. C07d 1/08
U.S. Cl. 260—348.5 V 6 Claims

Ethylenic compounds are epoxidized to corresponding oxirane compounds by reaction with an organic hydroperoxide, especially one containing only C, H, and O atoms, e.g., tertiary butyl hydroperoxide, in the presence of a boron oxide, a dehydrated boric acid and the hydrocarbyl esters thereof, especially a trialkoxyboroxine. Boron oxide or dehydrated boric acid in the reaction mixture reacts with alcohols formed in the process to provide alkyl borate esters in the reaction mixture. The hydroperoxide can be provided by an in situ reaction of molecular oxygen with saturated aliphatic, acyclic and alicyclic, including aryl-substituted aliphatic compounds, such as a

paraffin hydrocarbon, which react with oxygen to form a hydroperoxide in the presence of the ethylenic compound.

3,832,364

AMINATION OF AROMATIC COMPOUNDS IN LIQUID HYDROGEN FLUORIDE

Dale Robert Coulson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 25, 1972, Ser. No. 256,770
Int. Cl. C07c 87/50, 97/12
U.S. Cl. 260—378 26 Claims

Disclosed herein is a process for making aromatic amines from benzene or substituted benzene and an aminating agent via direct amination in liquid hydrogen fluoride medium as solvent and catalyst.

3,832,365

QUINONE INTERMEDIATES FOR SYNTHESIS OF 6-HYDROXYDOPAMINE

Pius Anton Wehrli, North Caldwell, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Mar. 14, 1972, Ser. No. 234,658
Int. Cl. C07c 103/12, 103/22, 125/06
U.S. Cl. 260—396 R 4 Claims

Preparation of 6-hydroxydopamine, a known antihypertensive and blood pressure lowering agent, from an hydroxy-alkoxy-phenethylamine including intermediates in this process.

3,832,366

PROCESS FOR PREPARING 21-CHLORO-17-ACYLOXY-20-KETOSTEROIDS

Christopher M. Cimarusti, Hamilton, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

No Drawing. Filed July 30, 1973, Ser. No. 384,158
Int. Cl. C07c 169/34
U.S. Cl. 260—397.45 5 Claims

21-Chloro - 17 - acyloxy - 20-ketosteroids, are prepared from the corresponding 17,21-dihydroxy-20-ketosteroid, cyclic 17,21-orthoesters in a single step process which comprises the reaction of a 17,21-dihydroxy-20-ketosteroid, cyclic 17,21-orthoester with triphenylmethyl chloride.

3,832,367

ALKOXYLATED HYDROXYAMIDE DETERGENTS

El-Ahmadi Ibrahim Helba, Princeton, and Paul Gerhard Rodewald, Rocky Hill, N.J., assignors to Mobil Oil Corporation

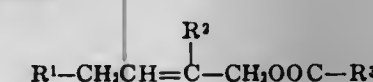
No Drawing. Filed Sept. 28, 1971, Ser. No. 184,633
Int. Cl. C07c 103/30; C11d 3/066
U.S. Cl. 260—404 9 Claims

A novel class of biodegradable detergents having improved dispersion properties in hard water are the water-soluble reaction products obtained by reacting a lactone with an alkanolamine and further reacting the resulting hydroxyalkanolamide with an alkylene oxide. Maintaining a preferred ratio of the number of moles of alkylene oxide reacted with the intermediate amide product to the total number of carbon atoms in the lactone precursor within a specific range has been found to provide products having optimum detergency properties. Amide products having from 8 to 30 carbon atoms in the acid portion and containing from about 1.5 to about 20 total ethylene oxide units are most preferred.

3,832,368
LITHIUM POLYCYANOETHYLATED KETO FATTY SOAP BASED GREASES
Harold E. Kenney, Jenkintown, Edward T. Donahue, Philadelphia, and Gerhard Maerker, Oreland, Pa., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed July 25, 1972, Ser. No. 275,010
Int. Cl. C08h 17/36

U.S. Cl. 260—404 1 Claim
Keto fatty acids or derivatives of keto fatty acids are cyanoethylated and the resulting three carbon cyanoethyl branched chain fatty acids are mixed with an appropriate amount of a diester or a petroleum base oil. The mixture is then reacted in situ with a dilute aqueous solution of lithium hydroxide to obtain a stable grease.

3,832,369
ESTERS OF DIALKYLALLYL ALCOHOLS
Alfred A. Schleppnik, St. Louis, Mo., and John B. Wilson, Old Bridge, N.J., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Jan. 14, 1972, Ser. No. 217,957
Int. Cl. C07c 69/14, 69/24; C11b 9/00
U.S. Cl. 260—410.9 N 4 Claims
Esters of dialkylallyl alcohols characterized by the structural formula

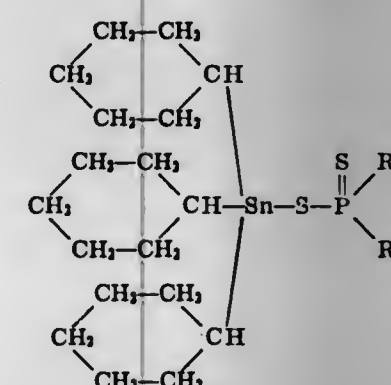


wherein R¹ and R² each represent a lower alkyl, and R³ represents hydrogen, a lower alkyl or lower alkenyl of from 1 to 8 carbon atoms, aryl, aralkyl or arylalkenyl are prepared by selective reduction of suitable acroleins followed by esterification. The compounds have very pleasant, strong and long lasting aromas and are useful as compounds in fragrance compositions.

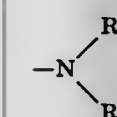
3,832,370
ORGANOTIN MITICIDAL AND INSECTICIDAL COMPOUNDS

Don R. Baker, Orinda, Calif., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Oct. 19, 1972, Ser. No. 304,871
Int. Cl. C07j 7/22

U.S. Cl. 260—429.7 31 Claims
A composition of matter is described herein which has insecticidal and miticidal activity and methods of use. The composition may be defined by the following generic formula



wherein R₁ is lower alkyl having 1 to 4 carbon atoms, and R₂ can be selected from alkylketoximino, piperidyl, cycloalkylketoximino, alkylalldoximino, alkylcarbamyloxy, hexamethyleneimino, alkylloxazolidine, and



wherein R₃ and R₄ can be the same or different and can be selected from hydrogen, alkyl having 1 to 15 carbon

atoms, alkoxyalkyl, alkenyl, benzyl, cyanoalkyl, alkanol, phenyl, alkylphenyl, sulfonamidophenyl, thiazolyl, alkoxycarbonyl, halobenzyl, furfuryl, provided that when R₃ is hydrogen, R₄ is other than hydrogen.

3,832,371
NOVEL NICKEL ALCOHOLATES AND ALCOHOLS THEREOF AND A PROCESS OF THEIR PRODUCTION

Gunther Wilke and Paul Helmbach, Mulheim (Ruhr), Germany, assignors to Studiengesellschaft Kohle mbH., Mulheim (Ruhr), Germany
No Drawing. Original application Oct. 26, 1967, Ser. No. 678,172, now Patent No. 3,544,604. Divided and this application July 29, 1970, Ser. No. 64,845
Claims priority, application Germany, May 26, 1967, ST 26,928
Int. Cl. C07f 15/04

U.S. Cl. 260—439 R 6 Claims
Process of producing nickel alcoholates by reacting π-allyl nickel compounds with carbonyl compounds. The nickel alcoholates so produced can be hydrolyzed to their corresponding alcohols and these alcohols can in part be dehydrated to their corresponding olefins. The nickel alcoholate products are useful for the production of their corresponding alcohols and these alcohols are useful for the production of their corresponding olefins.

3,832,372
CONTINUOUS PROCESS FOR PREPARING AROMATIC ISOCYANATES

Philip D. Hammond and William M. Clarke, North Haven, and William I. Denton, Cheshire, Conn., assignors to Olin Corporation
Filed Oct. 12, 1972, Ser. No. 296,952
Int. Cl. C07c 119/04

U.S. Cl. 260—453 PC 16 Claims
Aromatic isocyanates are produced directly from aromatic nitro compounds in a continuous process in which carbon monoxide and an aromatic nitro compound are reacted in a reaction zone in the presence of a catalyst and a solvent to form an aromatic isocyanate. A gaseous product of the reaction zone is collected and cooled to yield a fraction of unreacted carbon monoxide in gaseous form, which is condensed, purified and recycled to the reaction zone, and another fraction of liquified solvent, which is also recycled to the reaction zone. The slurry product of the reaction zone is collected, cooled and separated into a solid component and a liquid component. The solid component, which is predominantly catalyst, is recycled to the reaction zone with or without regeneration. The liquid component is distilled to separate aromatic isocyanate product from the distillation residue which predominates in unreacted aromatic nitro compound and solvent, the latter residue being recycled to the reaction zone. The aromatic isocyanate product is useful as a reactant in the preparation of polyurethanes.

3,832,373
HYDROXAMIC ACID DERIVATIVES OF 1-AMINO-CYCLOHEXANECARBOXYLIC ACID

Harvey E. Alburn, West Chester, Donald E. Clark, Norristown, Norman H. Grant, Wynnewood, and Milton Lapidus, Rosemont, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Original application Nov. 5, 1969, Ser. No. 874,382, now Patent No. 3,703,542. Divided and this application May 22, 1972, Ser. No. 255,825
Int. Cl. C07c 119/16

U.S. Cl. 260—453 R 3 Claims
The compounds are hydroxamic acids of alicyclic amino acids and esters of said compounds, all of which have valuable pharmacodynamic properties in that they relieve hyperglycemia in warm-blooded animals.

3,832,385

SUBSTITUTED 4-ALKYLTHIOBENZOIC ACID ESTERS

John B. Siddall, Palo Alto, Calif., assignor to Zeecon Corporation, Palo Alto, Calif.

Division of Ser. No. 60,636, Aug. 3, 1970, abandoned. This application May 5, 1972, Ser. No. 269,692

Int. Cl. C07c 149/40

U.S. Cl. 260—470

4 Claims

Novel phenyl compounds of formulas I, II, III and IV and intermediates useful for control of insects.

3,832,386

COLOR PHOTOGRAPHIC MATERIAL

Isaburo Inoue; Teruo Hanzawa; Takaya Endo, and Hidetaka Deguchi, all of Tokyo, Japan, assignors to Kanishiroku Photo Industry Co., Ltd.

Filed May 13, 1971, Ser. No. 143,241

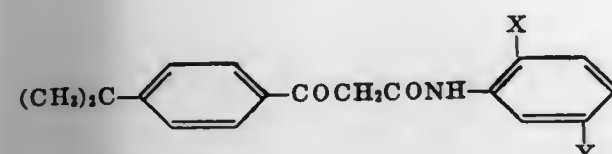
Claims priority, application Japan, May 14, 1970, 45-40492

Int. Cl. C07c 103/30

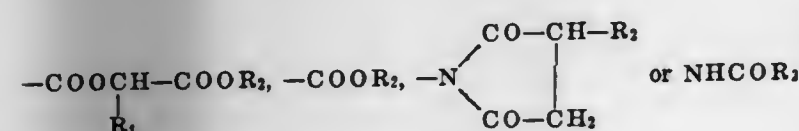
U.S. Cl. 260—471 R

2 Claims

A yellow color image-forming coupler, useful as a protect type coupler in a light-sensitive silver halide color photographic emulsion. The coupler has the general formula



wherein X is hydrogen, halogen, a lower alkoxy group, a lower alkyl group or an aryloxy group; and Y is

where R₁ is a lower alkyl group; R₂ is a hydrocarbon residue having eight to 18 carbon atoms; and COR₃ is an acyl group having nine to 20 carbon atoms.

3,832,387

ALPHA-NITRO-CINNAMIC ACID DERIVATIVES

Alan Martin Krubiner, Montville, and Eugene Paul Oliveto, Glen Ridge, both of N.J., assignors to Hoffman-La Roche Inc., Nutley, N.J.

Filed Mar. 16, 1972, Ser. No. 235,421

Int. Cl. C07c 79/46

U.S. Cl. 260—471 A

7 Claims

 α -nitro-cinnamic acid derivatives which are useful in preparing phenylalanines, and a process for obtaining the derivatives by treating the corresponding cinnamic acid esters with nitric oxide or nitrogen dioxide.

3,832,388

RESOLUTION OF 2-(P-HYDROXY)PHENYLGLYCINE

Roman R. Lorenz, 3 Highland Drive, Greenbush, N.Y. 12061

Filed Sept. 7, 1972, Ser. No. 287,136

Int. Cl. C07c 101/06

U.S. Cl. 260—471 A

22 Claims

Optically pure D-(+)- and L-(-)-2-(p-hydroxyphenyl)-glycine, intermediates in the preparation of penicillin and cephalosporin derivatives, are prepared by chemical resolution of an ester of racemic 2-(p-hydroxyphenyl)glycine, em-

ploying L-(-)- or D-(+)-dibenzoyltartaric acid as resolving agent, and conversion to the free acid of the D-(-)- and L-(+)-2-(p-hydroxyphenyl)glycine ester so obtained.

3,832,389

SUBSTITUTED CHLOROCARBONYLUREA

Karl-Heinz Koenig, Frankenthal; Rudolf Kolbinger, Speyer; Bernd Zeeh, Ludwigshafen, and Adolf Fischer, Mutterstadt, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen/Rhine, Germany

Filed Mar. 17, 1972, Ser. No. 235,656

Int. Cl. C07c 127/18

U.S. Cl. 260—479 C

1 Claim

New and valuable substituted chlorocarbonylureas having good herbicidal properties and a process for controlling the growth of unwanted plants with these compounds.

3,832,390

ENERGETIC POLYNITRO HALOGENATED DIOL**ETHERS**

Milton B. Frankel, Tarzana, and Edward F. Witucki, Sepulveda, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

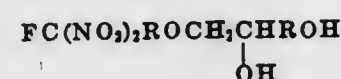
Filed Nov. 21, 1968, Ser. No. 779,311

Int. Cl. C07c 69/62, 43/12

U.S. Cl. 260—487

4 Claims

This invention is concerned with novel, monomeric, aliphatic diols of the general formula:



wherein R is a lower alkylene of one to three carbon atoms.

This invention herein described was made in the course of or under a contract or subcontract thereunder, (or grant) with the Department of the Air Force.

3,832,391

CATALYSIS BY DISPERSIONS OF METAL HALIDES IN MOLTEN TRIHALOSTANNATE (II) AND TRIHALOGERMANATE (II) SALTS

George W. Parshall, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 92,541, Nov. 24, 1970, Pat. No. 3,657,368,

Continuation-in-part of Ser. No. 727,710, May 8, 1968, Pat.

No. 3,565,823. This application Dec. 30, 1971, Ser. No.

214,376

Int. Cl. C07c 51/14, 45/08

U.S. Cl. 260—497 A

9 Claims

Dispersions of transition and other metal halides in molten tetrahydrocarbylammonium or phosphonium trihalostannate (II) and trihalogermanate (II) salts are useful as catalysts for the hydrogenation, isomerization or carbonylation of olefins and the hydrogenation of nitriles.

3,832,392

PROCESS FOR PRODUCING PERISOBUTYRIC ACID

Juichi Imamura, 460, Kojima-cho, Chofu-shi, Tokyo; Kyochi Wakasa, 592-65, Jyosui-minamimachi, Kodaira-shi, Tokyo; Takeshiro Saito, 233, Kaminoge-machi, Tamagawa, Setagaya-ku, Tokyo, and Tomeyoshi Ishikawa, 1583, Shimoniikura, Yamato-machi, Kitadachi-gun, Saitama-ken, all of Japan

Filed July 23, 1970, Ser. No. 57,806

Int. Cl. C07c 73/10

U.S. Cl. 260—502 A

4 Claims

Process for producing perisobutyric acid which comprises oxidizing isobutyraldehyde in an inert solvent under pressure of oxygen or an oxygen-containing inert gas from 2 to 50 kg./cm² and at a temperature from 10° to 80°C.

3,832,393

PROCESS OF PRODUCING AMINO ALKYLENE PHOSPHONIC ACIDS

Friedrich Krueger, Edingen, and Lieselotte Bauer, Bad Duerkheim, both of Germany, assignors to Joh. A. Benckiser GmbH, Ludwigshafen am Rhine, Germany

Filed Apr. 16, 1971, Ser. No. 134,873

Int. Cl. C07f 9/38; C02b 5/06

U.S. Cl. 260—502.5

16 Claims

Amino alkylene phosphonic acids such as ethylene diamine tetra-(methylene phosphonic acid), diethylene triamine penta-(methylene phosphonic acid), nitrilo tris-(methylene phosphonic acid), and others are obtained in a high yield by reacting alkylene glycol chlorophosphites with an aldehyde or ketone and an amine or an acid addition salt thereof or an acid amide of a lower mono- or dicarboxylic acid, such as formamide, oxamide, or urea. The resulting reaction solution can directly be added to fluid or solid cleaning agents or the substantially pure amino alkylene phosphonic acid can be recovered therefrom.

3,832,394

METHANEPHOSPHINYLETHANE SUBSTITUTED AMID TRIMER OF ALANINE

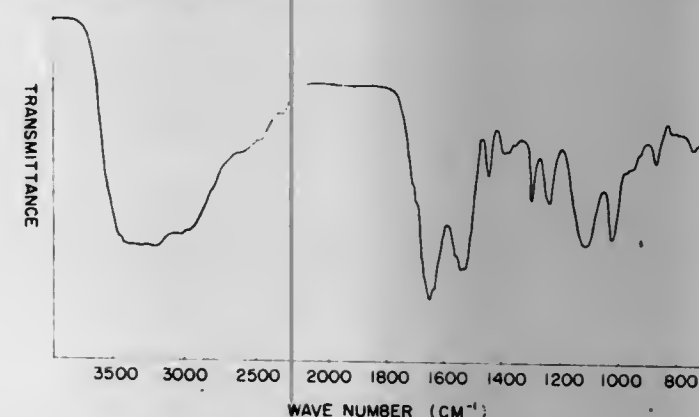
Taro Niida; Shigeharu Inoue, both of Yokohama; Takashi Tsu-ruoka, Kawasaki; Takashi Shomura, Yokohama; Yasumitsu Kondo, Yokohama; Yasuaki Ogawa, Yokohama; Hiroshi Watanabe, Yokohama; Yasuharu Sekizawa, Tokyo; Tetsuro Watanabe, Yokohama, and Hiroshi Igarashi, Chigasaki, all of Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan

Filed July 17, 1972, Ser. No. 272,676

Int. Cl. C07f 9/46; A61k 27/00; A01n 9/36

U.S. Cl. 260—502.5

1 Claim



New antibiotic SF-1293 substance and a microbiological process for the production thereof. SF-1293 substance can be produced by cultivation of Streptomyces hygroscopicus SF-1293 (ATCC 21705) SF-1293 substance can be used to control various fungal infections of plants, for example, sheath blight and rice blast of rice plant, and to treat trichophytosis, as SF-1293 substance exhibits the growth of various fungi such as Pellicularia sasakii, Piricularia oryzae and Trichophyton asteroides.

3,832,395

METHOD FOR THE PRODUCTION OF PHTHALIC AND TOLUIC ACIDS BY THE CATALYTIC OXIDATION OF XYLENES

Henry R. Grane, Springfield, Pa., assignor to Atlantic Richfield Company, Philadelphia, Pa.

Filed Dec. 18, 1972, Ser. No. 316,186

Int. Cl. C07c 51/20, 63/26; C07c 63/02

U.S. Cl. 260—524 R

8 Claims

Method for the production of phthalic and toluic acids by the catalytic oxidation of a xylene or a mixture of the xylene

isomers utilizing air or gas containing molecular oxygen as the primary oxidation agent in conjunction with an isobutane oxidate as a secondary agent. A cobalt salt is the preferred catalyst; however, the salts of metals having atomic numbers 23—29 inclusive, can be utilized. The oxidation is carried out at temperatures in the range of from about 220°F. to 320°F., at pressures ranging from 100 to 1,000 psig.

3,832,396

ANHYDRIDES OF ORGANO-PHOSPHONIC ACIDS

Riyad R. Irani, and Robert S. Mitchell, both of St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

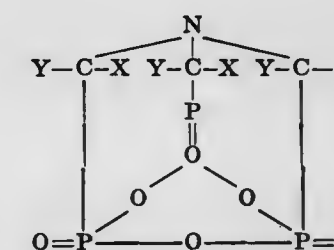
Continuation of Ser. No. 538,198, March 29, 1966,

abandoned. This application May 7, 1969, Ser. No. 824,378

Int. Cl. C07f 9/28, 9/38

U.S. Cl. 260—545 P

1 Claim



This invention relates to anhydrides of organo-phosphonic acids such as the anhydride of amino tri(lower alkylidene phosphonic acids) and processes for preparing said anhydrides. An example of the novel anhydrides of the present invention is shown by the following formula (X and Y being hereinafter defined).

3,832,397

PROCESS FOR SUBSTITUTED SULFONYLUREAS

Harvey Gurien, Maplewood; Albert Israel Rachlin, Verona, and Sidney Teitel, Clifton, all of N.J., assignors to Hoffman-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 21,181, Mar. 19, 1972,

abandoned. This application Oct. 10, 1972, Ser. No. 296,483

Int. Cl. C07c 127/12

U.S. Cl. 260—553 D

4 Claims

Bicyclic sulfonylurea derivatives have been prepared by reacting (1R)-3-endo-amino-2-endo-bornanol, hereinafter referred to as (D)-3-endo-aminoborneol, with alkylphenylsulfonyl ureas. The bicyclic sulfonylurea derivatives are useful as hypoglycemic agents.

3,832,398

D-S-HYDROXY-5-PHENYLLEVULINIC ACID AND SALTS THEREOF

Eugene Raymond Wetzel, Spring Valley, and Donald Bruce Borders, Suffern, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

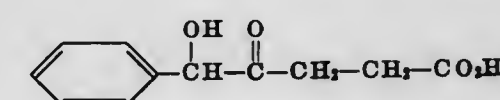
Filed Mar. 29, 1971, Ser. No. 129,224

Int. Cl. C07c 65/20

U.S. Cl. 260—521 R

1 Claim

The new compound of the formula:



is prepared by the cultivation under controlled aerobic conditions of Tubercularia strain Z1497. Said compound exhibits marked analgesic properties when administered to mammals.

3,832,399

NITRILE IMINES

David S. Breslow, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

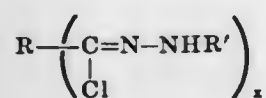
Continuation-in-part of Ser. No. 720,430, Feb. 2, 1968, abandoned, which is a division of Ser. No. 447,887, April 13, 1965, Pat. No. 3,418,285. This application Apr. 6, 1971, Ser. No. 131,824

Int. Cl. C07c 119/00

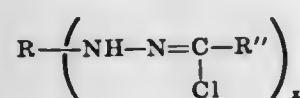
U.S. Cl. 260—566 D

10 Claims

Disclosed are polyfunctional nitrile imines having the formula selected from $R-C \equiv N^+-N^--R'$ and $R-C \equiv N^+-N^--R''$ where R is an alkylene, cycloalkylene, arylene, alkyl-arylene, arylene-dialkylene, alkylene-diarylene or cycloalkylene-dialkylene radical; R' is a hydrogen, alkyl, cycloalkyl, aryl, alkaryl, or aralkyl radical; R'' is an alkyl, cycloalkyl, aryl, alkaryl or aralkyl radical and x is greater than 1; and their hydrogen chloride salts having the formula selected from



and



where R, R', R'' and x are as defined above which are useful cross-linking agents used in curing unsaturated polymers.

3,832,400

CARBAMOYL OXIMES

Willy Meyer, Basel, and Beat Bochner, Binningen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

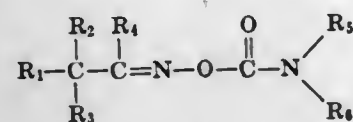
Filed Aug. 9, 1972, Ser. No. 279,139

Int. Cl. C07c 119/00

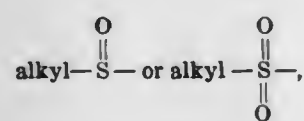
U.S. Cl. 260—566 AC

10 Claims

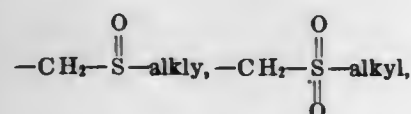
New carbamoyl oximes, their manufacture and their pesticidal activity especially against insects and representatives of the order acarina are disclosed. The compounds correspond to the formula



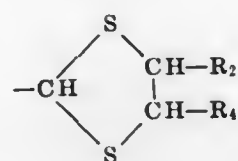
wherein R₁ represents alkylthio,



R₂, R₄ and R₅ each represents hydrogen or alkyl, R₃ represents $-CH_2$ -alkoxy, $-CH_2$ -alkylthio, $-CH(alkylthio)_2$, $-CH(alkoxy)_2$,



$-CH_2$ -alkenyloxy, $-CH_2Cl$, $-CHO$ or



and R₆ represents hydrogen, alkyl, alkenyl or acetyl.

3,832,401

HOMOGENEOUS CATALYSTS USEFUL IN THE REDUCTION OF NITROAROMATICS TO AMINES

John F. Knifton, Poughquag, and Robert M. Suggitt, Wappingers Falls, both of N.Y., assignors to Texaco Inc., New York, N.Y.

Filed Mar. 4, 1971, Ser. No. 121,132

Int. Cl. C07c 85/10

U.S. Cl. 260—570.8 R

1 Claim

This invention concerns the use of homogeneous ruthenium and iron catalyst complexes preferably stabilized by a replaceable ligand such as triphenyl phosphine, and/or solubilized by a solvating agent such as the lower alkanols, said catalyst complexes being utilized as reducing agents in the presence of a non-aqueous, non-oxidizing reaction medium, at reaction temperatures of from about 35° to 160° C and under superatmospheric pressures of at least 100 psig, in a substantially hydrogen atmosphere, to selectively reduce at least one nitro group of nitroaromatics to the corresponding aromatic amine.

3,832,402

TERTIARY POLYOXYALKYLENEPOLYAMINES

Ernest Leon Yeakey, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

Division of Ser. No. 96,247, Dec. 8, 1970, Pat. No. 3,660,319, which is a continuation-in-part of Ser. No. 803,934, March 3, 1969, abandoned. This application Mar. 1, 1972, Ser. No. 230,990

Int. Cl. C07c 93/04

U.S. Cl. 260—584 B

8 Claims

New tertiary amines prepared from polyoxyalkylene polyamines are useful catalysts for preparing urethane foams. The new tertiary amines are prepared by alkylation of the polyoxyalkylene polyamine with an aldehyde and hydrogenation of the product.

3,832,403

METHOD FOR REACTING ORGANIC HALIDES

Michael F. Farona, Cuyahoga Falls, and James F. White, Akron, both of Ohio, assignors to The University of Akron, Akron, Ohio

Continuation-in-part of Ser. No. 119,908, March 1, 1971, abandoned. This application Mar. 9, 1973, Ser. No. 339,637

Int. Cl. C07c 49/76, 49/82

U.S. Cl. 260—592

18 Claims

A method for carrying out reactions of the Friedel-Crafts type, such as alkylation, acylation, polymerization, sulfonylation and dehydrohalogenation. The reactions are catalyzed by arene-metal tricarbonyl complexes and when the reaction vessel contains aromatic substrates the catalyst may be generated in situ from a metallic hexacarbonyl. The arene-metal tricarbonyl catalyst is more selective than conventionally employed Friedel-Craft catalysts in that it yields generally para isomers with little of the ortho variety and very little if any of the meta variety when the aromatic substrate is reacted with organic

halide. It is also possible to form the arene-metal tricarbonyl catalyst outside of the reaction vessel and then proceed by adding it to the vessel containing the substrate and the organic halide as is the case with dehydrohalogenation reactions wherein there are no aromatic rings available, the substrate in that instance being aliphatic.

3,832,404

HYDROFORMYLATION PROCESS

Keith George Allum, Bracknell; Ronald David Hancock, Weybridge; Samuel McKenzie, Richmond, and Robert Chambers Pitkethl, Camberley, all of England, assignors to The British Petroleum Company, London, England

Filed Dec. 14, 1970, Ser. No. 98,030

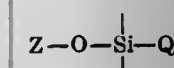
Claims priority, application Great Britain, Dec. 19, 1969, 61920/69; Sept. 30, 1970, 46614/70; Nov. 20, 1970, 56219/70

Int. Cl. C07c 27/22, 29/16, 47/02

U.S. Cl. 260—604 HF

7 Claims

A heterogeneous hydroformylation process in which an olefin is reacted with CO and H₂ is effected in the presence of a catalyst containing units of formula



where Z is a residue obtained by removing an —OH group from a solid inorganic material containing —OH groups, e.g., silica and Q is a group containing phosphorus bonded to a transition metal, e.g., rhodium or cobalt.

3,832,405

5-CYCLOALKYLIDENE DIBENZOCYCLOHEPTENE DERIVATIVES

Leslie G. Humber, Dollard des Ormeaux, Quebec, Canada, assignor to American Home Products Corporation, New York, N.Y.

Division of Ser. No. 38,571, May 18, 1970, Pat. No. 3,697,581

This application Apr. 24, 1972, Ser. No. 246,690

Int. Cl. C07c 43/20

U.S. Cl. 260—612 R

4 Claims

There are disclosed new derivatives of 5-cyclohexylidene-5H-dibenzo[a,d]cycloheptene which are substituted at either position 2 or at both positions 2 and 8 with hydroxyl, lower acyloxy, or an aminoethoxy radical, such as, diethylaminoethoxy, dimethylaminoethoxy, pyrrolidinoethoxy, piperidinoethoxy or morpholinoethoxy, as well as the acid addition salts with pharmaceutically acceptable acids of those derivatives containing the aminoethoxy radicals. The derivatives are useful as antigonadotrophic agents substantially free from estrogenic effects, and methods for their preparation and use are given.

3,832,406

PRODUCTION OF MONOCHLORODIMETHYL ETHER

Arthur Stock, 8 Farndale Ave., South Bents, Sunderland, County Durham, and Allan William Baxter, 10 Charlote Cres., East Boldon, County Durham, both of England

Filed May 27, 1970, Ser. No. 40,975

Claims priority, application Great Britain, June 2, 1969, 27751/69

Int. Cl. C07c 41/10, 41/00

U.S. Cl. 260—614 R

2 Claims

A process for the production of monochlorodimethyl ether which comprises continuously contacting, in a first zone, hydrogen chloride with a mixture of methanol or methylal and

formaldehyde, allowing the reacting mixture to pass under the influence of the heat of reaction into a reflux zone wherein heat is removed to condense it, condensed material returning to the first zone, and removing reacted material from the first zone and cooling it in the presence of excess hydrogen chloride.

3,832,407

PREPARATION OF BERYLLIUM HYDRIDE ETHERATE

Paul F. Reigler, Midland, and Lz F. Lamoria, Bay City, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 2, 1965, Ser. No. 437,637

Int. Cl. C07c 43/30

U.S. Cl. 260—615 B

4 Claims

Beryllium Hydride Etherate is prepared by reacting a solution of Sodium Aluminum Hydride and a solution of Beryllium Borohydride in a liquid Ether material.

3,832,408

ETHOXYLATED HYDROCARBYL BUTANEDIOLS

Robert G. Anderson, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 798,162, Feb. 10, 1969. This application May 14, 1971, Ser. No. 143,596

Int. Cl. C07c 43/04, 43/14

U.S. Cl. 260—615 B

2 Claims

New compositions of matter useful in phosphate-free detergent compositions comprise the 2-hydrocarbyl-1,4-butanediol ethoxylate disulfates.

3,832,409

ALDEHYDE CONDENSATION PRODUCTS OF FLUOROALIPHATIC PHENOLS

Leland S. Endres, 1351 Fernwood Dr., San Luis Obispo, Calif. 93401; Leo F. Gehlhoff, and Dallas D. Zimmerman, both of 3M Center, Saint Paul, Minn. 55101

Filed Oct. 29, 1970, Ser. No. 85,278

Int. Cl. C07c 39/26

U.S. Cl. 260—619 A

14 Claims

Condensation products of aldehydes and fluoroaliphatic phenols are substantive to wool, synthetic polyamides, leather and skin, the compositions preferably being extended with a suitable pharmaceutical medium. The condensation products are useful for the preparation of compositions that render such materials oil and water repellent.

3,832,410

SURFACE CRYSTALLIZATION PROCESS

Delmar O. Hug, Edwardsville, and Taniel A. Garabedian, Belleville, both of Ill., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 150,725, June 7, 1971, abandoned. This application June 7, 1973, Ser. No. 367,993

Int. Cl. C07c 79/12

U.S. Cl. 260—646

6 Claims

Improved purity is achieved in a process for separating the isomers of nitro- and halo-substituted aromatic compounds in a mixture of liquid isomers by fractional, surface crystallization from the melt, wherein the isomeric mixture is cooled until crystals form on a cooling surface. The improvement comprises conducting the fractional, surface crystallization on a glass cooling surface. The process is particularly beneficial for separating para-nitrochlorobenzene from a liquid isomeric liquid of ortho-, meta- and para-nitrochlorobenzenes.

molecular complexes with weak bases such as pyridine, pyridine HCl, pyridine oxide, dimethylsulfoxide and dimethylformamide, and which are excellent flame retardants for ABS resins. Compound I also exhibits unusual synergistic flame retardant effects in ABS resins and other polymers when used together with certain additives that are not themselves flame retardants.

3,832,423

CHEMICALLY JOINED, PHASE SEPARATED GRAFT COPOLYMERS HAVING HYDROCARBON POLYMERIC BACKBONES

Ralph Milkovich, Naperville, and Mutong T. Chiang, Palos Heights, both of Ill., assignors to CPC International, Inc., Englewood Cliffs, N.J.

Continuation-in-part of Ser. No. 117,733, Feb. 22, 1971, abandoned. This application Apr. 14, 1972, Ser. No. 244,205 Claims priority, application Great Britain, Feb. 8, 1972, 5907/72

Int. Cl. C08f 15/00, 19/00

U.S. Cl. 260—878 R

22 Claims

The present invention relates to thermoplastic graft copolymers comprised of copolymeric backbones containing a plurality of uninterrupted repeating units of the backbone polymer and at least one integrally copolymerized moiety per backbone polymer chain having chemically bonded thereto a substantially linear polymer which forms a copolymerized sidechain to the backbone, wherein each of the polymeric sidechains has substantially the same molecular weight and each polymeric sidechain is chemically bonded to only one backbone polymer.

3,832,424

S,S-DIALKYL-N-SUBSTITUTED PHOSPHOROAMIDODITHIONITES

Francis J. Freenor, III, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

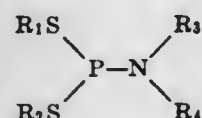
Filed Jan. 20, 1972, Ser. No. 219,559

Int. Cl. C07f 9/24; A01n 9/36

U.S. Cl. 260—959

8 Claims

Compounds of the formula



wherein R_1 and R_2 are independently alkyl of one to eight carbon atoms, or alkenyl of two to eight carbon atoms, R_3 is hydrogen or alkyl of one to four carbon atoms, and R_4 is hydrogen, alkyl of one to four carbon atoms, alkenyl of two to four carbon atoms, aryl of six to 15 carbon atoms optionally substituted with halogen atoms or alkyl groups of one to four carbon atoms or an acyl group of two to four carbon atoms, with the proviso that R_3 and R_4 may be joined to form an alkylene radical of two to five carbon atoms. The compounds possess insecticidal and herbicidal activity.

3,832,425

N-ACYL-O-

HYDROCARBYLPHOSPHOROAMIDOTHIOATE SALTS AND PROCESS FOR MAKING SAME

Hans G. Franke, Orinda, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Dec. 21, 1972, Ser. No. 317,479

Int. Cl. C07f 9/24

U.S. Cl. 260—959

9 Claims

S-ammonium (or metal) salts of N-acyl-O-hydrocarbylphosphoroamidothioates are prepared by reacting an N-

acyl-O,O-dihydrocarbylphosphoroamidothioate with an ammonium (or metal) sulfide or polysulfide.

3,832,426

SYNTACTIC CARBON FOAM

William B. Malthouse, Lenoir City, and David R. Masters, Knoxville, both of Tenn., assignors to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Dec. 19, 1972, Ser. No. 316,626

Int. Cl. C01b 31/00

U.S. Cl. 264—29

6 Claims

Syntactic carbon foam comprising hollow carbon microspheres in a carbon matrix is prepared by employing the steps of mixing hollow phenolic resin microspheres with a carbonizable binder consisting of resin and starch particulates, compacting the mixture, gelatinizing the starch in the binder while maintaining the mixture under a load corresponding to a pressure greater than ambient pressure, and then heating the mixture to convert the mixture of spheres and binder to carbon. The use of the resin-starch binder significantly increases the plasticity of the foam during the carbonization step to minimize deleterious internal stressing.

3,832,427

PROCESS FOR CONTINUOUSLY FORMING A

POLYMERIC RESINOUS LAYER FROM A MULTICOMPONENT LIQUID REACTIVE MIXTURE

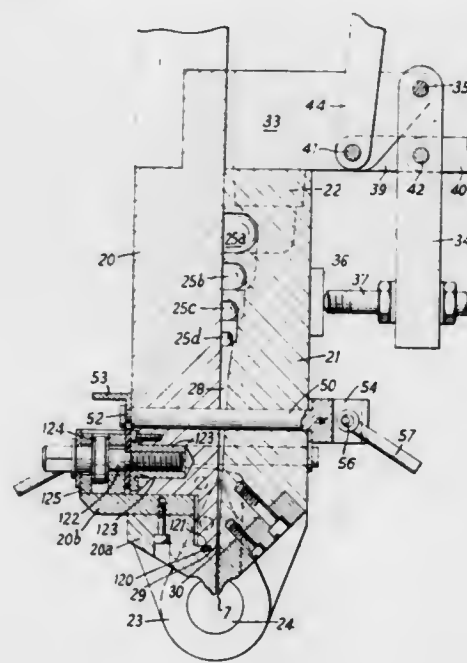
John Mutch, Hartest, England, assignor to Guthrie Industries Limited, London, England

Continuation-in-part of Ser. No. 865,357, Oct. 10, 1969, abandoned. This application Mar. 29, 1972, Ser. No. 239,196 Claims priority, application Great Britain, Oct. 14, 1968, 48678/68

Int. Cl. B08b 3/08; B29d 7/08, 27/04; B29f 3/04

U.S. Cl. 264—39

3 Claims



Layers, either coatings or self-supporting films or sheets, of plastics such as polyurethanes resulting from reactive multicomponent mixes having a very short pot life are produced by extruding the mix through an extrusion die having a slit shaped orifice and internal passageways designed to equalize flow to all points along the length of the orifice. The extrusion die is arranged so that all the surface of the passageways can be exposed for manual cleaning in a very short time interval after extrusion ceases so that the reactive mix can be removed by brushing or scraping from the surfaces before it is fully gelled.

3,832,428

ARTICLES HAVING INTEGRAL TRANSPARENT OR TRANSLUCENT PANELS

James Ernest Ryan, Knebworth, England, assignor to Imperial Chemical Industries Limited, London, England

Filed June 8, 1972, Ser. No. 260,728

Int. Cl. B29d 27/03

U.S. Cl. 264—48

8 Claims

A method for making a shaped article having at least one integral transparent or translucent panel, the method comprising forming a blank of a cellular thermoplastic polymeric material by polymerising the continuous phase of an emulsion having an aqueous disperse phase and a continuous phase comprising one or more polymerisable liquids, then removing the water from the cellular polymeric material so formed over at least the area where the panel is desired; and pressing the blank at a temperature above the softening point of the polymeric material between two dies shaped and positioned to define the desired panel so as to remove the cellular structure of the blank therebetween and form a substantially non-cellular panel.

3,832,429

METHOD AND APPARATUS FOR THE PRODUCTION OF SHEET ON BLOCK OF AGGLOMERATED GRANULES OF POLYSTYRENE

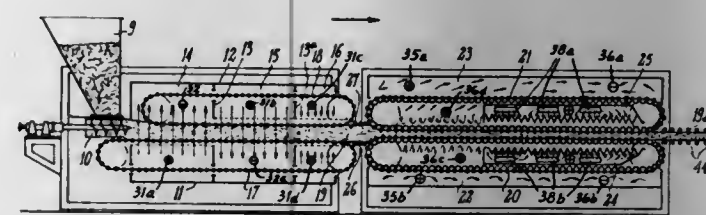
Maurice Charpentier, Rantigny, France, assignor to Saint-Gobain Industries, Neuilly sur Seine, France

Filed Apr. 13, 1966, Ser. No. 542,367

Int. Cl. B29c 15/00; B29d 27/00

U.S. Cl. 264—51

15 Claims



Method and apparatus for the production or agglomerated granules or polystyrene, in sheet or block form. The expanded granules are uniformly heated under relatively slight compression by blowing air through them for a period of between 10 seconds and 3 minutes. The air is preferably at or above the softening temperature of the granules. The heated granules are then compressed under a pressure of from 0.5 to 4 metric tons/m² until their apparent volume is approximately one-half their original volume. The compressed granules are then cooled while remaining under pressure, to a temperature at which the agglomeration does not swell or re-expand. The method can be carried out by batch or by continuous procedures.

3,832,430

METHOD FOR THE EXPRESSION OF EXPANDABLE GRANULES OF THERMOPLASTIC MATERIALS IN PARTICULAR POLYSTYRENE

Jean Noziere, Clermont, Oise, France, assignor to Saint Gobain Industries, Neuilly sur Seine, France

Filed Dec. 11, 1968, Ser. No. 783,038

Claims priority, application France, Dec. 12, 1967, 67.131851

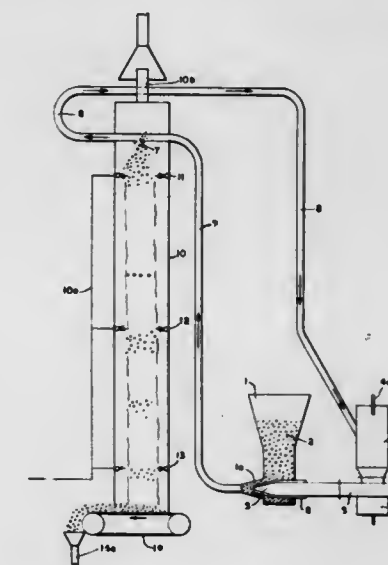
Int. Cl. B29d 27/00

U.S. Cl. 264—51

7 Claims

Method for the expansion of granules of thermoplastic material, particularly polystyrene. The discrete granules are

fed into the upper end of a tower or drum and allowed to descend by gravity while under agitation. While so descending they are insufflated with jets of saturated or superheated steam which surrounds each granule and causes it to expand to a final density as low as 4 kg/m³. The granules may be preheated before insufflation with steam, as by entraining them in a stream of heated air which also deposits them into the top of



a tower. Or they may be preheated by moving them in a layer between confronting runs of upper and lower foraminous conveyor belts while directing heated air through the layer. When an inclined drum is used the discrete granules are introduced into the elevated end of the rotating drum and agitated while being insufflated with steam dispersed into the drum in a large number of jets distributed in and along its axis of rotation.

3,832,431

PROCESS FOR MAKING MARBLEIZED SOAP OR DETERGENT

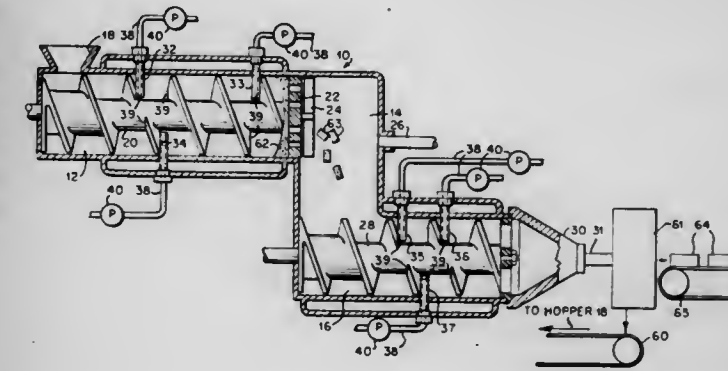
Raymond George Matthaei, Fairlawn, N.J., assignor to Lever Brothers Company, New York, N.Y.

Continuation-in-part of Ser. No. 875,091, Nov. 10, 1969, abandoned. This application Feb. 28, 1972, Ser. No. 229,750

Int. Cl. B29b 1/04; B29f 3/12

U.S. Cl. 264—75

7 Claims



A marbleized mass of soap in the form of a log is produced by passing soap particles through a modified two-stage plodder and injecting a soap additive, e.g., a dye, into the compressed soap mass during extrusion of the soap. The process and apparatus can be used also to produce marbleized detergent logs.

3,832,432

METHOD OF RAZOR BLADE UNIT ASSEMBLY

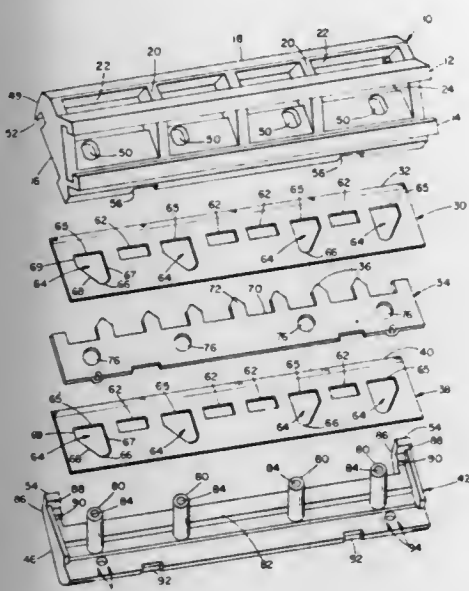
Roger L. Perry, Lynnfield Center, Mass., assignor to The Gillette Company, Boston, Mass.

Filed June 29, 1972, Ser. No. 267,601

Int. Cl. B23q 3/00; B29c 23/00

U.S. Cl. 264—249

9 Claims



A method of assembling a razor blade unit having two housing components and a blade component is disclosed. The housing components have cooperating housing alignment and blade alignment surfaces. The method includes the steps of securing a first housing component in a predetermined location, depositing the blade component on the first housing component, disposing a second housing component on the blade component, applying a prebiasing force to place the housing alignment surfaces in engagement with one another, then urging the blade component against the blade alignment surfaces while maintaining the prebiasing force on the housing components, and then securing the housing components permanently together to maintain the blade component in the desired aligned relation.

3,832,433

METHOD OF MAKING PLASTIC COMPOSITE WITH WIRE REINFORCEMENTS

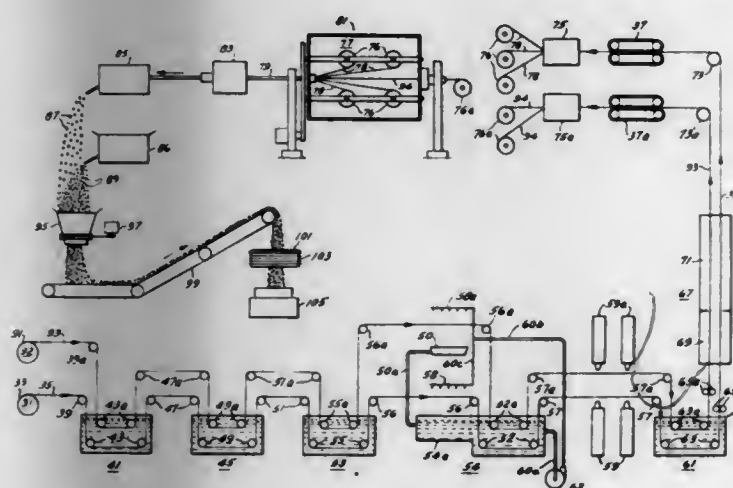
Howard E. Schaffer, Allentown, and Craig L. Bomboy, Coopersburg, both of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Aug. 28, 1972, Ser. No. 284,197

Int. Cl. B02c 18/00

U.S. Cl. 264—143

13 Claims



A wire fiber reinforced plastic composite is formed by coating thin ferrous wires and sacrificial metal wires such as zinc

wires in the form of steel and zinc wool or the like with a film of fused acrylonitrile-butadiene-styrene subsequent to thorough cleaning of the wires. The ferrous and zinc wires are then combined together into a metallic fiber, extrusion coated with a styrene base plastic resin such as polystyrene or acrylonitrile-butadiene-styrene and then chopped into uniform pellets for use as a feed material for a plastic composite hot forming operation preferably heated by induction heating of the component ferrous wires in the plastic. Alternatively the ferrous and zinc fibers can be extrusion coated separately and then blended together as pellets or even used separately for making a plastic composite.

3,832,434

METHOD OF TREATING SILICON DIOXIDE DUST

Hakon Flood, Trondheim, and Arne Seltveit, Moholtan, both of Norway, assignors to Elkem A/S, Oslo, Norway

Filed Oct. 2, 1972, Ser. No. 294,274

Int. Cl. B01j 2/00

U.S. Cl. 264—117

9 Claims

A method of treating colloidal silicon dioxide dust is disclosed. The dust is admixed with water to form a nodulized product thereby reducing the problems normally encountered in connection with transportation and handling of silica-dust.

3,832,435

PROCESS FOR THE MANUFACTURE OF CRIMPED FIBERS AND FILAMENTS OF LINEAR HIGH MOLECULAR WEIGHT POLYMERS

Gunther Bauer, Bobingen; Lothar Kramer, Bad Hersfeld, and Helmut Kuhn, Bobingen, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

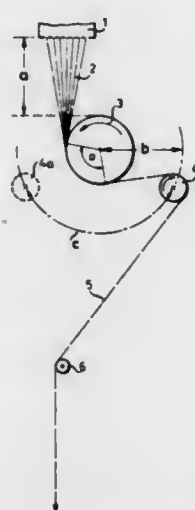
Filed June 30, 1971, Ser. No. 158,212

Claims priority, application Germany, July 3, 1970, 2032950

Int. Cl. D01d 5/22

U.S. Cl. 264—168

7 Claims



Fibers and filaments of linear high molecular weight polyesters and copolyesters having a latent three-dimensional crimp are produced by passing the spun filaments after their exit from the spinneret, over a rotating cooled cylinder at a temperature at which they do no longer stick on to the cylinder but are not fully cooled down. The cylinder has a temperature in the range of from 15° to 90°C and rotates at a circumferential speed U of from $V/50$ to $V/90$, V being

the draw off speed of the filaments. The filaments are in contact with a surface section of the cylinder the length of which is determined by a contact angle of 10° to 150°.

3,832,436

PROCESS FOR SPINNING HIGH TENACITY FIBRES

Eric Frank Harris, Greenisland, Northern Ireland, and John Francis Lloyd Roberts, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Mar. 30, 1973, Ser. No. 346,490

Claims priority, application Great Britain, Apr. 6, 1972, 15848/72

Int. Cl. D01f 3/10

U.S. Cl. 214—210 F

5 Claims

Poly(ethylene-1:2-diphenoxyethane-4:4'-dicarboxylate) extruded to give spun yarn birefringence above 60×10^{-3} and not above value by equation $\Delta = 18 \times 10^{-6} W + 50 \times 10^{-3}$ where Δ is spun yarn birefringence and W is wind up speed, followed by orientation by extension.

3,832,437

METHOD FOR FORMING HOLLOW ARTICLES

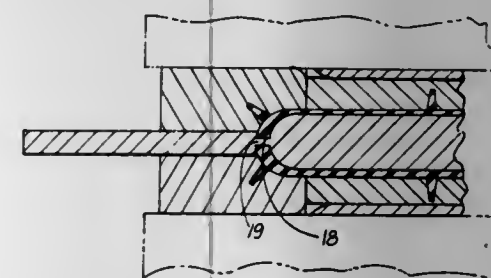
Don A. Taylor, P.O. Box 4, Wadsworth, Ohio 44281

Filed May 17, 1971, Ser. No. 143,919

Int. Cl. B29h 5/14

U.S. Cl. 264—248

3 Claims



Thermally curable material, such as rubber or plastic, is heated and molded under pressure about a mandrel in a split compression mold to form initially a partially cured hollow article with an opening therein through which the mandrel may be withdrawn with little or no elastic deformation or distortion of the article. The opening is defined by aligned molded edges that are spaced apart, but can be pressed together by segmental portions of the mold to close the opening after the mandrel is removed. The initial partial curing is to a degree such that the material can hold its shape in the mold and the edges can fuse and bond together if placed under pressure contact with each other. After the initial curing the mold closing pressure is relieved, the segmental portions of the mold are opened, and the mandrel is withdrawn from the article through the opening and from the mold. Closing pressure is immediately reapplied and the segmental mold portions are operated to force the aligned edges into contact under sufficient pressure to cause them to fuse and bond together in sealing relation. Heating is continued with the mold in this latter operating condition until the material is fully cured. The mold is then opened and the article stripped therefrom. A specialized mold and mandrel are used for forming the aligned edges and for pressing these edges together. Concavities in the cavity wall receive some of the molded material which temporarily hold the article walls in firm contact with the cavity walls during withdrawal of the mandrel. The material in the concavities is stripped free therefrom readily upon stripping the cured article from the mold.

3,832,438

METHOD OF PROVIDING A GASKET SEAL BETWEEN SEWER PIPE AND MANHOLE OPENING

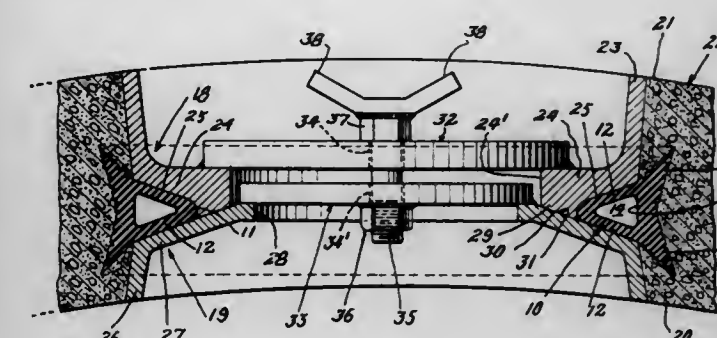
John Ditcher, Langhorne, Pa., assignor to A-LOK Corporation, Trenton, N.J.

Division of Ser. No. 127,520, March 24, 1971. This application Sept. 26, 1972, Ser. No. 292,342

Int. Cl. B29f 1/10

U.S. Cl. 264—274

3 Claims



Providing a leakproof seal between the surface of an opening through the wall of a manhole and the outer surface of a pipe which passes through that opening. An extruded gasket strip, of elastomeric material and of A section, is rooted, by the splayed legs of the A, in the concrete of the manhole wall around said opening. The upper portion of the A yieldingly spans the distance between the surface of the opening and the surface of the pipe. A shaping element is provided to define the shape and character of the surface of the opening and to securely hold the gasket strip while the concrete is being poured to form the manhole wall, and until it has set.

3,832,439

METHOD FOR THE SUPPRESSION OF HYDROGEN DURING THE DISSOLUTION OF ZIRCONIUM AND ZIRCONIUM ALLOYS

Daniel G. Carter, Jr., Richland, Wash., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Jan. 10, 1973, Ser. No. 322,565

Int. Cl. C01g 56/00

U.S. Cl. 423—4

4 Claims

The evolution of hydrogen during dissolution of zirconium and zirconium alloys in an ammonium fluoride and ammonium nitrate solution (Zirflex Process) is suppressed by the presence of copper in the solution, while the rate at which the zirconium is dissolved is improved by the addition of sodium nitrite.

3,832,440

PROCESS FOR CHLORINATING COPPER SULFIDE MINERALS

Bernhard W. Spreckelmeyer, Porz-Urbach, Germany, assignor to Kennecott Copper Corporation, New York, N.Y.

Filed Apr. 7, 1971, Ser. No. 131,947

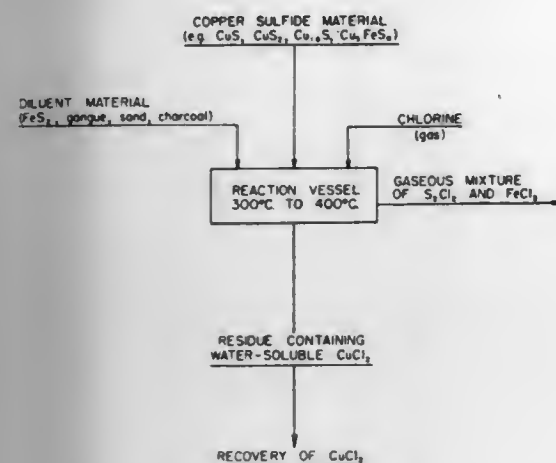
Int. Cl. C01g 3/04, 49/10; C01b 17/45

U.S. Cl. 423—40

3 Claims

A substantially dry intimate mixture of copper sulfide mineral concentrate and an added diluent material is contacted with at least a stoichiometric amount of chlorine relative to chlorinatable compounds of such materials at a temperature of between 300° and 400° C. to produce a reaction product containing water-soluble cupric chloride. Sulfur and iron values present in the mixture are substantially completely

volatilized. Typical diluent materials are chlorinatable iron compounds, gangue materials, silica sand, and carbon. A portion of the diluent can be already present in the copper sulfide material, for example gangue components of a copper sulfide mineral concentrate, with the rest of the necessary diluent



being added to form the mixture. The cupric chloride product recovered from the water-insoluble residue in the reaction product as by means of water leaching is substantially uncontaminated by sulfur or iron values.

3,832,441

METHOD OF MANUFACTURING ZIRCONIUM OXIDE AND SALTS

Robert A. Schoenlaub, 4141 Chadbourne Dr., Columbus, Ohio 43220

Filed July 16, 1973, Ser. No. 379,370

Int. Cl. C01g 25/00

U.S. Cl. 423—71

4 Claims

A process for the production of calcium zirconate and zirconium oxide or salts therefrom which is characterized by reacting the mineral zircon with limestone to form calcium zirconate and tricalcium silicate. The calcium zirconate is freed from the tricalcium silicate by simple thermal steps which transform the tricalcium silicate to a form which can be separated by physical means. After light milling, the calcium zirconate can be recovered from the gangue material by mineral dressing techniques. The relatively pure form of zirconate can then be treated with acids to form zirconium sulphate which in turn is treated with well-known reagents to form zirconium oxide or other zirconium compounds.

3,832,442

METHOD FOR PRODUCING ALUMINA HYDRATES

Robert B. Emerson, Baton Rouge, La., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed Oct. 20, 1970, Ser. No. 82,486

Int. Cl. C01f 7/02; B01d 15/00; B01j 1/22

U.S. Cl. 423—111

8 Claims

Alumina hydrates of improved purity and enhanced whiteness are recovered from impure alkali aluminate liquor by contacting the liquor with an active alumina to remove by sorption undesired color bodies and metallic impurities.

3,832,443

EXHAUST GAS CONVERSION PROCESS

Robert H. Hass, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Aug. 26, 1971, Ser. No. 175,115

Int. Cl. B01d 53/00

U.S. Cl. 423—213.7

10 Claims

A process is disclosed for the catalytic conversion of nitrogen oxides, unburned hydrocarbons and carbon monox-

ide in exhaust gases initially containing less than a stoichiometric ratio of oxygen to carbon monoxide. The basic novel feature of the process involves gradually increasing the oxygen concentration of the gases downstreamwardly in the conversion zone, in such manner as to maintain a generally increasing O_2/CO mole-ratio in that section of the conversion zone (the initial section) in which the ratio of O_2/CO is less than stoichiometric. In the latter part of the conversion zone, the ratio of O_2/CO is greater than stoichiometric.

3,832,444

RECOVERY OF SO_2 AND SO_3 FROM FLUE GASES

William L. Doyle, Hermosa Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Continuation of Ser. No. 62,313, Aug. 10, 1972, abandoned.

This application May 18, 1972, Ser. No. 254,812

Int. Cl. C01b 17/00, 17/45

U.S. Cl. 423—242

3 Claims

SO_2 and SO_3 are recovered from flue gas by absorption in a saline solution of sodium carbonate or sodium hydroxide maintained at a high pH. Na_2SO_3 is precipitated and may be easily removed, while the SO_2 concentration is reduced to about 1 percent of the original content in the flue gas.

3,832,445

SULFUR DIOXIDE REMOVAL

Herman W. Kouwenhoven; Franciscus W. Pijpers, and Nicolaas Van Lookeren Campagne, all of Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y.

Continuation-in-part of Ser. No. 106,270, Jan. 13, 1971,

abandoned, which is a continuation of Ser. No. 487,040, Sept. 13, 1965, abandoned. This application May 7, 1971, Ser. No.

141,421

Claims priority, application Netherlands, Sept. 14, 1964, 6410671

Int. Cl. C01b 17/00

U.S. Cl. 423—244

12 Claims

Removing sulfur dioxide from an SO_2 and oxygen-containing gas by contacting the gas with a solid acceptor for SO_2 comprising supported cupric oxide at a temperature between 300 and 500°C and regenerating the solid acceptor by use of a reducing gas at temperatures within the same range as the acceptance temperature.

3,832,446

SALT CRYSTAL CONGLOMERATES

Richard R. Mitchell, Factoryville, Pa., and Robert van den Bor, Hengelo, Netherlands, assignors to Akzona Incorporated, Asheville, N.C.

Filed Sept. 27, 1971, Ser. No. 184,198

Int. Cl. C01b; C01c; C01d; C01f

U.S. Cl. 423—267

10 Claims

The disclosed invention relates to a compacted conglomeration of salt crystals treated with a solution containing complex iron cyanide ions.

3,832,447

METHOD FOR PRODUCING SODIUM PERBORATE TRIHYDRATE

Helmut Dillenburger, Bad Honningen; Helmut Honig, Sehnde, and Rudolf Siegel, Niederbieber, all of Germany, assignors to Kali-Chemie Aktiengesellschaft, Hannover, Germany

Filed Oct. 12, 1971, Ser. No. 188,623

Claims priority, application Germany, Oct. 16, 1970, 2050883

Int. Cl. C01b 15/12

U.S. Cl. 423—281

5 Claims

A method for producing sodium perborate trihydrate, including mixing, at a temperature above -1°C, hydrogen perox-

ide with a sodium metaborate solution in the presence of seed crystals of sodium perborate trihydrate and means for reducing the solubility of sodium perborate, and maintaining a $NaBO_2$ to H_2O_2 ratio in the resulting mixture in the range 1:0.4 to 1:0.7.

3,832,448

PROCESS FOR PRODUCTION OF PHOSPHORUS

James Edgar Longfield, Stamford, and Daniel Hyman, Greenwich, both of Conn.

Filed Oct. 29, 1969, Ser. No. 872,004

Int. Cl. C01b 25/02, 25/04

U.S. Cl. 423—322

16 Claims

Phosphorus is produced by reduction of phosphate ores with hydrocarbon gas in a stream comprising finely divided phosphate solids dispersed as a dilute solid phase in a gas stream which contains the hydrocarbon reactant. Extremely high reaction temperature is attained by heating the reactants with a gas plasma.

3,832,449

CRYSTALLINE ZEOLITE ZSM-12

Edward J. Rosinski, Deptford, N.J., and Mae K. Rubin, Bala Cynwyd, Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Mar. 18, 1971, Ser. No. 125,749

Int. Cl. C01b 33/28

U.S. Cl. 423—328

8 Claims

A crystalline zeolite designated ZSM-12 having the following composition expressed as mole ratios of oxides:

$1.0 \pm 0.4 M_{2/n}O \cdot W_2O \cdot 20-100 YO_2 \cdot ZH_2O$ where M is at least one cation and n is the valence thereof, W is aluminum or gallium, Y is silicon or germanium, and Z is a value ranging from 0 to 60. In a preferred synthesized form, M is a mixture of alkali metal cations, especially sodium, and tetraalkylammonium cations. These zeolites are characterized by a specified X-ray powder diffraction pattern. Catalytically active forms of said zeolites are used in a wide variety of hydrocarbon conversion reactions.

3,832,451

METHOD OF MAKING MICROCRYSTALLINE FLUORIDE FIBERS

Edwin F. Abrams, Silver Spring, Md., and Robert G. Shaver, Fairfax, Va., assignors to General Technologies Corporation, Springfield, Va.

Filed Mar. 26, 1973, Ser. No. 344,884

Int. Cl. C01b 9/08; C01f 11/22; C01g 53/08

U.S. Cl. 423—489

5 Claims

A process for producing metal fluoride fibers by impregnating organic precursor fibers with a soluble metal salt, precipitating insoluble fluoride of the metal within the precursor fibers by introducing a second solution comprising a fluoride which when reacted with said first salt will yield said insoluble metal fluoride plus another second salt which can be subsequently removed from the precursor fiber without removing said metal fluoride; the second salt thus produced being either soluble so that it can be removed by washing, or else being capable of gassification at temperatures low enough to avoid degradation of the desired metal fluoride, and the organic precursor then being degraded and driven off by a carefully controlled sintering operation.

3,832,452

PURIFICATION OF ANHYDROUS ALUMINUM CHLORIDE IN SITU IN A SALT MELT

Dell A. Crouch, Jr., Village of Pennbrook, Levittown, Pa. 19053

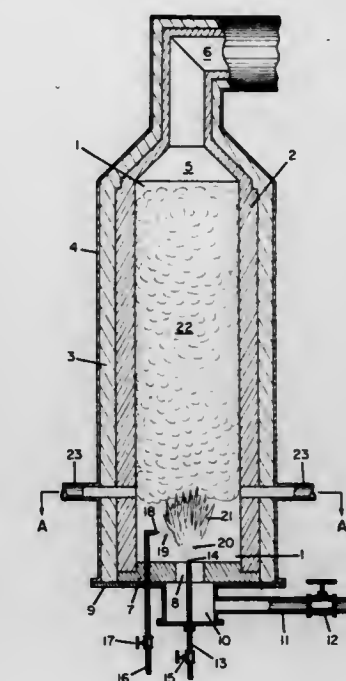
Filed Apr. 10, 1973, Ser. No. 349,779

Int. Cl. H01m 11/00; H01m 9/00

U.S. Cl. 423—495

6 Claims

Purification of anhydrous aluminum chloride in an alkaline metal chloride-aluminum chloride melt can be effected in situ by the addition of solid alkali metal to the melt.



3,832,453

RECOVERY OF SILVER FROM PHOTOGRAPHIC PROCESSING SOLUTIONS

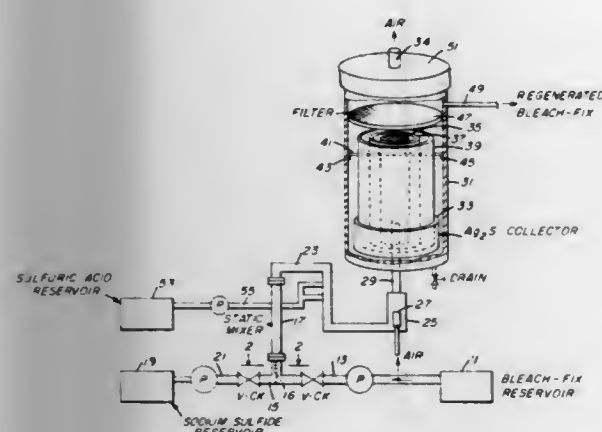
Idalee Slovonsky; Thomas J. Dagon, and Thomas W. Bober, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 23, 1971, Ser. No. 201,274

Int. Cl. C01g 5/00

U.S. Cl. 423—561

5 Claims



Silver is recovered from an exhausted photographic fix or bleach-fix solution by bringing together just at the entrance of a static mixer a stream of a sodium sulfide solution and a stream of fix or bleach-fix solution, and passing the mixture at high velocity through the static mixer, wherein it is repeatedly divided and changed in flow pattern, to precipitate silver sulfide particles. The flowing mixture containing silver sulfide particles is then passed into a separation chamber of enlarged cross section, and its flow is slowed and reversed by baffles to cause the silver sulfide particles to drop out and collect in the bottom. A fix solution is regenerated for reuse by the above procedure. When a bleach-fix is treated, it can be regenerated by introducing air, either upstream or downstream of the separation chamber, to reoxidize to ferric ions any ferrous ions present as a result of the bleaching operation, or those ferrous ions produced by reaction of sodium sulfide with residual ferric ions in the exhausted bleach-fix. A small amount of acid also should be added to adjust the pH to below 7.

3,832,454

PROCESS FOR MANUFACTURING SULFUR FROM A GAS CONTAINING HYDROGEN SULFIDE AND SULFUR DIOXIDE

Phillippe Renault, Noisy-le-Roi; Andre Deschamps, Chatou, and Claude Dezael, Maisons-Laffitte, all of France, assignors to Institut Francais du Pétrole, des Carburants et Lubrifiants, Rueil-Malmaison, France

Filed Jan. 11, 1972, Ser. No. 216,988

Claims priority, application France, Jan. 19, 1971, 71.01717; Mar. 24, 1971, 71.18746

Int. Cl. C01b 17/04

U.S. Cl. 423—574

24 Claims

Sulfur is manufactured from hydrogen sulfide and sulfur dioxide at a temperature of from 100° to 180°C in a reaction medium comprising ammonia and an organic solvent containing an alkali metal salt of a weak acid. The outflow from the reaction zone may be cooled down and washed in two steps and the condensates may be recycled to the reaction zone. The process is particularly useful for controlling atmospheric pollution.

3,832,455

PREPARATION OF ZINC FERRITE YELLOW PIGMENTS

George B. Smith, Sycamore, and Kent A. Orlandini, West Chicago, both of Ill., assignors to George B. Smith Laboratories, Sycamore, Ill.

Filed Oct. 25, 1972, Ser. No. 300,847

Int. Cl. C01g 49/00

U.S. Cl. 423—594

18 Claims

Preparation of so-called "tans" pigments, in the form of certain zinc ferrites of substantially nonmagnetic character, by, for example, aerating a mixture of an aqueous solution of ferrous sulfate with zinc oxide at a controlled pH and at somewhat elevated temperature, adding an alkali whereby to precipitate out hydrous ferric and zinc oxides, heating to effect coupling of said hydrous oxides, washing to effect removal of substantially all water-soluble salts which may be present, and then calcining at elevated temperatures.

3,832,456

PROCESS FOR THE MANUFACTURE OF BERYLLIUM HYDRIDE

Paul Kobetz, Baton Rouge; Roy J. Laran, Greenwell Springs, both of La., and Robert W. Johnson, Jr., Savannah, Ga., assignors to Ethyl Corporation, New York, N.Y.

Filed Oct. 18, 1962, Ser. No. 232,662

Int. Cl. C01b 6/00

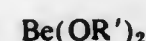
U.S. Cl. 423—645

18 Claims

1. A process for the preparation of beryllium hydride which comprises reacting (1) a dialkyl aluminum hydride whereof each alkyl group contains not more than about eight carbon atoms, said dialkyl aluminum hydride containing more than 30 mole percent of a trialkyl aluminum, with (2) a compound selected from the group consisting of (a) beryllium halides in which the halogen has an atomic number from 17 to 53, (b) beryllium halide etherates of the general formula



wherein X is halogen of atomic number from 17 to 53, n is 1 to 2, inclusive, and R' is an alkyl radical containing from one to eight carbon atoms, and (c) beryllium alkoxides of the general formula



the reaction mixture containing at least one mole of R'₂O per mole of trialkyl aluminum in the alkyl aluminum hydride-trialkyl aluminum mixture present in the reaction mixture and recovering beryllium hydride from the reaction product.

3,832,457

FERRITE CONTRAST MEDIA WITH METALLIC OXIDES

Mitsuo Sugimoto; Koemon Funaki, and Yuzo Saeki, all of Tokyo, Japan, assignors to Rikagaku Kenkyusho, Kitaodachi-gun, Saitama-ken, Japan

Filed June 17, 1970, Ser. No. 46,913

Claims priority, application Japan, June 20, 1969, 44-48724; June 20, 1969, 44-48725; Nov. 15, 1969, 44-91718; May 13, 1970, 45-40656

Int. Cl. A61k 27/08

U.S. Cl. 424—4

3 Claims

Contrast media for radiography of organs comprises a sufficient amount of fine solid particles of at least one kind of soft magnetic ferrites suspended in a liquid carrier, wherein said carrier contains at least one kind of additive agents selected from the group consisting of organic thickening compounds such as starch, sodium alginate and polyvinyl alcohol, fine powder of metallic oxides selected from Ba, Bi, Ce, W, Zr, Sn, Ta, Vb, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho and Y.

3,832,458

HYDROPHILIC SILICONE COMPOSITION AND METHOD

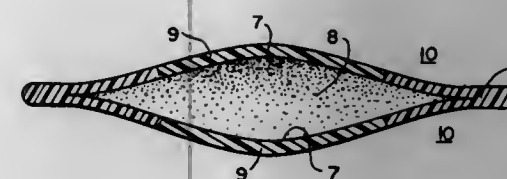
Edward W. Merrill, Cambridge, Mass., assignor to Trustees of the Charles River Foundation, Boston, Mass.

Filed Dec. 6, 1971, Ser. No. 205,156

Int. Cl. A61k 27/12; A61m 7/00

U.S. Cl. 424—19

26 Claims



A water permeable composition comprising a copolymer of a polysiloxane and N-vinyl pyrrolidone wherein the N-vinyl pyrrolidone is distributed through the thickness of the composition. The composition is useful for forming capsules containing a water soluble drug which can be implanted in an animal to distribute the drug thereto.

3,832,459

SPRAY DISINFECTANT-DEODORANT

Bernard Berkeley, Evanston, Ill., assignor to Hysan Corporation, Chicago, Ill.

Filed Mar. 18, 1971, Ser. No. 125,876

Int. Cl. A61l 9/00

U.S. Cl. 424—45

11 Claims

A three-phase aerosol spray disinfectant-deodorant combining the simultaneous use of a complexing polymer which has a detoxifying effect with respect to a phenolic-type germicidal agent and a surface anesthetic which desensitizes the mucous membrane when the spray composition is either inhaled or deposited on the skin.

3,832,460

ANESTHETIC-VASOCONSTRICTOR-ANTIHISTAMINE COMPOSITION FOR THE TREATMENT OF HYPERTROPHIED ORAL TISSUE

Carl M. Kostl, 704 Foxhall Rd., Bloomfield Hills, Mich. 48013

Continuation-in-part of Ser. No. 829,793, July 2, 1969, Pat. No. 3,574,859, which is a continuation-in-part of Ser. No. 742,535, July 5, 1968, abandoned. This application Mar. 19, 1971, Ser. No. 126,256

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3,832,461

METHOD FOR DISRUPTING PHEROMONE COMMUNICATION WITH CIS-7-DODECENYL-1-OL

James H. Tumlinson, III; Everett R. Mitchell; Stella M. Browner; Marion S. Mayer, all of Gainesville, Fla.; Nathan Green, Silver Spring, Md.; Ronald W. Hines, Alachua, Fla., and Donald A. Lindquist, Vienna, Austria, assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Mar. 15, 1972, Ser. No. 235,029

Int. Cl. A01n 17/14

U.S. Cl. 424—84

1 Claim

A method for controlling the mating behavior of the cabbage looper which method consists of disrupting pheromone communication with a specific inhibitor.

3,832,462

ANTIBIOTIC AV290-SYNTAN COMPLEXES AND ANIMAL FEED SUPPLEMENTS

Ping Shu, Pomona, and Murray Dann, Pearl River, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 86,601, Nov. 3, 1970, abandoned. This application Apr. 11, 1972, Ser. No. 243,093

The portion of the term of this patent subsequent to June 25, 1991, has been disclaimed.

Int. Cl. A61k 2/100

U.S. Cl. 424—123

5 Claims

This disclosure describes a reversible complex of antibiotic AV290 with a synthetic tanning agent and a process for preparing same. The complex is useful as an animal feed supplement which significantly enhances the growth rate of animals and poultry.

3,832,463

WOOD-TREATMENT COMPOSITIONS CONTAINING HEXAVALENT CHROMIUM

James Nicholson, Pontefract, England, assignor to Hickson's Timber Impregnation Co. (G.B.) Limited, Castleford, Yorkshire, England

Continuation of Ser. No. 68,484, Aug. 31, 1970, abandoned, which is a continuation-in-part of Ser. No. 583,089, Sept. 29, 1966, abandoned. This application June 2, 1972, Ser. No. 259,107

Claims priority, application Great Britain, Oct. 6, 1965, 42421/65

Int. Cl. A01n 11/00

U.S. Cl. 424—131

7 Claims

There are provided wax solutions self-dispersible in water-borne wood preservatives containing hexavalent chromium to form stable emulsions. There is also provided a method of preserving wood wherein wood is impregnated with said emulsions. The solutions comprise a hydrocarbon solvent having dissolved therein from 5 to 25 percent by weight of a hydrophobic wax and at least 4 percent by weight of a non-ionic surface active agent having an HLB value between 7 and 11, the surface active agent being a condensate of a long chain fatty alcohol or an alkyl phenol with ethylene oxide.

3,832,464

PESTICIDAL COMPOSITIONS CONTAINING PHOSPHORIC ACID ESTERS AND ELEMENTAL SULPHUR

Claude Hennart, Aubervilliers, France, assignor to Ciba-Geigy AG, Basel, Switzerland

Filed Sept. 13, 1971, Ser. No. 180,135

Claims priority, application France, Sept. 11, 1970, 70.33012

Int. Cl. A01n 11/06, 9/36

U.S. Cl. 424—175

5 Claims

Pesticidal composition comprising stabilised pesticidal phosphoric esters containing as stabilising agent for said esters

0.05 to 6 percent of a compound chosen between the known varieties of elemental sulphur.

Process to stabilise pesticidal phosphoric esters according to which 0.05 to 6 percent of a compound chosen among the known varieties of elemental sulphur is added to the composition containing the phosphoric ester.

3,832,465

INJECTABLE AMINO ACID COMPOSITION COMMENSURATE TO THE ANABOLIC NEED OF THE BODY AND METHOD OF USING SAME

Hossein Ghadimi, 3612 Berthu Dr., Baldwin, N.Y. 11510
Continuation-in-part of Ser. No. 206,536, Dec. 9, 1971, abandoned. This application Aug. 17, 1972, Ser. No. 281,317
Int. Cl. A61k 27/00

U.S. Cl. 424—177

11 Claims

Novel amino acid compositions suitable for intravenous alimentation are provided. They are composed by taking into account the fact that in intravenous alimentation, unlike ingestion, the administered amino acids do not pass through the liver before reaching other parts of the body. The compositions are ammonia-free, do not contain heretofore unidentified peptides and other impurities derived on protein hydrolysis, but contain cysteine, reduced amounts of methionine and increased amounts of branched-chain amino acids. They are tailored to the needs of the body at different ages and can be adapted to any desired requirement. Administered in recommended dosage the plasma-free amino acid content and proportion of the peripheral blood will remain within normal range.

3,832,466

3-AZOLYLPROPYNE FUNGICIDAL AGENTS

Gerhard Jager; Karl Heinz Buchel, both of Wuppertal-Elberfeld; Ferdinand Grewe, Burscheid, and Paul-Ernst Froberger, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
Filed May 26, 1972, Ser. No. 257,365

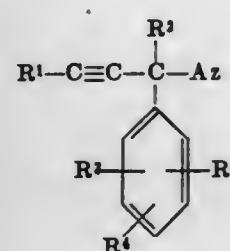
Claims priority, application Germany, June 9, 1971, 2128700

Int. Cl. A01n 9/22

U.S. Cl. 424—273

9 Claims

Fungicidal and bactericidal compositions comprising, and methods of combating fungi and bacteria using 3-azolylpropynes of the general formula



in which

R¹ is hydrogen, chlorine, bromine, iodine, alkyl, an optionally substituted aryl, aryloxyalkyl, arylthioalkyl, arylaminoalkyl or arylalkylaminoalkyl group, alkoxyal-

kyl, alkylmercaptoalkyl, alkylaminoalkyl, or dialkylaminoalkyl wherein the two alkyl radicals of the dialkylamino moiety may form, with the amine nitrogen atom, a five-membered to seven-membered ring that may contain at least one further hetero-atom or hetero-group, R² is alkyl, optionally substituted cycloalkyl or optionally substituted aryl,

R³, R⁴ and R⁵ each independently is hydrogen, alkyl, alkoxy, alkylmercapto or an electronegative substituent, and Az represents an optionally substituted five-membered heterocyclic radical containing one or more nitrogen atoms,

or their salts.

3,832,467

INSECTICIDAL CHRYSANTHEMATE COMPOSITIONS AND THEIR METHOD OF USE

Michio Nakanishi, and Toshihiko Mukai, both of Oita, Japan, assignors to Sumitomo Chemical Company, Limited, Higashi-ku, Osaka, Japan

Division of Ser. No. 750,776, Aug. 7, 1968, Pat. No. 3,702,333. This application Sept. 7, 1972, Ser. No. 287,023

Claims priority, application Japan, Aug. 11, 1967, 42-51511; Mar. 5, 1968, 43-14200

Int. Cl. A01n 9/28

U.S. Cl. 424—285

2 Claims

2-methyl-5-(2-propynyl)-3-furylmethyl 2,2,3,3-tetramethylcyclopropanecarboxylate and 2-methyl-5-(2-propynyl)-3-furylmethyl chrysanthemate are used to control insects.

3,832,468

USE OF CERTAIN SMECTITE CLAYS TO EXTEND RESIDUAL ACTIVITY OF PARTICULAR HYDROXAMATES

Archibald M. Hyson, Newark, and John K. Scoggin, Wilmington, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 45,229, June 10, 1970, abandoned. This application May 14, 1971, Ser. No. 143,682
Int. Cl. A01n 9/12, 9/20

U.S. Cl. 424—298

8 Claims

Pesticidal formulations of methyl O-(methyl-carbamyl)thiolacetohydroxamate and methyl O-carbamyl thiolacetohydroxamate with adsorptive uncalcined smectite-containing clays having extended residual activity, and formulations of methyl O-(methylcarbamyl)thiolacetohydroxamate and adsorptive uncalcined smectite-containing clays having reduced phytotoxicity on pesticide-sensitive crops such as cotton, corn and other leafy vegetables.

3,832,469

ESTRUS AND OVULATION REGULATION

Bruce R. Downey, Morrisonville, N.Y., and Douglas S. Irvine, Terrebonne, Quebec, Canada, assignors to American Home Products Corporation, New York, N.Y.

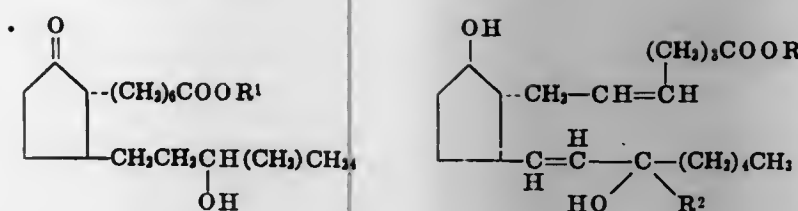
Filed Apr. 16, 1973, Ser. No. 351,687

Int. Cl. A61k 27/00

U.S. Cl. 424—318

6 Claims

A method is disclosed whereby estrus is induced and ovulation is regulated in domestic animals by administering a prostaglandin derivative of formula 1a or 1b,



in which R¹ and R² each are hydrogen or lower alkyl, to the animal during the functional life of a corpus luteum of said animal.

3,832,470

TREATMENT OF ANGINA PECTORIS WITH A LONG-ACTING VASODILATING AGENT AND A BETA ADRENERGIC RECEPTOR BLOCKING AGENT

Henry Irving Russek, 176 Hart Blvd., Staten Island, N.Y. 10301

Continuation of Ser. No. 701,079, Jan. 29, 1968. This application Oct. 6, 1969, Ser. No. 866,098

Int. Cl. A61k 27/00

U.S. Cl. 424—330

1 Claim

A pharmacologic preparation is disclosed for the treatment of angina pectoris consisting of a mixture of a long-acting vasodilating agent such as pentaerythritol tetranitrate, erythritol tetranitrate or isosorbide dinitrate and a beta adrenergic receptor blocking agent such as 1-(3,4-dichlorophenyl)-2-isopropylamino-1-ethanol, 1-(3,4-dihydroxyphenyl)-2-isopropylamino-1-ethanol, 1-(2,5-dimethoxyphenyl)-2-methyl-2-butylamino-1-ethanol, 1-(3,4-dichlorophenyl)-2-methyl-2-isopropylamino-1-ethanol, 1-(4-methanesulphonylaminophenyl)-2-isopropylamino-1-ethanol, 1-(3-tolyl)-3-isopropylamino-2-propanol, 1-(5,6,7,8-tetrahydronaphth-2-yl)-2-s-butylamino-1-ethanol, 1-(2-allylphenoxy)-3-isopropylamino-2-propanol, 1-(p-nitrophenyl)-2-isopropylamino-1-ethanol, 1-(p-nitrophenyl)-2-n-butylamino-1-ethanol or 1-(isopropylamino)-3-(1-naphthyl)-2-propanol hydrochloride. The vasodilating agent and the beta blocking agent can be administered together or separately at short intervals such that the therapeutic actions of the two drugs overlap.

3,832,471

METHOD OF FEEDING CATS THAWED FROZEN FISH FLAVORED WITH 5'-NUCLEOTIDES

John A. Siregar, Allentown, Pa., assignor to Liggett & Myers Incorporated, New York, N.Y.

Filed Aug. 24, 1972, Ser. No. 283,372

Int. Cl. A23b 3/06; A23k 1/10

U.S. Cl. 426—2

4 Claims

A prepared food product containing thawed frozen fish and as an additive thereto, at least one 5'-nucleotide or salt thereof in proportion at least sufficient to improve the flavor of the thawed frozen fish.

3,832,472

WHEAT PRODUCT

Nelson E. Rodgers, Wayzata, and Jack R. Durst, Osseo, both of Minn., assignors to The Pillsbury Company, Minneapolis, Minn.

Filed Mar. 17, 1972, Ser. No. 235,700

Int. Cl. A23c 1/10

U.S. Cl. 426—148

14 Claims

This wheat product comprises endosperm in which the cellular structure is completely disrupted and dispersed. The

starch granules are free and unassociated with gluten protein particles. The granules are intact, ungelatinized and retain the native anisotropic structure. The gluten protein is metamorphosed to smoothly contoured particles containing very little starch and is substantially undenatured with respect to doughing function. Depending on intended use, the germ and aleurone fractions of the wheat grain can be excluded or included in the product. The product can be used as an aqueous dispersion or in a dried form.

3,832,473

MAINTENANCE OF FLAVOR INTEGRITY IN PRESSED MINT ASSORTMENTS

Miroslaw Sahaydak, Great Neck, N.Y., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed Mar. 8, 1972, Ser. No. 232,955

Int. Cl. A23l 1/26; A23g 3/00

U.S. Cl. 426—175

7 Claims

Flavor integrity in an assortment of pressed mints packaged with different flavors adjacent to one another in a unitary package, is maintained by utilizing a solid particulate emulsion form of the flavor oil. The flavor oil is emulsified in a mixture of corn syrup solids, an emulsifier, and either glycerol, a non-toxic glycol or mixtures thereof; the molten mixture obtained is extruded into a cold fluid to obtain a solidified filament which is broken into small particles. From 1 percent to 10 percent, preferably from 2.25 percent to 9 percent by weight, based on the total weight of the formulation, of a differently flavored emulsion is incorporated into each pressed mint. A preferred assortment contains, in a unitary package, pressed mints flavored with a solid particulate emulsion of orange oil, lemon oil, lime oil, cherry essence (imitation), oil of wintergreen, pineapple essence (imitation), grapefruit oil and peppermint oil, each mint in the assortment being flavored with one of the aforementioned flavors.

3,832,474

CARBONATED BEVERAGE SYSTEM

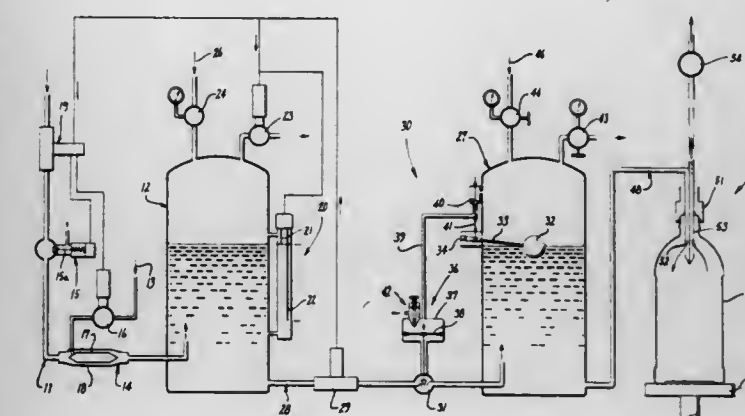
Fred A. Karr, Redwood City, Calif., assignor to Shasta Beverages Division of Consolidated Food Corporation, Hayward, Calif.

Filed June 19, 1972, Ser. No. 264,343

Int. Cl. C02d 1/02

U.S. Cl. 426—477

2 Claims



A system for continuously preparing a carbonated product and filling containers. Carbon dioxide is applied to a liquid under carbonating pressure and the carbonated liquid is

passed to a stabilizing tank maintained at a pressure at least equal to carbonating pressure. Thereafter, the liquid is directed to a pressure reduction tank in which the pressure is lowered to a level just sufficient to produce the desired flow rate to the filler. By reducing the pressure prior to filling, a filler of the gravity or vacuum type may be employed without excessive foaming. Or, if a counter pressure filler is employed, operating pressure is considerably lowered.

3,832,475

PREVENTION OF CRYSTALLIZATION OF SPARINGLY SOLUBLE FLAVONOIDS IN FOOD SYSTEMS

Amnon Dov Zirlin, Haifa, Israel, assignor to Centre for Industrial Research (CIR) Ltd., Haifa, Israel

Filed Sept. 7, 1972, Ser. No. 286,987

Claims priority, application Israel, Oct. 22, 1971, 37995

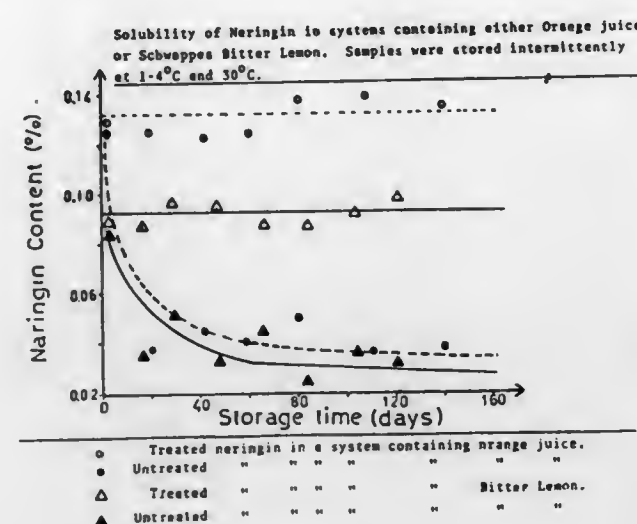
Int. Cl. A231 1/00

U.S. Cl. 426—365

6 Claims

A method for prevention of crystallization of sparingly soluble flavonoids in acidic soft drinks is described. The method consists in the preparation of a uniform dry mixture of the

flavonoid with sucrose and heating the dry mixture to a caramel melt stage. This treatment results in an increase of



four fold of the flavonoid solubility in acidic soft drinks, without substantial change in the organoleptic property of the flavonoid.

ELECTRICAL

3,832,476

ELECTROSLAG MELTING OF INGOTS

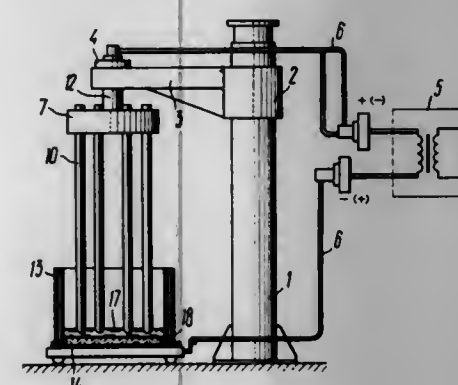
Boris Izrallevich Medovar, ulitsa A. Barbu-sa, 22/26, kv. 109; Valery Evgenievich Lanevsky, ulitsa V. Kuchera 2, kv. 8; Jury Fedorovich Alferov, bulvar Lepse, 29, kv. 64; Rudolf Solomonovich Dubinsky, ulitsa Politekhnicheskaya, 5, kv. 209; Mikhail Elevich Berezovsky, ulitsa Lomonosova, 21/14, kv. 54; Leonty Vasilievich Chekotilo, ulitsa A. Barbjusa 22/26, kv. 64; Leonid Viktorovich Pavlov, ulitsa Borschagevskaya, 234, kv. 6, all of Kiev; Veniamin Alexandrovich Ishunkin, ulitsa Tolbukhina, 7, kv. 142, Moscow; Anatoly Ivanovich Shevtsov, ulitsa Vorovsko 5, kv. 9, and Semen Yakovlevich Grinshpon, ulitsa Butova 128, kv. 37, both of Kulebaki Gorkovskoi oblasti, all of U.S.S.R.

Filed Dec. 6, 1973, Ser. No. 422,159

Int. Cl. H05b 7/10

U.S. Cl. 13—15

1 Claim



An installation for the electroslag melting of ingots comprising a column with a carriage secured thereon to carry an electrode holder with consumable electrodes to be melted in a cooled mould mounted on a bottom plate. The electrode holder has a standard head formed as a plate with holes for securing the consumable electrodes therein. The holes of the plate that have electric insulation are alternated with the holes lacking insulation.

3,832,477

MEANS FOR DIP-FORMING

Gosta Karlsson, Vasteras, and Borje Nilsson, Halsingborg, both of Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden

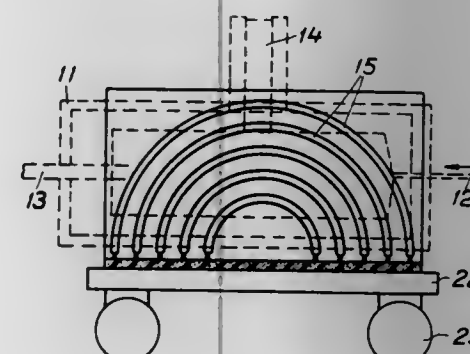
Filed May 24, 1972, Ser. No. 256,588

Claims priority, application Sweden, June 3, 1971, 7154/71

Int. Cl. H05b 5/16

U.S. Cl. 13—27

3 Claims



Wires, rods, or tubes upon which melt is to be applied are passed through a dip-forming crucible. U-shaped heaters are placed at the sides of the crucible and can be moved away from the crucible.

3,832,478

METHOD FOR PREVENTING EARLY DAMAGE TO FURNACE REFRACTORY SHAPES

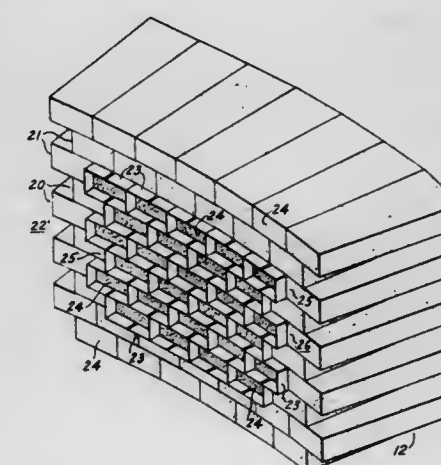
William C. Books, Hellertown, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Dec. 5, 1973, Ser. No. 422,036

Int. Cl. F27b 3/16; F27d 1/06

U.S. Cl. 13—35

13 Claims



Method for preventing early damage to the refractory lining at critical wear areas in a metallurgical furnace, such as an electric arc furnace and the like, including laying-up the critical wear areas of the refractory lining with standard refractory shapes encased in metal. The metal cases extend a distance beyond the hot faces of the refractory shapes to form box-like configurations which act as receptacles and anchors to retain pulverulent refractory material which is subsequently sprayed over the hot faces of the refractory shapes prior to initial start-up of the furnace. The pulverulent sprayed refractory material insulates and protects the hot faces of the refractory shapes from a rapid rate of increase in temperature which occurs during initial melt down and heat up at the beginning of a campaign.

3,832,479

ELECTRONIC APPARATUS FOR PROGRAMMED AUTOMATIC PLAYING OF MUSICAL ACCOMPANIMENT SYSTEMS

Lucio M. Aliprandi, Aspio Terme Di Camerano, Italy

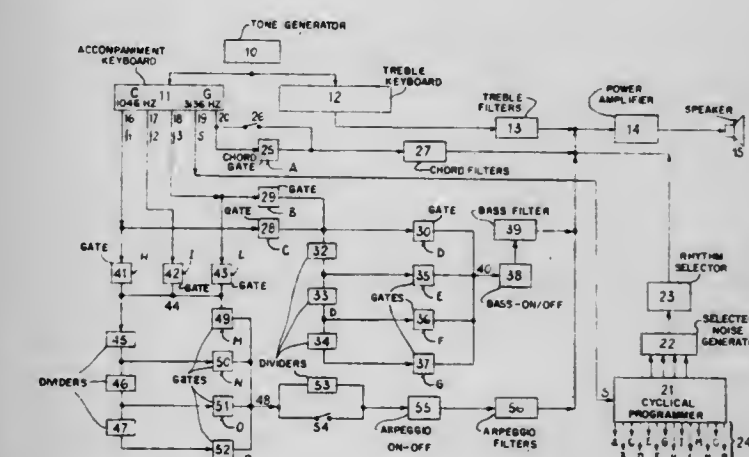
Filed Feb. 5, 1973, Ser. No. 329,640

Claims priority, application Italy, Mar. 1, 1972, 48667/72

Int. Cl. G10h 1/00

U.S. Cl. 84—1.03

7 Claims



An electronic circuit or apparatus which, when properly combined with a keyboard electronic instrument of the button

or similar type, allows automatic and programmable playing of musical accompaniments including basses, chords, arpeggio and scales, formed by notes and/or groups of notes played in periodical succession, all of which is correlated by a programmed rhythmical control.

3,832,480

INTERMEDIATE PACKAGE AND METHOD FOR MAKING

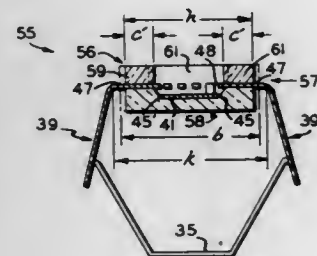
Thomas D. Bunker, Bradford, Pa., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed July 7, 1972, Ser. No. 269,570

Int. Cl. H05k 5/00

U.S. Cl. 174—52 S

3 Claims



There is disclosed an improved intermediate package to be utilized in integrated circuits wherein the end portions of individual components leads and the lateral edges of the packages' central pad are substantially vertically aligned. Additionally, a method for making the above package is also disclosed.

3,832,481

HIGH TEMPERATURE, HIGH PRESSURE OIL WELL CABLE

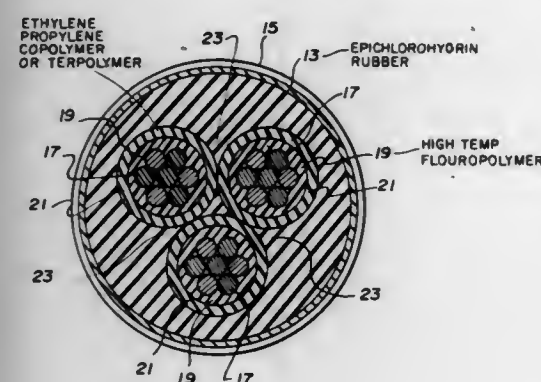
Clinton A. Boyd, Tulsa, Okla., and Donatas Tijunelis, Buffalo Grove, Ill., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Oct. 4, 1973, Ser. No. 403,579

Int. Cl. H01b 3/18, 7/18, 7/02

U.S. Cl. 174—102 R

9 Claims



An electrical conducting cable for submersible motors adapted for use in high temperature high pressure oil wells. The cable includes separately insulated conductors disposed within an epichlorohydrin rubber jacket. The conductors are insulated with a layer of high temperature, high molecular weight, extrudable fluorocarbon, such as 1:1 copolymer of ethylene and chlorotrifluoroethylene, and a layer of high temperature thermosetting rubber, such as ethylene propylene copolymers and terpolymers, either layer being suitable as the primary insulation and the other layer as the secondary insulation. The jacketed cable unit is protected by an outer armor formed of a suitable metal. The cable thus formed is flexible, abrasion resistant, solvent resistant, liquid impervious, heat insensitive and unaffected by well environment.

EHV RAIN-SHIELD AND VOLTAGE GRADING RING FOR HIGH-VOLTAGE EQUIPMENT

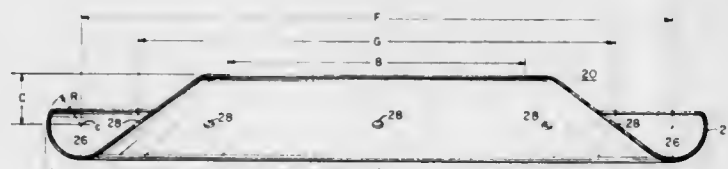
Charles W. Trageser, Murrysville, and John R. Perulfi, Monroeville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 17, 1972, Ser. No. 272,705

Int. Cl. H01b 17/48

U.S. Cl. 174—141 R

5 Claims



A combined rain-shield and voltage grading ring is provided for the upstanding insulating column of a high-voltage circuit interrupter, or of other high-voltage equipment, to provide a variety of functions, namely voltage-gradation along the length of the upstanding insulating column, and, additionally, to prevent the water from cascading down the column, which would reduce the voltage-withstand of the upstanding supporting column.

3,832,483

LINE SEQUENTIAL COLOR VIDEO ENCODING WITH EQUALLY CONTRIBUTED LUMINANCE

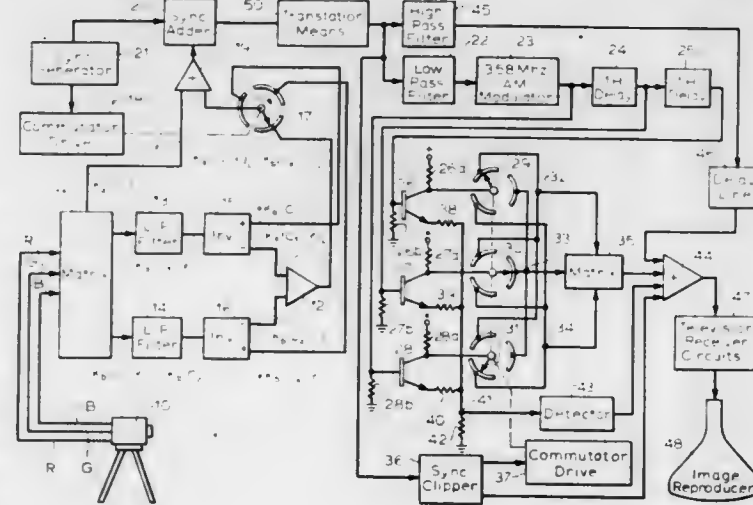
Howard F. Jirka, Mount Prospect, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 277,027, Aug. 1, 1972, abandoned. This application Dec. 27, 1972, Ser. No. 319,107

Int. Cl. H04n 9/34

U.S. Cl. 178—5.4 CD

23 Claims



An encoding system for color television signals wherein three color-difference signals representative of the color of a

scene and a luminance signal representative of the brightness of the scene are encoded as three-line sequential signals with relative amplitudes such that when the three sequential signals are matrixed in equal proportions a luminance signal is formed representative of the average luminance level of the picture over the preceding three lines.

3,832,484

METHOD AND MEANS FOR REPRODUCING A MIRROR-IMAGE RECORD OF A SUBJECT COPY IN A FACSIMILE MASTER-MAKING MACHINE

Akira Tanaka, Fujisawa, Japan, assignor to Gakken Co., Ltd., Tokyo, Japan

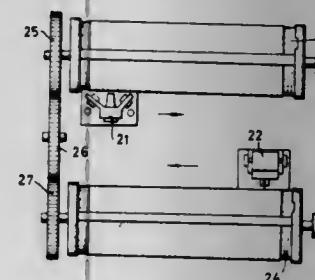
Filed Nov. 17, 1972, Ser. No. 307,565

Claims priority, application Japan, Nov. 20, 1971, 46-93353; Mar. 23, 1972, 47-29236

Int. Cl. G03b 27/10; H04n 1/14

U.S. Cl. 178—6.6 B

15 Claims



A scanning head and a recording head supported against a subject copy and a record medium wrapped side-by-side around a single rotary drum in relationship are caused to move synchronously in opposite directions, either away from or toward each other, parallel to the axis of the rotary drum in relation with the rotation thereof. A record of the subject copy thus reproduced on the record medium is reversed as to its left and right, so that the record medium can be used as a master in lithographic and other printing processes.

3,832,485

INFORMATION SELECTION IN IMAGE ANALYSIS SYSTEMS EMPLOYING LINE SCANNING

Leon Andre Pieters, Cambridge, England, assignor to Image Analysing Computers Limited, Melbourne, England

Filed Aug. 7, 1972, Ser. No. 278,235

Claims priority, application Great Britain, Aug. 7, 1971, 372261/71

Int. Cl. H04n 5/22, 7/18

U.S. Cl. 178—6.8

53 Claims

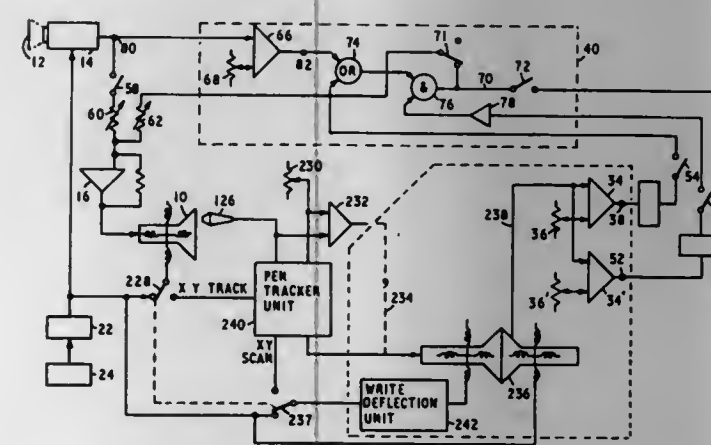


Image analysis apparatus and methods of operating same, having a surface on which outlines or areas can be delineated by hand, using either a light pen or conventional drawing in-

strument such as a pencil and near or on which a representation of a field under analysis is generated, a scanner for generating a video signal relating to the delineated outline or area in synchronism with the scanning of the field under analysis and circuit means for gating the video signal obtained from scanning the field, operated by pulses obtained from the video signal relating to the delineation.

3,832,486

MODULATOR CLAMP CIRCUIT

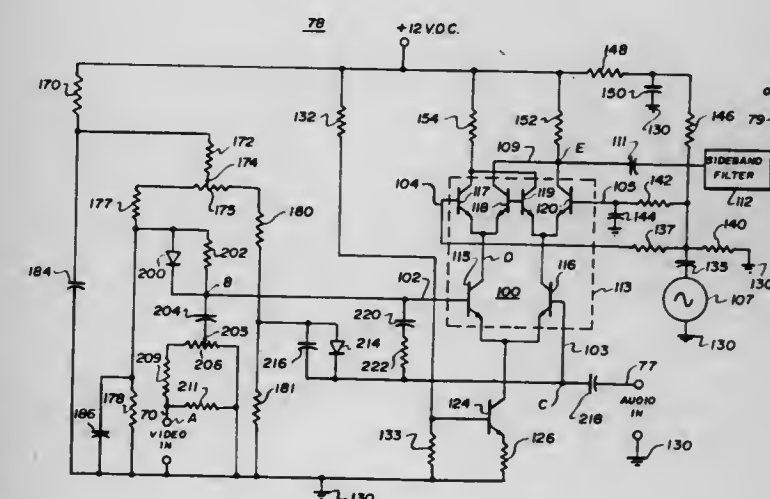
Paul Victor Wanek, Mount Prospect, Ill., assignor to Warwick Electronics Inc., Chicago, Ill.

Filed Mar. 16, 1973, Ser. No. 342,317

Int. Cl. H04n 5/40

U.S. Cl. 178—7.1

14 Claims



A video tape recorder system includes a modulator circuit for modulating an RF carrier with video information derived from scanning a video tape. The modulator circuit is formed by a differential amplifier with a series capacitor-resistor network between a pair of inputs of the differential amplifier to effectively cancel, by means of common mode rejection, an AC portion of the video information. A diode-capacitor network connected with one differential amplifier input reinserts DC into the video information signal, and forms a part of a temperature compensated bias supply for the inputs of the differential amplifier.

3,832,487

METHOD OF CONVERTING IMAGE SIGNALS GENERATED IN A NON-INTERLACED MANNER INTO IMAGE SIGNALS INTERLACED IN ACCORDANCE WITH A TELEVISION STANDARD

Edmond de Niet, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,344

Claims priority, application Netherlands, Dec. 21, 1971, 7117542

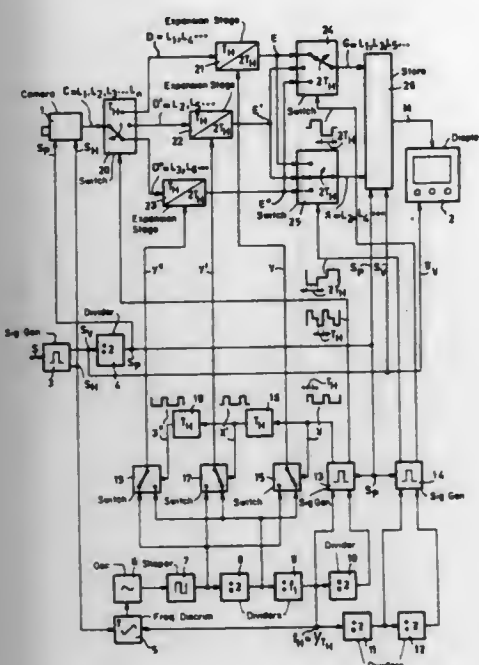
Int. Cl. H04n 5/02

U.S. Cl. 178—7.2

10 Claims

A method of converting image signals $L_1, L_2, L_3, \dots, L_n$ generated in a non-interlaced manner for standard display into interlaced signals $L_1, L_3, \dots, L_5, L_7, \dots$ and $L_2, L_4, \dots, L_6, L_8, \dots$. The image signals are split up into three groups $L_1, L_4, \dots, L_7, L_{10}, \dots$ and L_3, L_6, \dots whereafter the duration of occurrence of the image signals is extended from one line period to two subsequent line periods. Subsequently two groups of image signals L_1, L_3, L_5, \dots and L_2, L_4, L_6, \dots occurring for two line periods are formed which are

separately and simultaneously written in a store. By reading out the store at a rate which is twice as fast signals which are



interlaced in accordance with the standards become successively available.

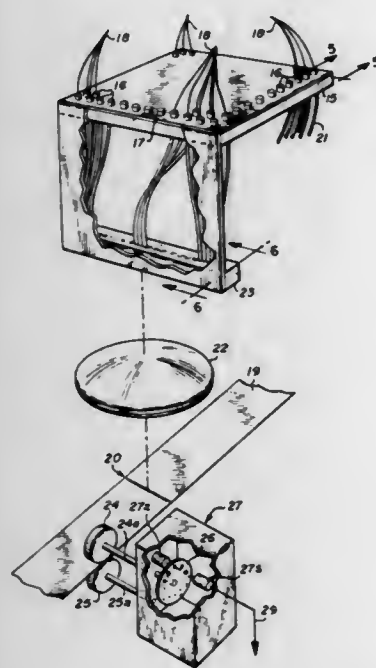
3,832,488 NON-IMPACT PRINTER

Wm. David Fahey, Santa Clara, and Robert W. Johnson, Los Altos, both of Calif., assignors to The Singer Company, Binghamton, N.Y.

Filed June 29, 1972, Ser. No. 267,586
Int. Cl. H04I 15/34; G09F 9/34

U.S. Cl. 178-15

8 Claims



A computer output microfilm printer which employs light-emitting diodes and flexible optic light guides to generate images to be printed on light sensitive film. The light guides have corresponding ends disposed in close proximity to the diodes for receiving light and opposite ends in a linear array which extends transversely of the film. The linear array of light guide ends is imaged on the film by means of a lens. The film is moved continuously in one direction past the optical image of light from the light guide array. By selective energization of the diodes, a complete line of characters is printed in linear segments in a line scan mode, by discrete points of light impinging on the film surface. A film-movement encoder pro-

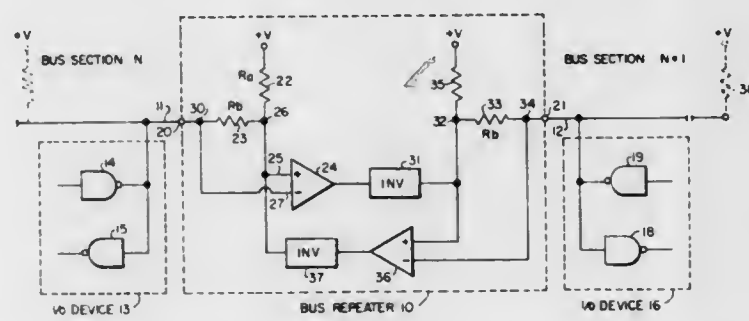
vides mechanical synchronization pulses to control circuitry. Decoding circuitry subdivides characters to be printed into linear segments in response to character binary codes from an input data source. Switching circuitry energizes the diodes in response to the linear segment subdivisions from the decoding circuitry.

3,832,489 BIDIRECTIONAL BUS REPEATER

Rallapelli Krishna, Maynard, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.
Filed Feb. 26, 1973, Ser. No. 334,951
Int. Cl. H04I 25/20

U.S. Cl. 178-71 R

6 Claims



A bus repeater circuit for interconnecting first and second corresponding transmission lines for first and second adjacent bidirectional electrical bus sections. The bus repeater circuit includes first and second current sensors associated with each transmission line to apply a bipolar signal to first and second amplifiers respectively. Output signals from a given sensor of a first polarity indicate that the associated transmission line is transmitting a signal. The associated amplifier couples that signal to the other bus wire. Signals of a second polarity indicate that the associated bus transmission line is not transmitting a signal to the repeater and the associated amplifier provides a corresponding signal, thereby avoiding a latched condition.

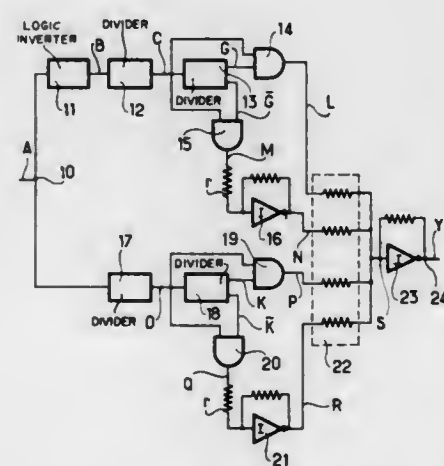
3,832,490 CODER FOR INCREASE OF TRANSMISSION SPEED

Didier Leonard, Boulogne-sur-Seine, France, assignor to Compagnie Industrielle Des Communication Cit-Alcatel, Paris, France

Filed Oct. 13, 1972, Ser. No. 297,229
Int. Cl. H04I 3/00

U.S. Cl. 178-68

6 Claims



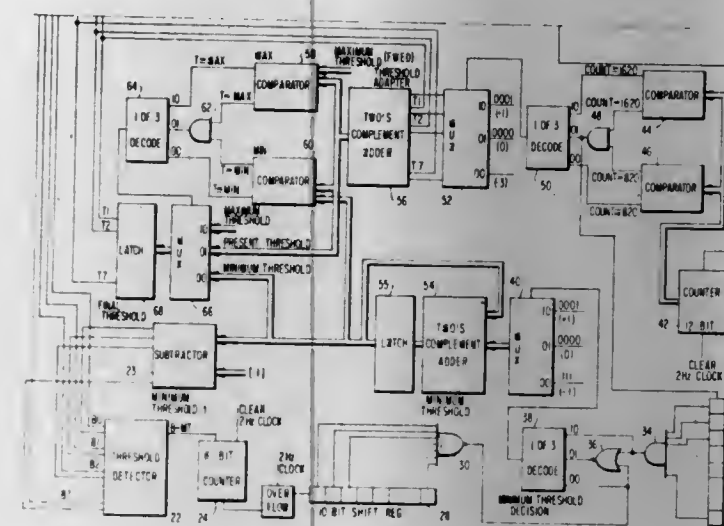
The invention concerns a device for transmitting binary values at a high speed in a channel having a limited bandwidth in the form of a signal having five levels. It is applied to transmission of asynchronous type.

3,832,491 DIGITAL VOICE SWITCH WITH AN ADAPTIVE DIGITALLY-CONTROLLED THRESHOLD

Joseph Albert Sciuilli, Rockville, and Paul Andrew Lutz, Gaithersburg, both of Md., assignors to Communications Satellite Corporation, Washington, D.C.
Filed Feb. 13, 1973, Ser. No. 331,735
Int. Cl. H04b 15/00

U.S. Cl. 179-1 VC

10 Claims



A voice switch for connecting voice PCM samples in a channel to an output line, said switch comprising a digital adaptive threshold generating means. The threshold level, against which voice samples are compared, is varied in accordance with the loudness of the talker by comparing the number of times the threshold is exceeded over a given period with a reference number. A variable minimum threshold level is also provided at a level just above the channel noise level.

3,832,492 PCM SWITCHING NETWORK PROVIDING INTERLEAVING OF OUTGOING AND INCOMING SAMPLES TO A STORE DURING EACH TIME SLOT

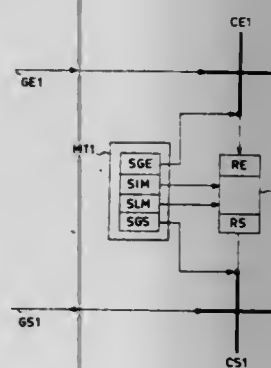
Pierre Charransol; Jacques Hauri, both of Paris, and Claude Athenes, Montreuil, all of France, assignors to International Standard Electric Corporation, New York, N.Y.
Filed Mar. 17, 1972, Ser. No. 235,828

Claims priority, application France, Mar. 18, 1971, 71.09494

Int. Cl. H04j 3/00

U.S. Cl. 179-15 AT

5 Claims



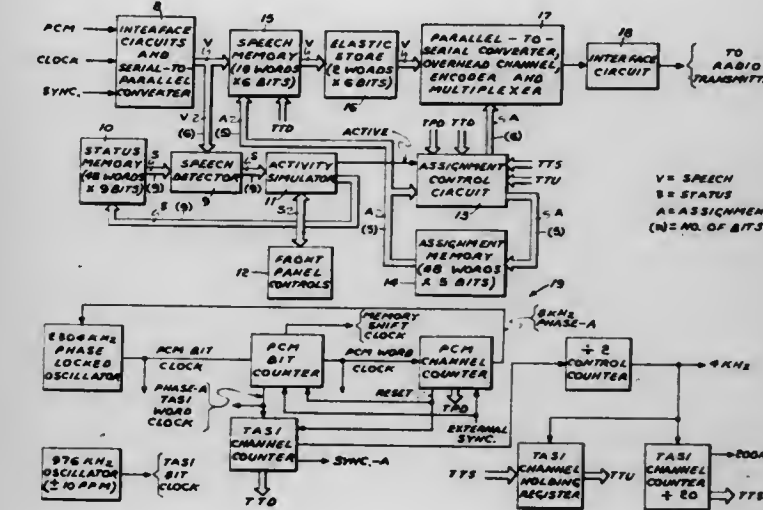
In a space-time-space switching network an interleaving technique is used to enable increased time (doubling) for read and write operations. The system is realized by adding input and output registers to an exemplary system and adding controls for the registers. The addition of the registers and controls specifically enables a coded sample from subscriber A to be read out in the speech store during a first cycle, a coded sample from subscriber B to be read out in the same store in the next cycle and to be transmitted through the network during the next cycle.

3,832,493 DIGITAL SPEECH DETECTOR

James M. Clark, Cedar Grove, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.
Filed June 18, 1973, Ser. No. 371,191
Int. Cl. H04j 5/00

U.S. Cl. 179-15 AS

23 Claims



This relates to a digital speech detector applicable to a TASI communication system wherein the detector detects the presence or absence of speech in a plurality of digital code groups each of which indicate a quantized amplitude of a speech sample. The speech detector is divided into two portions. The first portion is an instantaneous detector that detects the quantized amplitude of each of the code groups in sequence and produces an up count signal when the detected quantized amplitude is greater than a first threshold value or less than a second threshold value less than the first threshold value and produces a down count signal when the detected quantized amplitude is between the first and second threshold values. The second portion includes an integrating counting circuit which integrates the up and down count signals and produces a resultant value of integration. The counting circuit produces a second output signal indicating speech activity in the code groups when the value of integration is above a third threshold value and produces a second output signal indicating an absence of speech activity in the code groups when the value of integration is below the third threshold value. The counting circuit has three different counting rates. The greatest counting rate occurs between a minimum count level and the third threshold value until the third threshold value is reached. An intermediate counting rate occurs between the third threshold value after it has been reached and a maximum count level until the maximum count level is reached. The smallest counting rate occurs between the maximum count level after it has been reached and the minimum count level until the minimum count level is reached again. The first output signal from the counting circuit is the signal that controls the assignment of those PCM code groups having speech activity to a particular one of the TASI channels transmitted from the transmitting portion of the TASI communication system.

3,832,494 SIGNAL MULTIPLEXER AND DEMULTIPLEXER

Howard N. Seim, Minneapolis, Minn., and Neal E. Roebke, Greendale, Wis., assignors to Control Data Corporation, Minneapolis, Minn.

Filed June 10, 1970, Ser. No. 32,496

Int. Cl. H04j 1/08

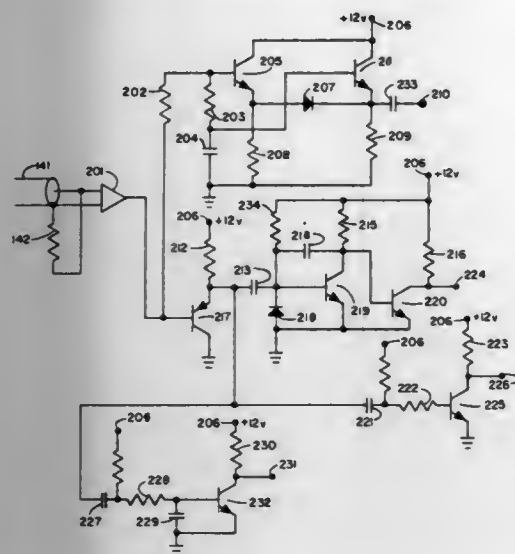
U.S. Cl. 179-15 BA

4 Claims

The synchronizing and data signals for the displaying of data on the face of a video display unit are multiplexed into one

composite signal by the use of voltage summing apparatus. The composite signal is transmitted on a single coaxial cable

sub-system transceiver units via a plurality of links extending therebetween includes a logically inverting series circuit for providing an odd number of inversions, the output of the inverting circuit being coupled to its input to provide an unstable loop arrangement to generate the square-wave clock pulses, the loop including a portion of the common unit and a selected one of the links together with a portion of the sub-system unit associated therewith. A switching arrangement in



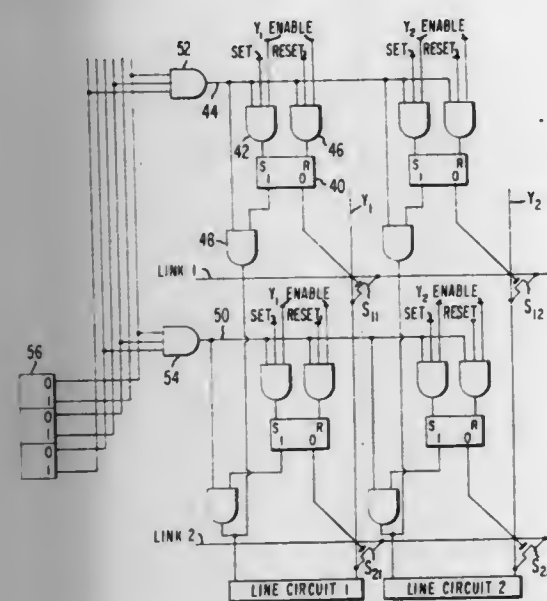
to the remotely located display unit where the original signals are reconstructed by circuits sensitive to frequency, level, or both.

3,832,495

INFORMATION TRANSFER SYSTEM FOR A PBX
Norman Hovagimyan, and Murray Rosenblatt, both of Cherry Hill, N.J., assignors to RCA Corporation, New York, N.Y.
Filed Dec. 18, 1972, Ser. No. 315,894
Int. Cl. H04q 3/50

U.S. Cl. 179—18 GF

10 Claims



In a private telephone branch exchange, including a cross-point switching matrix, a system for transferring non-verbal control information such as: dial pulse information; camp-on information; and message complete information. The control information is transferred between utilization devices, such as line circuits and registers, over a path which is external to the switching matrix.

3,832,496

LINK ACCESSING ARRANGEMENT INCLUDING SQUARE-WAVE CLOCK GENERATOR
James J. Vrba, Berwyn, Ill., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Jan. 2, 1973, Ser. No. 320,398
Int. Cl. H04q 11/04

U.S. Cl. 179—18 J

4 Claims

A link accessing arrangement for supplying square-wave clock pulses from a common transceiver unit to a plurality of

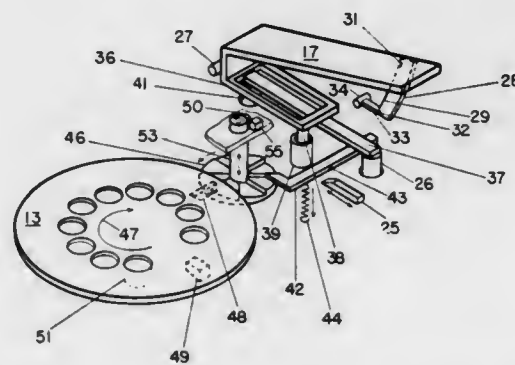
the common unit transfers selectively the links and their sub-system units into and out of the loop to cause the clock pulses to be supplied to and from the selected sub-system units, and a delay circuit connected in series in the loop located within the common unit limits the frequency of the clock pulse signals. A scanner in the common unit causes the switching circuit to transfer the links and their sub-system units sequentially in response to the clock pulses.

3,832,497

TELEPHONE ATTACHMENT FOR LIMITING DIALING
Kuno J. Vogt, 5854 Kanton Ct., San Diego, Calif. 92122
Filed Nov. 20, 1972, Ser. No. 307,816
Int. Cl. H04m 1/66

U.S. Cl. 179—90 D

4 Claims



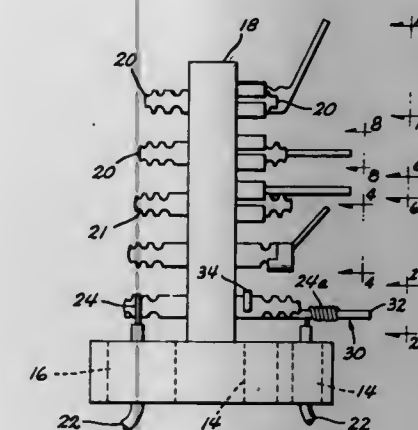
A telephone long distance attachment for attaching to a standard telephone on the outside housing thereof, without in any way dismantling the telephone, for preventing long distance calls and at the same time facilitating local calls in which a first ratchet mechanism limits the number of dialed digits to those required for a local call only, a second ratchet mechanism prevents dialing the operator on the first dial, a third ratchet mechanism prevents the release of the telephone buttons before they are fully pressed to prevent dialing by depressing the buttons.

3,832,498

ADAPTER ENABLING TELEPHONE SWITCHING EQUIPMENT TERMINALS TO BE WIRE WRAPPED
Edward L. Lawson, 538 N. Fifth St., Bayport, Minn. 55003
Filed Oct. 9, 1973, Ser. No. 404,647
Int. Cl. H04q 1/02

U.S. Cl. 179—98

9 Claims



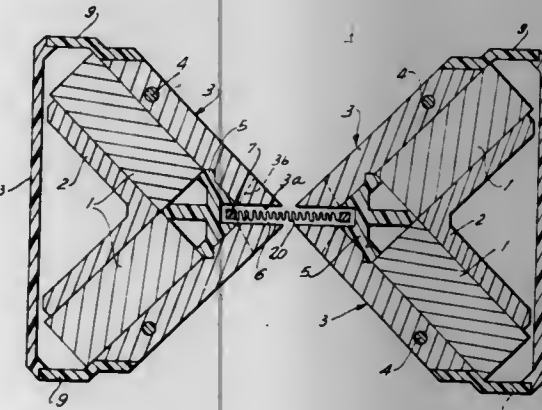
One end of an adapter structured in accordance with the invention is soldered to a terminal strip of a main distributing frame located in the central office of a telephone exchange. When so soldered, the adapter provides a shank having a square cross section that projects at a preferred angle so as to enable the shank to be wire wrapped by means of an appropriate tool, thereby obviating the need for any hand soldering of wires to the terminal strip as heretofore done. Inasmuch as main frames, even those of the same manufacturer, differ in construction, and obviously the terminal strips incorporated therein do too, several ways are herein disclosed for enabling my adapter to be soldered to the various terminal strips encountered in present installations.

3,832,499

ELECTRO-ACOUSTIC TRANSDUCER
Oskar Heil, 1775 Panott Dr., San Mateo, Calif. 94402
Filed Jan. 8, 1973, Ser. No. 321,826
Int. Cl. H04r 9/06

U.S. Cl. 179—115.5 PV

11 Claims



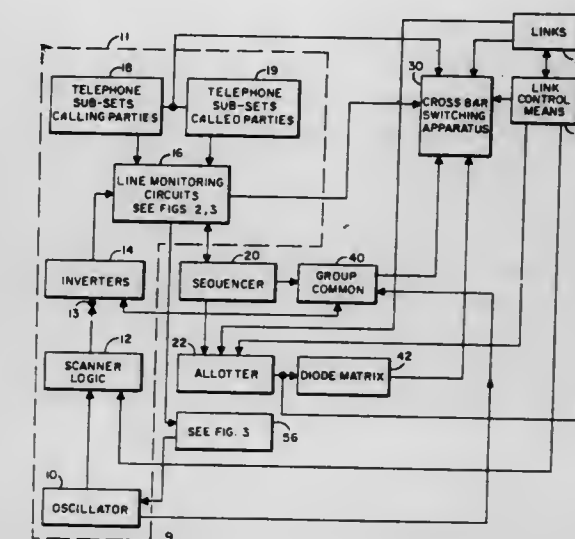
An electro-acoustic transducer comprising permanent magnet means producing a magnetic field and defining a space communicating with the outer atmosphere, and diaphragm means located in said space and comprising a corrugated sheet of flexible material and a metal foil applied in a meander pattern to at least one face of the plastic sheet.

3,832,500

AUTOMATIC TELEPHONE SYSTEM WITH IMPROVED LINE SELECTING APPARATUS
Ben A. Harris, Irondequoit, N.Y., assignor to Dynalec Corporation, New York, N.Y.
Filed Nov. 22, 1972, Ser. No. 308,741
Int. Cl. H04q 3/32

U.S. Cl. 179—186 E

6 Claims



An automatic telephone system utilizing matrix switching apparatus such as a crossbar switch and includes (1) a plurality of links wherein each link is responsive to a single appearance with respect to the cross-bar switch and (2) line selecting apparatus. The line selecting apparatus is coupled to the matrix switching apparatus and includes an oscillator which is effective to provide a stream of pulses, scanner logic responsive to such pulses to provide a plurality of level dependent function signals, particular ones of which correspond to decimal units and decimal tens respectively, with a particular combination of units and tens signals corresponding to a particular line; a plurality of monitoring circuits coupled to the scanner logic, each having a particular units terminal and a particular tens terminal and sequentially effective when each of these particular terminals simultaneously receives the function level signals to effect the actuation of a particular hold magnet in the crossbar switching apparatus. The scanner logic thereby causes the sequential actuation of line monitoring circuits and establishes crosspoints in the matrix switching apparatus for ringing and completing calls between an originating telephone subset and a terminating subset. The line selecting apparatus further includes a single current detector circuit coupled to the plurality of monitoring circuits and effective when one of such circuits is actuated for turning off the oscillator.

3,832,501

BREAK-AWAY SAFETY SWITCH MOUNTING BRACKET KIT

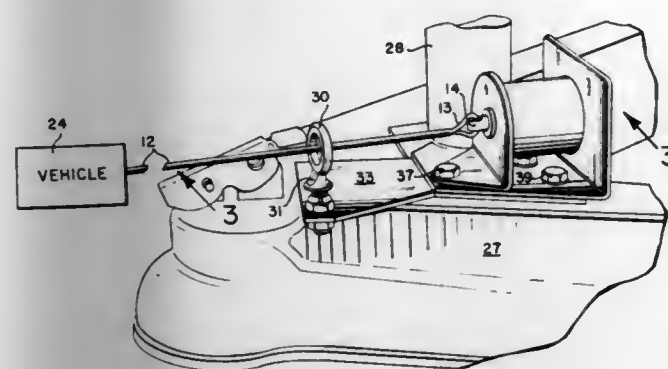
John J. Amotte, Town & Country Mobile Park, Space 12, P.O. Box 2000A, Harbor, Ore. 97415
Filed May 4, 1973, Ser. No. 357,221
Int. Cl. H01h 27/04

U.S. Cl. 200—61.19

5 Claims

There is disclosed an improved mounting bracket kit for providing a fail-safe actuation of the pull-plug or release pin of a conventional break-away safety switch. The bracket is suitable for use either as a retrofit to improve the reliability of operation of existing switch installations or for use with new original equipment. The mounting bracket kit is such as to provide support for both ends of a conventional pull-plug switch housing with respect to the trailer chassis and to provide a guide for the cable leading to the release pin of the switch which guide is also supported with respect to the trailer

chassis and is dimensioned and positioned so that the cable guide acts as a pivot point for the cable ensuring that the pull of the cable on the release pin will be along a straight line coinciding with the longitudinal axis of the pin or plug so that



the release pin will not jam in the housing if the towing vehicle and trailer assume angular relationships other than that normally intended during the break-away action. Failure of the emergency breaking mechanism due to such off-axis components of cable pull which has occurred in the past is thus obviated.

3,832,502

ELECTRIC CIRCUIT BREAKER WITH HYDRAULIC ACTUATING MEANS INCLUDING A PLURALITY OF VALVES FOR OPENING THE BREAKER, AND A PLURALITY OF VALVES FOR CLOSING THE BREAKER
Gerhard Grieger, and Joaquin Bohrdt, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

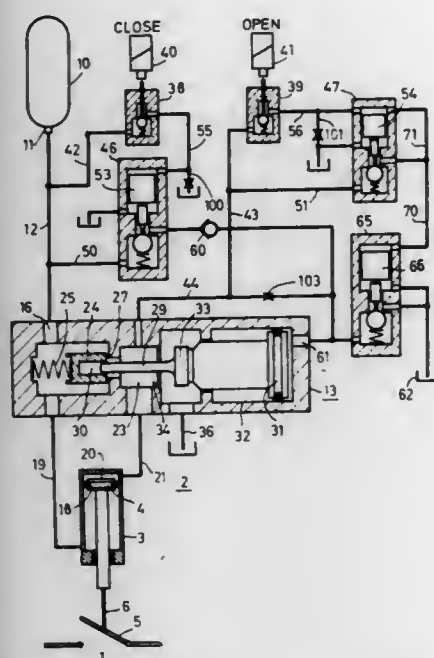
Filed May 26, 1972, Ser. No. 257,151

Claims priority, application Germany, June 4, 1971. 2128648

Int. Cl. H01h 35/38, 33/34, 33/88

U.S. Cl. 200—82 B

12 Claims



An electric circuit breaker is disclosed having a blast piston for compressing a gaseous quenching medium such as sulfur hexafluoride, and a hydraulic drive for the breaker which includes a main hydraulic actuator cylinder and piston and valves for controlling the admission of hydraulic fluid into the cylinder. In addition, for closing the circuit breaker a hydraulic latching arrangement is disclosed which is associated with the valve closest to the main actuator cylinder in an application where there are more than two series-connected valves for closing the breaker. For opening the breaker, a hydraulic latching arrangement is disclosed which is associated with a valve which is separated from the main actuator cylinder by at least one further valve.

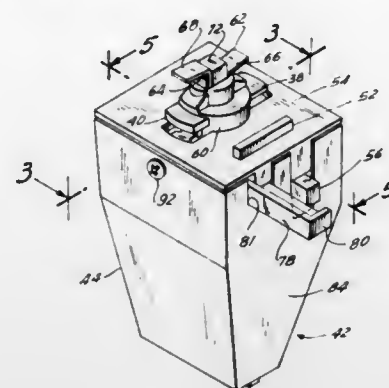
3,832,503
TWO CIRCUIT TRACK LIGHTING SYSTEM
Roy B. Crane, Wilmington, Mass., assignor to Keene Corporation, New York, N.Y.

Filed Aug. 10, 1973, Ser. No. 387,387

Int. Cl. H01r 13/70

U.S. Cl. 200—51 R

7 Claims



A device is provided for connecting an electrical fixture to a three-conductor, two-circuit power distribution track. The device includes a housing adapted to be secured to the track containing a fixed contact adapted to engage one conductor and a movable contact adapted to be shifted to a proper position to engage either of the other two conductors. Movement of the second contact is controlled by an indicator which extends outside the housing. The indicator assumes two positions corresponding to the positions of the contact with both positions being readily visible when the device is secured to a track so as to provide a clear indication of the circuit associated with the fixture.

3,832,504

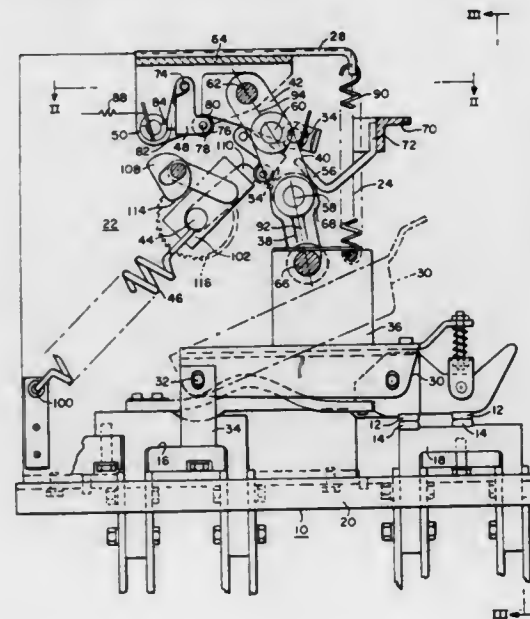
CIRCUIT BREAKER WITH SPRING CLOSING MEANS AND PAWL AND RACHET SPRING CHARGING MEANS
Albert R. Cellerini, and Stephen S. Dobrosielski, both of Beaver, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 27, 1973, Ser. No. 391,920

Int. Cl. H01h 5/10

U.S. Cl. 200—153 SC

10 Claims



A circuit breaker characterized by stationary and movable contacts operable between open and closed positions, means including a crank shaft structure, pawl and ratchet, and spring means for opening and closing the contacts, a toggle structure connected to the movable contact and comprising a first link, a second link, and a toggle lever; the first link being pivotally

connected to the second link, the second link being pivotally connected to the toggle lever, the crank shaft structure having a cam surface movable against the joint of the links for moving the toggle structure from the open to the closed positions, first releasable latch means for retaining the toggle structure in the contacts closed position, stop means limiting movement of the first and second links beyond a position where a line through the pivotal connections of the first link and the movable contact mounting means and of the first and second links projects on the side of the pivotal connection of the second link and toggle lever opposite the crank shaft when the toggle structure is in the open position, and second releasable latch means for retaining the crank shaft in the spring charged position.

3,832,505

PISTON ACTUATED SWITCH WITH SCREW THREADS ON PISTON AND HOUSING

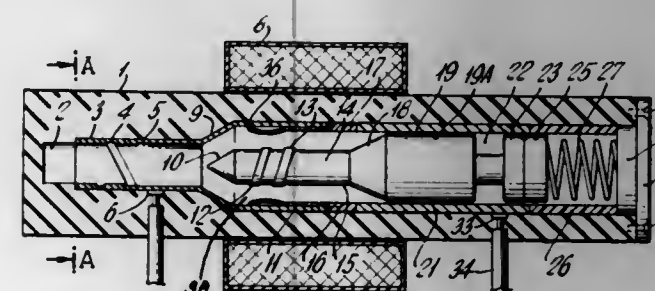
Franklin Victor Wong, 777 County Line Rd., Apt. 23A, Amityville, N.Y. 11701

Filed May 15, 1973, Ser. No. 360,462

Int. Cl. H01h 3/40

U.S. Cl. 200—158

5 Claims



The invention comprises a cylindrical housing having an internal telescopic split bore for receiving a solenoidally actuated piston. The piston has an extremity spring biased and anchored and the other extremity has disposed thereon a resistive contact. The split bore is conductively coated and separated by an insulative medium. The resistive contact on said piston is disposed to engage one of said conductive contacts in response to the excitation of the solenoid to permit conduction under the control of the resistive contact. Removal of the excitation permits the piston to return to its original position under the control of the spring bias. The amplitude of make and break of contact currents is controlled by the resistive element during the initial stages of switching.

3,832,506

ILLUMINATED PUSH BUTTON SWITCH

Alan Dewhurst, Denham, England, assignor to Dewhurst & Partner Limited, Middlesex, England

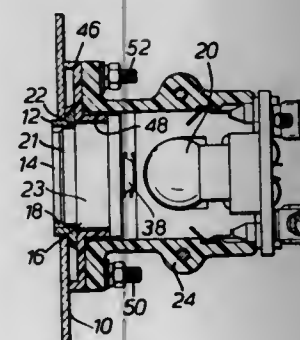
Filed Sept. 17, 1973, Ser. No. 397,725

Claims priority, application Great Britain, Mar. 21, 1973, 13691/73; June 22, 1973, 29818/73

Int. Cl. H01h 9/16, 9/18

U.S. Cl. 200—314

8 Claims



The electrical switch described has a push button actuator having an imperforate steel facing and a transparent backing

member and fits in an aperture in a steel face plate with clearance around it. A lamp is disposed behind the backing member, light from the lamp being guided by a skirt on the backing member and escaping at shoulders on the skirt to illuminate the clearance, so as to provide a tell-tale indication on illumination of the lamp.

3,832,507

SENSOR SWITCH FOR OCCUPANT RESTRAINT SYSTEM WITH SPRING FRACTURE DETECTION MEANS

James F. Marquardt, Wauwatessa, and Vincent A. Orlando, Greenland, both of Wis., assignors to General Motors Corporation, Detroit, Mich.

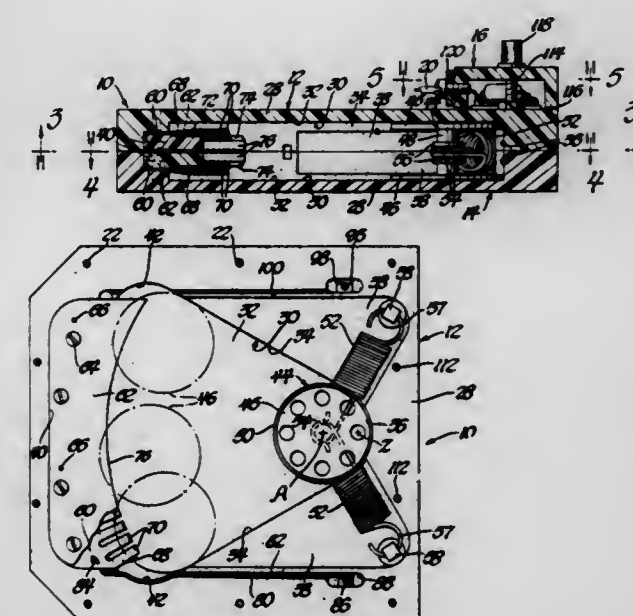
Division of Ser. No. 191,859, Oct. 22, 1971, Pat. No.

3,765,699. This application June 26, 1973, Ser. No. 373,684

Int. Cl. H01h 35/14

U.S. Cl. 200—61.45 R

9 Claims



A vehicle includes a bumper or other portion which experiences a rapid change in velocity upon vehicle impact with an obstacle, an occupant compartment, an inflatable occupant restraint cushion within the compartment, and a source of pressure fluid for inflating the cushion. A sensor primarily responsive to the change in velocity of the bumper or other portion of the vehicle includes a housing of dielectric material having a sector-shaped recess, a spool-shaped mass of electrically conductive material slidable within the recess, and a pair of tension springs of electrically conductive material which are hooked between the mass and the housing to maintain the mass in unactuated position in engagement with the side walls of the recess adjacent the apical end thereof. The sensor is mounted on the bumper or other portion and is subjected to the velocity change thereof upon vehicle impact with an obstacle. The time for the mass to travel to actuated position is comparable within an order of magnitude to the deceleration time period of the sensor whereby movement of the mass to actuated position is responsive to the occurrence of a change in vehicle velocity above a predetermined value. When the mass moves to actuated position, it completes an electrical circuit across a pair of contacts located adjacent the basal end of the recess to initiate release of the pressure fluid to the cushion for inflation thereof. The springs and mass and the spring anchors to the housing are connected across a source of power in a diagnostic circuit so that any fracture of either spring can be detected.

3,832,508

MICRO-LEVER SWITCH OPERATOR

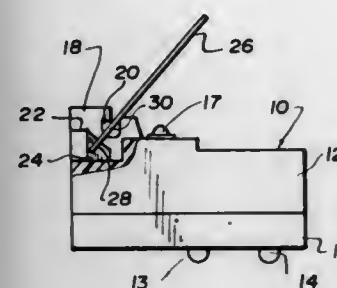
Frederick R. Beck, Valparaiso, Ind., assignor to McGill Manufacturing Company, Inc., Valparaiso, Ind.

Filed Mar. 29, 1973, Ser. No. 346,004

Int. Cl. H01h 3/04

U.S. Cl. 200—332

4 Claims



A switch assembly includes a switch housing, a switch operating plunger extending from the housing for actuating the switch mechanism within the housing, and an actuator lever for the operating plunger positioned in brackets molded integral to and extending in spaced relation outwardly from the housing. The brackets include aligned apertures therein, and aligned ramps and retaining ledges extending inwardly from the brackets. The actuator lever includes a portion for engagement with the operating plunger and mounting portion having a forked extension with pivot arms thereon. When the actuator lever is vertically inserted into the aligned apertures, the pivot arms rest in the apertures, and upon rotation of the lever toward the horizontal position, the forked extensions are deformed by the ramps until the lever reaches the horizontal position at which the forked extensions return to their undeformed state to lock the actuator lever in assembled position.

3,832,509

SPLIT-TYPE MAGNETIC FIELD CONCENTRATOR

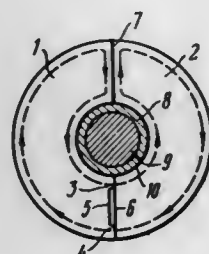
Valery Mikhailovich Mikhailov, Komsomolsky prospekt, 10, kv. 150, and Silvia Izrael'evna Pisarevskaya, ulitsa Shexpira 10, kv. 25, both of Kharkov, U.S.S.R.

Filed May 29, 1973, Ser. No. 364,408

Int. Cl. B23k 13/00

U.S. Cl. 219—7.5

2 Claims



A split-type magnetic field concentrator to be used in an inductor for magnetic pulse treatment of metals, consisting of two parts which, when joined together, form an aperture for placing therein an article being treated, said parts of the split-type concentrator are insulated from each other in one joint by means of an insulating gasket and contact each other in the other joint, the contacting end of one of the parts being provided with a recess to improve the electric contact between said parts.

3,832,510

PULSE GENERATOR FOR EDM MACHINE

Jean Pfau; Georges-Andre Marendaz, and Heinz Rhyner, all of Geneva, Switzerland, assignors to Ateliers des Charmilles S.A., Geneva, Switzerland

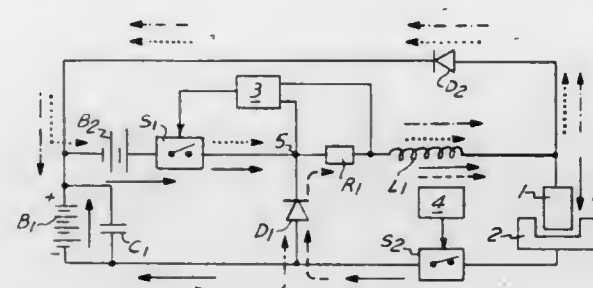
Filed June 8, 1973, Ser. No. 368,220

Claims priority, application Switzerland, June 16, 1972 9044/72

Int. Cl. B23k 9/16

U.S. Cl. 219—69 C

24 Claims



The present invention is a pulse generator for electro-erosion machining which is capable of providing controlled voltage pulses between an electrode tool and an electrode workpiece, such pulses having a sharp vertical leading edge throughout a wide frequency range and providing an optimum energy efficiency. The pulse generator of the invention, which is connected across the electrode tool-workpiece machining gap, comprises essentially a DC power supply, an electromagnetic energy storage element and a first circuit make and break element, such as a switch, connected between one of the DC power supply terminals and one of the terminals of the electromagnetic storage device. A first unidirectional element is connected between the first terminal of the electromagnetic storage element and the other terminal of the power supply, so as to provide a current path through a first auxiliary circuit when the first circuit make and break element is open. The circuit comprises a second unidirectional element connected between one of the power supply terminals and one of the electrodes, tool or workpiece, and a second circuit make and break element or switch connected so as to provide a current path, when the second circuit make and break element is open, through a second auxiliary circuit, or through a third auxiliary circuit when both circuit make and break elements are open. The first circuit make and break element is controlled in such manner as to cause the current flowing across the energy storage element to be maintained at a predetermined value and the second circuit make and break element is controlled so as to control in turn the duration of each voltage or current pulse and/or the time interval during two consecutive voltage pulses.

3,832,511

SHORT CIRCUIT PROTECTION SYSTEM FOR ELECTRICAL DISCHARGE MACHINING APPARATUS

Oliver A. Bell, Jr., Mooresville, and Randall C. Gilleland, Statesville, both of N.C., assignors to Colt Industries Operating Corp., New York, N.Y.

Filed June 25, 1973, Ser. No. 373,377

Int. Cl. B23k 9/16

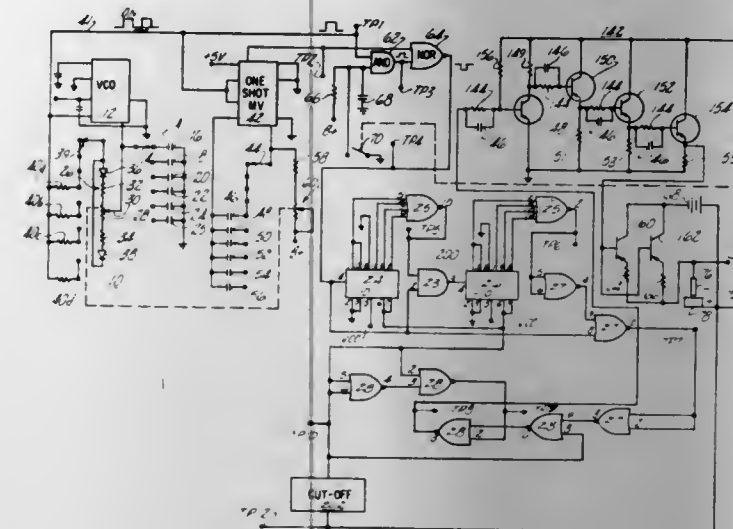
U.S. Cl. 219—69 P

17 Claims

The system is one which responsive to gap short circuit condition allows a predetermined train or series of pulses to be applied to the gap. The pulses are of the normal machining pulse on-off time and frequency. The train of pulses is applied and is then followed by an off-time interval several times the duration of the first train. The system includes a gating and a counter system in which there is included a divide-by-ten stage

to provide the predetermined series of pulses responsive to gap short circuit condition. The system further includes a se-

for shielding. The gas is ionized by means of an auxiliary arc that is struck between the tungsten electrode and a second metal component of the torch acting as a second electrode.



ries of gates and inverters which inhibit pulses from being fed during the predetermined relatively long off-time interval.

3,832,512

ELECTROSLAG WELDING PROCESS

Yasuhiro Nishio; Zenichiro Okamoto, and Yoshinori Hiromoto, all of Hiroshima, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

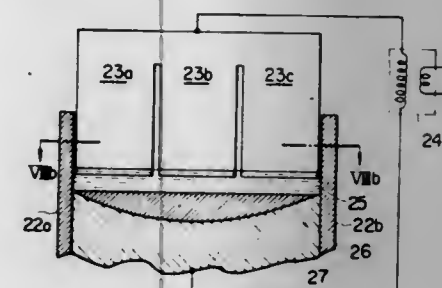
Filed Mar. 5, 1973, Ser. No. 337,853

Claims priority, application Japan, Mar. 8, 1972, 47-23717

Int. Cl. B23k 25/00

U.S. Cl. 219—73

4 Claims



The process employs at least one metal plate electrode inserted into a welding gap between opposed surfaces of base metals to be weld united. At least that portion of the electrode length to be consumed by welding is divided into a plurality, preferably three, of substantially equal width sections spaced laterally from each other. The center section, or the center portion of the width of the electrode, has a thickness in excess of the thicknesses of the outer sections or the outer portions of the width of the electrode. All the sections of each inserted electrode are connected to the same respective single terminal of a welding power source.

3,832,513

STARTING AND STABILIZING APPARATUS FOR A GAS-TUNGSTEN ARC WELDING SYSTEM

George A. Klasson, 4430 Azalea Ln., North Olmsted, Ohio 44070

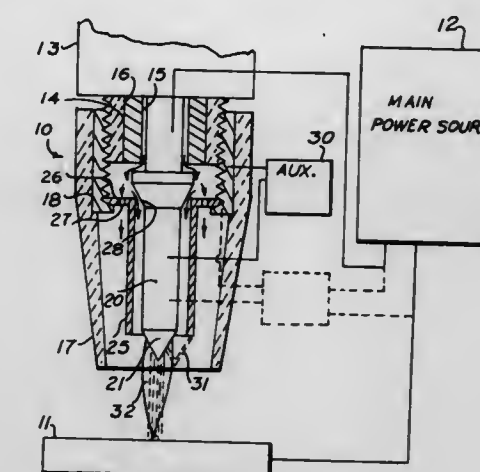
Filed Apr. 9, 1973, Ser. No. 348,877

Int. Cl. B23k 9/16

U.S. Cl. 219—75

2 Claims

A method and apparatus for starting and stabilizing an arc in the gas-tungsten arc welding system and the like. A plasma flame extending from the tungsten electrode to the work is established by ionizing a portion of the flow of inert gas used



The resulting plasma flame provides a conductive path for starting and stabilizing the main arc struck between the tungsten electrode and the work.

3,832,514

DEVICE FOR LOCAL ELECTRIC-SPARK LAYERING OF METALS AND ALLOYS BY MEANS OF ROTATING ELECTRODE

Bogomil Totev Antonov, Sofia, Bulgaria, assignor to DSO "IZOT", Sofia, Bulgaria

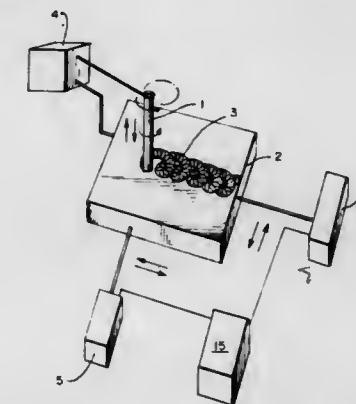
Filed Nov. 27, 1972, Ser. No. 309,900

Claims priority, application Bulgaria, Nov. 27, 1971, 19113

Int. Cl. B23k 9/04; C23c 15/00

U.S. Cl. 219—76

8 Claims



A method is provided for local electric-spark layering of metals and alloys by means of a rotating electrode, wherein a layering electrode of rod shape and with a diameter smaller than 2 mm is rotated around its axis, said electrode being maintained from the surface to be layered at a distance in function of the disruptive voltage and the current, wherein the electrical impulses have at idle running 15 to 600 Volts and duration of from 1 to 10 microseconds. A device for accomplishing this method is also provided.

3,832,515

WELDING GUN FOR CONDENSER DISCHARGE BOLT WELDING

Dankmar Tauern, Triesenberg, Germany, assignor to Hilti Aktiengesellschaft, Schaan, Fuerstentum, Liechtenstein

Filed July 6, 1973, Ser. No. 377,011

Claims priority, application Germany, July 7, 1972, 2233609

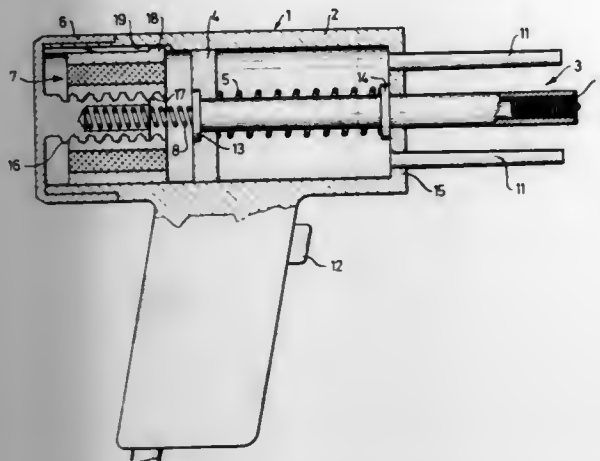
Int. Cl. B23k 9/20

U.S. Cl. 219—98

7 Claims

In a bolt welding gun for condenser discharge bolt welding, a bolt holder is axially displaceable within the gun housing and

is secured in position ready to weld a bolt by a magnet device located in the housing. The magnet device consists of two parts and one is mounted on the bolt holder and is axially displaceable relative to it. A compression spring drives the bolt holder toward the receiving material when the magnet device is de-activated. When the movement of the bolt holder toward



the receiving material is stopped, the magnet part mounted on it continues to move in the direction of the bolt. A spring is provided on the bolt holder and contacts the magnet part mounted on it so that, as the magnet part moves relative to the bolt holder, the spring provides a damping effect on the magnet part.

3,832,516

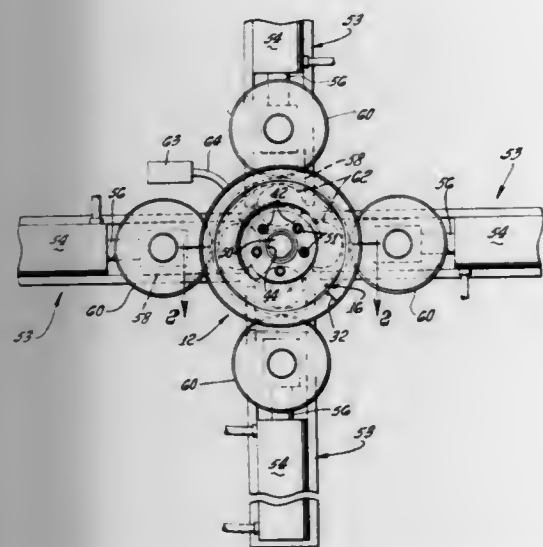
WELDING APPARATUS AND WELDER HEAD

Harold R. Baker, Lynwood, Calif., assignor to Norris Industries, Los Angeles, Calif.

Continuation-in-part of Ser. No. 63,992, July 23, 1970, which is a division of Ser. No. 819,683, April 28, 1969. This application May 12, 1972, Ser. No. 252,657
Int. Cl. B23k 11/06

U.S. Cl. 219—81

14 Claims

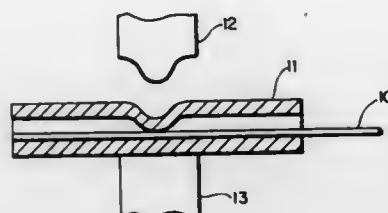


Electrical resistance welding apparatus suitable for securing an insertable spider in the annular rim of a wheel includes a plurality of circumferentially spaced apart opposed electrodes each for forming a seam weld made up of a series of overlapping welds. Each electrode set includes an inner and outer wheel type welder head. The inner head includes a conductive shaft having a conductive sleeve rotatably mounted thereon. The sleeve carries the inner wheel electrode and is also tiltably mounted on the shaft so that weld pressure upon the inner wheel electrode tilts the sleeve against the shaft. Thereby, the weld pressure maintains good electrical contact between the shaft and sleeve, even as the sleeve rotates, to prevent arcing therebetween.

3,832,517
METHOD OF WELDING COATED WIRES TO ELECTRICAL CONDUCTORS
Randolph Charles Carson, Cypress, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.
Filed Nov. 2, 1972, Ser. No. 303,134
Int. Cl. B23k 9/28, 11/10

U.S. Cl. 219—92

1 Claim

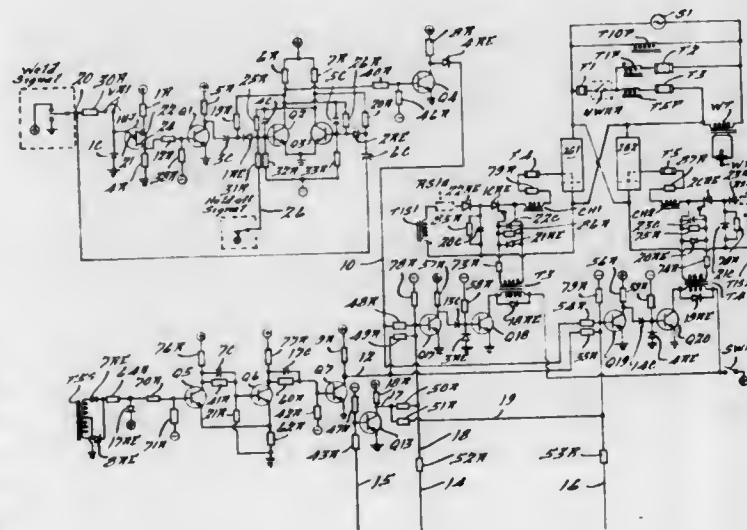


A fine metallic wire having a thermoplastic insulative coating is welded to a larger metallic conductor by inserting the wire between opposing surfaces of the conductor and applying to the conductor an electrode heated by electrical current to a temperature above the melting point of the conductor. Heat from the electrode causes the conductor to fuse to the wire. The coating on the wire is softened by the heat of the conductor and displaced by the conductor so that electrical conductivity between the conductor and the wire is established. Surprisingly, the mechanical strength and electrical conductivity of the weld are not adversely affected by the coating, which in the prior art was always removed prior to welding.

3,832,518
WELDING CONTROL APPARATUS
George O'Neal, Jr., Plymouth, Mich., assignor to Weltronic Company, Southfield, Mich.
Filed July 24, 1970, Ser. No. 58,126
Int. Cl. B23k 9/10

U.S. Cl. 219—110

119 Claims

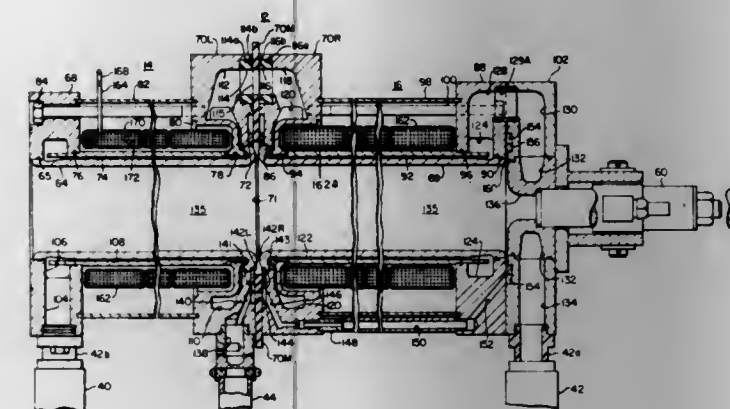


A firing control system for controlling controllable rectifier devices to control the transfer of energy from a source of energy to a workpiece to be welded and for establishing controlled firing sequences and times.

3,832,519
ARC HEATER WITH INTEGRAL FLUID AND ELECTRICAL DUCTING AND QUICK DISCONNECT FACILITY
Charles B. Wolf, Irwin; Maurice G. Fey, and Frederick A. Azinger, Jr., both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Aug. 11, 1972, Ser. No. 279,895
Int. Cl. B23k 9/00

U.S. Cl. 219—121 P

4 Claims

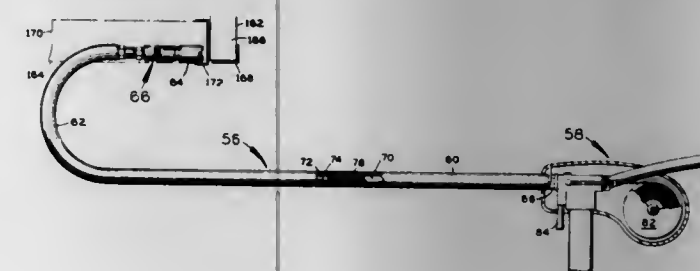


An arc heater having simplified construction allowing the use of electrodes of varying length and field coils of varying number and employing a field coil cooling fluid manifold which is adapted to provide cooling fluid and electrical power to discrete field coil assemblies. The apparatus includes an internal process gas metering orifice between electrode assemblies to allow the flow of process gas from a downstream gas entry port to an upstream gas admission ring and thence to the arc chamber in addition to a central gas admission ring disposed longitudinally between electrodes. The upstream ducting channel for the previously described process gas system includes a metering valve therein for volume control. The arc heater apparatus also includes fluid tight sealing means in a unitary electrode cooling channel. This sealing means is disposed parallel to the gap between the separable electrodes of the arc heater apparatus. When the arc heater is in an operable disposition the sealing means utilize the cooling fluid pressure to enhance sealing. The sealing means also has a special insulating configuration to increase the electrical insulation between electrodes in the electrode cooling path of differing electrical potential.

3,832,520
WELDING HOOK
Fred A. Glasser, Fort Lauderdale, Fla., assignor to Behring Corporation, Fort Lauderdale, Fla.
Continuation of Ser. No. 239,525, March 30, 1972, abandoned, which is a continuation-in-part of Ser. No. 164,251, July 20, 1971, abandoned. This application May 25, 1973, Ser. No. 363,812
Int. Cl. B23k 9/28, 9/00

U.S. Cl. 219—130

10 Claims



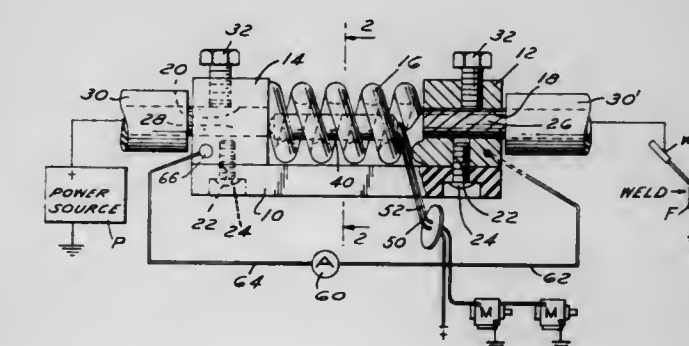
A welding hook for use with a welding tool such as a gun or torch having a tip through which welding wire is supplied, the

hook including an electrically conductive tube having an elongated shank which merges into a hook portion at one end of the tube that curves back toward but short of the other end of the tube. A liner extends through the tube, and the wire is fed through the tube. The tube and the wire are in electrical contact with each other at the hook end of the tube. A tip is provided at the hook end of the tube, and the other end of the tube is secured to the tip of the welding gun, so that wire and current are supplied from the welding tool through the tube to effect the weld with the wire. Inert gas may also be supplied through the tube for shielding. A fiberscope may be mounted on the welding hook to make the work visible.

3,832,521
CURRENT SHUNT-CURRENT RELAY ASSEMBLY
Erling H. Niendorf, Detroit, Mich., assignor to Expert Automation, Inc., Detroit, Mich.
Filed June 8, 1970, Ser. No. 44,340
Int. Cl. B23k 9/10

U.S. Cl. 219—131

4 Claims

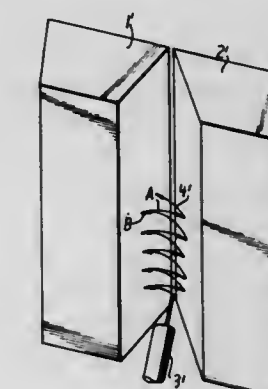


A current shunt-current relay assembly in the form of a cast copper coil having connecting end blocks for receiving cable ends. Within the coil is mounted a reed switch entrapped by the cable ends intended to be sensitive to current in the coil to provide suitable shut-off when current falls below a predetermined level. The coil and blocks form a current shunt which may be used with accessory circuits to operate independently of current fluctuations in the shunt to thus avoid instability in control of the accessory circuits which would be occasioned by the use of the reed switch alone.

3,832,522
WELDING PROCESS AND APPARATUS
Masayasu Arikawa; Atsushi Ohi, both of Fujisawa; Toshio Arai, Kamakura; Akihiko Iochi, Odawara, and Hironosuke Kada, Fujisawa, all of Japan, assignors to Kobe Steel, Limited, Kobe, Japan
Filed July 10, 1972, Ser. No. 270,008
Int. Cl. B23k 9/00

U.S. Cl. 219—137

12 Claims



In a welding process, the consumable tip of a welding electrode is provided with an oscillating motion, and in one cycle

of the oscillation, the characteristics of the arc being generated are changed in two or more ways according to a predetermined program, and the tip is thus advanced in a zig-zag manner along the welding line to thereby attain an improved weld zone eliminating defects of the prior art.

3,832,523

METHOD FOR ELECTRICAL ARC WELDING

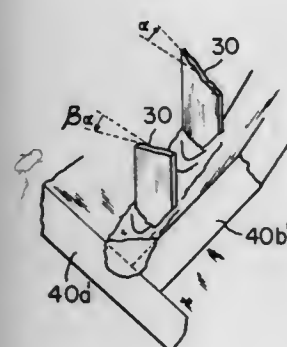
Toshio Kitani, Kobe, and Hisao Goto, Takatsuki, both of Japan, assignors to Osaka Transformer Co., Ltd., Osaka-fu, Japan

Filed Apr. 17, 1972, Ser. No. 244,720

Int. Cl. B23k 9/00

U.S. Cl. 219-137

23 Claims



A method of electrical arc welding which may be effected in various welding positions by the use of at least one electrode of substantially rectangular cross section, the electrode tip of which is square-edged or shaped to fit with the shape of a groove formed between workpieces to be welded, the electrode being disposed in such a way as to render the widthwise direction thereof oriented substantially at right angles to the weld line along which a weld is to be formed. Also disclosed is an apparatus for electrical arc welding which is capable of performing the concurrently proposed arc welding method.

3,832,524

HEATING UNIT FOR COPYING MACHINE

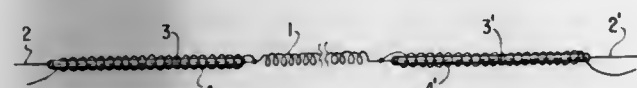
Koichi Takiguchi, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Aug. 10, 1973, Ser. No. 387,311

Int. Cl. H05b 1/00

Claims priority, application Japan, Aug. 23, 1972, 47-97663
U.S. Cl. 219-216

3 Claims



Circuitry for use in a copying machine capable of copying on copy papers of at least two different widths comprising a voltage source; a heating unit including a central heating element and two end heating elements, the latter elements being substantially coaxially disposed at and connected to the opposite ends of the central heating element; and switching means for: (1) connecting the central and two end heating elements in parallel across the voltage source when the larger of the two different width copy papers is used, and (2) disconnecting the two end heating elements from the voltage source when the smaller of the two different width copy papers is used to thereby optimize power consumption from the voltage source while at the same time accommodating different sized copy papers.

3,832,525 AUTOMATIC HEATING DEVICE TO PREVENT FREEZING OF WATER SUPPLY LINES

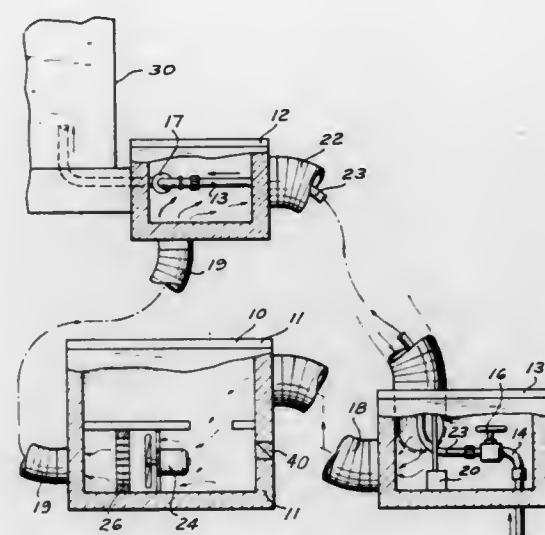
Vernon W. Stanton, and Ernest M. Shipley, both of Tucumcari, N. Mex., assignors to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Mar. 26, 1973, Ser. No. 344,778

Int. Cl. F24h 1/00

U.S. Cl. 219-301

2 Claims



Heating apparatus for protecting the external water lines of a mobile home from freezing. The apparatus consists of an insulated duct surrounding the external water line of a mobile home with means to continuously circulate hot air through said duct when the temperature threatens to approach the freezing level. A hot air blower powered by a fan that is driven by an electric motor blows hot air into one end of the duct housing and draws back cooled air from the other end of the duct housing. A pressure relief valve is mounted in the duct housing so as to equalize any difference between the external atmospheric pressure and the pressure of the air inside the duct.

3,832,526

ELECTRICALLY HEATED KETTLES WITH A HEAT CONTROL

Georges Jean Louis-Marie Clausse, Ialeham, England, assignor to Belling and Company Limited, Enfield, Middlesex, England

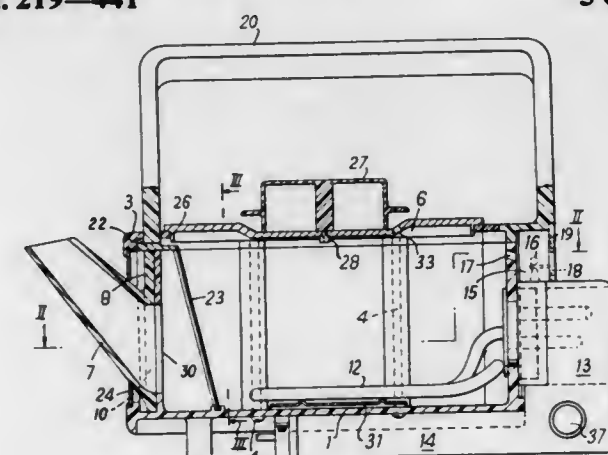
Filed June 18, 1973, Ser. No. 370,757

Claims priority, application Great Britain, June 19, 1972, 28691/72

Int. Cl. F27d 11/02

U.S. Cl. 219-441

5 Claims



An electric kettle having a body comprising a base, a side wall integral with the base, the base and the side wall being of

plastics material capable of withstanding boiling water, and an upper rim member secured on the upper edge of the side wall. An electric heating element operatively positioned within the kettle and a metal plate bridge member separating said electric heating element from the plastic base.

3,832,527

DEFOGGING GLASS PLATE

Takeomi Nagasima, Yokohama, Japan, assignor to Asohi Glass Company, Limited, Tokyo, Japan

Continuation of Ser. No. 206,728, Dec. 10, 1971, Pat. No.

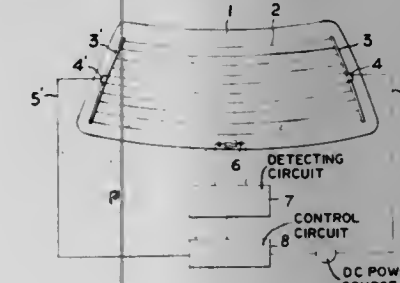
3,749,885. This application Mar. 28, 1973, Ser. No. 345,528

Claims priority, application Japan, Dec. 18, 1970, 45-126498 The portion of the term of this patent subsequent to July 31, 1990, has been disclaimed.

Int. Cl. H05b 3/06

U.S. Cl. 219-522

2 Claims



A defogging glass plate includes an electric heating element, such as being made of conductive films or electric resistance strips for electrically heating the glass plate, and a sensor having a pair of electrodes which are arranged in parallel with a suitable gap and which are fitted on the surface of the glass plate, for automatically controlling the application of heat to the glass plate depending on the cloudiness or visibility thereof.

3,832,528

MICROFICHE FILM DETECTION DEVICE FOR MICRO-READERS AND MICRO-READER-PRINTERS

Takeshi Abe, Yokohama, Japan, assignor to Ricoh Co. Ltd., Tokyo, Japan

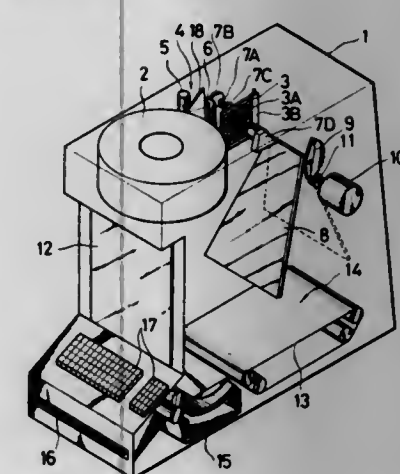
Filed Sept. 13, 1972, Ser. No. 288,559

Claims priority, application Japan, Sept. 14, 1971, 46-70920; Oct. 1, 1971, 46-76297

Int. Cl. G06k 7/14

U.S. Cl. 235-61.11 E

11 Claims



Disclosed is a detection device for micro-readers and micro-reader-printers adapted to successively read out sets of code indications from microfiche film sheets stored in a storage case for the purpose of detecting and withdrawing from the case a desired film sheet. In one embodiment, the detection

device comprises a detection light source, a detection light receiving element, at least one reflector attached to each of the microfiche film sheets stored in the film storage case, and a plurality of sets of code indications each provided on the surface of the reflector or on a portion of each microfiche film sheet which is disposed in the path of travel of the light from the detection light source when the microfiche film sheet is indexed to a sensing position. The reflector may be on a clip attached to a marginal portion of each film sheet or it may be on the film sheet storage case. Different embodiments of clips, reflectors and storage cases are disclosed.

3,832,529

READING SYSTEM FOR TAGS ENCODED WITH BARS OF DIFFERENT WIDTHS

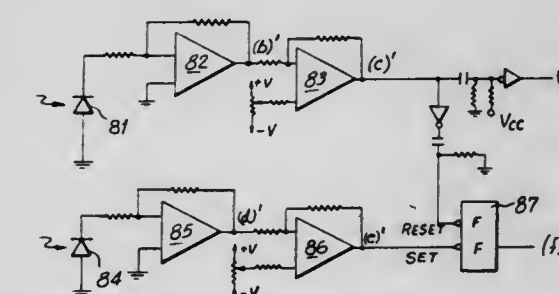
Koichi Nakamura, Suwa, Japan, assignor to Kabushiki Kaisha Seiya Seikoshu, Tokyo, Japan

Filed May 7, 1973, Ser. No. 358,121

Int. Cl. G06k 7/10; G08c 9/06

U.S. Cl. 235-61.11 E

7 Claims



A device for reading information encoded in the form of bars of two widths. The device comprises an illuminating section for illuminating the bars and concentric detecting sections corresponding respectively in width to the width of the aforementioned bars. The detectors are physically related to the illuminating portion to detect the illumination of the bars thereby. The detectors may be optical fiber bundles. The innermost of the detectors is preferably columnar. A method of the invention consists of translating a row of bars of different widths into information bits by scanning the bars to illuminate the same and to pick up reflected light with two associated light detectors, the widths of which correspond, as noted above, to the width of the bars. The picked up light by the detectors is converted into electrical pulses, the magnitude of which is limited to form rectangular pulses of width corresponding to the aforesaid bars. The magnitude of the pulses generated by the wider detector is detected to generate pulses corresponding only to the wider bars. The latter pulses are terminated in synchronism with the corresponding rectangular pulses. The bars are preferably made of one color.

3,832,530

OBJECT IDENTIFYING APPARATUS

Herbert J. P. Reitboeck, and Thomas F. Brody, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 215,333, Jan. 4, 1972, abandoned.

This application July 19, 1973, Ser. No. 380,928

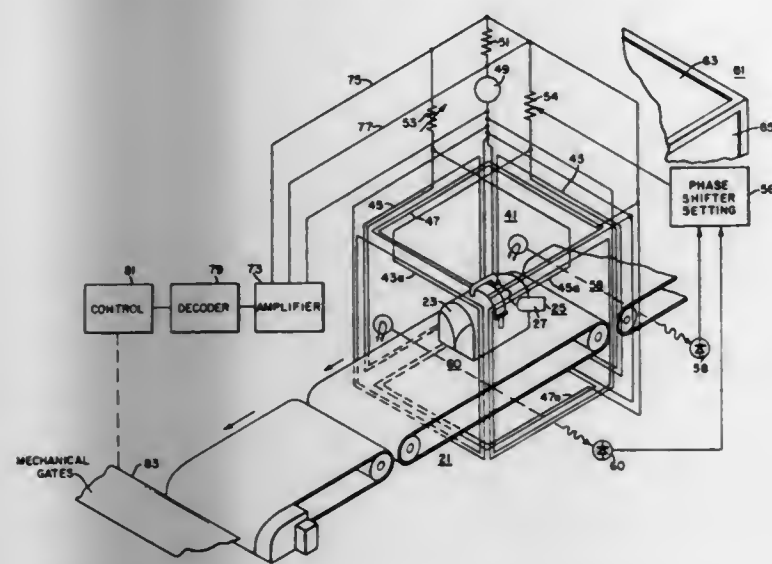
Int. Cl. G06k 7/10, 19/06; G08b 13/14; G01s 9/56

U.S. Cl. 235-61.11 H

12 Claims

There is disclosed object identifying apparatus for an object carrying an identifying label having an identifying electrical circuit and moving or being moved through a region where the identifying circuit is read. Typically, the object is a mail sack or baggage which is to be directed along a predetermined path. When the object moves through the region, the label is randomly positioned in the region. A substantially homogeneous electromagnetic field is produced in the region and as the

object moves through the region, the circuit on the label is powered by, and reacts with, the field, absorbing energy from the field. The circuit on the label includes counter elements such, as a chain of multivibrators which are flopped from OFF to ON in predetermined succession. A circuit is connected to the field which differentiates the energy absorbed by the flopping of the multivibrators responding to the changes in the



conduction of the multivibrators. A succession of pulses are thus produced which serve as a code to identify the object.

There is also disclosed a label having a throwaway flexible substrate on which the circuit is printed. The circuit includes an antenna connected to the counting elements, for example, interrupted-ring counters or shift registers. The circuit may be set for different codes.

3,832,531

OPERATION MONITORING SYSTEM

Henry R. Neill, Clarksville, and Robert G. Davies, Boynton, both of Va., assignors to Burlington Industries, Inc., Greensboro, N.C.

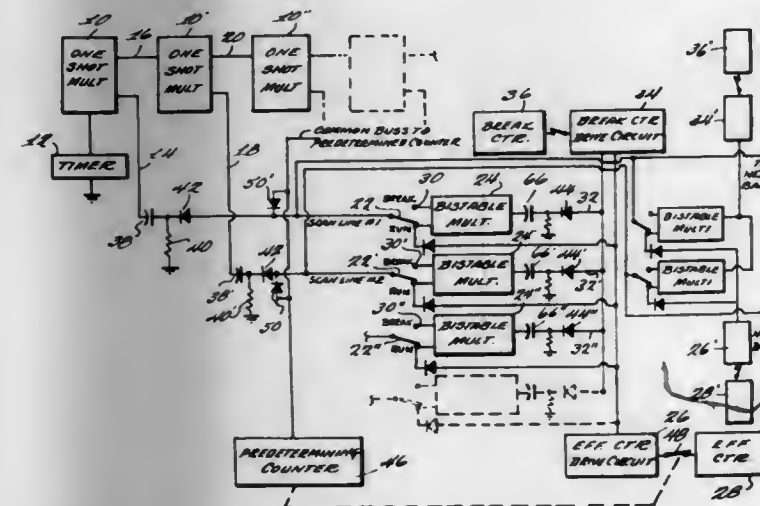
Division of Ser. No. 1,814, Jan. 9, 1970, Pat. No. 3,660,972.

This application Dec. 6, 1971, Ser. No. 205,101

Int. Cl. H03K 21/36

U.S. Cl. 235-92 PD

5 Claims



An operation monitoring system which may be adapted for use to monitor numerous types of operations and which is applicable to the monitoring of multi-spindle textile winding operations. The system is adapted to determine the efficiency of the operation and to count the number of unscheduled events which occur, such as yarn breaks in the multi-spindle textile winding operation. Scan pulse providing means produce a series of pulses which are registered by an efficiency counter when the operation is proceeding in a normal manner and a second counter registers the number of unscheduled events or yarn breaks which occur.

3,832,532 METHOD AND APPARATUS FOR TESTING ANTIBIOTIC SUSCEPTIBILITY

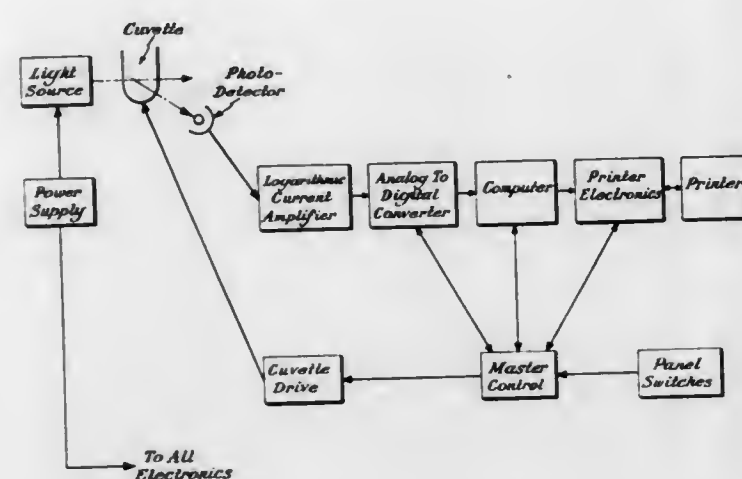
Julius Praglin, East Lyme; James E. McKie, Jr., Ledyard; Alan C. Curtiss, Old Lyme, and David K. Longhenry, East Lyme, all of Conn., assignors to Pfizer Inc., New York, N.Y.

Filed Aug. 18, 1972, Ser. No. 281,946

Int. Cl. G06f 15/20; C12k 1/00

U.S. Cl. 235-151.3

29 Claims



The light scattering of a number of aliquots of a given bacterial/broth suspension, each containing a different antibiotic are rapidly measured and compared with the forward light scattering of a control suspension of the bacteria in the absence of antibiotic. The inhibitory effectiveness of each antibiotic on the growth of the bacteria is then computed from the substantially simultaneous readings and printed out. The bacterial/broth suspension samples are conveniently deposited in a disposable, plastic, transparent, compartmented container or cuvette into which antibiotic discs are introduced into all but one compartment (chamber) from a ganged disc dispenser. After a brief agitated incubation period of about three hours, the cuvette is inserted in a photometric analyzer which measures the intensity of light scattered at some angle to the incident beam by each sample chamber and compares it with the light scattered at the same angle by the control chamber to which no antibiotic has been added. The relative effectiveness of each antibiotic is computed and recorded to determine which of the antibiotics is most suitable for treating the patient. The partitioned cuvette includes a filling reservoir from which the inoculated broth is introduced as equal volume aliquots into the interconnected lobes of a row of double lobed chambers. Rotation of the partitioned cuvette transfers the equal volumes of broth inoculum from the interconnected lobes to the transparent and separated lobes of the chambers. Then different antibiotic discs are simultaneously dropped within apertured tubes which are located within all chambers except the control chamber. Elution of the antibiotics into the liquid samples begins immediately. The cuvette is then placed in an incubator/shaker for approximately 3 hours at approximately 36°C to promote bacterial growth and antibiotic elution. The light scattering readings are obtained at the end of the agitation/incubation period and the relative antibiotic effectiveness computed in an analyzer into which the cuvette is inserted and indexed past a light source. The light passes through a lens system which directs a beam of light successively through the transparent lobes of the cuvette. The readings are obtained at a predetermined angle of scatter of, for example, 35°. Initial analog signals are converted to binary digits and logarithms to simplify normalization of the antibiotic-mediated inhibition of bacterial growth by the total growth in the control chamber. The normalized growth inhibition values are printed out and rated on a scale of 0 (no inhibition, total resistance) to 100 (complete inhibition, total susceptibility). In addition the total growth, which has oc-

curred in the control chamber during the agitation/incubation period, is printed out as a logarithmic difference (growth index).

If insufficient growth has occurred in the control chamber (growth index less than 0.9), the cuvette may be reincubated and reread before disposal.

3,832,533

ON-LINE HYBRID COMPUTER ARRANGEMENTS HAVING UNIVERSAL INTERFACING CAPABILITY FOR ELECTRIC POWER SYSTEM STUDIES

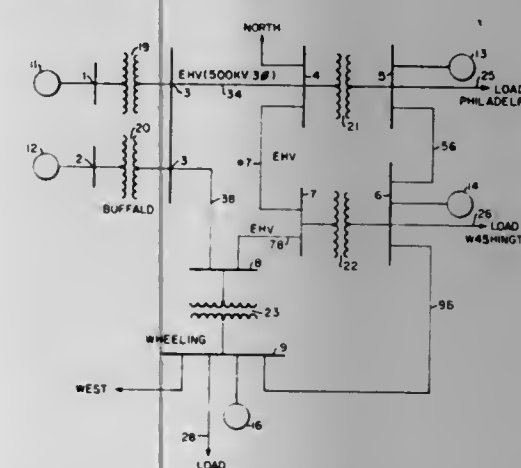
Norman R. Carlson, Export, and Uri G. Ronnen, Monroeville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 19, 1972, Ser. No. 254,858

Int. Cl. G06j 1/00; G06f 15/06, 15/56

U.S. Cl. 235-151.21

9 Claims



Hybrid computer arrangements for electric power system simulation and study include a modularized analog network simulator and a digital computer which may be interfaced through a data link to a remote digital computer for transmission of electric power system network variables. The electric power system is modulated by the analog simulator which includes modular circuits representative of power system components. With use of the input data to the digital computer, the computer and analog simulator are capable of operating to generate loadflow solutions and perform transient stability studies.

3,832,534

COMPUTATION OF POWER SYSTEM LOAD FLOWS AND TRANSIENT STABILITY

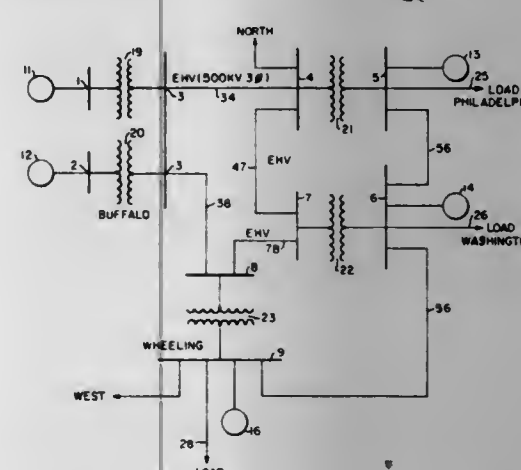
Norman R. Carlson, Export; William E. Zitelli, Pittsburgh, and Victor Burtnyk, Monroeville, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 19, 1972, Ser. No. 255,167

Int. Cl. G06j 1/00; G06f 15/06, 15/56

U.S. Cl. 235-151.21

6 Claims



A loadflow calculator having transient stability analysis capability includes a plurality of operational amplifier DC cir-

cuits for simulation of an electric power system. The calculator responds to signals representative of predetermined network variables to produce output signals representative of AC network parameters to attain loadflow solutions and provide signal parameters for transient stability studies after one or more transient faults have been imposed on the D.C. circuits.

3,832,535

DIGITAL WORD GENERATING AND RECEIVING APPARATUS

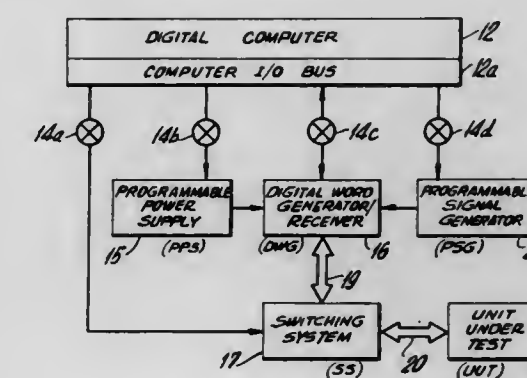
Louis De Vito, Jersey City, N.J., assignor to Instrumentation Engineering, Inc., Franklin Lakes, N.J.

Filed Oct. 25, 1972, Ser. No. 300,536

Int. Cl. G06f 15/20

U.S. Cl. 235-153 AC

34 Claims



Apparatus for generating and receiving, for analysis, multibit digital words applied to or received from an electronic circuit under test in response to a computer command. A multibit data register capable of being loaded with data from the computer is controlled by a variable frequency clock signal to apply bits of the data pattern to the circuit under test. In the receive mode, the data bits are applied to a logic comparator which receives also signals from the unit under test, and any discrepancies in the incoming signal pattern or level are stored in an error register for later readout.

3,832,536

INTEGRATOR CIRCUIT

Claude Le Dily, Villemoisson-sur-Orge, and Dominique Lajotte, Paris, both of France, assignors to Compagnie Industrielle Des Telecommunications Cit-Alcatel, Paris, France

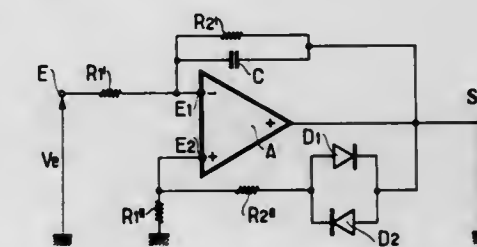
Filed Sept. 27, 1972, Ser. No. 292,781

Claims priority, application France, Sept. 27, 1971, 71.34681

Int. Cl. G06g 7/18

U.S. Cl. 235-183

4 Claims



Integrator comprising an operational amplifier having an input (E1)(-) and an input (E2)(+), and an output (S), with a resistance having a value of (R1) connected up between the input (E2) and the earth, a capacitor shunted by a resistor having an ohmic value of (R2) between the output (S) and the input (E1), the input voltage being applied to the input (E1) through a resistor having a value of R1, characterized in that the output (S) is connected up to the input (E2) by a network comprising two diodes connected up head to tail in parallel, in series with a resistor having an ohmic value equal to (R2).

3,832,537

METHOD AND APPARATUS FOR COMPUTING AND DISPLAYING SOUND RAYS OF A SONAR SYSTEM

Yasumasa Marutani, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

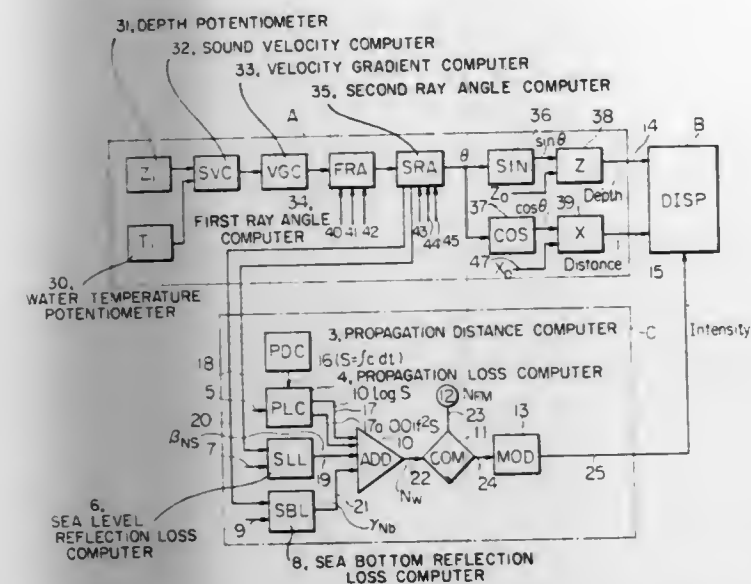
Filed Aug. 23, 1973, Ser. No. 390,681

Claims priority, application Japan, Sept. 5, 1972, 47-88388

Int. Cl. G06g 7/12

U.S. Cl. 235-193

7 Claims



A method and apparatus for analyzing sound ray paths of a sonar system by an analog computing method is disclosed wherein the transmission loss (N_w) of a sound wave is compared with the value of a figure of merit (N_{FM}) of the sonar system. Sound rays within the detection range of the sonar system are displayed by solid lines while sound rays out of the detection range are displayed by broken lines. Thus ray paths and detection ranges of the sonar system are displayed at the same time.

3,832,538

LIGHTING FIXTURE HAVING A LAMP SUPPORT INDEPENDENT OF THE REFLECTOR

Marie Henri Hubert Adam, Lorey-Par-Bayon, France, assignor to Societe Anonyme l'Eclairage Technique, Nancy (Meurthe et Moselle), France

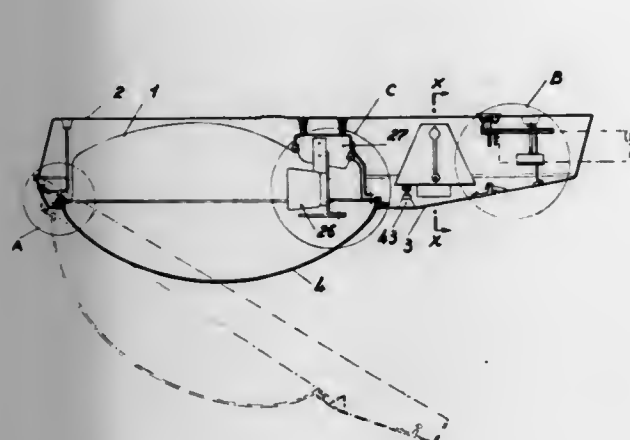
Division of Ser. No. 219,740, Jan. 21, 1972. This application Mar. 8, 1973, Ser. No. 339,273

Claims priority, application France, Oct. 1, 1971, 71.35397

Int. Cl. F21s 13/10, 1/10

U.S. Cl. 240-25

1 Claim



The present invention is to a light fixture having a body with detachable reflector therein and a lamp supporting socket independent of said reflector.

3,832,539

MULTI-BEAM LIGHTING DEVICE

John Anderson Oram, Osborne Cottage, Heath Rd., Leighton Buzzard, Bedfordshire, England

Continuation of Ser. No. 185,493, Oct. 1, 1971, abandoned.

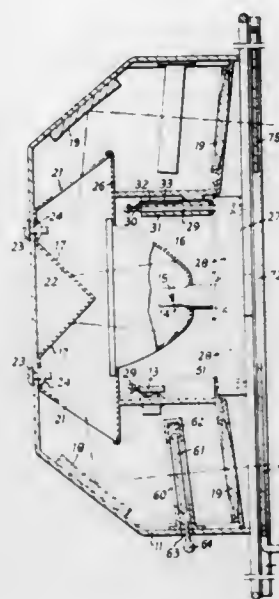
This application May 11, 1973, Ser. No. 359,374

Claims priority, application Great Britain, Oct. 7, 1970, 47754/70; Dec. 15, 1970, 59566/70

Int. Cl. F21v 13/04

U.S. Cl. 240-41.3

27 Claims



A lighting device comprises an elliptical reflector with a holder for locating a lamp with its filament at one of the foci of the reflector. A beam splitting device in the form of two planar mirrors is arranged between the reflector and its other focus to reflect two beams of light from the lamp transversely of the axis of the reflector in opposite directions. Two optical systems comprising concave mirrors and converging lenses are located in the paths of the two beams respectively to reflect the beams so that they meet at an acute angle to one another and to form focussed images of the lamp filament at the place where the beams meet.

3,832,540

LAMP MOUNTING FOR HIGH INTENSITY LIGHT FIXTURE

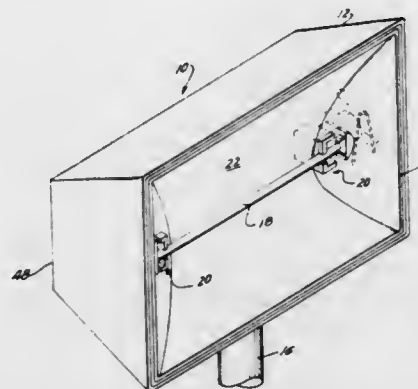
Charles Roth, Glen Gardner, N.J., assignor to Keene Corporation, New York, N.Y.

Filed Apr. 13, 1973, Ser. No. 350,768

Int. Cl. H05b 33/02

U.S. Cl. 240-51.11 R

4 Claims



A lighting fixture adapted to receive an elongated high intensity lamp is provided. The fixture includes a pair of socket assemblies spaced apart from each other within the fixture housing with each assembly including a ceramic socket housing adapted to nest in a base of material of high thermal conductivity. The ceramic housing is maintained in position by a

spring which also urges the housing toward the other socket assembly to provide the necessary secure electrical connections between the sockets and the ends of the lamp which comprise the lamp terminals.

3,832,541

LIGHT CONTROL DEVICE

Marion Geraldine Currie Bassett, Upper Canada College, Toronto 195, Ontario, and Alfred Thorburn Orr, 59 Astley Ave., Toronto 287, Ontario, Canada

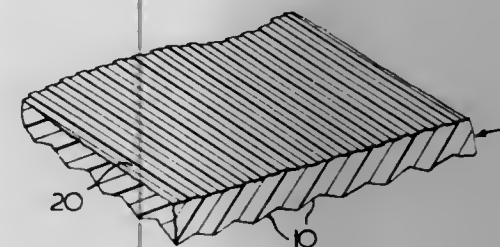
Filed Sept. 11, 1972, Ser. No. 287,850

Claims priority, application Canada, July 24, 1972, 147758

Int. Cl. F21v 5/00

U.S. Cl. 240-106 R

12 Claims



A decorative light control panel for use in conjunction with a light source for simultaneous reduction of glare, masking of the light source and delivery of a light output of a uniform brightness, comprising a transparent sheet having a first surface to receive the incident light from a light source and a second surface opposite to said first surface to emit the light received; said first surface composed of a plurality of spaced light diffusing areas having means to diffuse light incident upon them from the said light source and a plurality of alternating clear light transmitting areas permitting the remaining portions of the incident light to pass through said transparent sheet unimpeded; the light diffusing and light transmitting areas of the said first surface being arranged in decorative patterns; said second surface provided with arrays of light refractive means; the two opposite said surfaces forming with said transparent sheet an integral unit.

The means to diffuse and the means to transmit directly, of the first surface preferably, but not necessarily, are arranged in symmetrical alternating configurations of parallel lines, dots and/or patterns.

The refractive means of the second surface preferably are arrays of lenses, prisms and their combinations and are not necessarily correlated in their patterns with the patterns of the areas of the first surface.

3,832,542

WIDE RANGE RADIATION GAGE HAVING A CONTROLLED-GAIN PHOTODETECTOR FOR DETERMINING A MATERIAL PROPERTY

William G. Bartlett, Stockertown, and Edmund L. Mangan, Bethlehem, both of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed June 22, 1972, Ser. No. 265,415

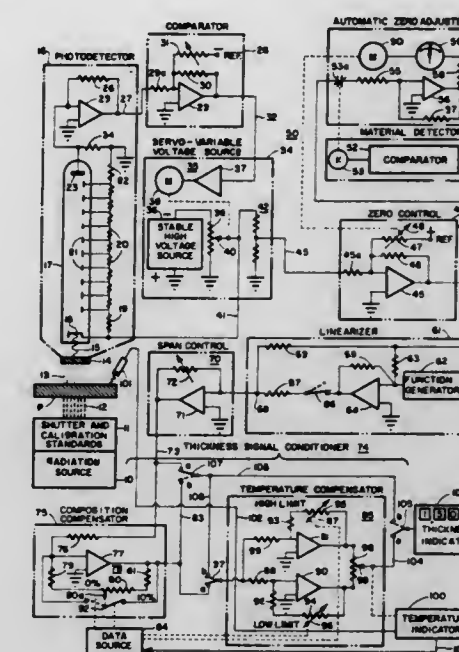
Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 R

30 Claims

A high energy nuclear radiation source and a scintillation detector are combined to gate a material property, such as steel plate thickness, when the material is placed in a beam of radiation. The detector includes a photomultiplier tube which operates in a servo loop with a voltage controlled variable dynode voltage source, the latter controlling tube gain to maintain anode current substantially constant over a wide range of gaging. Gage operation is based on the phenomena of a non-linear photomultiplier tube gain characteristic being inverse and nearly equal to the nonlinear radiation absorption

characteristic of the material being gaged. This yields a dynode voltage which varies only slightly nonlinearly as a measure of the material property. The gage includes a linearizer for correcting the nonlinearity of a fraction of the dynode voltage and this signal is ultimately applied to a material property indicator. Also included is an automatic zero adjuster for continuously providing a zero-based gaging



signal under variable operating conditions, and a material presence/absence detector for causing the zero adjuster to act only during the absence of material from the gage. In addition, a signal conditioner modifies the linearized signal to compensate for variations in other material properties which affect the gaging property.

3,832,543

GATED DETECTOR SYNCHRONIZATION

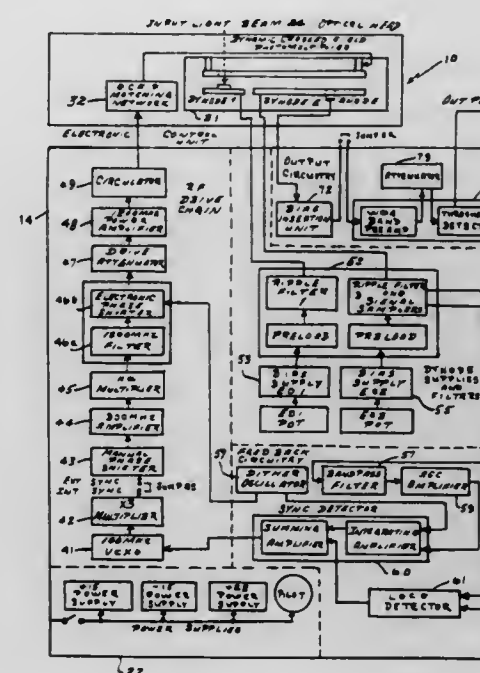
Samuel I. Green, Creve Coeur, and Douglas W. Dreisewerd, Florissant, both of Mo., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed June 4, 1973, Ser. No. 366,837

Int. Cl. H04b 9/00

U.S. Cl. 250-199

3 Claims



An optical pulse detector apparatus providing remote synchronization of the frequency and phase of the R. F. gate drive signal to the modulated optical input pulse train.

3,832,551

RADIATION GAGE WITH SAMPLE AND HOLD FEATURE IN DEVIATION MEASURING CIRCUIT

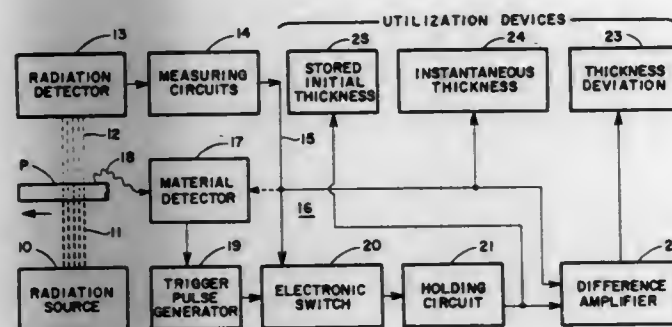
William G. Bartlett, Stockertown, and Edmund L. Mangan, Bethlehem, both of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed June 22, 1972, Ser. No. 265,140

Int. Cl. G01n 23/02

U.S. Cl. 250-359

7 Claims



Utility of a radiation gage having a direct-reading measuring circuit for determining a material property, such as thickness, density, or weight-per-unit area, is extended by use of a thickness deviation measuring circuit arrangement. In a thickness deviation gage, for example, the latter circuit arrangement includes a sample-and-hold circuit for automatically storing an initial thickness signal detected when the material first enters the gage, and a difference amplifier for comparing instantaneous or subsequent thickness signals with the stored thickness signal and producing a thickness deviation signal. The thickness deviation signal plus the stored and instantaneous thickness signals are fed separately to utilization devices such as indicators and recorders as used in the thickness profile analysis of said material from end-to-end, or said thickness deviation signals may provide a control signal in an automatic control system.

3,832,552

DUAL CHAMBER IONIZATION SMOKE DETECTOR

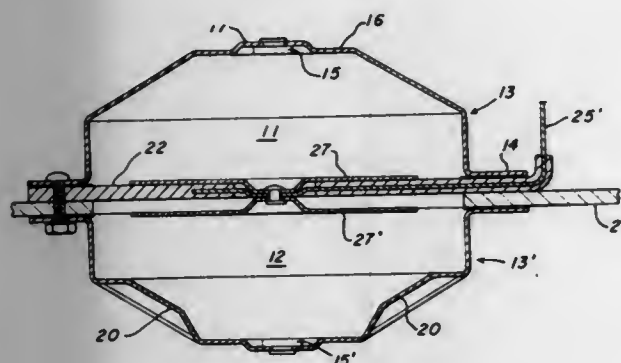
Larry D. Larsen, Palatine; Joseph C. Pekarek, Mt. Prospect, both of Ill.; Arlon D. Kompellen, Richfield, and Gerald D. Rork, Bloomington, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed June 22, 1973, Ser. No. 372,552

Int. Cl. G01f 1/18

U.S. Cl. 250-381

9 Claims



An improved chamber assembly for a dual chamber ionization smoke detector. A fluorocarbon plastic insulation member provides a non wettable insulating dividing wall between the two chambers.

3,832,553

CIRCUIT FOR A ROTARY ANODE X-RAY TUBE

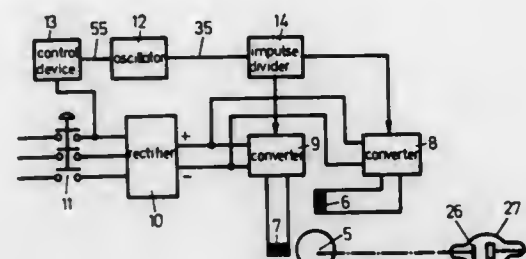
Gerd Seifert, and Kurt Franke, both of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Continuation-in-part of Ser. No. 192,858, Oct. 27, 1971, abandoned. This application June 12, 1973, Ser. No. 369,394

Int. Cl. H05g 1/66

U.S. Cl. 250-406

4 Claims



A circuit is used for actuating the driving motor of a rotary anode of an X-ray tube. The driving motor is an a.c. asynchronous motor fed from a converter. The converter is provided with actuating means which increase the frequency of the feeding voltage during the starting of the rotary anode from an initial value to an end value so as to provide the shortest possible starting time. The device of the present invention is a component part of an X-ray apparatus feeding an X-ray tube.

3,832,554

GENERATION OF NEGATIVE IONS

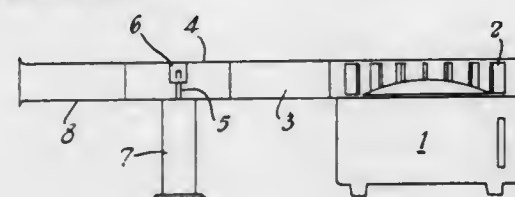
Charles Wilfred Topley, London, England, assignor to Armstrong Cork Company, Lancaster, Pa.

Filed June 22, 1972, Ser. No. 265,241

Int. Cl. H01j 37/00

U.S. Cl. 250-423

5 Claims



Negative ions are generated by passing a stream of gas and water vapour free of water droplets through a corona discharge of 5,000 volts or more.

3,832,555

FLUORESCENCE SPECTROPHOTOMETER

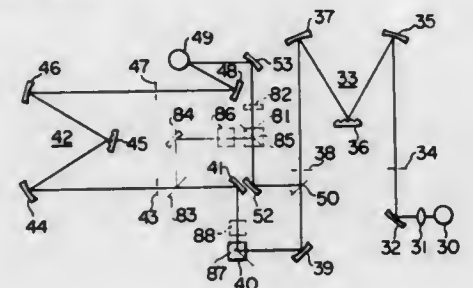
Yasushi Ohnishi, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 10, 1973, Ser. No. 349,694

Int. Cl. G01t 4/6

U.S. Cl. 250-458

26 Claims



The light emitted from a light source is dispersed and monochromated through the first spectrometer unit and then

projected to a fluorescent specimen. The fluorescent light emitted from the specimen is dispersed and monochromated through the second spectrometer unit and detected by a detector. Means is provided between the first spectrometer unit and the specimen for deriving the light incident to the specimen and supplying the derived light and the dispersed and monochromated fluorescent light alternately to said detector so as to provide an accurate fluorescence spectrum.

3,832,556

LUMINESCENT BACKING SHEET FOR WRITING IN THE DARK

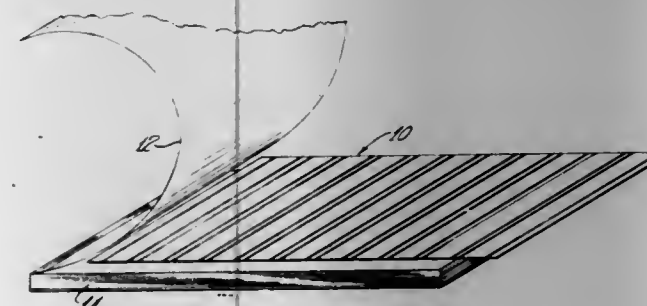
Becky J. Schroeder, 2317 Valleybrook Dr., Toledo, Ohio 43615

Continuation of Ser. No. 288,148, Sept. 11, 1972, abandoned. This application Dec. 26, 1973, Ser. No. 428,339

Int. Cl. H01j 1/62

U.S. Cl. 250-462

10 Claims



A lined phosphorescent backing sheet for use in underlying relation with writing paper permitting a writer to write in orderly lined form in the dark without need for external light.

3,832,557

INSTRUMENT FOR VIEWING AND MEASURING ELECTROMAGNETIC RADIATION

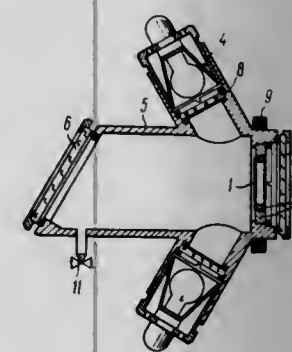
Alexei Pavlovich Bazhulin, ulitsa Vavilova, 35, kv. 30; Evgeny Alexandrovich Vinogradov, Kozhevnikeskaya ulitsa, 16, kv. 33; Natalia Alexandrovna Irisova, ulitsa Vavilova, 44, korpus 33, kv. 74, all of Moscow; Nina Vasilievna Mitrofanova, Oktyabrskaya ulitsa, 13, kv. 42, Dolgoprudny Moskovskoi Oblasti; Jury Petrovich Timofeev, Ananievsky pereulok, 5, kv. 136, Moscow; Samuil Aronovich Fridman, Profsojiznaya ulitsa, 36/9, kv. 41, Moscow, and Valentina Vasilievna Schaenko, 2 Parkovaya ulitsa, 18, kv. 21, Moscow, all of U.S.S.R.

Filed May 9, 1972, Ser. No. 251,697

Int. Cl. H01j 1/62

U.S. Cl. 250-461

9 Claims



An instrument for viewing and measuring electromagnetic radiation, wherein an image-receiving web of an image-receiving screen is formed by successively arranged layers comprising: a heat insulation backing layer, a metal layer and a lumiphore layer, the image-receiving web being secured on a holder, the image-receiving screen and an excitation source

are enclosed within a housing provided with windows for the passage of the electromagnetic radiation; the screen with its holder is preferably enclosed within a protective case also provided with windows for the passage of the electromagnetic radiation being measured.

3,832,558

AUTOMATIC WAVELENGTH TRACKING SYSTEM

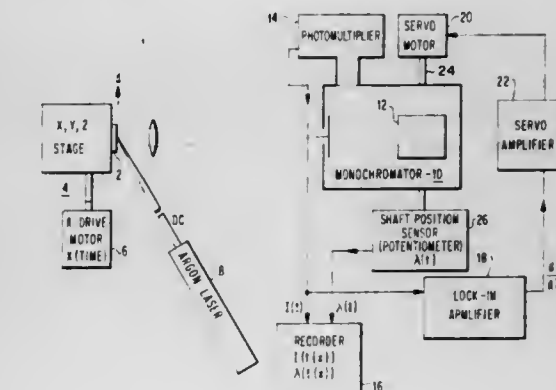
Robert E. Fern, Yonkers, N.Y., and Aare Onton, Korntal, Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 20, 1973, Ser. No. 343,089

Int. Cl. G01n 21/38

U.S. Cl. 250-461

18 Claims



A method and apparatus for determining the characteristics of a luminescent material using a monochromator to detect the intensity of a light emitted by the material at a single major spectral line as the material is scanned. The wavelength of a monochromator is adjusted such that the intensity being measured is the peak intensity. The fact that the intensity is the peak intensity is determined by taking the derivative of the intensity with respect to wavelength as the wavelength of the monochromator is modulated by a wavelength wobbler. The intensity is at its peak when the derivative equals zero. The derivative signal is applied to a servo loop which controls the wavelength of the monochromator and varies the wavelength such that the derivative is maintained equal to zero. This technique may be used to determine the atomic proportions of material having intensity and/or wavelength related to its composition, to define areas of a material having particular characteristics, to evaluate a piece of material, or to determine the line shape of the spectral curve at a point on the material.

3,832,559

CASSETTE LOAD AND EJECT MECHANISM FOR SPOT-FILM APPARATUS

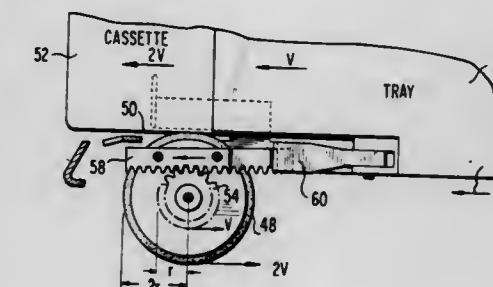
Eugene P. Thomas; Henry F. Cimildora, and James A. Morin, all of Baltimore, Md., assignors to CGR Medical Corporation, Baltimore, Md.

Filed Apr. 3, 1973, Ser. No. 347,429

Int. Cl. G01n 21/34

U.S. Cl. 250-468

13 Claims



A pair of friction wheel mechanisms adapted to engage the forward portion of respective sides of an X-ray film cassette

and which uses the forward motion of the cassette tray as a driving force to eject the cassette automatically. A rack and pinion gear associated with each friction wheel are actuated by driver elements located on each side of the cassette tray. Each friction wheel and associated pinion gear rotate on a common axis and are integral with one another. The diameter of the friction wheel is selectively greater than the diameter of the pinion gear such that when the cassette tray drives the rack and pinion gear arrangement, the friction wheel will cause the linear velocity of the cassette to be greater than the linear velocity of the cassette tray by the ratio of the relative diameters of the pinion gears and friction wheel.

3,832,560

METHOD AND APPARATUS FOR ELECTRON BEAM ALIGNMENT WITH A MEMBER BY DETECTING CATHODOLUMINESCENCE FROM OXIDE LAYERS

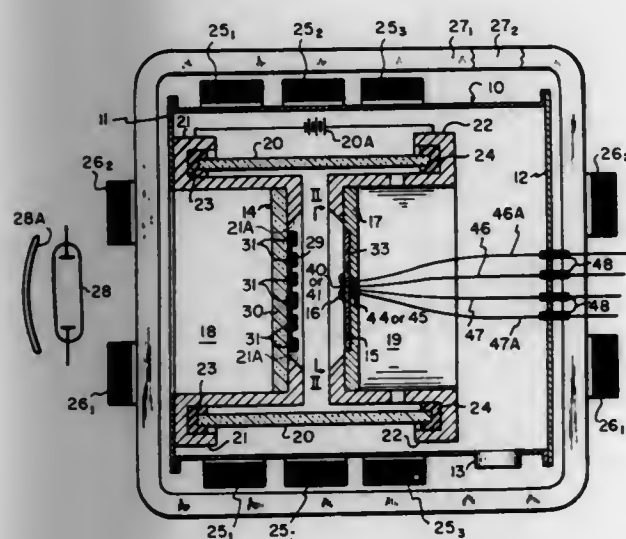
Terence William O'Keeffe, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 370,115, June 13, 1973, abandoned. This application Oct. 1, 1973, Ser. No. 402,249

Int. Cl. H01j 29/50, 31/49

U.S. Cl. 250-492

22 Claims



A method and apparatus are provided for alignment of an electron beam with precisely located areas of a major surface of a semiconductor member. At least one and preferably two spaced apart detector marks of predetermined shape formed by cathodoluminescent oxide layers are positioned adjacent the major surface. Each detector mark provides a differential in cathodoluminescence projected by the oxide layer corresponding to the area of the mark irradiated by an electron beam. To align, an electron beam to be aligned has at least one alignment beam portion corresponding to at least one detector mark and of predetermined cross-sectional shape. The alignment beam portions are projected onto the major surface of the member in the vicinity of the corresponding detector marks. And the cathodoluminescence generated by the oxide layers in at least the vicinity of the detector mark is detected by detecting means. The electron beam is moved relative to the member while continuing said detection until the detected cathodoluminescence indicates optimum alignment of each alignment beam portion thereof with a corresponding detector mark. Preferably, said alignment method is used in producing a very accurate component pattern in electroresist layer on the major surface of the member with either a scanning electron beam or a patterned electron beam generated by a photocathode source.

3,832,561 METHOD AND APPARATUS FOR ELECTRON BEAM ALIGNMENT WITH A SUBSTRATE BY SCHOTTKY BARRIER CONTACTS

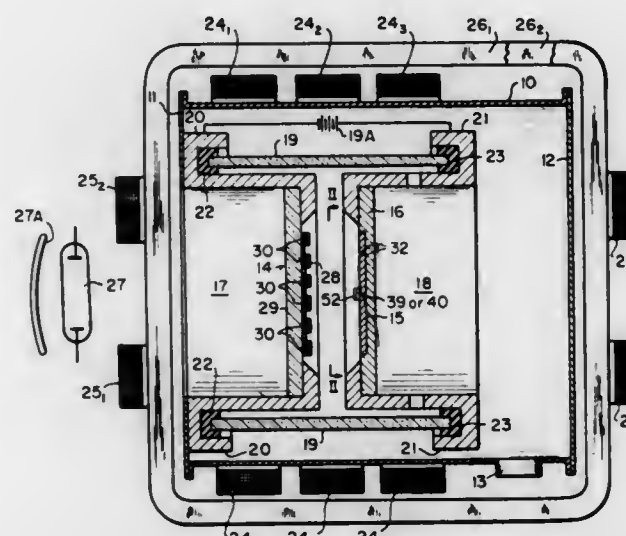
Terence W. O'Keeffe, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 1, 1973, Ser. No. 402,239

Int. Cl. H01j 37/26

U.S. Cl. 250-492

21 Claims



A method and apparatus are provided for precision alignment of an electron beam with selected areas of a major surface of a substrate. At least one and preferably two spaced apart detector marks of predetermined shape formed by Schottky barrier contacts are provided adjacent the major surface of the substrate. To align, an electron beam to be aligned has at least one alignment beam portion corresponding to at least one Schottky barrier contact detector mark and of predetermined cross-sectional shape. The electron beam is projected onto the major surface with the alignment beam portions thereof in the vicinity of corresponding Schottky barrier detector marks. An electrical signal is produced by each irradiated Schottky barrier contact corresponding to the area of the detector mark irradiated by an alignment beam portion. The electron beam is moved relative to the substrate to vary the electrical signal and is positioned where the electrical signal indicates optimum alignment of each alignment beam portion with a corresponding Schottky barrier detector mark. The method and apparatus is particularly suited for use in producing a very accurate component pattern in an electroresist layer on the major surface of the substrate with a patterned electron beam generated by a photocathode source.

3,832,562 ENHANCEMENT AND CONTROL OF RADIATION BEAMS BY VIBRATING MEDIA

Alan M. Jacobs, and Edward S. Kenney, both of State College, Pa., assignors to Research Corporation, New York, N.Y.

Continuation of Ser. No. 117,647, Feb. 22, 1971, abandoned.

This application Jan. 15, 1973, Ser. No. 323,794

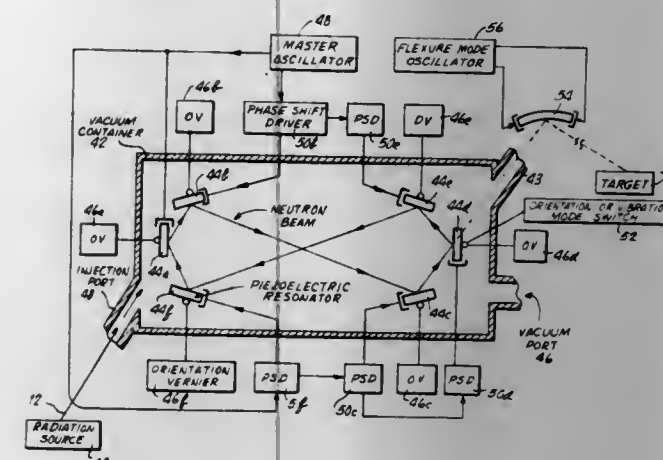
Int. Cl. G01n 23/20

U.S. Cl. 250-503

25 Claims

Disclosed are apparatus and methods for controlling radiation, such as a beam of neutrons, low energy gamma rays, X-rays, or electrons, by means of successive diffractions by diffracting media, such as crystals, vibrating in a compression mode in a shear mode or in a complex superimposed vibrational mode. The radiation beam may be subjected to successive diffractions by an arrangement of such vibrating diffracting media and may thus be contained in a substantially closed

path such as a hexagonal path or a figure-eight path. Alternatively, the radiation beam may be subjected to one or more source. By changing the angle of cylindrical shaped step wedge, the thickness of the material in the path of the beam



diffractions by an arrangement of such vibrating diffracting media for the purpose of controlling the beam in a non-closed path.

3,832,563 APPARATUS FOR STORING AND PROCESSING FISSIONABLE SUBSTANCES

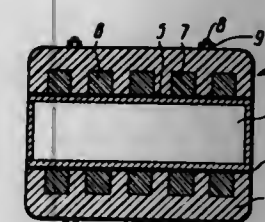
Boris Grigorievich Dubovsky, Kaluzhskoi oblasti, Sportivnaya, 5, kv. 6; Viktor Konstantinovich Bogatyrev, Kaluzhskoi oblasti, bulvar Entuziastov, 27, kv. 52; German Matveevich Vladkov, Kaluzhskoi oblasti, ulitsa Kosmonavtov, 7a, kv. 23, and Valentina Yakovlevna Sviridenko, Kaluzhskoi oblasti, 44, kv. 71 ulitsa Lenina, all of Obninsk, U.S.S.R.

Filed Aug. 7, 1972, Ser. No. 278,655

Int. Cl. G21f 1/00

U.S. Cl. 250-506

24 Claims



An apparatus for storing and processing fissionable substances provided with a protective shield. The latter consists of a layer of a neutron-absorbing material, followed by a layer of a neutron-retarding material. The layer of a neutron-absorbing material is located in a direct proximity to a vessel with a fissionable substance contained therein. The layer of a neutron-retarding material is made with alternating projections and depressions facing the layer of a neutron-absorbing material.

3,832,564 RADIATION ABSORBER AND INTENSITY COLLIMATOR UNIT

Leland S. Hall, Twain-Harte, and Howard Heffan, Concord, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

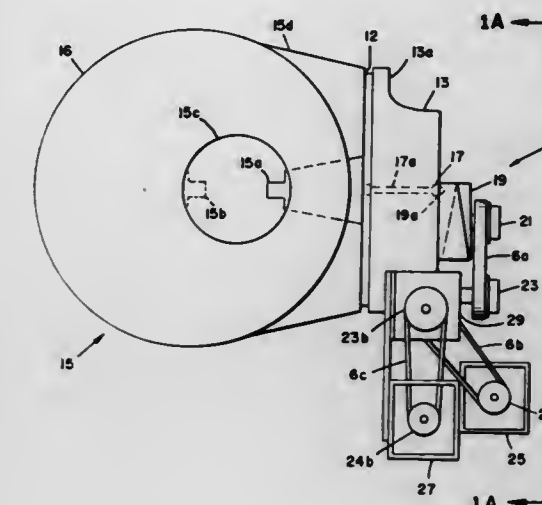
Filed Jan. 31, 1973, Ser. No. 328,206

Int. Cl. G21f 5/02

U.S. Cl. 250-510

10 Claims

A radiation absorber which automatically and/or digitally controls the intensity of a radiation source by providing an absorbent measured fixed path for the radiation beam to travel, by the use of a cylindrical helically shaped step wedge to control the intensity of the radiation emitted from the radiation



emitted from the source changes, thereby changing the flux of the beam.

3,832,565 HOLOGRAPHIC MEMORY WITH DODECAHEDRON DETECTOR MATRIX

Peter Graf, and Manfred Lang, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

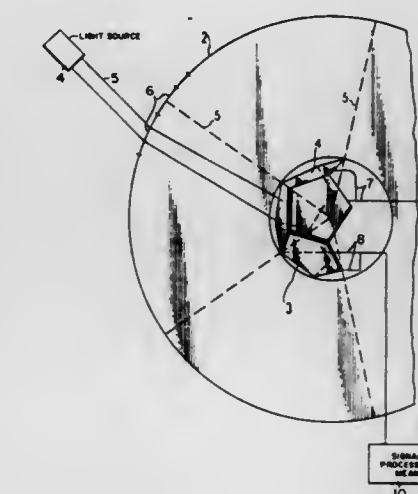
Filed May 14, 1973, Ser. No. 359,846

Claims priority, application Germany, May 18, 1972, 2224350

Int. Cl. H01l 15/00; G02b 27/00

U.S. Cl. 250-566

1 Claim



A device for retrieving information stored in the form of sub-holograms on a storage medium comprising a light source, means for holding the storage medium and a detector matrix characterized by the detector matrix comprising a plurality of plane detector matrices each of which has an array of light detectors and the matrices are arranged with the plane surfaces of adjacent matrices forming an angle so that each of the matrices is assigned to receive information retrieved from a portion of the storage medium. The detector matrices may have a polygon surface such as a pentagon and are arranged to form a single polyhedral detector matrix such as a detector matrix consisting of a semi-dodecahedron.

3,832,566

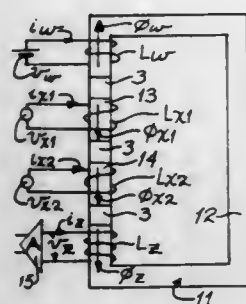
DISTORTIONLESS MAGNETIC LOGIC ELEMENTS

Martin E. Gerry, 13452 Winthrop St., Santa Ana, Calif. 92705

Division of Ser. No. 840,121, June 19, 1969, Pat. No. 3,651,282, which is a continuation-in-part of Ser. No. 599,335, July 19, 1965, Pat. No. 3,504,229. This application Mar. 23, 1971, Ser. No. 127,313
Int. Cl. H03k 19/16

U.S. Cl. 307—88 LC

20 Claims



The principles and use of magnetic main core flux and ways for eliminating mutual flux components contributing to distortion in a group of magnetic devices results in these magnetic devices having better operating results and hence contributes to better and higher fidelity products. Included are components such as logic gates. A basic ternary or three-state logic element is disclosed with distortion-free properties and its use in computer applications enables a large reduction of the number of logic gates along with faster computation time in view of the fact that counting is done by three instead of the conventional two in digital computers. The freedom from distortion in the logic gates enhances pulse handling ability, reduces the quantity of wave shape restoration components needed in equipment wherever used, and enables a greater amount of information to be stored in a smaller amount of space on a recording medium in view of the freedom from distortion components, which actually use up a large portion of the frequency spectrum and hence recording space.

3,832,567

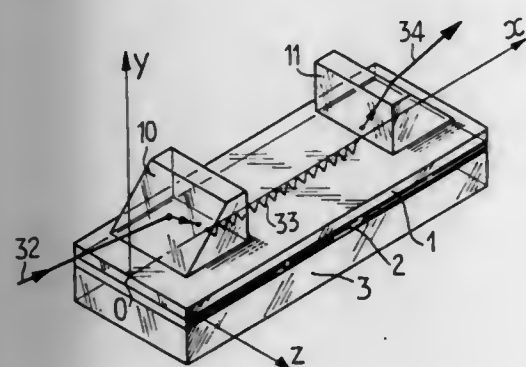
TRAVELLING WAVE FREQUENCY CONVERTER ARRANGEMENTAndre Jacques; Daniel Ostrowsky, and Michel Papuchon, all of Paris, France, assignors to Thomson-CSF, Paris, France
Filed July 20, 1973, Ser. No. 381,094

Claims priority, application France, July 26, 1972, 72.26711

Int. Cl. H02m 5/04; G02f 1/28

U.S. Cl. 307—88.3

9 Claims



The present invention relates to travelling wave frequency converter arrangements based on the harmonic generation. The converter in accordance with the invention comprises a harmonic generation interface obtained by bringing together a metal film and an optical waveguide layer whose thickness is

such that the phase velocities of the fundamental and harmonic frequency radiations transmitted are substantially matched with one another. Optical coupling means are associated with the optical waveguide and electrical means may be provided for altering the phase velocity matching.

3,832,568

CIRCUIT FOR GENERATING A SINGLE HIGH VOLTAGE SUBNANOSECOND PULSE FROM A STEP RECOVERY DIODE

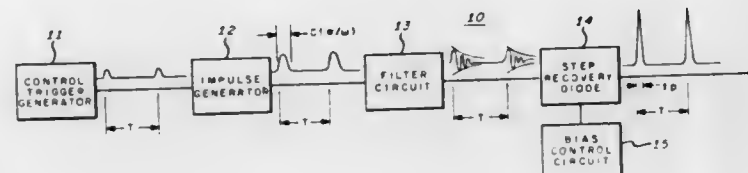
Chao C. Wang, West Concord, Mass., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Aug. 10, 1973, Ser. No. 387,573

Int. Cl. H03k 3/00

U.S. Cl. 307—106

15 Claims



A series connected electronic circuit including in combination a trigger generator, an impulse generator, a filter circuit having an inductance L , a step recovery diode having a forward resistance R_F and a reverse capacitance C_R and an optimal bias circuit coupled to the step recovery diode. The trigger generator produces a train of pulses having a relatively long time interval, T , between each pulse; these pulses are then coupled to the impulse generator which produces an impulse having a Fourier component predominant at a frequency ω in response to each trigger pulse. The filter circuit converts each impulse into a damped sine wave having an angular frequency ω and a damping constant $\delta = R_F/2L$. The sine wave is coupled to the step recovery diode which generates a single high voltage subnanosecond pulse having a half period, $t_p/\pi \approx \sqrt{LC_R}$ in response to each damped sine wave.

3,832,569

PULSE GENERATOR MODULE AND GENERATOR SYSTEM

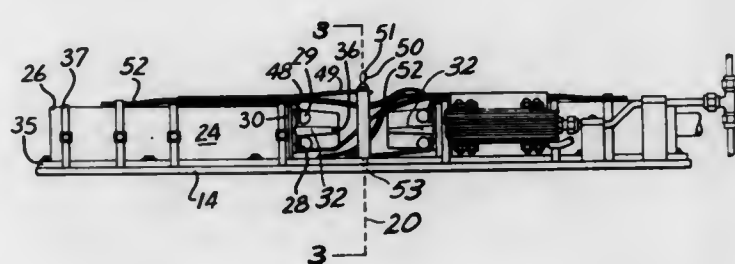
Robert L. Anderson, and Robert Darrell Stine, Jr., both of San Diego, Calif., assignors to Maxwell Laboratories, Inc., San Diego, Calif.

Filed Aug. 22, 1972, Ser. No. 282,717

Int. Cl. H02m 3/18

U.S. Cl. 307—110

5 Claims



Two stage stackable modules for assembly in compact, low inductance pulse generators of the Marx type. Also disclosed are Marx generators comprising stacked arrays of such modules, and pulse generator systems comprising such Marx generators in combination with a peaking capacitance and a low inductance output switch.

3,832,570

METHOD FOR CONTROLLING AT LEAST ONE LOAD CIRCUIT AND DEVICES FOR CARRYING OUT THIS METHOD

Jean-Claude Gabus, Schillern/Koniz, Switzerland, assignor to Signale & Automatik A.G., Berne, Switzerland

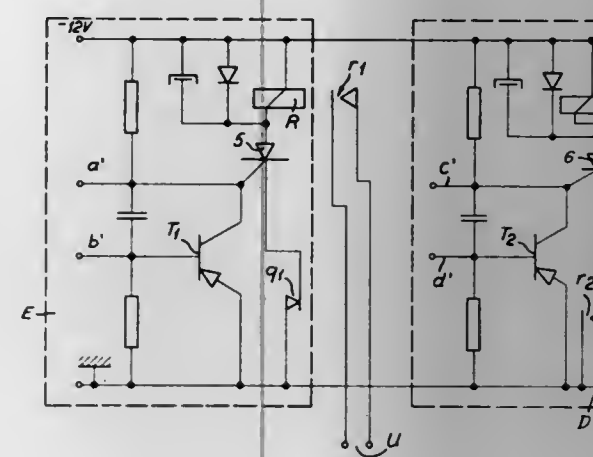
Filed Dec. 5, 1972, Ser. No. 312,316

Claims priority, application Switzerland, Jan. 28, 1972, 1380/72

U.S. Cl. 307—116

Int. Cl. H01h 3/16

4 Claims



The invention concerns a method for controlling at least one load circuit, where the switching on of this load circuit is controlled by means of a control circuit actuated by at least one detector which is actuated with the tongue. The invention concerns also a control device for at least one load circuit which comprises a relay one contact of which is connected into the load circuit to be controlled and also a circuit for controlling this relay actuated by at least one humidity-sensitive detector intended to be actuated with the tongue.

3,832,571

CASCADED VARIABLE DELAY SYSTEM

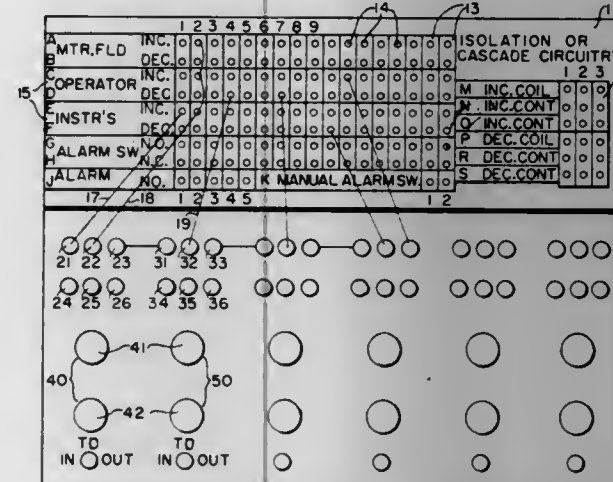
Clifford Ray Grosvenor, Endwell, N.Y.; Ronald R. Resch, Laurel, Md., and Paul P. Pumm, Tonawanda, N.Y., assignors to The Singer Company, Binghamton, N.Y.

Filed Jan. 28, 1971, Ser. No. 110,463

Int. Cl. H01h 47/18; G09b 23/00

U.S. Cl. 307—154

11 Claims



In apparatus comprising a plurality of separate units in which a change in one unit is to be initiated a prescribed interval of time after a change in another unit has terminated, this invention comprises a programmable delay mechanism for

rendering such changes automatic. A plurality of selectively settable timing devices are provided in pairs. In each pair, one such timing device is set by the termination of a change in one unit. After the elapse of the interval selected for the timing device, an output is generated which sets the second device of the pair. When the second device of a pair is set, it generates an output signal which exists for the length of time for which that device has been set. The output signal from the second timing device can be used to initiate the action of another pair of devices. Each pair of devices is provided with input and output terminals for ready connection into an overall timing system of any desired configuration.

3,832,572

CIRCUIT FOR DELAYING AND SHAPING SYNCHRONIZING PULSE

Shigeaki Minamihata, and Masayasu Niimi, both of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

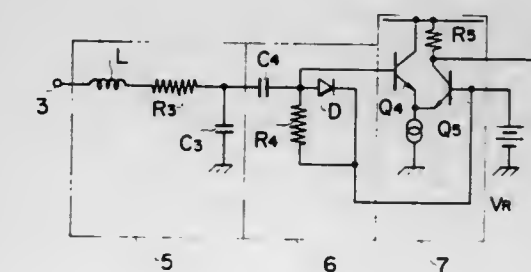
Filed Aug. 7, 1973, Ser. No. 386,404

Claims priority, application Japan, Aug. 9, 1972, 47-79138

Int. Cl. H03k 3/00

U.S. Cl. 307—106

3 Claims



A synchronizing pulse delaying and shaping circuit includes an integration circuit, a clamping circuit, a differential amplifier and a reference power source. The clamping circuit includes a coupling capacitor and a diode. A synchronizing pulse is applied to the integration circuit, to be shaped into an integrated waveform. The integrated signal has its DC component blocked by the coupling capacitor, and the resultant signal is superimposed on a reference voltage of the reference power source. The superimposed signal is partially clamped by the diode and the reference power source. Current flows through the diode in the forward direction, with the result that the coupling capacitor is discharged. When the peak level of the clamped signal is thus lowered to a predetermined value, the clamped signal voltage is compared with the reference voltage by the differential amplifier. Then, an output pulse is provided.

3,832,573

OVER-CURRENT LATCH-UP PROTECTION APPARATUS FOR SCR INVERTER CIRCUITS AND THE LIKE

Peter Ver Planck, Newton, and Paul R. Johannessen, Lexington, both of Mass., assignors to Megapulse Incorporated, Bedford, Mass.

Filed Feb. 15, 1973, Ser. No. 332,667

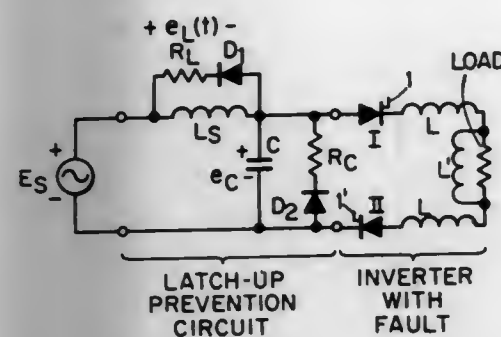
Int. Cl. H02h 7/14

U.S. Cl. 307—202

5 Claims

This disclosure deals with over-current latch-up protection apparatus for SCR inverter circuits and the like, wherein an L-C network of frequency substantially lower than the inverter output frequency is interposed between the D. C. supply and

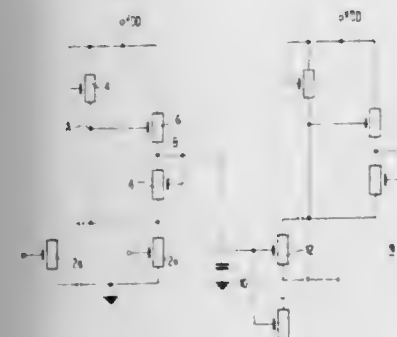
the inverter to discharge through a short-circuiting inverter fault in such a way that the inverter's supply voltage is momen-



3,832,574 FAST INSULATED GATE FIELD EFFECT TRANSISTOR CIRCUIT USING MULTIPLE THRESHOLD TECHNOLOGY

Gerald W. Leehan, Centerville, Va., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 29, 1972, Ser. No. 319,255
Int. Cl. H03k 19/08, 19/34; H01 19/00
U.S. Cl. 307-205

12 Claims



An integrated logic circuit using FETs having different threshold characteristics to assure that the FETs having the lower threshold voltage turn ON before those having a high threshold voltage when their gates are connected to a common node. Thus it is possible to use a low threshold FET diode as a series element in the discharge path between the logic output node of a conventional NOR circuit and its load. This diode isolates the conventional NOR from the interconnection capacitance, thus eliminating the effect of the interconnection capacitance on rising transitions at the logic output node. Furthermore, since low threshold devices can exist within the same circuit as the necessarily high threshold input FETs, two lower threshold FETs can be connected in series such that the input capacitance of a succeeding stage can be charged to a logic 1 voltage that is less than the power supply voltage by the gate to source voltage of the two lower threshold FETs. This logic 1 voltage is higher since the threshold of these two devices is lower than would be possible in single threshold technology. Also, the second of the two lower threshold FETs can serve as a charging means for the input capacitance of the succeeding stage while maintaining the isolation between that capacitance and the output of the conventional NOR circuit. Thus, multiple threshold technology can be used to reduce the effect of the interconnection capacitance of succeeding logic stages, while increasing the logic level.

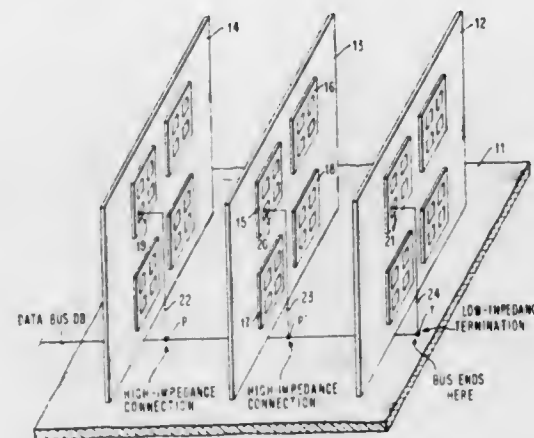
3,832,575 DATA BUS TRANSMISSION LINE TERMINATION CIRCUIT

Sumit Dasgupta, Beacon; David H. Richter, Wappingers Falls, and Ted I. Takayasu, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 27, 1972, Ser. No. 319,097
Int. Cl. H03k 19/08, 5/08

U.S. Cl. 307-208

26 Claims



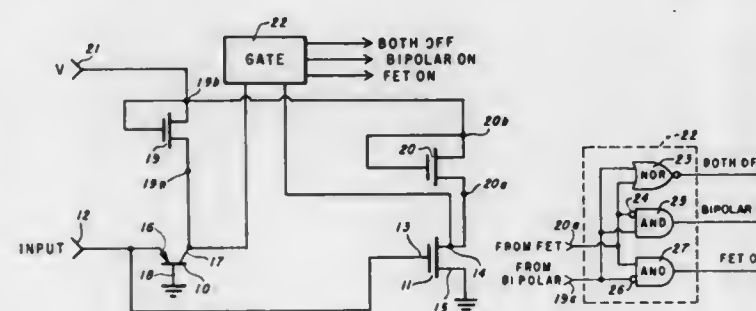
A data bus transmission line termination circuit for connection either to the terminal end of a data bus or to an intermediate portion of the bus. The circuit is programmable to either a low-impedance state for connection to the terminal end of the data bus so as to provide an optimum terminating load for the bus, or to a high-impedance state for connection to an intermediate portion of the data bus so as not to load down the latter when so connected. The termination circuit is preferably formed on the same integrated circuit chip as the receiver circuit so as to be located adjacent the effective end of the total transmission line including the portion extending from the data bus proper through the connections and conductors of the board, card, module and chip to the receiver circuit on the chip.

3,832,576 ENCODER CIRCUIT TO REDUCE PIN COUNT FOR DATA ENTRY INTO INSULATED GATE FIELD EFFECT TRANSISTOR INTEGRATED CIRCUITS

Robert J. Proebsting, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 65,839, Aug. 21, 1970, abandoned.
This application June 7, 1972, Ser. No. 260,644
Int. Cl. H01 27/02

U.S. Cl. 307-209

10 Claims



An insulated gate field effect transistor compatible encoder circuit employs a field effect transistor and a lateral bipolar transistor to reduce the number of transmission lines or pins necessary to transmit information to an insulated gate field effect transistor integrated circuit employing such encoder circuit as its input. The input to the encoder circuit is coupled to

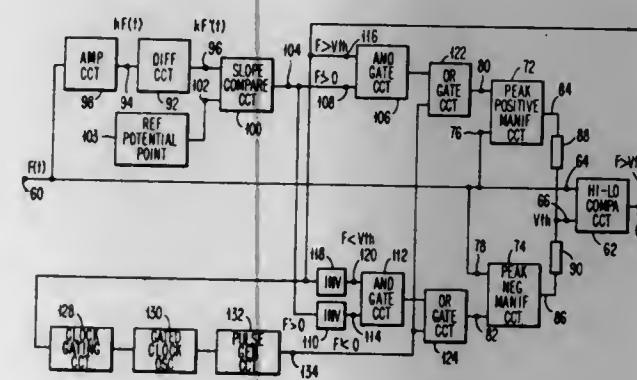
both the gate of a field effect transistor and the emitter of a bipolar transistor. When a negative voltage is transmitted to the input, the field effect transistor turns on; when a positive voltage is transmitted to the input, the bipolar transistor is turned on; and when no voltage is transmitted to the input, neither transistor is turned on. The outputs of the transistors are then gated to provide three distinct logic inputs, from the single input, for the insulated gate field effect transistor integrated circuit.

3,832,577 THRESHOLD EXTRACTION CIRCUITRY FOR NOISY ELECTRIC WAVEFORMS

Jerome Danforth Harr, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed June 22, 1973, Ser. No. 372,713
Int. Cl. H03k 5/20

U.S. Cl. 307-235 A

15 Claims



Significant low frequency noise components in an electric wave, likely to follow larger transient components, are accommodated by automatically adjusting threshold crossing extraction circuitry. Peak component values of each cycle of a wave are stored and used in adjusting the threshold for the succeeding cycle of that wave. The peak level of each mark signal and that of each space signal component is stored by circuitry closely tracking the pertinent changes in the wave envelope. This circuitry is automatically adjusted rapidly at the beginning of each cycle and thus provides control of threshold adjustment without delay under widely varying conditions, such as are encountered in hand scanning of bar coding and the like. Facile circuitry comprises capacitive negative and positive peak tracking and storing circuits interconnected by a resistance divider network from which the threshold value is extracted for application to a signal comparator circuit in which the threshold signal is derived. Output of the comparator circuit is applied to the tracking circuits for arming them. The input signal is differentiated for enabling the tracking and storing circuits alternately in accordance with the sign of the signal wave slope. Reset circuitry is arranged for maintaining operation within the normal range.

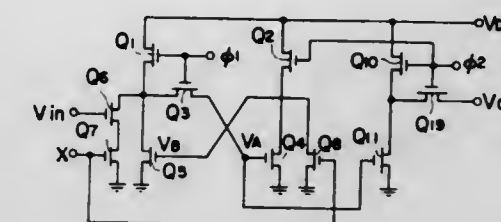
3,832,578 STATIC FLIP-FLOP CIRCUIT

Kosei Nomiya; Kazuo Minorikawa; Shuichi Torii, and Yoshikazu Hatsukano, all of Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed June 13, 1973, Ser. No. 369,418
Claims priority, application Japan, June 28, 1972, 47-64027
Int. Cl. H03k 3/26

U.S. Cl. 307-279

8 Claims

A static flip-flop circuit comprising a first inverter including a first insulated gate field-effect transistor (MIS-FET), a second inverter including a second MIS-FET and whose output is feedback-connected to the gate of the first MIS-FET, a third inverter including a third MIS-FET, the gates of the second and third MIS-FET's being interconnected, a transfer



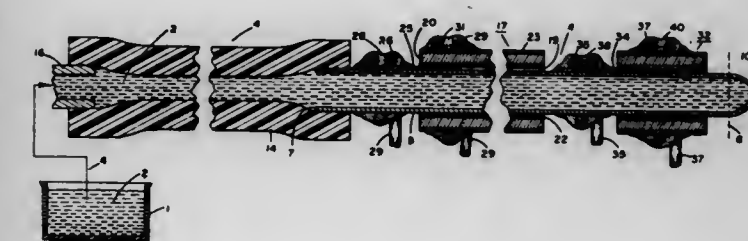
receive a second train of clock pulses differing in phase from the first train of clock pulses, the control MIS-FET's being connected to receive a writing control signal at their gates, the writing control signal being adapted to render the control MIS-FET's conductive when at least the transfer gate MIS-FET is conductive at writing, whereby the same information as stored in the second MIS-FET is stored in the third MIS-FET in order to be read out through the reading MIS-FET.

3,832,579 PULSED DROPLET EJECTING SYSTEM

John P. Arndt, Cleveland, Ohio, assignor to Gould Inc., Chicago, Ill.
Filed Feb. 7, 1973, Ser. No. 330,360
Int. Cl. H04r 17/00

U.S. Cl. 310-8.1

4 Claims



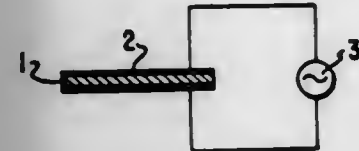
A reservoir supplies liquid through a conduit to a nozzle. The liquid is under small or zero static pressure. Surface tension at the nozzle prevents liquid flow when the system is not actuated. A section of the conduit terminating at the nozzle is designed to be capable of conducting pressure waves in the liquid from end to end of the section without the occurrence of significant reflections within the section. An electroacoustic transducer is coupled to the liquid in the reflection-free section. When an electric pulse is applied to the transducer it applies a pressure pulse to the liquid sending a pressure wave to the nozzle where it causes ejection of a droplet. The pressure pulse also sends a pressure wave in the opposite direction. The system has energy absorbing means coupled to the liquid and adapted to absorb substantially all of the energy of the latter wave, thus preventing reflections which could return to the nozzle and interfere with ejection of a subsequent droplet. Two classes of energy absorbing means are described: (a) conduit walls of viscoelastic material which deform under the influence of the pressure wave and absorb energy therefrom, and (b) several forms of acoustic resistance elements within the conduit at the inlet end of the reflection-free section.

3,832,580

HIGH MOLECULAR WEIGHT, THIN FILM
PIEZOELECTRIC TRANSDUCERS

Isao Yamamuro, and Masahiko Tamura, both of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan
Continuation-in-part of Ser. No. 793,943, Jan. 27, 1969, abandoned. This application Jan. 4, 1973, Ser. No. 321,072
Int. Cl. H04r 17/00

U.S. Cl. 310—9.5



A transducer for converting electrical energy into mechanical or acoustic energy or vice versa using a converting means made of a thin film of high molecular weight polymer piezoelectric organic compound having orientated molecules and having electrodes bonded or deposited onto both surfaces thereof. When an electric current is applied to the electrodes, the thin film is extended or contracted in a direction different from the direction of orientation of the molecules. When the angle between these two directions is 45°, the extent of the extension or contraction of the thin film is at a maximum and the best converting efficiency can be obtained.

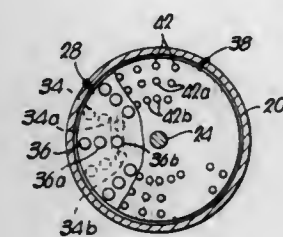
3,832,581

MULTI-ARMATURE AND CONCENTRIC MOTORS

George R. Hoffmann, P.O. 8201 Craig, Overland Park, Kans. 66204; Elmer B. Mason, P.O. 901 Vickie Dr., Oklahoma City, Okla. 73115; Graydon W. Jack, P.O. 2532 N.W. 28th, Oklahoma City, Okla., and Glenn A. Campbell, Montrose, Mo. 64770

Filed Mar. 31, 1972, Ser. No. 240,148
Int. Cl. H02k 21/38

U.S. Cl. 310—46



Electric motors of multi-armature and concentric design having high efficiency and special operating characteristics adapting the motors for a number of different types of applications. The multi-armature design employs two or more armatures and a common source of magnetic excitation, parallel magnetic circuits being established through the armatures to independently excite the same. In the two armature version, parallel connection of the armatures and the excitation winding causes the motor to have a dual operating characteristic in that the speed of one armature varies inversely with the speed of the other armature, and vice versa, until the higher speed armature reaches a critical rpm, whereupon the load may be increased over a wide range without further changes in the speed of either armature.

3,832,582

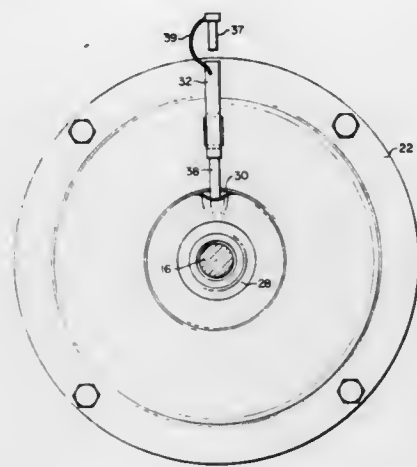
MOTOR WITH IMPROVED OIL SUPPLY DEVICE ON
SHEET METAL ENDBELL

George M. McDonald, Ada, and Richard J. Schul, Lima, both of Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 2, 1973, Ser. No. 385,196
Int. Cl. H02k 5/22

8 Claims U.S. Cl. 310—90

4 Claims



The endbell of a motor is of stamped sheet metal including a cup-shaped central portion surrounded by a flange-like outer portion which is secured to the stator and which supports a device for providing an oil passageway to a centrally located bearing. The cup-shaped endbell portion is part of the bearing housing that also includes a second cup-shaped member disposed within the first cup-shaped portion in opposite facing relation. The two cup-shaped elements have shaft receiving apertures and contain a bearing and oil retaining wicking material. One of the cup-shaped elements has an additional aperture off the shaft axis. The oiler device is a unitary member of molded plastic material; it is snap fit, without fasteners, in an aperture in the flange portion of the endbell and has an extremity in the aperture of one of the cup-shaped elements. The outer extremity of the oiler device is proximate the radial extremity of the endbell.

3,832,583

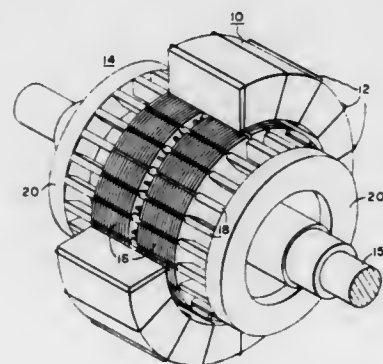
SQUIRREL CAGE MOTOR WITH IMPROVED ROTOR
BAR SECURING ARRANGEMENT

Chen-Kuo Chang, Depew, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 8, 1973, Ser. No. 339,492
Int. Cl. H02k 3/04

U.S. Cl. 310—201

3 Claims



A squirrel cage motor has its rotor bars located in core slots with indentations in the slot walls into which material of the bars is forced, such as by swaging, in order to restrain the bars from vibration in use.

3,832,584

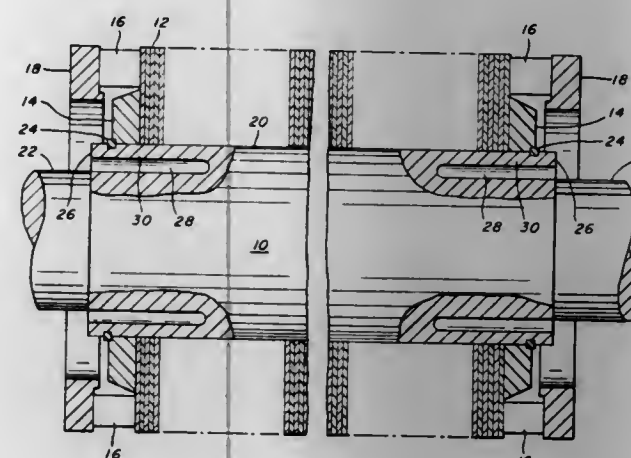
ROTOR FOR DYNAMOELECTRIC MACHINES

Alseno S. DePaul, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 7, 1974, Ser. No. 431,585
Int. Cl. H02 17/16

U.S. Cl. 310—211

4 Claims



A squirrel-cage rotor is provided having a laminated core pressed on the shaft. The shaft has an undercut recess underlying each end of the core to provide a radially yieldable section of the shaft to isolate forces tending to bend the shaft and thus reduce or substantially eliminate vibration.

3,832,585

IMAGE PICKUP TUBE FOR CONVERTING COHERENT
LIGHT IMAGES INTO ELECTRICAL SIGNALS

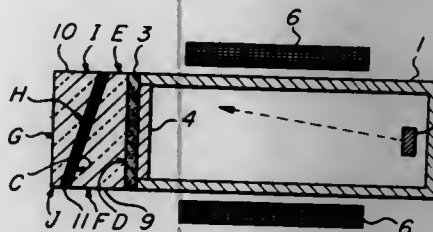
Yoshizumi Eto, and Yasunori Kanazawa, both of Hachioji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 3, 1972, Ser. No. 268,701

Claims priority, application Japan, July 16, 1971, 46-53285
Int. Cl. H01j 5/16, 29/89, 31/26

U.S. Cl. 371—477

6 Claims



An image pickup tube for transforming an image obtained by coherent light into a television signal without creating any interference fringes is provided by an optical composite which eliminates an internally generated reflected wave and includes two transparent materials with equal refractive indexes, each having one surface parallel to the image-forming surface of the image pickup tube and another surface not parallel thereto, so arranged that the surface not parallel to the image-forming surface is made optically parallel to each other by interposing therebetween a material different in refractive index from the transparent materials.

3,832,586

SPARK PLUG

Richard S. Podiak, Maumee, Ohio, assignor to Champion Spark Plug Company, Toledo, Ohio

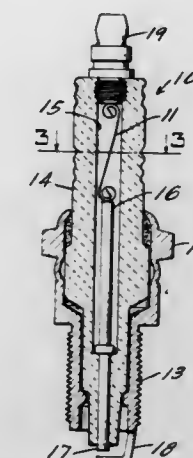
Filed May 4, 1973, Ser. No. 357,324
Int. Cl. H01t 13/04

U.S. Cl. 313—118

7 Claims

The disclosure relates to an improved spark plug assembly, including an improved low inductance spring. The spring is

positioned within the bore of a spark plug, either in conjunction with a noise suppression resistor or otherwise. The spring



is formed from an elongated resilient conductor which is preferably flat. The spring is shaped into generally an "S" configuration with a curl at each end.

3,832,587

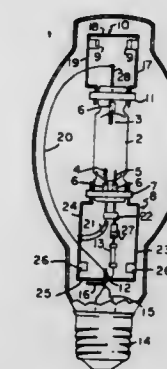
HEAVILY LOADED METAL HALIDE DISCHARGE LAMP

John F. Waymouth, Marblehead; Frederic Koury, Lexington, and Warren Calvin Gungle, Danvers, all of Mass., assignors to GTE Sylvania Incorporated, Danvers, Mass.

Filed Nov. 26, 1971, Ser. No. 202,502
Int. Cl. H01j 61/18

U.S. Cl. 313—184

2 Claims



A metal halide lamp is operated at higher than its normal rated wattage in order to increase its light output and efficacy, i.e., lumens per watt. But the quantity of fill in the arc tube must be less than a critical amount in order to prevent constriction of the arc discharge. The critical amount of fill is that which results in a value of 0.1 for the ratio of arc discharge pinch force to arc discharge buoyant force.

3,832,588

CERAMIC DISCHARGE LAMP HAVING METAL END
CAP

Charles I. McVey, Shaker Hts., and Byron R. Collins, Euclid, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

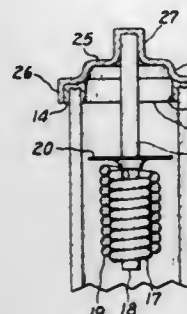
Filed Sept. 25, 1972, Ser. No. 291,804
Int. Cl. H01j 1/94, 19/46

U.S. Cl. 313—217

7 Claims

An electric discharge lamp comprising a tubular light-transmitting envelope of alumina ceramic closed at each end by refractory metal end caps. The envelope contains a discharge sustaining filling and electrodes supported by the end caps. At

least one end cap is a thin-walled metal thimble having a skirt portion sealed to the end of the tube and a central blind teat in



which the electrode shank is seized. The need for critical welding or brazing to the end cap is thereby avoided.

3,832,589

HIGH-PRESSURE METAL VAPOR DISCHARGE LAMPS, PARTICULARLY SODIUM VAPOR LAMPS WITH HERMETIC SEAL

Johannes Pfaue, Berlin, Germany, assignor to Patent-Treuhand-Gesellschaft für Elektrische Glühlampen GmbH, Munich, Germany

Filed Feb. 27, 1973, Ser. No. 336,371

Claims priority, application Germany, Mar. 1, 1972, 2209848

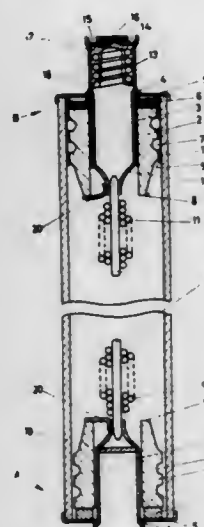
Int. Cl. H01j 17/18, 61/36

U.S. Cl. 313-217

9 Claims

U.S. Cl. 313-229

2 Claims



An annular member of ceramic is fitted into each end of the cylindrical arc tube of refractory light-transmissive material such as polycrystalline alumina and connected to the arc tube by sintering or by a glass or metal solder and having a hollow lead sealed internally thereof; the arrangement and the dimensions are so selected that the point of sealing of the annular member to the arc tube is protected from corrosion and a bubble-free solder seal is achieved.

3,832,590

HIGH PRESSURE METAL-VAPOR DISCHARGE LAMP HAVING ALUMINA TUBE WITH THICKENED END PORTIONS SEALED BY ALUMINA DISKS

Haruo Yamazaki, Moriyama; Hidezo Akutsu, Ashiya, and Takio Okamoto, Osaka, all of Japan, assignors to Matsushita Electronics Corporation, Kadama, Osaka Pref., Japan

Filed Mar. 2, 1973, Ser. No. 337,474

Claims priority, application Japan, Mar. 8, 1972, 47-25342

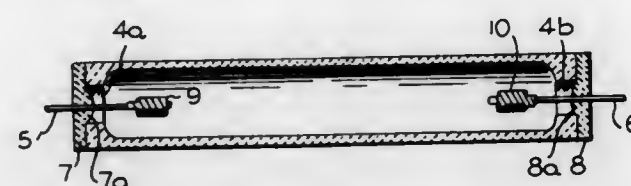
Int. Cl. H01j 61/30, 61/36

U.S. Cl. 313-218

6 Claims

A high-pressure metal-vapor discharge tube having improved characteristics is disclosed. The tube has an alumina

hollow discharge enclosure tube member, the ends of which are sealed by alumina end disks. The end disks have central apertures through which electrode lead in wires or rods extend into the discharge enclosure. The lead in wires or rods are made of a material which is resistant to the corrosive effects of metal halide. The hollow discharge enclosure tube member



has walls which are thicker at the two ends than in the intermediate region of the tube member. Preferably, the ends are more than twice as thick as the central walls. This results in a stronger seal between the alumina end disks and the tube member, thus not only avoiding the risk of breakage when sealing the tube member and manufacturing defects such as a defective seal, but also ensuring longer life of the lamp.

3,832,591

HIGH LUMINOUS EFFICACY WHITE APPEARING LAMP

Daniel A. Larson, Cedar Grove, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

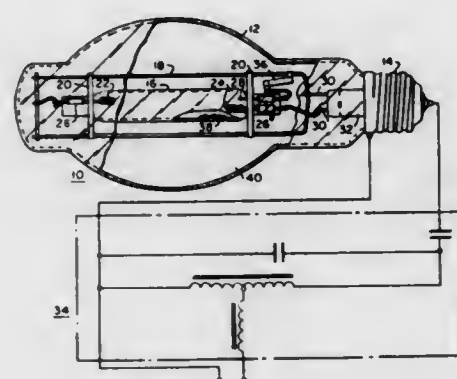
Filed Apr. 30, 1973, Ser. No. 356,019

Int. Cl. H01j 61/18

9 Claims

U.S. Cl. 313-229

2 Claims



A very efficient white emitting discharge lamp combination. The lamp is similar to a normal high pressure mercury discharge lamp but also contains sodium iodide and thallium iodide as discharge sustaining additives. The lamp also has a phosphor coating of strontium chloroapatite activated by divalent europium on the interior surface of the outer envelope. This combination provides a high intensity source of white light in an extremely efficient manner.

3,832,592

MASK ELECTRODE SUPPORT FOR COLOR PICTURE TUBE

Eiichi Yamazaki, Ichihara, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed June 30, 1972, Ser. No. 268,111

Claims priority, application Japan, July 5, 1971, 46-48836

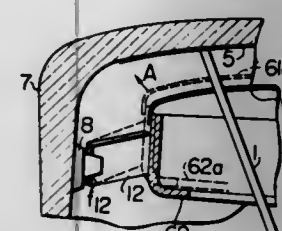
Int. Cl. H01j 29/06

U.S. Cl. 313-404

6 Claims

A color picture tube in which a color selective mask is supported by mask support means made of a plurality of elastic material sheets each shaped and arranged so as to have a relatively large elasticity in a direction being in a plane parallel to a side face of a mask frame to which the sheet is secured and perpendicular to the length of the side face, thus serving as a torsion spring, so that the path of local displacement of the

color selective mask and its peripheral frame due to thermal expansion or their displacement due to any external force is substantially coincident with the path of a deflected electron



beam, thereby compensating for the deviations of relative positions between phosphor dots and corresponding apertures in the mask.

3,832,593

SELECTIVELY DAMPED TRAVELLING WAVE TUBE

Franz Gross, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

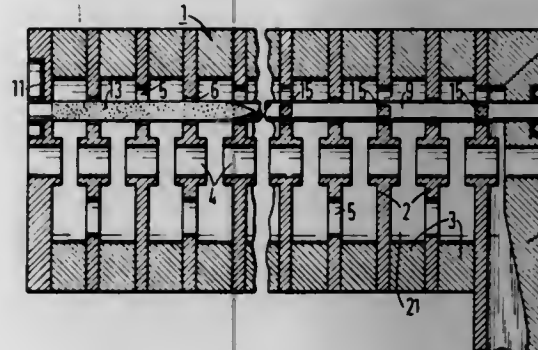
Filed June 15, 1973, Ser. No. 370,376

Claims priority, application Germany, June 28, 1972, 2231695

Int. Cl. H01j 25/34

U.S. Cl. 315-3.5

13 Claims



A travelling wave tube, with a delay line in the form of a wave guide having a plurality of slot-coupled disks secured thereto, has an elongate dielectric member received in aligned apertures of said disks. The dielectric member carries a plurality of metallized patterns which function to selectively damp electromagnetic waves of relatively high frequency, to suppress unwanted modes within said tube.

3,832,594

DYNAMIC CONVERGENCE CIRCUIT

Marvin E. Miller, Des Plaines, Ill., assignor to Warwick Electronics Inc., Chicago, Ill.

Filed Oct. 26, 1972, Ser. No. 301,261

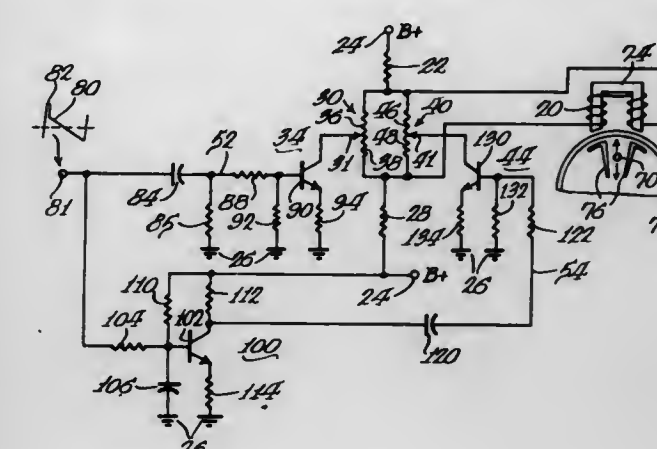
Int. Cl. H01j 29/50

U.S. Cl. 315-13 C

13 Claims

A convergence coil has both ends coupled through separate resistors to the same DC voltage. A pair of potentiometers have their fixed resistance portions coupled in parallel across the convergence coil. The wipers of both potentiometers are individually coupled to separate transistor amplifiers con-

trolled by opposite going vertical deflection waveforms, so that the transistor amplifiers independently control conver-



gence correction during the beginning and the end of a vertical scanning interval, respectively.

3,832,595

HORIZONTAL DEFLECTION SYSTEM WITH BOOSTED B PLUS

Wolfgang Friedrich Wilhelm Dietz, New Hope, Pa., assignor to RCA Corporation, New York, N.Y.

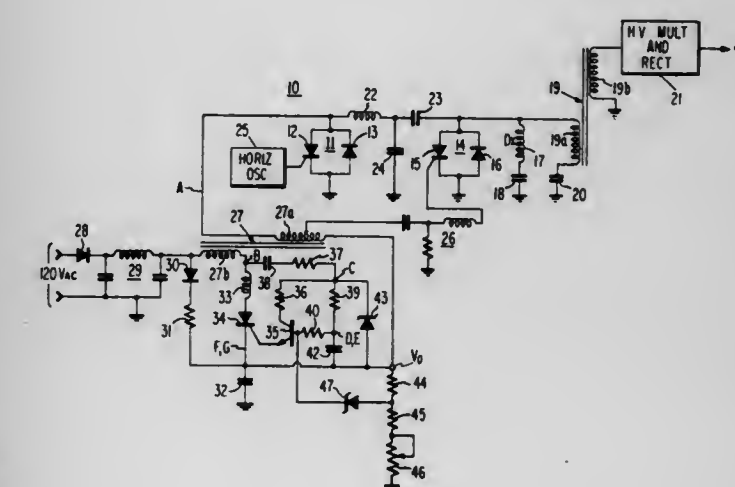
Filed Mar. 23, 1973, Ser. No. 344,296

Claims priority, application Great Britain, Apr. 5, 1972, 15576/72

Int. Cl. H01j 29/70

U.S. Cl. 315-27 TD

16 Claims



A boosted B+ regulator in a horizontal deflection system adds a voltage derived from the deflection system to the line-rectified direct current voltage supplying the deflection system in such amount as to maintain a substantially constant boosted B+ supply voltage in the presence of variations of line voltage. Variations of the line-rectified voltage are sensed by a reference voltage network and added to a constant ramp voltage, the combination of voltages being applied to control the period of conduction of an active current conducting device which permits energy derived from the deflection system to be added to the line-rectified voltage supply for maintaining a regulated boosted supply voltage for the deflection system.

In one embodiment the energy derived from the deflection system is half-wave rectified by the active current conducting device. In a second embodiment the energy is full-wave rectified by the combination of the active current conducting device and an oppositely poled unidirectional current conducting device.

3,832,596

MAGNETIC STRUCTURE FOR FOCUSING OF LINEAR BEAMS

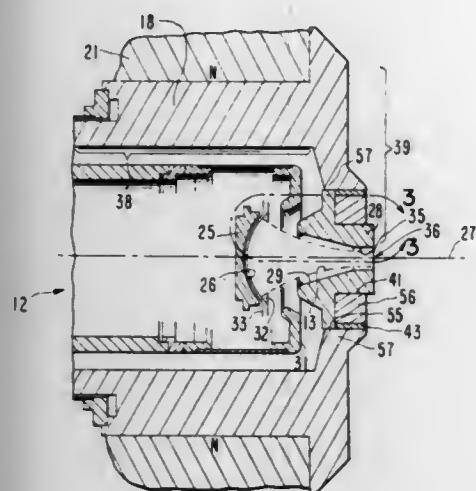
Richard B. Nelson; Erling L. Lien, both of Los Altos, and George V. Miram, Redwood City, all of Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed Apr. 13, 1973, Ser. No. 351,065

Int. Cl. H01j 25/34

U.S. Cl. 315—3.5

8 Claims



A high convergence magnetically focused linear beam tube includes a pair of magnetic pole piece structures at opposite ends of the interaction circuit. At least one of the magnetic pole piece structures includes a centrally apertured transverse wall and an axial tubular projection extending away from the transverse wall for shaping the magnetic field externally of the region of the interaction circuit. The diameter of the central aperture is predominantly determinative of the gradient of the convergent axial magnetic field in the high field region, i.e., greater than 50 percent of the maximum axial magnetic field especially in the region of the beam near the beam minimum. The beam aperture is surrounded by a non-magnetic gap in the pole piece structure for independently controlling a certain amount of leakage of magnetic field through the pole piece structure to predominantly determine the magnitude of the axial magnetic field in the low field region, i.e., less than 10 percent of the maximum axial magnetic field intensity externally of the interaction circuit. Controlling the gap width is useful in the case of permanent magnet focusing for moving the point of magnetic field reversal away from the interaction circuit at either the collector or cathode end of the tube to obtain a desired shape of the magnetic flux divergence or convergence.

3,832,597

AUTOMATIC VEHICLE LIGHT CONTROL SYSTEM FOR DAYLIGHT DRIVING

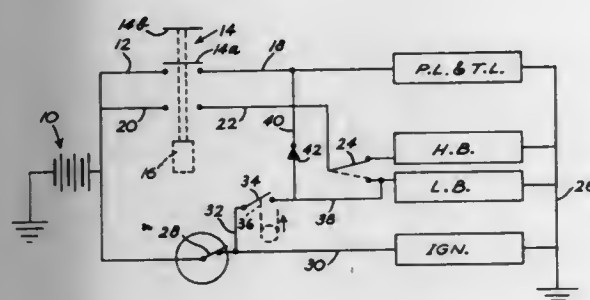
Bobby Lee Mitchell, 1525 Ivory, Klamath Falls, Oreg. 97601

Filed July 23, 1973, Ser. No. 381,389

Int. Cl. B60q 1/08

U.S. Cl. 315—82

4 Claims



In an automotive vehicle it is conventional to provide parking lights, and running lights including high beam and low

beam headlights, together with a principal light control switch adapted at any time to be set in either an "off," "park" or a "running" position, and a dimmer switch operable when the principal switch is in running position to choose between high beam and low beam headlights. The present invention includes such a system but combines and coordinates with it supplementary light energizing means for compelling all the running lights to be energized, with the definite exception of the high beam headlights, whenever, day or night, the ignition switch is placed in running position and the transmission is set for forward drive.

3,832,598

ELECTRICALLY CONDUCTIVE TAPE DEVICE

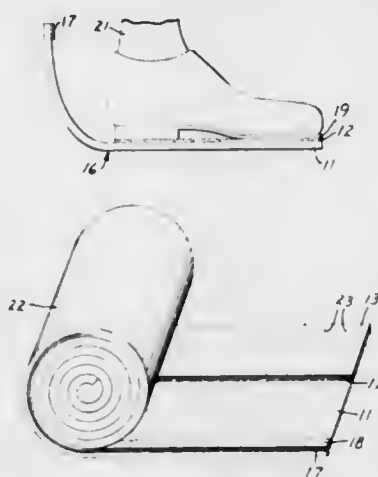
Richard W. Oehmke, Hudson Twsp., St. Croix Cty., Wis., and Paul H. Schertler, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 2, 1972, Ser. No. 294,075

Int. Cl. A61n 1/14; H01b 7/08

U.S. Cl. 317—2 B

8 Claims



An economical, disposable, flexible, slip or skid resistant, electrically conductive strip device is formed which is useful for temporary attachment to shoes, booties, or the like to provide for the dissipation of static electricity from the bodies of personnel in environments containing explosive or inflammable materials. The strip device comprises a flexible, skid resistant, conductive strip having at one end a footwear-sole-engaging portion provided with pressure sensitive adhesive for attachment to the personnel's footwear and means at the other end for temporary electrically conductive attachment to the body of the personnel.

3,832,599

VITAL MORE RESTRICTIVE SPEED COMMAND SENSING CIRCUIT

Reed H. Grundy, Murrysville, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Aug. 15, 1973, Ser. No. 388,371

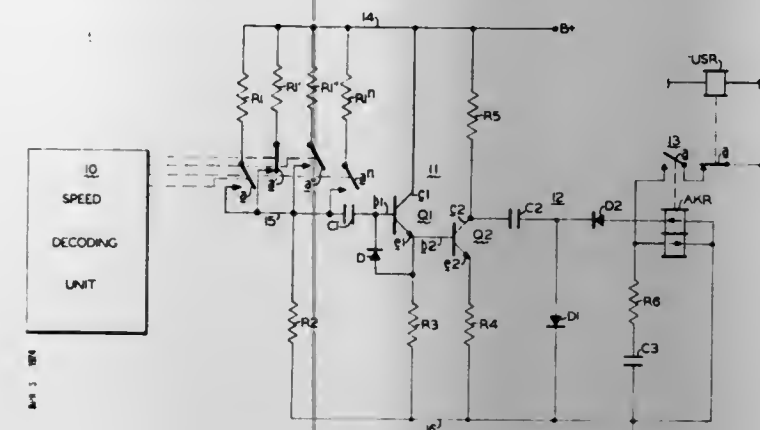
Int. Cl. H01h 47/00, 47/32

U.S. Cl. 317—5

10 Claims

This disclosure relates to a vital type of more restrictive vehicle speed command sensing circuit arrangement including a speed decoding unit, a switching circuit, a storage circuit and an acknowledging circuit. When a more restrictive speed command is received, the switching circuit is rendered con-

ductive. The conduction of the switching circuit causes the acknowledging circuit to be activated by the storage circuit



thereby acknowledging the reception of a more restrictive speed command.

3,832,600

TRANSFORMER INTERNAL FAULT DETECTOR

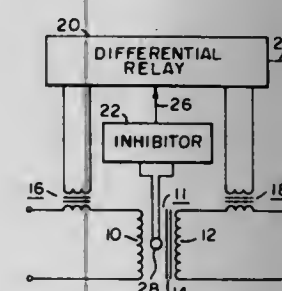
Theodore R. Specht, Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 17, 1973, Ser. No. 361,108

Int. Cl. H02h 3/28, 7/04

U.S. Cl. 317—14 D

9 Claims



A fault detector for power transformers which quickly indicates an internal fault condition. In one embodiment, the current in the primary and secondary windings are compared by a differential relay which may be restrained by a voltage developed during magnetizing inrush current conditions. This voltage is provided by a pick-up coil which is located between the primary winding and the magnetic core leg. The coil is oriented so that the voltage induced therein is relatively large when the core leg is saturated by an inrush current. In another embodiment, a first voltage from a similarly positioned pick-up coil is integrated and applied to a differential relay. A second voltage which is proportional to the difference between the magnetomotive forces in the primary and secondary windings is also applied to the differential relay. The differential relay compares the integrated voltage and the second voltage and is activated when an internal fault changes the normal ratio of these two voltages.

3,832,601

PHASE COMPARISON RELAYING APPARATUS WITH TWO-COUNT BY-PASS CIRCUIT

Walter L. Hinman, Jr., New Providence, and Russell W. Gonnem, Morris Plains, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 9, 1973, Ser. No. 387,070

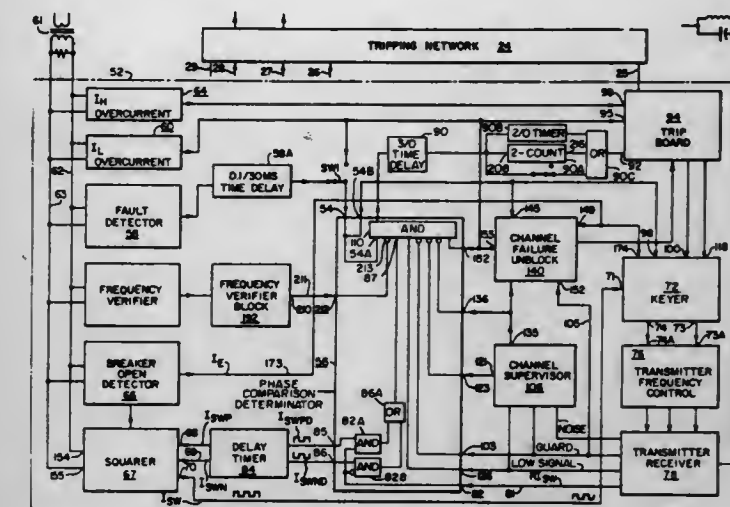
Int. Cl. H02h 3/28

U.S. Cl. 317—27 R

7 Claims

A phase comparison unblocking relaying network which includes means to trip the circuit breaker upon the occurrence

of a plural number of phase comparisons when the phase comparing information between the local and remote relaying stations has a lesser time overlap than the normal time for which



the security timer is set and which will, in the event of a time overlap of a predetermined interval greater than said normal time interval, trip the breaker without waiting for more than one phase comparison.

3,832,602

PRINT FOR CONTROL MODULES OF CONTACT-FREE CONTROL AND REGULATING SYSTEMS

Dieter Engelhard, Grossgrundlach; Hermann Hofmann, Erlangen; Ulrich Schaff, Erlangen, and Walter Kaiser, Erlangen, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

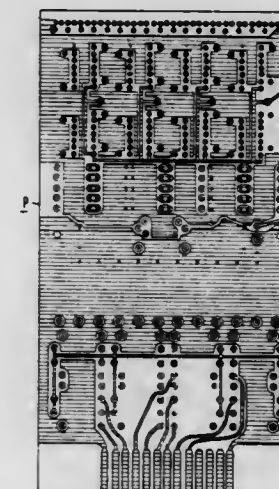
Continuation of Ser. No. 100,574, Dec. 22, 1970. This application Aug. 28, 1972, Ser. No. 284,449

Claims priority, application Germany, Dec. 31, 1969, 1965683

Int. Cl. H05k 5/00

U.S. Cl. 317—101 R

8 Claims



A print for control modules of contact-free control and regulating systems comprising an insulating carrier plate having one portion of one surface adjacent the control inputs provided with a plurality of anti-interference filters. The number of filters is the same as the number of control inputs. The other portion of the one surface of the plate is provided with the same number of threshold value stages connected to the filters. The other surface of the carrier plate has a metal layer thereon which is electrically interrupted in accordance with the boundary between the first and second portions of the one surface thereof. The portion of the layer corresponding to the first portion is connected to ground and the portion of the layer corresponding to the second portion is connected to a reference potential.

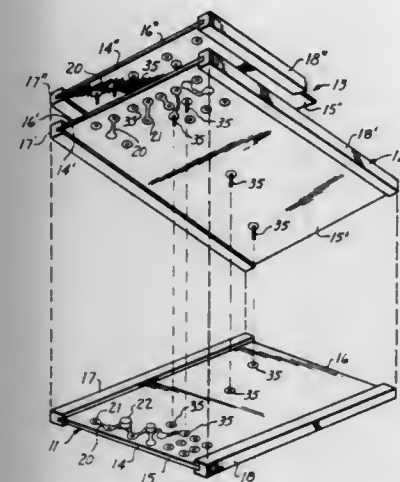
3,832,603 INTERCONNECT TECHNIQUE FOR STACKED CIRCUIT BOARDS

Seymour R. Cray, and Maurice D. Roush, both of Chippewa Falls, Wis., assignors to Control Data Corporation, Minneapolis, Minn.

Filed Mar. 9, 1973, Ser. No. 339,673
Int. Cl. H05k 5/00

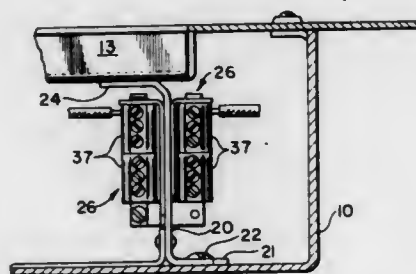
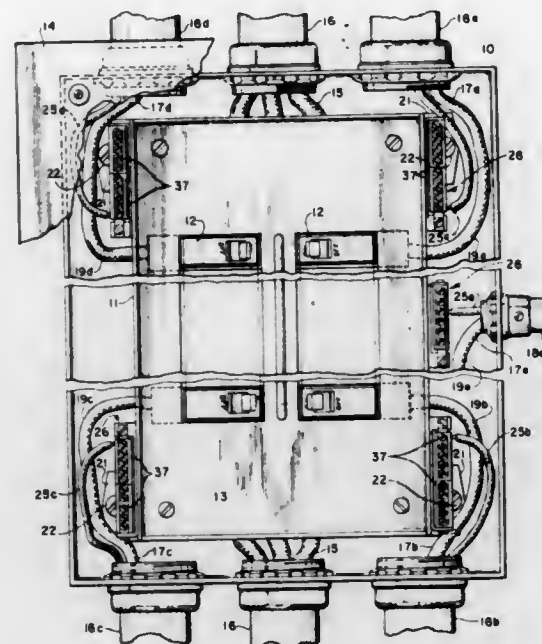
U.S. Cl. 317-101 D

11 Claims



Circuit elements on circuit boards of a stacked assembly are electrically interconnected by interconnect devices located in a pseudo-random array on the boards. The interconnect devices include rigid, elongated members extending through the region separating adjacent circuit boards and assembled to receiver means, such as recesses, located in housings supported by an adjacent circuit board.

which the wiring enters the enclosure elsewhere than in the corner regions thereof, the contact assemblies are mounted on



an internal support structure immediately adjacent the point of entry of the wiring.

3,832,604 ELECTRICAL PROTECTIVE PANEL ASSEMBLY

Lawrence Carvin Goodridge, Bristol, Conn., assignor to General Electric Company, New York, N.Y.

Filed Apr. 9, 1973, Ser. No. 349,041
Int. Cl. H02b 1/04

U.S. Cl. 317-120

8 Claims

An electrical protective panel assembly comprising a conductive rectangular enclosure containing a conductive rectangular frame for mounting a plurality of electrical protective devices in the enclosure. Electrical ground contact assemblies are located at the corner regions of the panel assembly and each includes means for readily electrically connecting thereto the ground wires of equipment to be protected by the adjacently located protective devices. Alternatively, one or more such contact assemblies are mounted on the inner wall of the enclosure, on frame members at the corner sections of the frame structures or on lateral members of the frame structure. The contact assemblies can be mounted in position during original manufacture of the panel assembly or in the field. The ground contact assemblies each includes a conductive bracket having a terminal strap conductively and removably mounted therein. The strap carries one or more terminal strips with means for individually connecting a plurality of ground wires to the terminal strap. The terminal strips are each selectively and independently positionable in predeterminedly oriented positions to facilitate ground wire connections therein. Preferably the ground contact assemblies are removably mounted on frame members at the corner sections of the frame structure adjacent the point of entry of the wires into the enclosure and a plurality of these assemblies can be mounted in side-by-side or back-to-back relation on each corner or side of the frame structure. In panel assemblies in

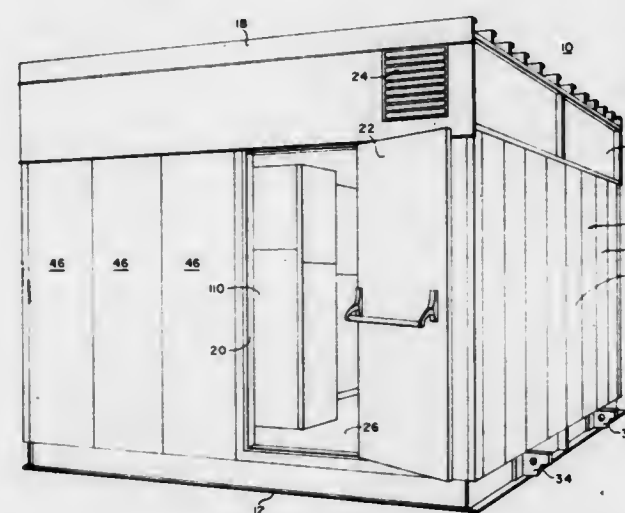
3,832,605 PREFABRICATED HOUSING FOR ELECTRICAL SWITCHGEAR WITH EXTERNAL HOUSING WALL ATTACHMENT MEANS

Russell Clark, Jr., East Aurora, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 1, 1973, Ser. No. 356,266
Int. Cl. H02b 1/06, 1/08

U.S. Cl. 317-120

6 Claims



A prefabricated housing for electrical equipment such as switchgear having bottom, top, lower side, and upper side wall structures. The lower side wall structure comprises adjacent wall panels that are detachably secured externally to the bottom side wall structure and to the upper side wall structure.

The upper side wall structure comprises wall panels that are detachably secured to the top wall structure and to the lower side wall structure. The housing comprises an access opening to the housing interior in the lower side wall structure and a U-shaped channel member on the interior side wall of the lower side wall structure that extends across the top of the access opening.

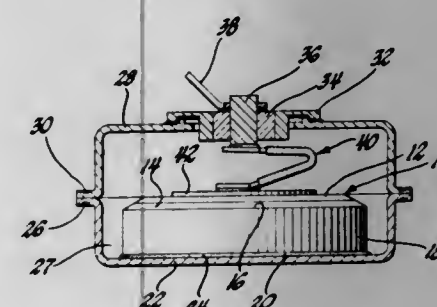
3,832,606 SEMICONDUCTOR DIODE PACKAGE WITH PROTECTION FUSE

Thomas J. Furnival, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 15, 1973, Ser. No. 332,630
Int. Cl. H011 3/00, 5/00

U.S. Cl. 317-234 R

2 Claims



A circuit element for suppressing electrical transients. The circuit element includes a semiconductor diode and a distinctive fusible device encapsulated within a single housing. The fusible device is a metallic fuse element which is surrounded by an insulating jacket of polyimide plastic. The semiconductor diode is supported on a thermal expansion compensating element which in turn is mounted in a recess of a thin walled metallic housing member. A similar metallic member serves as a cover for the housing. The fusible device connects the diode with an insulatingly mounted electrically conductive lead that extends through the cover.

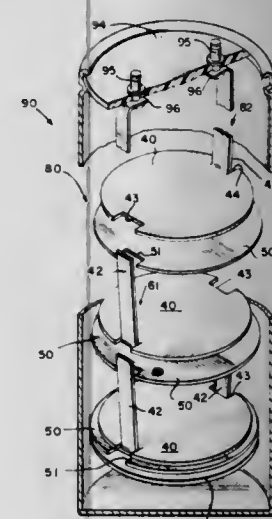
3,832,607 COLUMN TYPE STACKED PLATE CAPACITOR

Keith T. Obenchain, Lafayette, and James C. Jimerson, Indianapolis, both of Ind., assignors to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Feb. 20, 1974, Ser. No. 444,234
Int. Cl. H01g 1/14

U.S. Cl. 317-261

10 Claims



A capacitor including stacked anode and/or cathode plates of a closed plane curve configuration such as a circular plate or a closed plane having one or more acute, obtuse or right an-

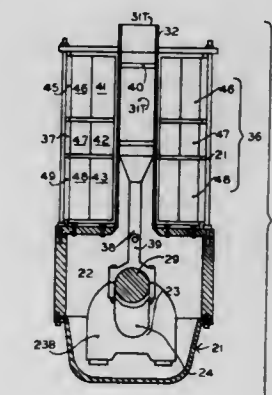
gles such as a rectangular plate, with at least one tab and at least one notch provided in each plate. The plates are stacked so as to have substantially the same axis and interleaved with and separated by a dielectric separator. Position of the tabs are alternated radially in the stack and the tabs formed so as to project in a direction approximately perpendicular to the plane of the plates. A capacitor of this design has improved electrical performance characteristics such as a reduced impedance characteristic and an ability to better withstand high ripple currents. The design may also allow greater utilization of capacitor volume and ease of alignment of the capacitor plates during construction. The stacked plate design of the invention can also be adapted for feed-through capacitors by providing for a plurality of tabs on each plate.

3,832,608 ELECTROMAGNETIC MOTORS AND PROCESS OF THEIR OPERATION

Marvin L. Mills, Box 878, Stinnett, Tex. 79083
Filed Sept. 18, 1973, Ser. No. 398,389
Int. Cl. H02k 33/00

U.S. Cl. 318-37

5 Claims



Electromagnetic reciprocating piston motors operate at wide speed range without changing direction of magnetic flux through the pistons and while positively maintaining the direction of flux in the pistons and while commutating triggering current to selected solenoid coils at low voltage.

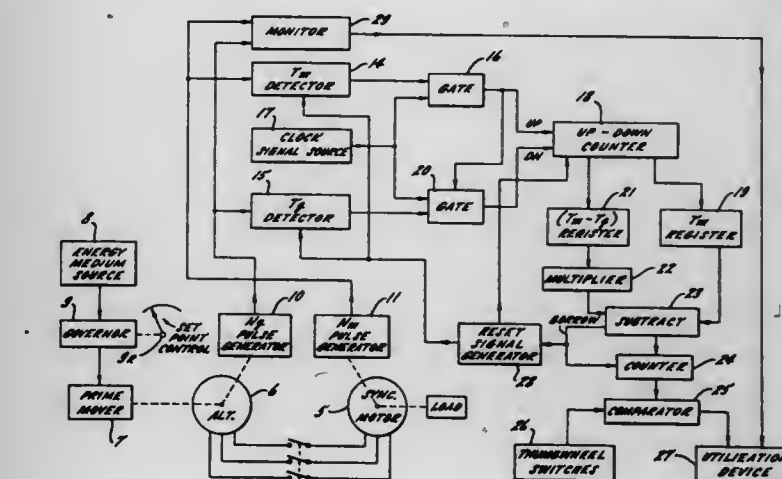
3,832,609 SLIP DETECTION SYSTEM

William J. Barrett, Rockford, Ill., and Harold Green, Middleton, Wis., assignors to Woodward Governor Company, Rockford, Ill.

Filed Feb. 5, 1973, Ser. No. 329,697
Int. Cl. H02p 5/50

U.S. Cl. 318-52

31 Claims



power to the motor at a variable frequency. Transducers associated with the motor and the generator produce pulses at frequencies proportional to the speeds of the motor and the generator, respectively. The periods T_m and T_g of these two series of pulses are measured by applying clock pulses to a counter during each period, so that the number of clock pulses counted during each period is proportional to the duration thereof. The pulses applied to the counter during the period T_m are counted up, and the pulses applied during the period T_g are counted down, so that the resulting output of the counter represents the difference ($T_m - T_g$). The count representing the period T_m is stored in a separate register, and the number representing T_m is then repetitively subtracted from the number representing ($T_m - T_g$) until the remainder is reduced to zero. The number of subtraction steps required to reduce the remainder to zero is counted to provide a number representing the quotient $(T_m - T_g)/T_m$. This quotient represents the per cent slip of the motor, and is compared with a preselected per cent slip limit determined by the setting of a series of thumbwheel switches. If the measured per cent slip value exceeds the preselected limit, an output signal is generated for actuating an alarm or other suitable utilization device so that the excessive slip condition can be corrected. Computation of the actual per cent slip is carried out by digital signal processing on a rapidly iterating basis so that the system provides a substantially instantaneous indication of any change in the percent slip. The system includes a number of auxiliary features for detecting various malfunctions and for resetting the system in response to both internal and external command signals.

3,832,610

PULSE OPERATED SURFACE MOTOR

Kanryo Shimizu; Hiromichi Shichida, and Kenichi Toyoda, all of Tokyo, Japan, assignors to Fujitsu Limited and Fujitsu Fanuc Limited, both of Tokyo, Japan

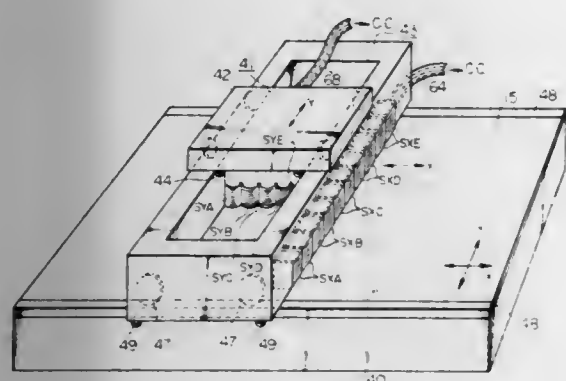
Filed Aug. 31, 1973, Ser. No. 393,465

Claims priority, application Japan, Sept. 8, 1972, 47-90079; Sept. 8, 1972, 47-90080

Int. Cl. H02k 41/02

U.S. Cl. 318-135

3 Claims



A pulse operated electromagnetic drive system along a plane is referred to, as a pulse operated surface motor in the present disclosure. The pulse operated motor is comprised of a plane-like stator, a first movable body which is restrained to move only in a first direction on the stator, a second movable body located on the first movable body which is restrained to individually move only in a second direction on the stator but which moves together with the first movable body in the first direction perpendicular to the second direction and sliders which are fixed to said first or second movable body, cooperate electromagnetically with said plane-like stator.

3,832,611

CYCLOCONVERTER TYPE THYRISTOR MOTOR

Yoshimitsu Onoda; Kunio Saito; Yosio Okumura, all of Katsuta; Toshiaki Okuyama, Hitachi, and Nobuaki Otazawa, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

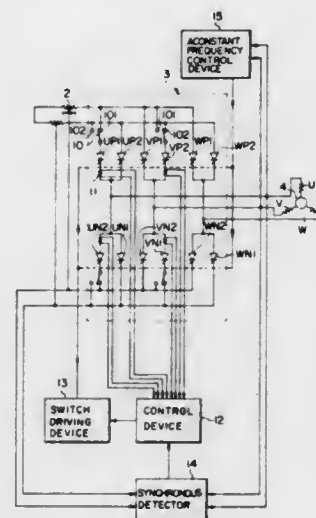
Filed July 31, 1973, Ser. No. 384,297

Claims priority, application Japan, Aug. 7, 1972, 47-78352

Int. Cl. H02p 5/34

U.S. Cl. 318-171

11 Claims



A thyristor motor comprising a synchronous motor, a cycloconverter of thyristor type connected with the synchronous motor to supply electric power for the motor, current detectors provided in the thyristor arms of the cycloconverter, switches provided in the arms, a means for detecting the coincidence between the power frequency and the motor frequency, and another means for determining an instant at which the switches are opened to disconnect the arms, depending upon the output signals of the current detector and the detecting means and for connecting the disconnected arms in parallel with one another, whereby the current concentration upon a particular thyristor and the undulation of the voltage induced by the thyristor motor are prevented.

3,832,612

ELECTRICAL TIMING CIRCUIT FOR CONTROLLING ENERGIZATION OF A LOAD

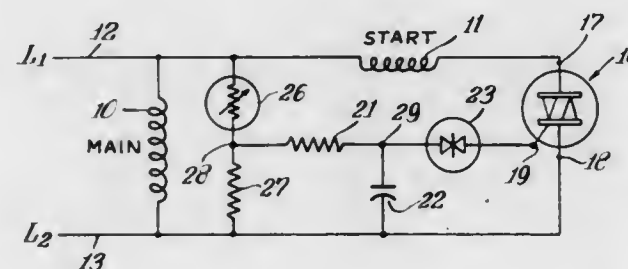
Richard E. Woods, Markle, Ind., assignor to Franklin Electric Co., Inc., Bluffton, Ind.

Filed July 29, 1970, Ser. No. 59,257

Int. Cl. H02p 1/44

U.S. Cl. 318-221 E

15 Claims



This disclosure deals with a split phase induction motor including a main winding and a start winding. To de-energize the start winding after the motor has started, a solid state electronic switch is connected in series with the start winding and an oscillator is connected to actuate the switch. An electrical element having an impedance which varies with the temperature thereof is connected to control operation of the oscillator. When the motor is initially energized, the temperature of

the element is low, the oscillator operates, and the switch is closed. As the motor speeds up, the element is heated, such heating changing its electrical impedance. When the temperature of the element reaches a certain value, the oscillator is turned off, the switch is opened and the start winding is de-energized.

3,832,613

SEWING MACHINE MOTOR AND CONTROL CIRCUIT

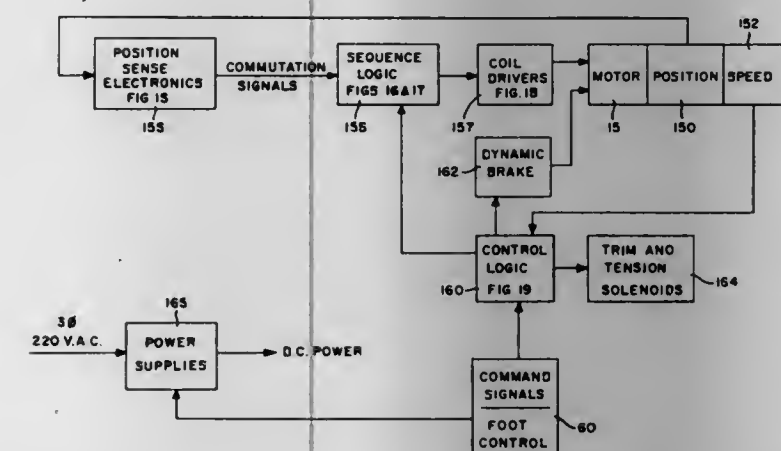
Benjamin T. Bernstein, Highland Park, Ill.; James R. Crawshaw, Trotwood, and Morris H. McCurry, Dayton, both of Ohio, assignors to Union Specialty Machine Company, Chicago, Ill.

Filed May 14, 1973, Ser. No. 359,870

Int. Cl. H02k 29/00

U.S. Cl. 318-269

14 Claims



A solid state sewing machine drive system includes a brushless direct current motor, the speed of which is set and maintained by controlling the width of the field energization pulses. The motor is accelerated and maintained at a selected speed while operating in a closed loop mode, decelerated quickly to a stop by means of a dynamic brake, driven in an open loop stepping mode to a selected angular position, and then magnetically held in that position. Alternatively the motor may be decelerated to a predetermined low speed near stop by a dynamic brake and then driven in an open loop stepping mode to a predetermined angular position where it is held magnetically in that position. The motor includes fixed sensing inductors which sense the proximity of metallic segments rotating with the permanent magnet motor rotor for providing motor commutation signals and signals representing one possible stopping position of the rotor, and other sensing inductors which may be rotated relative to the motor field windings for providing signals representing another, angular positionable stopping position of the rotor. The circuit for supplying energization pulses to the motor field when operated in the open loop mode is provided with information regarding actual rotor position while the motor is decelerated so that when the stepping mode is actually begun, the rotor will continue to rotate in the same direction and will be synchronized with the rotating magnetic field.

3,832,614

CENTRIFUGES

David William Olliffe, Crawley, England, assignor to M.S.E. Holdings Limited, Sussex, England

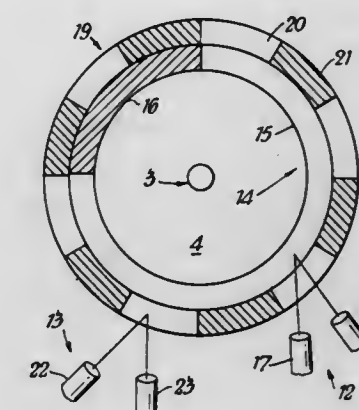
Filed Aug. 6, 1970, Ser. No. 61,602

Int. Cl. H02p 5/16

U.S. Cl. 318-313

4 Claims

An analytical centrifuge to receive a plurality of different rotors each carrying a track with a segment having a light reflective property distinct from adjacent regions of the track and having a length along the track which is related to the



rotors also carry a further track having distinct segments corresponding to respective compartments of the rotor and which are optically sensed to provide in conjunction with the signal obtained from the first-mentioned segment gating signals for examining selectable compartments of the rotor one-by-one.

3,832,615

ELECTRIC GRAIN GATE CONTROL

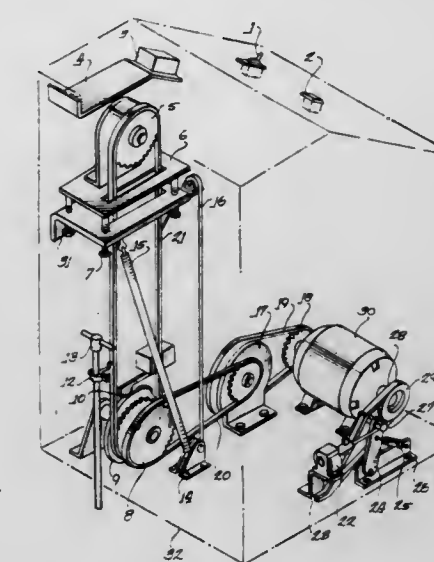
Otis Fitch, P.O. Box 171, Byers, Colo. 80103

Filed Feb. 4, 1974, Ser. No. 429,321

Int. Cl. H01h 35/24

U.S. Cl. 318-481

4 Claims



An improved method of operating the gates in grain elevators is disclosed herein. The control device includes, thru electric circuitry, a means of fully controlling and regulating the gate so that it may be stopped at any position between open and closed, with the additional feature of automatically closing the gate in the event of a power failure.

3,832,616

PLURAL MOTOR CONTROL CIRCUIT

Tihamer S. Vinner, Somerset, N.J., assignor to SLM Plastics, Inc., Somerset, N.J., a part interest

Filed Sept. 27, 1972, Ser. No. 292,617

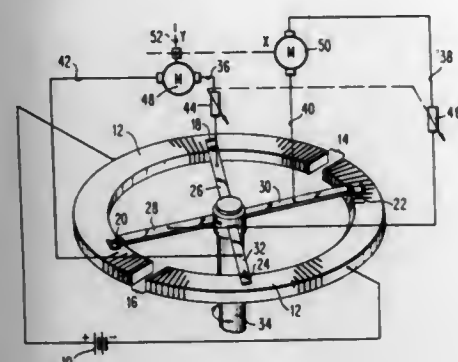
Int. Cl. G05b 19/36

U.S. Cl. 318-576

8 Claims

Disclosed is a motor control circuit for simultaneously controlling a plurality of motors, said motors in turn controlling

the motion of a translatable point along a desired straight or curved path. A first motor is adapted to move said point along a first axis at a first speed, while a second motor is adapted to move said point along a second axis at a second speed. The motor control circuit controls the relative speed of the first



and second motors, thereby determining the velocity and path of the translatable point. As a preferred use of the control circuit, the translatable point is a magnet movable under a non-magnetic game board. On the top surface of the game board, a toy vehicle or the like is moved by the magnet.

3,832,617

MOTOR CONTROL APPARATUS WITH GENEVA-TYPE SWITCH ACTUATING MECHANISM

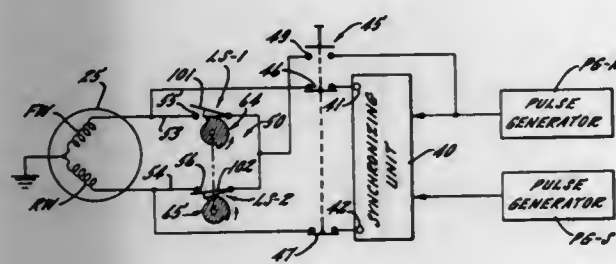
Bruce G. Spencer, Jr., Rockford, Ill., assignor to Woodward Governor Company, Rockford, Ill.

Filed May 24, 1972, Ser. No. 256,267

Int. Cl. G05b 1/14

U.S. Cl. 318-673

6 Claims



A Geneva-type drive unit with overlapping driving and driven wheels in which the driven wheel is advanced intermittently and carries cams which actuate switches for controlling a stepping motor operable to expand and contract an adjustable link interposed in the throttle linkage of an engine.

3,832,618

ELECTRONIC DIFFERENTIAL PRESSURE TRANSMITTER

Peter S. Levesque, Jenkintown, and Max Gaertner, Warminster, both of Pa., assignors to Fischer & Porter Company, Warminster, Pa.

Filed Jan. 29, 1973, Ser. No. 327,562

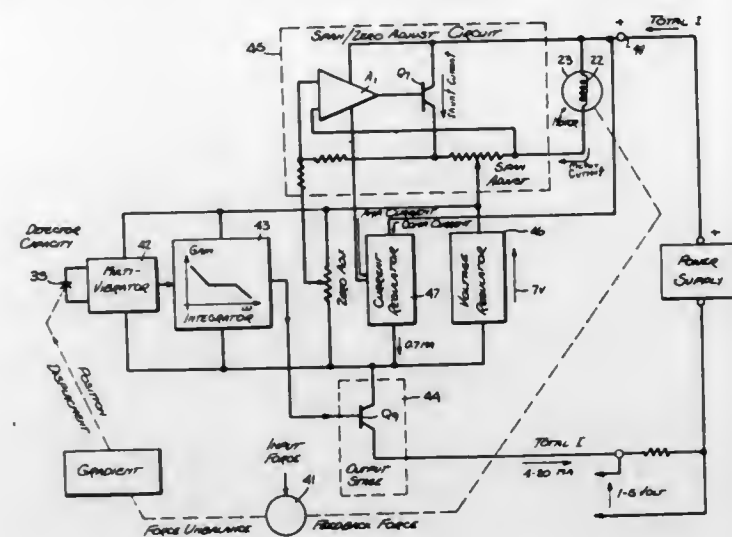
Int. Cl. G0119/10

U.S. Cl. 318-676

11 Claims

An electronic differential pressure transmitter for use with industrial processes to produce an output signal suitable for transmission to a remote station for operating, indicating, recording or control equipment. The transmitter includes a force bar to which an input force is applied, the resultant bar displacement being sensed by a detector coupled to an electronic circuit yielding a feedback signal proportional to the input force. The feedback signal is fed to a motor that applies to the bar a rebalancing force in opposition to the input force.

Adjustment in the span of the instrument is effected electronically by a circuit in which the feedback signal is split between



3,832,619

CONTROL MEANS WITH REDUNDANT OSCILLATORS AND A SPECIAL STARTING SCHEME FOR PERIODICALLY FIRING ELECTRIC VALVES

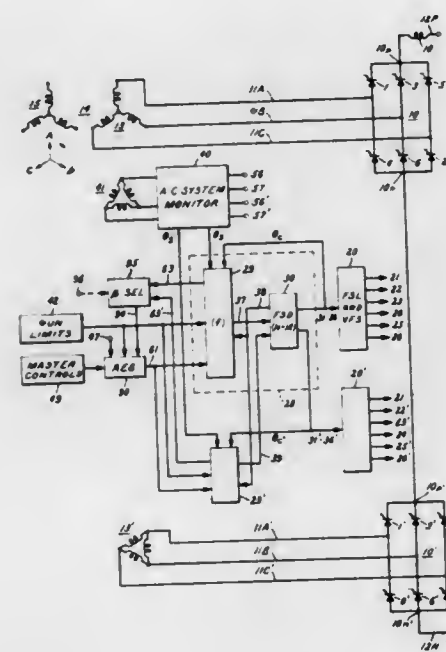
Ernest M. Pollard, Cherry Hill, N.J., assignor to General Electric Company, Philadelphia, Pa.

Filed July 30, 1973, Ser. No. 383,899

Int. Cl. H02m 7/20

U.S. Cl. 321-5

23 Claims



In an electric power delivery system, a plurality of controllable electric valves which are arranged in a bridge configuration are respectively fired in a predetermined sequence by a family of individual firing signals. At least three redundant frequency modulated oscillators and a distributor are used for cyclically generating the firing signals in timed relation to the alternating voltage of the power system. Each of the oscillators produces a train of discrete pulses at a frequency which normally is a predetermined harmonic of the system frequency, and the distributor includes voting logic means which enables a firing signal to be produced in the event of a coincidence of discrete pulses from any two of the oscillators. Concurrently with the commencement of each firing signal, all of the oscillators are simultaneously recycled. A special scheme is provided for starting the firing signal generator in

step with system voltage so that the initial firing signal is associated with a predetermined one of the valves and is characterized by a known firing angle of desired value.

3,832,620

REGULATING MODE SELECTOR SCHEME FOR AN ELECTRIC POWER CONVERTER

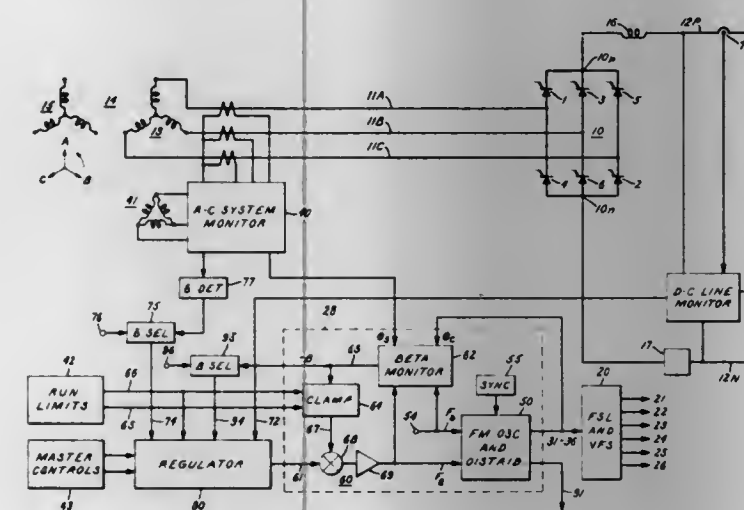
Ernest M. Pollard, Cherry Hill, N.J., assignor to General Electric Company, Philadelphia, Pa.

Filed July 26, 1973, Ser. No. 382,742

Int. Cl. H02m 7/20

U.S. Cl. 321-5

14 Claims



In an electric power delivery system, means is provided for controlling the operation of a static power converter as a function of the magnitude and the polarity of a variable bipolar control signal. The control signal in turn is a function of a selected one of a plurality of variable bipolar input signals which respectively depend on the differences between actual and desired magnitudes of a plurality of different quantities derived from the system. To select the proper input signal, first means is provided for deriving an output signal whose value depends on the most positive ranking signal in a first set of at least two of said input signals, second means is provided for deriving a resultant error signal which is representative of the most negative signal in a group consisting of the aforesaid most positive one signal and any signal in a second set of at least another of said input signals, and means is connected to the second means for producing the control signal which responds to variations of said resultant error signal.

3,832,621

RELIABLE STATIC POWER CONVERTER WITH CONTROL LOGIC

William P. Kornumpf, and John D. Harnden, Jr., both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

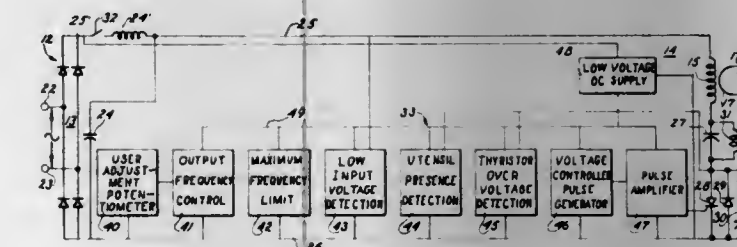
Division of Ser. No. 211,926, Dec. 27, 1971. This application

Apr. 2, 1973, Ser. No. 346,982

Int. Cl. H02m 1/18

U.S. Cl. 321-11

9 Claims



The control circuit for an inverter is suitable for fabrication as an integrated circuit and includes, in addition to turn-on

circuitry, protection circuits to assure reliable and automatic operation under abnormal circuit conditions such as overvoltages and low input voltages tending to cause device and power circuit failures. Voltage responsive sensors such as Zener diodes sense the appropriate voltages at selected points on the power circuit and modify the operation of the control circuit, preferably by over-riding and inhibiting the turn-on circuitry. Disclosed with regard to a one-thyristor, variable frequency series resonant inverter with an added maximum frequency control, the protection circuit technique is applicable to inverters generally.

3,832,622

PARALLEL PHASE LOCK CIRCUITRY FOR INVERTERS AND THE LIKE

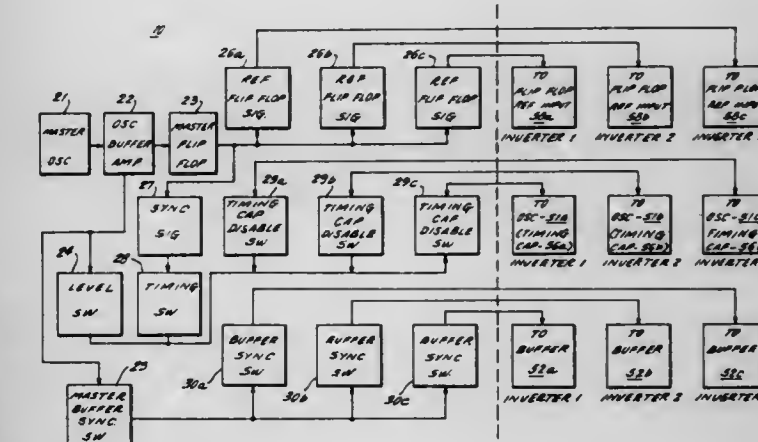
Albert William Compoly, Monmouth, N.J., assignor to Avionic Instruments Inc., Rahway, N.J.

Filed July 11, 1973, Ser. No. 378,175

Int. Cl. H02m 7/00

U.S. Cl. 321-27 R

5 Claims



Phase lock circuitry for operating a plurality of static inverters in synchronism. The phase lock circuitry includes means for detecting operation of the phase lock circuitry master oscillator, causing the local oscillators of the static inverters to be disabled. The output of the master oscillator is utilized to drive all inverters coupled to the parallel phase lock circuitry. The parallel phase lock circuitry also includes an output which assures that the local flip-flop of each static inverter is in the appropriate state while the output of the master oscillator controls the operating rate of the static inverter flip-flops, thus absolutely assuring operation of the plurality of static inverters in synchronism with the master oscillator. In the event of a failure of the master oscillator a level switch detects this condition to permit operation of the static inverters controlled by the phase lock circuitry without in any way effecting their operability providing a safety feature wherein the static inverters remain operational, but are not necessarily maintained in synchronism.

3,832,623

INVERTER-CONVERTER POWER SUPPLY SYSTEM

Willis Guild Boyden, and Richard Astourre Shaw, both of Norwood, Mass., assignors to North American Electronics Corporation, Norwood, Mass.

Filed Nov. 17, 1972, Ser. No. 307,504

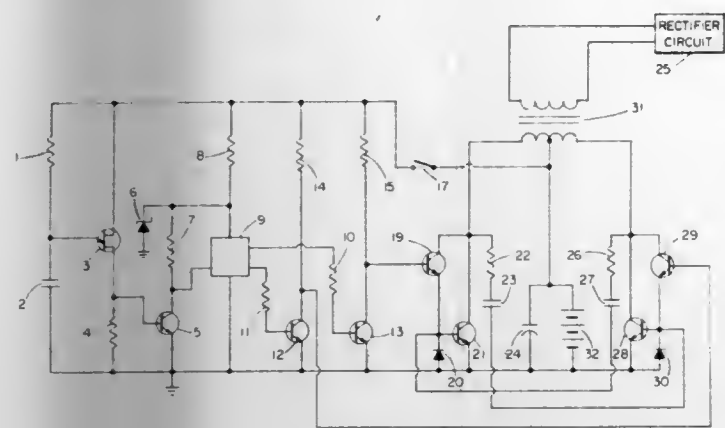
Int. Cl. H02m 7/52

U.S. Cl. 321-45 R

1 Claim

An inverter-converter power supply system with bistable means to alternately gate a pair of switching transistors, the transistors controlling current flow through opposite halves of a transformer winding from a DC voltage source. The

transistors are cross-coupled by series connected RC circuits for rapid de-saturation and overload protection; while exces-



sive transistor base voltage levels are prevented by diodes connected between the transistor bases and ground.

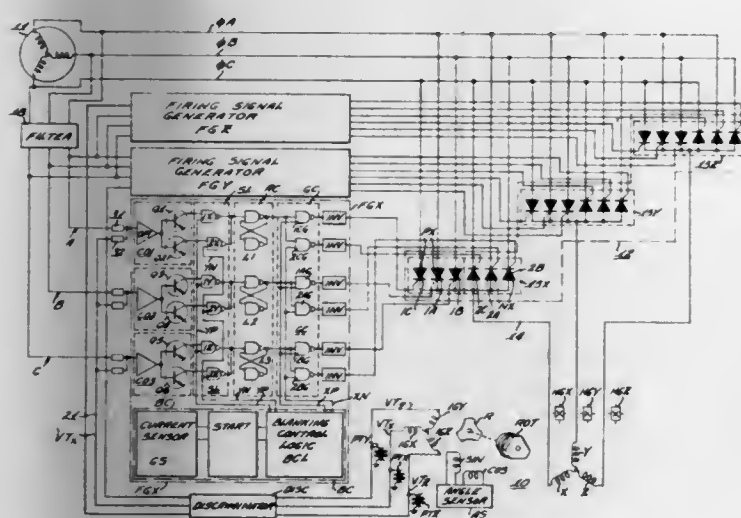
3,832,624 GROUP BLANKING CONTROL FOR CYCLOCONVERTER

Thomas P. Gilmore, Wauwatosa; William L. Ringland, Greendale, and Alois F. Geiersbach, Milwaukee, all of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Sept. 6, 1973, Ser. No. 394,979
Int. Cl. H02m 5/30; H02p

U.S. Cl. 321-66

35 Claims



A cycloconverter has a positive current group of SCR's and a negative current group of SCR's connected in parallel between a polyphase supply source and an output lead with the output side of the positive and negative groups connected directly together. Gating signals are sequentially derived for the SCR's of the positive and negative groups, and gating signals to the positive and negative groups are blanked alternately when the current in the output lead is negative and positive respectively. The gating signal deriving means are disabled when the output current decreases to a predetermined triggering level in crossing the zero axis in either direction, and gating signals are applied to the last conducting SCR and to the SCR of the nonconducting group connected to the same phase of the supply source so that intergroup circulating currents are prevented. When the output current increases beyond the triggering level, the last conducting SCR is commutated and the gating signal deriving means is enabled after a sufficient time delay to allow said last conducting SCR to commutate.

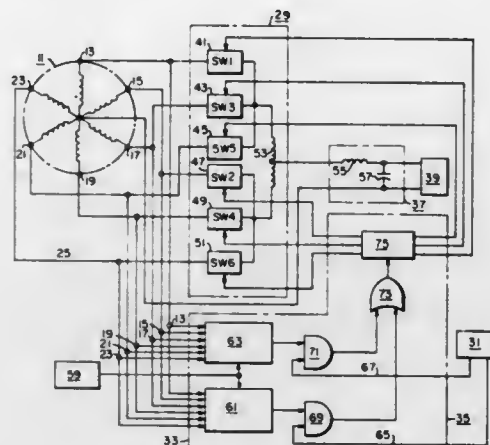
3,832,625 ELECTRICAL POWER GENERATING ARRANGEMENT AND METHOD UTILIZING AN INDUCTION GENERATOR

Laszlo Gyugyi, Pen Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 26, 1973, Ser. No. 336,140
Int. Cl. H02p 9/46

U.S. Cl. 322-47

23 Claims



An output voltage wave having a desired amplitude and frequency is formed from selected portions of the AC signal generated by an induction generator. The selected portions of the generated signal are chosen in such a fashion as to establish the phase angle of the current drawn from the induction generator at a value that results in an appropriate excitation current being provided for the induction generator. Control arrangements are utilized to determine the required phase angle for the current drawn from the induction generator and to determine the portions of the generated signal that must be utilized to provide such a phase angle. Establishing the phase angle of the current drawn from the induction generator is accomplished without affecting the phase angle of the output current, which is determined by the load.

3,832,626 DEVICE FOR ELECTRICALLY HEATING A SEMICONDUCTOR ROD WHICH IS SIMULTANEOUSLY GROWING DUE TO A DEPOSITING PROCESS FROM THE GAS PHASE

Hans Stut, Groebenzell, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

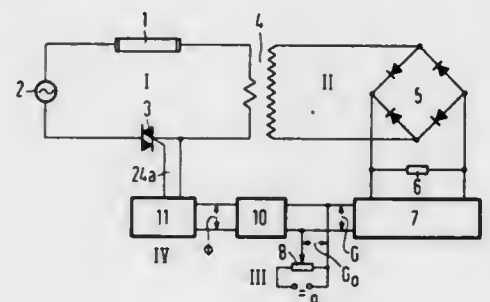
Filed July 5, 1972, Ser. No. 269,154

Claims priority, application Germany, July 7, 1971, 2133863

Int. Cl. G05f; H02m 1/14; B01d

U.S. Cl. 323-4

13 Claims



A device for electrically heating a semiconductor rod which is simultaneously growing due to a depositing process from the gas phase employs a heating current source for supplying an alternating voltage and an electronic switch which is operated by a time wise variable auxiliary voltage for controlling the ap-

plication of heating current supplied by the heating current source to the semiconductor rod. A second circuit is coupled to the aforementioned circuit to rectify the applied voltage and pass the rectification product to a four-pole smoothing filter circuit. The differential voltage at the output of the four-pole circuit, with respect to a reference voltage, serves to control a generator for generating the auxiliary voltage in such a way that the auxiliary voltage is applied earlier in response to larger values of difference voltage.

3,832,627 TRANSISTOR CIRCUIT WITH SLOW VOLTAGE RISE AND FAST VOLTAGE FALL CHARACTERISTIC

Mitsuo Ohsawa, Fujisawa, Japan, assignor to Sony Corporation, Tokyo, Japan

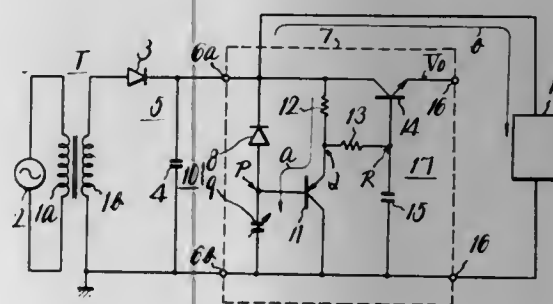
Filed Sept. 22, 1972, Ser. No. 291,352

Claims priority, application Japan, Sept. 25, 1971, 46-74840; Sept. 25, 1971, 46-74841

Int. Cl. G05f 5/00

U.S. Cl. 323-22 T

13 Claims



A transistor circuit comprises a series circuit consisting of a diode and a capacitor, which is connected in parallel to a DC electric power source, and a first transistor has its base electrode connected to the junction of the diode and capacitor of the series circuit, its emitter electrode connected to one terminal of the DC power source through a resistor, and its collector electrode connected to the other terminal of the DC power source. A second transistor, has its base electrode connected to the junction of the emitter electrode of the first transistor and the resistor, its collector electrode connected to one terminal of the DC power source, and its emitter electrode connected to an output terminal.

3,832,628 ENGINE TIMER

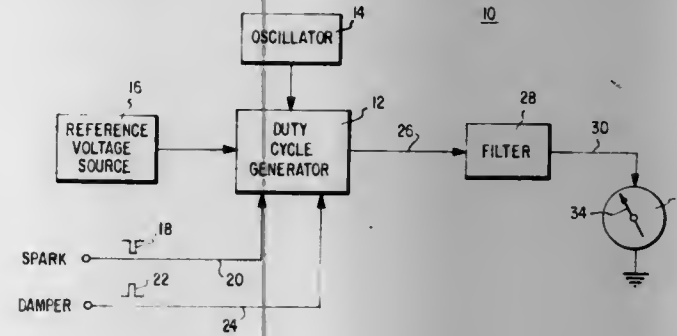
Joseph R. Pottebaum, Columbus, Ohio, assignor to Production Measurements Corporation, Hilliard, Ohio

Filed Dec. 8, 1972, Ser. No. 313,484

Int. Cl. F02p 17/00

U.S. Cl. 324-16 R

18 Claims



Disclosed is a timer for indicating the average timing of an internal combustion engine. The timer includes a duty cycle

generator which produces a series of pulses whose duty cycle varies with the average timing of the engine. These pulses are fed through a filter to produce an analog signal for display by a conventional voltmeter or ammeter.

3,832,629 BATTERY CONDITION INDICATOR

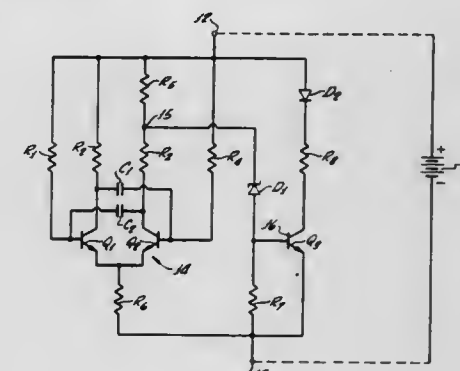
Edward Cernek, Jr., Santa Ana, Calif., assignor to ADAR, Inc., Santa Ana, Calif.

Filed Jan. 26, 1973, Ser. No. 326,894

Int. Cl. G01n 27/42; G08b 21/00

U.S. Cl. 324-29.5

8 Claims



A Battery Voltage Indicator is provided for indicating the condition of the battery or dry cells or the like by providing light flashes or a steady light from a light emitting diode when the battery voltage is in the range for a usable battery. A multi-vibrator is connected to derive its operating voltage from the battery being tested and produces an output wave that fluctuates above and below a given fraction of the multi-vibrator battery voltage but having upper and lower levels each dependent upon the battery voltage. A circuit for the light emitting diode is provided which is energized when the voltage input is above the predetermined level. Consequently the diode either emits light continuously, flashes, or remains dark, depending upon whether the battery is good, weak, or dead.

3,832,630 METHOD AND APPARATUS OF MEASURING THE CHARACTERISTIC RESONANCE FREQUENCY OF AN ELECTRIC ELEMENT

Pierre Micol, Dammarie-les-Lys, and Yves Jacquet, Paris, both of France, assignors to Societe Nationale D'Etude Et De Construction, Paris, France

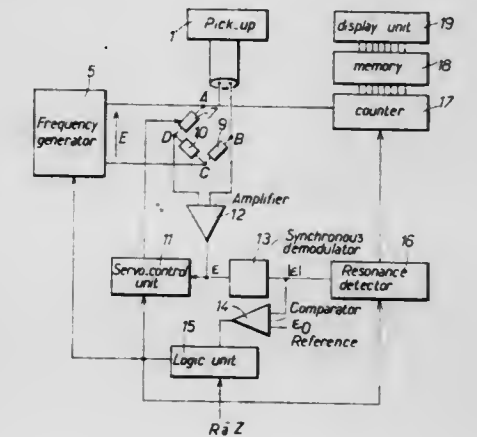
Filed May 16, 1973, Ser. No. 360,674

Claims priority, application France, May 17, 1972, 72.17608

Int. Cl. G01r 29/22

U.S. Cl. 324-56

4 Claims



Apparatus for measuring a characteristic resonance frequency of an electric element, for example a piezoelectric

pick-up, for the purpose of checking the condition of such element, in which the element is connected in an electric bridge fed by a variable low-frequency source, which bridge is adjusted until it is balanced, and then the frequency of the source is varied to detect the resonance. The bridge may be automatic and have purely electronic elements.

3,832,631

METHOD FOR MEASURING PARAMETERS OF QUARTZ CRYSTAL UNITS AND FIXTURE FOR CARRYING OUT THE SAME

Issac Koga; Shigeo Kobayashi, and Isao Okamoto, all of Tokyo, Japan, assignors to Kokusai Denso Denwa Kabushiki Kaisha, Tokyo, Japan

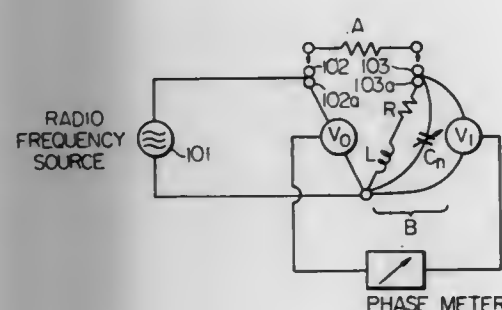
Filed June 21, 1973, Ser. No. 372,165

Claims priority, application Japan, June 28, 1972, 47-64064

Int. Cl. G01r 29/22, 23/00

U.S. Cl. 324-56

- 2 Claims



The present invention discloses a method and fixtures for measuring parameters of quartz crystal units in the very high frequency (VHF) range. A non-reactive frequency and resistance of the crystal unit are determined, a radio-frequency voltage is applied to a series circuit composed of said crystal unit and a circuit which is adjustable to non-reactive resistance, the phase of the terminal voltage across said circuit which is adjustable to non-reactive resistance is adjusted so as to coincide with the phase of the terminal voltage across said series circuit. Next, said crystal unit is replaced by another crystal unit, and the frequency of said radio-frequency voltage is adjusted so that the above-mentioned two phases coincide. Thus the non-reactive frequencies and or resistances of a plurality of crystal units are quickly determined.

3,832,632

MULTI-POINT PROBE HEAD ASSEMBLY

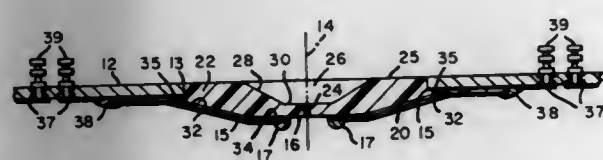
Frank J. Ardezzone, 387 Mathew St., Santa Clara, Calif. 95050

Filed Nov. 22, 1971, Ser. No. 201,098

Int. Cl. G01r 1/06, 31/22

U.S. Cl. 324-158 P

6 Claims



A multi-point test probe assembly for interface contact with miniature electronic devices. The assembly comprises a plurality of electrically conductive probes each adapted to be electrically engaged to a conductive lead and each probe having a probe arm extending to a common area with a tip adapted for interface contact with a terminal of a miniature electronic device positioned within said common area. The probe tips may be comprised of a compressible elastic material. A probe support member engages each of the probe arms and tips to support the arms and tips about said common area.

3,832,633

TRANSISTOR BETA MEASURING INSTRUMENT

Ralph H. Bowden, 1800 Edgewood, Sioux Falls, S. Dak. 57107

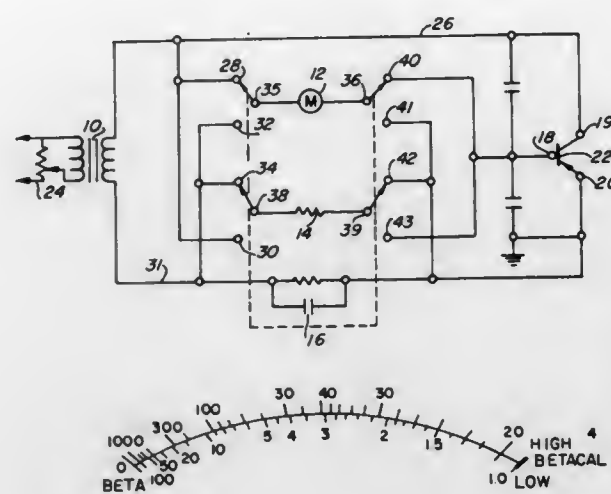
Continuation of Ser. No. 34,084, May 4, 1970, abandoned.

This application Feb. 22, 1972, Ser. No. 227,942

Int. Cl. G01r 31/22

U.S. Cl. 324-158 T

2 Claims



The beta of a transistor is measured in two steps with a beta measuring instrument having an ammeter and a resistor with a resistance equal to the internal resistance of the ammeter without removing the transistor from its circuit, the first step being the calibration of the ammeter to full scale deflection by connecting it in the emitter circuit of the transistor with the resistor in the base circuit and applying an A.C. voltage across the emitter, and collector of the transistor of sufficient amplitude to cause full scale deflection of the ammeter with the transistor operating as a class B amplifier and the second step being the measurement of the beta by, after calibration, connecting the resistor in series with the emitter and the ammeter in series with the base to measure the base current.

3,832,634

SPEED INDICATOR

Joseph Galea, Merrylands, N.S.W., Australia, assignor to Gordon Maxwell Austin, Grenfell, N.S.W., Australia

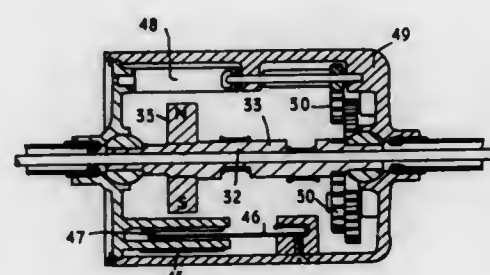
Filed Oct. 17, 1972, Ser. No. 298,419

Claims priority, application Australia, Oct. 18, 1971, 6670/71; Apr. 12, 1972, 8575/72

Int. Cl. G01p 3/42

U.S. Cl. 324-160

3 Claims



A speed indicator including a plurality of tuned reeds. A permanent magnet is mounted for rotation past the reeds which are so positioned that, upon oscillation of a particular reed at its resonant frequency, that reed contacts and adjacent surface to produce an audible signal.

3,832,635

COMBINED DIGITAL-ANALOGUE SPEEDOMETER

George Robert Cass, Montreal, Quebec, Canada, assignor to Canadian National Railway Company, Montreal, Quebec, Canada

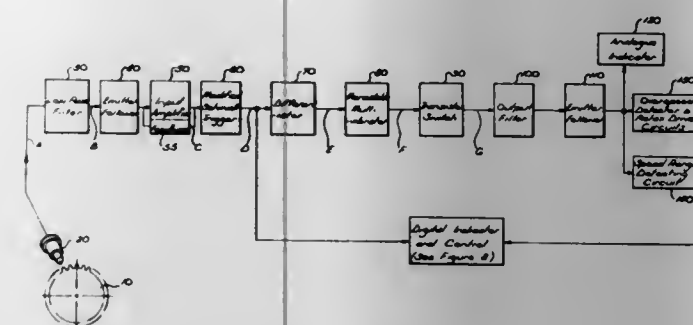
Filed Jan. 7, 1972, Ser. No. 215,999

Int. Cl. G01p 3/56

U.S. Cl. 324-166

5 Claims U.S. Cl. 325-30

6 Claims



The rotation of a railway vehicle wheel is used to supply a periodically varying signal. The periodically varying signal is used to (a) generate a series of pulses of constant amplitude and duration and proportional in frequency to the periodically varying signal which constant amplitude duration pulses are subjected to an integration-type operation to produce an analogue indication of the railway vehicle speed; and (b) generate pulses of frequency proportional to that of the periodically varying signal, which may be counted and displayed over a sampling period to provide a digital indication of the railway vehicle speed. With the digital indication a scale switching arrangement is provided so that the indicated speed units are larger at low than at high speeds. Provision in the system is made so that switching from low speed to high speed scale takes place at a higher speed than from high speed to low speed scale to reduce the frequency of scale switching.

3,832,636

TRANSCIVER WITH TIME DIVISION MEANS FOR INDICATING THE PRESENCE OF AN EMERGENCY CHANNEL SIGNAL WHILE RECEIVING INFORMATION ON A NORMAL CHANNEL

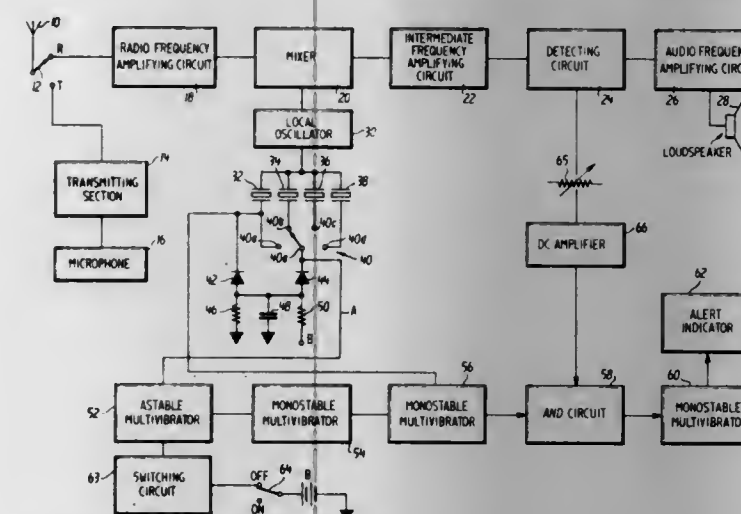
Mutsuo Kubo, Tokyo, Japan, assignor to Tokyo Shibaura Electric Company, Limited, Kanagawa-ken, Japan

Filed Nov. 2, 1972, Ser. No. 303,023

Int. Cl. H04b 1/40

U.S. Cl. 325-25

12 Claims



A transceiver includes a time division receiving system which shares reception between a normal channel and an emergency channel. The normal channel is shared for a sufficient time to minimize loss of normal channel signal information while providing means for indicating reception of a signal on the emergency channel and displaying the reception by means of an indicator.

3,832,637

FSK MODEM

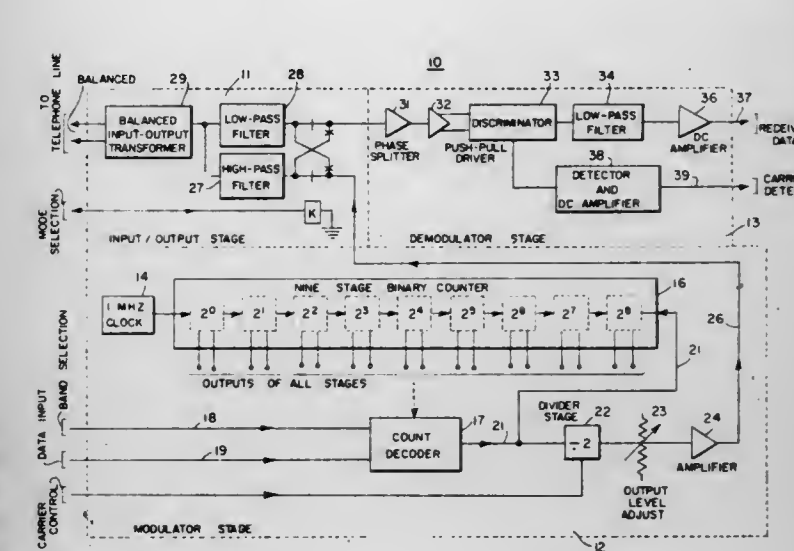
Thomas Theron Alexander, Lansdale, Pa.; Alfons Reszka, Northbrook, and Charles Keith Stenerson, Park Ridge, both of Ill., assignors to Teletype Corporation, Skokie, Ill.

Filed June 22, 1973, Ser. No. 372,884

Int. Cl. H04l 27/10

U.S. Cl. 325-30

6 Claims



A low-speed FSK data modem. A crystal-controlled oscillator drives a ripple-carry binary-counter. The intermediate outputs of the counter are selectively connected to four NAND-gates which decode the four counts which correspond to the four possible FSK output frequencies. Logic means are provided to ensure that the mark-to-space and space-to-mark transitions of the modem output are always graceful.

3,832,638

OUTPUT CONTROL DEVICE OF FM RECEIVER

Shin-ichi Ohashi, and Isao Fukushima, both of Toyokawa, Japan, assignors to Hitachi Ltd., Tokyo, Japan

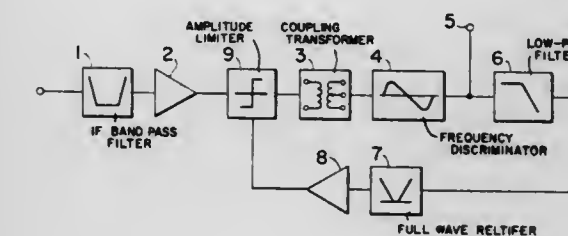
Filed Nov. 15, 1972, Ser. No. 306,682

Claims priority, application Japan, Nov. 15, 1971, 46-90606

Int. Cl. H03d 3/00

U.S. Cl. 325-347

9 Claims



An output control device for use in FM receivers comprises a low-pass filter for deriving only the d-c component from the output of a frequency discriminator, and a rectifier circuit for full-wave rectifying the output of the low-pass filter. The output of the rectifier circuit is applied to the amplitude limiter which is connected to the input circuit of the frequency discriminator, to cause the amplitude limiting level of the amplitude limiter to be changed, thereby minimizing the non-linear distortion developed in the frequency discriminator due to the deviation in the tuning of the FM receiver.

3,832,639 TONE GENERATOR FOR GENERATING SELECTED FREQUENCIES

Daniel Johannes Gerardus Janssen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

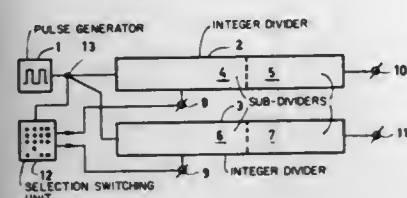
Filed May 29, 1973, Ser. No. 364,969

Claims priority, application Netherlands, June 10, 1972, 727933

Int. Cl. H03b 19/06

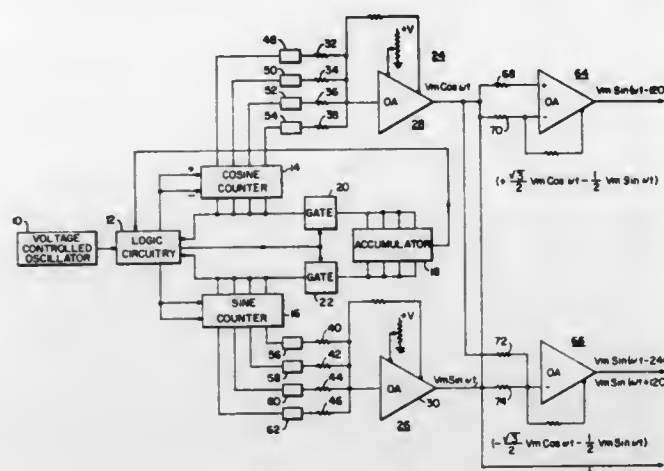
U.S. Cl. 328—14

6 Claims



A tone generator comprising a pulse oscillator, a divider having an adjustable integer dividend which is connected thereto and which comprises a sub-divider having an adjustable fractional dividend, and a sub-divider which is connected thereto and which has a fixed integer dividend, the latter sub-divider also constituting a binary-to-digital converter.

count of two digital counters, one for counting a cosine function through 360 electrical degrees, the other counting a sine function through 360 electrical degrees. Digital to analog converters coupled to the respective counters convert the digital



intelligence into analog wave forms $V_m \cos \omega t$ and $V_m \sin \omega t$.

Additionally by algebraic summation operational amplifiers are used to convert the two phase outputs $V_m \cos \omega t$ and $V_m \sin \omega t$ into a three phase voltage output.

3,832,640 TIME DIVISION INTERPOLATOR

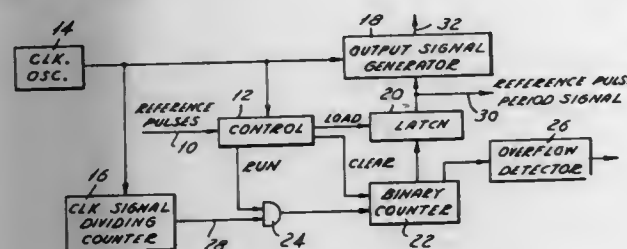
Alf L. Cederquist, Ypsilanti, and Shaun S. Devlin, Birmingham, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 11, 1972, Ser. No. 314,047

Int. Cl. H03k 5/00

U.S. Cl. 328—38

20 Claims



An electronic circuit is disclosed for generating an output signal having a frequency which is a selected multiple of a variable input signal frequency. To obtain the desired multiplication, a relatively high clock signal frequency is divided by a number which corresponds to the selected multiple to produce a second signal having a lower frequency than the clock signal frequency. The individual pulses of the lower frequency signal are counted during the time interval between two consecutive input signal pulses to generate a second, variable, number which is then used to divide the clock signal frequency in the time period immediately following the occurrence of the second of the two consecutive input signal pulses. The resulting output signal therefore occurs at a frequency which is equal to the frequency of the input signal multiplied by the desired multiplicative factor.

3,832,641 VOLTAGE REFERENCE SOURCE ADJUSTABLE AS REGARDS AMPLITUDE PHASE AND FREQUENCY

Louis W. Herchenroeder, Williamsville, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 18, 1973, Ser. No. 407,726

Int. Cl. H03k 1/02

U.S. Cl. 328—258

10 Claims

A voltage reference source is provided in which a pulse source under the regimen of logic circuitry disciplines the

The current of a mass spectrometer collector is indicated by a circuit including an electrometer tube having a control grid connected to the collector. The electrometer tube is included in a d.c. amplifier having a negative feedback path including a very high valued resistor directly connected to the control electrode so that the collector current develops a sufficient voltage to be amplified to a detectable level by the amplifier. Automatic zero and reset control for the amplifier is provided by another d.c. negative feedback loop responsive to the amplifier output. The another negative feedback loop includes an operational amplifier integrator having an output connected to a screen grid of the electrometer tube. The operational amplifier integrator is selectively connected to the d.c. amplifier output so that when the mass spectrometer responds to a sample the integrator is not responsive to the d.c. amplifier output and the spectrometer current is indicated by a d.c. meter connected to the amplifier output via a variable gain operational amplifier.

3,832,642 CURRENT MEASURING CIRCUIT AND METHOD

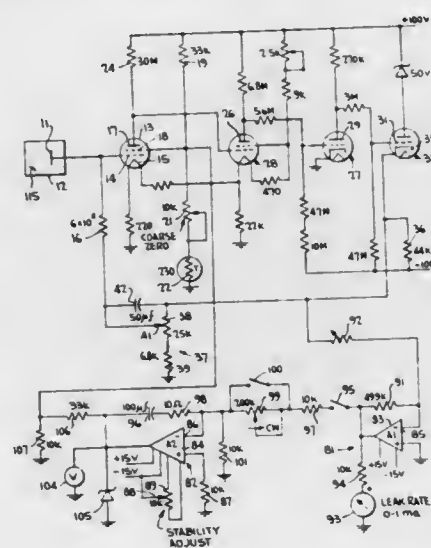
Walter Helgeland, Lexington, Mass., assignor to Varian Associates, Palo Alto, Calif.

Filed Nov. 29, 1972, Ser. No. 310,471

Int. Cl. H03f 1/36

U.S. Cl. 330—2

10 Claims



3,832,643 MINIMAL DISSIPATION POWER CONTROLLER

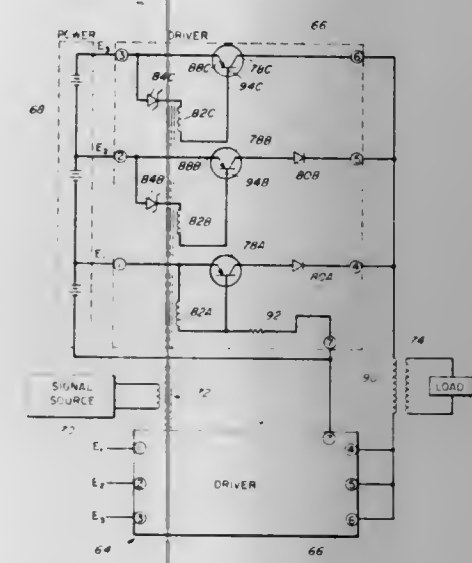
Arent H. Kits Van Heyningen, Newport, and Bjorn H. Engelhardt, Barrington, both of R.I., assignors to Raytheon Company, Lexington, Mass.

Filed Sept. 21, 1972, Ser. No. 291,119

Int. Cl. H03f 3/26

U.S. Cl. 330—15

10 Claims



A circuit particularly adapted for use with a transformer-coupled amplifier, such as a push-pull amplifier, for reducing the power dissipated across the amplifying element, typically a transistor, while retaining substantially linear operation of the circuit. The circuit comprises a plurality of branches which may be arranged in either a serial or parallel format, and further comprises means for switching successively increasing amounts of supply voltage or, alternatively, successively decreasing amounts of impedance reflected from a load driven by the circuit. The switching operations occur in response to the instantaneous values of an applied signal voltage, such as a sinusoid, such that several switchings are accomplished during each half cycle of the input sinusoidal signal.

3,832,644 SEMICONDUCTOR ELECTRONIC CIRCUIT WITH SEMICONDUCTOR BIAS CIRCUIT

Minoru Nagata, Kodaira; Takahiro Okabe, Hachio, and Toshiaki Masuhara, Tokorozawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

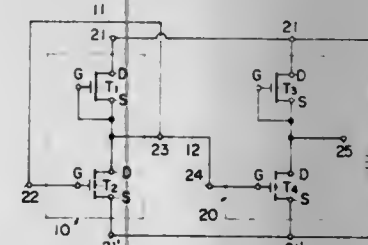
Filed Nov. 30, 1971, Ser. No. 203,355

Claims priority, application Japan, Nov. 30, 1970, 45-104817

Int. Cl. H03f 1/32

U.S. Cl. 330—22

10 Claims



A semiconductor electronic circuit employs a semiconductor bias circuit, in which at least two inverter circuits are provided, each comprising a depletion type MOS transistor and an enhancement type MOS transistor, which are formed on a p-conductivity type semiconductor chip. The depletion type MOS transistor has its gate and source electrodes short-circuited and serves as a load transistor, while the enhancement

type MOS type transistor has its drain electrode connected in series to the source electrode of the depletion type transistor. The input terminal and the output terminal of the first inverter circuit are connected to each other, and the voltage obtained at the output terminal is applied as a bias voltage to the input terminal of the second inverter circuit.

3,832,645 WIDE BAND GAIN CONTROL CIRCUIT

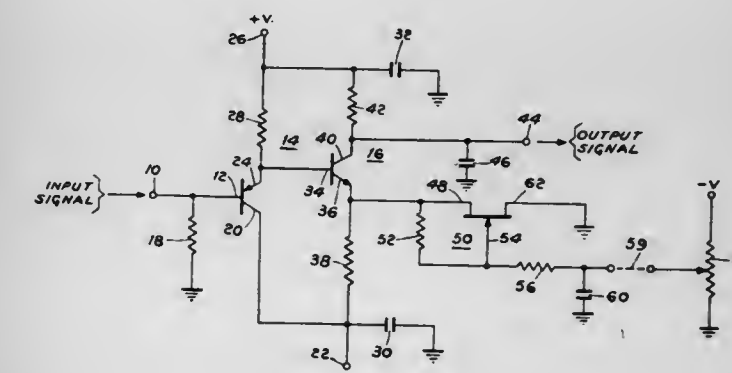
Weldon W. Greutman, Hicksville, Ohio, assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed May 11, 1973, Ser. No. 359,386

Int. Cl. H03g 3/30

U.S. Cl. 330—29

3 Claims



The gain of a complementary Darlington circuit is controlled by a symmetrical field effect transistor to provide a wide band amplifier having a constant direct current reference voltage for output signal at various levels of gain. A pair of PNP-NPN Darlington stages are connected to eliminate the normal emitter-base junction offset voltages. The FET is connected to the emitter circuit of the output stage with feedback between the drain and gate electrodes to provide a constant linearized emitter resistance at each gain control setting.

3,832,646 COMMON MODE NOISE SUPPRESSING CIRCUIT ADJUSTMENT SEQUENCE

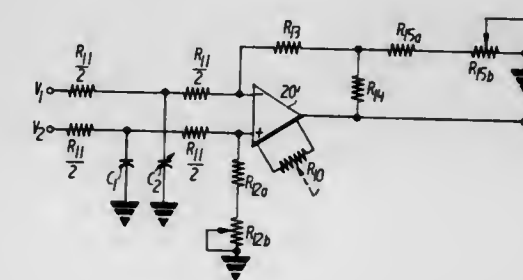
Andras I. Szabo, Export, and Ricardo A. Diaz, Plum, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 6, 1972, Ser. No. 295,616

Int. Cl. H03g 11/00

U.S. Cl. 330—30 D

2 Claims



A circuit is disclosed for suppressing common mode signals of relatively high amplitude. Illustratively, the common mode suppression circuit includes an operational amplifier having a specified operating range and an input network for attenuating the input signal to a degree that the largest expected common mode signal is attenuated so as not to exceed the specified operating range of the operational amplifier. Further, the gain of the operational amplifier is adjusted by a further, output network to compensate for the attenuation im-

parted to the input signal by the input network. In an illustrative embodiment of this invention, the input network includes a voltage dividing network for attenuating the input signal and capacitive elements for blocking impulsive, common mode noise of very high amplitude and short duration. In one illustrative embodiment of this invention, the second network for controlling the gain of the operational amplifier includes at least first and second resistive elements connected in series between the output and an input of the operational amplifier and a third resistive element connected from the common point therebetween, to ground.

3,832,647

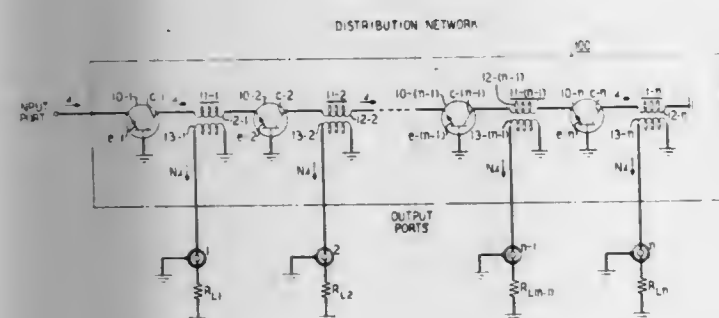
SIGNAL DISTRIBUTION NETWORK

Henry Richard Beurrier, Chester Twp., Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 13, 1973, Ser. No. 415,333
Int. Cl. H03h 7/48

U.S. Cl. 330—30 R

11 Claims



This application discloses a distribution network for coupling between a common signal source and a plurality of output loads. One embodiment of such a network comprises a plurality of n transistors and an equal plurality of two-winding transformers. The transistors are connected in the common base configuration with the collector of each of the first $n-1$ transistors being connected to the emitter of the next adjacent transistor through the primary winding of a different transformer. The collector of the n th transistor is connected to signal ground through the primary winding of the n th transformer. In accordance with one application of the invention, each secondary winding of the respective transformers is connected to a different output load. In accordance with another aspect of the invention, means are provided for constructively recombining the various output signals from the respective transformers in a common output load. Means are also disclosed for providing an impedance match at both the input and output ports of the network.

3,832,648

RADIO FREQUENCY POWER GENERATOR UTILIZING NON-MAGNETIC SLUG TUNED COILS AND IMPEDANCE MATCHING NETWORK FOR USE THEREWITH

Robert Bruce McDowell, No. 2 Chestnut Ln., Metuchen, N.J. 08840

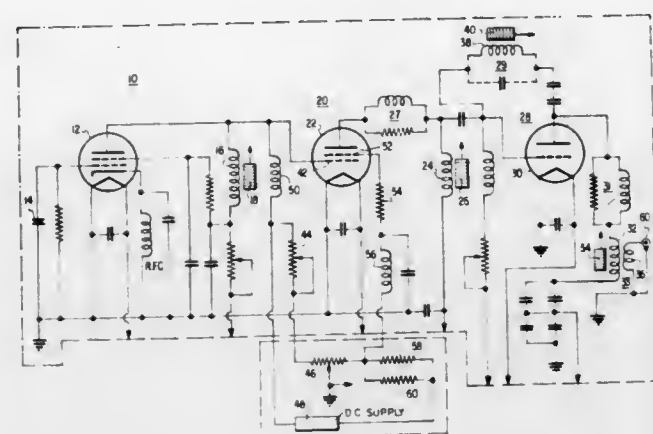
Filed May 29, 1973, Ser. No. 364,265
Int. Cl. H03b 5/10, 5/34

U.S. Cl. 331—74

9 Claims

A radio frequency dielectric power generator and associated impedance matching network that requires only ini-

tial tuning at the time of manufacture, and will operate into a wide range of load impedances with no tuning required during operation. The equipment is readily adaptable to radio



3,832,649

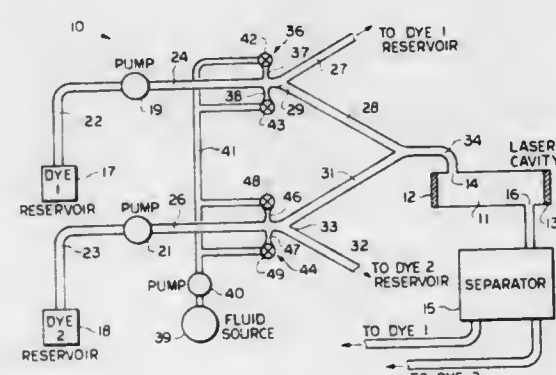
FLUIDALLY CONTROLLED DYE LASER

John D. Feichtner, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 15, 1973, Ser. No. 360,697
Int. Cl. H01s 3/02

U.S. Cl. 331—94.5 L

7 Claims



A fluidally controlled dye laser having at least one laser cavity through which a laser dye solution flows and at least one source of dye solution. The laser cavity is connected to the source of dye solution by a conduit having an inlet nozzle connected to the dye source and a pair of outlet channels, one of which is connected to the cavity. The conduit is designed to provide a flow from the inlet nozzle to either outlet channel that conforms to the Coanda effect. Positioned ahead of the junction or splitter of the inlet nozzle and outlet channels are a pair of fluidic control nozzles transversely positioned with respect to the flow of dye solution from the inlet nozzle for switching the flow of solution from one outlet channel to the other. The control nozzles are connected to a source, preferably pressurized, of control fluid and means for controlling the flow of fluid from said nozzles.

3,832,650

SUPERSONIC CHEMICAL TRANSFER LASER

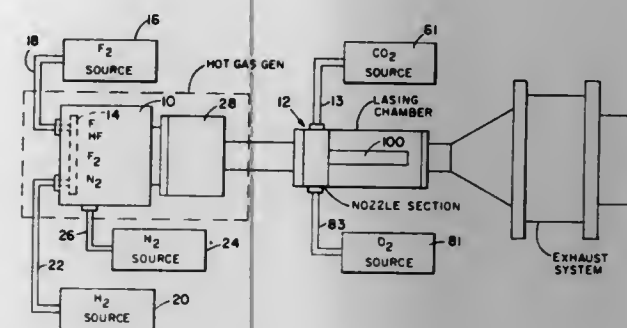
Thomas G. Roberts, Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 4, 1973, Ser. No. 421,569

Int. Cl. H01s 3/09, 3/22

U.S. Cl. 331—94.5 P

3 Claims



A laser having a gas generating section that delivers a flow of high pressure high temperature gas which contains a large concentration of active fluorine atoms (F) to a nozzle. This gas is expanded through a nozzle to achieve low pressure low temperature supersonic flow which still contains the large concentration of the active atoms. The nozzle includes one set of injection ports positioned so as to inject cold carbon dioxide gas (CO₂) into the flow at a point in the nozzle where the flow is supersonic, just downstream of the throat; and another set positioned so as to inject deuterium (D₂) into the flow after the CO₂ has mixed with the fluorine containing flow, just at the nozzle exit plane. All gases exhaust from the nozzle into a lasing chamber wherein the energy of F + D₂ reaction which initially appears as vibrational energy in the product DF molecule is transferred in collisions to the CO₂ molecule. Thus producing a total inversion in the CO₂ which allows the energy to be extracted as a laser beam from the flow.

3,832,651

DYNAMIC DIVIDING CIRCUIT FOR DIVIDING AN INPUT FREQUENCY BY TWO

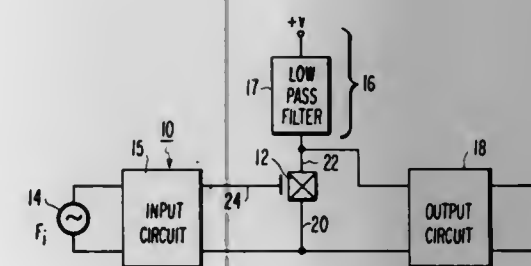
Subrahmanyam Yegna Narayan, Belle Mead, N.J., assignor to RCA Corporation, Princeton, N.J.

Filed Jan. 19, 1973, Ser. No. 325,071

Int. Cl. H03b 3/08, 7/14

U.S. Cl. 331—107 G

14 Claims



A circuit is presented which has the capability of dividing an input frequency by an integer in order to achieve an output frequency within a specified range. This dynamic dividing circuit is capable of multi-gigabit rate operation.

3,832,652

DYNAMIC DIVIDING CIRCUIT FOR DIVIDING AN INPUT FREQUENCY BY AT LEAST THREE

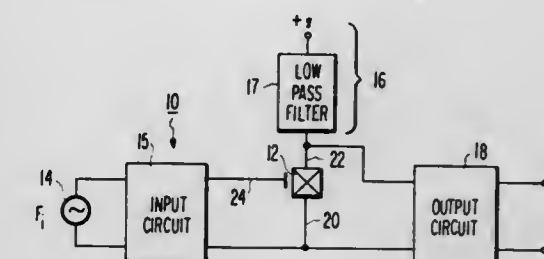
Chainulu Lakshminarasimha Upadhyayula, East Windsor, and Subrahmanyam Yegna Narayan, Belle Mead, both of N.J., assignors to RCA Corporation, Princeton, N.J.

Filed Jan. 19, 1973, Ser. No. 325,072 The portion of the term of this patent subsequent to Aug. 27, 1991, has been disclaimed.

Int. Cl. H03b 3/08, 7/14

U.S. Cl. 331—107 G

14 Claims



A circuit is presented which has the capability of dividing an input frequency by an integer in order to achieve an output frequency within a specified range. This dynamic dividing circuit is capable of multi-gigabit rate operation.

3,832,653

LOW NOISE RF SIGNAL GENERATOR

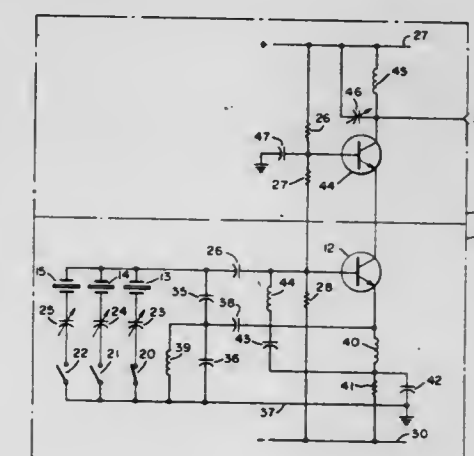
John L. Nugent, Baltimore, and Harry W. Claypool, Joppa, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 20, 1973, Ser. No. 389,610

Int. Cl. H03b 5/36

U.S. Cl. 331—116 R

10 Claims



A signal generator for generating a high power low noise RF signal is disclosed. The generator includes a low noise crystal control oscillator for generating a relatively low power, low noise RF signal. The output signal of the oscillator is coupled to a high power RF amplifier which amplifies this signal to generate the low noise high power RF signal. The low frequency noise of the oscillator is reduced by a low frequency negative feedback loop in the oscillator circuit. Noise induced into the oscillator circuit by load changes in the power amplifier is reduced by designing the amplifier such that its input impedance is substantially constant for all phase angles of the RF signal.

The operating frequency of the generator may be changed by switching the crystal which determines the operating frequency of the oscillator. The bandwidth of the oscillator and the amplifier are such that the operating frequency of the oscillator can be changed over a relatively wide range without circuit readjustments.

3,832,661

TRANSFORMER

Ryoda Sato, 1-8-25, Ohoma-cho, Amagasaki, Japan

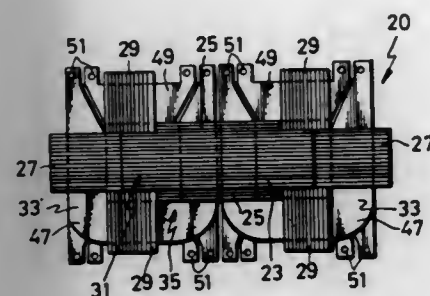
Filed Nov. 15, 1972, Ser. No. 306,851

Claims priority, application Japan, Nov. 29, 1971, 46-95346

Int. Cl. H01f 27/24, 27/28

U.S. Cl. 336-212

4 Claims



A transformer comprising a specific combination of a seamless iron core portion having formed a completely closed magnetic path and laminated induction plates formed as a primary and a secondary windings, respectively; and a transformer comprising an auxiliary iron core portion which is smaller than the aforesaid iron core portion and intercrossed to the winding of the aforesaid transformer, and said auxiliary winding wound round the auxiliary iron core being adapted to induce therefrom a required small electric power.

3,832,662

VEHICLE COOLING SYSTEM CONDITION MONITOR

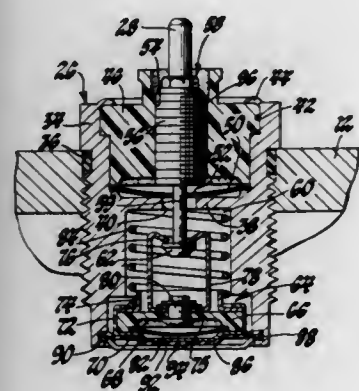
Harold A. Haven, Fenton, and John A. Stewart, Flint, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 26, 1973, Ser. No. 419,093

Int. Cl. H01h 37/40

U.S. Cl. 337-40

3 Claims



A cooling system condition monitoring apparatus which includes a spring loaded temperature sensitive switch assembly moved by a pressure responsive diaphragm for providing a ground circuit for a warning lamp when the vehicle coolant temperature is above a first preselected level while the cooling system pressure is below a specified level. The apparatus further includes a temperature switch for providing a ground circuit for the warning lamp when the engine is operating above a second predetermined temperature irrespective of the cooling system pressure.

3,832,663

CIRCUIT BREAKER WITH IMPROVED FRAME AND CRADLE SUPPORT MEANS

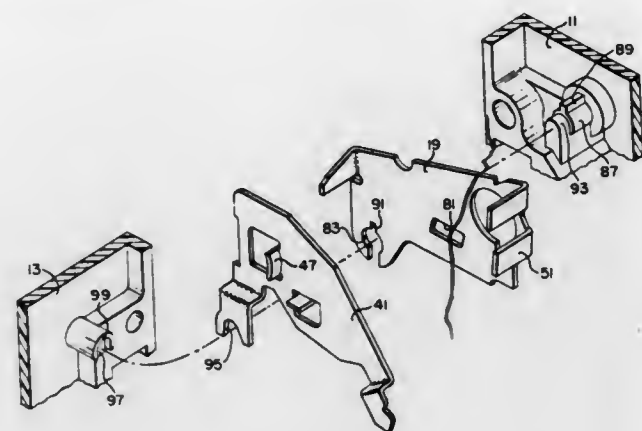
Francis L. Gelzheiser, Fairfield, Conn., assignor to Westinghouse Electric Company, Pittsburgh, Pa.

Filed Nov. 28, 1973, Ser. No. 419,749

Int. Cl. H01h 71/02

U.S. Cl. 337-112

5 Claims



A circuit breaker comprises improved molded insulating support means for supporting the frame and cradle of the circuit-breaker mechanism.

3,832,664

ELECTRIC FUSE THERMOPLASTIC ENCAPSULANT

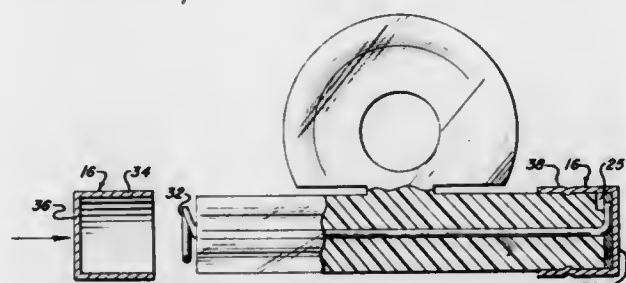
Gerald Wiebe, 18W 077 Williamburg Ln., Villa Park, Ill. 60181

Filed May 4, 1972, Ser. No. 250,249

Int. Cl. H01h 83/30, 85/14

U.S. Cl. 337-241

20 Claims



An electric fuse including a solid, unitary transparent plastic body having embedded therein a metal fusible link in the form of an elongate wire-like element. The plastic body is in intimate contact with the fusible link to not only provide mechanical support therefor, but also to provide for enhanced heat transfer between the fusible link and fuse body. Opposite ends of the link extend outwardly beyond the ends of the plastic body and are formed into a coiled configuration which is initially spaced slightly from the adjacent body end. A cup-shaped metal end cap is received over each end of the plastic body, and the coiled ends of the fusible link are compressed between an end of the plastic body and an end wall of the end caps, so that the fusible link is in positive electrical and heat-conductive relationship with the end caps. To improve the electrical and heat-conductive relationship between the end caps and the ends of the fusible link, and ends of the fusible link and/or the end caps are coated with a suitable conductive material. The end caps provide heat sinking for not only the fusible link, but also for the plastic body.

The fuse is formed by placing an elongate metal wire in the cavity of a mold, with the end portions of the wire projecting beyond the cavity, and injecting a transparent, fluid plastic material into the cavity to completely surround and encase the

wire and subsequently form a fuse body upon hardening. The outwardly projecting ends of the wire are then bent into a coiled configuration spaced slightly outwardly from the ends of the fuse body, and cup-shaped metal end caps are shifted axially of the fuse body to compress the coiled ends of the fusible link between the end caps and the fuse body after a conductive substance is applied to the ends of the fusible link and/or end caps.

3,832,665

BLOWN FUSE INDICATOR FOR HIGH-VOLTAGE FUSES

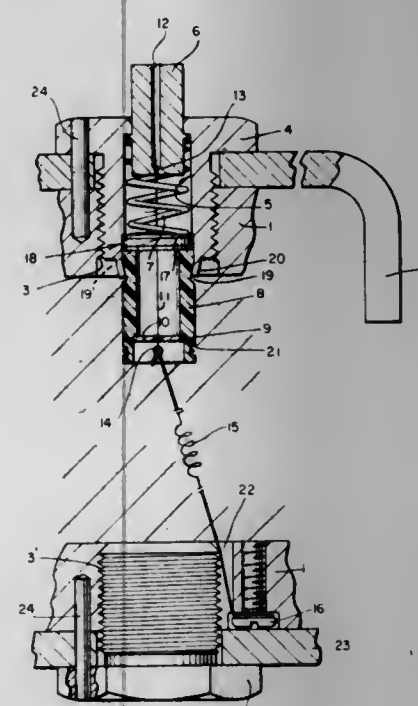
Richard A. Belcher, Hampton Falls, N.H., assignor to The Chase-Shawmut Company, Newburyport, Mass.

Filed Nov. 16, 1973, Ser. No. 416,526

Int. Cl. H01h 85/32

U.S. Cl. 337-244

5 Claims



A blown fuse indicator built into a hex-screw and provided with two serially related fusible wire elements of which one is under stress and arranged in a chamber of insulating material forming a void, and the other is wound helically and arranged to be submerged in a body of pulverulent arc-quenching filler.

3,832,666

ELECTRIC FUSE

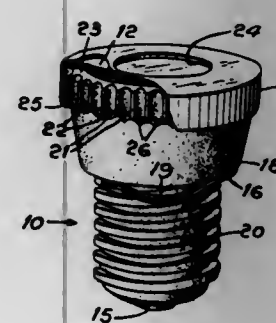
Richard H. Griffin, Riverside, R.I., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed July 27, 1973, Ser. No. 383,221

Int. Cl. H01h 85/14

U.S. Cl. 337-272

6 Claims



An electric fuse includes a dielectric casing having an explosion chamber and an open end communicating with the chamber, a pair of contacts disposed in the casing, an electric

fuse element disposed in the chamber and connected in series with the contacts, and a metallic cap covering the open end. The cap may be apertured and includes a transparent dielectric sheet between the cap and casing to provide a window. The dielectric casing has a plurality of closely spaced alternating longitudinal ridges and grooves along the outer side adjacent the open end extending from the open end toward the base of the casing. The metallic cap tightly covers the open end and is in contact with the ridged side of the casing and includes a rim which is bent inwardly to grip the dielectric casing below the end of the ridges. Upon explosion of the fuse element, gas formed in the explosion chamber temporarily lifts the cap and sheet and escapes past the open end under the cap, with the space between the cap and the grooves providing a path for the gas in the direction away from the open end toward the base of the casing. The improved venting structure permits use of moldable thermosetting plastic materials for the casing.

3,832,667

THERMOSTATIC SWITCH

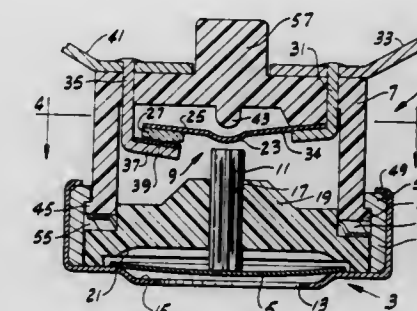
Bobby D. Blanton, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 23, 1973, Ser. No. 381,959

Int. Cl. H01h 37/52

U.S. Cl. 337-354

14 Claims



A trip-free manual reset thermostatic switch with a thermostatic element for actuating a switch assembly by means of an actuator. The thermostatic element is mounted for flexing movement on a base and moves from a first to a second position relative to the base in response to predetermined temperature conditions, and then remains in the second position independent of further changes in temperature. The base and thermostatic element are provided with a cover movable toward and away from the base and held captive thereto. A switch assembly is mounted within the cover. This assembly includes a first contact secured to the cover and a contact arm one end of which is also secured inside the cover and having a free end carrying a second contact normally engaged with the first contact but movable out of engagement therewith. When the thermostatic element moves into its second position, the actuator concurrently moves the contact arm to separate the contacts. The cover, when moved from a normal to a reset position relative to said base, moves the actuator to bias the thermostatic element away from its second and toward its first position, but the contacts will remain separated and the thermostatic element will not move into its first position while said element is subject to the predetermined temperature conditions. However, the contacts will reclose and the thermostatic element will be moved into its first position in the absence of the predetermined temperature conditions.

3,832,668

SILICON CARBIDE JUNCTION THERMISTOR

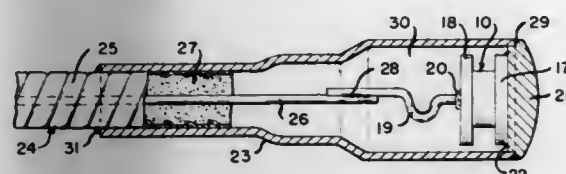
Herbert S. Berman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 31, 1972, Ser. No. 239,968

Int. Cl. H01c 7/04

U.S. Cl. 338—22 SD

2 Claims



A high impedance, junction thermistor for sensing temperatures from about -200°C. to above $1,400^{\circ}\text{C.}$ is provided with a semiconductor body of silicon carbide. The silicon carbide semiconductor body has at least first and second impurity regions forming a PN junction therebetween. The temperature is sensed by the impedance response across the PN junction.

3,832,669

TEMPERATURE-SENSING DEVICE

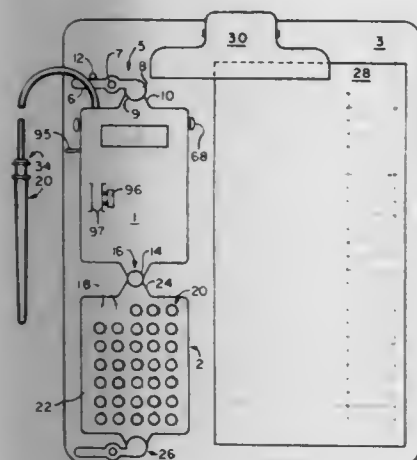
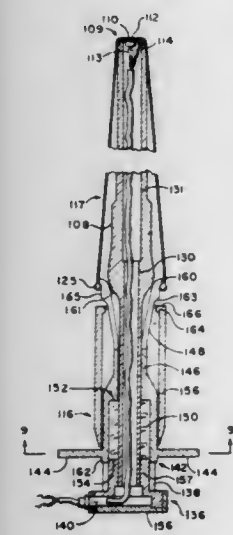
Fritz Kurt Mueller; Billy Otis Martin, and Robert Cherry, all of Huntsville, Ala., assignors to Royal Medical Corporation, Huntsville, Ala.

Continuation-in-part of Ser. No. 62,481, Aug. 10, 1970, Pat. No. 3,729,998, and a continuation-in-part of Ser. No. 173,115, Aug. 19, 1971. This application June 1, 1972, Ser. No. 258,728

Int. Cl. H01c 7/00

U.S. Cl. 338—28

18 Claims



A temperature sensing probe-and-sheath assembly, especially adapted for use in an electronic thermometer but having

utility in temperature control and temperature compensation devices, comprising: a probe element of plastic or other material of low heat conductivity, having a handle portion, connectible to a source of electricity, a tip portion and a central channel extending from said handle portion to the tip portion, a piece of metal foil or very thin metal sheet, of high heat conductivity, fixed to said tip portion and extending across a probe-tip widened portion of said channel that forms a narrow endless ridge, losing little of the measured heat, at the tip of the probe; a pre-heating thermistor and a temperature-measuring thermistor, fixed by metal-comprising bonding material to the foil; wiring in the channel between the handle and tip portions, connected to said thermistors; a probe sheath having a blunt tip end snugly engaging the foil, extending over a narrow, endless tip-end ridge of said plastic and ending at a sheath-holding enlarged portion of the probe, with an air-filled clearance between the probe element and sheath along a major part of the probe element's length; and means at the handle portion to cause said sheath to be removed from the enlarged portion.

3,832,670

MULTIPLE PRECISION POTENTIOMETER

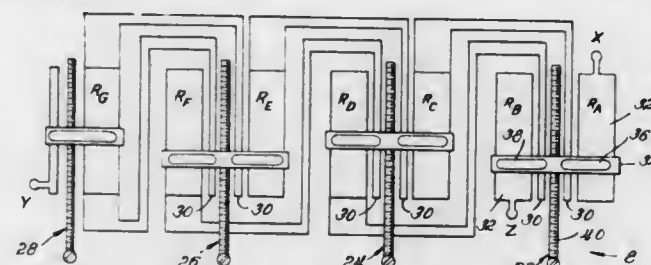
Gary F. Oman, Greensdale, Wis., assignor to Johnson Service Company, Milwaukee, Wis.

Filed Nov. 16, 1972, Ser. No. 306,910

Int. Cl. H01c 1/16

U.S. Cl. 338—124

3 Claims



A wide range and high resolution potentiometer is provided by using a plurality of variable resistor pairs and a base potentiometer. The pairs are connected together in two complementary series chains on either side of the base potentiometer. A slide means is connected to each pair in a ganged relation to selectively vary their resistance in equal but opposite direction so that the total input resistance of the potentiometer always remains constant. Each pair added multiplies the basic resolution of the potentiometer.

3,832,671

STEP-BY-STEP VARIABLE RESISTOR ASSEMBLY

Tatsuo Kohima, Kyoto, Japan, assignor to Murata Manufacturing Co., Ltd., Kyoto-fu, Japan

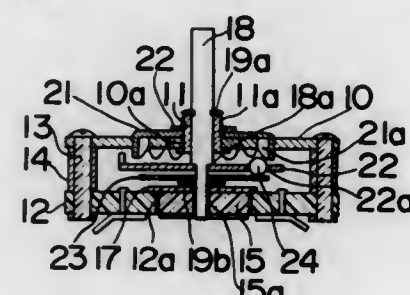
Filed Jan. 24, 1973, Ser. No. 326,522

Claims priority, application Japan, May 12, 1972, 47-55918[U]

Int. Cl. H01c 9/04

U.S. Cl. 338—188

8 Claims



A step-by-step variable resistor assembly of compact and simplified construction essentially comprising an operating

shaft, a mounting panel and base plate connected with each other in spaced relation to each other, both rotatably carrying the operating shaft, a tap member carried by the operating shaft within a space between the mounting panel and the base plate, a detent device for providing detent positions for rotation of the operating shaft, terminal members of the number corresponding to the number of the detent position, and a film of resistance material arranged in a substantially split-ring shape and electrically connecting the terminal members. Upon rotation of the operating shaft to any one of the detent positions, some or all of the terminal members are short-circuited to give a definite value of resistance.

3,832,672

GROUNDING COUPLING FOR ELECTRICAL WIRE RACEWAYS

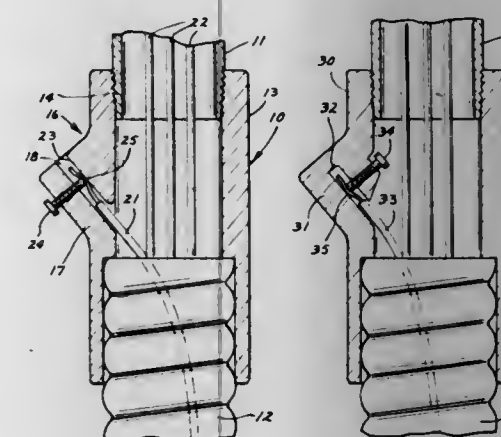
John R. Loos, 2801 Maple St., Fargo, N. Dak. 58102

Filed Apr. 2, 1973, Ser. No. 347,390

Int. Cl. H01r 3/06; H02g 3/06

U.S. Cl. 339—13

5 Claims



A coupling for raceways, such as thin wall conduit (EMT) or rigid conduit for electrical wires for joining such conduit to another type of raceway, and incorporating a grounding terminal integrally with the coupling to permit connection of an internal grounding wire.

3,832,673

CONDUCTING RAIL AND ADAPTER FOR SUPPLYING ELECTRICAL APPLIANCE

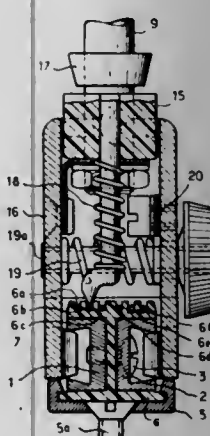
Helene Marie Le Hir, Blanc-Mesnil, France, assignor to Maurice Soquenne, Neuilly-Sur Marne, France

Filed Feb. 16, 1973, Ser. No. 333,160

Int. Cl. H01r 9/00

U.S. Cl. 339—21 R

6 Claims



A low-voltage conducting rail and adapter assembly acting at the same time as a mechanical support for lighting spots and other electrical appliances.

The adapter comprises two rigid conducting arms forming a clamp on the two U-sections of which the rail is made, and an insulating member linking the conducting arms and being part of the fixing arrangement for the electrical appliance.

3,832,674

ELECTRICAL CONNECTOR

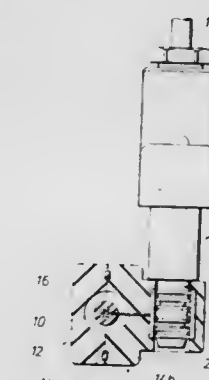
Eugene F. Florian, Houston, Tex., assignor to Mark Products, Inc., Houston, Tex.

Filed Dec. 11, 1972, Ser. No. 313,789

Int. Cl. H01r 13/52

U.S. Cl. 339—60 R

12 Claims



A plug and socket type connector is disclosed that provides a fluid proof electrical connection. The plug member includes a body with contacts located on opposite sides of the body with seal members on each side of the contacts that wipe the socket as the plug is pushed into the socket and seal the plug and socket contacts from the ambient fluid when the contacts are in engagement. The socket contact forms a portion of the wall of the socket opening. The plug contacts are balls located in an opening that extends transverse the body. The balls extend out of the openings far enough to engage the socket contact. A coil spring located between the balls hold the balls against the socket contact and electrically connects the balls to the plug body.

3,832,675

ELECTRODE COMPRISING A HEAD AND A DETACHABLE PLUG

Manfred F. Detemple, 65 Mainz, Josefstr. 65, Mainz; Horst Hubner, 6203 Hochheim, Herderstr. 8, Hochheim, and Johann Oswald, 65 Mainz, Sommerringplatz 6, Mainz, all of Germany

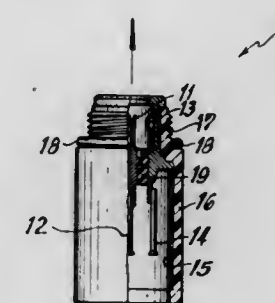
Filed Oct. 12, 1972, Ser. No. 296,968

Claims priority, application Germany, Mar. 3, 1972, 7208139

Int. Cl. H01r 13/46

U.S. Cl. 339—143 R

1 Claim



A connection between an electrode head and a cable plug to form an electrode plug head. The connection is a good electrical connection of a first contact and a second contact coaxially arranged about the first contact of the electrode head

respectively with an inner terminal and an outer terminal of the cable plug similarly arranged. Further, a plastic casing enveloping the whole unit of electrode head clampingly engages another plastic casing enveloping the entire cable plug. The casings cause simultaneous engagement of an outer thread and an o-ring of the electrode head respectively with an inner thread and a shoulder of the cable plug. Thus, a fluid-proof electrode plug head is obtained. The electrode head is also provided with a thin metallic shield which is slidably mounted on the inner wall of the plastic casing and which is electrically connected to the second contact to serve as an electric shield so that the electrode plug head will be leak-proof when the electrode head and the cable plug are connected.

3,832,676 FUSED CONNECTOR

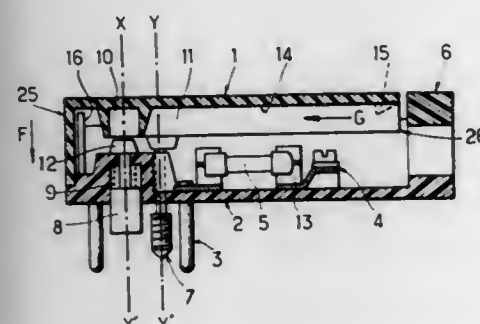
Jean Joly, Houilles, France, assignor to "La Telemecanique", Nanterre, France

Filed Nov. 1, 1972, Ser. No. 302,740

Int. Cl. H01r 13/68

U.S. Cl. 339—147 P

5 Claims



Fused connector only allowing access to the fuses when the terminals are not live.

A piston locks a sliding cover or prevents the connector from being put in position.

The connector may be used in conjunction with prefabricated electric wirings having a plurality of plugs arranged along their length.

3,832,677 SCANNING MID FREQUENCY ACOUSTICAL PROSPECTING METHOD

Byron B. Brenden, Richland; Victor I. Neeley, and George F. Garlick, both of Kennewick, all of Wash., assignors to Holosonics, Richland, Wash.

Continuation of Ser. No. 31,306, April 23, 1970, abandoned.

This application Aug. 2, 1973, Ser. No. 384,913

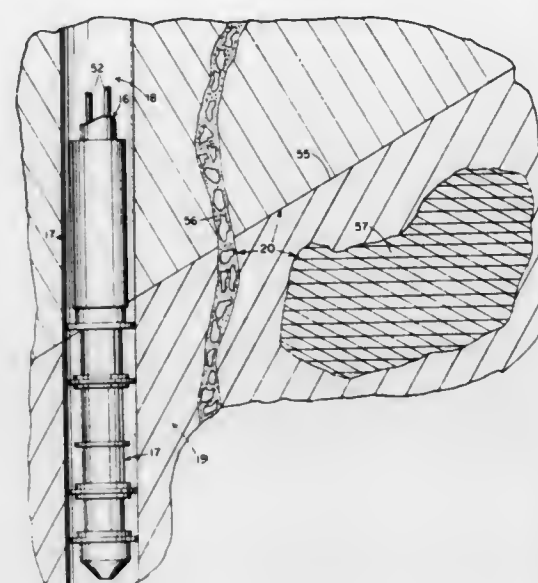
Int. Cl. G01v 1/28, 1/40

U.S. Cl. 340—15.5 TN

4 Claims

A method of transmitting sound from a bore hole and thereafter receiving and analyzing its reflections to define finer geologic structure, particularly faults and ore bodies, at distances up to two hundred-fifty feet from the bore hole. Acoustical energy between 100 and 1,000,000 cycles per second is transmitted in discrete bursts from multiple, spaced points along the bore hole; the reflections from boundaries defining material of differing acoustical impedance are received and coherently analyzed to determine time of transit of the acoustical energy, phase shift if any, and strength of the reflection to define parameters of the reflecting interface. Multiple analysis may be carried out in plural drill holes or at spaced points in one drill hole to uniquely define position of acoustically differing interfaces. Analysis may be simplified

and definition made finer by directionalizing the searched area, time-gating the returned signal and coherently analyzing



it to determine phase shift. Apparatus is disclosed for carrying out the process.

3,832,678 FIRE ALARM SYSTEM

Bjorn Gysell, Dianavagen 77, Bandhagen; Karl Axel Nilsson, Kruthornsvagen 17, Sollentuna, and Gary Nilvid, Skebokvarnsvagen 174, Stockholm, all of Sweden

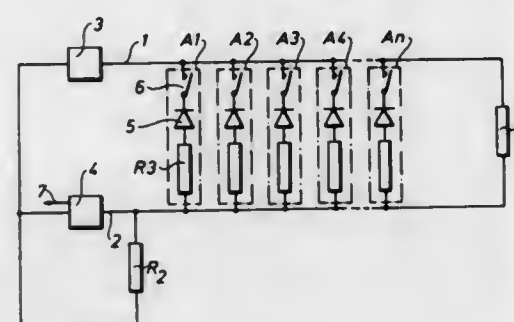
Filed Nov. 5, 1971, Ser. No. 196,045

Claims priority, application Sweden, Nov. 12, 1970, 15288/70

Int. Cl. G08b 21/00

U.S. Cl. 340—227 R

9 Claims



A fire alarm system including a plurality of individual alarm devices connected to a two-wire electrical loop, each alarm device including a unidirectional current conducting means, a resistive impedance, and a switch adapted to move to an actuated position in response to fire detection. Also included in the loop are a bi-directional voltage source, a passive load having a predetermined value, and a resistive impedance element also of a predetermined value, said plurality of alarm devices and the passive load forming one portion of a voltage divider, the other portion of the voltage divider being formed by the resistive impedance element. A fire alarm signal can be distinguished from all other signals generated by the system, in that under normal operation, the voltage drop across the resistive impedance element is not altered in response to the application of a first polarity voltage and then a second polarity voltage, while in response to the detection of a fire, a switch in an alarm device assumes its actuated position, whereby the voltage drop across the resistive impedance element assumes a first value in response to a first polarity voltage and a second value different from the first value in response to a second polarity voltage. In response to other abnormal conditions,

such as ground leakage between the wires of the loop, the potential drop across the resistive impedance element remains the same for both polarity voltages.

3,832,679 HIGHWAY EMERGENCY COMMUNICATIONS- WARNING SYSTEM AND UNITS

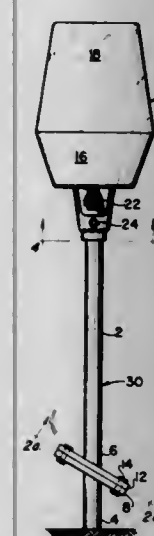
Dennis J. Foley, and Richard A. Gilmore, both of Columbus, Ohio, assignors to Design Properties, Inc., Wellston, Ohio

Filed Aug. 16, 1972, Ser. No. 281,143

Int. Cl. G08g 1/09

U.S. Cl. 340—22

6 Claims



A highway warning system is comprised of a plurality of standards erected at regularly-spaced intervals along the road side and interconnected by conventional telephonic system to a central dispatcher station. The standards are provided with communication elements and a light which is under control of the central station such that the standard at the closest point to a trouble site may be illuminated and as well standards ahead of the trouble point may be illuminated to warn motorists of potential danger ahead.

3,832,680 HAZARD WARNING SIGNAL DEVICE FOR USE IN AUTOMOTIVE VEHICLE

Masaru Suzuki, Aichi, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan

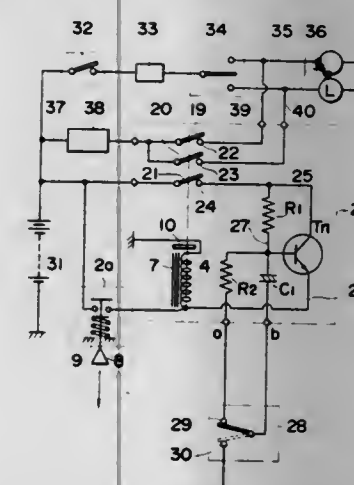
Filed Nov. 29, 1971, Ser. No. 202,972

Claims priority, application Japan, Nov. 28, 1970, 45-104996

Int. Cl. B60q 1/26

U.S. Cl. 340—56

9 Claims



A hazard warning signal device for use in automotive vehicles including an actuator controlling at least one switch for

closing directly or indirectly a load circuit for simultaneously flashing a plurality of vehicle lamps to indicate a hazardous condition, as well as closing a control circuit. The control circuit is responsive to detecting switch means detecting the starting or motion condition of the vehicle from a stopped position for releasing the at least one closing switch.

3,832,681 PRESSURE CHANGE DETECTING SYSTEM FOR ROTATING BODY

Masaaki Kaida, and Shigeo Yasuda, both of Tokyo, Japan, assignors to Bridgestone Tire Company Limited and Mitaka Instrument Company Limited, both of Tokyo, Japan

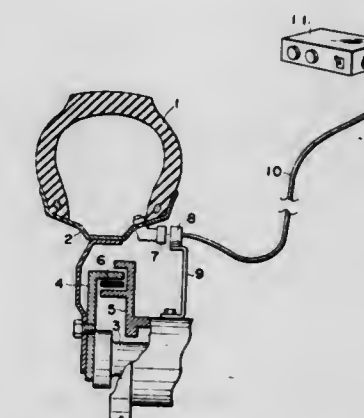
Filed May 4, 1973, Ser. No. 357,514

Claims priority, application Japan, May 13, 1972, 47-47326

Int. Cl. B60c 23/04

U.S. Cl. 340—58

7 Claims



A pressure change detecting system for detecting change of pressure of pressurized gas confined in a chamber of a rotating body, which comprises a detector adapted to be mounted on the rotating body and including a magnet carrier plate carrying thereon a permanent magnet and a weight member, the magnet carrier plate being rotatable in accordance with centrifugal force applied to the weight member due to the rotation of the rotating body, and lock means for allowing the magnet carrier plate together with the magnet to upset only when the pressure of the pressurized gas changes over a predetermined extent, an electro-motive element so positioned as to face the orbital plane of the detector for producing an electro-motive force in accordance with variation of a magnetic field established therein due to the rotation of the detecting assembly, and processor for processing the electro-motive force so as to produce pressure change information signal in accordance with the electro-motive force.

3,832,682 READING APPARATUS

Wilhelm Fredrik Brok, Voorburg; Arie Adriaan Spanjersberg, Leiderdorp, and Joannes Van Staveren, Zoetermeer, all of Netherlands, assignors to De Staat Der Nederlanden ten deze vertegenwoordigd door de Directeur-Generaal der Posterijen, Telegrafie & Telefonie, The Hague, Netherlands

Filed July 19, 1972, Ser. No. 273,332

Claims priority, application Netherlands, July 22, 1971, 7110114

Int. Cl. G06k 5/00, 15/20

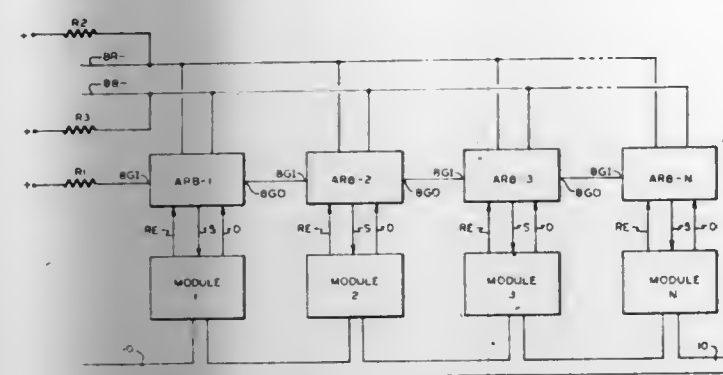
U.S. Cl. 340—146.3 ED

11 Claims

A reading apparatus for processing symbols handwritten on a recording card in combined mechanical and manual fashion, in which the mechanical automatic reading is by recognition logic for classifying the symbols read, and the symbols that are not so recognized or are uncertain are visualized on a central monitor. Thus a second classification device is provided by

expansion of the data-handling system. If two modules request control while a third module is using the bus, a decision is im-

mediately made as to which of the two modules will be the next to be given control of the bus.



3,832,690

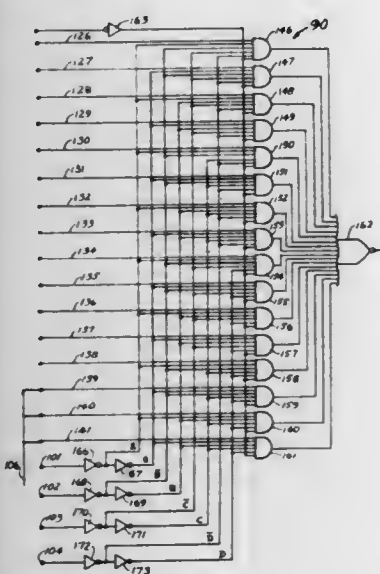
COMMUNICATIONS SYSTEM ENCODER-DECODER FOR DATA TRANSMISSION AND RETRIEVAL

David S. McVoy, and Richard G. Reynolds, both of Sarasota, Fla., assignors to Coaxial Scientific Corporation, Sarasota, Fla.

Division of Ser. No. 227,752, Feb. 22, 1972, Pat. No. 3,786,424. This application Apr. 30, 1973, Ser. No. 355,885
Int. Cl. H03k 21/12; H04q 5/14

U.S. Cl. 340—168 R

2 Claims



A communications system, such as a cable television system, embodies an arrangement for data transmission which utilizes a combination of time and frequency division. Groups of data transmitters are connected to data retrieval circuitry through switch circuits which are selectively addressed by a predetermined code to provide communication between all of the data transmitters of the group and data retrieval circuitry. The transmission of data from transmitters in the other groups are blocked until the appropriate address code is sent to the associated switch circuit. Circuitry utilizing a synchronous or non-synchronous clock is provided for generating a message marker along with the data pulse train.

3,832,691

ELECTRIC MODEL MOTOR CONTROL

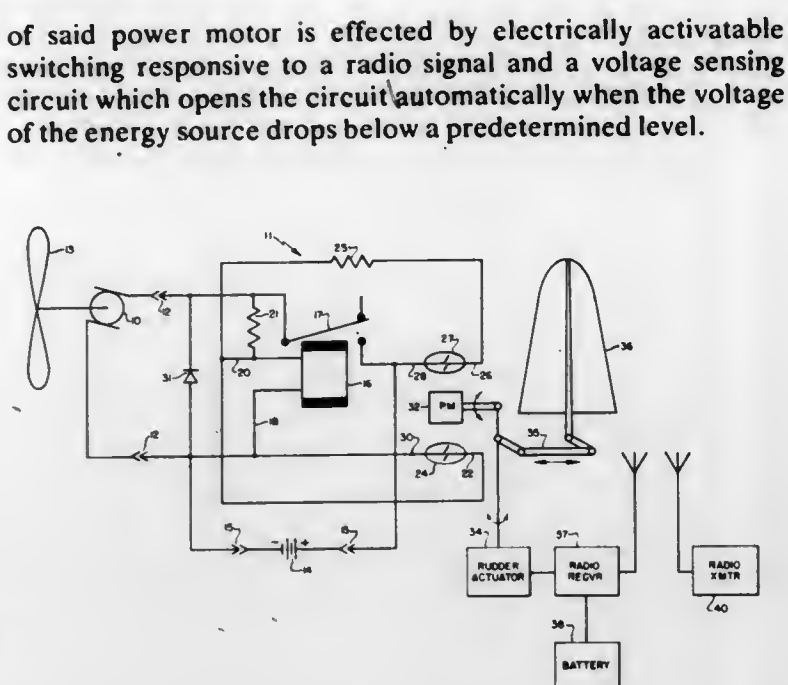
Frank A. Galler, P.O. Box 87, South Walpole, Mass. 02081
Filed June 20, 1973, Ser. No. 371,856

Int. Cl. H04b 7/00

U.S. Cl. 340—171 R

7 Claims

A motor control for connecting an energy source to an electric power motor of a model in which the on and off operation



In one particular utilization two switches actuated by extreme operation of an independent radio controlled element such as an airplane rudder provide on-off control operation of the propeller drive motor.

3,832,692

PRIORITY NETWORK FOR DEVICES COUPLED BY A MULTI-LINE BUS

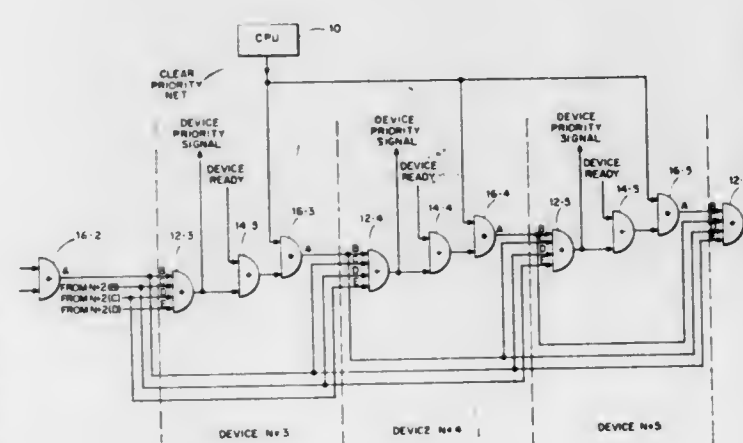
Russell A. Henzel, Ann Arbor, Mich., and Byron G. Gayman, Holliston, Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed June 27, 1972, Ser. No. 266,768

Int. Cl. G06f 9/18

U.S. Cl. 340—172.5

12 Claims



A priority network including a multiple line bus coupled with a plurality of priority seeking devices, the device furthest down the bus having the lowest priority. In other words, the priority of each device is dependent upon its proximity to the input end of the bus. Each device determines whether it has priority or not by looking back at the priority indications of two or more previous devices coupled with the bus thereby decreasing the time required for a given device to gain access with a processor coupled with the bus. Means are also provided for clearing the priority indications of each of the plurality of devices, once a device has gained access with the bus and processor, thereby increasing the speed for clearing the priority network.

3,832,693

SYSTEM FOR READING OUT THE COORDINATES OF INFORMATION DISPLAYED ON A MATRIX TYPE DISPLAY DEVICE

Hiroyuki Ishizaki, Akashi; Teruo Toba, Kakogawa, and Shozo Umeda, Hyogo, all of Japan, assignors to Fujitsu, Limited, Kanagawa-ken, Japan

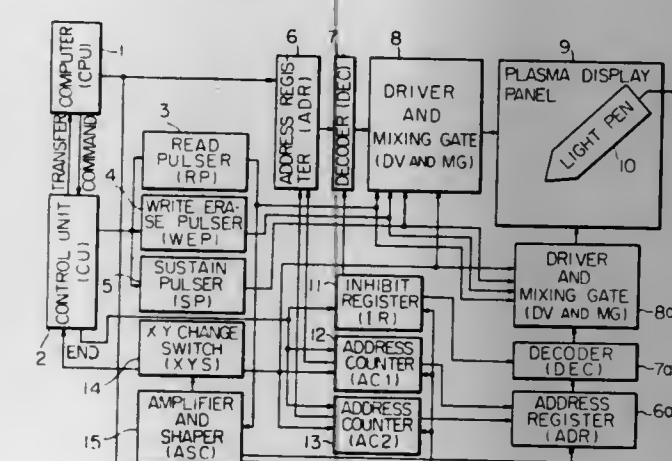
Filed Aug. 21, 1972, Ser. No. 282,022

Claims priority, application Japan, Aug. 29, 1971, 46-66052; Oct. 28, 1971, 46-85830

Int. Cl. G08c 21/00

U.S. Cl. 340—172.5

5 Claims



For reading out the coordinates of information on a matrix type display, a read pulse scans the display surface. In the first embodiment, the display surface is divided into a plurality of blocks in both X and Y directions. First, the scanning is carried out with regard to the blocks in the X direction. Second, when an information signal is detected in any block, the above-mentioned operation is repeated with regard to the Y direction, and the coordinates of the information signal can be read out. In the second embodiment, the display surface is divided into 2 blocks in both X and Y directions and the scanning is first carried out with regard to the two blocks in the X direction. When the information signal is detected in one of the two blocks, the block is further divided into two blocks. By repeating this process, the electrode which includes the information signal is detected. Secondly, the above-mentioned operation is repeated with regard to the Y direction, and the coordinates of the information signal can be read out. Further, in the above-mentioned two embodiments, the coordinates can be read out whether the coordinates are in the fired cell or in the non fired cell without carrying out special operations.

3,832,694

PROCESSOR UNIT FOR DATA RETRIEVAL AND PROCESSING

Vincent J. Judith, Southampton, Pa., assignor to Excello Corporation, Detroit, Mich.

Filed Aug. 31, 1972, Ser. No. 285,237

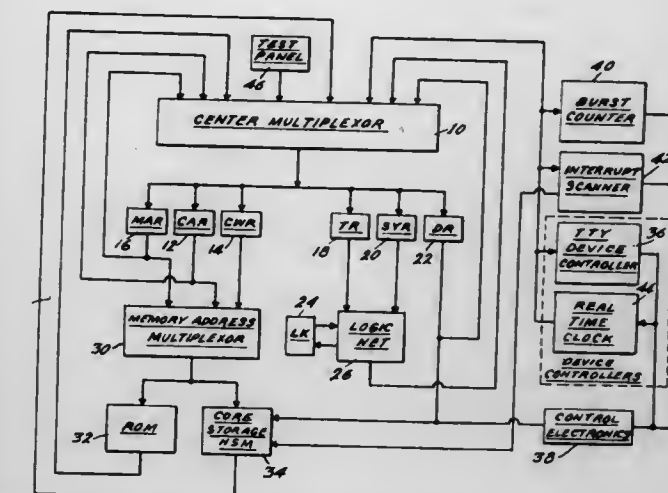
Int. Cl. G08c 15/00; H04j 3/00

U.S. Cl. 340—172.5

8 Claims

A data retrieval and processing system relies upon a center multiplexor and a memory address multiplexor in a system of registers and data processing means to both feed and receive both process information and operational data using internal programming stored within at least one memory and simple input control words and data, in response to which the center multiplexor provides internal switching between said aforementioned sources to provide information output. Priority

selection is provided in servicing terminals and gives immediate exclusive attention and direct memory access to a



particular urgent need exhibited through a selected control electronics.

3,832,695

PARTITIONING CIRCUIT EMPLOYING EXTERNAL INTERRUPT SIGNAL

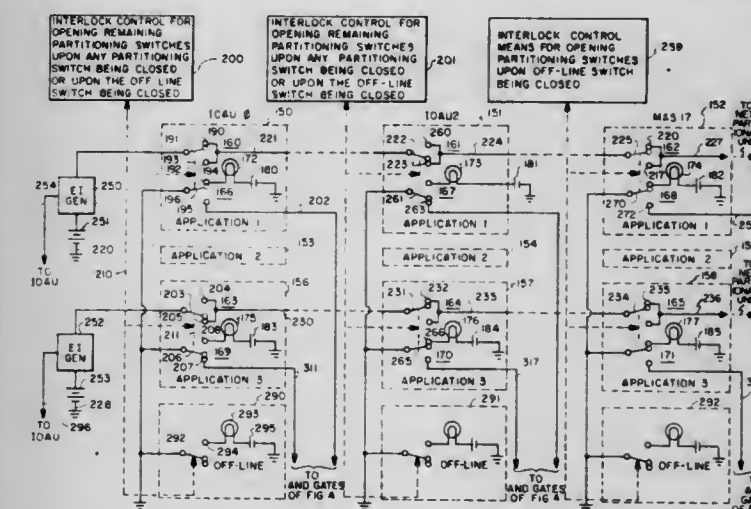
Frank C. Nickel, New Brighton, and James R. Swanson, Minneapolis, both of Minn., assignors to Sperry Rand Corporation, New York, N.Y.

Filed Nov. 6, 1972, Ser. No. 304,172

Int. Cl. G06f 9/18, 13/00

U.S. Cl. 340—172.5

6 Claims



Disclosed is a first switching means for combining and changing partitionable units in a data processing system to form partitioned systems each of which is assigned to a given application such as real time, batch or maintenance, and a second switching means coupled to said first switching means so that each time a partitioning change is made by said first switching means, the second switching means will be switched to generate an EI signal to automatically notify the processor of such change so that the necessary adaptive changes can be made without human intervention.

3,832,696

GENERAL PURPOSE SEQUENCE CONTROLLER

Hisaji Nakao; Katutoshi Naruse; Kazuhiko Hasegawa, all of Toyota; Sadao Kawade; Yasufumi Tokura, both of Kariya, and Kazuo Matsuno, Gifu, all of Japan, assignors to Toyota Koki Kabushiki Kaisha, Aichi-ken, Japan

Filed July 23, 1973, Ser. No. 381,622

Claims priority, application Japan, July 31, 1972, 47-76721

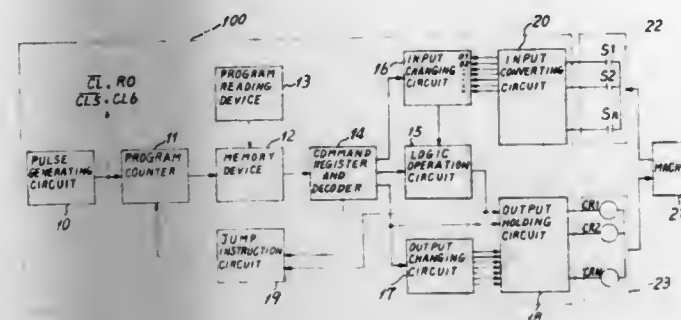
Int. Cl. G06f 15/46; G05b 11/32, 1/01

U.S. Cl. 340—172.5

5 Claims

A general purpose sequence controller wherein a schematic electric circuit diagram comprising a ladder network of circuit

lines disposed between two vertical bus lines is changeable and simulated by a special purpose control program. A logic operation circuit comprises first and second circuit means for examining an external input signal in accordance with examine commands of logical AND and OR functions, respectively, first and second memory means for temporarily



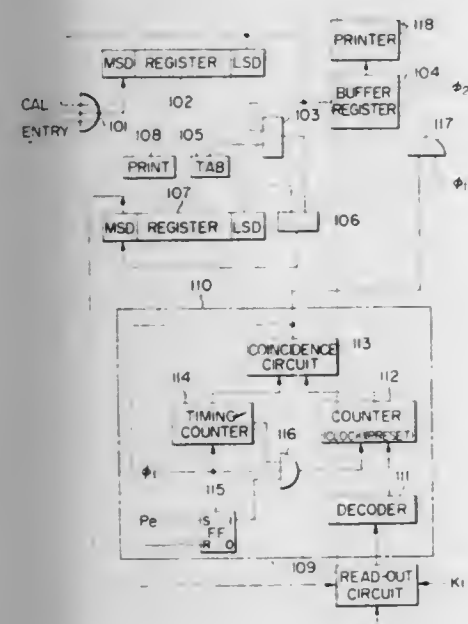
memorizing the examined results of the first and second circuit means, respectively, third memory means for temporarily memorizing the application of the examine command of the logical OR function, and identifying circuit means for identifying the examined results of the logic operations in accordance with the contents of the first, second and third memory means.

3,832,697

TABULATING SYSTEM

Toshio Kashio, Tokyo, Japan, assignor to Casio Computer Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 128,681, March 29, 1971, abandoned. This application Oct. 4, 1973, Ser. No. 403,526
Int. Cl. B41j 25/18
U.S. Cl. 340—172.5

5 Claims

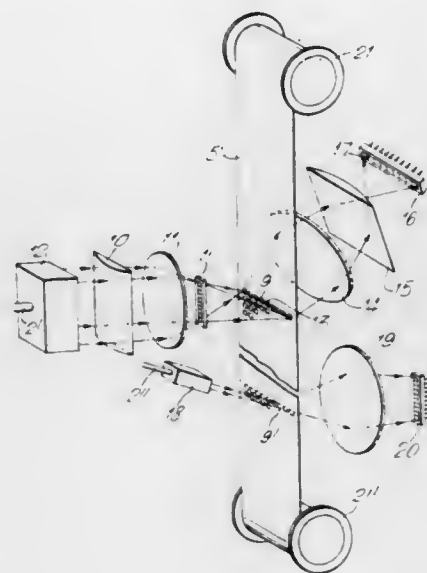


A tabulating unit is provided with a tabulating register for storing a predetermined tabulating information and a control unit which reads out the tabulating information and in response to the tabulating information, generates counting pulses so that information stored in an operation register may be automatically tabulated in accordance with the counting pulses, that is the preset number of digits may be printed out in each column of an account or the like.

3,832,698 HALOGRAPHIC MEMORY WITH RETRIEVAL BY CORRELATION

Akira Ishii, Kawasaki, Japan, assignor to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan
Filed Jan. 12, 1972, Ser. No. 217,157
Claims priority, application Japan, Jan. 20, 1971, 46-1326
Int. Cl. G11c 11/42; G02b 27/00
U.S. Cl. 340—173 LT

13 Claims



A method of correlation detection for obtaining a high identification ability in an optical information retrieval system for retrieving desired information from a hologram memory by checking the coincidence matching between an interrogation signal and the hologram memory contents by utilizing the correlation detection function of a hologram, and a device therefor. A coherent laser light is spatially modulated by an interrogating signal in a modulator and the output light of the modulator is deflected to scan the hologram memory. By coding both the interrogation signal and the hologram memory information in a 2 out of N code, an oscillatory output waveform is obtained during the scanning operation when the interrogation signal is coincident with the hologram memory information and a non-oscillatory output waveform is obtained when such a coincidence does not exist. The matching of the interrogating and interrogated information is determined by detecting the existence of an oscillatory waveform in the output signal. The information retrieval system comprises a hologram memory array storing the information to be retrieved, a spatial modulator for modulating laser light by an interrogation signal, a light deflector for scanning the hologram memory array by deflecting the output beam of the spatial modulator, a matching detector for detecting matching output, and high-pass filters for detecting the oscillatory component in the matching output.

3,832,699

MEMORY CONTROL CIRCUIT

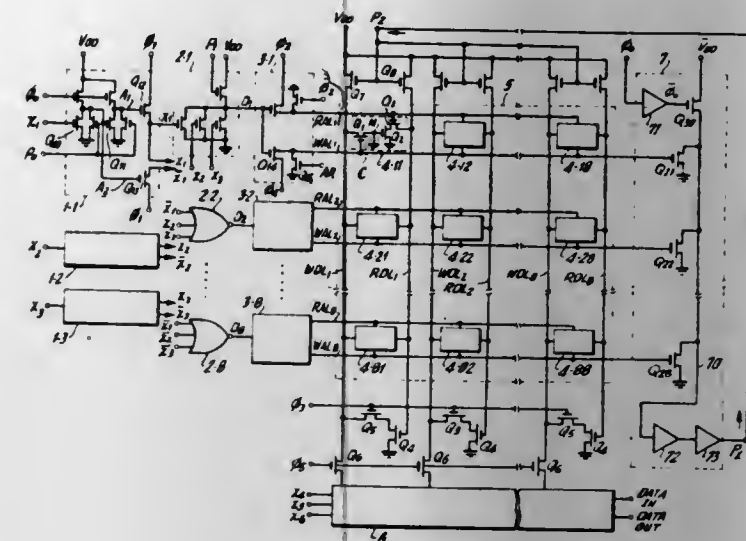
Shigeki Matsue, Tokyo, Japan, assignor to Nippon Electric Company Limited, Tokyo, Japan
Filed Sept. 18, 1973, Ser. No. 398,340
Claims priority, application Japan, Sept. 19, 1972, 47-94370
Int. Cl. G11c 11/40
U.S. Cl. 340—173 DR

5 Claims

A dynamic memory circuit in which the stored information is periodically refreshed includes a circuit for precharging the write digit lines of the memory circuit when an access signal is received from an external source. The precharge circuit in-

cludes circuit means which prevent the precharge of the write digit lines in response to an access signal while any of the write

along which the blocked domain adjusts its shape for movement to an alternate position to an alternate channel. A pulse



gates of the memory cells of the circuit are closed to prevent the destruction of the information stored in the memory cells.

3,832,700

FERROELECTRIC MEMORY DEVICE

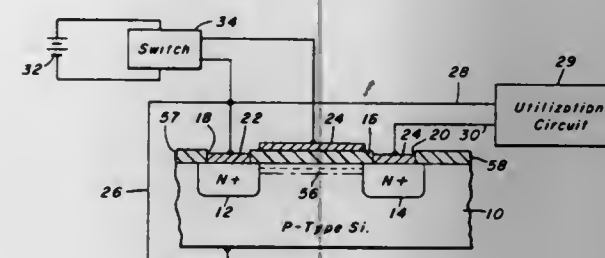
Shu-Yau Wu, and Maurice Hubert Francombe, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 24, 1973, Ser. No. 354,022

Int. Cl. G11c 11/22, 11/40

U.S. Cl. 340—173.2

8 Claims



A ferroelectric memory device utilizing the remanent polarization of a thin, ferroelectric film to control the surface conductivity of a bulk semiconductor and perform the memory function. The structure of the device is similar to a conventional MIS field effect transistor with the exception that the gate insulating layer is replaced by a thin film of active ferroelectric material comprising a reversibly polarizable dielectric exhibiting hysteresis.

3,832,701

TRANSFER CIRCUIT FOR SINGLE WALL DOMAINS

Andrew Henry Bobeck, Chatham, and Terence John Nelson, New Providence, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

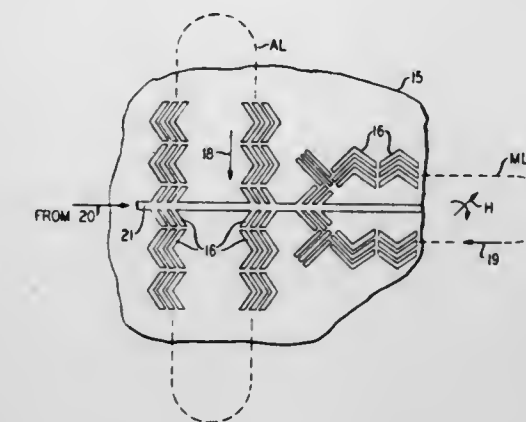
Filed Mar. 28, 1973, Ser. No. 345,511

Int. Cl. G11c 11/14

U.S. Cl. 340—174 TF

4 Claims

Transfer of a single wall domain from one channel to another is achieved by blocking the path of a domain to its next normal position to a manner to create a temporary path



on a properly disposed electrical conductor when formed with permalloy produces the desired operation.

3,832,702

LATCHING MEANS FOR SENSING APPARATUS

Nikolaus A. Szeverenyi, Warren, Pa., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

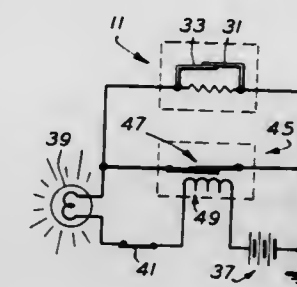
Continuation-in-part of Ser. No. 236,148, March 20, 1972.

This application Sept. 12, 1973, Ser. No. 396,873

Int. Cl. G08b 21/00

U.S. Cl. 340—244 R

8 Claims



A latching means for providing a steady electrical signal from a sensor device to a current indicating means in a sensing apparatus. The latching means, which may be energized by heat, light, or electrical current, assures a steady signal upon the initial engagement of the heat responsive means within the sensor device.

3,832,703

APPARATUS FOR DETECTING SIGNAL TRANSMISSION

Richard W. Lenert, and Edward A. Rose, Jr., both of Annandale, Va., assignors to LTV ElectroSystems, Inc., Greenville, Tex.

Continuation of Ser. No. 171,907, Aug. 16, 1971, abandoned.

This application June 4, 1973, Ser. No. 366,517

Int. Cl. G08b 21/00

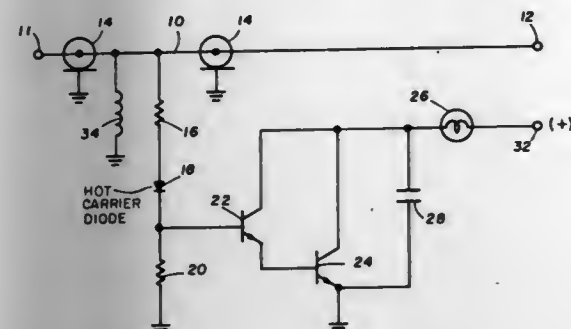
U.S. Cl. 340—248 R

4 Claims

A broadband coupler tied to a transmission line directs a portion of signal energy on the line to a diode signal detector. The signal detector responds to the energy directed from the transmission line through the coupler to produce a transmission signal current during the presence of a signal on the line. This transmission signal current activates a high input im-

pedance transistorized switch having an indicator lamp energized by the closing of the switch. Only during the transmis-

and restrained by a finger so that when released the activating unit automatically separates from the alarm device setting off a signal generator to produce continuous alarm signals.



sion of a signal and the energization of the indicator lamp does the circuit require energy from a supply source.

3,832,704

DUAL WIRE INTRUDER DETECTOR

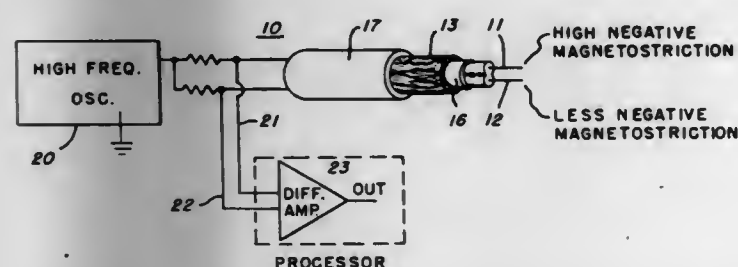
Vahram S. Kardashian, Plymouth Village, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 244,540, April 17, 1972, abandoned. This application June 19, 1973, Ser. No. 371,435

Int. Cl. G08b 13/22

U.S. Cl. 340-258 R

3 Claims



A perimeter security system comprising a strain sensitive line sensor in the form of dual magnetostrictive thin film plated wires having uniaxial anisotropy. The plated wire line sensor is preferably buried in a shallow trench or the like and detects intrusion in the vicinity of the line as the line sensor is stressed by the intruder causing a displacement of the earth. One of the dual plated wires is made to have a different degree of magnetostrictiveness than the other. The detection system is selectively sensitive to the motion of a mass on a surface, but tends to reject magnetic disturbances which effectively produce the same signal.

3,832,705

ALARM DEVICE

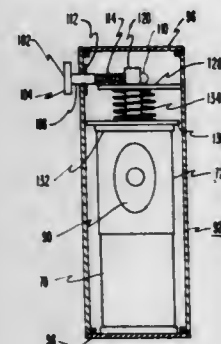
Barry B. King, 28 Gannett Rd., Victor, N.Y. 14564, and Ralph E. King, 68 F. Clintwood Ct., Rochester, N.Y. 14620

Filed June 14, 1973, Ser. No. 369,871

Int. Cl. G08b 15/00

U.S. Cl. 340-280

18 Claims



A personal security device that is readily carried by hand and that includes an alarm activating unit that can be preset

3,832,706
GAS DISCHARGE DISPLAY PANELS HAVING
CONDITIONING CELLS

Jean Phillippe Reboul, and Jacques Portmann, both of Paris, France, assignors to Thomson-CSF, Paris, France

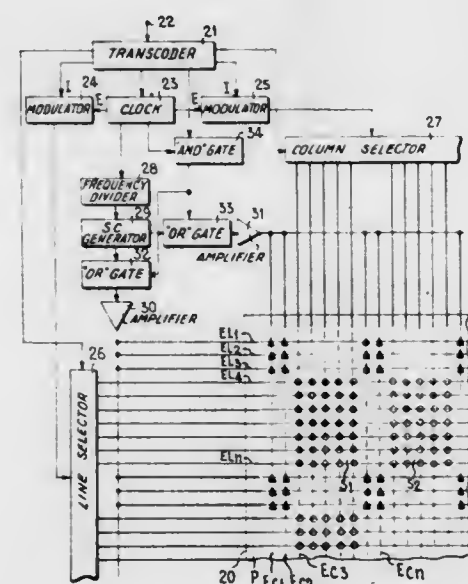
Filed Dec. 19, 1972, Ser. No. 316,463

Claims priority, application France, Dec. 23, 1971, 71.46397

Int. Cl. G09f 9/32

U.S. Cl. 340-324 M

4 Claims



A display system utilizing gas discharge display panels, with or without a matrix delimiting the display cells, wherein the panel is conditioned by "internal optical" conditioning, to permit the display cells to develop a very fast response. For this purpose, cells distributed over the whole of the surface of the panel are reserved for conditioning and are "illuminated" at a frequency sufficiently lower than the holding frequency of the display cells, not to disturb the observation.

3,832,707

LOW COST DIGITAL TO SYNCHRO CONVERTER

James E. Buchanan, Bowie, and Carl W. Nelson, Glen Burnie, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 30, 1972, Ser. No. 285,393

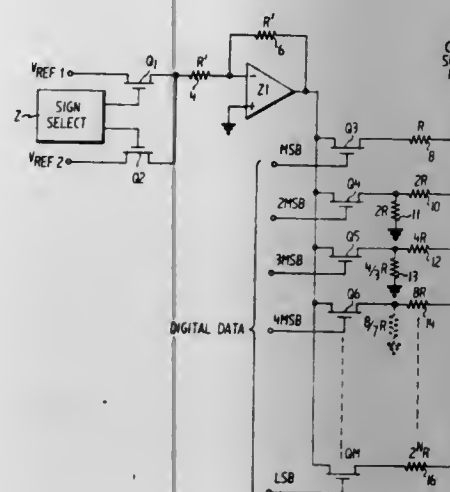
Int. Cl. H03k 13/04

U.S. Cl. 340-347 DA

13 Claims

A digital to analog (D/A) converter suitable for application to digital to synchro (D/S) conversion comprises serial MOS FET (Metallic Oxide Semiconductor-Field Effect Transistor) switches and an inverting amplifier, or buffer, to compensate for variations in FET resistance in the ON state. A reference voltage of a given polarity is gated ON in one FET and inverted in polarity in an amplifier with a gain of 1.0 for input to a bank of FET switches associated with a binary resistance network, accomplishing directly the conversion of digital data to an analog equivalent output. The reference voltage thereby gated in the first FET with one polarity is subsequently gated in the second FET switches, of the bank associated with the network, and with the opposite polarity, such that a nearly constant resistance path is afforded from the reference voltage to the output of the second FET switches. Employing identical FET switches throughout the D/A converter, the non-linear properties of the FET switches are compensated regardless of reference

voltage polarity. To improve further the accuracy of D/A conversion of the invention, an input resistance is selected for the inverting amplifier equal in value to the resistance of the most significant bit resistor. Compensating resistors af-



3,832,711

GUIDANCE SYSTEM

George H. Grant, Sudbury, and Joseph D. Hadad, Methuen, both of Mass., assignors to Raytheon Company, Lexington, Mass.

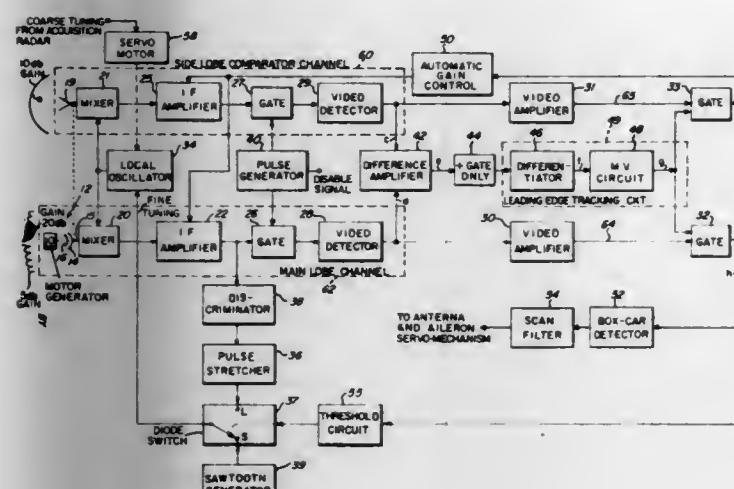
Filed Apr. 13, 1964, Ser. No. 360,174

Int. Cl. G01s 9/00, 9/02

U.S. Cl. 343—6 DF

17 Claims

image signals are generated and added to the doppler spectra and noise to provide the four composite signals which are then multiplexed and filtered to provide the final output. Gain control is provided for the various signals to simulate various flight conditions. Selection logic allows selecting a signal to test the post IF and tracker or tracker alone. All controls are adaptable to digital control so that comprehensive testing under control of a digital computer is possible.



17. A source locating system comprising:
a receiver means responsive to harmonics of radiating source signals for providing an error signal proportional to the location of said source with respect to said receiver means;
and an acquisition radar receiver means for selecting a radiating source and providing source discrimination signals to said receiver means.

3,832,712

DOPPLER SIGNAL SIMULATOR

Philip J. Goetz, Pleasantville, N.Y., and Kaya Erk, Ankara, Turkey, assignors to The Singer Company, Little Falls, N.J.

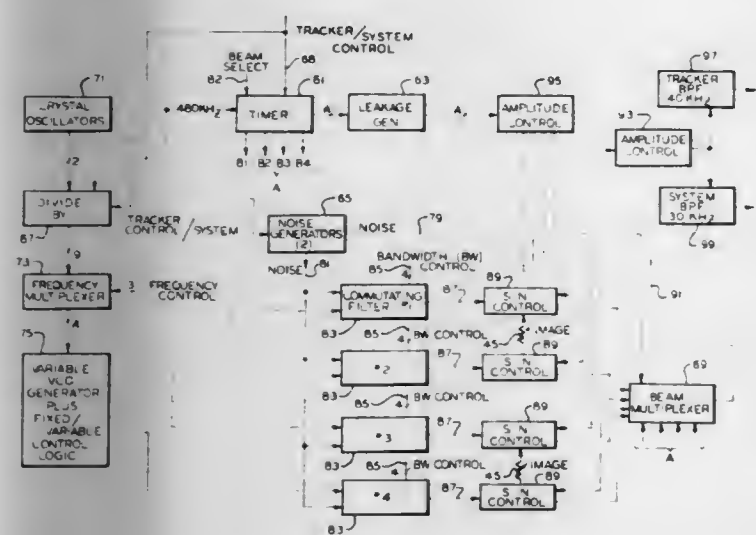
Filed Feb. 15, 1973, Ser. No. 332,742

Int. Cl. G01s 7/40

U.S. Cl. 343—17.7

33 Claims

Apparatus for phase shifting between radiating elements of an antenna array by utilizing the inherent phase difference existing between frequency locked oscillators. Power from a master oscillator is injected into a plurality of slave oscillators, each of which feeds a different radiating element. The slave output is also fed through a directional coupler into a phase comparator which receives a comparison output signal from the master oscillator. The comparator output and a DC phase reference voltage are applied to a differential amplifier whose output forces the free-running frequency of the slave oscillator to change until the comparator output equals phase reference voltage.



A doppler signal simulator in which a composite doppler spectra including background noise, signal, leakage signal, and image beam signals simulating, in proper sequence, each of the four beams of a doppler navigation system is shown. White noise is generated digitally to provide background noise, and to obtain the doppler return spectra by filtering with digital commutating filters controlled by a plurality of center frequencies generated by logic circuits. Leakage and

3,832,714
WINDSHIELD ANTENNA

Frederick Antony Cleminson, London, and Brian Arthur Ariss, Birmingham, both of England, assignors to Triplex Safety Glass Company Limited, London, England

Filed Nov. 13, 1973, Ser. No. 415,487

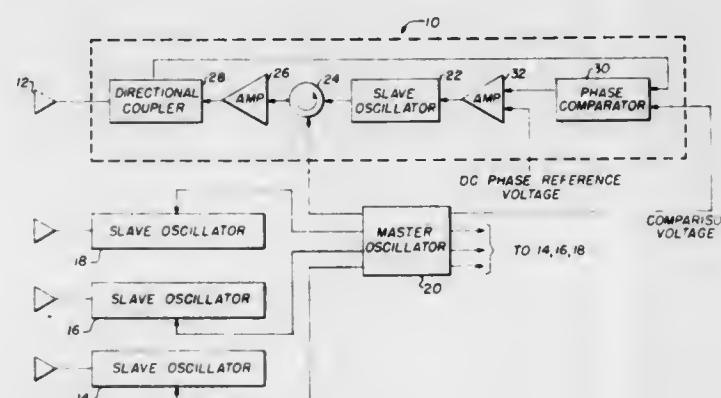
Claims priority, application Great Britain, Nov. 14, 1972, 52577/72

Int. Cl. H01q 1/32

U.S. Cl. 343—713

15 Claims

A vehicle windscreen is provided with electrical antenna conductors in the form of a row of open loops connected to at least one straight horizontal arm. The loops lie in an area corresponding to the rear view mirror position. In situ in a vehicle the loops do not project below the lower edge of the rear view mirror and the loop do not project beyond the lateral edge of



3,832,713

MICROWAVE PHASE SHIFTING APPARATUS

David Rubin, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

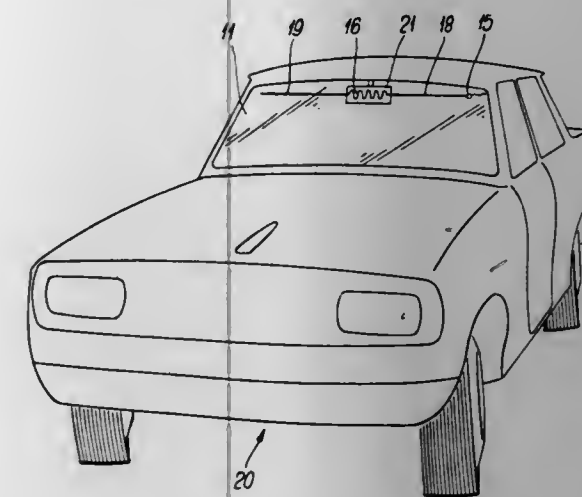
Filed Mar. 1, 1973, Ser. No. 337,045

Int. Cl. H01q 3/26

U.S. Cl. 343—100 SA

4 Claims

the mirror. Between three and 12 loops may be provided and they may be connected to a second horizontal conductor arm.



A vertical conducting arm may also be connected to the row of loops. The conductors may lie on the inner surface of the windscreen.

3,832,715

WIDE ANGLE SCANNING AND MULTIBEAM SINGLE REFLECTOR

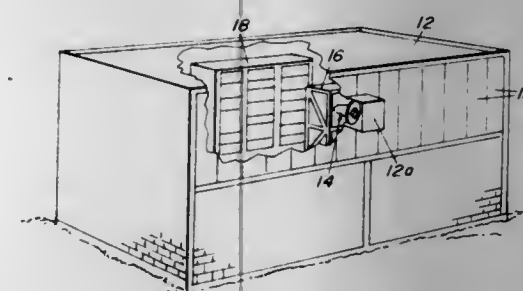
Mostafa S. Affi, Rockville, and Allan Jacobs, Potomac, both of Md., assignors to Page Communications Engineers, Inc., Washington, D.C.

Filed Sept. 23, 1971, Ser. No. 183,026

Int. Cl. H01q 3/12

U.S. Cl. 343—761

10 Claims



An antenna reflector system wherein the reflector remains fixed during scanning operations and the feed, which is located in a protective equipment shelter remote from the reflector, is moved on a special trajectory in order to provide the required scanning with minimal degradation in gain. A feed positioner provides the requisite movement of the feed along x-, y- and z- axes. The reflector is preferably in the form of a shallow, offset parabola.

3,832,716

RADIO FREQUENCY SLOT ANTENNA

Troy E. Plunk, Bedford, and Richard J. Laramée, Dedham, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed May 23, 1973, Ser. No. 363,238

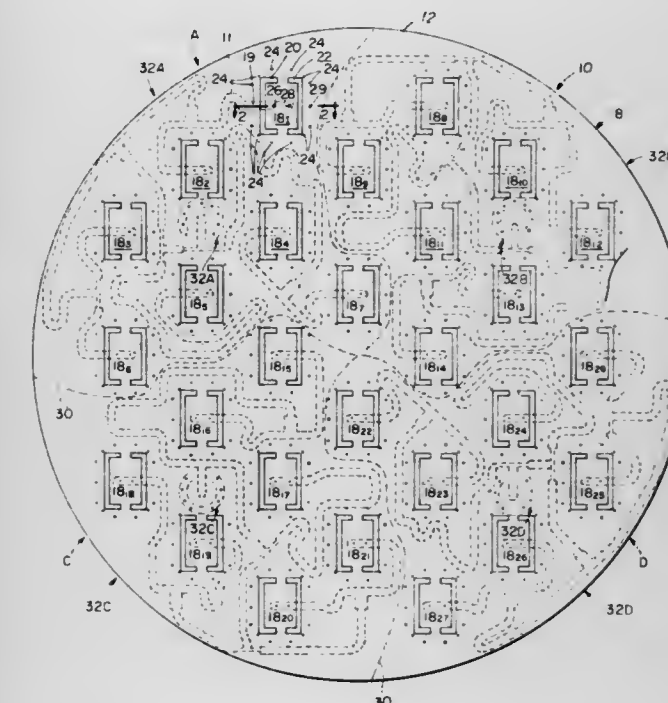
Int. Cl. H01q 13/10

U.S. Cl. 343—770

11 Claims

A stripline slotted array antenna is disclosed wherein the radiating efficiency and bandwidth are improved by including

in each radiating element a pair of adjacent radiating slots. The antenna includes center conductor circuitry separated from a pair of ground plane elements, one of which is the radiating face of the antenna and one of which is the back plate of the antenna. The pair of slots is formed in the radiating face of the antenna. The pair of radiating slots is disposed adjacent to an end portion of the center conductor circuitry, one being coupled to an electric field existing between the end



3,832,717

DISH REFLECTOR FOR A HIGH GAIN ANTENNA

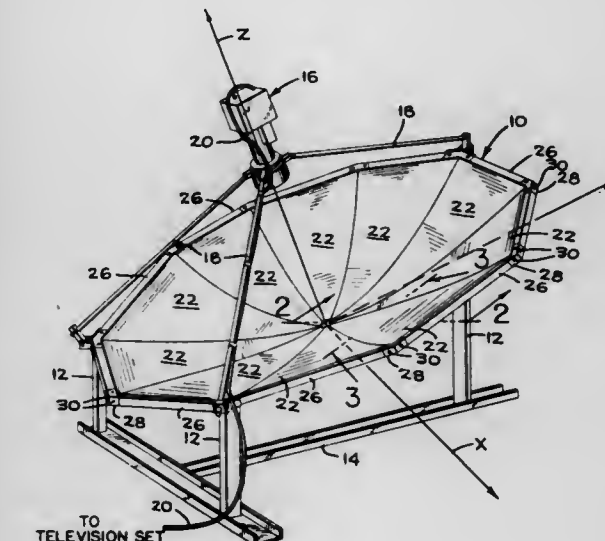
Robert B. Taggart, Jr., 575 So. Rengstarff Ave., Apt. 95, Mountain View, Calif. 94040

Filed Mar. 3, 1972, Ser. No. 231,673

Int. Cl. H01q 15/20

U.S. Cl. 343—840

6 Claims



A dish reflector for a high antenna formed by a plurality of generally triangular petals joined edgewise to form a quasi-paraboloid configuration.

3,832,718

NON-IMPACT, CURIE POINT PRINTER

Ami E. Berkowitz, Schenectady, and William H. Meiklejohn, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 19, 1973, Ser. No. 325,064

Int. Cl. G01d 15/12; G02b 17/00; H01v 3/04

U.S. Cl. 346—74 MT

13 Claims

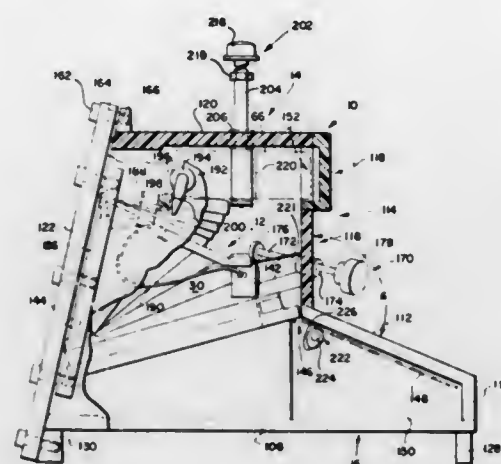
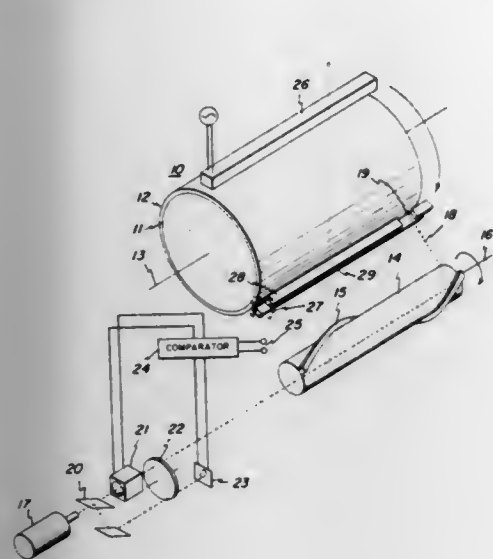
3,832,720
UNDERWATER CAMERA HOUSING WITH MEANS FOR MANIPULATING A FLASH UNIT

Russell P. Cook, Key Biscayne, Fla., assignor to Polaroid Corporation, Cambridge, Mass.

Filed July 9, 1973, Ser. No. 377,604

Int. Cl. G03b 17/08

15 Claims



An underwater housing for receiving a camera which is adapted to utilize a multi-lamp flash unit. The housing includes a control device for manipulating the flash unit from a position exteriorly of the underwater housing.

3,832,721

LOCKOUT MECHANISM FOR AUTOMATIC TRIM ASSEMBLY RETURN MECHANISM

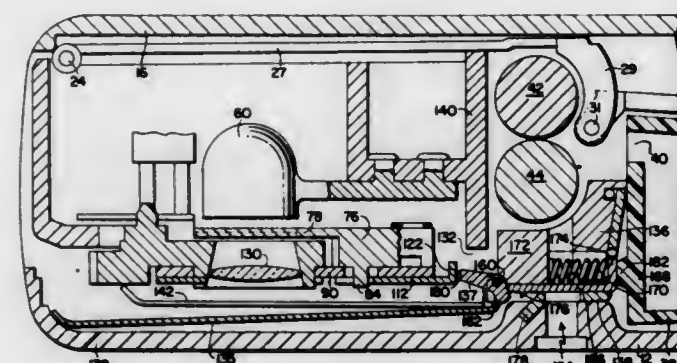
Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 3, 1973, Ser. No. 420,914

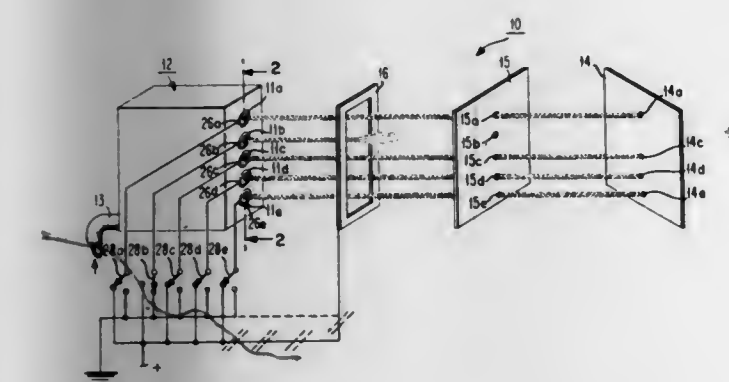
Int. Cl. G03b 19/04, 19/18

U.S. Cl. 354—21

27 Claims



A lockout mechanism for an automatic normal return mechanism for a manually adjustable trim assembly is provided. In a preferred embodiment, the lockout mechanism is employed in conjunction with a foldable camera having an automatic exposure control system. The camera includes a number of housing members interconnected for movement between erected and folded configurations. The automatic normal return mechanism is disposed within one of the housing members and operates in response to return of the camera to its folded configuration. The lockout mechanism precludes the return of the trim assembly to its normal position when the film being used within the camera requires a given trim setting to correct for specific exposure parameters due to film speed variations.



A plurality of nozzles are connected to a common manifold supplying ink under pressure. Individual nozzle electrodes are either grounded or connected to a source of potential. A common loop electrode between the nozzles and a document is connected to a source of potential. Streams from grounded nozzles are dispersed into a mist which is blocked by a shield having orifices aligned with the nozzles so as to provide selective printing for a matrix type printer.

3,832,719

MODIFIED DIFFUSED INK JET PRINTER

Johann H. Meier, and Walter T. Pimbley, both of Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 21, 1972, Ser. No. 246,192

Int. Cl. G01d 15/18

U.S. Cl. 346—75

1 Claim

3,832,722

APPARATUS AND SYSTEM FOR FLASH PHOTOGRAPHY
Lawrence M. Douglas, South Easton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 168,671, Sept. 3, 1971, abandoned.

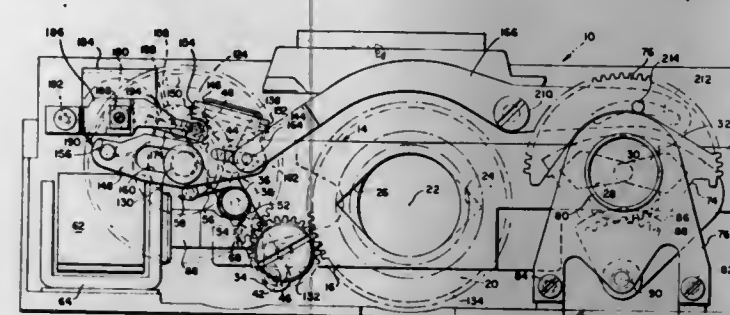
This application Mar. 15, 1973, Ser. No. 341,730

Int. Cl. G03b 7/16

U.S. Cl. 354—29

57 Claims

U.S. Cl. 354—63



An exposure control mechanism featuring a follow-focus mechanism. This mechanism includes a face-groove cam mounted upon a focus adjusting wheel along with a cam follower mounted upon a focus adjusting wheel along with a cam follower mounted co-pivotaly therewith. By adjusting the radial orientation of the cam follower, the follow-focus mechanism may be selectively trimmed.

3,832,723

EXPOSURE CONTROL DEVICE FOR PHOTOGRAPHIC CAMERAS

Werner Nickel, Sinn, Germany, assignor to Ernst Leitz GmbH, Westlar, Germany

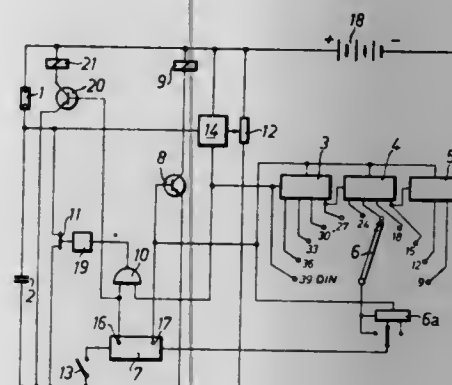
Filed Apr. 19, 1973, Ser. No. 352,652

Claims priority, application Germany, Apr. 21, 1972, 2219523

Int. Cl. G03b 7/08

U.S. Cl. 354—51

3 Claims



A photographic camera having a shutter, a shutter opening mechanism, a shutter closing mechanism, an exposure control device depending on the charged state of an RC circuit with a photoconductor cell therein exposed during film exposure, and wherein a threshold limit switch is connected after the RC circuit, a first electromagnet is inserted in the output circuit of the limit switch, and this magnet actuates the shutter closing mechanism. The exposure control device is improved by having therein means for digital counting connected between the limit switch and the first electromagnet for selecting film sensitivity, the outputs of the counting means being selectively connectable with circuit elements which vary the current supply to the first electromagnet and simultaneously short circuit the charging capacitor of the RC circuit.

3,832,724

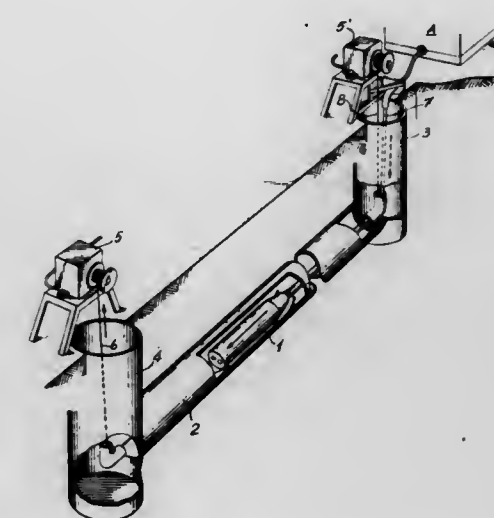
VIDEO PHOTO RECORDING DEVICE FOR THE INSPECTION OF THE INTERIOR OF PIPES

Mark Duval, St-Bruno De Montarville, Quebec, Canada, assignor to Sanitank Inc., Montreal, Canada

Filed May 18, 1973, Ser. No. 361,659

Int. Cl. G03b 17/08

6 Claims



This invention relates to an inspecting device specially adapted for detecting and locating defects or the like in the interior of a pipe. The device comprises a video camera and a film camera enclosed in a watertight housing which also carries lamps at the front end thereof for adequately illuminating the interior of the pipe. The device is pulled through the pipe by winches and as inspection progresses the interior thereof is continuously observed at a remote location on a TV monitor associated with the video camera and each time a defect or the like is noted a picture is taken by the film camera.

3,832,725

UNDERWATER HOUSING FOR ENCLOSING PHOTOGRAPHIC APPARATUS

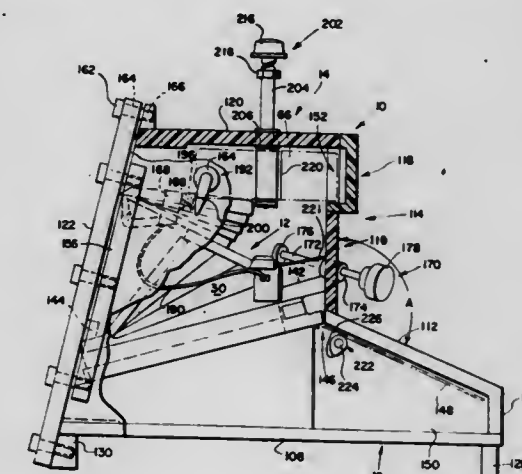
Russell P. Cook, Key Biscayne, Fla., assignor to Polaroid Corporation, Cambridge, Mass.

Filed July 9, 1973, Ser. No. 377,605

Int. Cl. G03b 17/08

U.S. Cl. 354—64

30 Claims



An underwater housing for use with a "self-developing" camera of the type including a mechanism for advancing a film unit from a position within the camera, through an exit opening, and along a film path of travel outside of the camera. The housing encloses both the camera and the external film path of travel and features a transparent port through which the film unit may be observed.

3,832,726

COLLAPSIBLE CAMERA

Patrick L. Finelli, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

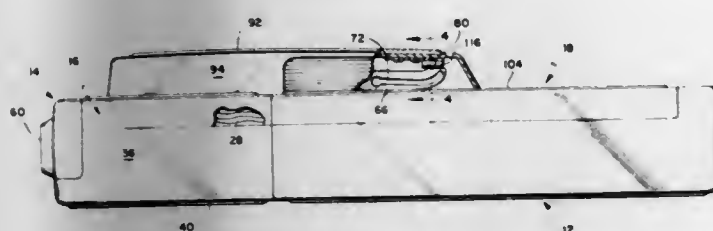
Filed Apr. 23, 1973, Ser. No. 353,901

Int. Cl. G03b 17/04

U.S. Cl. 354-187

6 Claims

U.S. Cl. 354-210



A camera having a plurality of housing sections coupled to each other for movement between an extended operative position and a collapsed inoperative position. First and second housing sections are adapted to be located in face-to-face relation when the camera is in the collapsed position and a third housing section is provided with a resilient member which is adapted to be compressed during movement of the camera housing sections into the collapsed position to provide a resilient force for urging the second housing section into face-to-face relation with the first housing section.

3,832,727

PHOTOGRAPHIC CAMERA HAVING AN INTERNALLY MOUNTED OBJECTIVE LENS

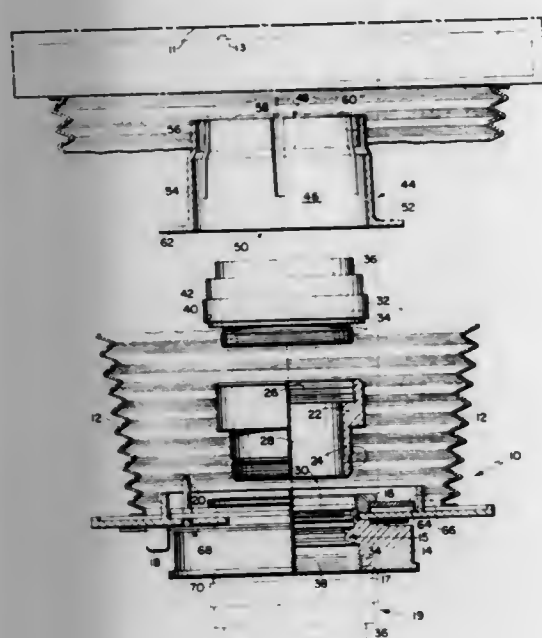
Myron A. Seiden, Needham, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Aug. 16, 1973, Ser. No. 389,008

Int. Cl. G03b 3/00

U.S. Cl. 354-196

10 Claims



A photographic camera characterized in having its objective lens mounted behind the camera shutter and within the collapsible bellows interfaced between the shutter and the camera's film plane. The camera aperture, located within the lens housing, is fully adjustable due to an actuating mechanism placed between the lens housing and an adjustment indicator located outside the bellows. Configured as such, the camera provides an optimized design for extreme image reduction of a full baseboard view upon a relatively small film format.

3,832,728

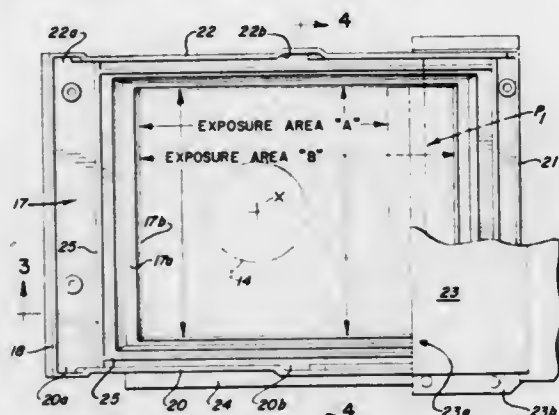
CAMERA ACCOMMODATING TWO SIZES OF FILM

Edwin E. Faris, Wyckoff, and Charles J. Hertling, Bloomfield, both of N.J., assignors to Berkey Photo, Inc., Paramus, N.J.

Filed July 3, 1972, Ser. No. 268,573

Int. Cl. G03b 19/02

5 Claims



A camera is provided which is adapted to accommodate rectangular film packets or cartridges of two different sizes. The end wall dimension of each packet is substantially the same and the smaller packet is provided with unique exterior protuberances formed along the elongated sides thereof. The camera includes an opaque housing with a lens mounted on the front end thereof, and a film packet holder affixed to the interior of the housing and spaced rearwardly of the lens. The holder comprises a frame which delimits a rectangular area, the latter being in registered relation with the optical axis of the lens. The delimited rectangular area is adapted to accommodate either size packet. The sides of the frame, defining the elongated sides of the area, have formed therein recesses which are adapted to receive the exterior protuberances of the smaller size packet when the latter is accommodated in the holder. The relative location of the recesses on the frame insures proper positioning of the small size packet with respect to the optical axis of the lens. The spacing between the narrow sides of the rectangular area is such that the larger size packet will snugly fit therebetween.

3,832,729

IMAGE DIVIDING MECHANISM IN PHOTOGRAPHIC CAMERAS FOR UNPERFORATED ROLLFILM

Lave Tenne, Norrbyvallda, Sweden, assignor to Fritz Victor Hasselblad, Goteborg, Sweden

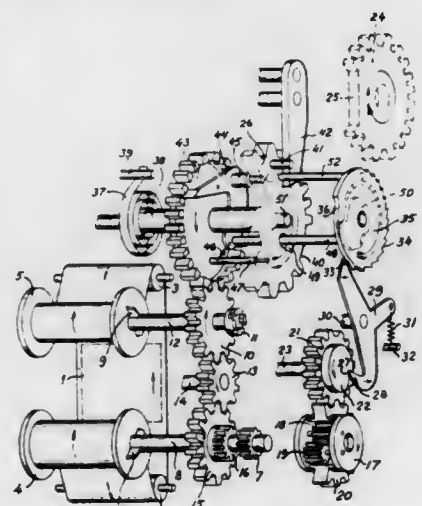
Filed Nov. 15, 1972, Ser. No. 306,660

Claims priority, application Sweden, Nov. 26, 1971, 15141/71

Int. Cl. G03b 17/28

U.S. Cl. 354-213

5 Claims



Apparatus for controlling the advance of unperforated roll-film in a camera from a supply spool to a take-up spool. Film

advancing means is provided to rotate the take-up spool by an amount which at least equals the maximum rotation of the spool required to advance the film according to the preselected spacing between successive exposures on the film. A differential responds to rotation of both the supply and the take-up reels and provides an output which indicates the extent of rotation of both the spools. The differential provides a distinctive output when the output of the differential attains a predetermined magnitude, and this output terminates further advancing of the film.

3,832,730

APPARATUS FOR PROCESSING PHOTOGRAPHIC FILMS

Erwin Geyken; Gerhard Schwarzmaier, and Peter Dawidowitsch, all of Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

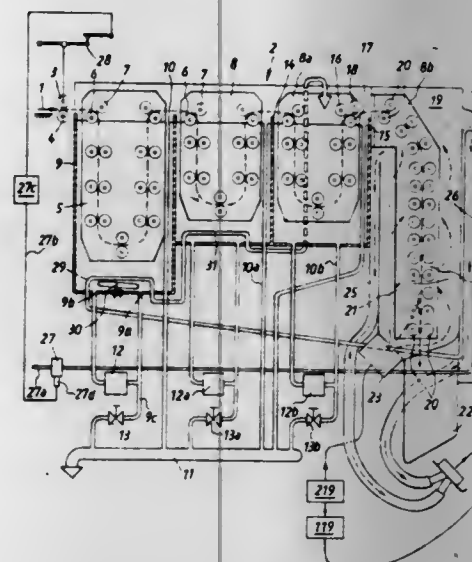
Filed Sept. 4, 1973, Ser. No. 393,834

Claims priority, application Germany, Sept. 2, 1972, 2243276

Int. Cl. G03d 3/00

U.S. Cl. 354-299

13 Claims



A processing apparatus wherein a dryer follows a first vessel for a supply of developing solution, a second vessel for a fixing bath and a third vessel for a rinse bath. The duct for evacuation of spent gaseous fluid from the dryer contains a heat exchanger whose coil conveys a stream of fresh water which is heated in the coil prior to entering additional heat exchangers in the first two vessels. The additional heat exchangers heat the respective liquids and the last additional heat exchanger discharges heated water into the rinse bath. The vessel for developing solution further contains a thermostatically controlled heating unit. The heat exchanger in the dryer receives unheated water from a supply pipe through a valve which is opened in automatic response to admission of films into the first vessel and remains open as long as at least one film travels between the inlet of the first vessel and a receptacle which receives films from the dryer.

3,832,731

PHOTOGRAPHIC FILM ASSEMBLY

Gordon F. Kinsman, Billerica, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 26, 1973, Ser. No. 354,735

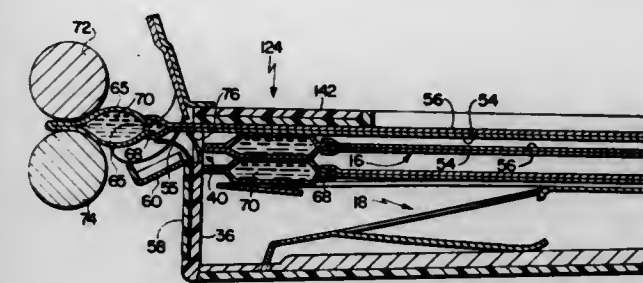
Int. Cl. G03b 19/10

U.S. Cl. 354-304

31 Claims

A photographic film assembly including a container, at least one "self-developing" film unit within the container

which is adapted to be exposed and then treated with a fluid processing composition, and structure associated with the



container, so as to form an integral part of the assemblage, for controlling the distribution of the fluid within the film unit during treatment.

3,832,732

LIGHT-ACTIVATED LATERAL THYRISTOR AND AC SWITCH

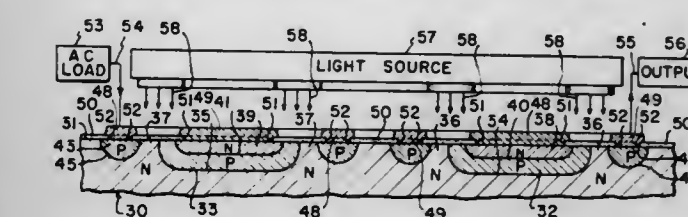
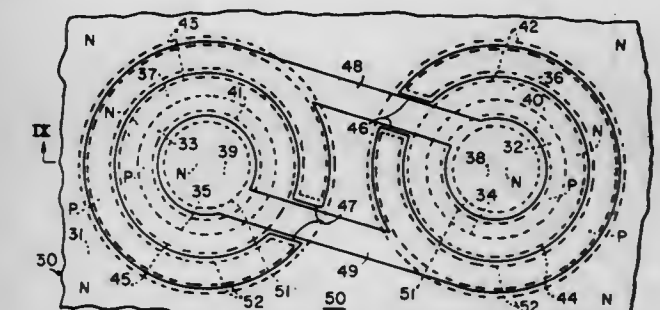
John S. Roberts, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 11, 1973, Ser. No. 322,831

Int. Cl. H011 15/00

U.S. Cl. 357-19

9 Claims



A light-activated thyristor or ac switch is provided in a semiconductor body with the emitter and base regions adjoining the same major surface. The central PN junction between the base regions has shallow impurity concentration gradients less than about 1×10^{22} per cm^4 and preferably less than about 1×10^{20} per cm^4 . Preferably the base regions have surface impurity concentrations between about 2×10^{15} and 1×10^{16} per cm^3 and surface widths substantially equalizing the gains of the equivalent transistors of the structure. The PN junctions may be interwoven, substantially linear, and/or offset to provide a higher power, and/or more uniform current distribution in the device.

3,832,733

MANUAL INPUT RECORDATION OF DATA AND COMPLEMENT

Brice Eldridge, New York, N.Y., assignor to Telewave Systems, Inc., New York, N.Y.

Continuation of Ser. No. 236,262, March 20, 1972, abandoned. This application Sept. 12, 1973, Ser. No. 396,476

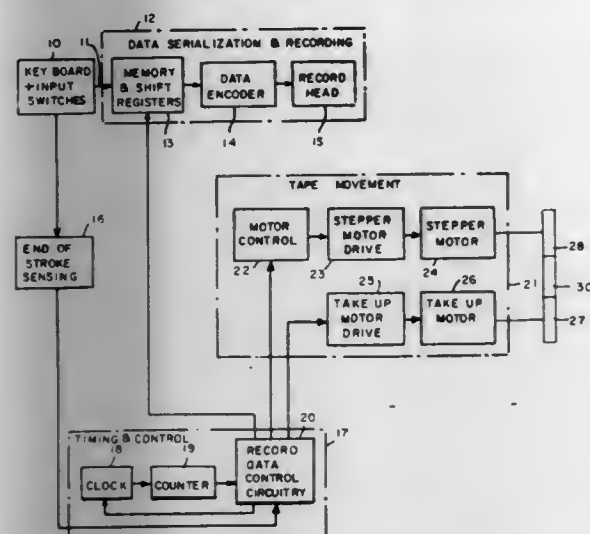
Int. Cl. G11b 5/02

U.S. Cl. 360-4

19 Claims

A recording mechanism and method for providing data and data signals representative of the depression or non-depres-

sion of a plurality of keys of a keyboard of a shorthand machine, said mechanism including means for detecting and storing in parallel information representing the depression or non-depression of said keys, means for sensing the completion



of a stroke of said keys and means responsive to the sensing of the end of the stroke to serially shift out the stored parallel information to generate and record data and data signals on a movable recording media.

3,832,734

CASSETTE LOADING AND UNLOADING APPARATUS

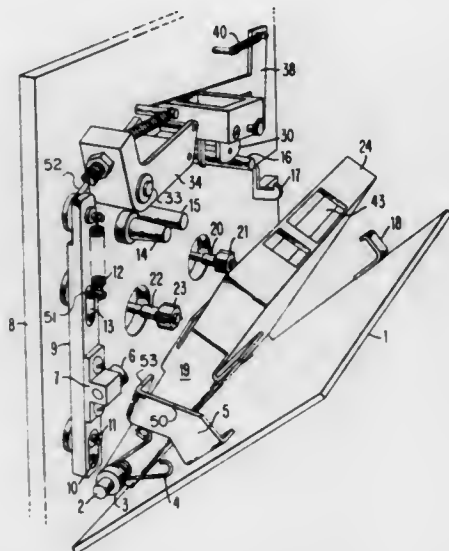
Lloyd K. Childress, Jr.; George B. Flippen, Jr., and Louis M. McDaniels, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 3, 1972, Ser. No. 268,239
Int. Cl. G11b 5/00, 15/32, 23/04

U.S. Cl. 360-96

10 Claims

A loading, unloading and recording apparatus for a magnetic tape cassette. The apparatus is made up of a cassette

hopper which is pivotable for properly positioning a cassette in communicating relationship with a retractable read/write head and pinch roller mechanism. Pivotable on the same axis is a loading door which is spring biased away from the hopper. Partial closing of the door will result in the proper positioning of the cassette, while complete closing and latching of the door will actuate the retractable mechanism for inserting a



read/write head and pinch roller into the cassette. When the cassette is to be unloaded, the door is unlatched and the spring causes the door to open. During the first extent of travel of the door in opening the read/write head and pinch roller are withdrawn from the cassette while the cassette is maintained in position. Thereafter, the door continues pivoting to its completely open position and the hopper pivots to an unloading position for removal of the cassette.

DESIGNS

AUGUST 27, 1974

232,496

THIGH PAD

John H. Rawlings, Ava, Mo., assignor to Questor Corporation, Toledo, Ohio
Filed Dec. 6, 1971, Ser. No. 205,455
Term of patent 14 years
Int. Cl. D2-02

U.S. Cl. D2-27

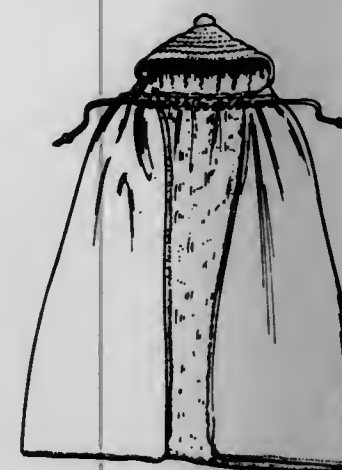


232,497

HOODED CAPE

Elleen F. Busse, R.R. 4, Knox, Ind. 46534
Filed June 19, 1972, Ser. No. 263,845
Term of patent 14 years
Int. Cl. D2-02

U.S. Cl. D2-179

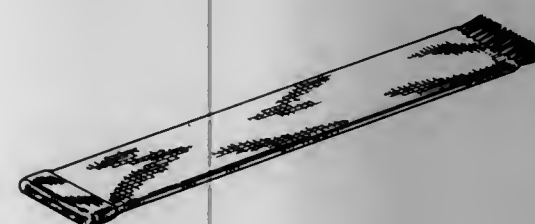


232,498

SCARF

Frank P. Cianciolo, 138 Whitfield St., Guilford, Conn. 06437
Filed Aug. 14, 1972, Ser. No. 280,147
Term of patent 7 years
Int. Cl. D2-03

U.S. Cl. D2-358

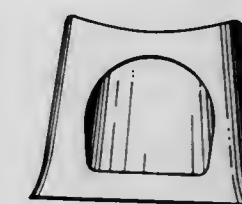


232,499

STOOL

Arnold C. Martinelli, Lake Shore Drive, Rawdon, Quebec, Canada
Filed Nov. 27, 1972, Ser. No. 309,652
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D6-33



232,500

HANGING CHAIR

Helen N. McGreevy and Joe E. Cotta, both of 77 Estabrook St., San Leandro, Calif. 94577
Filed Feb. 12, 1973, Ser. No. 331,668
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D6-47



232,501

CHAIR

Giuseppe Longato, Via Makalle, 19, Padova, Italy
Filed May 26, 1972, Ser. No. 257,477
Term of patent 7 years
Int. Cl. D6-01

U.S. Cl. D6-66

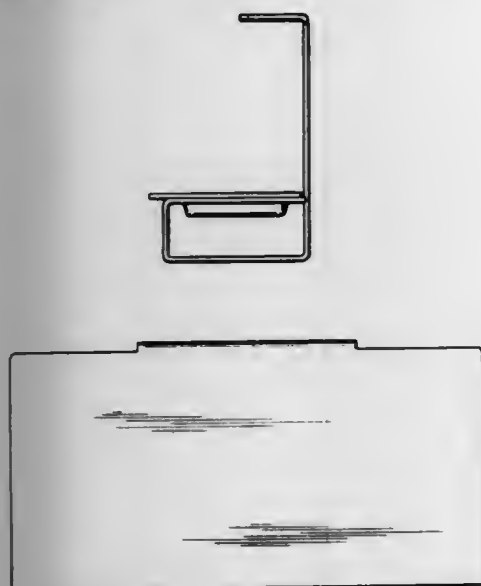


232,502

UTILITY STAND

Joseph P. Richterich, Carouge, Switzerland, assignor to
Prodonta S.A., Geneva, Switzerland
Filed Sept. 25, 1972, Ser. No. 291,577
Claims priority, application Switzerland May 24, 1972
Term of patent 14 years
Int. Cl. D6—06; D24—99

U.S. Cl. D6—130

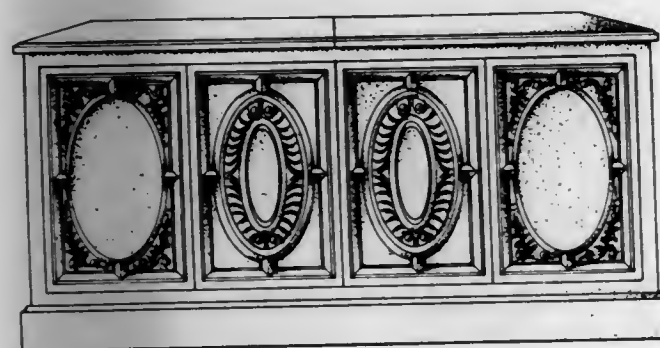


232,503

CABINET

Robert Levine, Roslyn, N.Y., assignor to
Capehart Corporation, New York, N.Y.
Filed July 18, 1972, Ser. No. 272,982
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—154

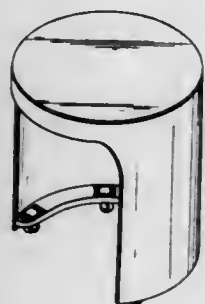


232,504

TABLE

Harry Bartley Archinal, Chester Springs, Pa. 19425
Filed Dec. 27, 1972, Ser. No. 319,028
Term of patent 7 years
Int. Cl. D6—03

U.S. Cl. D6—177

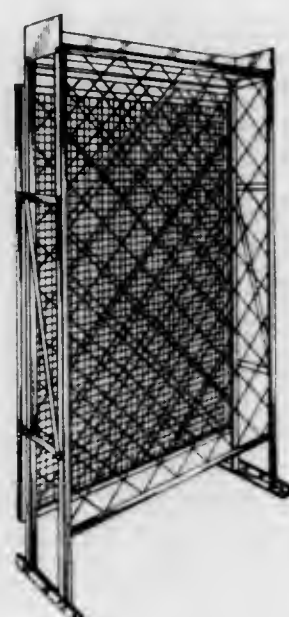


232,505

WINE STORAGE RACK

Harrison R. Steeves, Jr., Birmingham, Ala., assignor to
The Rack Specialty Company
Filed Sept. 5, 1972, Ser. No. 286,460
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—188

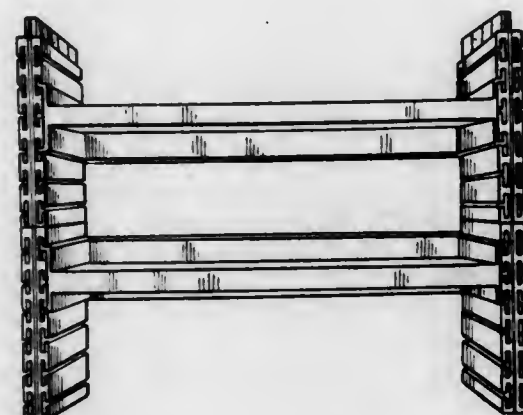


232,506

COMPONENTIAL BOOKCASE

Sergio Mazza, Piazza Firenze 15, Milan, Italy
Filed Mar. 1, 1971, Ser. No. 119,984
Claims priority, application Italy Sept. 4, 1970
Term of patent 7 years
Int. Cl. D6—04

U.S. Cl. D6—184

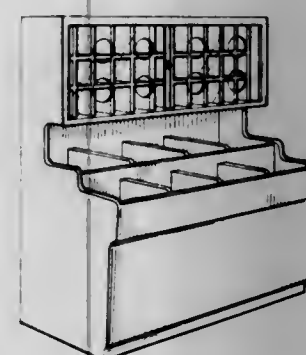


232,507

COMBINED PHONOGRAPH RECORD AND TAPE
CARTRIDGE STORAGE RACK

Joel A. Cheek, Charlotte, N.C., assignor to
Universal Enterprises, Inc., Charlotte, N.C.
Filed Aug. 21, 1972, Ser. No. 282,485
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—189

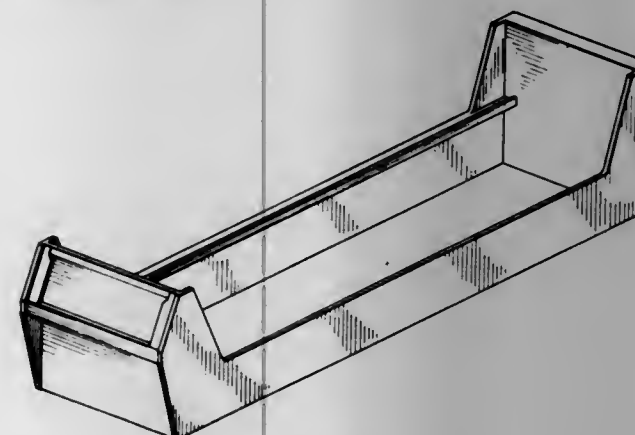


232,508

CARD DRAWER

David M. Wright, Shrewsbury, Mass., assignor to
Barry Wright Corporation, Watertown, Mass.
Filed Oct. 5, 1972, Ser. No. 295,197
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D6—199



232,509

PILLOWCASE OR SIMILAR ARTICLE
OF BED LINEN

Nancy Ann Scherer, Plainfield, N.J., assignor to
Cannon Mills Company, Kannapolis, N.C.
Filed Nov. 2, 1972, Ser. No. 303,120
Term of patent 14 years
Int. Cl. D6—13

U.S. Cl. D6—264

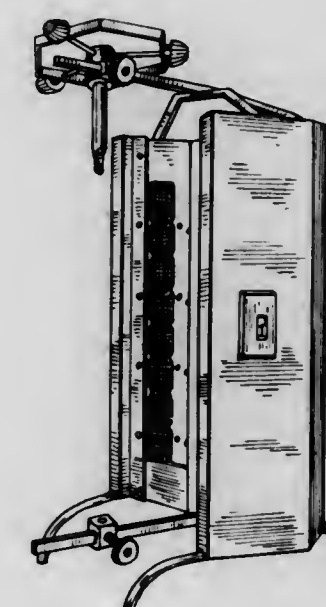


232,510

VERTICAL COOKING DEVICE

Chris Liakouras and William Liakouras, both of
314 S. Halsted St., Chicago, Ill. 60606
Filed June 19, 1972, Ser. No. 264,143
Term of patent 14 years
Int. Cl. D7—02

U.S. Cl. D7—110

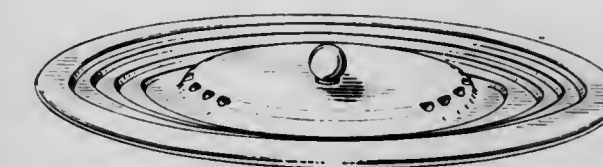


232,511

COVER FOR COOKING PANS
OR THE LIKE

Milton L. Heiser, Wayzata, and David Eriksen, Minne-
apolis, Minn., assignors to Flingerhut Corporation,
Minnetanka, Minn.
Filed Nov. 15, 1972, Ser. No. 306,934
Term of patent 14 years
Int. Cl. D7—02

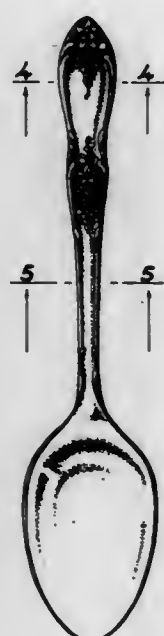
U.S. Cl. D7—131



232,512

SPOON OR SIMILAR ARTICLE
Melvin A. Lea, Skenendoah Drive, R.D.,
Oneida, N.Y. 13421
Filed Jan. 15, 1973, Ser. No. 323,845
Term of patent 14 years
Int. Cl. D7—03

U.S. Cl. D7—137



232,514

**WALL MOUNTABLE OUTLET RECEPTACLE FOR
A VACUUM CLEANING SYSTEM**
Jacob C. Mol, Grand Rapids, Mich., assignor to
Wal Vac, Inc., Grand Rapids, Mich.
Filed Jan. 17, 1972, Ser. No. 218,650
Term of patent 14 years
Int. Cl. D15—05

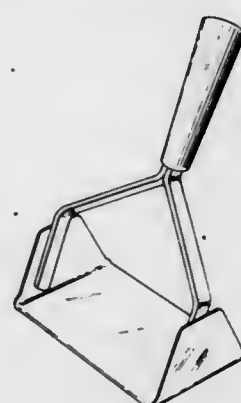
U.S. Cl. D7—165



232,515

HOE BLADE
George L. Steck, Dayton, and Mark A. Steck, Miamis-
burg, Ohio, assignors to Steck Manufacturing Com-
pany, Inc., Dayton, Ohio
Filed June 14, 1972, Ser. No. 262,716
Term of patent 14 years
Int. Cl. D8—01

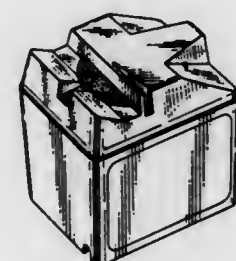
U.S. Cl. D8—11



232,516

POWER-DRIVEN KNIFE SHARPENER
Brian Scott Smith, High Wycombe, England, assignor to
Tower Housewares Limited, Wombourne, Wolverhamp-
ton, Staffordshire, England
Filed Nov. 15, 1972, Ser. No. 306,810
Claims priority, application Great Britain Aug. 25, 1972
Term of patent 14 years
Int. Cl. D8—05

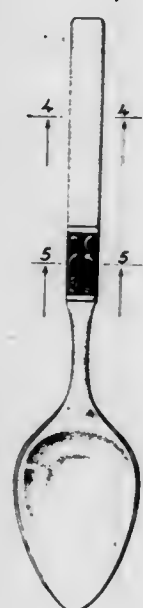
U.S. Cl. D8—63



232,513

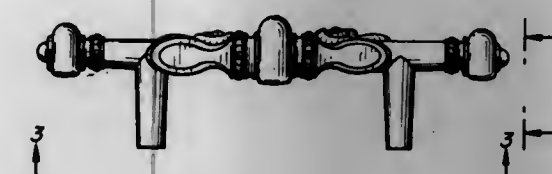
SPOON OR SIMILAR ARTICLE
Melvin A. Lea, Oneida, N.Y., assignor to
Oneida Ltd., Oneida, N.Y.
Filed Jan. 15, 1973, Ser. No. 323,860
Term of patent 14 years
Int. Cl. D7—03

U.S. Cl. D7—137

232,517
PULL

David P. Zagaroli, Hickory, N.C., assignor to Ajax
Hardware Corporation, City of Industry, Calif.
Filed Mar. 14, 1973, Ser. No. 341,107
Term of patent 14 years
Int. Cl. D8—06

U.S. Cl. D8—166



232,518

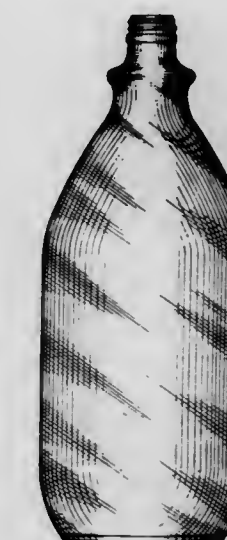
HOOK ATTACHMENT FOR LADDERS
John J. McCoy, 1606 Wakefield Ave.,
Youngstown, Ohio 44514
Filed Oct. 31, 1973, Ser. No. 411,346
Term of patent 3½ years
Int. Cl. D8—08

U.S. Cl. D8—246

232,520
BOTTLE

Alan B. Canfield, South Holland, Ill., assignor to
A. J. Canfield, Co., Chicago, Ill.
Filed Aug. 25, 1972, Ser. No. 283,798
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—96



232,521

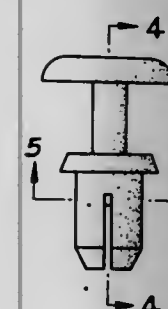
**COMBINED BOTTLE AND CLOSURE
THEREFOR**
David Edward Roche, Nashua, N.H., assignor to
Family Products Incorporated, Tyngsboro, Mass.
Filed Sept. 27, 1972, Ser. No. 292,776
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—168

232,519
RIVET

Satoru Saisho, Yokohama, Japan, assignor to Koyo
Fastener and Co., Ltd., Tokyo, Japan
Filed Oct. 4, 1971, Ser. No. 186,572
Term of patent 14 years
Int. Cl. D8—08

U.S. Cl. D8—271

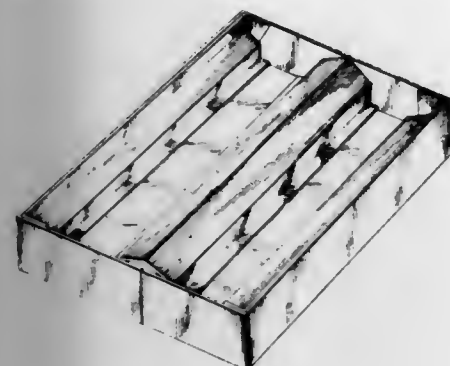


232,522

**CARRYING TRAY FOR BEVERAGE
CARTONS AND THE LIKE**

Ulf F. I. Hakansson, Fridafors, Sweden, assignor to
Skogsagarnas Industrie AB, Vaxjo, Sweden
Filed Sept. 2, 1971, Ser. No. 177,534
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—177



232,523

PILL BOX

Arthur A. Nudell, 3821 Sugar Loaf Lane,
Skokie, Ill. 60076
Filed June 7, 1972, Ser. No. 260,710
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—183

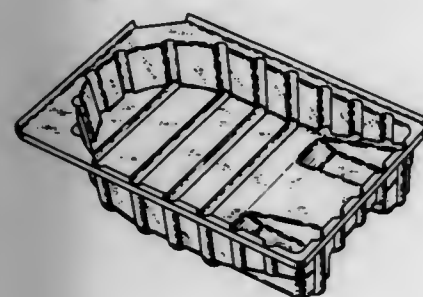


232,524

**PACKAGING CONTAINER FOR COMESTIBLES
OR THE LIKE**

Frank R. Schy, 1659 Borden St.,
San Mateo, Calif. 94403
Filed June 5, 1972, Ser. No. 260,041
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—219

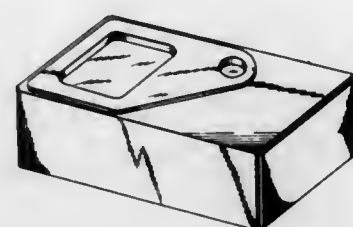


232,525

**COMBINED PACKAGING AND
DISPLAY CONTAINER**

Jack E. Caveney, Chicago, Ill., assignor to
Panduit Corp., Tinley Park, Ill.
Filed Sept. 7, 1972, Ser. No. 287,172
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—224

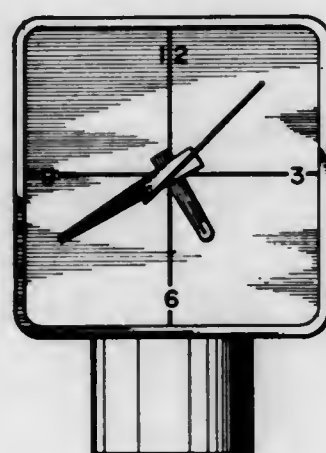


232,526

CLOCK OR SIMILAR ARTICLE

Mark Wallach, 220 E. 63rd St.,
New York, N.Y. 10021
Filed Feb. 8, 1972, Ser. No. 224,646
Term of patent 14 years
Int. Cl. D10—01

U.S. Cl. D10—26

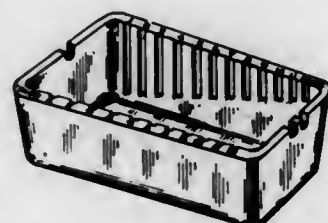


232,527

MEASURING CONTAINER

Harrison W. Sears, Deerfield, Ill., assignor to
Abbott Laboratories, North Chicago, Ill.
Filed June 14, 1972, Ser. No. 262,864
Term of patent 14 years
Int. Cl. D10—04

U.S. Cl. D10—96

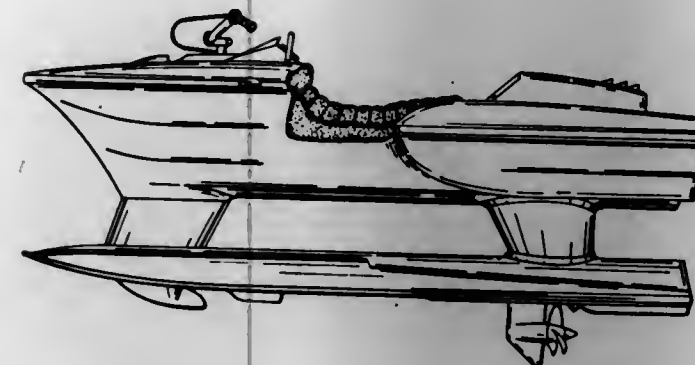


232,528

HYDROFOIL VEHICLE

William R. Stanberry, Sr., and William R. Stanberry, Jr.,
both of 1034 N. Kokomo, Derby, Kans. 67037
Filed Dec. 11, 1972, Ser. No. 314,269
Term of patent 14 years
Int. Cl. D12—06

U.S. Cl. D12—69

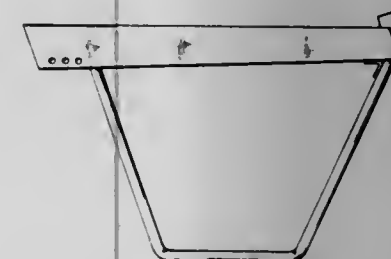


232,529

**FRAME FOR MINI-BIKES
AND THE LIKE**

Joseph E. Shannon, 117 Parkview Drive,
Whiteland, Ind. 46184
Filed July 12, 1972, Ser. No. 270,941
Term of patent 14 years
Int. Cl. D12—11

U.S. Cl. D12—111

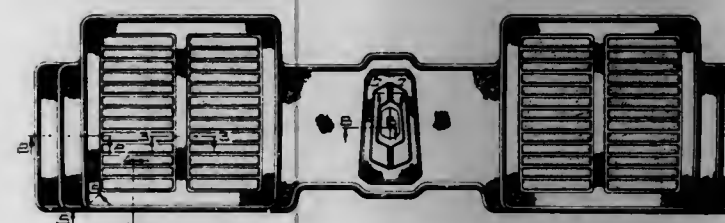


232,530

AUTOMOBILE FLOOR MAT

Charles A. Wells, Coshocton, Ohio, assignor to
Pretty Products, Inc., Coshocton, Ohio
Filed Nov. 10, 1972, Ser. No. 305,311
Term of patent 14 years
Int. Cl. D6—11

U.S. Cl. D12—203

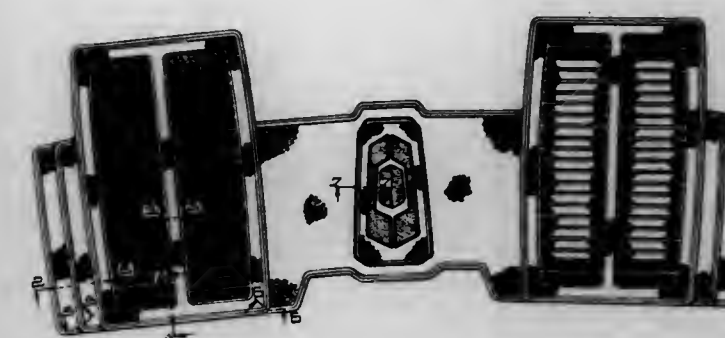


232,531

AUTOMOBILE FLOOR MAT

Charles A. Wells, Coshocton, Ohio, assignor to
Pretty Products, Inc., Coshocton, Ohio
Filed Nov. 10, 1972, Ser. No. 305,312
Term of patent 14 years
Int. Cl. D6—11

U.S. Cl. D12—203

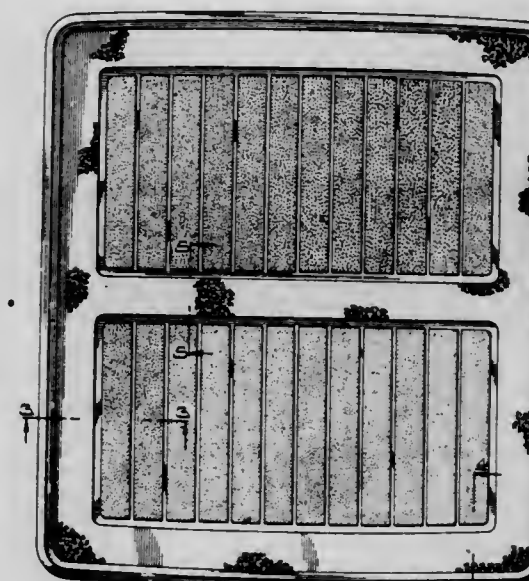


232,532

AUTOMOBILE FLOOR MAT

Charles A. Wells, Coshocton, Ohio, assignor to
Pretty Products, Inc., Coshocton, Ohio
Filed Nov. 10, 1972, Ser. No. 305,313
Term of patent 14 years
Int. Cl. D6—11

U.S. Cl. D12—203

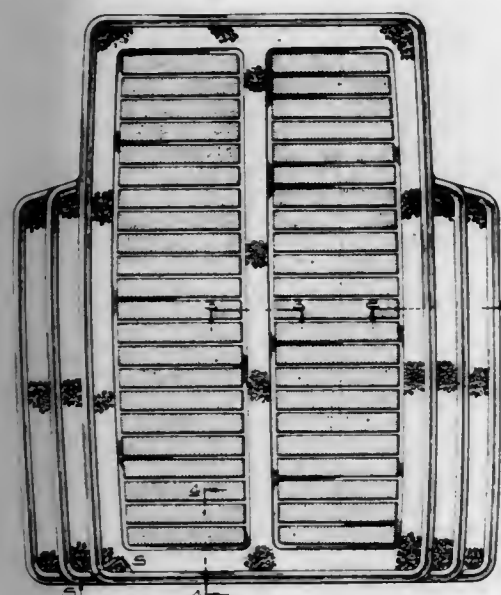


232,533

AUTOMOBILE FLOOR MAT

Charles A. Wells, Coshoc-ton, Ohio, assignor to
Pretty Products, Inc., Coshoc-ton, Ohio
Filed Nov. 10, 1972, Ser. No. 305,314
Term of patent 14 years
Int. Cl. D6-11

U.S. Cl. D12-203

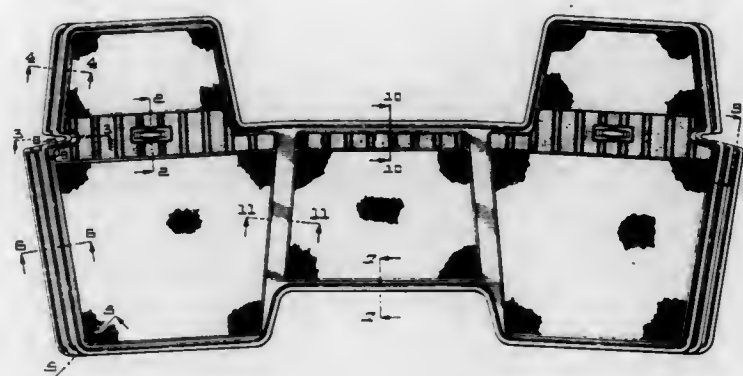


232,535

AUTOMOBILE FLOOR MAT

Raymond A. Krusinski and Charles A. Wells, Coshoc-
ton, Ohio, assignors to Pretty Products, Inc., Coshoc-
ton, Ohio
Filed Nov. 15, 1972, Ser. No. 306,624
Term of patent 14 years
Int. Cl. D6-11

U.S. Cl. D12-203

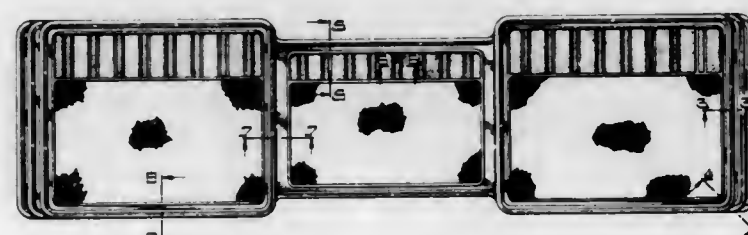


232,536

AUTOMOBILE FLOOR MAT

Raymond A. Krusinski and Charles A. Wells, Coshoc-
ton, Ohio, assignors to Pretty Products, Inc., Coshoc-
ton, Ohio
Filed Nov. 15, 1972, Ser. No. 306,625
Term of patent 14 years
Int. Cl. D6-11

U.S. Cl. D12-203

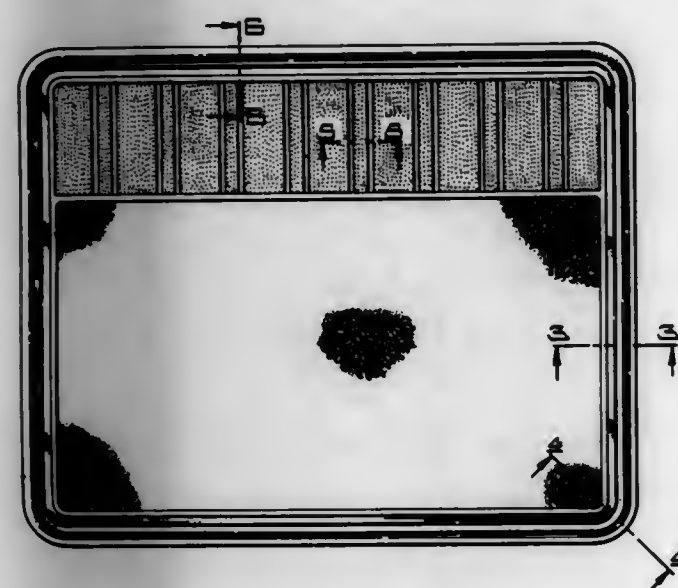


232,534

AUTOMOBILE FLOOR MAT

Raymond A. Krusinski and Charles A. Wells, Coshoc-
ton, Ohio, assignors to Pretty Products, Inc., Coshoc-
ton, Ohio
Filed Nov. 15, 1972, Ser. No. 306,567
Term of patent 14 years
Int. Cl. D6-11

U.S. Cl. D12-203

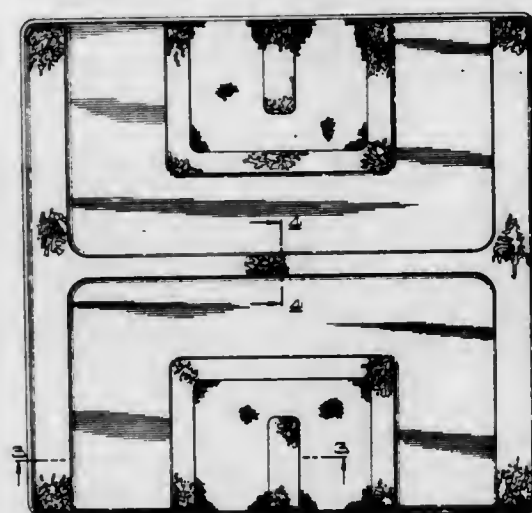


232,537

AUTOMOBILE FLOOR MAT

Raymond A. Krusinski and Charles A. Wells, Coshoc-
ton, Ohio, and Robert A. O'Neill, Wheaton, Ill., as-
signors to Pretty Products, Inc., Coshoc-ton, Ohio
Filed Nov. 15, 1972, Ser. No. 306,800
Term of patent 14 years
Int. Cl. D6-11

U.S. Cl. D12-203

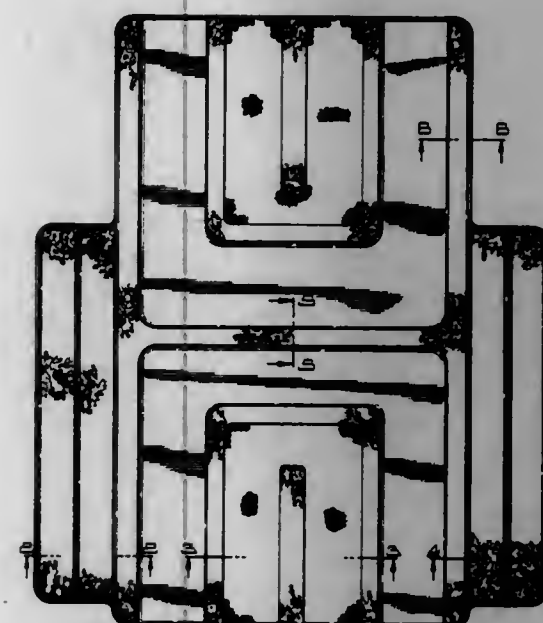


232,538

AUTOMOBILE FLOOR MAT

Raymond A. Krusinski and Charles A. Wells, Coshoc-
ton, Ohio, and Robert A. O'Neill, Wheaton, Ill., as-
signors to Pretty Products, Inc., Coshoc-ton, Ohio
Filed Nov. 15, 1972, Ser. No. 306,801
Term of patent 14 years
Int. Cl. D6-11

U.S. Cl. D12-203

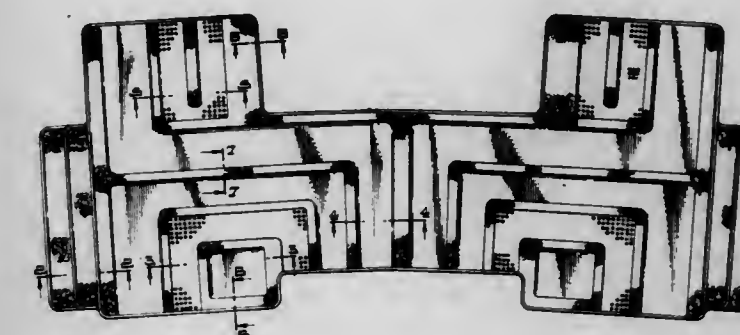


232,540

AUTOMOBILE FLOOR MAT

Raymond A. Krusinski and Charles A. Wells, Coshoc-
ton, Ohio, and Robert A. O'Neill, Wheaton, Ill., as-
signors to Pretty Products, Inc., Coshoc-ton, Ohio
Filed Nov. 15, 1972, Ser. No. 306,803
Term of patent 14 years
Int. Cl. D6-11

U.S. Cl. D12-203



232,541

PUBLIC TELEPHONE SUPPORT

Keith David Bartley, 6250 Brokenhurst Road 46220;
and Fred Arlington Dewhirst, 5313 E. Winston Drive
46226, both of Indianapolis, Ind.; Donald Michael
Genaro, 501 Constant Ave., Haworth, N.J. 07641;
and John Niel McGarvey, 731 Cornell Ave., Drexel
Hill, Pa. 19026

Filed June 5, 1972, Ser. No. 260,064

Term of patent 14 years

Int. Cl. D25-99

U.S. Cl. D13-1 L

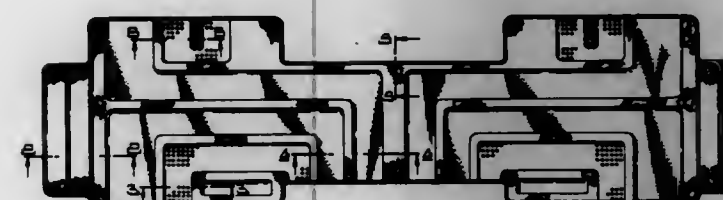


232,539

AUTOMOBILE FLOOR MAT

Raymond A. Krusinski and Charles A. Wells, Coshoc-
ton, Ohio, and Robert A. O'Neill, Wheaton, Ill., as-
signors to Pretty Products, Inc., Coshoc-ton, Ohio
Filed Nov. 15, 1972, Ser. No. 306,802
Term of patent 14 years
Int. Cl. D6-11

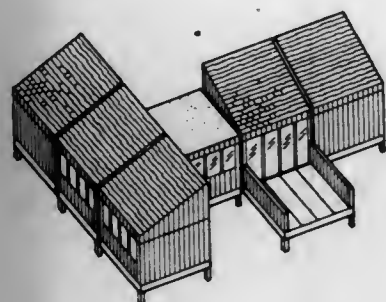
U.S. Cl. D12-203



232,542
PREASSEMBLED MODULAR HOUSING
STRUCTURE

Edward D. Kelbish, 280 Vanderbilt Ave.,
New York, N.Y. 11205
Filed July 14, 1972, Ser. No. 272,027
Term of patent 14 years
Int. Cl. D25—03

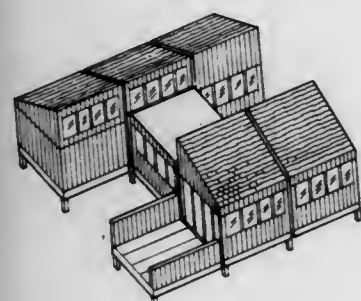
U.S. Cl. D13—1 A



232,543
PREASSEMBLED MODULAR HOUSING
STRUCTURE

Edward D. Kelbish, 280 Vanderbilt Ave.,
New York, N.Y. 11205
Filed July 14, 1972, Ser. No. 272,028
Term of patent 14 years
Int. Cl. D25—03

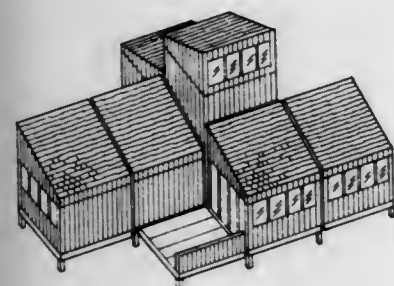
U.S. Cl. D13—1 A



232,544
PREASSEMBLED MODULAR HOUSING
STRUCTURE

Edward D. Kelbish, 280 Vanderbilt Ave.,
New York, N.Y. 11205
Filed July 14, 1972, Ser. No. 272,029
Term of patent 14 years
Int. Cl. D25—03

U.S. Cl. D13—1 A



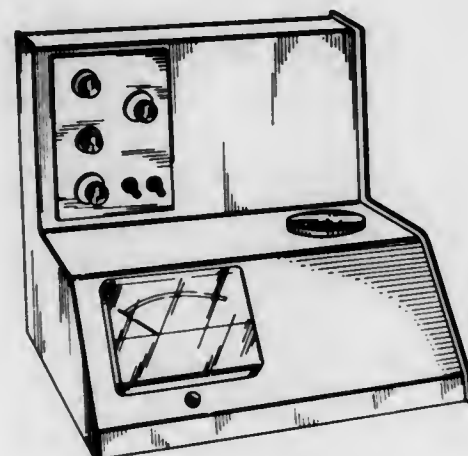
232,545
CARPET RETAINER
William S. Long III, 735 Carlton Ave.,
Plainfield, N.J. 07060
Filed Aug. 3, 1972, Ser. No. 277,516
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—7 R



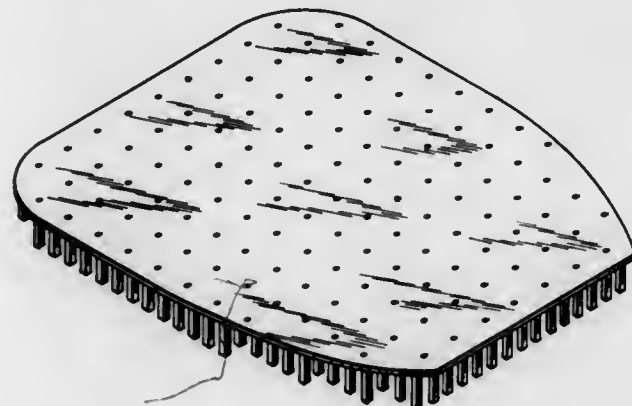
232,546
WASTE WATER ANALYZER UNIT
Emil J. Gentelli, East Brunswick, Ronald D. Barbaro,
Edison, and James T. Yeh, Hoboken, N.J., assignors to
Princeton Aqua Science
Filed Apr. 11, 1972, Ser. No. 243,107
Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D16—2



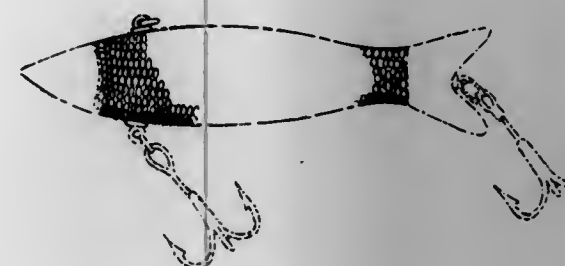
232,547
FLYSWATER BLADE
Wilbert M. Walti, 25151 Sea Vista, Dana Point, Calif.
92629, and Reuben F. Speshyock, 30839 Calle Chueca,
San Juan Capistrano, Calif. 92675
Filed Jan. 18, 1972, Ser. No. 218,858
Term of patent 14 years
Int. Cl. D22—06

U.S. Cl. D22—20



232,548
FISH LURE
Earl E. Miller, Knoxville, Tenn., assignor to
Brunswick Corporation, Skokie, Ill.
Filed Oct. 22, 1971, Ser. No. 191,968
Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—27



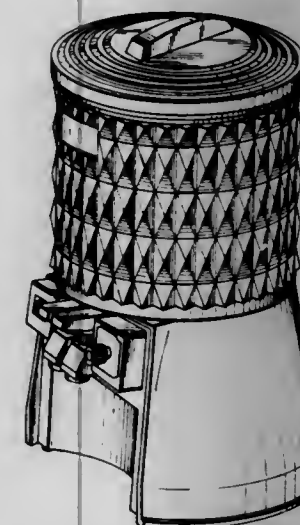
232,549
FISHING LURE
Anthony Vidler, 26 Chenies Close, Frant Road,
Tunbridge Wells, Kent, England
Filed Aug. 6, 1973, Ser. No. 385,865
Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—28



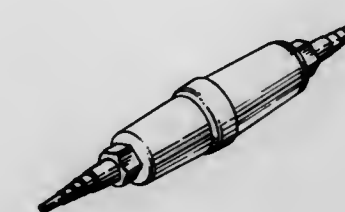
232,550
WATER PROCESSING APPLIANCE
Tomotsuro Fushihara, Tokyo, Japan, assignor to
Sandeigurate Co., Ltd., Tokyo, Japan
Filed Apr. 28, 1972, Ser. No. 248,799
Claims priority, application Japan Jan. 25, 1972
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—3



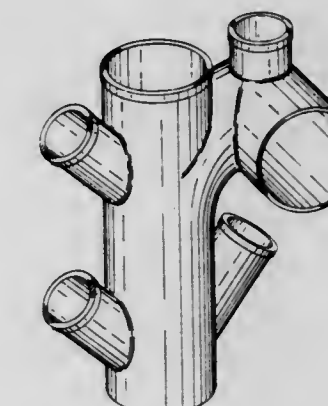
232,551
IN-LINE FILTER
Douglas U. Grover, 2910 Jerome Road,
College Park, Ga. 30337
Filed Sept. 22, 1971, Ser. No. 182,935
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—4



232,552
PLUMBING FITTING
Robert R. Watson, 423 Knollwood Road,
Tallmadge, Ohio 44278
Filed Dec. 13, 1972, Ser. No. 314,756
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—40



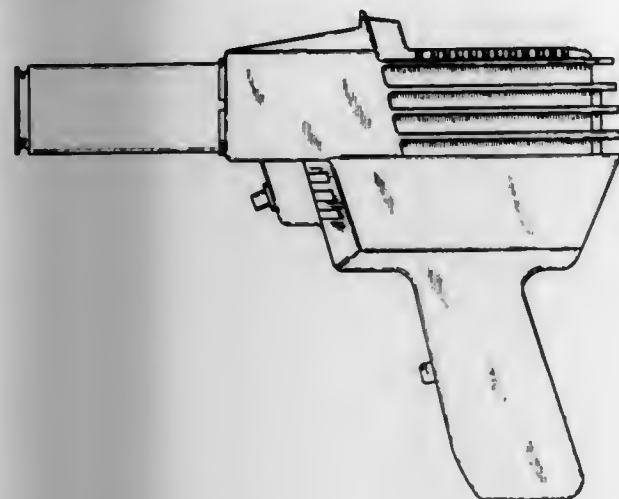
232,553
CONNECTOR FOR GUTTER
DRAIN PIPE
Glenn Settle, % Melrose Supply & Metal Company,
1661 Guenther Road, Dayton, Ohio 45427
Filed July 10, 1972, Ser. No. 270,223
Term of patent 14 years
Int. Cl. D23—01

U.S. Cl. D23—45



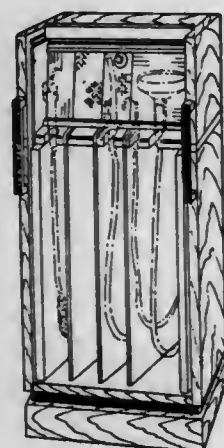
232,554 HEAT GUN

E. Burton Benjamin, Highland Park, Ill., assignor to Master Appliance Corporation, Racine, Wis.
Filed Oct. 19, 1972, Ser. No. 300,509
Term of patent 14 years
Int. Cl. D23-03; D28-03
U.S. Cl. D23-162



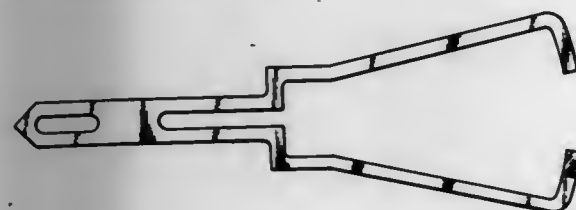
232,555 DENTAL CONSOLE

Ronald C. Webb, York, Pa., assignor to Dentsply Research & Development Corporation, Milford, Del.
Continuation-in-part of design applications Ser. Nos. 118,581 and 118,582, dated Feb. 24, 1971. This application Dec. 4, 1972, Ser. No. 312,009
Term of patent 14 years
Int. Cl. D24-01
U.S. Cl. D24-1 B



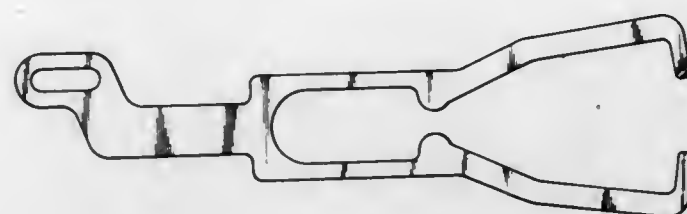
232,556 ELECTRICAL CONTACT

Donald E. Michel and James E. McKeown, Sidney, N.Y., assignors to The Bendix Corporation
Filed Feb. 17, 1972, Ser. No. 227,328
Term of patent 14 years
Int. Cl. D13-03
U.S. Cl. D26-1 R



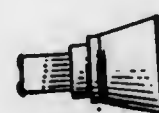
232,557 ELECTRICAL CONTACT

Donald E. Michel and James E. McKeown, Sidney, N.Y., assignors to The Bendix Corporation
Filed Feb. 17, 1972, Ser. No. 227,339
Term of patent 14 years
Int. Cl. D13-03
U.S. Cl. D26-1 R

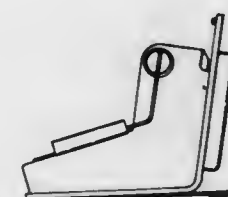
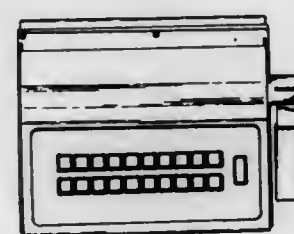


232,558 ADAPTER FOR INCANDESCENT LIGHT BULB

Terry Hermanson, New York, N.Y., assignor to Mr. Christmas Incorporated, New York, N.Y.
Filed Oct. 26, 1972, Ser. No. 301,148
Term of patent 14 years
Int. Cl. D13-03
U.S. Cl. D26-1 G

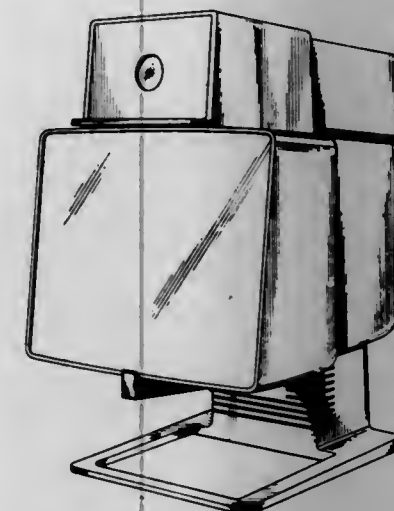


232,559
MICROFICHE ENCODER OR THE LIKE
Andrew Virgil McClare, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jan. 22, 1972, Ser. No. 325,786
Term of patent 14 years
Int. Cl. D14-02
U.S. Cl. D26-5 C

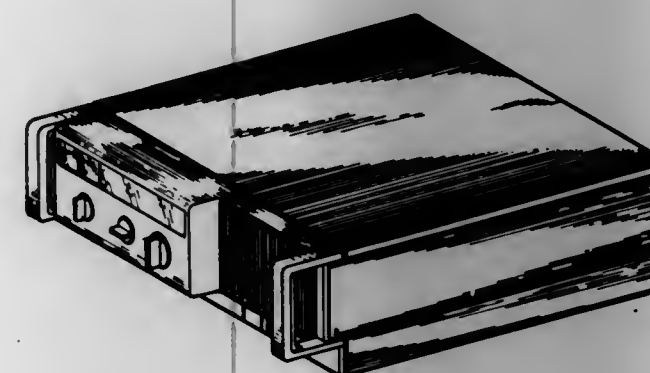


232,560 PICTURE TELEPHONE

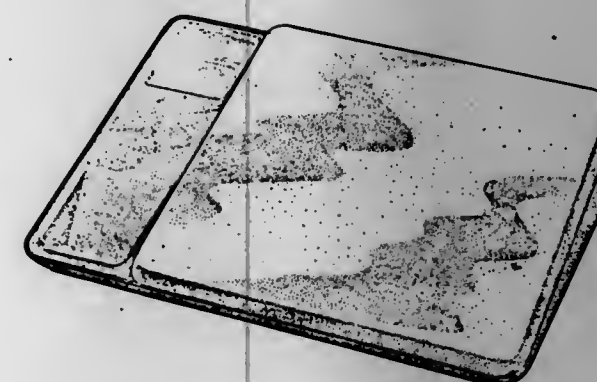
Peter Maddock, Sollentuna, and Hans Sjöholm, Stockholm, Sweden, assignors to Telefonaktiebolaget L. M. Ericsson, Stockholm, Sweden
Filed July 19, 1972, Ser. No. 273,179
Term of patent 14 years
Int. Cl. D14-03
U.S. Cl. D26-14 A



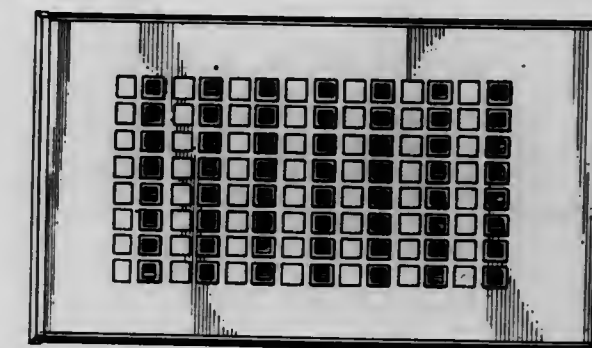
232,561
TWO-WAY RADIO OR SIMILAR ARTICLE
Martin C. Stessel, Schaumburg, Ill., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Mar. 26, 1973, Ser. No. 344,686
Term of patent 14 years
Int. Cl. D14-03
U.S. Cl. D26-14 K



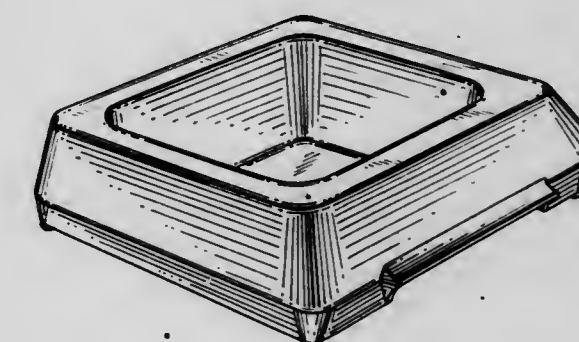
232,562
TELEPHONE STAND
Francis Stephen Doyle, Oaklandon, Ind., Donald Michael Genaro, Haworth, N.J., and Terrance Joseph Paas and Terry Brice Prince, Indianapolis, Ind., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.
Filed May 29, 1973, Ser. No. 364,703
Term of patent 14 years
Int. Cl. D14-03
U.S. Cl. D26-14 A



232,563
DIRECT STATION SELECTION CONSOLE
Paul Marchese, New York, N.Y., assignor to TIE/Communications, Inc., Stamford, Conn.
Filed July 18, 1973, Ser. No. 380,514
Term of patent 14 years
Int. Cl. D14-03
U.S. Cl. D26-14 A



232,564
DOG DISH
Claud W. Kissin, Fort Lee, N.J., assignor to The Hartz Mountain Corporation, Harrison, N.J.
Filed Sept. 1, 1972, Ser. No. 285,893
Term of patent 14 years
Int. Cl. D30-03
U.S. Cl. D30-16



232,565

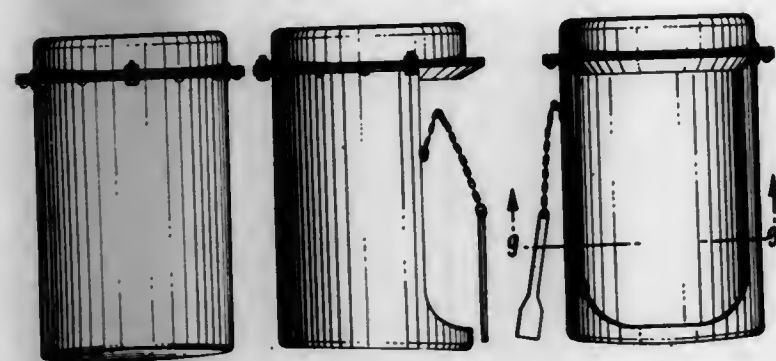
ANIMAL TOILETIsobel K. Rosenberg, Woodslea R.D. 1,
Landenberg, Pa. 19350

Filed Aug. 14, 1972, Ser. No. 280,496

Term of patent 14 years

Int. Cl. D30—99

U.S. Cl. D30—99



232,566

GOLF CLUB GRIPClifford A. Spencer, Akron, Ohio, assignor to
Eaton Corporation, Cleveland, Ohio

Filed Sept. 11, 1972, Ser. No. 288,218

Term of patent 14 years

Int. Cl. D21—02

U.S. Cl. D34—5 GS



232,567

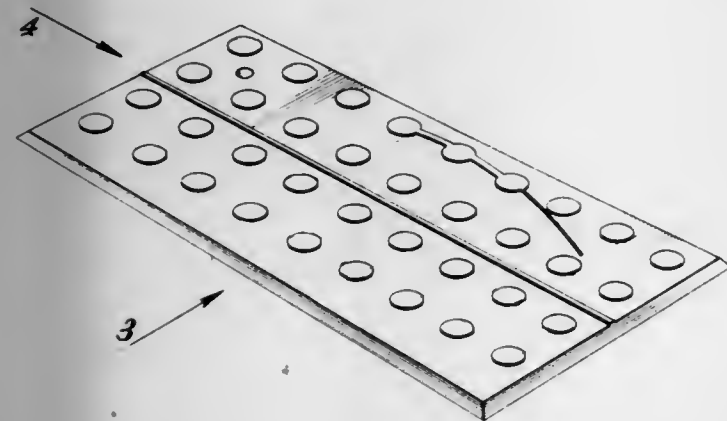
GOLFER'S TRAINING MATSteven T. Golden, 822 Teague Drive,
Santa Paula, Calif. 93060

Filed Oct. 20, 1972, Ser. No. 299,591

Term of patent 14 years

Int. Cl. D21—02

U.S. Cl. D34—5 CB

**232,568
GOLF TEE HOLDER AND DRIVER
HEAD PROTECTOR**Dwight C. Brown, 5712 N. 20th St.,
Arlington, Va. 22205

Filed May 8, 1973, Ser. No. 358,399

Term of patent 14 years

Int. Cl. D21—02

U.S. Cl. D34—5 GT



232,569

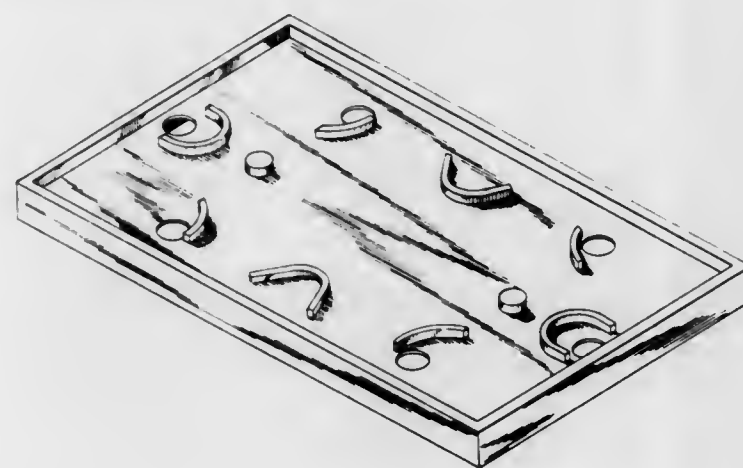
GAME BOARDJ. Henry Adams, 64 Onyx Ave.,
Walla Walla, Wash. 99326

Filed June 6, 1973, Ser. No. 367,565

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—5 SS



232,570

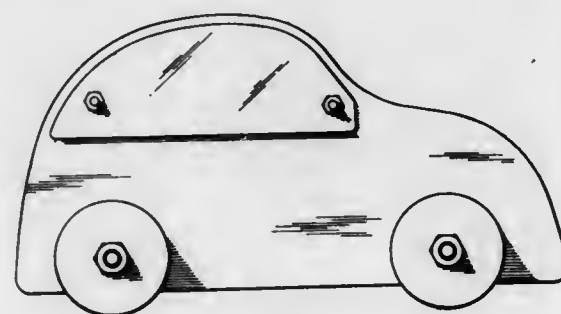
EDUCATIONAL TOY CARJoseph B. Kucera, Traer, Iowa, assignor of fractional
part interest to Rudolph L. Lowell, Des Moines,
Iowa

Filed Mar. 20, 1972, Ser. No. 236,561

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—15 AJ



232,571

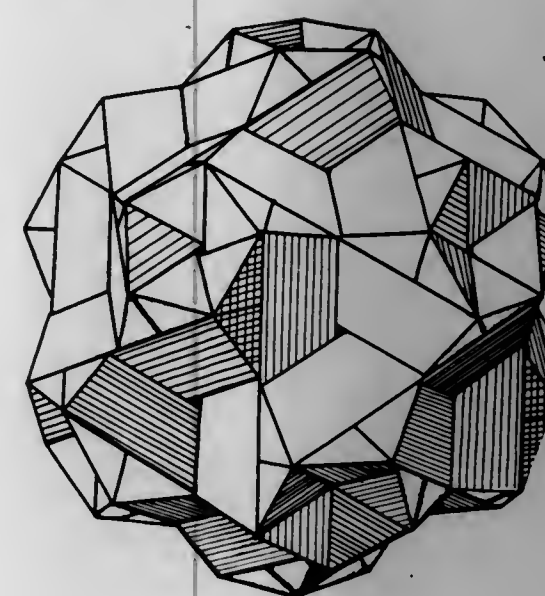
**SPHERAL POLYHEDRAL INTERLOCKING
PUZZLE**Stewart T. Coffin, Old Sudbury Road,
Lincoln, Mass. 01773

Filed Apr. 14, 1972, Ser. No. 244,344

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—15 M



232,572

KITEAlbert J. Torsak, 628 Harpeth Knoll Road,
Nashville, Tenn. 37221

Filed June 2, 1972, Ser. No. 259,363

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—15 AF



232,573

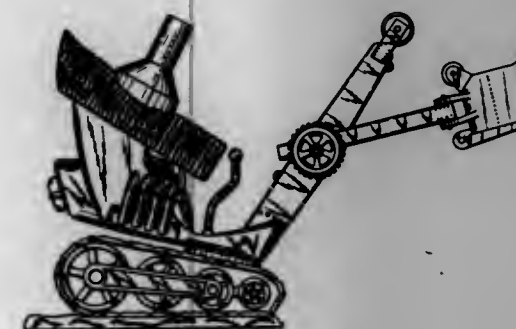
STYLIZED MODEL POWER SHOVELEugene T. Daniel, Walnut, Calif., assignor to
Monogram Models, Inc., Morton Grove, Ill.

Filed Aug. 31, 1972, Ser. No. 285,413

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—15 T



232,574

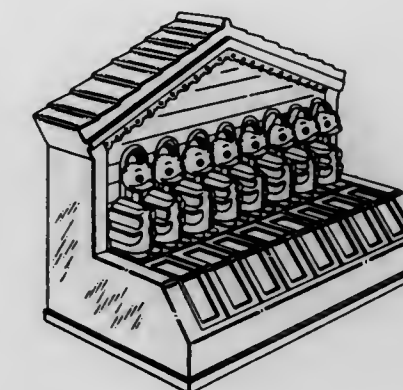
MUSICAL TOYMichael Satten, 93—25 86th Road,
Queens, N.Y. 11421

Filed Oct. 2, 1972, Ser. No. 294,338

Term of patent 7 years

Int. Cl. D21—01

U.S. Cl. D34—15 C



232,575

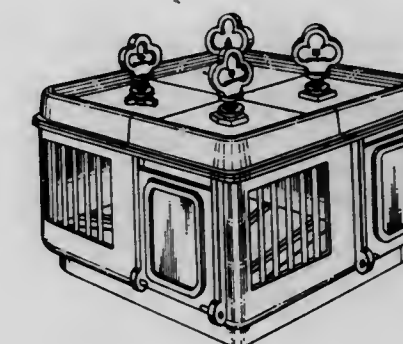
ZOO TOYMichael Langieri, Butler, N.J., assignor to
Questor Corporation, Toledo, Ohio

Filed Oct. 2, 1972, Ser. No. 294,422

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D34—15 A



232,576

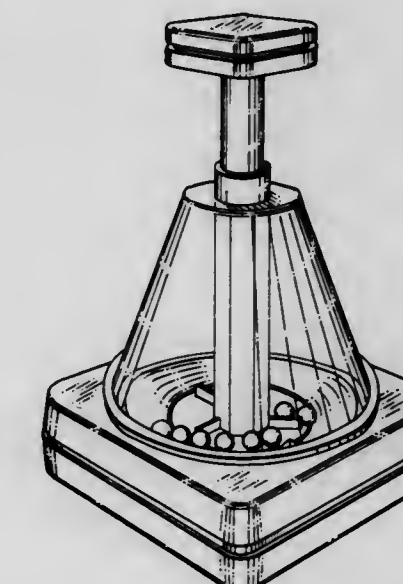
SPINNING TOYMichael Langieri, Butler, N.J., assignor to
Questor Corporation, Toledo, Ohio

Filed Oct. 2, 1972, Ser. No. 297,691

Term of patent 14 years

Int. Cl. D21—01

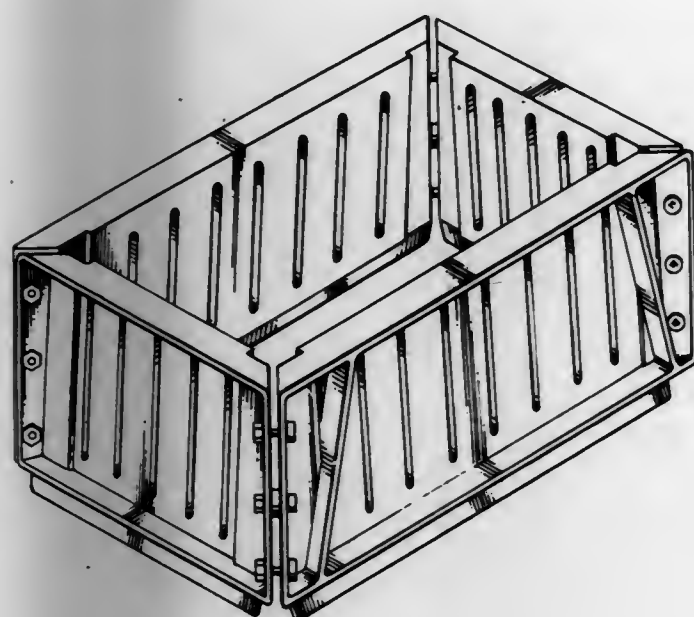
U.S. Cl. D34—15 CC



232,577

JACKET FOR FOUNDRY SAND MOLD
 Wilmer J. Friesen and Frank A. Hulet, Hutchinson, Kans.,
 assignors to M. W. Hartmann Manufacturing Co.,
 Inc., Hutchinson, Kans.
 Filed July 10, 1972, Ser. No. 270,321
 Term of patent 14 years
 Int. Cl. D15—09

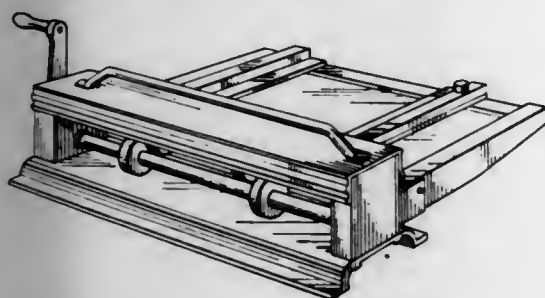
U.S. Cl. D54—8



232,578

SLITTER FOR SHEET MATERIAL
 Eugene H. Van Cleave, 24530 Lydon,
 Redford, Mich. 48239
 Filed June 1, 1972, Ser. No. 263,394
 Term of patent 14 years
 Int. Cl. D15—09

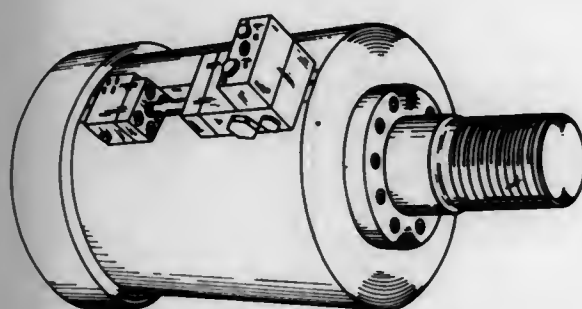
U.S. Cl. D55—1 A



232,579

COMBINED HYDRAULIC CYLINDER AND CONTROL VALVE UNIT
 Lawrence R. Landherr, Racine, Wis., assignor to
 Milwaukee Cylinder Corporation, Cudahy, Wis.
 Filed Oct. 19, 1972, Ser. No. 300,855
 Term of patent 14 years
 Int. Cl. D15—99

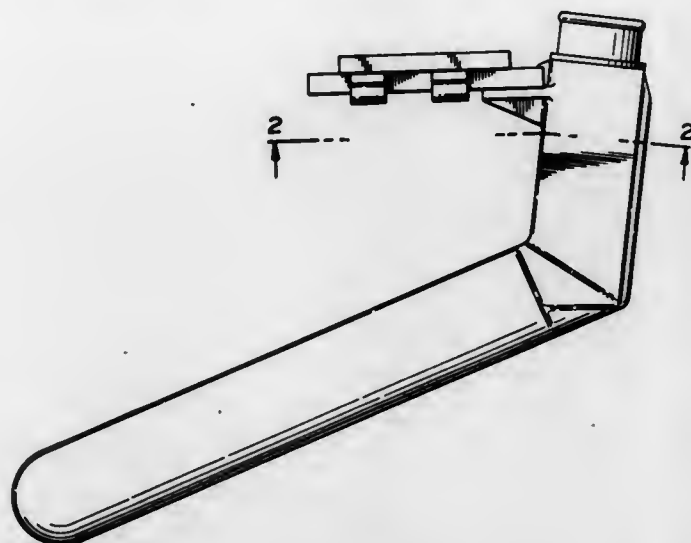
U.S. Cl. D55—1 G



232,580

CONCRETE VIBRATOR
 Hamilton J. Maginniss, 563 Russell Road,
 Mansfield, Ohio 44903
 Filed Nov. 7, 1972, Ser. No. 304,384
 Term of patent 14 years
 Int. Cl. D15—04

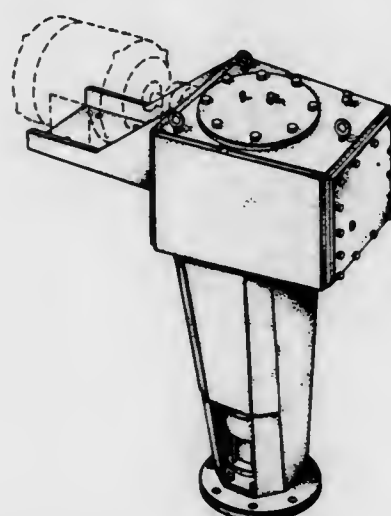
U.S. Cl. D55—1 D



232,581

RIGHT ANGLE DRIVE AND PEDESTAL
 John G. Fenic, Donald L. Kime, and William C. Raridan,
 Dayton, and Read C. Viemeister, Yellow Springs, Ohio,
 assignors to Chemineer, Inc., Dayton, Ohio
 Filed Dec. 18, 1972, Ser. No. 316,030
 Term of patent 14 years
 Int. Cl. D15—05

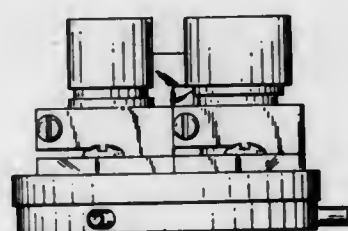
U.S. Cl. D55—1 D



232,582

LENS CLUSTER UNIT FOR PHOTOPRINTING
 Richard M. Artz, 3092 Silverton Road NE.,
 Salem, Oreg. 97308
 Filed Feb. 28, 1972, Ser. No. 230,205
 Term of patent 7 years
 Int. Cl. D16—03

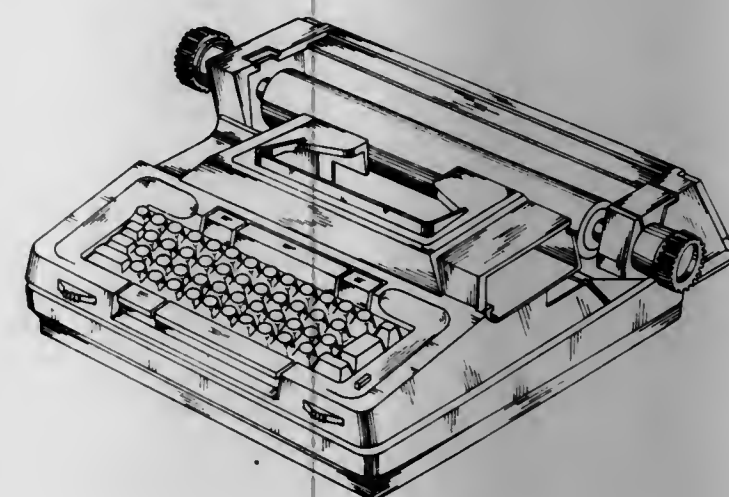
U.S. Cl. D61—1 Q



232,583

TYPEWRITER
 Chester J. Abend, Camillus, James J. Blenkowski, Caze-
 novia, and John E. Jolliffe, Manlius, N.Y., assignors to
 SCM Corporation
 Filed Dec. 8, 1972, Ser. No. 313,203
 Term of patent 14 years
 Int. Cl. D18—01

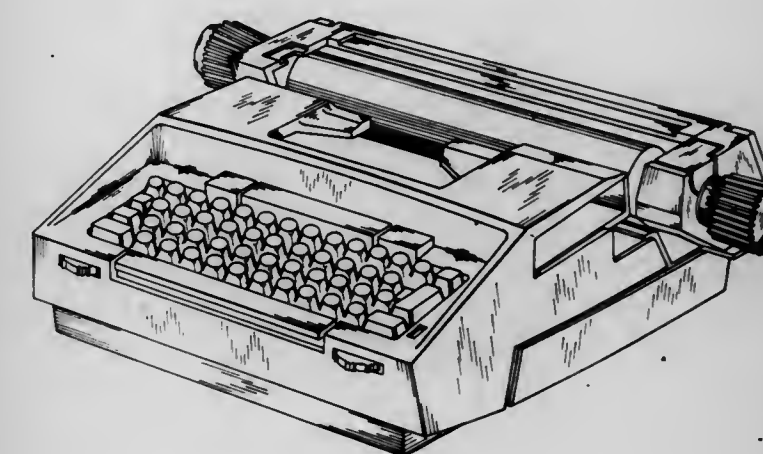
U.S. Cl. D64—11 A



232,585

TYPEWRITER
 James J. Blenkowski, Cazenovia, and Paul D. Younge,
 Horseheads, N.Y., assignors to SCM Corporation, New
 York, N.Y.
 Filed Jan. 2, 1973, Ser. No. 320,385
 Term of patent 14 years
 Int. Cl. D18—01

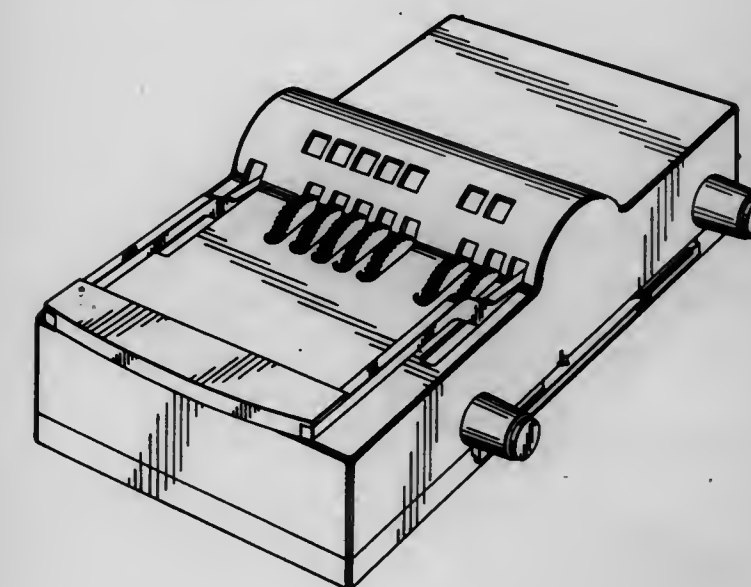
U.S. Cl. D64—11 A



232,586

CHECKWRITER
 Joseph K. Dikoff, 4 Privateer, Apt. 3,
 Marina Del Ray, Calif. 93933
 Filed July 12, 1973, Ser. No. 378,777
 Term of patent 14 years
 Int. Cl. D18—01

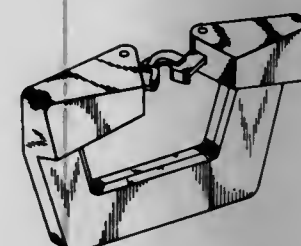
U.S. Cl. D64—11 B



232,584

TYPEBAR CONTROL GUIDE
 Scott J. Longrod, Ithaca, N.Y., assignor to
 SCM Corporation
 Filed Dec. 26, 1972, Ser. No. 317,907
 Term of patent 14 years
 Int. Cl. D18—01

U.S. Cl. D64—11 A

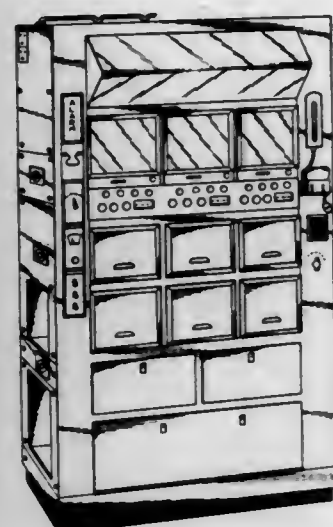


232,587

MODULAR MOBILE INTENSIVE CARE UNIT

John T. Schefke, 270 Lawton Road, Riverside, Ill. 60606, and Algimantas K. Bokty, 3218 W. Marquette Road, Chicago, Ill. 60629
 Filed Jan. 3, 1972, Ser. No. 215,285
 Term of patent 14 years
 Int. Cl. D24-01

U.S. Cl. D83-1 F

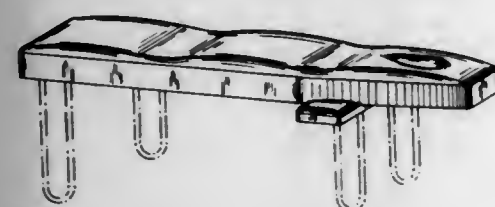


232,588

THERAPY TABLE TOP

Warren S. Radford, 29325 Edgedale Road, Pepper Pike, Ohio 44124
 Filed Apr. 3, 1972, Ser. No. 240,897
 Term of patent 14 years
 Int. Cl. D24-01

U.S. Cl. D83-1 D

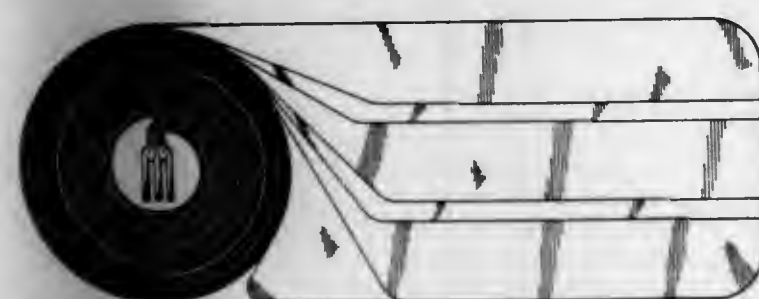


232,589

ELECTROCARDIOGRAM PLATE ELECTRODE

Arthur J. Hinnenkamp, Excelsior, Minn., assignor to Medical Plastics, Inc., Minnetonka, Minn.
 Filed May 22, 1972, Ser. No. 255,963
 Term of patent 14 years
 Int. Cl. D24-01

U.S. Cl. D83-1 F

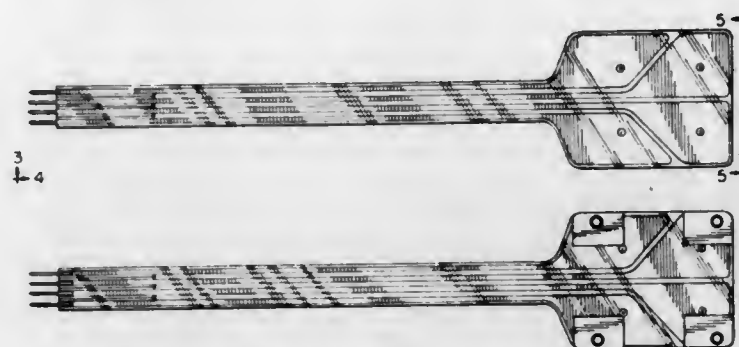


232,590

ELECTRODE PAD AND TAPE THEREFOR

Francis C. Moore, 7327 Galloway Drive 46250, and Leon R. Perkinson, 6305 Hillcrest Lane 46220, both of Indianapolis, Ind.
 Filed July 27, 1972, Ser. No. 275,860
 Term of patent 14 years
 Int. Cl. D24-01

U.S. Cl. D83-1 C



232,591

ELECTROSURGICAL HANDLE

Thomas A. Haberman, North St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Filed Dec. 6, 1973, Ser. No. 422,299
 Term of patent 14 years
 Int. Cl. D24-02

U.S. Cl. D83-12 R

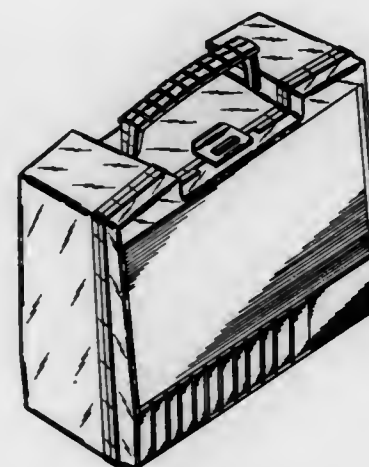


232,592

CARRYING CASE

Frank N. Rodriguez, Roselle, N.J., assignor to Mattel, Inc., Hawthorne, Calif.
 Filed Apr. 4, 1972, Ser. No. 241,104
 Term of patent 14 years
 Int. Cl. D3-99

U.S. Cl. D87-1 R

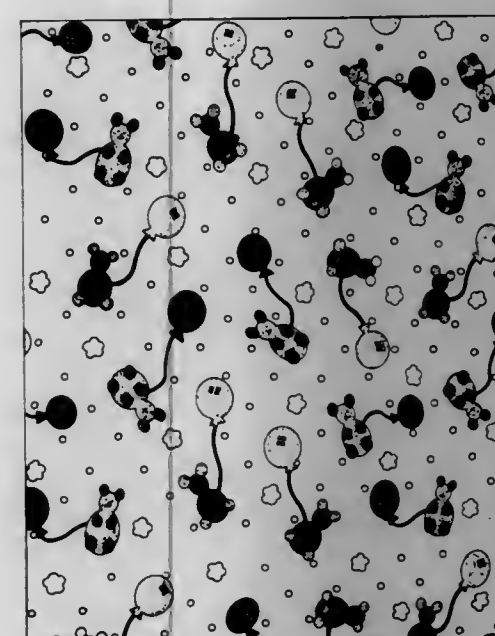


232,593

PLASTIC SHEET MATERIAL

Carol Stone, 30 W. 70th St., New York, N.Y. 10023
 Filed June 9, 1972, Ser. No. 234,451
 Term of patent 14 years
 Int. Cl. D5-05

U.S. Cl. D87-3 G

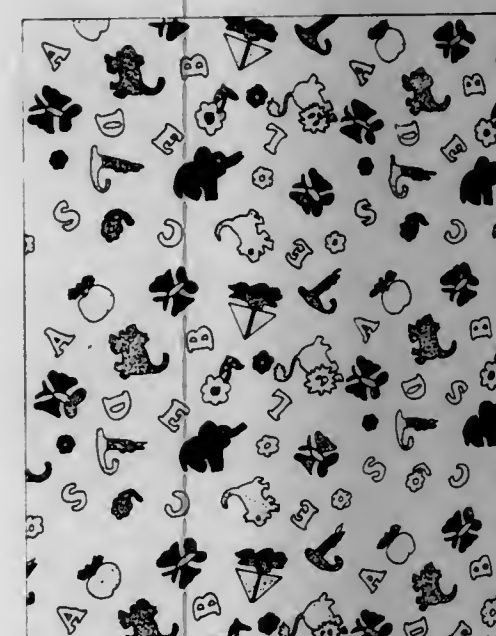


232,594

PLASTIC SHEET MATERIAL

Carol Stone, 30 W. 70th St., New York, N.Y. 10023
 Filed June 9, 1972, Ser. No. 234,474
 Term of patent 14 years
 Int. Cl. D5-05

U.S. Cl. D87-3 G



232,595

DEEP TEXTURED DECORATIVE LAMINATE

Jack August Willard, Hamilton, Ohio, assignor to Formica Corporation, Cincinnati, Ohio
 Filed Aug. 29, 1972, Ser. No. 284,692
 Term of patent 14 years
 Int. Cl. D5-06

U.S. Cl. D87-3 G

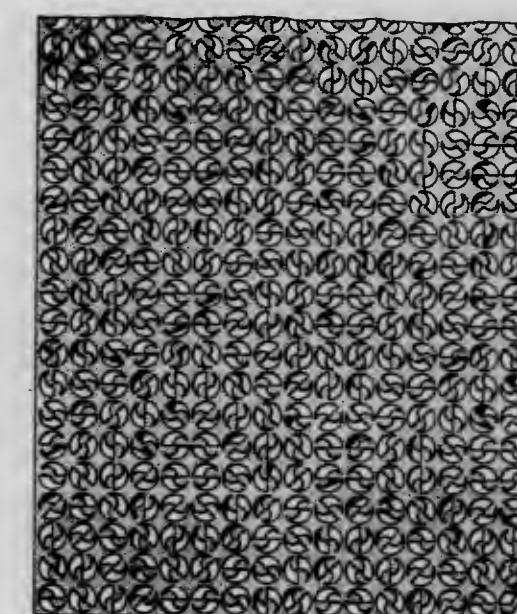


232,596

SHEET MATERIAL

Raymond A. Krusinski, Coshocton, Ohio, assignor to Pretty Products, Inc., Coshocton, Ohio
 Filed Nov. 15, 1972, Ser. No. 306,736
 Term of patent 14 years
 Int. Cl. D5-06

U.S. Cl. D87-3 G

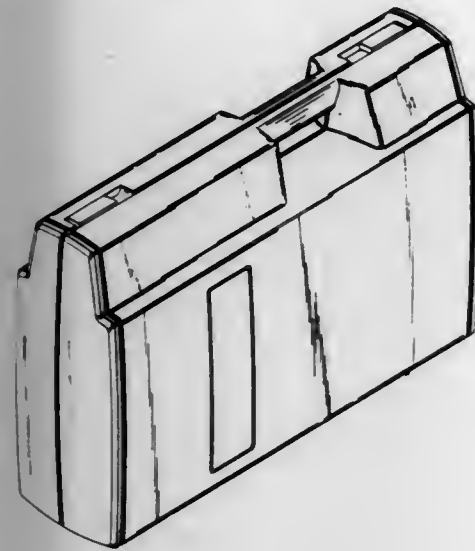


232,597

PROJECTOR CARRYING CASE

James H. Sias, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed July 28, 1972, Ser. No. 276,219
Term of patent 14 years
Int. Cl. D3-02

U.S. Cl. D87-5 E



232,598

UMBRELLA HANDLE

Heinz Weber, Hilden, Germany, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada
Filed Aug. 7, 1972, Ser. No. 278,436
Claims priority, application Germany Feb. 8, 1972
Term of patent 14 years
Int. Cl. D3-03

U.S. Cl. D88-3 A

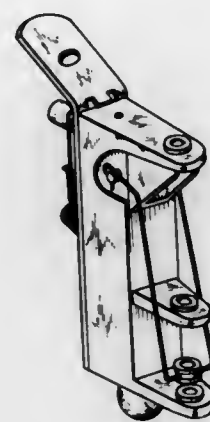


232,599

STOP MOTION

Jose Castillo Deniega, Elmhurst, N.Y., assignor to Stop-Motion Devices Corporation, Plainview, Ill.
Filed Oct. 10, 1972, Ser. No. 296,520
Term of patent 14 years
Int. Cl. D15-6

U.E. Cl. D92-15

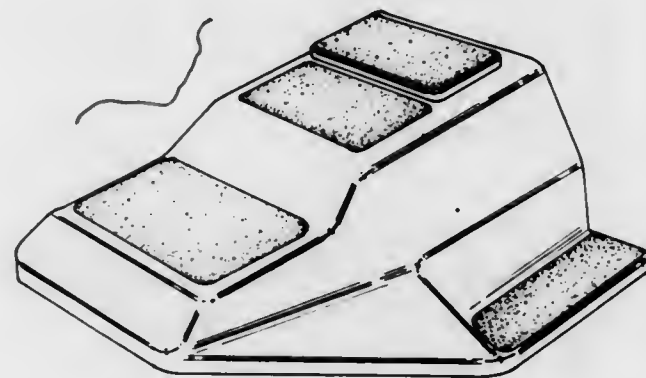


232,600

CANOPY FOR A BOAT JET DRIVE

Ralph A. Rhoda, Orinda, Calif., assignor to Berkeley Pump Company, Berkeley, Calif.
Filed Nov. 20, 1972, Ser. No. 308,106
Term of patent 7 years
Int. Cl. D15-99

U.S. Cl. D77-1 R

**LIST OF PATENTEEES**

TO WHOM

PATENTS WERE ISSUED ON THE 27TH DAY OF AUGUST, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A-LOK Corporation: See—
Ditcher, John, 3,832,438.
A/S Attas: See—
Jorgensen, Gunnar, 3,831,856.
Aarna, Agu Yanovich; Kiisler, Karl Ritsovich; Kristyanson, Peep Gerhardovich; Tanner, Juri Albert-Mikhaelovich; Vabaoya, Juri Felixovich; Vaitenberg, Gershonovich; Rokk, Juri Khindrekovich; and Matvere, Toomas Oskarovich. Method for manufacturing the edge and lower plate of a ski from wood. 3,832,251, Cl. 156-60.000.
Abbott Laboratories: See—
Liston, Max D., 3,831,618.
Abe, Takeshi, to Ricoh Co. Ltd. Microfiche film detection device for micro-readers and micro-reader-printers. 3,832,528, Cl. 235-61.11e.
Abrams, Edwin F.; and Shaver, Robert G., to General Technologies Corporation. Method of making microcrystalline fluoride fibers. 3,832,451, Cl. 423-489.000.
Ace Controls, Inc.: See—
Meldrum, Charles R.; and Bindon, Glyn A., 3,831,920.
Meldrum, Charles R., 3,831,923.
ACF Industries Incorporated: See—
Blomstrand, Paul R., 3,831,391.
Acieries Reunies de Burbach-Eick-Dudelage S.A.: See—
Metz, Paul; Koch, Victor; and Schockmel, Robert, 3,832,121.
Acuity Systems, Incorporated: See—
Cornsweet, Tom N., 3,832,066.
Acushnet Company: See—
Brown, Robert A.; Jepson, John W.; and Lyon, Herbert W., 3,831,423.
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Adams, J. Henry. Rolling pin. 3,831,238, Cl. 29-110.500.
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Adar, Inc.: See—
Cemek, Edward, Jr., 3,832,629.
Addressograph-Multigraph Corporation: See—
Davis, James W., 3,831,928.
Aeritalia S.p.A.: See—
Moorehead, James R., 3,831,376.
Aerojet-General Corporation: See—
Kays, David D.; Frank, Kurt F.; and Longwell, Paul A., 3,832,289.
Aeronautical Research Associates of Princeton, Incorporated: See—
Donaldson, Coleman Dup.; and Snedeker, Richard S., 3,831,396.
Afifi, Mostafa S.; and Jacobs, Allan, to Page Communications Engineers, Inc. Wide angle scanning and multibeam single reflector. 3,832,715, Cl. 343-761.000.
AGA Corporation: See—
Shipp, John T.; Hines, Robin H.; Hollinshead, William L.; and Broadbent, Thomas D., 3,832,056.
Agency of Industrial Science & Technology: See—
Suzuki, Hideo; Kobayashi, Harumi; Ozawa, Yoshiko; and Kamibayashi, Akira, 3,832,284.
AGFA-Gevaert Aktiengesellschaft: See—
Geyken, Erwin; Schwarzmaier, Gerhard; and Dawidowitsch, Peter, 3,832,730.
Agfa-Gevaert Mortsel: See—
Claes, Frans Henri, 3,831,907.
Agfa-Gevaert N.V.: See—
Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poet, Albert Lucien; and Pollet, Robert Joseph, 3,832,171.
Ahlen, Karl Gustav, to S.R.M. Hydromekanik Aktiebolag. Hydromechanical transmissions including torque converter having releasable pump or turbine combined with holding clutch gears. 3,831,463, Cl. 74-732.000.
Aidlin Automation Incorporated: See—
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Aidlin, Stephen H.: See—
Aidlin, Samuel S.; Aidlin, Stephen H.; Hartzog, Melvin; and Shepard, John C., 3,831,738.
Airco, Inc.: See—
Valenta, James D.; Sielaff, Ulrich; and Drabkin, Stephen H., 3,831,595.
Airheart Products, Inc.: See—
Martins, Samuel J., 3,831,719.
Airless Spray Tip Manufacturing Co.: See—
Calder, Oliver J., 3,831,862.
Aisin Seiki Kabushiki Kaisha: See—
Murakami, Noboru, 3,831,465.
Suzuki, Akira, 3,831,700.
Akamatsu, Kiyoshi; Maruta, Masayasu; and Yonokura, Yasushi, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for the preparation of printing plate of photosensitive resin. 3,832,177, Cl. 96-35.100.
Akase, Takeshi: See—
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Akatsukeda, Mitsuhiro; Dume, Yoshiharu; Inaba, Shigeo; and Yamamoto, Hisao, 3,832,344.
Akatsukeda, Mitsuhiro: See—
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Akatsukeda, Mitsuhiro; Dume, Yoshiharu; Inaba, Shigeo; and Yamamoto, Hisao, 3,832,344.
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Aktiebolaget IRO: See—
Jacobsson, Kurt Arne Gunnar, 3,831,875.
Akutsu, Hidezo: See—
Yamazaki, Haruo; Akutsu, Hidezo; and Okamoto, Takio, 3,832,590.
Akzona Incorporated: See—
Appeldoorn, Jacques W. J.; and Sluijters, Robert, 3,831,904.
Mitchell, Richard R.; and Van Der Bor, Robert, 3,832,446.
Albert, Jean: See—
Bazin, Bernard; and Albert, Jean, 3,832,248.
Albertus, Gundorph, to Smidh, F. L., & Co. Abrasion of caking. 3,831,326, Cl. 51-320.000.
Alburn, Harvey E.; Clark, Donald E.; Grant, Norman G.; and Lapidus, Milton, to American Home Products Corporation. Hydroxamic acid derivatives of 1-aminocyclohexanecarboxylic acid. 3,832,373, Cl. 260-453.000.
Aleksandar, Manoilov; and Mustafa, Karsik. Machine for production of high voltage fuses without insulating chaplet and with melting elements of different cross section. 3,831,251, Cl. 29-203.000.
Alessi, Vincent J. Dovetail slide. 3,832,019, Cl. 308-3.00a.
Alexander, Robert R.: See—
Newman, Nicholas S.; Alexander, Robert R.; and Sheldon, Donald A., 3,831,766.
Alexander, Thomas Theron; Reszka, Alfons; and Stenerson, Charles Keith, to Teletype Corporation. FSK modem. 3,832,637, Cl. 325-30.000.
Alexandrov, Alexandr Sergeevich: See—
Bogdanov, Evdokim Stepanovich; Alexandrov, Alexandr Sergeevich; Schegolevatykh, Vadim Dmitrievich; Saveliy, Vyacheslav Ivanovich; Zakharov, Mikhail Fedorovich; Alexandrov, Jury Nikolaevich; Korsetsky, Gennady Mikhailovich; and Kucher, Arnold Arkadievich, 3,831,418.
Alexandrov, Jury Nikolaevich: See—
Bogdanov, Evdokim Stepanovich; Alexandrov, Alexandr Sergeevich; Schegolevatykh, Vadim Dmitrievich; Saveliy, Vyacheslav Ivanovich; Zakharov, Mikhail Fedorovich; Alexandrov, Jury Nikolaevich; Korsetsky, Gennady Mikhailovich; and Kucher, Arnold Arkadievich, 3,831,418.
Alferov, Jury Fedorovich: See—
Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Alferov, Jury Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Eleovich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.
Alfredeen, Uno Allan, to Scandinavian Paper Converting AB. Thread cutting apparatus. 3,831,214, Cl. 10-89.00h.
Aliprandi, Lucio M. Electronic apparatus for programmed automatic playing of musical accompaniment systems. 3,832,479, Cl. 84-1.030.
Allard, Gordon H., to Waukesha Foundry Company, Inc. Discharge means for agricultural foam. 3,831,859, Cl. 239-592.000.
Allegheny Ludlum Industries, Inc.: See—
Bishop, Harry L., Jr., 3,832,160.
Allgaier, Rudolf; Brambilla, Luigi; and Scholz, Hans Jurgen, to Daimler-Benz Aktiengesellschaft. Inflatable gas cushion for passenger protection of vehicles, especially motor vehicles. 3,831,972, Cl. 280-150.0ab.
Allied Chemical Corporation: See—
Pap, Geza, 3,831,348.
Allis-Chalmers Corporation: See—
Gilmore, Thomas P.; Ringland, William L.; and Geiersbach, Alhois F., 3,832,624.

- Schott, Robert E., 3,831,725.
Zuege, Charles F., 3,831,704.
Allmanna Svenska Elektriska Aktiebolaget: See—
Akerblom, Carl-Arthur, 3,832,245.
Karlsson, Gosta; and Nilsson, Borje, 3,832,477.
Allum, Keith George; Hancock, Ronald David; McKenzie, Samuel; and Pitkethl, Robert Chalmers, to British Petroleum Company, The. Hydroformylation process. 3,832,404, Cl. 260-604.0hf.
Alroy, John D. Thermoforming machine with articles trimmed in-place. 3,832,102, Cl. 426-292.000.
Aluminum Company of America: See—
Dzierski, Stanley F., 3,831,263.
Klingensmith, James D.; and Latkey, George J., 3,831,338.
Over, David J., 3,831,344.
Alvey, Inc.: See—
Werntz, Charles W., 3,831,782.
ALZA Corporation: See—
Damani, Nalinkant C., 3,831,606.
Yum, Su II; Buckles, Richard G.; and Barrer, Richard M., 3,831,600.
Amerace Esna Corporation, mesne: See—
Barnes, Gerald, 3,831,736.
American Chain & Cable Company, Inc.: See—
Drayton, Walker E.; and Krout, Elwood L., 3,831,993.
Francois, Dale H., 3,831,992.
Gilmore, William J., 3,831,370.
American Cyanamid Company: See—
Longfield, James Edgar; and Hyman, Daniel, 3,832,448.
Shu, Ping; and Dann, Murray, 3,832,462.
Wetzel, Eugene Raymond; and Borders, Donald Bruce, 3,832,398.
American Home Products Corporation: See—
Alburn, Harvey E.; Clark, Donald E.; Grant, Norman G.; and Lapidus, Milton, 3,832,373.
Downey, Bruce R.; and Irvine, Douglas S., 3,832,469.
Humber, Leslie G., 3,832,405.
American Optical Corporation: See—
Wilton, Henry T., 3,831,554.
American Precision Industries, Inc.: See—
Brookman, Roger S., 3,831,686.
American Smelting and Refining Company: See—
Stiefken, Charles Ernest, 3,832,280.
American Standard Inc.: See—
Mahoney, Kenneth L., 3,831,582.
AMIANTU AG: See—
Posch, Heinz; Nauert, Wolfgang; and Lohner, Werner, 3,832,108.
Amotte, John J. Break-away safety switch mounting bracket kit. 3,832,501, Cl. 200-61.190.
Amoco Production Company: See—
Sharp, Shelby P.; and Sudduth, Lamar F., 3,831,346.
Amos, James J., to Columbus Auto Parts Company, The. Method of producing ball joints. 3,831,244, Cl. 29-149.50b.
Amos, James J., to Columbus Auto Parts Company, The. Method of producing ball joints. 3,831,245, Cl. 29-149.50b.
AMP Incorporated: See—
Purdy, Harold Lawrence, 3,831,272.
AMSTED Industries Incorporated: See—
Kaufhold, Horst Thomas, 3,831,777.
Anderson, Richard M.: See—
Hafner, Robert O.; and Anderson, Richard M., 3,831,392.
Anderson, Robert G., to Chevron Research Company. Ethoxylated hydrocarbyl butanediols. 3,832,408, Cl. 260-615.00b.
Anderson, Robert L.; and Stine, Robert Darrell, Jr., to Maxwell Laboratories, Inc. Marx pulse generator module and generator system. 3,832,569, Cl. 307-110.000.
Anderton, John J.; Dudzic, Max S.; and Whren, Wilmer C., to United States Steel Corporation. Assembly gauge for curved roll rack frame construction. 3,831,661, Cl. 164-282.000.
Ando, Ryo; and Hagiwara, Kokichi, to Nippon Kokan Kabushiki Kaisha. Apparatus for direct iron reduction. 3,831,913, Cl. 266-24.000.
Andresen, John H., Jr.: See—
Argentieri, Michael; and Andresen, John H., Jr., 3,831,451.
Andrew Engineering Company: See—
Landy, Arney, Jr., 3,832,544.
Andrew, Keith Lenton; Charnock, John Anthony; and Browne, John Prescott. Yarn drive roller. 3,831,874, Cl. 242-47.010.
Andrews, Arthur J.; and Luther, Paul J., to Compressive Industries, Inc. Gas pump employing electron beam welded bellows. 3,831,499, Cl. 92-45.000.
Anikanov, Nikolai Ivanovich; Grachev, Leonid Pavlovich; Goltsman, Samuil Aronovich; Zak, Grigory Iosifovich; Oleinik, Alexandr Ivanovich; Radutsky, Grigory Avramovich; Kheifets, Rafail Efimovich; and Baburin, Evgeny Arkadievich. Apparatus for assembling individual piles of printed matter into stacks. 3,831,781, Cl. 214-6.0ba.
Anthony, Robert C.; and Byland, Donald W., to Union Brass and Metal Manufacturing Company. Rotary slide valve. 3,831,621, Cl. 137-270.000.
Antonik, Julius, to Rossler, Heinz. One-piece coupling unit for model railroads. 3,831,776, Cl. 213-75.0tc.
Antonov, Bogomil Totev, to DSO 'Izot'. Device for local electric-spark layering of metals and alloys by means of rotating electrode. 3,832,514, Cl. 219-76.000.
Aoki, Naoshi: See—
Shimoyashiki, Shigehiro; Makita, Kiyoshi; and Aoki, Naoshi, 3,831,912.
Aponyi, Theodore J.; and Arvay, Edward A., to United States of America, Air Force. Modified polybenzothiazole-based adhesive. 3,832,320, Cl. 260-32.6nt.
Appeldoorn, Jacques W. J.; and Sluijters, Robert, to Akzona Incorporated. Common plane sequential mixing apparatus. 3,831,904, Cl. 259-4.000.
Appenzeller, Valentin, to Kusters, Eduard, Maschinenfabrik. Web supporting drum. 3,831,404, Cl. 68-199.000.
Appleton, Bernard Simon, to Unilan A.G. Shock absorber. 3,831,922, Cl. 267-140.000.
Applied Power Inc.: See—
Sonneborn, Lambertus Johannes, 3,831,999.
Applied Research Laboratories, Inc.: See—
Dahlquist, Ralph L., 3,832,060.
Aqua-Chem, Inc.: See—
La Haye, Paul G.; Craig, Glenn D.; and Turecek, Joseph L., 3,832,122.
Arai, Akira. Mechanical connecting device. 3,832,075, Cl. 403-328.000.
Arai, Toshio: See—
Arikawa, Masayasu; Ohi, Atsushi; Arai, Toshio; Iochi, Akihiko; and Kada, Hironosuke, 3,832,522.
Archibald, Paul B., to United States of America, Army. Fiberglass laminate backed ceramic armor. 3,832,266, Cl. 161-93.000.
Arcilesi, Donald A., to M&T Chemicals Inc. Method of preparing surfaces for electroplating. 3,832,291, Cl. 204-40.000.
Arco Polymers, Inc.: See—
Wright, Harold A., 3,832,312.
Ardezone, Frank J. Multi-point probe head assembly. 3,832,632, Cl. 324-158.00p.
Argentieri, Michael; and Andresen, John H., Jr., to Intercontinental Dynamics Corporation. Means for avoiding static friction. 3,831,451, Cl. 73-387.000.
Arikawa, Masayasu; Ohi, Atsushi; Arai, Toshio; Iochi, Akihiko; and Kada, Hironosuke, to Kobe Steel, Limited. Welding process and apparatus. 3,832,522, Cl. 219-137.000.
Ariss, Brian Arthur: See—
Cleminson, Frederick Antony; and Ariss, Brian Arthur, 3,832,714.
Ark-Les Switch Corporation: See—
Weber, Donald R.; Leaf, Harry Vincent; and Daly, Charles Joseph, 3,831,254.
Arkles, Barry C.; and Bonnett, Robert N., to Liquid Nitrogen Processing Corporation. Method for the depolymerization of polytetrafluoroethylene. 3,832,411, Cl. 260-653.300.
Armenti, Nicholas P. Device for the oral administration of medicine. 3,831,603, Cl. 128-222.000.
Armour and Company: See—
Phillips, Duane, 3,831,866.
Armstrong Cork Company: See—
Horst, Robert L.; and Wolgemuth, Dennis L., 3,832,064.
Topley, Charles Wilfred, 3,832,554.
Arndt, John P., to Gould Inc. Pulsed droplet ejecting system. 3,832,579, Cl. 310-8.100.
Arnold, Richard B.: See—
Smith, Dallas F.; and Arnold, Richard B., 3,831,255.
Arnold, Thomas J.: See—
Dressler, Thomas C.; and Arnold, Thomas J., 3,831,833.
Arnold, Winfried; and Locher, Johannes, to Bosch, Robert, GmbH. Remotely controlled electrohydraulic system with fail-safe features. 3,831,495, Cl. 91-459.000.
Artner, Marcus M.; and McGee, Paul D., to Motorola, Inc. Cartridge tape player door mounting assembly. 3,832,025, Cl. 312-297.000.
Arvay, Edward A.: See—
Aponyi, Theodore J.; and Arvay, Edward A., 3,832,320.
Ary, Thomas L. Prefabricated cast reinforced framed concrete wall section with clips to attach the frame to the reinforcing. 3,831,335, Cl. 52-601.000.
Asahi Glass Company, Limited: See—
Mori, Keisuke; Yamada, Takehiro; Nakamoto, Katsumi; Onaka, Hiroshi; Yamamoto, Takeshi; and Kato, Taizo, 3,831,918.
Nagasima, Takeomi, 3,832,527.
Asahi Kasei Kogyo Kabushiki Kaisha: See—
Akamatsu, Kiyoshi; Maruta, Masayasu; and Yonekura, Yasushi, 3,832,177.
Asahi Kogaku Kogyo Kabushiki Kaisha: See—
Watanabe, Koichiro, 3,832,052.
Ashida, Akira; and Yamada, Tateo, to Canon Kabushiki Kaisha. Film feed system for a convertible motion picture projector. 3,832,036, Cl. 352-166.000.
Ashland Oil, Inc.: See—
Culbertson, Billy M.; Sedor, Edward A.; and McKillip, William J., 3,832,133.
Ashtabula Bow Socket Company: See—
Baginski, Martin R., 3,831,979.
Asoyants, Grigory Bagradovich: See—
Dudko, Danill Andreevich; Sur, Mikhail Danilovich; and Asoyants, Grigory Bagradovich, 3,832,098.
Ateliers des Charmilles S.A.: See—
Pfau, Jean; Marendaz, Georges-Andre; and Rhyner, Heinz, 3,832,510.
Athenes, Claude: See—

- Charransol, Pierre; Hauri, Jacques; and Athenes, Claude, 3,832,492.
Atlantic Richfield Company: See—
Grane, Henry R., 3,832,395.
Nakaguchi, Glenn M.; Wang, Ting-I; and Caserio, Frederick F., Jr., 3,832,356.
Atlas Pacific Engineering Company: See—
Loveland, Malcolm W., 3,831,510.
Atwood, Hyatt B.; and McLean, James N., to Herr Manufacturing Company, Inc. Spinning and twisting ring construction. 3,831,367, Cl. 57-120.000.
Audiffred, Sidney J.: See—
Woody, Albert L.; Audiffred, Sidney J.; and Steury, Howard C., 3,831,726.
August Thyssen-Hütte: See—
Hoffken, Erich; and Kreyss, Gerd, 3,832,159.
Aukmanis, Edwards B.: See—
Campbell, Roger W.; Aukmanis, Edwards B.; and Placko, Milan, 3,831,963.
Campbell, Roger W.; Aukmanis, Edwards B.; and Placko, Milan, 3,831,964.
Austin, Gordon Maxwell: See—
Galea, Joseph, 3,832,634.
Automobiles M. Berliet: See—
Excoffon, Jean, 3,831,573.
Automotive Products Limited: See—
Osborne, Duncan William, 3,832,017.
Autoquip Corporation: See—
Clarke, Jesse E., 3,831,713.
Avco Corporation: See—
Homewood, Richard H.; Krukonis, Val J.; and Loszewski, Raymond C., 3,832,249.
Joray, Marvin L.; Blake, Nathan L.; and Richards, Gerald F., 3,831,325.
Matto, Lawrence R., 3,832,090.
Moellmann, Heinz F., 3,832,089.
Stein, Wolfgang J.; and Straniti, Salvatore, 3,831,674.
Avery, Hillard M. Engine. 3,831,565, Cl. 123-47.0aa.
Avionic Instruments Inc.: See—
Compoly, Albert William, 3,832,622.
Ayers, David L.: See—
Draper, Robert; Beecher, Donald T.; and Ayers, David L., 3,831,578.
Azinger, Frederick A., Jr.: See—
Wolf, Charles B.; Fey, Maurice G.; and Azinger, Frederick A., Jr., 3,832,519.
Azinger, Frederick A., Jr., to Westinghouse Electric Corporation. Device for measuring density and dew point of a gas. 3,831,430, Cl. 73-17.00a.
Azizi, Sohiei: See—
MacNiel, Douglas K.; and Azizi, Sohiei, 3,831,449.
Azuma, Toshiro: See—
Yamaoka, Kojiro; Azuma, Toshiro; and Fujisaki, Koichiro, 3,831,690.
B. V. Foco Nederland: See—
Bohman, Gote Hubert, 3,831,794.
Baardson, Andrew B., to Mill Conversion Contractor, Inc. Wood waste burner system. 3,831,535, Cl. 110-8.00c.
Baba, Takio: See—
Kawanishi, Kunishisa; Shimizu, Seigo; and Baba, Takio, 3,831,795.
Baburin, Evgeny Arkadievich: See—
Anikanov, Nikolai Ivanovich; Grachev, Leonid Pavlovich; Goltsman, Samuil Aronovich; Zak, Grigory Iosifovich; Oleinik, Alexandr Ivanovich; Radutsky, Grigory Avramovich; Kheifets, Rafail Efimovich; and Baburin, Evgeny Arkadievich, 3,831,781.
Back, Karl Johan, to Oy Cyklop AB. Device for pressing together goods supported on conveyor. 3,831,511, Cl. 100-7.000.
Bacon, Cole D.: See—
Kopf, J. David; Bacon, Cole D.; and Schwartz, Teryl W., 3,832,067.
Badische Anilin- & Soda-Fabrik Aktiengesellschaft: See—
Koenig, Karl-Heinz; Kolbinger, Rudolf; Zeeh, Bernd; and Fischer, Adolf, 3,832,389.
Baer, John S., to Warner Electric Brake & Clutch Company. Clutch and coupling unit. 3,831,724, Cl. 192-56.00c.
Baginski, Martin R., to Ashtabula Bow Socket Company. Steering assembly. 3,831,979, Cl. 280-279.000.
Bailey, Frank Gordon, to C.I.C. Ralphs Ltd. Method of shoe lasting. 3,831,215, Cl. 12-145.000.
Bailey, James R.: See—
Klein, Carl F.; and Bailey, James R., 3,832,709.
Baker, Don R., to Stauffer Chemical Company. Organotin Miticidal and insecticidal compounds. 3,832,370, Cl. 260-429.700.
Baker, Elizabeth Ann; Wluka, David Jankiel; and Tankey, Howard William, to Imperial Chemical Industries of Australia and New Zealand Limited. Dispersion comprising pigment, organic liquid and polymeric deflocculating agent. 3,832,209, Cl. 106-308.00q.
Baker, Harold R., to Norris Industries. Welding apparatus and welder head. 3,832,516, Cl. 219-81.000.
Baker Perkins Inc.: See—
Ingram, Charles E.; Gendron, Roger J.; Cronk, Vern V.; and Keefe, Harry J., 3,831,293.
Skarin, Carl R.; Dietzel, Kenneth H.; and Gendron, Roger J., 3,831,780.
Baker, Sherman F.; and Hess, Frederick D., Jr., to McDonnell Douglas Corporation. Aircraft engine suspension system. 3,831,888, Cl. 244-54.000.
Baker, Terry M.: See—
Burdick, Robert E.; Baker, Terry M.; and Wolfe, Baxter K., 3,831,525.
Bakke, Even, to Slick Corporation, The. Dust collector including diffuser assembly. 3,831,354, Cl. 55-418.000.
Balfour, Adrian E.: See—
Dunlap, Robert B.; and Balfour, Adrian E., 3,832,111.
Balzer, David John: See—
Boggs, Roger L.; Balzer, David John; and Haslett, Glenn Melvin, 3,831,240.
Bamba, Yasuo; and Iwamoto, Masao, to Toray Industries, Inc. Photosensitive polyamide compositions. 3,832,188, Cl. 96-115.00p.
Ban, Mikichi: See—
Matsumoto, Kazuya; and Ban, Mikichi, 3,832,063.
Banfi, Dezzo: See—
Milinko, Sandor; Banfi, Dezzo; Dobis, Emilia; Ottinger, Jozsef; Payer, Karoly; Palagyi, Tivadar; and Turi, Agnes, 3,832,137.
Baran, John S.; and Pitzele, Barnett, to Searle, G. D., & Co. 3,11-Dioxooleana-5,12-dien-30-oic acid, esters thereof and derivatives. 3,832,382, Cl. 260-468.500.
Baremor, Jerry F., to Eaton Corporation. Limited slip differential. 3,831,462, Cl. 74-711.000.
Bariko, John, to Westinghouse Electric Corporation. Nuclear techniques for detecting the presence of explosives. 3,832,545, Cl. 250-312.000.
Barnes, Gerald, to Amerace Esna Corporation, mesne. Power driven magnetic conveyor. 3,831,736, Cl. 198-41.000.
Barnette, Stanley Ronald. Self-reinforced plastic articles with core envelopment. 3,832,264, Cl. 161-41.000.
Barr and Stroud Limited: See—
Boyle, Kenneth Hector McKinnon; and Rogers, Thomas, 3,831,590.
Barr, Donald L.: See—
Cummins, Millard M.; Keates, Richard H.; Best, Robert G.; and Barr, Donald L., 3,831,442.
Barrer, Richard M.: See—
Yum, Su II; Buckles, Richard G.; and Barrer, Richard M., 3,831,600.
Barrett, William J.; and Green, Harold, to Woodward Governor Company. Slip detection system. 3,832,609, Cl. 318-52.000.
Bartlett, William G.: See—
Mangan, Edmund L.; and Bartlett, William G., 3,832,549.
Bartlett, William G.; and Mangan, Edmund L., to Bethlehem Steel Corporation. Wide range radiation gage having a controlled-gain photodetector for determining a material property. 3,832,542, Cl. 250-363.000.
Bartlett, William G.; Hoffman, Carvel D.; Jones, Duane T.; and Mangan, Edmund L., said Jones assor to Bethlehem Steel Corporation. Wide-range radiation gage for determining deviation of a material property with a controlled-gain detector in an interruptabl self-balancing measuring loop. 3,832,550, Cl. 250-358.000.
Bartlett, William G.; and Mangan, Edmund L., to Bethlehem Steel Corporation. Radiation gage with sample and hold feature in deviation measuring circuit. 3,832,551, Cl. 250-359.000.
Bartley, Thomas S.; Descary, John Gilbert; Fletcher, R. James; and Krishnan, R. Gopala, to International Paper Company. Method for producing nonwoven fabrics. 3,832,283, Cl. 162-211.000.
Barton, Bruce E.; and Cardwell, Paul H., to Deepsea Ventures, Inc. Fused salt electrolysis to obtain manganese metal. 3,832,295, Cl. 204-64.00r.
Baseley, Edward, to Lee, Raymond, Organization, Inc., The. Lunar shelter. 3,831,581, Cl. 126-270.000.
BASF Wyandotte Corporation: See—
Otrahlek, Joseph V.; and Gansser, Robert E., 3,832,234.
Bass, Sidney; and Rich, Hubert A., to Mattel, Inc. Pneumatic toy stove accessory. 3,831,314, Cl. 46-14.000.
Bassett, Marion Geraldine Currie; and Orr, Alfred Thorburn. Light control device. 3,832,541, Cl. 240-106.00r.
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., to Polaroid Corporation. Processing composition release mechanism for film cassette comprising self-contained film processing system. 3,832,048, Cl. 352-10.000.
Battisti, Sylvester J., to Ford Motor Company. Liquid-to-liquid heat exchanger. 3,831,672, Cl. 165-154.000.
Bauer, Gunther; Kramer, Lothar; and Kuhn, Helmut, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the manufacture of crimped fibers and filaments of linear high molecular weight polymers. 3,832,435, Cl. 264-168.000.
Bauer, Kurt: See—
Deutscher, Hans-Christian; and Bauer, Kurt, 3,831,219.
Bauer, Lieselotte: See—
Krueger, Friedrich; and Bauer, Lieselotte, 3,832,393.
Baumann, Helmut: See—
Wochowski, Waldemar; and Baumann, Helmut, 3,831,610.
Baxendale, Kenneth C., to Gleason Works, The. Tooling for receiving and supporting a quantity of powder material to be pressed into a self-supporting compact. 3,832,100, Cl. 425-78.000.
Baxter, Alan William: See—
Stock, Arthur; and Baxter, Alan William, 3,832,406.

- Baxter, David G.: See—
Sullivan, Bernard J.; and Baxter, David G., 3,832,065.
- Baxter Laboratories, Inc.: See—
Cromie, Harry W., 3,832,088.
Di Palma, Giorgio; and Gajewski, Henry M., 3,832,253.
- Bayer Aktiengesellschaft: See—
Jager, Gerhard; Buchel, Karl Heinz; Grewe, Ferdinand; and Frohberger, Paul-Ernst, 3,832,466.
Windemuth, Erwin; Dahm, Manfred; Richert, Karl Hartwig; and Maaben, Dieter, 3,832,311.
- Bayer, John William, to Owens-Illinois, Inc. Barrier polymers having high heat distortion temperatures. 3,832,335, Cl. 260-80.810.
- Bayles, S. Heagan, Jr.: See—
Hradcovsky, Rudolf J.; and Bayles, S. Heagan, Jr., 3,832,293.
- Bazhulin, Alexei Pavlovich; Vinogradov, Evgeny Alexandrovich; Irisova, Natalia Alexandrovna; Mitrofanova, Nina Vasilievna; Timofeev, Yuri Petrovich; Fridman, Samuil Aronovich; and Schaenko, Valentina Vasilievna. Instrument for viewing and measuring electrostatic radiation. 3,832,557, Cl. 250-461.000.
- Bazin, Bernard; and Albert, Jean, to Texas Instruments Incorporated. Method of fabrication of insulated gate field effect transistors. 3,832,248, Cl. 148-187.000.
- BBC Aktiengesellschaft Brown, Boveri & Cie: See—
Iten, Paul Dominik, 3,832,059.
- BBC Brown Boveri & Company, Limited: See—
Mottier, Francois, 3,832,026.
- Beauplat, Philippe Louis. Punch tool. 3,831,483, Cl. 83-698.000.*
- Beck, David F.: See—
Breton, Roger J.; and Beck, David F., 3,831,515.
- Beck, Frederick R., to McGill Manufacturing Company, Inc. Micro-lever switch operator. 3,832,508, Cl. 200-332.000.
- Beck, Hans (Stahlbau-Fertigbau): See—
Biber, Rupert, 3,831,778.
- Beck, James R., to Lilly, Eli, and Company. N-alkoxyalkyl idenesulfonamide compounds as herbicides. 3,832,155, Cl. 71-103.000.
- Beck, Siegfried; and Siebold, Manfred, to Bosch, Robert, GmbH. Control valve unit in pneumatic braking system. 3,832,015, Cl. 303-40.000.
- Becker, Rudolf, to Linde Aktiengesellschaft. Method of and system for the emptying of liquefied-gas vessels, especially the tanks of a tank ship. 3,831,811, Cl. 222-1.000.
- Beckford, Orville A.: See—
Rollender, William; and Beckford, Orville A., 3,832,288.
- Beckman Instruments, Inc.: See—
Carson, Randolph Charles, 3,832,517.
Deering, Raymond M.; and Pawlak, Raymond M., 3,831,589.
- Becton, Dickinson and Company: See—
Drozdzowski, Robert J.; Connolly, Peter F.; Massaglia, Italo M.; and Chlupsa, John Rudolph, 3,832,135.
- Bedi, Ram D. Composite self-locking fastener. 3,831,213, Cl. 10-10.00p.
- Beech, Frank: See—
Golding, Cyril George; Wiggin, Anthony John; and Beech, Frank, 3,831,645.
- Beecher, Donald T.: See—
Draper, Robert; Beecher, Donald T.; and Ayers, David L., 3,831,578.
- Behring Corporation: See—
Glasser, Fred A., 3,832,520.
- Beitler, Eduard. Slide fastener stringer. 3,831,227, Cl. 24-205.16c.
- Bejerman, Osvaldo: See—
Schmidt, Peter; and Bejerman, Osvaldo, 3,831,564.
- Belcher, Richard A., to Chase-Shawmut Company, The. Blown fuse indicator for high-voltage fuses. 3,832,665, Cl. 337-244.000.
- Bell & Howell Company: See—
Haake, Robert, 3,832,047.
- Bell, Oliver A., Jr.; and Gilleland, Randall C., to Colt Industries Operating Corporation. Short circuit protection system for electrical discharge machining apparatus. 3,832,511, Cl. 219-69.00r.
- Bell Telephone Laboratories, Incorporated: See—
Beurrier, Henry Richard, 3,832,647.
Bobeck, Andrew Henry; and Nelson, Terence John, 3,832,701.
Bresnahan, Eileen E.; Lias, Nicholas C.; Kolb, Ernest D.; and Laudise, Robert A. (said Kolb and said Laudise assors. to), 3,832,146.
King, Michael C., 3,832,027.
Louzon, Theodore J.; McMahon, William; and Mellon, John J. (said McMahon assor. to), 3,831,265.
Lynch, William Thomas, 3,832,246.
- Bell Telephone Laboratories, Incorporated: See—
Gloge, Detlef Christoph, 3,832,030.
- Belling and Company Limited: See—
Clausse, Georges Jean Louis-Marie, 3,832,526.
- Bello, Hobson Joseph, Jr.; and Smith, Albert Charles, Jr., to Eastman Kodak Company. Photographic processes and elements. 3,832,174, Cl. 96-22.000.
- Beloit Corporation: See—
Brenner, Lawrence A., 3,832,213.
Parker, Joseph D., 3,832,282.
Shaffer, Ronald L., 3,832,120.
- Benckiser, Joh. A., GmbH: See—
Krueger, Friedrich; and Bauer, Lieselotte, 3,832,393.
- Bender, Louis. Pill cartridge for a pill dispenser. 3,831,808, Cl. 221-197.000.
- Bendix Corporation, The: See—
- Davis, Dennis J.; and Juhasz, John E., 3,832,013.
Woo, Ji Yah, 3,831,489.
- Bengtsson, Sigurd W. Spring fastener. 3,831,225, Cl. 24-73.00p.
- Bennett, Dale L.: See—
Mittendorf, Theodor H.; and Bennett, Dale L., 3,831,696.
- Bennett, Joseph J.; and Trapp, Alvin A. Wire pulling apparatus. 3,831,877, Cl. 242-86.50r.
- Bense, William M., to Leeson Corporation. Take-up system. 3,831,873, Cl. 242-45.000.
- Benson, Carl F.: See—
Elmore, J. Russell; and Benson, Carl F., 3,831,241.
- Benteler-Werke Aktiengesellschaft: See—
Menne, Heinz; Schip, Wilhelm; and Eckhardt, Otto, 3,831,669.
- Bentley, Richard Lee; and Stuber, John Wesley, to Chicago Bridge & Iron Company. Gasket for closure seal. 3,831,950, Cl. 277-75.000.
- Bercik, Paul G.; and Henke, Alfred-M., to Gulf Research & Development Company. Isobutylene dimerization process. 3,832,418, Cl. 260-683.15r.
- Berezovsky, Mikhail Elevich: See—
Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Alferov, Yuri Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Elevich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.
- Berg, Erich: See—
Finger, Rudolph; Berg, Erich; and Schuppstahl, Heinz, 3,831,837.
- Berg, Laeder, to Unifoam AG. Apparatus for producing polyurethane foam. 3,832,099, Cl. 425-4.00c.
- Berg, Leo; Lenemann, Gerhard Johann; and Kinneging, Johannes Wilhelmus, to Knapsack Aktiengesellschaft. Filling nozzle and installation for filling drums with liquid yellow phosphorus. 3,831,644, Cl. 141-82.000.
- Bergman, Imanuel, to National Research Development Corporation. Gas detecting electrode assembly. 3,832,299, Cl. 204-195.00p.
- Bergwerksverband GmbH: See—
Hirz, Albert; Handrick, Kurt; and Kolling, Georg, 3,832,360.
- Berkeley, Bernard, to Hysan Corporation. Spray disinfectant-deodorant. 3,832,459, Cl. 424-45.000.
- Berkey Photo, Inc.: See—
Faris, Edwin E.; and Hertling, Charles J., 3,832,728.
- Berkhouse, Thomas W., to International Paper Company. Display card. 3,831,300, Cl. 40-21.00b.
- Berkowitz, Ami E.; and Meiklejohn, William H., to General Electric Company. Non-impact, curie point printer. 3,832,718, Cl. 346-74.00t.
- Berkowitz, Lawrence; Novickis, Georgs; and Sheth, Pratulchandra N., to Dickson Paper Fibre, Inc., mesne. Trash separating apparatus. 3,831,748, Cl. 209-12.000.
- Berman, Herbert S., to Westinghouse Electric Corporation. Silicon carbide junction thermistor. 3,832,668, Cl. 338-22.05d.
- Bernhardt, Brian M.; and Genzel, Edward A. Universal coupling. 3,831,982, Cl. 280-511.000.
- Bernstein, Benjamin T.; Crawshaw, James R.; and McCurry, Morris H., to Union Specialty Machine Company, mesne. Sewing machine motor and control circuit. 3,832,613, Cl. 318-269.000.
- Besenfelder, Edward R., to Honeywell Information Systems, Inc. Apparatus for detecting data bits and error bits in phase encoded data. 3,832,684, Cl. 340-146.1ab.
- Besser Company: See—
Woelk, Robert J., 3,832,119.
- Best, Robert G.: See—
Cummins, Millard M.; Keates, Richard H.; Best, Robert G.; and Barr, Donald L., 3,831,442.
- Bethlehem Steel Corporation: See—
Bartlett, William G.; and Mangan, Edmund L., 3,832,542.
Bartlett, William G.; Hoffman, Carvel D.; Jones, Duane T.; and Mangan, Edmund L. (said Jones assor. to), 3,832,550.
Bartlett, William G.; and Mangan, Edmund L., 3,832,551.
Books, William C., 3,832,478.
Forand, James L., Jr.; and Township, Pa., 3,832,147.
Humphries, Darrel V., 3,832,271.
Mangan, Edmund L.; and Bartlett, William G., 3,832,549.
Schaffer, Howard E.; and Bomboy, Craig L., 3,832,433.
- Bettcher, Industries, Inc.: See—
Bettcher, Louis A., 3,831,475.
- Bettcher, Louis A., to Bettcher, Industries, Inc., The. Comestible slicing apparatus. 3,831,475, Cl. 83-161.000.
- Betts, Robert E.: See—
Thomas, William B.; and Betts, Robert E., 3,831,523.
- Beurrier, Henry Richard, to Bell Telephone Laboratories, Incorporated. Signal distribution network. 3,832,647, Cl. 330-30.00r.
- Bevington, Richard E., Jr., to Eastman Kodak Company. Sheet plicating device. 3,831,501, Cl. 93-1.00c.
- Bezombes, Albert, to Saint-Gobain Industries. Adjustable form for shaping sheets of plastic material, in particular, glass. 3,832,153, Cl. 65-291.000.
- BG & F Inc.: See—
Goulas, Bobbie D., 3,831,259.
- Bhuta, Pravin G.; Johnson, Robert L.; and Graham, Douglas J., to TRW Inc. Surface tension method of and apparatus for separating immiscible liquids. 3,831,756, Cl. 210-109.000.
- Bianchetta, Donald L.; and Lohbauer, Kenneth R., to Caterpillar Tractor Co. Valve disabling device. 3,831,620, Cl. 137-269.000.

- Biber, Rupert, to Beck, Hans (Stahlbau-Fertigbau). Portion positioning apparatus, especially for dough portions. 3,831,778, Cl. 214-1.0bd.
- Bilgutay, Ilhan M. Bar code font. 3,832,686, Cl. 340-146.30z.
- Binder, Rudolf: See—
Gmeiner, Gunter; Kolle, Erwin; and Binder, Rudolf, 3,831,220.
Gmeiner, Gunter; Kolle, Erwin; and Binder, Rudolf, 3,831,221.
- Bindon, Glyn A.: See—
Meldrum, Charles R.; and Bindon, Glyn A., 3,831,920.
- Binford, Jack C.; Ethridge, Frederick A.; and Talbot, James R., to Fiber Industries, Inc. Method for producing a yarn having latent bulking characteristics. 3,831,231, Cl. 28-72.140.
- Binz & Co.: See—
Lager, Siegfried, 3,831,996.
- Bio-Medicus, Inc.: See—
Kletschka, Harold D.; and Rafferty, Edson H., 3,831,608.
- Bird, John Lee. Propeller shaft lock. 3,831,547, Cl. 115-43.000.
- Birkenbach, Eugen J., to International Harvester Company. Disk gang coupling for harrows and the like. 3,831,685, Cl. 172-568.000.
- Bishop, Harry L., Jr., to Allegheny Ludlum Industries, Inc. Decarburizing molten steel. 3,832,160, Cl. 75-60.000.
- Bittner, Herbert, to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft. Armored tubing with helical or circular corrugation. 3,831,636, Cl. 138-173.000.
- Bittner, Louis M. Gear driven cylindrical drum chance device. 3,831,947, Cl. 273-143.00r.
- Bjalm, Bengt G.; and Brown, Thomas G., to Reed Manufacturing Company. Plastic pipe assembly tool. 3,831,256, Cl. 29-237.000.
- Black Clawson Company, The: See—
PHELPS, Richard W.; and Tetro, Richard S., 3,831,876.
- Black Products Co.: See—
Lau, Erwin M., 3,831,643.
- Black, Robert Bruce. Wind-propelled apparatus. 3,831,539, Cl. 114-39.000.
- Blake, Nathan L.: See—
Joray, Marvin L.; Blake, Nathan L.; and Richards, Gerald F., 3,831,325.
- Blanton, Bobby D., to Texas Instruments, Incorporated. Thermostatic switch. 3,832,667, Cl. 337-354.000.
- Blomstrand, Paul R., to ACF Industries Incorporated. Apparatus for testing the operation of the defrost switch in an air conditioning unit. 3,831,391, Cl. 62-125.000.
- Bloom, Gordon Norman. Building element aligner and mortarizer. 3,831,819, Cl. 222-176.000.
- Blundell, Bill J.: See—
Hyden, Alsie G.; and Blundell, Bill J., 3,831,652.
- Boardman, Albert. Aging calculator. 3,831,839, Cl. 235-8.800.
- Boaz, Donald P. Silicate polymer vehicles for use in protective coatings and process of making. 3,832,204, Cl. 106-287.05c.
- Bobeck, Andrew Henry; and Nelson, Terence John, to Bell Telephone Laboratories, Incorporated. Transfer circuit for single wall domains. 3,832,701, Cl. 340-174.00f.
- Bober, Thomas W.: See—
Slovonsky, Idalee; Dagon, Thomas J.; and Bober, Thomas W., 3,832,453.
- Boehner, Beat: See—
Meyer, Willy; and Boehner, Beat, 3,832,400.
- Boeing Company, The: See—
Moorehead, James R., 3,831,376.
Pogson, John T., 3,831,664.
- Bogatyrev, Viktor Konstantinovich: See—
Dubovsky, Boris Grigorievich; Bogatyrev, Viktor Konstantinovich; Vladkov, German Matveevich; and Sviridenko, Valentina Yakovlevna, 3,832,563.
- Bogdanov, Evdokim Stepanovich; Alexandrov, Alexandr Sergeevich; Schegolev, Vadim Dmitrievich; Saveliev, Vyacheslav Ivanovich; Zakharov, Mikhail Fedorovich; Alexandrov, Yuri Nikolaevich; Korsetsky, Gennady Mikhailovich; and Kucher, Arnold Arkadievich. Extrusion die assembly. 3,831,418, Cl. 72-273.000.
- Boggs, Roger L.: See—
Nelson, David V.; and Boggs, Roger L., 3,832,018.
- Boggs, Roger L.; Balzer, David John; and Haslett, Glenn Melvin, to Caterpillar Tractor Company. Method of installing vented plugs in pin bores. 3,831,240, Cl. 29-148.300.
- Boggs, Roger L.; and Burk, Duane L., to Caterpillar Tractor Company. Method and apparatus for assembling welded track hinge joints. 3,831,257, Cl. 29-401.000.
- Bohman, Gote Hubert, to B. V. Foco Nederland. Load-carrier. 3,831,794, Cl. 214-516.000.
- Bohrdt, Joaquin: See—
Grieger, Gerhard; and Bohrdt, Joaquin, 3,832,502.
- Boileau, Jacques, to Compagnie Generale des Etablissements Michelin raison Sociale Michelin & Cie. Tire having lateral shift of salient tread groove angles. 3,831,654, Cl. 152-209.000.
- Bolding, Donald B.; and Williams, Hilton S., to N. L. Industries, Inc. Silicate bonded foundry mold and core sands. 3,832,191, Cl. 106-38.300.
- Bomboy, Craig L.: See—
Schaffer, Howard E.; and Bomboy, Craig L., 3,832,433.
- Bondi, Emanuele, to Fieldcrest Mills, Inc. Method of producing patterned blocks of pile yarns in making patterned pile fabrics. 3,831,232, Cl. 28-72.00r.
- Bonnett, Robert N.: See—
Arkles, Barry C.; and Bonnett, Robert N., 3,832,411.
- Books, William C., to Bethlehem Steel Corporation. Method for preventing early damage to furnace refractory shapes. 3,832,478, Cl. 13-35.000.
- Boone, Ralph D. Reciprocating cable alignment actuator. 3,831,623, Cl. 137-344.000.
- Booth, Robert Arthur: See—
Stribling, John Brian; and Booth, Robert Arthur, 3,831,288.
- Bopp, Warren G., to Eaton Corporation. Hydrokinetic coupling sleeve seal. 3,831,378, Cl. 60-353.000.
- Borders, Donald Bruce: See—
Wetzel, Eugene Raymond; and Borders, Donald Bruce, 3,832,398.
- Borg-Warner Corporation: See—
Boyd, Clinton A.; and Tijenelis, Donatas, 3,832,481.
Hopkins, Neil E., 3,831,390.
Muench, Paul W., 3,831,393.
- Bortins, John: See—
Mack, Ronald H.; and Bortins, John, 3,831,731.
- Bosch, Robert, GmbH: See—
Arnold, Winfried; and Locher, Johannes, 3,831,495.
Beck, Siegfried; and Siebold, Manfred, 3,832,015.
Lixenfeld, Manfred; and Reiff, Karl, 3,831,379.
Schipke, Winfried; and Scharf, Friedrich, 3,831,450.
Schmidt, Peter; and Bejerman, Osvaldo, 3,831,564.
- Bouchard, Jean: See—
Savall, Vincent; Treille, Pierre; and Bouchard, Jean, 3,831,750.
- Bourgoin, Guy, to Societe Anonyme D.B.A. Antiskid braking circuit. 3,832,012, Cl. 303-21.00f.
- Bowden, Ralph H. Transistor beta measuring instrument. 3,832,633, Cl. 324-158.00t.
- Bowen, David, Jr.: See—
Fisher, Don E.; Knauff, Paul A.; and Bowen, David, Jr., 3,831,872.
- Bowen, Russell J.; Ford, William B., Jr.; Sanborn, Ralph D.; Sawyer, Winslow A.; Sharp, John R.; Soini, Herbert E.; Lambert, Benjamin A.; and Lull, David B. Biological bomb. 3,831,520, Cl. 102-6.000.
- Bowles, Arnold G., to National Forge Company. Isostatic press. 3,832,103, Cl. 425-405.00h.
- Bowser, George H.; and Mazzoni, Renato J., to PPG Industries, Inc. Method of making a multiple glazed unit having a thermoplastic, spacer-dehydrator element. 3,832,254, Cl. 156-107.000.
- Boyajian, Alfred Z., to Stanley Works, The. Multipurpose pliers. 3,831,207, Cl. 7-5.500.
- Boyd, Clinton A.; and Tijenelis, Donatas, to Borg-Warner Corporation. High temperature, high pressure oil well cable. 3,832,481, Cl. 274-102.00r.
- Boyd, Edward A.; and Harkness, Joseph R., to Briggs Stratton Corporation. Method of making an electric motor armature core. 3,831,268, Cl. 29-598.000.
- Boyd, Herman L., 45% to McNally, Raymond H., 5% to Selmin, Allen C., 5% to Schneider, Harry and 5% jointly to Jefcoat, I. A., and Thais, Richard R. Multipurpose vaginal and cervical device. 3,831,587, Cl. 128-6.000.
- Boyden, Willis Guild; and Shaw, Richard Astourre, to North American Electronics Corporation. Inverter-converter power supply system. 3,832,623, Cl. 321-45.00r.
- Boyle, Kenneth Hector McKinnon; and Rogers, Thomas, to Barr and Stroud Limited. Apparatus for measuring the area between a fluctuating signal and an inclined baseline. 3,831,590, Cl. 128-2.50r.
- Brady, Lynn J.: See—
Holmes, Curtis L.; and Brady, Lynn J., 3,832,308.
- Braley, Silas A.: See—
Edmunds, Louis Henry, Jr.; and Braley, Silas A., 3,831,583.
- Brambilla, Luigi: See—
Allgaier, Rudolf; Brambilla, Luigi; and Scholz, Hans Jurgen, 3,831,972.
- Braum A.G.: See—
Johannsen, Hans Werner, 3,832,050.
- Bravin, Ben, to Cook Machinery Company, Division of Wire Technology & Machinery Company. Coordinated stopping of take-up and process machines. 3,831,412, Cl. 72-19.000.
- Bremshey AG: See—
Weber, Heinz, 3,831,614.
- Brenden, Byron B.; Neely, Victor I.; and Garlick, George F., to Holosonics. Scanning mid frequency acoustical prospecting method. 3,832,677, Cl. 340-15.5tn.
- Brenner, Lawrence A., to Beloit Corporation. Method for applying glue to leading and trailing edges of a wrapper sheet. 3,832,213, Cl. 117-44.000.
- Breslow, David S., to Hercules Incorporated. Nitrile imines. 3,832,399, Cl. 260-566.00d.
- Bresnahan, Eileen E.; Lias, Nicholas C.; Kolb, Ernest D.; and Laudise, Robert A., said Bresnahan and said Lias assors. to Western Electric Company Incorporated and said Kolb and said Laudise assors. to Bell Telephone Laboratories Incorporated. High pressure hydrothermal growth of quartz with high 'Q' values. 3,832,146, Cl. 23-301.00r.
- Breton, Roger J.; and Beck, David F., to Roto Manufacturing, Inc. Method for coring and pressing juice from fruits having a rind. 3,831,515, Cl. 100-37.000.
- Brewer, John C., to Garbalizer Corporation of America. Waste removal vehicle and structure associated therewith. 3,831,789, Cl. 214-82.000.
- Brey, Wilhelm; Hostetler, William; Loeffler, Earl Ferdinand; Kolm, Hubert Ernest; and Elder, Fred Grove, to Firestone Tire & Rubber Company, The. Materials handling assembly. 3,832,261, Cl. 156-405.000.

Breyse, Jacques; and Roget, Jean, to Rhone-Poulenc S.A. Separation apparatus. 3,831,763, Cl. 210-321.000.

Briar, John R.; and Grabek, Frederick M., to General Motors Corporation. Electromagnetic spring-wound clutch. 3,831,723, Cl. 192-35.000.

Bridgestone Tire Company Limited: See—
Kaida, Masaaki; and Yasuda, Shigeo, 3,832,681.

Briggs Stratton Corporation: See—
Boyd, Edward A.; and Harkness, Joseph R., 3,831,268.

Briskin, Theodore S.; Schnautz, Norman G.; and Sabherwal, Inderjit, to Sutton Research Corporation. Smokable substitute material and smoking products thereof. 3,831,609, Cl. 131-2.000.

British Iron and Steel Research Association, The: See—
Oxlade, Roy Ronald, 3,831,242.

British Petroleum Company, The: See—
Allum, Keith George; Hancock, Ronald David; McKenzie, Samuel; and Pitkethill, Robert Chalmers, 3,832,404.

Brittain, William J.; Dobedoe, Thomas J. L.; Mitchell, Raymond; and Oliver, Wilfred T., to Ford Motor Company. Electronic fuel metering apparatus for internal combustion engine. 3,831,563, Cl. 123-32.00a.

Broadbent, Thomas D.: See—
Shipp, John T.; Hines, Robin H.; Hollinshead, William L.; and Broadbent, Thomas D., 3,832,056.

Broadwin, Samuel, to Union Plastics Corporation. Adjustable syringe assemblies. 3,831,602, Cl. 128-218.00f.

Brody, Thomas F.: See—
Reitboeck, Herbert J. P.; and Brody, Thomas F., 3,832,530.

Brok, Wilhelm Fredrik; Spanjersberg, Arie Adriaan; and Van Staveren, Joannes, to De Staat der Nederlanden ten deze vertegenwoordigd door de Directie-Generaal der Posten, Telegrafie & Telefonie. Reading apparatus. 3,832,682, Cl. 340-146.3ed.

Brondy, Thomas L.; and Cole, Andrew T. Retrograde renal biopsy device. 3,831,585, Cl. 128-2.00b.

Brookman, Roger S., to American Precision Industries, Inc. Pneumatic rapper. 3,831,686, Cl. 173-132.000.

Brothers, Jack; and Fuzia, Walter J. Strapping severing tool. 3,831,280, Cl. 30-296.00r.

Broussard, Pat J.; and Fincher, Arnold, to Halliburton Company. High temperature, low density cement composition. 3,832,196, Cl. 106-89.000.

Brown & Williamson Tobacco Corporation: See—
Carwile, Paul, 3,832,004.

Brown, Kenton J.: See—
Roymoulik, Sunanda K.; and Brown, Kenton J., 3,832,276.

Brown, Patrick Michael; to Grace, W. R. & Co. Method of coating pressed vermiculite with a glaze composition. 3,832,224, Cl. 117-123.00a.

Brown, Robert A.; Jepson, John W.; and Lyon, Herbert W., to Acushnet Company. Method of making golf ball molds. 3,831,423, Cl. 72-358.000.

Brown, Thomas G.: See—
Bjalme, Bengt G.; and Brown, Thomas G., 3,831,256.

Brown, Vernon L.; and Pearce, Joseph L., to Otis Engineering Corporation. Stuffing box for wireline well apparatus. 3,831,676, Cl. 166-82.000.

Browne, John Prescott: See—
Andrew, Keith Lenton; Charnock, John Anthony; and Browne, John Prescott, 3,831,874.

Browner, Stella M.: See—
Tumlinson, James H. III; Mitchell, Everett R.; Browner, Stella M.; Mayer, Marion S.; Green, Nathan; Hines, Ronald W.; and Lindquist, Donald A., 3,832,461.

Bruelmanns, Karel B., to Fabrique Nationale Herstal S.A. en abregé FN. Device for producing simultaneously two separate fabrics rib on the same head of a rib knitting machine with two needle beds. 3,831,403, Cl. 66-126.00r.

Bryngdahl, Olof, to Xerox Corporation. Self-imaging with an optical tunnel for image formation. 3,832,029, Cl. 350-96.00t.

Bucalo, Louis, to Investors in Ventures, Inc. Devices for controlling fluid flow in living beings. 3,831,584, Cl. 128-1.00r.

Buchanan, James E.; and Nelson, Carl W., to Westinghouse Electric Corporation. Low cost digital to synchro converter. 3,832,707, Cl. 340-347.0da.

Buchel, Karl Heinz: See—
Jager, Gerhard; Buchel, Karl Heinz; Grewe, Ferdinand; and Froberg, Paul-Ernst, 3,832,466.

Buchler Instruments Division, Nuclear-Chicago Corporation: See—
Gelfand, Daniel, 3,832,096.

Buckles, Richard G.: See—
Yum, Su II; Buckles, Richard G.; and Barrer, Richard M., 3,831,600.

Budd Company, The: See—
Eggert, Walter S., Jr.; and Pavlik, Michael J., 3,832,002.

Bueche, Frederick J., to National Cash Register Company, The. Light scattering polymeric masses. 3,832,315, Cl. 260-28.50r.

Bunker, Thomas D., to GTE Sylvania Incorporated. Intermediate package and method for making. 3,832,480, Cl. 174-52.000.

Burdges, Kenneth P.; and Robertson, Arthur J., Sr., to Lockheed Aircraft Corporation. Airfoil with extendible and retractable leading edge. 3,831,886, Cl. 244-42.0cc.

Burdick, Robert E.; Baker, Terry M.; and Wolfe, Baxter K., to Rolair Systems, Inc. Automated assembly line with air cushion devices. 3,831,525, Cl. 104-23.0fs.

Burk, Duane L.: See—
Boggs, Roger L.; and Burk, Duane L., 3,831,257.

Burkin, Jury Alexandrovich; and Seleznev, Jury Emelyanovich. Apparatus for making memory storage matrices. 3,831,253, Cl. 29-203.00m.

Burlington Industries, Inc.: See—
Neill, Henry R.; and Davies, Robert G., 3,832,531.

Burns, Brian N. Strap cutter for leather and like material. 3,831,279, Cl. 30-280.000.

Burny, Camille J., Jr. Clip for forming simulated slipknot. 3,831,201, Cl. 2-150.000.

Burroughs Corporation: See—
Mack, Ronald H.; and Bortins, John, 3,831,731.

Burst, Robert A. Putty conditioning method and apparatus. 3,831,908, Cl. 259-191.000.

Burntyk, Victor: See—
Carlson, Norman R.; Zitelli, William E.; and Burntyk, Victor, 3,832,534.

Burton, Frank L., to Gates Rubber Company, The. Personnel protection sleeve. 3,831,635, Cl. 138-114.000.

Bustamante, Sebastian R., 20% to Lee, Raymond, Organization, Inc., The. Lightweight boat moving device. 3,831,211, Cl. 9-1.00t.

Butler Creek Company: See—
Vissing, Ellin D., 3,831,285.

Butler, Miles F.; and Corcia, John T. Petalite-spodumene-potassium silicate cement for bonding metal to glass. 3,832,195, Cl. 106-74.000.

Butler, William F., to Cutter Laboratories, Inc. Trocar-cannula. 3,831,814, Cl. 222-81.000.

Byland, Donald W.: See—
Anthony, Robert C.; and Byland, Donald W., 3,831,621.

Byzov, Gennady V.; Valdman, Ilya V.; Mazurovsky, Boris Y.; and Yakibjuk, Ivan E. Method of bending heat exchanger sections and a machine for the realization thereof. 3,831,420, Cl. 72-305.000.

Cailliet, Rene. Water-tight closing device. 3,831,544, Cl. 114-202.000.

Cain, Gerald E. Water ski towline pay-out and retrieval apparatus. 3,831,545, Cl. 114-235.0ws.

Calcaro, Louis A., to Rockwell Manufacturing Company. Fire extinguishing system nozzle. 3,831,682, Cl. 169-37.000.

Calder, Oliver J., to Airless Spray Tip Manufacturing Co. Spray tip. 3,831,862, Cl. 239-526.000.

Califano, Frank L.; Stepien, George, Jr.; and Russell, Thomas E., to Flintkote Company, The. Method for reducing water loss through soil by seepage. 3,831,382, Cl. 61-1.00r.

Calton, Marion R.: See—
Satzler, Ronald L.; and Calton, Marion R., 3,831,459.

Cambrian Housewares Limited: See—
Phipps, Dennis, 3,831,688.

Camelec Limited: See—
Pedler, Richard John, 3,831,271.

Campagne, Nicolaas Van Lookeren: See—
Kouwenhoven, Herman W.; Pijpers, Franciscus W.; and Campagne, Nicolaas Van Lookeren, 3,832,445.

Campbell, Glenn A.: See—
Hoffmann, George R.; Mason, Elmer B.; Jack, Graydon W.; and Campbell, Glenn A., 3,832,581.

Campbell, Roger W.: See—
Cator, Dennis W.; Campbell, Roger W.; and Felix, Gerardus L., 3,831,962.

Campbell, Roger W.; Aukmanis, Edvards B.; and Placko, Milan, to General Motors Corporation. Steering actuator for tandem axles. 3,831,963, Cl. 280-81.00a.

Campbell, Roger W.; Aukmanis, Edvards B.; and Placko, Milan, to General Motors Corporation. Swivel assembly for steerable axle. 3,831,964, Cl. 280-81.00a.

Canadian National Railway Company: See—
Cass, George Robert, 3,832,635.

Canadian Patents and Development Limited: See—
Juneja, Subhash C., 3,832,316.

Canella, Luigi, to Italmimpianti Societa Italiana Impianti p.a. Bulk material blending and reclaiming apparatus. 3,831,735, Cl. 198-36.000.

Canip Ways Inc.: See—
Olson, Allan M., 3,831,827.

Canon Kabushiki Kaisha: See—
Ashida, Akira; and Yamada, Taseo, 3,832,036.

Matsumoto, Kazuya; and Ban, Mikichi, 3,832,063.

Nagamatsu, Katsumi; and Saito, Takashi, 3,832,170.

Nishide, Katsuhiko; Yamanouchi, Teruo; and Kinjo, Kikuo, 3,832,172.

Cantz, Rudolf, to Kennametal Inc. Anti skid element for a vehicle tire. 3,831,655, Cl. 152-210.000.

Carbide Form Grinding Inc.: See—
Perlman, Morris, 3,831,474.

Carborundum Company, The: See—
Economy, James; and Lin, Ruey Y., 3,831,760.

O'Connor, Michael P., Jr., 3,832,273.

Cardwell, Paul H.: See—
Barton, Bruce E.; and Cardwell, Paul H., 3,832,295.

Kane, William S.; and Cardwell, Paul H., 3,832,165.

Carlson, Norman R.; and Ronnen, Uri G., to Westinghouse Electric Corporation. On-line hybrid computer arrangements having universal interfacing capability for electric power system studies. 3,832,533, Cl. 235-151.210.

Carlson, Norman R.; Zitelli, William E.; and Burntyk, Victor, to Westinghouse Electric Corporation. Computation of power system load flows and transient stability. 3,832,534, Cl. 235-151.210.

Carpotech Corporation: See—
Colt, James G.; and Emus, Ronald W., Jr., 3,831,223.

Carre, Jean-Jacques, to Societe Anonyme D. B. A. Hydraulic servomotor. 3,831,494, Cl. 91-434.000.

Carson, Randolph Charles, to Beckman Instruments, Inc. Method of welding coated wires to electrical conductors. 3,832,517, Cl. 219-92.000.

Carter, Daniel G. Jr., to United States of America, Atomic Energy Commission. Method for the suppression of hydrogen during the dissolution of zirconium and zirconium alloys. 3,832,439, Cl. 423-4.000.

Carwile, Paul, to Brown & Williamson Tobacco Corporation. Transition chute. 3,832,004, Cl. 302-28.000.

Case, John N. Catamaran and method of making. 3,831,540, Cl. 114-77.00r.

Caserio, Frederick F., Jr.: See—
Nakaguchi, Glenn M.; Wang, Ting-I; and Caserio, Frederick F., Jr., 3,832,356.

Casey, Robert J., to United States of America, Navy. Vented plunger atomizer. 3,831,858, Cl. 239-464.000.

Casio Computer Kabushiki Kaisha: See—
Kashio, Toshio, 3,832,697.

Cass, George Robert, to Canadian National Railway Company. Combined digital-analogue speedometer. 3,832,635, Cl. 324-166.000.

Castellanos, Leopold J., to Esso Production Research Company. Swivel joint connection. 3,832,073, Cl. 403-121.000.

Casull, Richard J. Revolver cylinder lock. 3,831,305, Cl. 42-67.000.

Caterpillar Tractor: See—
Woody, Albert L.; Audiffred, Sidney J.; and Steury, Howard C., 3,831,726.

Caterpillar Tractor Co.: See—
Bianchetta, Donald L.; and Lohbauer, Kenneth R., 3,831,620.

Comer, Glen S., 3,831,633.

Muller, Thomas P.; and Sitton, Ellis A., 3,831,718.

Nieman, John R.; and Worman, Roger A., 3,831,662.

Poplawski, Eugene M., 3,831,658.

Reinsma, Harold L.; and Iverson, Lowell P., 3,832,022.

Schulz, Gunter W., 3,831,762.

Caterpillar Tractor Company: See—
Boggs, Roger L.; Balzer, David John; and Haslett, Glenn Melvin, 3,831,240.

Boggs, Roger L.; and Burk, Duane L., 3,831,257.

Helton, Eugene L.; and Watts, Loyal O., 3,831,298.

Lanz, William E.; and Wilson, Eugene M., 3,831,297.

Nelson, David V.; and Boggs, Roger L., 3,832,018.

Nelson, Nels S.; and Piper, Harlow H., 3,831,226.

Satzler, Ronald L.; and Calton, Marion R., 3,831,459.

Cator, Dennis W.; Campbell, Roger W.; and Felix, Gerardus L., to General Motors Corporation. Steerable tandem axle suspension. 3,831,962, Cl. 280-81.00a.

C.A.V. Limited: See—
Fenne, Ivor; and C.A.V. Limited, 3,831,863.

Cavalier Corporation: See—
Lindsey, James C., 3,831,806.

Cavallo, Roger Paul Charles, to Synthelabo. Control device for a respiratory apparatus. 3,831,596, Cl. 128-145.800.

Cederquist, Alf L.; and Devlin, Shaun S., to Ford Motor Company. Time division interpolator. 3,832,640, Cl. 328-83.000.

Cellerini, Albert R.; and Dobrosielski, Stephen S., to Westinghouse Electric Corporation. Circuit breaker with spring closing means and pawl and ratchet spring charging means. 3,832,504, Cl. 200-153.0sc.

Cellier, Francis: See—
Duncan, Robert; and Cellier, Francis, 3,831,248.

Centre for Industrial Research (CIR) Ltd.: See—
Zirlin, Amnon Dov, 3,832,475.

Centronics Data Computer Corporation: See—
Howard, Robert, 3,831,729.

Ceramic Magnetics Inc.: See—
Sommer, Alfred, 3,831,269.

Cerankowski, Leon D.; and Mattucci, Neil, to Polaroid Corporation. Novel photographic products and processes. 3,832,173, Cl. 96-3.000.

Cerneck, Edward, Jr., to Adar, Inc. Battery condition indicator. 3,832,629, Cl. 324-29.500.

CFS Corporation: See—
Straughan, Clemens F.; and Schad, Charles A., 3,832,260.

CGR Medical Corporation: See—
Thomas, Eugene P.; Cimildora, Henry F.; and Morin, James A., 3,832,559.

Challenge-Cook Bros., Incorporated: See—
Freze, Benjamin H., 3,831,294.

Chamberlin, James W., to Lilly, Eli, and Company. Deshydroxymethyl derivatives of monensin. 3,832,358, Cl. 260-345.700.

Chambers, Harley Edward; and Hoagland, Richard E. Protective cap and fluid cylinder assembly. 3,831,802, Cl. 220-40.00r.

Champion Spark Plug Company: See—
Podiak, Richard S., 3,832,586.

Chaney, Preston E. Dispenser for error correcting fluids. 3,832,071, Cl. 401-260.000.

Chang, Chen-Kuo, to Westinghouse Electric Corporation. Squirrel cage motor with improved rotor bar securing arrangement. 3,832,583, Cl. 310-201.000.

Chang, Wen-Hsuan; and Scriven, Roger L., to PPG Industries, Inc. Lactone reaction products. 3,832,333, Cl. 260-77.50c.

Chantreau, Robert, to Societe Anonyme dite: Societelorraine de Laminage Continu. Cleaning system for a high speed filter. 3,831,761, Cl. 210-274.000.

Charnock, John Anthony: See—
Andrew, Keith Lenton; Charnock, John Anthony; and Browne, John Prescott, 3,831,874.

Charpentier, Maurice, to Saint-Gobain Industries, mesne. Method and apparatus for the production of sheet on block of agglomerated granules of polystyrene. 3,832,429, Cl. 264-51.000.

Charransol, Pierre; Hauri, Jacques; and Athenes, Claude, to International Standard Electric Corporation. PCM switching network providing interleaving of outgoing and incoming samples to a store during each time slot. 3,832,492, Cl. 179-15.0at.

Chase-Shawmut Company, The: See—
Belcher, Richard A., 3,832,665.

Chaska Chemical Company, Inc.: See—
Petsch, Harold A., 3,832,069.

Chavanoz S.A.: See—
Venot, Jean, 3,831,830.

Chekotilo, Leonty Vasilievich: See—
Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Aiforov, Jury Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Elevich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.

Chemetron Corporation: See—
Harrington, Edward F., Jr., 3,831,498.

Cherry, Robert: See—
Mueller, Fritz Kurt; Martin, Billy Otis; and Cherry, Robert, 3,832,669.

Chevron Research Company: See—
Anderson, Robert G., 3,832,408.

Csicsery, Sigmund M., 3,831,572.

Frank, Hans G., 3,832,425.

Freder, Francis J. III, 3,832,424.

Hudson, Thomas A.; and Strickland, Gordon E., Jr., 3,831,385.

Kozlowski, Robert H.; and Rosenthal, Joel W., 3,832,149.

Chiang, Mutong T.: See—
Milkovich, Ralph; and Chiang, Mutong T., 3,832,423.

Chicago Bridge & Iron Company: See—
Bentley, Richard Lee; and Stubert, John Wesley, 3,831,950.

Chicago Fire Brick Company: See—
Parsons, Joseph R.; and Rechter, Harold L., 3,832,193.

Childress, Lloyd K., Jr.; Flippen, George B., Jr.; and McDaniels, Louis M., to International Business Machines Corporation. Cassette loading and unloading apparatus. 3,832,734, Cl. 360-96.000.

Chisholm-Ryder Company, Inc.: See—
Holloway, Robert L., 3,831,752.

Chlupsa, John Rudolph: See—
Drozdzowski, Robert J.; Connolly, Peter F.; Massaglia, Italo M.; and Chlupsa, John Rudolph, 3,832,135.

Ciabrini, Jacques Paul Elie, to Ergins Matra. Fixing device for a component of a system. 3,832,040, Cl. 350-310.000.

Ciavattini, Anthony: See—
Gardella, John M.; Ciavattini, Anthony; and Kiefer, Robert Albert, 3,831,742.

Ciba-Geigy AG: See—
Eggensperger, Heinz; Franzen, Volker; Muller, Horst; and Stephan, Hans, 3,832,328.

Hennart, Claude, 3,832,464.

Stocker, Emil; Schnabel, Ernfred; and Klein, Georg Anton, 3,832,339.

Ciba-Geigy Corporation: See—
Ilvespaa, Atso, 3,832,352.

Meyer, Willy; and Bochner, Beat, 3,832,400.

Ciba-Geigy AG: See—
Massy, Derek James Rowland; and Winterbottom, Kenneth, 3,832,131.

C.I.C. Ralphs Ltd.: See—
Bailey, Frank Gordon, 3,831,215.

Cichy, Helen J. Stuffed doll and coin bank. 3,831,313, Cl. 46-2.000.

Cimarusti, Christopher M., to Squibb, E. R. & Sons, Inc. Process for preparing 21-chloro-17-acyloxy-20-ketosteroids. 3,832,366, Cl. 260-397.500.

Cimildora, Henry F.: See—
Thomas, Eugene P.; Cimildora, Henry F.; and Morin, James A., 3,832,559.

Cities Service Company: See—
Wiggins, Louis E., 3,832,450.

Claasen, Antonius Bernardus. Safety closure. 3,831,796, Cl. 215-9.000.

Claes, Frans Henri, to Agfa-Gevaert Mortsel. Continuous flow mixing apparatus. 3,831,907, Cl. 259-7.000.

Clark, Donald E.: See—
Alburn, Harvey E.; Clark, Donald E.; Grant, Norman G.; and Lapidus, Milton, 3,832,373.

Clark, Frank S., to Monsanto Company. Polyphenyl thioether lubricating compositions. 3,832,303, Cl. 252-46.600.

Clark, Harold A., to Dow Corning Corporation. Silicone elastomer containing polymonomethylsiloxane. 3,832,420, Cl. 260-825.000.

Clark, James M., to International Telephone and Telegraph Corporation. Digital speech detector. 3,832,493, Cl. 179-15.0as.

Clark, Russell D., Jr., to Westinghouse Electric Corporation. Prefabricated housing for electrical switchgear with external housing wall attachment means. 3,832,605, Cl. 317-120.000.

Clarke, Jesse E., to Autoquip Corporation. Platform system for servicing aircraft landing gear. 3,831,713, Cl. 187-8.410.

Clarke, William M.: See—
Hammond, Philip D.; Clarke, William M.; and Denton, William I., 3,832,372.

Clausse, Georges Jean Louis-Marie, to Belling and Company Limited. Electrically heated kettles with a heat control. 3,832,526, Cl. 219-441.000.

Claypool, Harry W.: See—
Nugent, John L.; and Claypool, Harry W., 3,832,653.

Cleminson, Frederick Antony; and Ariss, Brian Arthur, to Triplex Safety Glass Company Limited. Windshield antenna. 3,832,714, Cl. 343-713.000.

Cleveland, Bruce B.; and Dougan, Thomas P., to Upjohn Company. The. Thermal insulating barrier of cellular polymer blocks. 3,832,263, Cl. 161-37.000.

Clingman, David R. Container support. 3,831,209, Cl. 9-1.00a.

Clorox Company, The: See—
Foley, Larry L., 3,831,205.

Coaxial Scientific Corporation: See—
McVoy, David S.; and Reynolds, Richard G., 3,832,690.

Coburn Optical Industries, Inc.: See—
Coburn, Orin W.; and Stith, Joe D., 3,831,236.

Coburn, Orin W.; and Stith, Joe D., to Coburn Optical Industries, Inc. Cup-shaped cutting tool having cutting teeth. 3,831,236, Cl. 29-103.00r.

Colado, Joseph J., to Superior Concrete Accessories, Inc. Articulated hold-down anchor device for the embedded cables of a prestressed concrete girder. 3,831,331, Cl. 52-225.000.

Cole, Andrew T.: See—
Brondy, Thomas L.; and Cole, Andrew T., 3,831,585.

Cole, Edward L.: See—
Hess, Howard V.; Cole, Edward L.; and Franz, William F., 3,832,279.

Cole National Corporation: See—
Richens, Robert H.; and Garner, Charles A., 3,831,488.

Coleman, Lloyd Archelle. Helmet guard. 3,831,407, Cl. 70-18.000.

Colgate-Palmolive Company: See—
Grand, Paul Sheldon, 3,832,310.

Collet, Clement Pierre. Processing apparatus. 3,831,509, Cl. 99-542.000.

Collins, Byron R.: See—
McVey, Charles I.; and Collins, Byron R., 3,832,588.

Colt Industries Operating Corporation: See—
Bell, Oliver A., Jr.; and Gilleland, Randall C., 3,832,511.

Colt, James G.; and Emus, Ronald W., Jr., to Carpetech Corporation. Carpet and upholstery cleaning apparatus with improved noise muffling feature. 3,831,223, Cl. 15-321.000.

Columbus Auto Parts Company, The: See—
Amos, James J., 3,831,244.

Amos, James J., 3,831,245.

Comer, Glen S., to Caterpillar Tractor Co. Single lever control for actuating multiple control valves. 3,831,633, Cl. 137-636.200.

Communications Satellite Corporation: See—
Sciulli, Joseph Albert; and Lutz, Paul Andrew, 3,832,491.

Compagnie Generale des Etablissements Michelin raison Sociale Michelin & Cie: See—
Boileau, Jacques, 3,831,654.

Dillenschneider, Jean Paul, 3,831,657.

Compagnie Industrielle des Communications Cit-Alcatel: See—
Leonard, Didier, 3,832,490.

Compagnie Industrielle des Telecommunications Cit-Alcatel: See—
Le Dily, Claude; and Lajotte, Dominique, 3,832,536.

Maurice, Louis, 3,832,084.

Compo Industries, Inc.: See—
Dunlap, Robert B.; and Balfour, Adrian E., 3,832,111.

Compoly, Albert William, to Avionic Instruments Inc. Parallel phase lock circuitry for inverters and the like. 3,832,622, Cl. 321-27.00r.

Compressive Industries, Inc.: See—
Andrews, Arthur J.; and Luther, Paul J., 3,831,499.

Compton, Carlton B.; and Doelp, Walter L., Jr., to Ford Motor Company. Breakerless ignition system. 3,831,570, Cl. 123-148.00c.

Conibear, David Eustace; and Halls, Maurice Vernon, to Sperry Rand Limited. Navigational apparatus. 3,831,286, Cl. 33-317.000.

Conklin, George W.: See—
Fetterly, Lloyd C.; Conklin, George W.; and May, Nathan C., 3,832,363.

Connolly, Peter F.: See—
Drozowski, Robert J.; Connolly, Peter F.; Massaglia, Italo M.; and Chlupka, John Rudolph, 3,832,135.

Conrad Industries Inc.: See—
Doumany, Constantine R., 3,831,624.

Conrad, Karl, to Roland Offsetmaschinenfabrik Faber & Schleicher AG. Take-off mechanism for sheet delivery apparatus used with a printing press. 3,831,932, Cl. 271-182.000.

Coprad, Rene, to Dynaloc Corporation. Method for making self-centering pulleys. 3,831,243, Cl. 29-148.40d.

Conroy, Richard F. M.: See—
Schmidt, Gerald W.; Smith, Jay III; Jones, Lawrence T.; and Conroy, Richard F. M., 3,831,552.

Consorti, Sebastian John. Laundry bag. 3,831,650, Cl. 150-7.000.

Continental Can Company, Inc.: See—
Hellmer, Ernest W., 3,831,929.

Continental Oil Company: See—
Hackett, Homer L.; and Starks, Charles M., 3,832,306.

Control Data Corporation: See—
Cray, Seymour R.; and Roush, Maurice D., 3,832,603.

Seim, Howard N.; and Roebke, Neal E., 3,832,494.

Cook, Charles A.; and Hajduk, Thaddeus J., to Zenith Radio Corporation. Method of lacquering cathode ray tube panels. 3,832,211, Cl. 117-33.50c.

Cook, Henry D., to K & M Enterprises, Incorporated. Spray bar with guide wheels and stabilizing poles. 3,831,848, Cl. 239-104.000.

Cook, John W. Toilet flush apparatus. 3,831,204, Cl. 4-57.00r.

Cook Machinery Company, Division of Wire Technology & Machinery Company: See—
Bravin, Ben, 3,831,412.

Cook, Russell P., to Polaroid Corporation. Underwater camera housing with means for manipulating a flash unit. 3,832,720, Cl. 354-64.000.

Cook, Russell P., to Polaroid Corporation. Underwater housing for enclosing photographic apparatus. 3,832,725, Cl. 354-64.000.

Cope, Geoffrey Wilton; and Smith, Loren William, to Dresser Industries, Inc. Railway car center bearing assembly. 3,831,530, Cl. 105-199.00c.

Coppersmith, Morris, to Packaging Aids, Inc. Dispensing system. 3,831,824, Cl. 222-525.000.

Coran, Aubert Yaucher; and Kerwood, Joseph Edward, to Monsanto Company. N-(thio)-glutarimides and N-(thio)-adipimides. 3,832,348, Cl. 260-239.30r.

Corcia, John T.: See—
Butler, Miles F.; and Corcia, John T., 3,832,195.

Corey, Albert E.; Donermeyer, Donald D.; Fantl, Joel; and Williams, Charles R., to Monsanto Company. Process for the preparation of a poly(vinyl acetate dialkyl maleate acrylic acid) textile size. 3,832,321, Cl. 260-33.8ua.

Corning Glass Works: See—
Käpron, Felix P., 3,832,028.

McLean, Byron R., 3,831,580.

Cornish, Alan H.; Delaney, Ronald E.; and Davis, Robert B., to Koehler-Dayton, Inc. Sewage treatment system. 3,831,534, Cl. 110-8.00c.

Cornsweet, Tom N., to Acuity Systems, Incorporated. Apparatus and method for analyzing spherocylindrical optical systems. 3,832,066, Cl. 356-127.000.

Cosar Corporation: See—
Cox, James R., 3,832,070.

Coulson, Dale Robert, to Du Pont de Nemours, E. I., and Company. Amination of aromatic compounds in liquid hydrogen fluoride. 3,832,364, Cl. 260-378.000.

Cox, Arthur R.; and Holiday, Paul R., to United Aircraft Corporation. Apparatus for making articles from particulated matter. 3,832,107, Cl. 425-78.000.

Cox, James R., to Cosar Corporation. Calibration system for reflection densitometers. 3,832,070, Cl. 356-209.000.

Cox, Paul F., to Texas Instruments, Incorporated. Environment monitoring device and system. 3,831,432, Cl. 73-23.000.

CPC International, Inc.: See—
Milkovich, Ralph; and Chiang, Mutong T., 3,832,423.

Craig, Glenn D.: See—
La Haye, Paul G.; Craig, Glenn D.; and Turecek, Joseph L., 3,832,122.

Crane, Roy B., to Keene Corporation. Two circuit track lighting system. 3,832,503, Cl. 200-51.00r.

Crank, Gerald E., to Hole Pluggers, Inc. Hole plugging method. 3,831,383, Cl. 61-35.000.

Craven, Wilbur J., to Stanadyne, Inc. Environment free snap hook. 3,831,229, Cl. 24-235.000.

Crawshaw, James R.: See—
Bernstein, Benjamin T.; Crawshaw, James R.; and McCurry, Morris H., 3,832,613.

Cray, Seymour R.; and Roush, Maurice D., to Control Data Corporation. Interconnect technique for stacked circuit boards. 3,832,603, Cl. 317-101.00d.

CRC-Croese International, Inc.: See—
Thigpen, James L., 3,831,684.

Crepaco, Inc.: See—
Wakeman, Alden H., 3,831,906.

Cressey, Philo Burton, Jr., to Scott Paper Company. Method of cast coating paper. 3,832,216, Cl. 117-64.00c.

Cretex Companies, Inc., The: See—
Longfellow, Richard C., 3,831,954.

Creusot-Loire: See—
Daniel, Edmond, 3,831,870.

Leroy, Pierre, 3,832,161.

Crisler, Larry R.; and Eggerman, William G., to United States of America, Atomic Energy Commission. Chemical Vapor deposition of uranium and plutonium. 3,832,222, Cl. 117-107.20r.

Critchley, John Phillip, to United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defence in Her Britannic Majesty's Government of the. Aromatic fluoro-polyimides. 3,832,322, Cl. 260-37.00n.

Crockett, Joseph T.: See—
Hackbarth, Lowell E.; and Crockett, Joseph T., 3,832,327.

Cromie, Harry W., to Baxter Laboratories, Inc. Modular pneumatic surgical drill. 3,832,088, Cl. 415-199.00r.

Crompton & Knowles Corporation: See—
Wueger, Karl W., 3,831,640.

Cronk, Vern V.: See—
Ingram, Charles E.; Gendron, Roger J.; Cronk, Vern V.; and Keefe, Harry J., 3,831,293.

Crouch, Dell A., Jr. Purification of anhydrous aluminum chloride in situ in a salt melt. 3,832,452, Cl. 423-495.000.

Crucible Inc.: See—
Pinnow, Kenneth E.; Mehta, J. M.; and Moskowitz, A., 3,832,244.

Csicsery, Sigmund M., to Chevron Research Company. Single-stage cold start and evaporative control method and apparatus for carrying out same. 3,831,572, Cl. 123-179.00g.

CTS Corporation: See—
Holmes, Curtis L.; and Brady, Lynn J., 3,832,308.

Cubic Industrial Corporation, mesne: See—
Nelson, Alfred M.; McPherson, Robert G.; and Martin, Maurice S., 3,831,749.

Culbertson, Billy M.; Sedor, Edward A.; and McKillip, William J., to Ashland Oil, Inc. Process for shrinkproofing wool. 3,832,133, Cl. 8-127.600.

Cummins Engine Company, Inc.: See—
Perr, Julius P.; and Muntean, George L., 3,831,846.

Cummins, Millard M.; Keates, Richard H.; Best, Robert G.; and Barr, Donald L., to Thurman Manufacturing Company, The. String tension measuring device. 3,831,442, Cl. 73-144.000.

Currie, James H.: See—
Paxton, Wayne E.; Rishavy, Edward A.; and Currie, James H., 3,831,562.

Curtis, William I., to Hill Acme Company, The. Bar sorter. 3,831,779, Cl. 214-1.00p.

Curtiss, Alan C.: See—
Praglin, Julius; McKie, James E., Jr.; Curtiss, Alan C.; and Longhenry, David K., 3,832,532.

Cushing, Lloyd C. Apparatus for use in hauling traps and the like. 3,831,311, Cl. 43-6.500.

Cuthbert, Stanley G., to SCM Corporation. Brazing and solder compositions comprising a chelating agent. 3,832,242, Cl. 148-24.000.

Cutter Laboratories, Inc.: See—
Butler, William F., 3,831,814.

Cyprane Limited: See—
Needham, David Alan, 3,831,599.

Czich, Erhard: See—
Schmidt, Herbert; Weiler, Rolf; and Czich, Erhard, 3,831,634.

D & M Technologies, Inc.: See—
Hradcovsky, Rudolf J.; and Bayles, S. Heagan, Jr., 3,832,293.

Dachs, Norman W.: See—
Geering, Emil J.; and Dachs, Norman W., 3,832,329.

Dagon, Thomas J.: See—
Slovonsky, Idalee; Dagon, Thomas J.; and Bober, Thomas W., 3,832,453.

Dahlquist, Ralph L., to Applied Research Laboratories, Inc. Method of preparing analyte material for spectrochemical analysis. 3,832,060, Cl. 356-36.000.

Dahm, Manfred: See—
Windemuth, Erwin; Dahm, Manfred; Richert, Karl Hartwig; and Maaben, Dieter, 3,832,311.

Daicel Ltd.: See—
Higuchi, Masaru; Yamada, Tadashi; and Suzuki, Ryoshu, 3,832,357.

Daimler-Benz Aktiengesellschaft: See—
Gmeiner, Gunter; Kollé, Erwin; and Binder, Rudolf, 3,831,220.

Gmeiner, Gunter; Kollé, Erwin; and Binder, Rudolf, 3,831,221.

Daimler-Benz Aktiengesellschaft: See—
Allgaier, Rudolf; Brambilla, Luigi; and Scholz, Hans Jurgen, 3,831,972.

Lamm, Heinz, 3,832,104.

Mueller, Alf, 3,831,970.

Uhlenhaut, Rudolf; Rothweiler, Alfred; and Waxenberger, Erich, 3,831,967.

Zaiser, Wolfgang, 3,831,464.

Dallon, Dale S.; and Deseyn, Mary K., to Eastman Kodak Company. Photosensitive silver halide material containing a hydrophilic colloid hardened with a combination of formaldehyde and bis (vinylsulfonylmethyl) ether. 3,832,181, Cl. 96-67.000.

Dalton, William S.; and Umholtz, Franklyn G. Convertible swivel knife which illuminates work area. 3,831,276, Cl. 30-123.00r.

Daltronic International: See—
Dolan, Albert J., 3,831,812.

Daly, Charles Joseph: See—
Weber, Donald R.; Leaf, Harry Vincent; and Daly, Charles Joseph, 3,831,254.

Daly, William P.; and Pouliot, Oliver L., to Oneida Packaging Products, Inc. Spike-mounting stacked-bags process and apparatus. 3,831,504, Cl. 93-93.00m.

Damani, Nalinkant C., to ALZA Corporation. Auto inhaler. 3,831,606, Cl. 128-266.000.

Danberg, Victor. Solid waste trash grinder. 3,831,865, Cl. 241-32.000.

Daniel, Edmond, to Creusot-Loire. Device for winding flexible elements connected end-to-end by a joint. 3,831,870, Cl. 242-18.00a.

Daun, Murray: See—
Shu, Ping; and Dann, Murray, 3,832,462.

Darling, Dorothy E., to Universal Oil Products Company. Preparation of polynuclear aromatic hydrocarbons. 3,832,413, Cl. 260-673.000.

Dasgupta, Sumit; Richter, David H.; and Takayasu, Ted T., to International Business Machines Corporation. Data bus transmission line termination circuit. 3,832,575, Cl. 307-208.000.

Dauenhauer, William J.: See—
Gossett, Charles W.; and Dauenhauer, William J., 3,831,757.

Dauernheim, Hans; and Jänder, Horst, to Golde, H. T., GmbH. Apparatus for connecting the guide tube of a cable window winder to a central guide rail. 3,831,320, Cl. 49-352.000.

Davenport, Larry C.: See—
Ellison, Donald E.; and Davenport, Larry C., 3,831,836.

Davies, Robert G.: See—
Neill, Henry R.; and Davies, Robert G., 3,832,531.

Davis, Dennis J.; and Juhasz, John E., to Bendix Corporation, The. Anti-skid control system for fluid pressure brakes. 3,832,013, Cl. 303-21.00p.

Davis, James W., to Addressograph-Multigraph Corporation. Single sheet document feeder. 3,831,928, Cl. 271-35.000.

Davis, John N., Sr. Ornament with securing means. 3,831,398, Cl. 63-2.000.

Davis, Robert B.: See—
Cornish, Alan H.; Delaney, Ronald E.; and Davis, Robert B., 3,831,534.

Dawdy, Jack A.: See—
Rutkowski, Edward J.; Dawdy, Jack A.; Hause, Robert F.; and Reinig, Irvine G., II, 3,831,334.

Dawidowitsch, Peter: See—
Geyken, Erwin; Schwarzmaier, Gerhard; and Dawidowitsch, Peter, 3,832,730.

Dayco Corporation: See—
Wagner, William T., 3,831,517.

de Niet, Edmond, to U.S. Philips Corporation. Method of converting image signals generated in a non-interlaced manner into image signals interlaced in accordance with a television standard. 3,832,487, Cl. 178-7.200.

De Nora, Oronzio: See—
Messner, George; De Nora, Oronzio; and De Nora, Vittorio, 3,832,300.

De Nora, Vittorio: See—
Messner, George; De Nora, Oronzio; and De Nora, Vittorio, 3,832,300.

De Paul, Alseno S., to Westinghouse Electric Corporation. Rotor for dynamoelectric machines. 3,832,584, Cl. 310-211.000.

De Staat der Nederlanden ten deze vertegenwoordigd door de Directeur-Generaal der Posterijen, Telegrafie & Telefonie: See—
Brok, Wilhelm Fredrik; Spanjersberg, Arie Adriaan; and Van Staveren, Joannes, 3,832,682.

De Vito, Louis, to Instrumentation Engineering, Inc. Digital word generating and receiving apparatus. 3,832,535, Cl. 235-153.00c.

Deacon, John H. Airport runway construction. 3,831,889, Cl. 244-114.000.

Deaton, Clarence M.: See—
Deaton, James M.; and Deaton, Clarence M., 3,831,807.

Deaton, James M.; and Deaton, Clarence M., to Vendmart, Inc. Vending machine dispensing module tray. 3,831,807, Cl. 221-85.000.

Deepsea Ventures, Inc.: See—
Barton, Bruce E.; and Cardwell, Paul H., 3,832,295.

Kane, William S.; and Cardwell, Paul H., 3,832,165.

Deeran, Robert H., to Polaroid Corporation. Film loop control system for sound motion pictures. 3,832,044, Cl. 352-14.000.

Deere & Company: See—
Hansen, Harold Valentine, 3,831,867.

Deering, Raymond M.; and Pawlak, Raymond M., to Beckman Instruments, Inc. Surface electrode adapted for use with rheographic apparatus. 3,831,589, Cl. 128-2.10e.

DeFauw, Raymond Henry; and Murley, Raymond G., to Ford Motor Company. Automotive fan shroud. 3,832,085, Cl. 415-119.000.

Degremont, Societe Generale d'Epuraton et d'Assainissement: See—
Savall, Vincent; Treille, Pierre; and Bouchard, Jean, 3,831,750.

Degremont Societe Generale d'Epuraton et d'Assainissement: See—
Lefur, Jean; Louboutin, Robert; and Savall, Vincent, 3,831,767.

Degroote, Raymond S., to United Aircraft Products, Inc. Method of metallurgically bonding an internally finned heat exchange structure. 3,831,247, Cl. 29-157.30a.

Deguchi, Hidetaka: See—
Inoue, Isaburo; Hanzawa, Teruo; Endo, Takaya; and Deguchi, Hidetaka, 3,832,386.

Dehar, David C., to Ford Motor Company. Linkage quick-connect device. 3,832,074, Cl. 403-163.000.

Del Mar, Bruce E., to Del Mar Engineering Laboratories. Portable exercise machine. 3,831,942, Cl. 272-73.000.

Del Mar Engineering Laboratories: See—
Del Mar, Bruce E., 3,831,942.

Syrop, Leroy J., 3,832,142.

Delaney, Ronald E.: See—
Cornish, Alan H.; Delaney, Ronald E.; and Davis, Robert B., 3,831,534.

Delatre-Levivier: See—
Dorville, Robert, 3,831,911.

Delorme, Pierre Claude Marcel, to Pont-A-Mousson S.A. Porous die plate extruder. 3,832,116, Cl. 425-381.200.

Demoute, Jean-Pierre: See—
Hainaut, Daniel; Toromanoff, Edmond; and Demoute, Jean-Pierre, 3,832,353.

Denalsky, Donna. Educational board game apparatus. 3,831,946, Cl. 273-134.00d.

- Dennis, Richard Benson: See—
Smith, Stanley Desmond; Wood, Roland Andrew; and Dennis, Richard Benson, 3,832,061.
- Dennison Manufacturing Company: See—
Joyce, Arthur W., 3,831,737.
- Denomme, Maurice R., to United States of America, Army. Ballistic armor of plies of nylon fabric and plies of glass fabric. 3,832,265, Cl. 161-92.000.
- Denton, William I.: See—
Hammond, Philip D.; Clarke, William M.; and Denton, William I., 3,832,372.
- DePas, Laddie A., to General Electric Company. Condenser apparatus. 3,831,292, Cl. 34-75.000.
- Derbyshire, Alfred; Ivins, Kenneth William; and Whetton, Edward Thomas, to Wellman Incandescent Furnace Company Limited. Coil annealing furnaces. 3,832,129, Cl. 432-77.000.
- Descary, John Gilbert: See—
Bartley, Thomas S.; Descary, John Gilbert; Fletcher, R. James; and Krishnan, R. Gopal, 3,832,283.
- Deschamps, Andre: See—
Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,832,454.
- Deschamps, Joseph P., to International Harvester Company. Independent power take off clutch brake. 3,831,722, Cl. 192-18.00r.
- Deschenes, Roger, to Wabco Westinghouse. Variable load brake apparatus. 3,832,014, Cl. 303-22.00r.
- Deseyn, Mary K.: See—
Dallon, Dale S.; and Deseyn, Mary K., 3,832,181.
- Design Properties, Inc.: See—
Foley, Dennis J.; and Gilmore, Richard A., 3,832,679.
- DeTemple, Manfred F.; Hubner, Horst; and Oswald, Johann. Electrode comprising a head and a detachable plug. 3,832,675, Cl. 339-143.00r.
- Deutsche Bendix Ausrustungs GmbH: See—
Thomas, Alfred William, 3,831,491.
- Deutscher, Hans-Christian; and Bauer, Kurt, to SWF-Spezialfabrik fur Autozubehor Gustav Rau GmbH. Windscreen wiper. 3,831,219, Cl. 15-250.210.
- Device Research Inc.: See—
Rindner, Wilhelm, 3,831,588.
- Devlin, Shaun S.: See—
Cederquist, Alf L.; and Devlin, Shaun S., 3,832,640.
- Dewhurst & Partner Limited: See—
Dewhurst, Alan, 3,832,506.
- Dewhurst, Alan, to Dewhurst & Partner Limited. Illuminated push button switch. 3,832,506, Cl. 200-314.000.
- Dezael, Claude: See—
Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,832,454.
- Di Palma, Giorgio; and Gajewski, Henry M., to Baxter Laboratories, Inc. Method of making an inflatable balloon catheter. 3,832,253, Cl. 156-86.000.
- Diagnostic Data, Inc.: See—
Huber, Wolfgang; and Schulte, Thomas L., 3,832,338.
- Diamond Shamrock Corporation: See—
Ferretti, Emmett J., 3,831,347.
- Diamondhead Corporation: See—
Gottlieb, C. Robert; and Lewis, Eugene C., 3,831,770.
- Diaz, Ricardo A.: See—
Szabo, Andras I.; and Diaz, Ricardo A., 3,832,646.
- Dickens, Charles V. Vehicle suspension system. 3,831,965, Cl. 280-96.20r.
- Dickson Paper Fibre, Inc., mesne: See—
Berkowitz, Lawrence; Novickis, Georgis; and Sheth, Prafulchandra N., 3,831,748.
- Didier-Werke A.G.: See—
Kutzer, Hans-Joachim; Strohmeier, Gerolf; Natter, Bernd; and Sedlatschek, Karl, 3,831,825.
- Diemer, Bodo. Frame to assemble after unitized construction. 3,831,336, Cl. 52-648.000.
- Dietz, Wolfgang Friedrich Wilhelm, to RCA Corporation. Horizontal deflection system with boosted B plus. 3,832,595, Cl. 315-27.0td.
- Dietzel, Kenneth H.: See—
Skarin, Carl R.; Dietzel, Kenneth H.; and Gendron, Roger J., 3,831,780.
- Digital Equipment Corporation: See—
Krishna, Rallapalli, 3,832,489.
- Dillenburg, Helmut; Honig, Helmut; and Siegel, Rudolf, to Kali-Chemie Aktiengesellschaft. Method for producing sodium perborate trihydrate. 3,832,447, Cl. 423-281.000.
- Dillenschneider, Jean Paul, to Compagnie Generale des Etablissements Michelin raison Sociale Michelin & Cie. Tire having folded tread-reinforcement ply with cord in each fold. 3,831,657, Cl. 152-361.0fp.
- Ditcher, John, to A-LOK Corporation. Method of providing a gasket seal between sewer pipe and manhole opening. 3,832,438, Cl. 264-274.000.
- Dixon, David Rodney; Rose, John Brewster; and Turton, Cecil Nigel, to Imperial Chemical Industries, Limited. Polymerization of tetracarboxylic acid derivatives and urea or urethane derivatives of diamines. 3,832,330, Cl. 260-47.0cp.
- Dixon, Richard Hill: See—
McCrillis, Raymond Lee; Dixon, Richard Hill; and Oldani, John Francis, 3,831,327.
- Dobedoe, Thomas J. L.: See—
Brittain, William J.; Dobedoe, Thomas J. L.; Mitchell, Raymond; and Oliver, Wilfred T., 3,831,563.
- Dobis, Emilia: See—
Mlinko, Sandor; Banfi, Dezso; Dobis, Emilia; Ottinger, Jozsef; Payer, Karoly; Palagyi, Tivadar; and Turi, Agnes, 3,832,137.
- Dobrosielski, Stephen S.: See—
Cellerini, Albert R.; and Dobrosielski, Stephen S., 3,832,504.
- Dockery, Benjamin F.; and Mason, Jack H. Apparatus for preparing furniture backs and cushions for tufting. 3,832,083, Cl. 408-24.000.
- Doelp, Walter L., Jr.: See—
Compton, Carlton B.; and Doelp, Walter L., Jr., 3,831,570.
- Doig, Stuart H. Candle mold with resilient wick holder. 3,831,899, Cl. 249-97.000.
- Dolan, Albert J., to Daltronics International. Fluid dispensing system. 3,831,812, Cl. 222-20.000.
- Dominici, Antonio, to Quepor S.A. Device for automatically finishing and grouping packaging containers. 3,831,343, Cl. 53-61.000.
- Dominion Bridge Company Limited: See—
Leese, Gerald H.; and Kennedy, David H., 3,831,419.
- Domtar Limited: See—
Flynn, Robert E.; and Price, Gordon L., 3,831,765.
- Donahue, Edward T.: See—
Kenney, Harold E.; Donahue, Edward T.; and Maerker, Gerhard, 3,832,368.
- Donaldson, Coleman Dup; and Snedeker, Richard S., to Aeronautical Research Associates of Princeton, Incorporated. Self-regulating thermal protection system for heated surfaces. 3,831,396, Cl. 62-467.000.
- Donermeyer, Donald D.: See—
Corey, Albert E.; Donermeyer, Donald D.; Fantl, Joel; and Williams, Charles R., 3,832,321.
- Donkersloot, Hendrik Cornelis; and Van Vucht, Johannes Hendrikus Nicolaas, to U.S. Philips Corporation. Shape memory elements. 3,832,243, Cl. 148-32.000.
- Doollittle, Milton A., to Select-A-Size, Ltd. Mirror having variable convex lower portion. 3,832,039, Cl. 350-295.000.
- Dopera, Edgar E. Stringed musical instrument with removable neck. 3,831,485, Cl. 84-275.000.
- Dorville, Robert, to Delattre-Levivier. Apparatus for the agglomeration of ore. 3,831,911, Cl. 266-21.000.
- Dougan, Thomas P.: See—
Cleveland, Bruce B.; and Dougan, Thomas P., 3,832,263.
- Douglas, David Ramsey. Photographic material. 3,832,180, Cl. 96-66.300.
- Douglas, Lawrence M., to Polaroid Corporation. Apparatus and system for flash photography. 3,832,722, Cl. 354-29.000.
- Doumany, Constantine R., to Conrad Industries Inc. Plumbing outlet box. 3,831,624, Cl. 137-360.000.
- Dover Corporation: See—
Hanlon, Paul C., 3,831,627.
- Dover Corporation (De-Sta-Co. Division): See—
Sendoykas, Jack J.; and Mopherson, Alexander W., 3,831,926.
- Dow Chemical Company, The: See—
Reigler, Paul F.; and Lamoria, Lz F., 3,832,407.
- Dow Corning Corporation: See—
Clark, Harold A., 3,832,420.
- Dow Corning Limited: See—
Gardiner, William; and Saunders, Frederick Charles, 3,832,228.
- Downey, Bruce R.; and Irvine, Douglas S., to American Home Products Corporation. Estrus and ovulation regulation. 3,832,469, Cl. 424-318.000.
- Doyen, Louis, to Thimonnier & Cie. Metering dispenser for a flowable material. 3,831,821, Cl. 222-255.000.
- Doyle, William L., to TRW Inc. Recovery of SO₂ and SO₃ from flue gases. 3,832,444, Cl. 423-242.000.
- Drabkin, Stephen H.: See—
Valenta, James D.; Sielaff, Ulrich; and Drabkin, Stephen H., 3,831,595.
- Dransch, Gunter: See—
Liebig, Horst; and Dransch, Gunter, 3,832,374.
- Draper, Robert; Beecher, Donald T.; and Ayers, David L., to Westinghouse Electric Corporation. Range exterior surface cooling device. 3,831,578, Cl. 126-19.00r.
- Draxler, Walter E., to Golconda Corporation. Micro torch. 3,831,631, Cl. 137-606.000.
- Drayton, Walker E.; and Krout, Elwood L., to American Chain & Cable Company, Inc. Spreader beam fitting. 3,831,993, Cl. 294-81.00r.
- Dreisewerd, Douglas W.: See—
Green, Samuel I.; and Dreisewerd, Douglas W., 3,832,543.
- Dresser Industries, Inc.: See—
Cope, Geoffrey Wilton; and Smith, Loren William, 3,831,530.
- Pavlica, Stanley Ronald; and Weaver, Ernest Paul, 3,832,194.
- Dressler, Thomas C.; and Arnold, Thomas J. Dispensing carton 229/017.00m. 3,831,833, Cl. 1.
- Driver, Wilbur B., Company: See—
Gottlieb, Arnold J.; and Majesko, George A., 3,832,148.
- Droege, Arthur J. Pest control device. 3,831,548, Cl. 116-22.00a.
- Drori, Mordeki. Rotary sprinklers. 3,831,853, Cl. 239-230.000.
- Drozdzowski, Robert J.; Connolly, Peter F.; Massaglia, Italo M.; and Chlupsa, John Rudolph, to Becton, Dickinson and Company. Automatic clinical analyzer. 3,832,135, Cl. 23-230.00r.
- DSO 'Izot': See—
Antonov, Bogomil Totev, 3,832,514.

- Du Pont de Nemours, E. I., and Company: See—
Coulson, Dale Robert, 3,832,364.
- Hoh, George L. K.; and Tsukamoto, Akira, 3,832,314.
- Hyson, Archibald M.; and Scoggin, John K., 3,832,468.
- Jackson, Julius, 3,832,208.
- Overman, Joseph De Witt, 3,832,197.
- Parshall, George W., 3,832,391.
- Dubinsky, Rudolf Solomonovich: See—
Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Alferov, Jury Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Eleovich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.
- Dubovsky, Boris Grigorievich; Bogatyrev, Viktor Konstantinovich; Vladkov, German Matveevich; and Sviridenko, Valentina Yakovlevna. Apparatus for storing and processing fissionable substances. 3,832,563, Cl. 250-506.000.
- DuBrow, Paul L.; and Frisque, Alvin J., to Nalco Chemical Company. Method of using latex polymer formulations for seepage control. 3,832,229, Cl. 117-161.0va.
- Dudko, Danil Andreevich; Sur, Mikhail Danilovich; and Asoyants, Grigory Bagradovich. Epicyclic hydropneumatic drive with internal-mesh gearing. 3,832,098, Cl. 418-63.000.
- Dudzic, Max S.: See—
Anderton, John J.; Dudzic, Max S.; and Wrhen, Wilmer C., 3,831,661.
- Dudzic, Chester J., to Leeson Corporation. Method and apparatus for producing textured yarn. 3,831,362, Cl. 57-34.0hs.
- Dume, Yoshiharu: See—
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Akatsukeda, Mitsuhiro; Dume, Yoshiharu; Inaba, Shigehiro; and Yamamoto, Hisao, 3,832,344.
- Dumont, Jacques, to Kuhn S.A. Fertilizer distributor. 3,831,818, Cl. 222-145.000.
- Duncan, Alex R., to Molson Companies Limited, The. Uncaiser cup. 3,831,995, Cl. 294-90.000.
- Duncan, Robert; and Celler, Francis, to Westinghouse Electric Corporation. Nuclear reactor fuel rod splitter. 3,831,248, Cl. 29-200.00d.
- Dunder, David; and Wiley, Sheldon, to Trans World Products, Inc. Drive transmission for a bicycle or the like. 3,831,978, Cl. 280-238.000.
- Dunlap, Robert B.; and Balfour, Adrian E., to Compo Industries, Inc. Apparatus for making component parts of shoes and the like comprised of thermoplastic sheeting. 3,832,111, Cl. 425-174.200.
- Dunlop Limited: See—
Poppewell, Frank William, 3,831,943.
- Dunn, Wayne C.: See—
Trabbic, Gerald W.; Dunn, Wayne C.; and Hakes, Paul E., 3,831,497.
- Diplomat, Boger, Dr., Apparate KG, Firm, The: See—
Gusovius, Eckart, 3,832,058.
- Durbin, Enoch J. Fluid velocity meter. 3,831,445, Cl. 73-194.00f.
- Durst Corporation: See—
Fry, Denton E., 3,831,692.
- Durst, Jack R.: See—
Rodgers, Nelson E.; and Durst, Jack R., 3,832,472.
- Duschinsky, Robert, to Hoffmann-La Roche Inc. Purine nucleoside nitrates. 3,832,341, Cl. 260-211.50r.
- Duval, Mark, to Sanitank Inc. Video photo recording device for the inspection of the interior of pipes. 3,832,724, Cl. 354-63.000.
- Dye, Homer S., to Pacific Clay Products. Apparatus for making ceramic shingles from extruded hollow blocks of soft clay. 3,832,112, Cl. 425-291.000.
- Dye, John F., to Kendall Company, The. Apparatus for measuring average flow rate. 3,831,446, Cl. 73-194.00r.
- Dynaloc Corporation: See—
Harris, Ben A., 3,832,500.
- Dynaloc Corporation: See—
Conrad, Rene, 3,831,243.
- Dynamics Corporation of America: See—
Voglesonger, Harry M., 3,831,278.
- Dzierski, Stanley F., to Aluminum Company of America. Method of soldering. 3,831,263, Cl. 29-503.000.
- Earl, Arthur W. Self adjustable ski binding. 3,831,956, Cl. 280-11.35d.
- Easterly, Donald O., to Eastman Kodak Company. Reel driving device for a web transporting apparatus. 3,831,883, Cl. 242-207.000.
- Eastman Kodak Company: See—
Bello, Hobson Joseph, Jr.; and Smith, Albert Charles, Jr., 3,832,174.
- Bevington, Richard E., Jr., 3,831,501.
- Dallon, Dale S.; and Deseyn, Mary K., 3,832,181.
- Easterly, Donald O., 3,831,883.
- Edens, Charles O., 3,832,179.
- Jenkins, Philip W.; Heseltine, Donald W.; and Mee, John D., 3,832,212.
- Kemp, Rodney J., 3,832,175.
- Limoges, Raymond F., 3,831,612.
- Mathews, John A., 3,832,182.
- Slovonsky, Idalee; Dagon, Thomas J.; and Bober, Thomas W., 3,832,453.
- Tucker, Archie J., 3,831,881.
- Verstraete, Jerome A.; Noonan, John M.; and Neubert, Richard W., 3,832,176.
- Weiss, Armin K.; and Spahn, Robert G., 3,832,298.
- Wright, Luther M.; and Epps, William A., 3,831,478.
- Eaton Corporation: See—
Baremor, Jerry F., 3,831,462.
- Bopp, Warren G., 3,831,378.
- Franz, Rudolph J., 3,831,841.
- Griesenbrock, Karl-Heinz, 3,831,786.
- Meacham, George B. K., 3,831,973.
- Trabbic, Gerald W.; Dunn, Wayne C.; and Hakes, Paul E., 3,831,497.
- Young, Michael R., 3,831,492.
- Eaton Yale Ltd.: See—
Windors, Robert N., 3,831,647.
- Eckhardt, Otto: See—
Menne, Heinz; Schirp, Wilhelm; and Eckhardt, Otto, 3,831,669.
- Ecodyne Corporation: See—
Goodman, Brian L.; Weis, Frank G.; and Mikkelsen, Kenneth A., 3,831,755.
- Economy, James; and Lin, Ruey Y., to Carborundum Company, The. Activated carbon chemical absorption assembly. 3,831,760, Cl. 210-242.000.
- Edelman, Alfred E. Method and apparatus for tooth restoration. 3,831,281, Cl. 32-2.000.
- Edens, Charles O., to Eastman Kodak Company. Inhibition of fog in photographic color development. 3,832,179, Cl. 96-56.000.
- Edmonds, Harold D., to International Business Machines Corporation. Liquid crystal display assembly. 3,832,034, Cl. 350-160.01c.
- Edmunds, George W.: See—
Hoppmann, Kurt H.; Edmunds, George W.; and Schober, Horst A., 3,831,734.
- Edmunds, Louis Henry, Jr.; and Braley, Silas A., to University of California, The Regents of the. Implantable bulb for inflation of surgical implements. 3,831,583, Cl. 128-1.00r.
- Edwards, Arnold Glen; and Jenkins, Charles J., to Halliburton Company. Pressure responsive auxiliary disc valve and the like for well cleaning, testing and other operations. 3,831,680, Cl. 166-311.000.
- Eggensperger, Heinz; Franzen, Volker; Muller, Horst; and Stephan, Hans, to Ciba-Geigy AG. Organic compositions stabilized with phenolic thiocarboxylic acid esters. 3,832,328, Cl. 260-45.85b.
- Eggerman, William G.: See—
Crisler, Larry R.; and Eggerman, William G., 3,832,222.
- Eggert, Walter S., Jr.; and Pavlik, Michael J., to Budd Company, The. Automotive restraint system. 3,832,002, Cl. 297-216.000.
- Eichler, Norbert; and Urban, Kurt, to Gebr. Bohler & Co., Aktiengesellschaft. Apparatus for cutting of fiber strands. 3,831,482, Cl. 83-675.000.
- Eickmann, Karl. Pressure responsive control body arrangement. 3,831,496, Cl. 91-487.000.
- Eisenberg, Robert, to Singer Company, The. Loran signal synthesizer. 3,832,708, Cl. 340-352.000.
- Ekemar, Carl Sven Gustaf, to Sandco Limited, mesne. Method of coating sintered hard metal bodies and hard metal body coated according to the method. 3,832,221, Cl. 117-106.00c.
- Elbert, Raymond J.; and Farrier, Ernest G., to Union Carbide Corporation. Reinforced porous metal structure and manufacture thereof. 3,831,258, Cl. 29-420.000.
- Elder, Fred Grove: See—
Brey, Wilhelm; Hostetler, William; Loeffler, Earl Ferdinand; Kolm, Hubert Ernest; and Elder, Fred Grove, 3,832,261.
- Eldridge, Brice, to Telewave Systems, Inc. Manual input recordation of data and complement. 3,832,733, Cl. 360-4.000.
- Eldridge, Colin C.: See—
Waterman, Fred W.; Katyll, Tadeusz; and Eldridge, Colin C., 3,831,792.
- Electric Corporation: See—
Wu, Shu-Yau; and Francombe, Maurice Hubert, 3,832,700.
- Elektro-Thermit GmbH: See—
Guntermann, Hans, 3,831,915.
- Elementos Para Traccion y Excavacion, S.A.: See—
von Mehren, Juan Puertas, 3,832,077.
- Elesh, James N. Cat litter box. 3,831,557, Cl. 119-1.000.
- Elkem A/S: See—
Flood, Hakon; and Seltveit, Arne, 3,832,434.
- Eller, Dennis E. Truck tire spare carrier. 3,831,793, Cl. 214-454.000.
- Ellison, Donald E.; and Davenport, Larry C., to Inland Container Corporation. Container having corner post holders. 3,831,836, Cl. 229-49.000.
- Ellithorpe, Ernest Ralph; and Fletcher, Ronald Bruce, to Vennard & Ellithorpe Ltd. Method and apparatus for the solidification of molten sulphur. 3,832,145, Cl. 23-293.00s.
- Elmore, J. Russell; and Benson, Carl F., to Torrington Company, The. Radial and thrust bearing and method of making same. 3,831,241, Cl. 29-148.40r.
- Elward, John R., to Fibreboard Corporation. End opening container with improved stacking strength. 3,831,834, Cl. 229-23.00r.
- Emerson, Robert B., to Kaiser Aluminum & Chemical Corporation. Method for producing alumina hydrates. 3,832,442, Cl. 423-111.000.
- Emus, Ronald W., Jr.: See—
Colt, James G.; and Emus, Ronald W., Jr., 3,831,223.
- Endo, Takaya: See—
Inoue, Isaburo; Hanzawa, Teruo; Endo, Takaya; and Deguchi, Hidetaka, 3,832,386.

Endres, Leland S.; Gehlhoft, Leo F.; and Zimmerman, Dallas D. Aldehyde condensation products of fluoroaliphatic phenols. 3,832,409, Cl. 260-619.00a.

Energy Sciences Incorporated: See—
Hughes, Nathaniel, 3,831,550.

Engelhardt, Dieter; Hofmann, Hermann; Schaff, Ulrich; and Kaiser, Walter, to Siemens Aktiengesellschaft. Print for control modules of contact-free control and regulating systems. 3,832,602, Cl. 317-101.00r.

Engelhardt, Bjorn H.: See—
Van Heyningen, Arent H.; and Engelhardt, Bjorn H., 3,832,643.

Engeli, Federico, to Technical Arco Establishment. Mechanical-pyric device utilizable in the type of anti-man mines with a wide action range and gushing out from the ground. 3,831,521, Cl. 102-8.000.

Epps, William A.: See—
Wright, Luther M.; and Epps, William A., 3,831,478.

Ergins Matra: See—
Ciabrini, Jacques Paul Elie, 3,832,040.

Erk, Kaya: See—
Goetz, Philip J.; and Erk, Kaya, 3,832,712.

Erichman, Irving, to Polaroid Corporation. Lockout mechanism for automatic trim assembly return mechanism. 3,832,721, Cl. 354-21.000.

Erlinder, Atwood E. Lift having self-folding platform. 3,831,788, Cl. 214-75.00t.

Eschen, Franklin W., to Johns-Manville Corporation. Wear resistant composition brake block. 3,832,325, Cl. 260-38.000.

Esso Production Research Company: See—
Castellanos, Leopold J., 3,832,073.

Esso Research and Engineering Company: See—
Feldman, Nicholas, 3,832,150.
Ruhle, Helmut W., 3,832,417.

Etablissement Fresa Vaduz: See—
Fauchaux, Pierre, 3,831,840.

Ethridge, Frederick A.: See—
Binford, Jack C.; Ethridge, Frederick A.; and Talbot, James R., 3,831,231.

Ethyl Corporation: See—
Foster, Walter E.; and Kobetz, Paul, 3,832,309.
Kobetz, Paul; Laran, Roy J.; and Johnson, Robert W. Jr., 3,832,456.
Messina, Steve J., 3,832,412.

Eto, Yoshizumi; and Kanazawa, Yasunori, to Hitachi, Ltd. Image pickup tube for converting coherent light images into electrical signals. 3,832,585, Cl. 313-371.000.

Ettel, Hubert, to Mende, Wilhelm & Co. Apparatus for compressing chipboards. 3,832,115, Cl. 425-373.000.

Evans, Thomas Ernest: See—
Sutton, William Heald; Evans, Thomas Ernest; and Hart, Anthony Christopher, 3,832,292.

Excello Corporation: See—
Judith, Vincent J., 3,832,694.

Excoffon, Jean, to Automobiles M. Berliet. Cylinder head for an internal combustion engine. 3,831,573, Cl. 123-193.00h.

Expert Automation, Inc.: See—
Niendorf, Erling H., 3,832,521.

Fabrique Nationale Herstal S.A. en abregé FN: See—
Bruelemans, Karel B., 3,831,403.

Factory Mutual Research Corporation: See—
Livingston, William L., 3,831,617.
Livingston, William L., 3,831,681.

Fahey, Wm. David; and Johnson, Robert W., to Singer Company, The. Non-impact printer. 3,832,488, Cl. 178-15.000.

Fail Safe Brake Corporation: See—
Fontaine, John G., 3,831,698.
Fontaine, John G., 3,831,703.

Fairbank, Winthrop H., to Northrop Corporation. Ball-bearing retainers. 3,832,023, Cl. 308-201.000.

Fairchild Industries, Inc.: See—
Stanford, Alan G.; and Zutell, George A., 3,831,709.

Falk, Morris, to Fort Lock Corporation. Tubular key decoder. 3,831,282, Cl. 33-169.00b.

Fantl, Joel: See—
Corey, Albert E.; Donermeyer, Donald D.; Fantl, Joel; and Williams, Charles R., 3,832,321.

Fantozzi, Louis J., to Xerox Corporation. Tamper detection and recovery. 3,831,933, Cl. 271-258.000.

Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: See—
Bauer, Gunther; Kramer, Lothar; and Kuhn, Helmut, 3,832,435.
Faris, Edwin E.; and Hertling, Charles J., to Berkey Photo, Inc. Camera accommodating two sizes of films. 3,832,728, Cl. 354-210.000.

Farona, Michael F.; and White, James F., to University of Akron, The. Method for reacting organic halides. 3,832,403, Cl. 260-592.000.

Farr Company: See—
Mugford, Charles C., 3,831,355.

Farrier, Ernest G.: See—
Elbert, Raymond J.; and Farrier, Ernest G., 3,831,258.

Farris, Edward. Boat loading and unloading kit. 3,831,790, Cl. 214-38.240.

Fauchaux, Pierre, to Etablissement Fresa Vaduz. Composite slide rule. 3,831,840, Cl. 235-89.00r.

Fearing, Ralph: See—
Weil, Edward D.; and Fearing, Ralph, 3,832,227.

Featherman, Bernard. Electrical locker means. 3,831,408, Cl. 70-84.000.

Feichtner, John D., to Westinghouse Electric Corporation. Fluidally controlled dye laser. 3,832,649, Cl. 331-94.501.

Feldman, Nicholas, to Esso Research and Engineering Company. Fuel oil with improved low temperature flowability. 3,832,150, Cl. 44-62.000.

Felix, Gerardus L.: See—
Cator, Dennis W.; Campbell, Roger W.; and Felix, Gerardus L., 3,831,962.

Felsovalyi, Gyorgy: See—
Kovacs, Sandor; and Felsovalyi, Gyorgy, 3,831,433.

Fenne, Ivor; and C.A.V. Limited. Fuel injection nozzles. 3,831,863, Cl. 239-533.000.

Fern, Robert E.; and Onton, Aare, to International Business Machines Corporation. Automatic wavelength tracking system. 3,832,558, Cl. 250-461.000.

Ferretti, Emmett J., to Diamond Shamrock Corporation. Process for scrubbing a reaction by-product vapor. 3,831,347, Cl. 55-48.000.

Ferro Corporation: See—
Lowery, Harold E., 3,832,205.

Fetterly, Lloyd C.; Conklin, George W.; and May, Nathan C., to Shell Oil Company. Method of epoxidizing olefinic compounds using an oxyboron catalyst. 3,832,363, Cl. 260-348.50v.

Fey, Maurice G.: See—
Wolf, Charles B.; Fey, Maurice G.; and Azinger, Fredrick A., Jr., 3,832,519.

Fiber Industries, Inc.: See—
Binford, Jack C.; Ethridge, Frederick A.; and Talbot, James R., 3,831,231.

Fibreboard Corporation: See—
Elward, John R., 3,831,834.

Fieldcrest Mills, Inc.: See—
Bondi, Emanuel, 3,831,232.

Fincher, Arnold: See—
Broussard, Pat J.; and Fincher, Arnold, 3,832,196.

Finelli, Patrick L., to Polaroid Corporation. Collapsible camera. 3,832,726, Cl. 354-187.000.

Finger, Rudolph; Berg, Erich; and Schuppstahl, Heinz, to Ohler Eisenwerk Theob. Pfeiffer. Cover with opening tab for containers, in particular eating bowls. 3,831,837, Cl. 229-51.0ts.

Firestone, Raymond A.: See—
Reinhold, Donald F.; Slettinger, Meyer; and Firestone, Raymond A., 3,832,377.

Firestone Tire & Rubber Company, The: See—
Brey, Wilhelm; Hostettler, William; Loeffler, Earl Ferdinand; Kolm, Hubert Ernest; and Elder, Fred Grove, 3,832,261.

Fischer & Porter Company: See—
Levesque, Peter S.; and Gaertner, Max, 3,832,618.

Fischer, Adolf: See—
Koenig, Karl-Heinz; Kolbinger, Rudolf; Zeeh, Bernd; and Fischer, Adolf, 3,832,389.

Fischer, Edward L., to Indiana National Bank, The. Mail order sales device method. 3,831,519, Cl. 101-426.000.

Fisher, Don E.; Knauff, Paul A.; and Bowen, David, Jr., to Monsanto Company. Traverse winding apparatus. 3,831,872, Cl. 242-43.000.

Fisher, John A.: See—
Saddler, Ivan R.; and Fisher, John A., 3,832,247.

Fitch, Otis. Electric grain gate control. 3,832,615, Cl. 318-481.000.

Fitterer, Horst; and Schaeffer, Norbert. Guide means for magnetic tapes wound on flangeless spools. 3,831,882, Cl. 242-199.000.

Fitzgerald, Maurice J., to Polaroid Corporation. Synthetic silver halide emulsion binder. 3,832,185, Cl. 96-114.000.

Fives Lille-Cail: See—
Frydman, Natan, 3,831,916.

Flaherty, Bernard M., to Ford Motor Company. Motor vehicle disc brake having caliper retaining means. 3,831,717, Cl. 188-73.300.

Fleissner, Hans, to Vepa AG. Device for cutting endless material, for example for the production of staples from synthetic fibers. 3,831,473, Cl. 83-100.000.

Fleissner, Heinz, to Vepa Aktiengesellschaft. Godet for use in drawing apparatus and drum dryer units. 3,831,666, Cl. 165-89.000.

Fletcher, Gerald M.: See—
Goel, Narendra S.; and Fletcher, Gerald M., 3,832,053.

Fletcher, Ronald Bruce: See—
Ellithorpe, Ernest Ralph; and Fletcher, Ronald Bruce, 3,832,145.

Flintkote Company, The: See—
Califano, Frank L.; Stepien, George, Jr.; and Russell, Thomas E., 3,831,382.

Flippen, George B., Jr.: See—
Childress, Lloyd K., Jr.; Flippen, George B., Jr.; and McDaniels, Louis M., 3,832,734.

Flippen, George Burdine, Jr.; and Ward, John Wesley, Jr., to International Business Machines Corporation. Data web guiding apparatus. 3,831,831, Cl. 226-198.000.

Flood, Hakon; and Seltveit, Arne, to Elkem A/S. Method of treating silicon dioxide dust. 3,832,434, Cl. 264-117.000.

Florian, Eugene F., to Mark Products, Inc. Electrical connector. 3,832,674, Cl. 339-60.00r.

Flynn, Robert E.; and Price, Gordon L., to Domtar Limited. Filter frame. 3,831,765, Cl. 210-484.000.

Flynt, Frank V., to General Electric Company. Pumped air storage peaking power system using a single shaft gas turbine-generator unit. 3,831,373, Cl. 60-39.330.

FMC Corporation: See—

Smith, Frederick R.; and Schappel, Joseph W., 3,832,277.

Vadas, Leslie, 3,831,469.

Focht, John Richard, to Precision Valve Corporation. Aerosol safety cap. 3,831,804, Cl. 220-60.00r.

Focht, John Richard, to Precision Valve Corporation. Childproof safety cap for a pressurized dispenser. 3,831,820, Cl. 222-182.000.

Foley, Dennis J.; and Gilmore, Richard A., to Design Properties, Inc. Highway emergency communications-warning system and units. 3,832,679, Cl. 340-22.000.

Foley, Lary L., to Clorox Company, The. Automatic dispensing apparatus. 3,831,205, Cl. 4-228.000.

Fontaine, John G., to Fail Safe Brake Corporation. Motor vehicle brake system. 3,831,698, Cl. 180-77.00r.

Fontaine, John G., to Fail Safe Brake Corporation. Automatic parking or emergency brake system for motor vehicles. 3,831,703, Cl. 180-82.00r.

Fontana, Frank J., to Stewart-Warner Corporation. Trash can dolly. 3,831,959, Cl. 280-79.100.

Forand, James L., Jr.; and Township, Pa., to Bethlehem Steel Corporation. Composite article comprising three dissimilar metals. 3,832,147, Cl. 29-191.000.

Forbes, Alden O., to North 40 Manufacturing Inc. Water fountain for animals. 3,831,558, Cl. 119-73.000.

Ford Motor Company: See—
Battisti, Sylvester J., 3,831,672.
Brittain, William J.; Dobedoe, Thomas J. L.; Mitchell, Raymond; and Oliver, Wilfred T., 3,831,563.
Cederquist, Alf L.; and Devlin, Shaun S., 3,832,640.
Compton, Carlton B.; and Doelp, Walter L., Jr., 3,831,570.
DeFauw, Raymond Henry; and Murley, Raymond G., 3,832,085.
Dehar, David C., 3,832,074.
Flaherty, Bernard M., 3,831,717.
Freismuth, Richard J.; and Johnson, Thomas R., 3,831,567.
Freismuth, Richard J., 3,831,909.
Gebhard, Harold C.; and Keller, Alfred M., 3,831,406.
Gebhard, Harold C.; and Keller, Alfred M., 3,831,409.
Glance, Patrick M., 3,831,705.
Horvat, Rudolph M., 3,832,003.
Myers, Robert A., 3,831,997.
Petty, Johnny M., 3,831,441.
Pilon, Howard M.; Sattavara, Sven W.; and Schechter, Michael M., 3,831,701.
Toth, Robert L., 3,831,353.
Was, Wilfred L., 3,831,671.

Ford, William B., Jr.: See—
Bowen, Russell J.; Ford, William B., Jr.; Sanborn, Ralph D.; Sawyer, Winslow A.; Sharp, John R.; Soini, Herbert E.; Lambert, Benjamin A.; and Lull, David B., 3,831,520.

Fort Lock Corporation: See—
Falk, Morris, 3,831,282.

Fortini, Anthony, to United States of America, National Aeronautics and Space Administration. Method of electroforming a rocket chamber. 3,832,290, Cl. 204-9.000.

Fosness, John P., to Rockwell International Corporation. Aircraft control methods. 3,831,887, Cl. 244-42.00c.

Foster, Walter E.; and Kobetz, Paul, to Ethyl Corporation. Detergent formulations. 3,832,309, Cl. 252-527.000.

Fournier, Erick-Pierre. Multipurpose applicators. 3,831,605, Cl. 128-263.000.

Francois, Dale H., to American Chain & Cable Company, Inc. Roll handling apparatus. 3,831,992, Cl. 294-65.000.

Francombe, Maurice Hubert: See—
Wu, Shu-Yau; and Francombe, Maurice Hubert, 3,832,700.

Frangulie, George C. Live bait bucket. 3,831,310, Cl. 43-56.000.

Frank, G. B., Incorporated: See—
Pittman, Gary L., 3,831,518.

Frank, Joseph J. Sausage casing closure and sausage smoking method and apparatus. 3,831,769, Cl. 211-113.000.

Frank, Kurt F.: See—
Kays, David D.; Frank, Kurt F.; and Longwell, Paul A., 3,832,289.

Frankel, Edward L., Jr.; and Hyde, William J., to Western Electric Company, Incorporated. Methods of manufacturing waterproof cable. 3,832,215, Cl. 117-61.000.

Frankel, Hans G., to Chevron Research Company. N-acyl-O-hydrocarbylphosphoramidothioate salts and process for making same. 3,832,425, Cl. 260-959.000.

Frankel, Kurt: See—
Seifert, Gerd; and Frankel, Kurt, 3,832,553.

Frankel, Milton B.; and Witucki, Edward F., to Rockwell International Corporation. Energetic polynitro halogenated diol ethers. 3,832,390, Cl. 260-487.000.

Franklin Electric E., Inc.: See—
Woods, Richard E., 3,832,612.

Franz, Rudolph J., to Eaton Corporation. Temperature control system and vacuum modulator valve therefor. 3,831,841, Cl. 236-13.000.

Franz, William F.: See—
Hess, Howard V.; Cole, Edward L.; and Franz, William F., 3,832,279.

Franzen, Volker: See—
Eggensperger, Heinz; Franzen, Volker; Muller, Horst; and Stephan, Hans, 3,832,328.

Freenor, Francis J. III, to Chevron Research Company. S,S-Dialkyl-N-substituted phosphoramidodithionites. 3,832,424, Cl. 260-959.000.

Freeks, Marshall C.; and Suda, Michael, to Monsanto Company. Production of maleic anhydride by catalytic oxidation of saturated aliphatic hydrocarbons. 3,832,359, Cl. 260-346.800.

Freismuth, Richard J.; and Johnson, Thomas R., to Ford Motor Company. Supplemental pulldown mechanism for carburetor automatic choke. 3,831,567, Cl. 123-119.00f.

Freismuth, Richard J., to Ford Motor Company. Carburetor choke altitude compensation. 3,831,909, Cl. 261-39.00a.

Freze, Benjamin H., to Challenge-Cook Bros., Incorporated. Means for controlling the drying of textiles and reclaiming the liquid therefrom. 3,831,294, Cl. 34-131.000.

Fridman, Samuil Aronovich: See—
Bazhulin, Alexei Pavlovich; Vinogradov, Evgeny Alexandrovich; Irisova, Natalia Alexandrovna; Mitrofanova, Nina Vasilievna; Timofeev, Jury Petrovich; Fridman, Samuil Aronovich; and Schaenko, Valentina Vasilievna, 3,832,557.

Fried, John: See—
Hirschmann, Ralph F.; and Fried, John, 3,832,345.

Friedrichsen, Thomas: See—
Miller, Wendell V.; and Friedrichsen, Thomas, 3,831,304.

Frisque, Alvin J.: See—
DuBrow, Paul L.; and Frisque, Alvin J., 3,832,229.

Fritze, Hartwig E., to Wyss, Escher, GmbH. Method for removing the fat from fat containing raw materials. 3,832,233, Cl. 127-68.000.

Froehling, Paul H.: See—
Strojny, Lawrence J.; and Froehling, Paul H., 3,832,688.

Frohberger, Paul-Ernst: See—
Jager, Gerhard; Buchel, Karl Heinz; Grewe, Ferdinand; and Frohberger, Paul-Ernst, 3,832,466.

Fry, Denton E., to Durst Corporation. Drive tower for circular irrigation system. 3,831,692, Cl. 180-14.00r.

Frydman, Natan, to Fives Lille-Cail. Steel converter. 3,831,916, Cl. 266-36.00p.

Fuji Kikai Kogyo Kabushiki Kaisha: See—
Odawara, Tsugumu, 3,831,217.

Fuji Photo Film Co. Ltd.: See—
Masuda, Takao; Ohkubo, Kinji; and Shishido, Tadao, 3,832,186.
Sato, Akira; Ikeda, Tadashi; Ogawa, Akira; Shiba, Keisuke; and Hinata, Masanao, 3,832,184.
Sato, Masamichi; and Fukushima, Osamu, 3,831,556.
Seto, Yoshihiro, 3,832,218.
Shiba, Keisuke; Hinata, Masanao; Sato, Akira; Ogawa, Akira; and Ikeda, Takashi, 3,832,189.

Fuji Xerox Co., Ltd.: See—
Takiguchi, Koichi, 3,832,524.
Tsukamoto, Takuzo, 3,831,931.

Fujimura, Hiroshi; Nose, Yoshio; and Kanazawa, Teiichi, to Kumiai Chemical Industry Co., Ltd. Anti-fouling paint for ship's bottom and structures under sea water. 3,832,190, Cl. 260-15.00af.

Fujisaki, Koichiro: See—
Yamaoka, Kojiro; Azuma, Toshiro; and Fujisaki, Koichiro, 3,831,690.

Fujisawa Pharmaceutical Co., Ltd.: See—
Itoh, Masumi, 3,832,375.

Fujitsu Fanuc Limited: See—
Shimizu, Kanryo; Shichida, Hiromichi; and Toyoda, Kenichi, 3,832,610.

Fujitsu Limited: See—
Ishizaki, Hiroyuki; Toba, Teruo; and Umeda, Shozo, 3,832,693.
Shimizu, Kanryo; Shichida, Hiromichi; and Toyoda, Kenichi, 3,832,610.

Fujiyoshi, Kenji: See—
Kitaoka, Yoji; Murata, Katsuhide; Hama, Kotaro; Hashimoto, Michio; and Fujiyoshi, Kenji, 3,832,151.

Fukushima, Isao: See—
Ohashi, Shin-ichi; and Fukushima, Isao, 3,832,638.

Fukushima, Osamu: See—
Sato, Masamichi; and Fukushima, Osamu, 3,831,556.

Fuller Company: See—
Kayatz, Karl-Heinz, 3,831,291.
Paul, Kermit, 3,832,128.

Funaki, Koemon: See—
Sugimoto, Mitsuo; Funaki, Koemon; and Saeki, Yuzo, 3,832,457.

Funaki, Takashi, to Kabushiki Kaisha Sankyo Seiki Seisakusho. Symbol indication device. 3,831,303, Cl. 40-28.00c.

Furnival, Thomas J., to General Motors Corporation. Semiconductor diode package with protection fuse. 3,832,606, Cl. 317-234.00r.

Furuhata, Yoshio; and Toriyama, Kazuhisa, to Hitachi, Ltd. Regular ferroelectrics-liquid crystal composite optical element. 3,832,033, Cl. 350-160.01c.

Futcher, R. James: See—
Bartley, Thomas S.; Descary, John Gilbert; Futcher, R. James; and Krishnan, R. Gopala, 3,832,283.

Fuzia, Walter J.: See—
Brothers, Jack; and Fuzia, Walter J., 3,831,280.

Gabus, Jean-Claude, to Signale & Automatik A.G. Method for controlling at least one load circuit and devices for carrying out this method. 3,832,570, Cl. 307-116.000.

Gadient, Fulvio; Stoll, Andre; and Suess, Rudolf, to Sandoz Ltd. 4-Hydroxy-5-phenyl-3-thiophene acetic acids and their derivatives. 3,832,354, Cl. 260-332.20a.

Gaertner, Max: See—
Levesque, Peter S.; and Gaertner, Max, 3,832,618.

Gage, John R.: See—

Matvey, Paul R.; and Gage, John R., 3,832,275.
 Gajewski, Henry M.: See—
 Di Palma, Giorgio; and Gajewski, Henry M., 3,832,253.
 Gakken Co., Ltd.: See—
 Tanaka, Akira, 3,832,484.
 Gale, Richard M.; and Lively, David H., to Lilly, Eli, and Company. Dipetide antibiotic and method for the production thereof. 3,832,287, Cl. 195-81.000.
 Galea, Joseph, to Austin, Gordon Maxwell. Speed indicator. 3,832,634, Cl. 324-160.000.
 Gallagher, Ruth E.; Harrington, Charles L.; and Wachtel, Melvin, to Stauffer Chemical Company. Suspension emulsion interpolymers. 3,832,318, Cl. 260-29.7up.
 Galler, Frank A. Electric model motor control. 3,832,691, Cl. 340-171.00r.
 Gansser, Robert E.: See—
 Othalek, Joseph V.; and Gansser, Robert E., 3,832,234.
 Garabedian, Taniel A.: See—
 Hug, Delmar O.; and Garabedian, Taniel A., 3,832,410.
 Garbalizer Corporation of America: See—
 Brewer, John C., 3,831,789.
 Gardella, John M.; Ciavattini, Anthony; and Kiefer, Robert Albert, to Pennwalt Corporation. Dental mixing capsule. 3,831,742, Cl. 206-219.000.
 Gardiner, William; and Saunders, Frederick Charles, to Dow Corning Limited. Process for rendering keratinous fibers resistant to shrinkage. 3,832,228, Cl. 117-141.000.
 Gardner, Tommy R.: See—
 Lansford, Robert W.; and Gardner, Tommy R., 3,832,302.
 Garland, Carl C.: See—
 Noren, Oscar B.; Garland, Carl C.; and Kwarsick, Edmund J., 3,831,476.
 Garlick, George F.: See—
 Brenden, Byron B.; Neely, Victor I.; and Garlick, George F., 3,832,677.
 Garner, Charles A.: See—
 Richens, Robert H.; and Garner, Charles A., 3,831,488.
 Gates Rubber Company, The: See—
 Burton, Frank L., 3,831,635.
 Rohlfing, Raymond A., 3,832,210.
 Gauntlett, John Harry. Method for filling containers. 3,831,341, Cl. 53-22.00r.
 Gaylord, Eber W.; Goodwin, Robert J.; and Mori, Ernest A., to Gulf Research & Development Company. Slotted in-line screen. 3,831,753, Cl. 209-399.000.
 Gayman, Byron G.: See—
 Henzel, Russell A.; and Gayman, Byron G., 3,832,692.
 Geary, Riley R. Sleeping bag. 3,831,206, Cl. 5-343.000.
 Gebhard, Harold C.; and Keller, Alfred M., to Ford Motor Company. Remote control latch release mechanism. 3,831,406, Cl. 70-1.500.
 Gebhard, Harold C.; and Keller, Alfred M., to Ford Motor Company. Remote control hood latch release mechanism. 3,831,409, Cl. 70-241.000.
 Gebr. Bohler & Co., Aktiengesellschaft: See—
 Eichler, Norbert; and Urban, Kurt, 3,831,482.
 Geering, Emil J.; and Dachs, Norman W., to Hooker Chemical Corporation. Polyesters prepared from hydroxyarythio anhydrides. 3,832,329, Cl. 260-47.00c.
 Geoffroy, Robert, to Sealfire. Piston and piston rings unit for an internal combustion engine. 3,831,952, Cl. 277-171.000.
 Gehlhoff, Leo F.: See—
 Endres, Leland S.; Gehlhoff, Leo F.; and Zimmerman, Dallas D., 3,832,409.
 Gehrke, Glenn F., to General Motors Corporation. Splined assembly with retaining rings. 3,832,076, Cl. 403-359.000.
 Geiersbach, Alois F.: See—
 Gilmore, Thomas P.; Ringland, William L.; and Geiersbach, Alois F., 3,832,624.
 Gelfand, Daniel, to Buchler Instruments Division, Nuclear-Chicago Corporation. Multitube peristaltic pump with individual programming control. 3,832,096, Cl. 417-475.000.
 Gell, Dennis, to Stibbe-Monk Developments Limited. Mandrel assembly for pattern disc preparation machines. 3,831,261, Cl. 29-467.000.
 Gelman, Charles; and Vadnay, Attila, to Gelman Instrument Company. Funnel with magnetic filter retainer. 3,831,759, Cl. 210-232.000.
 Gelman Instrument Company: See—
 Gelman, Charles; and Vadnay, Attila, 3,831,759.
 Gelzeiser, Francis L., to Westinghouse Electric Corporation. Circuit breaker with improved frame and cradle support means. 3,832,663, Cl. 337-112.000.
 Gendron, George J.: See—
 Phares, Lindsey J.; and Gendron, George J., 3,831,386.
 Gendron, Roger J.: See—
 Ingram, Charles E.; Gendron, Roger J.; Cronk, Vern V.; and Keefe, Harry J., 3,831,293.
 Skarin, Carl R.; Dietzel, Kenneth H.; and Gendron, Roger J., 3,831,780.
 General Electric Company: See—
 Berkowitz, Ami E.; and Meiklejohn, William H., 3,832,718.
 DePas, Laddie A., 3,831,292.
 Flynt, Frank V., 3,831,373.
 Goodridge, Lawrence Carvin, 3,832,604.
 Hardman, Dorsey Loraine; and Hughes, Philip Goggans, 3,832,657.

Hull, Thomas Neil, Jr.; and Nye, James Leroy, 3,832,086.
 Kornrumpf, William P.; and Harnden, John D., Jr., 3,832,621.
 Manharth, Gary B., 3,832,092.
 McVey, Charles I.; and Collins, Byron R., 3,832,588.
 Merrill, Duane F., 3,832,319.
 Merritt, Will D., Jr., 3,832,419.
 Mullings, Donald M., 3,831,670.
 Nicodemus, Paul Otis, 3,832,231.
 Parsons, John M., 3,831,549.
 Pollard, Ernest M., 3,832,619.
 Pollard, Ernest M., 3,832,620.
 Schlaudroff, Leo M.; and McKinley, Hollace R., 3,831,641.
 Smith, Dallas F.; and Arnold, Richard B., 3,831,255.
 Wanger, Robert Price, 3,831,493.
 Wentorf, Robert H., Jr.; and Rocco, William A., 3,831,428.
 General Motors Corporation: See—
 Briar, John R.; and Grabek, Frederick M., 3,831,723.
 Campbell, Roger W.; Aukmanis, Edwards B.; and Placko, Milan, 3,831,963.
 Campbell, Roger W.; Aukmanis, Edwards B.; and Placko, Milan, 3,831,964.
 Cator, Dennis W.; Campbell, Roger W.; and Felix, Gerardus L., 3,831,962.
 Furnival, Thomas J., 3,832,606.
 Gehrke, Glenn F., 3,832,076.
 Gilbert, Robert E., 3,831,260.
 Griffin, Henry W., 3,831,878.
 Haven, Harold A.; and Stewart, John A., 3,832,662.
 Heimburg, Fritz, 3,831,568.
 Keppel, Charles M., 3,831,974.
 Kern, Richard A., 3,831,457.
 Marquardt, James F.; and Orlando, Vincent A., 3,832,507.
 Paxton, Wayne E.; Rishavy, Edward A.; and Currie, James H., 3,831,562.
 Peller, Henry A., 3,831,961.
 Thomas, Thomas G., 3,831,566.
 General Technologies Corporation: See—
 Abrams, Edwin F.; and Shaver, Robert G., 3,832,451.
 Gentilini, Augusto. Illumination device with glittering effect for advertising and decorative purposes. 3,831,302, Cl. 40-106.520.
 Genzel, Edward A.: See—
 Bernhardt, Brian M.; and Genzel, Edward A., 3,831,982.
 Geometric Data Corporation: See—
 Miller, Melvin N.; and Levine, Marshall S., 3,832,687.
 Gerding, Charles Christian; and Todora, Louis John, to Jones & Laughlin Steel Corporation. Method of dispensing low velocity liquid material for strip casting. 3,831,659, Cl. 164-82.000.
 Geres, Robert J., to United States of America, Navy. Portable swimmer propulsion unit. 3,831,546, Cl. 115-6.100.
 Gerry, Martin E. Distortionless magnetic logic elements. 3,832,566, Cl. 307-88.01c.
 Geyken, Erwin; Schwarzmaier, Gerhard; and Dawidowitsch, Peter, to AGFA-Gevaert Aktiengesellschaft. Apparatus for processing photographic films. 3,832,730, Cl. 354-299.000.
 Ghadimi, Hossein. Injectable amino acid composition commensurate to the anabolic need of the body and method of using same. 3,832,465, Cl. 424-177.000.
 Giacomo Cortinovis: See—
 Menghini, Angelo, 3,831,575.
 Gibb, David T. Lobed rotary cutting blade. 3,831,484, Cl. 83-847.000.
 Gibbs, Everett Ralph; and Tully, William Howard, to Koppers Company, Inc. Electrostatic precipitator. 3,831,351, Cl. 55-147.000.
 Gilbert, Bertram C. Toy rocket launching system. 3,831,315, Cl. 46-74.00b.
 Gilbert, Robert E., to General Motors Corporation. Method of assembling shift indicator arrangement. 3,831,260, Cl. 29-434.000.
 Gilleland, Randall C.: See—
 Bell, Oliver A., Jr.; and Gilleland, Randall C., 3,832,511.
 Gilles, Helmut; Gupner, Otto; and Haselmayer, Karl, to Metalgesellschaft Aktiengesellschaft. Fluid Distributor. 3,831,350, Cl. 55-128.000.
 Gillette Company, The: See—
 Perry, Roger L., 3,832,432.
 Wellinger, Roger Paul, 3,831,273.
 Gilmore, Richard A.: See—
 Foley, Dennis J.; and Gilmore, Richard A., 3,832,679.
 Gilmore, Thomas P.; Ringland, William L.; and Geiersbach, Alois F., to Allis-Chalmers Corporation. Group blanking control for cycloconverter. 3,832,624, Cl. 321-66.000.
 Gilmore, William J., to American Chain & Cable Company, Inc. Safety belt system. 3,831,370, Cl. 57-145.000.
 Ginther, Albert W. Apparatus for storing and disposing of grass clippings. 3,831,864, Cl. 239-665.000.
 Girling Limited: See—
 Nicholls, Lawrence George, 3,831,919.
 Williams, Malcolm Clarence, 3,831,720.
 GKN Sankey Limited: See—
 Golding, Cyril George; Wiggan, Anthony John; and Beech, Frank, 3,831,645.
 Glance, Patrick M., to Ford Motor Company. Energy absorbing dash structure. 3,831,705, Cl. 180-90.000.
 Glasgow, Paul J., to Glasgow Products, Inc. Dental wax extruder. 3,831,815, Cl. 222-94.000.
 Glasgow Products, Inc.: See—
 Glasgow, Paul J., 3,831,815.

Glasrock Products, Inc.: See—
 Haldopoulos, Ioakim, 3,832,141.
 Glasser, Fred A., to Behring Corporation. Welding hook. 3,832,520, Cl. 219-130.000.
 Glatthorn, Raymond H., to Westinghouse Electric Corporation. Tube expander. 3,831,413, Cl. 72-59.000.
 Gleason Works, The: See—
 Baxendale, Kenneth C., 3,832,100.
 Glen-Crete Products Co.: See—
 Lear, Donald S., 3,831,329.
 Gley, Paul R.: See—
 MacMaster, Edward; and Gley, Paul R., 3,831,224.
 Gloge, Detlef Christoph, to Bell Telephone Laboratories, Incorporated. Delay equalizers for multimode optical fibers. 3,832,030, Cl. 350-96.0wg.
 Glowacki, Anthony S., to Uniroyal, Inc. Self-crimped yarn and method of producing the same. 3,831,368, Cl. 57-140.0by.
 Gmeiner, Gunter; Kolbe, Erwin; and Binder, Rudolf, to Daimler Benz Aktiengesellschaft. Windshield wiper system for vehicles. 3,831,220, Cl. 15-250.210.
 Gmeiner, Gunter; Kolbe, Erwin; and Binder, Rudolf, to Daimler Benz Aktiengesellschaft. Windshield wiper installation for vehicles. 3,831,221, Cl. 15-250.210.
 Goel, Narendra S.; and Fletcher, Gerald M., to Xerox Corporation. Belt transfer system. 3,832,053, Cl. 355-3.00r.
 Goetz, Philip J.; and Erk, Kaya, to Singer Company, The. Doppler signal simulator. 3,832,712, Cl. 343-17.700.
 Golconda Corporation: See—
 Draxler, Walter E., 3,831,631.
 Golde, H. T., GmbH: See—
 Dauernheim, Hans; and Jander, Horst, 3,831,320.
 Golding, Cyril George; Wiggan, Anthony John; and Beech, Frank, to GKN Sankey Limited. Apparatus for washing and filling containers. 3,831,645, Cl. 141-92.000.
 Goltsman, Samuil Aronovich: See—
 Anikanov, Nikolai Ivanovich; Grachev, Leonid Pavlovich; Goltsman, Samuil Aronovich; Zak, Grigory Iosifovich; Oleinik, Alexandr Ivanovich; Radutsky, Grigory Avramovich; Kheifets, Rafail Efimovich; and Baburin, Evgeny Arkadievich, 3,831,781.
 Gomez, I. Luis; and Steingiser, Samuel, to Monsanto Company. Method and apparatus for processing high nitrile polymers. 3,831,290, Cl. 34-12.000.
 Gonnarn, Russell W.: See—
 Hinman, Walter L., Jr.; and Gonnarn, Russell W., 3,832,601.
 Gonzales, Carmen R. Carpet hoist. 3,831,791, Cl. 214-396.000.
 Goodman, Brian L.; Weis, Frank G.; and Mikkelsen, Kenneth A., to Ecodyne Corporation. Filtration apparatus. 3,831,755, Cl. 210-108.000.
 Goodridge, Lawrence Carvin, to General Electric Company. Electrical protective panel assembly. 3,832,604, Cl. 317-120.000.
 Goodwin, Robert J.: See—
 Gaylord, Eber W.; Goodwin, Robert J.; and Mori, Ernest A., 3,831,753.
 Goodyear Tire & Rubber Company, The: See—
 Marsh, Richard L.; and Semin, Roy E., 3,831,358.
 Matvey, Paul R.; and Gage, John R., 3,832,275.
 Gossett, Charles W.; and Dauenhauer, William J. Water purifying and distributing system. 3,831,757, Cl. 210-143.000.
 Goto, Hisao: See—
 Kitani, Toshio; and Goto, Hisao, 3,832,523.
 Gottlieb, Arnold J.; and Majesko, George A., to Driver, Wilbur B. Company. Bimetallic material for electronic tube applications. 3,832,148, Cl. 29-195.500.
 Gottlieb, C. Robert; and Lewis, Eugene C., to Diamondhead Corporation. Snobbing frame for rotary cranes. 3,831,770, Cl. 212-42.500.
 Goulas, Bobbie D., to BG & F Inc. Method of providing a solid gall preventer in a pin and box joint. 3,831,259, Cl. 29-428.000.
 Gould Inc.: See—
 Arndt, John P., 3,832,579.
 Gouye, Emmanuel V., to Koppers Company, Inc. Coupling device. 3,831,646, Cl. 141-383.000.
 Grabek, Frederick M.: See—
 Briar, John R.; and Grabek, Frederick M., 3,831,723.
 Grace, W. R. & Co.: See—
 Brown, Patrick Michael, 3,832,224.
 Morgan, Charles R., 3,832,421.
 Roberts, John T.; Waller, John G.; Harris, George E.; and Ovrick, Richard L., 3,832,258.
 Schirmer, Henry G., 3,832,270.
 Grachev, Leonid Pavlovich: See—
 Anikanov, Nikolai Ivanovich; Grachev, Leonid Pavlovich; Goltsman, Samuil Aronovich; Zak, Grigory Iosifovich; Oleinik, Alexandr Ivanovich; Radutsky, Grigory Avramovich; Kheifets, Rafail Efimovich; and Baburin, Evgeny Arkadievich, 3,831,781.
 Graf, Peter; and Lang, Manfred, to Siemens Aktiengesellschaft. Halographic memory with dodecahedron detector matrix. 3,832,565, Cl. 250-566.000.
 Graham, Douglas J.: See—
 Bhuta, Pravin G.; Johnson, Robert L.; and Graham, Douglas J., 3,831,756.
 Grand, Paul Sheldon, to Colgate-Palmolive Company. Detergent compositions containing aminopolyureylene resin and optical brighteners. 3,832,310, Cl. 252-543.000.

Grane, Henry R., to Atlantic Richfield Company. Method for the production of phthalic and toluic acids by the catalytic oxidation of xylenes. 3,832,395, Cl. 260-524.00r.
 Grant, George H.; and Hadad, Joseph D., to Raytheon Company. Guidance system. 3,832,711, Cl. 343-6.0df.
 Grant, Norman G.: See—
 Alburn, Harvey E.; Clark, Donald E.; Grant, Norman G.; and Lapidus, Milton, 3,832,373.
 Gray, Joseph Roy. Connectable box structures. 3,831,832, Cl. 229-8.000.
 Green, Harold: See—
 Barrett, William J.; and Green, Harold, 3,832,609.
 Green, Nathan: See—
 Tumlinson, James H. III; Mitchell, Everett R.; Browner, Stella M.; Mayer, Marion S.; Green, Nathan; Hines, Ronald W.; and Lindquist, Donald A., 3,832,461.
 Green, Samuel I.; and Dreisewerd, Douglas W., to United States of America. Gated detector synchronization. 3,832,543, Cl. 250-199.000.
 Greott, George S. Tool for tightening fence wires or the like. 3,831,642, Cl. 140-106.000.
 Gregg, Woodrow W. Automatic shotgun choke. 3,831,306, Cl. 42-79.000.
 Greguss, Pal, to Vari-Light Corporation. Methods and apparatus for image display of sound waves and utilizations thereof. 3,831,434, Cl. 73-67.50h.
 Greutman, Weldon W., to International Telephone and Telegraph Corporation. Wide band gain control circuit. 3,832,645, Cl. 330-29.000.
 Grewe, Ferdinand: See—
 Jager, Gerhard; Buchel, Karl Heinz; Grewe, Ferdinand; and Frohberger, Paul-Ernst, 3,832,466.
 Grewer, Rudolf; and Hickmann, Herbert, to Thyssen-Niederrhein AG Hutten- und Walzwerke. Closure for sponge iron dispenser. 3,831,622, Cl. 137-340.000.
 Grewer, Rudolf; Hickmann, Herbert; and Trecker, Hermann, to Thyssen-Niederrhein AG, Hutten- & Walzwerke. Discharge device for direct-reduction shaft furnace. 3,831,787, Cl. 214-23.000.
 Grieger, Gerhard; and Bohrdt, Joaquin, to Siemens Aktiengesellschaft. Electric circuit breaker with hydraulic actuating means including a plurality of valves for opening the breaker, and a plurality of valves for closing the breaker. 3,832,502, Cl. 200-82.0b.
 Griesenbrock, Karl-Heinz, to Eaton Corporation. Material handling apparatus. 3,831,786, Cl. 214-16.40a.
 Griffin, Henry W., to General Motors Corporation. Restraint belt retractor. 3,831,878, Cl. 424-107.400.
 Griffin, Richard H., to International Telephone and Telegraph Corporation. Electric fuse. 3,832,666, Cl. 337-272.000.
 Grinshpon, Semen Yakovlevich: See—
 Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Alferov, Yuri Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Elevich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.
 Groepper, Jurgen; and Sanchez, Jose, to Pennwalt Corporation. Curing and polymerizing processes employing beta-substituted diperoxketals. 3,832,336, Cl. 260-89.100.
 Gross, Franz, to Siemens Aktiengesellschaft. Selectively damped travelling wave tube. 3,832,593, Cl. 315-3.500.
 Grosseau, Albert, to Societe Anonyme Automobiles Citroen. Automobile suspensions. 3,831,966, Cl. 280-124.00b.
 Grosseau, Albert, to S. A. Automobiles Citroen. Brake control devices for preventing locking a braked wheel. 3,832,010, Cl. 303-21.0eb.
 Grosser, Christian E.: See—
 Kline, Robert H.; and Grosser, Christian E., 3,831,838.
 Grosvenor, Clifford Ray; Resch, Ronald R.; and Pumm, Paul P., to Singer Company, The. Cascaded variable delay system. 3,832,571, Cl. 307-154.000.
 Grundy, Reed H., to Westinghouse Air Brake Company. Vital more restrictive speed command sensing circuit. 3,832,599, Cl. 317-5.000.
 Gsell, Hans Peter; and Kunzler, Friedrich, to Tirama AG. Spray installation for highly-filled dispersions. 3,831,851, Cl. 239-175.000.
 GTE Automatic Electric Laboratories Incorporated: See—
 Vrba, James J., 3,832,496.
 GTE Sylvania Incorporated: See—
 Bunker, Thomas D., 3,832,480.
 Hay, Warren H., 3,832,257.
 McDonough, Thomas P.; and Shaffer, John W., 3,832,125.
 Szeverenyi, Nikolaus A., 3,832,702.
 Waymouth, John F.; Koury, Frederic; and Gungle, Warren Calvin, 3,832,587.
 Guerci, Carlo: See—
 Pagella, Elio; and Guerci, Carlo, 3,831,283.
 Guhl, Horst, to Thimm Wellpappen K. G. Firma. Packing case for reception of tetra-hedron-shaped individual packings and an apparatus for piling up the individual packings in the packing case. 3,831,835, Cl. 229-37.00r.
 Gulf Research & Development Company: See—
 Bercik, Paul G.; and Henke, Alfred M., 3,832,418.
 Gaylord, Eber W.; Goodwin, Robert J.; and Mori, Ernest A., 3,831,753.
 Gulla, Michael, to Shipley Company, Inc. Metal finishing alloy of nickel-copper-phosphorus. 3,832,168, Cl. 75-170.000.

Gullaksen, Gilbert V.; and Jatho, George W., to Wrightway Mfg. Co. Low flow volume shower head. 3,831,860, Cl. 239-500.000.

Gungle, Warren Calvin: See—
Waymouth, John F.; Koury, Frederic; and Gungle, Warren Calvin, 3,832,587.

Gunsalus, Claude A. Mounting apparatus for indexable cutting inserts. 3,831,237, Cl. 29-105.00r.

Guntermann, Hans, to Elektro-Thermit GmbH. Closure for crucibles used for aluminothermic reactions. 3,831,915, Cl. 266-34.00r.

Gupner, Otto: See—
Gilles, Helmut; Gupner, Otto; and Haselmayer, Karl, 3,831,350.

Gurien, Harvey; Rachlin, Israel; and Teitel, Sidney, to Hoffman-La Roche Inc. Process for substituted sulfonylureas. 3,832,397, Cl. 260-553.00d.

Gurzenda, Vernon W. Door stop. 3,831,989, Cl. 292-338.000.

Gusovius, Eckart, to Duplomat, Boger, Dr., Apparate KG, Firm, The. Process and apparatus for setting a reproduction camera. 3,832,058, Cl. 355-56.000.

Guthrie Industries Limited: See—
Mutch, John, 3,832,427.

Gyogyszerkutató Intézet: See—
Mlanko, Sandor; Banfi, Dezso; Dobis, Emilia; Ottinger, Jozsef; Payer, Karoly; Palagyi, Tivadar; and Turi, Agnes, 3,832,137.

Gysell, Bjorn; Nilsson, Karl Axel; and Nilvid, Gary. Fire alarm system. 3,832,678, Cl. 340-22.00r.

Gyugyi, Laszlo, to Westinghouse Electric Corporation. Electrical power generating arrangement and method utilizing an induction generator. 3,832,625, Cl. 322-47.000.

Haake, Robert, to Bell & Howell Company. Sequential picture apparatus with oscillatory optical compensator. 3,832,047, Cl. 352-109.000.

Hackbarth, Lowell E.; and Crockett, Joseph T., to Huber, J. M., Corporation. Alkali metal aluminosilicates, methods for their production and compositions thereof. 3,832,327, Cl. 260-42.370.

Hackett, Homer L.; and Starks, Charles M., to Continental Oil Company. Process for the preparation of active carbon from halohydrocarbons. 3,832,306, Cl. 252-422.000.

Hadad, Joseph D.: See—
Grant, George H.; and Hadad, Joseph D., 3,832,711.

Haemonetics Corporation: See—
Latham, Allen, Jr., 3,831,813.

Hafner, Robert O.; and Anderson, Richard M., to Heil Quaker Corporation. Air conditioner with air flow sensor. 3,831,392, Cl. 62-140.000.

Hageman, Howard A., to Uniroyal, Inc. Alpha-(Chlorothio)isobutyronitrile, alpha-chloro-dithioisobutyronitrile and their preparation; and preparation of alpha, alpha-dithioisobutyronitrile. 3,832,378, Cl. 260-465.100.

Hagiwara, Kokichi: See—
Ando, Ryo; and Hagiwara, Kokichi, 3,831,913.

Hagle, Edward E. Alphanumeric tactile information communication system. 3,831,296, Cl. 35-35.00a.

Hainaut, Daniel; Toromanoff, Edmond; and Demoute, Jean-Pierre, to Roussel-UCLAF. 2H-thiopyrans. 3,832,353, Cl. 260-327.0th.

Hajduk, Thaddeus J.: See—
Cook, Charles A.; and Hajduk, Thaddeus J., 3,832,211.

Hakes, Paul E.: See—
Trabbic, Gerald W.; Dunn, Wayne C.; and Hakes, Paul E., 3,831,497.

Hakner, Robert. Progressive stamping device having work stations in a curvilinear path. 3,831,426, Cl. 72-405.000.

Haldopoulos, Ioakim, to Glasrock Products, Inc. Pressure differential filtering apparatus. 3,832,141, Cl. 23-259.000.

Haley, Finley Paul. Portable knock-down hoist apparatus. 3,831,773, Cl. 212-139.000.

Halkey-Roberts Corporation: See—
Mackal, Glenn H.; and Lardner, George E., 3,831,629.

Hall, Leland S.; and Heffan, Howard, to United States of America, Navy. Radiation absorber and intensity collimator unit. 3,832,564, Cl. 250-510.000.

Halliburton Company: See—
Broussard, Pat J.; and Fincher, Arnold, 3,832,196.

Edwards, Arnold Glen; and Jenkins, Charles J., 3,831,680.

Lansford, Robert W.; and Gardner, Tommy R., 3,832,302.

Halls, Maurice Vernon: See—
Conibear, David Eustace; and Halls, Maurice Vernon, 3,831,286.

Hama, Kotaro: See—
Kitaoka, Yoji; Murata, Katsuhide; Hama, Kotaro; Hashimoto, Michio; and Fujiyoshi, Kenji, 3,832,151.

Hamada Printing Press Mfg., Co., Ltd.: See—
Shimizu, Shigeru, 3,831,930.

Hamaker, Ralph A., to Xerox Corporation. Foraminous vacuum bias roll transfer system. 3,832,055, Cl. 355-3.00r.

Hamasaki, Kamenosuke. Device for controlling seaborne vessels. 3,831,543, Cl. 114-145.00r.

Hamme, Lee F. Bearing dispenser. 3,831,810, Cl. 221-301.000.

Hammond, Philip D.; Clarke, William M.; and Denton, William I., to Olin Corporation. Continuous process for preparing aromatic isocyanates. 3,832,372, Cl. 260-453.0pc.

Hamton Engineering Associates, Inc.: See—
Swanson, Allen K., 3,832,051.

Hancock, Ronald David: See—
Allum, Keith George; Hancock, Ronald David; McKenzie, Samuel; and Pitketh, Robert Chalmers, 3,832,404.

Hancovsky, John P., to Hi-Ho Products, Inc. Sectional creative toy. 3,831,934, Cl. 272-56.000.

Handrick, Kurt: See—
Hirz, Albert; Handrick, Kurt; and Kolling, Georg, 3,832,360.

Hanlon, Paul C., to Dover Corporation. Compressor valve of the slotted plate type. 3,831,627, Cl. 137-512.100.

Hann, Paul D., to Phillips Petroleum Company. Filaments of varying cross-sectional area. 3,832,272, Cl. 161-173.000.

Hannah, John, to Merck & Co., Inc. 2'-(4 Pyridyl)-6,16 α -dimethyl-20-oxo-11 β ,17 α ,21-trihydroxy-pregna-4,6-dieno(3,2-C)pyrazole and intermediates in the production thereof. 3,832,346, Cl. 260-239.500.

Hanovia Lamps Limited: See—
Knight, Ronald Edward, 3,831,289.

Hansen, Harold Valentine, to Deere & Company. Apparatus and method for distributing toxic agricultural chemicals. 3,831,867, Cl. 241-101.700.

Hanson, Harold W., Jr., to Par-Way Mfg., Co. Liquid spray head for producing rectangular spray patterns. 3,831,861, Cl. 239-520.000.

Hanzawa, Teruo: See—
Inoue, Isaburo; Hanzawa, Teruo; Endo, Takaya; and Deguchi, Hidetaka, 3,832,386.

Harada, Masahide: See—
Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Harada, Masahide, 3,832,349.

Hardman, Dorsey Loraine; and Hughes, Philip Goggans, to General Electric Company. Industrial control relay. 3,832,657, Cl. 335-99.000.

Harkness, Joseph R.: See—
Boyd, Edward A.; and Harkness, Joseph R., 3,831,268.

Harmel, Richard P., Jr. Atmospherically isolated mixing apparatus with viscosity responsive indicator. 3,831,903, Cl. 259-1.00r.

Harnden, John D., Jr.: See—
Kornumpf, William P.; and Harnden, John D., Jr., 3,832,621.

Harnischfeger Corporation: See—
Wieniec, Daniel C., 3,831,771.

Harr, Jerome Danforth, to International Business Machines Corporation. Threshold extraction circuitry for noisy electric waveforms. 3,832,577, Cl. 307-235.00a.

Harrington, Charles L.: See—
Gallagher, Ruth E.; Harrington, Charles L.; and Wachtel, Melvin, 3,832,318.

Harrington, Edward F., Jr., to Chemetron Corporation. Multiple-ply bellows. 3,831,498, Cl. 92-34.000.

Harris, Ben A., to Dynalco Corporation. Automatic telephone system with improved line selecting apparatus. 3,832,500, Cl. 179-18.0ge.

Harris, Eric Frank; and Roberts, John Francis Lloyd, to Imperial Chemical Industries Limited. Process for spinning high tenacity fibres. 3,832,436, Cl. 264-210.00f.

Harris, George E.: See—
Roberts, John T.; Waller, John G.; Harris, George E.; and Orrick, Richard L., 3,832,258.

Hart, Anthony Christopher: See—
Sutton, William Heald; Evans, Thomas Ernest; and Hart, Anthony Christopher, 3,832,292.

Hart, Donald R.: See—
Northup, Francis B.; and Hart, Donald R., 3,831,369.

Hartmann, Manfred, to Hilti Aktiengesellschaft. Magazine or container for receiving articles such as caseless propellant charges or compacts. 3,831,739, Cl. 206-2.000.

Hartzell, James R., to Piqua Aircraft Company. Electrically controlled governors. 3,831,615, Cl. 137-53.000.

Hartzog, Melvin: See—
Aidlin, Samuel S.; Aidlin, Stephen H.; Hartzog, Melvin; and Shepard, John C., 3,831,738.

Hasegawa, Kazuhiko: See—
Nakao, Hisaji; Naruse, Katutoshi; Hasegawa, Kazuhiko; Kawade, Sadao; Tokura, Yasufumi; and Matsuno, Kazuo, 3,832,696.

Haselmayer, Karl: See—
Gilles, Helmut; Gupner, Otto; and Haselmayer, Karl, 3,831,350.

Hashimoto, Michio: See—
Kitaoka, Yoji; Murata, Katsuhide; Hama, Kotaro; Hashimoto, Michio; and Fujiyoshi, Kenji, 3,832,151.

Hashimoto, Seiya: See—
Takanashi, Akihiro; and Hashimoto, Seiya, 3,831,458.

Haslett, Glenn Melvin: See—
Boggs, Roger L.; Balzer, David John; and Haslett, Glenn Melvin, 3,831,240.

Hass, Robert H., to Union Oil Company of California. Exhaust gas conversion process. 3,832,443, Cl. 423-213.700.

Hasselblad, Fritz Victor: See—
Tenne, Lave, 3,832,729.

Haswell, John W.; and Haswell, Stanley A. Means for making pulleys. 3,831,414, Cl. 72-82.000.

Haswell, Stanley A.: See—
Haswell, John W.; and Haswell, Stanley A., 3,831,414.

Hatsukano, Yoshikazu: See—
Nomiya, Kosei; Minorikawa, Kazuo; Torii, Shuichi; and Hatsukano, Yoshikazu, 3,832,578.

Hauni-Werke Korber & Co., KG: See—
Wochnowski, Waldemar; and Baumann, Helmut, 3,831,610.

Hauri, Jacques: See—
Charransol, Pierre; Hauri, Jacques; and Athenes, Claude, 3,832,492.

Hause, Robert F.: See—

Rutkowski, Edward J.; Dawdy, Jack A.; Hause, Robert F.; and Reining, Irvine G., II, 3,831,334.

Haven, Harold A.; and Stewart, John A., to General Motors Corporation. Vehicle cooling system condition monitor. 3,832,662, Cl. 337-40.000.

Hawkins, James B.: See—
Van Doorn, Donald W.; Hawkins, James B.; and Williams, Roy T., 3,831,481.

Hawthorne, Vaughn T., to Keystone Industries, Inc. Draft gear assembly for locomotives and the like. 3,831,775, Cl. 213-43.000.

Hay, Warren: See—
Loughridge, Frederick; Koury, Frederic; and Hay, Warren, 3,832,124.

Hay, Warren H., to GTE Sylvania Incorporated. Method of coating photoflash lamp. 3,832,257, Cl. 156-198.000.

Hayashibara Biochemical Laboratories Incorporated: See—
Kurimoto, Masashi, 3,832,285.

Hayden, Julian D., to Syndyne Corporation. Solenoid actuated switch. 3,832,658, Cl. 335-181.000.

Hayden, Owen; and Taylor, Derek, to United Kingdom Atomic Energy Authority. Heat exchangers. 3,831,673, Cl. 165-158.000.

Hch. Bertrams Aktiengesellschaft: See—
Kuhnlein, Hans L., 3,831,560.

Heberlein & Co. AG: See—
Horvath, Lajos, 3,831,360.

Raschle, Josef, 3,831,366.

Hedman, Jarl; and Westerlund, Tage, to Linden-Alimak AB. Apparatus for maintaining an elevator cage in the vertical position. 3,831,714, Cl. 187-12.000.

Heffan, Howard: See—
Hall, Leland S.; and Heffan, Howard, 3,832,564.

Hehl, Karl. Injection mold for an injection molding machine for manufacturing two-component plastic objects. 3,832,110, Cl. 425-130.000.

Heiba, El-Ahmedi; and Rodewald, Paul Gerhard, to Mobil Oil Corporation. Alkoxyated hydroxyamide detergents. 3,832,367, Cl. 260-404.000.

Heil, Oskar. Electro-acoustic transducer. 3,832,499, Cl. 179-115.5pv.

Heil Quaker Corporation: See—
Hafner, Robert O.; and Anderson, Richard M., 3,831,392.

Heim Universal Corporation: See—
McCloskey, Albert R., 3,832,020.

Heimbach, Paul: See—
Wilke, Gunther; and Heimbach, Paul, 3,832,371.

Heimborg, Fritz, to General Motors Corporation. Internal combustion engine fuel-air mixture preheating apparatus. 3,831,568, Cl. 123-122.00r.

Heine, Helmut A., to Propper Manufacturing Co., Inc. and Optotechnik Heine KG. Internal reading device for ophthalmological instruments. 3,832,042, Cl. 351-6.000.

Heinrich Machinery & Tool Mfg. Co., Inc.: See—
Stoecker, Karl M., 3,832,080.

Hek, Homer C., to Universal Dynamics Corporation. Loader. 3,832,005, Cl. 302-59.000.

Helgeland, Walter, to Varian Associates. Current measuring circuit and method. 3,832,642, Cl. 330-2.000.

Hellmer, Ernest W., to Continental Can Company, Inc. Corrugated slit web diverter. 3,831,929, Cl. 271-64.000.

Helton, Eugene L.; and Watts, Loyal O., to Caterpillar Tractor Company. Expandable retaining pin for telescopic parts. 3,831,298, Cl. 37-142.00a.

Hendricks, Thelma, 20% to Lee, Raymond, Organization, Inc., The. Dental floss unit. 3,831,611, Cl. 132-92.00r.

Hendrickson, Alan E. Data signal recognition apparatus. 3,832,685, Cl. 340-146.200.

Henke, Alfred M.: See—
Bercik, Paul G.; and Henke, Alfred M., 3,832,418.

Hennart, Claude, to Ciba-Geigy AG. Pesticidal compositions containing phosphoric acid esters and elemental sulphur. 3,832,464, Cl. 424-175.000.

Henning, Georges. Variable contour miniature golf device. 3,831,949, Cl. 273-176.00h.

Henrick, Clive A.; and Siddall, John B., to Zoecon Corporation. Azides. 3,832,361, Cl. 260-349.000.

Henzel, Russell A.; and Gayman, Byron G., to Honeywell Information Systems, Inc. Priority network for devices coupled by a multi-line bus. 3,832,692, Cl. 340-172.500.

Herchenroeder, Louis W., to Westinghouse Electric Corporation. Voltage reference source adjustable as regards amplitude phase and frequency. 3,832,641, Cl. 328-258.000.

Hercules Incorporated: See—
Breslow, David S., 3,832,399.

Liu, Chia-Seng, 3,832,267.

Paul, James T., Jr., 3,832,297.

Herman, David M. Jack lock. 3,831,892, Cl. 248-201.000.

Herr Manufacturing Company, Inc.: See—
Atwood, Hyatt B.; and McLean, James N., 3,831,367.

Hertling, Charles J.: See—
Faris, Edwin E.; and Hertling, Charles J., 3,832,728.

Heseltine, Donald W.: See—
Jenkins, Philip W.; Heseltine, Donald W.; and Mee, John D., 3,832,212.

Heskett, Don Edward, to Morton-Norwich Products, Inc. Fluid treating apparatus. 3,831,754, Cl. 210-80.000.

Hess, Frederick D., Jr.: See—

Baker, Sherman F.; and Hess, Frederick D., Jr., 3,831,888.

Hess, Howard V.; Cole, Edward L.; and Franz, William F., to Texaco Inc. Integrated kraft pulping process including hydrogen sulfide pretreatment of wood chips and sulfur dioxide treatment of black liquor to lower pH thereof prior to coking. 3,832,279, Cl. 62-82.000.

Hewitt, Harlan D. Automobile construction for safety of occupants. 3,831,998, Cl. 296-35.00r.

Hi-Ho Products, Inc.: See—
Hancovsky, John P., 3,831,934.

Hibi, Yoshiharu: See—
Machi, Suet; Matui, Yasushi; Kurihara, Hirondo; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, 3,832,207.

Hickmann, Herbert: See—
Grewer, Rudolf; and Hickmann, Herbert, 3,831,622.

Grewer, Rudolf; Hickmann, Herbert; and Trecker, Hermann, 3,831,787.

Hicks, John Wilbur, Jr. Glass blade and glass blade blank. 3,831,466, Cl. 76-104.00r.

Hickson's Timber Impregnation Co., (G.B.) Limited: See—
Nicholson, James, 3,832,463.

Hignett, Travis P.; and Smith, Anthony J., to Tennessee Valley Authority. Production of chloride-free potassium phosphates. 3,832,154, Cl. 71-34.000.

Higuchi, Masaru; Yamada, Tadashi; and Suzuki, Ryosho, to Daicel Ltd. Process for preparation of 3-hydroxy-2-alkyl-4-pyrone. 3,832,357, Cl. 260-345.900.

Higuchi, Takeru; and Leeper, Harold M. Method of making a drug delivery device. 3,832,252, Cl. 156-86.000.

Hijkata, Itsuo; Kasazaki, Masayoshi; Terada, Hideto; and Inoue, Takao, to Sintokogio, Ltd. Unit for applying covering sheet for use in vacuum sealed molding. 3,832,117, Cl. 425-388.000.

Hill Acme Company, The: See—
Curtis, William I., 3,831,779.

Hill, Tore L.; and Mankowitsch, Robert. Combined screw driving and screw gripping tool. 3,831,648, Cl. 145-50.00d.

Hill, William P., to National Steel Corporation. Apparatus for improving continuously cast strands. 3,831,660, Cl. 164-275.000.

Hilti Aktiengesellschaft: See—
Hartmann, Manfred, 3,831,739.

Tauern, Dankmar, 3,832,515.

Hinata, Masanao: See—
Sato, Akira; Ikeda, Tadashi; Ogawa, Akira; Shiba, Keisuke; and Hinata, Masanao, 3,832,184.

Shiba, Keisuke; Hinata, Masanao; Sato, Akira; Ogawa, Akira; and Ikeda, Takashi, 3,832,189.

Hines, Robin H.: See—
Shipp, John T.; Hines, Robin H.; Hollinshead, William L.; and Broadbent, Thomas D., 3,832,056.

Hines, Ronald W.: See—
Tumlinson, James H. III; Mitchell, Everett R.; Browner, Stella M.; Mayer, Marion S.; Green, Nathan; Hines, Ronald W.; and Lindquist, Donald A., 3,832,461.

Hinman, Walter L., Jr.; and Gonnar, Russell W., to Westinghouse Electric Corporation. Phase comparison relaying apparatus with two-count-by-pass circuit. 3,832,601, Cl. 317-27.00r.

Hino, Naganori: See—
Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Oishi, Tadashi; Hino, Naganori; and Satomi, Takeo, 3,832,351.

Hinrichs, Bert F. Stock treatment device. 3,831,559, Cl. 119-157.000.

Hiromoto, Yoshinori: See—
Nishio, Yasuhiro; Okamoto, Zenichiro; and Hiromoto, Yoshinori, 3,832,512.

Hirsch, Nathan M. Apparatus for performing the anti-human globulin coombs test. 3,832,138, Cl. 23-253.00r.

Hirschmann, Ralph F.; and Fried, John, to Merck & Co., Inc. 17-Desoxy steroidal pyrazoles and processes of preparing them. 3,832,345, Cl. 260-239.500.

Hirz, Albert; Handrick, Kurt; and Kolling, Georg, to Bergwerksverband GmbH. Process for the continuous preparation of trimellitic acid anhydride. 3,832,360, Cl. 260-346.300.

Hitachi Construction Machinery Co., Ltd.: See—
Ikeda, Toshimichi; Kawauchi, Masataka; Matsuzaki, Atsushi; and Suzuki, Masayuki, 3,831,683.

Hitachi, Ltd.: See—
Eto, Yoshizumi; and Kanazawa, Yasunori, 3,832,585.

Furuhata, Yoshio; and Toriyama, Kazuhisa, 3,832,033.

Ito, Tamotsu; Ohashi, Shin-ichi; and Miyake, Yasuji, 3,832,656.

Masai, Tadahisa, 3,831,843.

Matsuzawa, Hideto; Watanabe, Kikuo; and Inuzuka, Isao, 3,831,715.

Minamihata, Shigeaki; and Niimi, Masayasu, 3,832,572.

Nagata, Minoru; Okabe, Takahiro; and Masuhara, Toshiaki, 3,832,644.

Nakamura, Toshio; and Kawai, Sadaharu, 3,831,925.

Nogita, Shunsuke; and Kawamoto, Yukio, 3,831,447.

Nomija, Kosei; Minorikawa, Kazuo; Torii, Shuichi; and Hatsukano, Yoshikazu, 3,832,578.

Ohashi, Shin-ichi; and Fukushima, Isao, 3,832,638.

Ohnishi, Yasushi, 3,832,555.

Onishi, Kazuo; Yamashita, Seizi; and Sato, Mikio, 3,831,267.

Onoda, Yoshimitsu; Saito, Kunio; Okumura, Yosio; Okuyama, Toshiaki; and Otazawa, Nobuaki, 3,832,611.

Sato, Isao; and Masai, Tadahisa, 3,831,854.

Shimoyashiki, Shigehiro; Makita, Kiyoshi; and Aoki, Naoshi, 3,831,912.
 Takamashi, Akihiro; and Hashimoto, Seiya, 3,831,458.
 Yamazaki, Eiichi, 3,832,592.
 Hoagland, Richard E.: See—
 Chambers, Harley Edward; and Hoagland, Richard E., 3,831,802.
 Hoch, Geraldine M.; and Weber, Kenneth E., to Lockheed Aircraft Corporation. Production of clear, sealed anodized films. 3,832,239, Cl. 204-35.00n.
 Hoff, Karl Heinz; Kupper, Peter; Meyer, Joseph; Pagel, Werner; Schmitt, Heinz; and Nedelec, Maurice, to Saint-Gobain Industries. Apparatus for bending glass. 3,831,239, Cl. 29-125.000.
 Hoffen, Erich; and Kreys, Gerd, to August Thyssen-Hütte. Process for monitoring and controlling the sequence of reactions in a basic oxygen steel production process. 3,832,159, Cl. 75-60.000.
 Hoffman, Carvel D.: See—
 Bartlett, William G.; Hoffman, Carvel D.; Jones, Duane T.; and Mangen, Edmund L., 3,832,550.
 Hoffman, Glenn J.; and Rawlins, Stephen L., to United States of America, Agriculture. Silver-foil psychrometer for measuring leaf water potential. 3,831,435, Cl. 73-77.000.
 Hoffman, Jay, to Singer Company, The, mesne. Fluid rotor motion sensor. 3,831,454, Cl. 73-504.000.
 Hoffman, Joseph H., to Westinghouse Electric Corporation. Fan hub and shaft assembly. 3,832,091, Cl. 416-184.000.
 Hoffman-La Roche Inc.: See—
 Jaffe, Gerald Myer; and Plevin, Edward John, 3,832,355.
 Hoffman-La Roche Inc.: See—
 Gurien, Harvey; Rachlin, Israel; and Teitel, Sidney, 3,832,397.
 Rubiner, Alan Martin; and Oliveto, Eugene Paul, 3,832,387.
 Hoffmann, George R.; Mason, Elmer B.; Jack, Graydon W.; and Campbell, Glenn A. Multi-armature and concentric motors. 3,832,581, Cl. 310-46.000.
 Hoffmann-La Roche Inc.: See—
 Duschinsky, Robert, 3,832,341.
 Leimgruber, Willy; and Weigle, Manfred, 3,832,362.
 Lorch, Eckehard; Sommer, Paul; and Tschirky, Hansjorg, 3,832,140.
 Wehrli, Pius Anton, 3,832,365.
 Hoffe, Hubert. Movable platform exerciser. 3,831,935, Cl. 272-57.00b.
 Hoffmann, Hermann: See—
 Engelhard, Dieter; Hoffmann, Hermann; Schaff, Ulrich; and Kaiser, Walter, 3,832,602.
 Hoh, George L. K.; and Tsukamoto, Akira, to Du Pont de Nemours, E. I., and Company. Segmented copolyester adhesive and coating compositions. 3,832,314, Cl. 260-26.000.
 Hoke Incorporated: See—
 McGavin, Joseph J., 3,831,630.
 Hole Pluggers, Inc.: See—
 Crank, Gerald E., 3,831,383.
 Holiday, Paul R.: See—
 Cox, Arthur R.; and Holiday, Paul R., 3,832,107.
 Holiday, William G., to King Radio Corporation. Method and apparatus for assembling printed circuit boards. 3,831,250, Cl. 29-203.00b.
 Hollinshead, William L.: See—
 Shipp, John T.; Hines, Robin H.; Hollinshead, William L.; and Broadbent, Thomas D., 3,832,056.
 Holloway, Robert L., to Chisholm-Ryder Company, Inc. Grading machine for beans and other objects. 3,831,752, Cl. 209-394.000.
 Holmes, Curtis L.; and Brady, Lynn J., to CTS Corporation. Electrically conductive composition element and method of making the same. 3,832,308, Cl. 252-514.000.
 Holmsten, Richard B. Header distribution system for ice rinks. 3,831,394, Cl. 62-235.000.
 Holosonic: See—
 Brenden, Byron B.; Neely, Victor I.; and Garlick, George F., 3,832,677.
 Homewood, Richard H.; Krukonis, Val J.; and Loszewski, Raymond C., to Avco Corporation. Safe explosive containing dicyanofuroxane and method. 3,832,249, Cl. 102-23.000.
 Honda Giken Kogyo Kabushiki Kaisha: See—
 Akima, Akira; Nishikawa, Masao; Sato, Makoto; Miyahara, Hiromitsu; and Miyakawa, Yoshitaka, 3,832,095.
 Honeywell Inc.: See—
 Kardashian, Vahram S., 3,832,704.
 Larsen, Larry D.; Rekarck, Joseph C.; Kompelien, Arlon D.; and Rork, Gerald D., 3,832,552.
 Honeywell Information Systems, Inc.: See—
 Besenfelder, Edward R., 3,832,684.
 Henzel, Russell A.; and Gayman, Byron G., 3,832,692.
 Honig, Helmut: See—
 Dillenburger, Helmut; Honig, Helmut; and Siegel, Rudolf, 3,832,447.
 Hooker Chemical Corporation: See—
 Geering, Emil J.; and Dachs, Norman W., 3,832,329.
 Hopkins, Neil E., to Borg-Warner Corporation. Method and apparatus for controlling refrigerant temperatures of absorption refrigeration systems. 3,831,390, Cl. 62-101.000.
 Hopkins, William J.: See—
 Weaver, Elmer A.; Hopkins, William J.; and Korn, Alfred H., 3,832,130.
 Hoppmann Corporation: See—
 Hoppmann, Kurt H.; Edmunds, George W.; and Schober, Horst A., 3,831,734.

Hoppmann, Kurt H.; Edmunds, George W.; and Schober, Horst A., to Hoppmann Corporation. Centrifugal method of sorting particulate articles. 3,831,734, Cl. 198-255.000.
 Horie, Izumi: See—
 Naya, Mikio; Yamaguchi, Haruki; and Horie, Izumi, 3,832,068.
 Horrocks, Raymond G., to Scott & Fetzer Company, The. Jacket stripper. 3,831,274, Cl. 30-90.400.
 Horst, Robert L.; and Wolgemuth, Dennis L., to Armstrong Cork Company. Pattern length measurement and control by continuous statistical correlation. 3,832,064, Cl. 356-163.000.
 Horvat, Rudolph M., to Ford Motor Company. Energy absorbing seat assembly. 3,832,003, Cl. 297-216.000.
 Horvath, Lajos, to Heberlein & Co. AG. Texturized staple fiber structures. 3,831,360, Cl. 57-2.000.
 Hostetler, William: See—
 Brey, Wilhelm; Hostetler, William; Loeffler, Earl Ferdinand; Kolm, Hubert Ernest; and Elder, Fred Grove, 3,832,261.
 Hovagimyan, Norman; and Rosenblatt, Murray, to RCA Corporation. Information transfer system for a PBX. 3,832,495, Cl. 179-18.0gf.
 Howard, Richard W.; and Weier, Roman J., to Wyard Industries, Inc. Destacking apparatus. 3,831,733, Cl. 198-32.000.
 Howard, Robert, to Centronics Data Computer Corporation. Solenoid having increased throw capability. 3,831,729, Cl. 197-1.00r.
 Howells, Paul W.; Lederer, Edwin H.; and Lothes, Robert N., to Syracuse University Research Corporation. Viaduct for small, powered, passenger vehicles. 3,831,526, Cl. 104-121.000.
 Hradcovsky, Rudolf J.; and Bayles, S. Heagan, Jr., to D & M Technologies, Inc. Process for forming a coating comprising a silicate on valve group metals. 3,832,293, Cl. 204-56.00r.
 Htoo, Maung S.; Metreud, Claude G.; and Schmitt, Herman F., to International Business Machines Corporation. Agitated reactor for processing semiconductor substrates. 3,831,905, Cl. 259-4.000.
 Huber, J. M., Corporation: See—
 Hackbarth, Lowell E.; and Crockett, Joseph T., 3,832,327.
 Scott, Oscar Thomas; and Setliff, Bennie Smithers, 3,831,747.
 Huber, Wolfgang; and Schulte, Thomas L., to Diagnostic Data, Inc. Orogene production using a buffer solution containing divalent metal salts. 3,832,338, Cl. 260-113.000.
 Hubner, Horst: See—
 Detemple, Manfred F.; Hubner, Horst; and Oswald, Johann, 3,832,675.
 Huddleston, Robert F., to Mallory, P. R., & Co., Inc. Electrical conducting means and method of making same. 3,831,270, Cl. 29-625.000.
 Hudson, John Adrian: See—
 Nelson, Richard Stuart; Mazey, David John; and Hudson, John Adrian, 3,832,219.
 Hudson, Thomas A.; and Strickland, Gordon E., Jr., to Chevron Research Company. Arctic offshore platform. 3,831,385, Cl. 61-46.500.
 Hug, Delmar O.; and Garabedian, Daniel A., to Monsanto Company. Surface crystallization process. 3,832,410, Cl. 260-646.000.
 Hughart, Robert P.: See—
 Wilson, Peter C.; and Hughart, Robert P., 3,831,746.
 Hughes, Nathaniel, to Energy Sciences Incorporated. Sonic wave generation. 3,831,550, Cl. 116-137.00a.
 Hughes, Philip Goggans: See—
 Hardman, Dorsey Loraine; and Hughes, Philip Goggans, 3,832,657.
 Hull, Thomas Neil, Jr.; and Nye, James Leroy, to General Electric Company. Particle separator with scroll scavenging means. 3,832,086, Cl. 415-121.00g.
 Hulsen, Wayne D. Hair implant and process. 3,831,202, Cl. 3-1.000.
 Humber, Leslie G., to American Home Products Corporation. 5-Cycloalkylidene dibenzocycloheptene derivatives. 3,832,405, Cl. 260-612.00r.
 Humphrey, Dean Edson, to Pennwalt Corporation. Pusher-type centrifuge. 3,831,764, Cl. 210-376.000.
 Humphries, Darral V., to Bethlehem Steel Corporation. Plastic composite with wire reinforcements. 3,832,271, Cl. 161-170.000.
 Hunter Douglas International N.V.: See—
 Landheer, Hugo Arie Johan, 3,831,506.
 Hunter, Theodore K. Spray gun assembly having stir means. 3,831,850, Cl. 239-144.000.
 Hurwitz, Mathew. Slip clutch for outboard motor. 3,831,401, Cl. 64-30.00r.
 Hutchison, John W.; and Stark, Marvin, to Pullman Incorporated. Resiliently mounted railway hopper car outlet. 3,831,803, Cl. 220-46.00r.
 Hyde, William J.: See—
 Franke, Edward L., Jr.; and Hyde, William J., 3,832,215.
 Hyden, Alsie G.: See—
 Hyden, Alsie G.; and Blundell, Bill J. (said Blundell assor to said), 3,831,652.
 Hyden, Alsie G.; and Blundell, Bill J., said Blundell assor to said Hyden, Alsie G. Golf putter cover and towel. 3,831,652, Cl. 150-52.00g.
 Hyman, Daniel: See—
 Longfield, James Edgar; and Hyman, Daniel, 3,832,448.
 Hysan Corporation: See—
 Berkeley, Bernard, 3,832,459.
 Hyson, Archibald M.; and Scoggin, John K., to Du Pont de Nemours, E. I., and Company. Use of certain smectite clays to extend residual activity of particular hydroxamates. 3,832,468, Cl. 424-298.000.
 Ichiko Industries Limited: See—
 Kushida, Tadao, 3,831,222.

Ichimura, Kiyoshi: See—
 Sato, Kozo; Nakatani, Eizo; and Ichimura, Kiyoshi, 3,832,217.
 Iden, Ray J., Sr. Cargo tie-down system. 3,831,976, Cl. 280-179.00a.
 Identifier Corporation: See—
 Schmidt, Gerald W.; Smith, Jay III; Jones, Lawrence T.; and Conroy, Richard F. M., 3,831,552.
 Igarashi, Hiroshi: See—
 Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
 Ikeda, Tadashi: See—
 Sato, Akira; Ikeda, Tadashi; Ogawa, Akira; Shiba, Keisuke; and Hinata, Masanao, 3,832,184.
 Ikeda, Takashi: See—
 Shiba, Keisuke; Hinata, Masanao; Sato, Akira; Ogawa, Akira; and Ikeda, Takashi, 3,832,189.
 Ikeda, Toshimichi; Kawauchi, Masataka; Matsuzaki, Atsushi; and Suzuki, Masayuki, to Hitachi Construction Machinery Co., Ltd. System for controlling the level of an earth-removing blade of a bulldozer. 3,831,683, Cl. 162-4.500.
 Ikegami, Yoshio; and Kohge, Tadashi, to Kobe Steel, Ltd. Device for holding and releasing the terminal in wire-like object take-up apparatus. 3,831,871, Cl. 242-25.00r.
 Illing, Irvin A.: See—
 Parkinson, Dean B.; and Illing, Irvin A., 3,832,324.
 Illinois Railway Equipment Co.: See—
 Smith, Edward Payson; and Nadherny, Rudolph E., 3,831,532.
 Illinois Tool Works, Inc.: See—
 Pouppich, Ougjesa Jules, 3,831,741.
 Ilvespaa, Atso, to Ciba-Geigy Corporation. 2-(Thi)oxo-3-imidazolyl(2)-tetrahydroimidazoles. 3,832,352, Cl. 260-309.700.
 Image Analysing Computers Limited: See—
 Peiters, Leon Andre, 3,832,485.
 Imamura, Juichi; Wakasa, Ryoichi; Saito, Takeshiro; and Ishikawa, Tomeyoshi. Process for producing perisobutyric acid. 3,832,392, Cl. 260-502.00a.
 Imperial Chemical Industries, Limited: See—
 Dixon, David Rodney; Rose, John Brewster; and Turton, Cecil Nigel, 3,832,330.
 Harris, Eric Frank; and Roberts, John Francis Lloyd, 3,832,436.
 MacMillan, Richard Butler; and Lewis, Iolo Llewelyn, 3,832,269.
 Newton, Alan Branford, 3,832,331.
 Ryan, James Ernest, 3,832,428.
 Imperial Chemical Industries of Australia and New Zealand Limited: See—
 Baker, Elizabeth Ann; Wiuka, David Jankiel; and Tankey, Howard William, 3,832,209.
 Inaba, Shigehiro: See—
 Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Akatsukeda, Mitsuhiro; Dume, Yoshiharu; Inaba, Shigehiro; and Yamamoto, Hisao, 3,832,344.
 Inamura, Keizo: See—
 Kondo, Taizo; and Inamura, Keizo, 3,832,226.
 Incol Presswork Limited: See—
 Jester, William Frederick, 3,831,891.
 Indiana National Bank, The: See—
 Fischer, Edward L., 3,831,519.
 Industriele Onderneming Wavin N.V.: See—
 Oostenbrink, Albertus Anthony, 3,831,985.
 van Zon, Cornelis, 3,832,259.
 Ingram, Charles E.; Gendron, Roger J.; Cronk, Vern V.; and Keefe, Harry J., to Baker Perkins Inc. Stacked tray processing and freezing system. 3,831,293, Cl. 34-236.000.
 Inland Container Corporation: See—
 Ellison, Donald E.; and Davenport, Larry C., 3,831,836.
 Inoue, Isaburo; Hanzawa, Teruo; Endo, Takaya; and Deguchi, Hidetaka, to Konishiroku Photo Industry Co. Ltd. Color photographic material. 3,832,386, Cl. 260-471.00r.
 Inoue, Shigeharu: See—
 Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
 Inoue, Takao: See—
 Hijikata, Itsuo; Kasazaki, Masayoshi; Terada, Hideto; and Inoue, Takao, 3,832,117.
 Institut Francais du Pétrole, des Carburants et Lubrifiants: See—
 Renault, Philippe; Deschamps, Andre; and Dezael, Claude, 3,832,454.
 Instrumentation Engineering, Inc.: See—
 De Vito, Louis, 3,832,535.
 Intercontinental Dynamics Corporation: See—
 Argenti, Michael; and Andresen, John H., Jr., 3,831,451.
 Interlake, Inc.: See—
 Johnson, Robert A., 3,831,512.
 International Basic Economy Corporation: See—
 Raymond, Robert E., 3,832,094.
 International Business Machines Corporation: See—
 Childress, Lloyd K., Jr.; Flippen, George B., Jr.; and McDaniels, Louis M., 3,832,734.
 Dasgupta, Sumit; Richter, David H.; and Takayasu, Ted T., 3,832,575.
 Edmonds, Harold D., 3,832,034.
 Fern, Robert E.; and Onton, Aare, 3,832,558.

Flippen, George Burdine, Jr.; and Ward, John Wesley, Jr., 3,831,831.
 Harr, Jerome Danforth, 3,832,577.
 Htoo, Maung S.; Metreud, Claude G.; and Schmitt, Herman F., 3,831,905.
 Kruspe, Henry R.; and Perkins, N. Kenneth, 3,831,727.
 Leehan, Gerald W., 3,832,574.
 McIntosh, Charles Michael, 3,832,192.
 Meier, Johann H.; and Pimbley, Walter T., 3,832,719.
 Woods, Joe W.; and Yosmali, Krikor, 3,831,728.
 International Harvester Company: See—
 Birkenbach, Eugen J., 3,831,685.
 Deschamps, Joseph P., 3,831,722.
 Shore, Daniel B., 3,831,721.
 International Nickel Company, Inc.: See—
 Ker Shaw, Stuart Walter; and James, Nigel Anthony, 3,832,167.
 Sutton, William Heald; Evans, Thomas Ernest; and Hart, Anthony Christopher, 3,832,292.
 International Paper Company: See—
 Bartley, Thomas S.; Descary, John Gilbert; Fletcher, R. James; and Krishnan, R. Gopala, 3,832,283.
 Berkhouse, Thomas W., 3,831,300.
 Roymoulik, Sunanda K.; and Brown, Kenton J., 3,832,276.
 International Shoe Machine Corporation: See—
 Vomberger, Walter, 3,831,216.
 Vomberger, Walter, 3,831,405.
 International Ski Service Establishment: See—
 Rubaud, Gerard Rene, 3,832,262.
 International Standard Electric Corporation: See—
 Charransol, Pierre; Hauri, Jacques; and Athenes, Claude, 3,832,492.
 International Telephone and Telegraph Corporation: See—
 Clark, James M., 3,832,493.
 Greutman, Weldon W., 3,832,645.
 Griffin, Richard H., 3,832,666.
 Kmiecik, Leopold J., 3,831,429.
 Majkrzak, Charles P.; and Sladowski, Stephen F. X., 3,831,399.
 Reintjes, Marten; and Starr, Laurence Dean, 3,832,313.
 Inuzuka, Isao: See—
 Matsuzawa, Hideto; Watanabe, Kikuo; and Inuzuka, Isao, 3,831,715.
 Investors in Ventures, Inc.: See—
 Bucalo, Louis, 3,831,584.
 Iochi, Akihiko: See—
 Arikawa, Masayasu; Ohi, Atsushi; Arai, Toshio; Iochi, Akihiko; and Kada, Hironosuke, 3,832,522.
 Ion, John C.: See—
 Perlman, Sheldon E.; and Ion, John C., 3,831,249.
 Irani, Riyad R.; and Mitchell, Robert S., to Monsanto Company. Anhydrides of organo-phosphonic acids. 3,832,396, Cl. 260-545.00p.
 Irsova, Natalia Alexandrovna: See—
 Bazhulin, Alexei Pavlovich; Vinogradov, Evgeny Alexandrovich; Irsova, Natalia Alexandrovna; Mitrofanova, Nina Vasilievna; Timofeev, Jury Petrovich; Fridman, Samuil Aronovich; and Schaenko, Valentina Vasilievna, 3,832,557.
 Irvine, Douglas S.: See—
 Downey, Bruce R.; and Irvine, Douglas S., 3,832,469.
 Irving Trust Company, mesne: See—
 Neitzel, Ulrich E. G., 3,832,143.
 Ishii, Akira, to Nippon Telegraph & Telephone Public Corporation. Holographic memory with retrieval by correlation. 3,832,698, Cl. 340-173.01t.
 Ishikawa, Tomeyoshi: See—
 Imamura, Juichi; Wakasa, Ryoichi; Saito, Takeshiro; and Ishikawa, Tomeyoshi, 3,832,392.
 Ishizaki, Hiroyuki; Toba, Teruo; and Umeda, Shozo, to Fujitsu Limited. System for reading out the coordinates of information displayed on a matrix type display device. 3,832,693, Cl. 340-172.500.
 Ishunkin, Veniamin Alexandrovich: See—
 Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Alferov, Jury Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Evlevich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.
 Isono, Shoji, to Kabushiki Kaisha Daini Seikosha. Watertight watchcase. 3,831,372, Cl. 58-90.00r.
 Ita, Callixtus E., 30% to Lee, Raymond, Organization, Inc., The. Portable transformer device. 3,832,659, Cl. 336-107.000.
 Italmimpianti Societa Italiana Impianti p.a.: See—
 Canella, Luigi, 3,831,735.
 Iten, Paul Dominik, to BBC Aktiengesellschaft Brown, Boveri & Cie. Flow velocity measuring arrangement utilizing laser doppler probe. 3,832,059, Cl. 356-28.000.
 Ito, Tamotsu; Ohashi, Shin-ichi; and Miyake, Yasuji, to Hitachi, Ltd. Tuning circuit wherein variation of transistor base bias causes variation of resonance frequency. 3,832,656, Cl. 334-14.000.
 Itoh, Masumi, to Fujisawa Pharmaceutical Co., Ltd. Carbonic acid esters. 3,832,375, Cl. 260-463.000.
 ITT Industries, Inc.: See—
 Schmidt, Herbert; Weiler, Rolf; and Czich, Erhard, 3,831,634.
 Iverson, Lowell P.: See—
 Reinsma, Harold L.; and Iverson, Lowell P., 3,832,022.
 Ivins, Kenneth William: See—

- Derbyshire, Alfred; Ivins, Kenneth William; and Whetton, Edward Thomas, 3,832,129.
- Iwamoto, Masao: See—
Bamba, Yasuo; and Iwamoto, Masao, 3,832,188.
- Izumi, Takahiro: See—
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Akatsukeda, Mitsuhiro; Dume, Yoshiharu; Inaba, Shigeho; and Yamamoto, Hisao, 3,832,344.
- Jack, Graydon W.: See—
Hoffmann, George R.; Mason, Elmer B.; Jack, Graydon W.; and Campbell, Glenn A., 3,832,581.
- Jackson, Julius, to Du Pont de Nemours, E. I., and Company. Nacreous pigments treated with methacrylate-chloride for improved humidity resistance. 3,832,208, Cl. 106-308.00q.
- Jacobs, Alan M.; and Kenney, Edward S., to Research Corporation. Enhancement and control of radiation beams by vibrating media. 3,832,562, Cl. 250-503.000.
- Jacobs, Allan: See—
Afifi, Mostafa S.; and Jacobs, Allan, 3,832,715.
- Jacobs, Christopher A. Capacitive discharge ignition system having protective diode network. 3,831,569, Cl. 123-148.00r.
- Jacobson, Max. Film developing process. 3,832,178, Cl. 96-50.00r.
- Jacobson, Kurt Arne Gunnar, to Aktiebolaget IRO. Thread storage and supply device for textile machines. 3,831,875, Cl. 242-47.130.
- Jacques, Andre; Ostrowsky, Daniel; and Papuchon, Michel, to Thomson-CSF. Travelling wave frequency converter arrangement. 3,832,567, Cl. 307-88.300.
- Jacquet, Yves: See—
Micol, Pierre; and Jacquet, Yves, 3,832,630.
- Jaffe, Gerald Myer; and Plevin, Edward John, to Hoffman La-Roche Inc. Catalytic oxidation process. 3,832,355, Cl. 260-340.700.
- Jager, Gerhard; Buchel, Karl Heinz; Grewe, Ferdinand; and Froberger, Paul-Ernst, to Bayer Aktiengesellschaft. 3-Azolypropyne fungicidal agents. 3,832,466, Cl. 424-273.000.
- Jahnke, William R., to KMS Industries, Inc. Linear actuator with lock. 3,831,456, Cl. 74-110.000.
- Jakabhazy, Stephen Z.: See—
Lazare, Leon; and Jakabhazy, Stephen Z., 3,832,301.
- Jakob, Horst, to Societe Financiere Francaise de Licences et Brevets. Slide fastener chain. 3,831,228, Cl. 24-205.10c.
- James, Nigel Anthony: See—
Ker Shaw, Stuart Walter; and James, Nigel Anthony, 3,832,167.
- James, Peter A., to USM Corporation. Pliers type blind riveting tool. 3,831,424, Cl. 72-391.000.
- Jander, Horst: See—
Dauernheim, Hans; and Jander, Horst, 3,831,320.
- Janssen, Daniel Johannes Gerardus, to U.S. Philips Corporation. Tone generator for generating selected frequencies. 3,832,639, Cl. 328-14.000.
- Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poot, Albert Lucien; and Pollet, Robert Joseph, to Agfa-Gevaert N.V. Recording process and element employing as photoconductive material duplo-dihydroquinoline compounds. 3,832,171, Cl. 96-1.500.
- Japan Atomic Energy Research Institute: See—
Machi, Sueti; Yasushi; Kunihara, Hirono; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, 3,832,207.
- Japan Non-Slip Pavement Co., Inc.: See—
Nakayama, Fukuzo, 3,832,078.
- Japan Steel Works Ltd.: See—
Yoshida, Minoru, 3,832,114.
- Jatho, George W.: See—
Gullaksen, Gilbert V.; and Jatho, George W., 3,831,860.
- Jefferson Chemical Company, Inc.: See—
Ramey, Bobbie Joe; and Moss, Philip Hotchkiss, 3,832,323.
- Yeakey, Ernest Leon, 3,832,402.
- Jenkins, Charles J.: See—
Edwards, Arnold Glen; and Jenkins, Charles J., 3,831,680.
- Jenkins, Dave H., to Lockheed Aircraft Corporation. Walking tread for air cushion vehicles. 3,831,691, Cl. 180-8.00c.
- Jenkins, Philip W.; Heseltine, Donald W.; and Mee, John D., to Eastman Kodak Company. Heat-sensitive copying systems. 3,832,212, Cl. 117-36.700.
- Jennings, Lewis C.; and Rickley, Samuel S., to Morgan Construction Company. Neck seal. 3,832,021, Cl. 308-36.100.
- Jepson, John W.: See—
Brown, Robert A.; Jepson, John W.; and Lyon, Herbert W., 3,831,423.
- Jernstrom, Karl W. Deodorized garbage compactor and appurtenances. 3,831,514, Cl. 100-70.000.
- Jester, William Frederick, to Incol Presswork Limited. Rod supports. 3,831,891, Cl. 248-44.000.
- Jimerson, James C.: See—
Obenchain, Keith T.; and Jimerson, James C., 3,832,607.
- Jirka, Howard F., to Zenith Radio Corporation. Line sequential color video encoding with equally contributed luminance. 3,832,483, Cl. 178-5.4cd.
- Johannessen, Paul R.: See—
Ver Planck, Peter; and Johannessen, Paul R., 3,832,573.
- Johannsen, Hans Werner, to Braum A.G. Indicating mechanism for a projection apparatus. 3,832,050, Cl. 353-42.000.
- Johns-Manville Corporation: See—
Eschen, Franklin W., 3,832,325.
- Pearson, Howard Brent, 3,832,250.
- Johnson & Johnson: See—
Kalwaite, Frank, 3,832,256.
- Johnson, Delp W. Method of erecting foldable building structures. 3,831,337, Cl. 52-745.000.
- Johnson Die & Engineering Co.: See—
Plotzke, Thomas J., 3,831,955.
- Johnson, Edgar G., to Minnesota Mining & Manufacturing Company. Hand retroviewer. 3,832,038, Cl. 350-236.000.
- Johnson, John A. Distributing apparatus for pneumatic conveyor. 3,832,006, Cl. 302-60.000.
- Johnson, Robert A., to Interlake, Inc. Strap feed track with fluid-actuated strap end positioning means. 3,831,512, Cl. 100-26.000.
- Johnson, Robert L.: See—
Bhuta, Pravin G.; Johnson, Robert L.; and Graham, Douglas J., 3,831,756.
- Johnson, Robert W.: See—
Fahey, Wm. David; and Johnson, Robert W., 3,832,488.
- Johnson, Robert W. Jr.: See—
Kobetz, Paul; Laran, Roy J.; and Johnson, Robert W. Jr., 3,832,456.
- Johnson Service Company: See—
Klein, Carl F.; and Bailey, James R., 3,832,709.
- Oman, Gary F., 3,832,670.
- Strojny, Lawrence J.; and Froehling, Paul H., 3,832,688.
- Johnson, Tage George. Air conditioner covers. 3,831,321, Cl. 49-465.000.
- Johnson, Thomas R.: See—
Freimuth, Richard J.; and Johnson, Thomas R., 3,831,567.
- Johnson, Wallace J. S., to Up-Right, Inc. Continuous press. 3,831,516, Cl. 100-116.000.
- Joly, Jean, to La Telemecanique. Fused connector. 3,832,676, Cl. 339-147.00p.
- Jones & Laughlin Steel Corporation: See—
Gerding, Charles Christian; and Todora, Louis John, 3,831,659.
- Jones, Duane T.: See—
Bartlett, William G.; Hoffman, Carvel D.; Jones, Duane T.; and Mangan, Edmund L., 3,832,550.
- Jones, Lawrence T.: See—
Schmidt, Gerald W.; Smith, Jay III; Jones, Lawrence T.; and Conroy, Richard F. M., 3,831,552.
- Jones, Massena F. Adjustable stilts. 3,831,937, Cl. 272-70.100.
- Joray, Marvin L.; Blake, Nathan L.; and Richards, Gerald F., to Avco Corporation. Sharpening mechanism particularly in combination with a forage chopper or the like. 3,831,325, Cl. 51-249.000.
- Jordache, Rene. Cutter for cutting mitred edges. 3,831,275, Cl. 30-116.000.
- Jorgensen, Gunnar, to A/S Attas and Smith, F. L., & Co. A/S. Atomizing burner. 3,831,856, Cl. 239-422.000.
- Jorgenson, Edward Bjarnie. Logging grapple and hauling assembly. 3,831,772, Cl. 212-84.000.
- Joyce, Arthur W., to Dennison Manufacturing Company. Decorator loading apparatus. 3,831,737, Cl. 198-57.000.
- Judge, Edward E., Jr. Servo control for manufacturing stations. 3,832,082, Cl. 408-10.000.
- Judith, Vincent J., to Excelllo Corporation. Processor unit for data retrieval and processing. 3,832,694, Cl. 340-172.500.
- Juhasz, John E.: See—
Davis, Dennis J.; and Juhasz, John E., 3,832,013.
- Jullard, Yves, to Societe Alsacienne de Constructions Mecaniques de Mulhouse. Device for controlling the heddles of the harness of a loom. 3,831,637, Cl. 139-1.00e.
- Juneja, Subhash C., to Canadian Patents and Development Limited. Melamine-dicyandiamide-base resin solutions. 3,832,316, Cl. 260-29.40r.
- K & M Enterprises, Incorporated: See—
Cook, Henry D., 3,831,848.
- Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft: See—
Bittner, Herbert, 3,831,636.
- Kabushiki Kaisha Daini Seikosha: See—
Isono, Shoji, 3,831,372.
- Kitamura, Yoshiaki; and Misono, Shigemi, 3,831,500.
- Kabushiki Kaisha Hasegawa Hamono Seisakusho: See—
Nagata, Masamichi, 3,831,277.
- Kabushiki Kaisha Komatsu Seisakusho: See—
Kita, Masaaki, 3,831,425.
- Sakai, Hiroshi; Yamashita, Hisateru; and Tanaka, Toshihiro, 3,831,411.
- Kabushiki Kaisha Pinnai Seisakusho: See—
Tamada, Kazumi; and Takase, Tadayoshi, 3,831,579.
- Kabushiki Kaisha Sankyo Seiki Seisakusho: See—
Funaki, Takashi, 3,831,303.
- Kabushiki Kaisha Sesaki Seisakusho: See—
Sasaki, Tadajiro, 3,831,472.
- Kabushiki Kaisha Suwa: See—
Nakamura, Koichi, 3,832,529.
- Kabushiki Kaisha Tokai Rika Denki Seisakusho: See—
Suzuki, Masaru, 3,832,680.
- Kabushiki Kaisha Toyota Jidoshokki Seisakusho: See—
Kawanishi, Kunishisa; Shimizu, Seigo; and Baba, Takio, 3,831,795.
- Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho: See—
Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, 3,831,702.
- Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, 3,831,971.

- Kada, Hironosuke: See—
Arikawa, Masayasu; Ohi, Atsushi; Arai, Toshio; Iochi, Akihiko; and Kada, Hironosuke, 3,832,522.
- Kahmann, Albrecht, to Wyss, Escher, G.m.b.H. Grinding apparatus for fibrous material. 3,831,868, Cl. 241-245.000.
- Kaida, Masaaki; and Yasuda, Shigeo, to Bridgestone Tire Company Limited and Mitaka Instrument Company, Limited. Pressure change detecting system for rotating body. 3,832,681, Cl. 340-58.000.
- Kaiser Aluminum & Chemical Corporation: See—
Emerson, Robert B., 3,832,442.
- Kaiser, Walter: See—
Engelhard, Dieter; Hofmann, Hermann; Schaff, Ulrich; and Kaiser, Walter, 3,832,602.
- Kali-Chemie Aktiengesellschaft: See—
Dillenburger, Helmut; Honig, Helmut; and Siegel, Rudolf, 3,832,447.
- Kalwaite, Frank, to Johnson & Johnson. Fabric and method for manufacturing the same. 3,832,256, Cl. 156-179.000.
- Kamibayashi, Akira: See—
Suzuki, Hideo; Kobayashi, Harumi; Ozawa, Yoshiko; and Kamibayashi, Akira, 3,832,284.
- Kanazawa, Teiichi: See—
Fujimura, Hiroshi; Nose, Yoshio; and Kanazawa, Teiichi, 3,832,190.
- Kanazawa, Yasunori: See—
Eto, Yoshizumi; and Kanazawa, Yasunori, 3,832,585.
- Kane, William S., and Cardwell, Paul H., to Deepsea Ventures, Inc. Process for recovering manganese from its ore. 3,832,165, Cl. 75-80.000.
- Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho. Safety belt device. 3,831,702, Cl. 180-82.00c.
- Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, to Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho. Safety belt winding energy accumulator device for use in vehicles. 3,831,971, Cl. 280-150.0sb.
- Kansai Paint Company Limited: See—
Kondo, Taizo; and Inamura, Keizo, 3,832,226.
- Kanzaki Kokyukoki Mfg. Co., Ltd.: See—
Yamaoka, Kojiro; Azuma, Toshiro; and Fujisaki, Koichiro, 3,831,690.
- Kaplan, Ronald. Brush construction. 3,831,218, Cl. 15-192.000.
- Kapolyi, Laszlo; Kaszanitzky, Ferenc; Lazar, Ferenc; and Vamos, Gyorgy, to Tatabanya Szenbanyak. Production of aluminum and its alloys. 3,832,164, Cl. 75-68.00b.
- Kapron, Felix P., to Corning Glass Works. Coupler for optical waveguide light source. 3,832,028, Cl. 350-96.0wg.
- Kardashian, Vahram S., to Honeywell Inc. Dual wire intruder detector. 3,832,704, Cl. 340-258.00r.
- Karlsson, Gosta; and Nilsson, Borje, to Allmanna Svenska Elektriska Aktiebolaget. Means for dip-forming. 3,832,477, Cl. 13-27.000.
- Karlsson, Olof: See—
Lohonen, Paavo; and Karlsson, Olof, 3,832,087.
- Karmas, George. Derivatives of the 2-(lower alkyl)-3-(lower alkyl)-4-phenyl-3- or 4-cy clohexenecarboxylic acids. 3,832,376, Cl. 260-469.000.
- Karpisek, Ladislav Stephan, to Nashua Australia Pty., Limited. Copy machine feeding means. 3,831,829, Cl. 226-83.000.
- Karr, Fred A., to Shasta Beverages (Division of Consolidated Food Corporation). Carbonated beverage system. 3,832,474, Cl. 426-477.000.
- Kasazaki, Masayoshi: See—
Hijikata, Itsuo; Kasazaki, Masayoshi; Terada, Hideto; and Inoue, Takao, 3,832,117.
- Kashio, Toshio, to Casio Computer Kabushiki Kaisha. Tabulating system. 3,832,697, Cl. 340-172.500.
- Kasper, Witold A. Aircraft wing with vortex generation. 3,831,885, Cl. 244-40.00a.
- Kaszanitzky, Ferenc: See—
Kapolyi, Laszlo; Kaszanitzky, Ferenc; Lazar, Ferenc; and Vamos, Gyorgy, 3,832,164.
- Kato, Taizo: See—
Mori, Keisuke; Yamada, Takehiro; Nakamoto, Katsumi; Onaka, Hiroshi; Yamamoto, Takeshi; and Kato, Taizo, 3,831,918.
- Katsube, Junki: See—
Matsui, Masanao; Katsube, Junki; and Murayama, Eiichi, 3,832,380.
- Katsuragawa Denki Kabushiki Kaisha: See—
Kinoshita, Koichi; Uehara, Shiro; and Nagame, Hiroshi, 3,832,169.
- Katsuyama, Takehiro: See—
Kawai, Atsushi; Katsuyama, Takehiro; Suzuki, Migaku; and Ohta, Hidenori, 3,832,281.
- Katyll, Tadeusz: See—
Waterman, Fred W.; Katyll, Tadeusz; and Eldridge, Colin C., 3,831,792.
- Kaufhold, Horst Thomas, to AMSTED Industries Incorporated. Coupler locklift hole cap. 3,831,777, Cl. 213-158.000.
- Kawade, Sadao: See—
Nakao, Hisaji; Naruse, Katutoshi; Hasegawa, Kazuhiko; Kawade, Sadao; Tokura, Yasufumi; and Matsuno, Kazuo, 3,832,696.
- Kawai, Atsushi; Katsuyama, Takehiro; Suzuki, Migaku; and Ohta, Hidenori, to Mitsubishi Rayon Company Limited. Paper or non-woven fabric of regenerated cellulose fibers and method for producing the same. 3,832,281, Cl. 162-157.00c.
- Kawai, Sadaharu: See—
Nakamura, Toshio; and Kawai, Sadaharu, 3,831,925.
- Kawakami, Hajime; and Yamamoto, Fumihiko, to Nippon Keori Co., Ltd., The. Spinning machines having spindle rails movable for tube exchanging. 3,831,364, Cl. 57-54.000.
- Kawamoto, Yukio: See—
Nogita, Shunsuke; and Kawamoto, Yukio, 3,831,447.
- Kawanishi, Kunishisa; Shimizu, Seigo; and Baba, Takio, to Kabushiki Kaisha Toyota Jidoshokki Seisakusho. Side shift clamp device. 3,831,795, Cl. 214-731.000.
- Kawauchi, Masataka: See—
Ikeda, Toshiyuki; Kawauchi, Masataka; Matsuzaki, Atsushi; and Suzuki, Masayuki, 3,831,683.
- Kayatz, Karl-Heinz, to Fuller Company. Method and apparatus for treatment of particulate material. 3,831,291, Cl. 34-20.000.
- Kays, David D.; Frank, Kurt F.; and Longwell, Paul A., to Aerojet-General Corporation. Preheaters. 3,832,289, Cl. 202-174.000.
- Keates, Richard H.: See—
Cummins, Millard M.; Keates, Richard H.; Best, Robert G.; and Barr, Donald L., 3,831,442.
- Keaton, Morgan G. Collapsible cart. 3,831,958, Cl. 280-36.00c.
- Keefe, Harry J.: See—
Ingram, Charles E.; Gendron, Roger J.; Cronk, Vern V.; and Keefe, Harry J., 3,831,293.
- Keeler Brass Company: See—
Stelma, Gerard N., 3,831,988.
- Keen Industries Ltd.: See—
Parcels, Delbert Arthur, 3,831,352.
- Keene Corporation: See—
Crane, Roy B., 3,832,503.
- Roth, Charles, 3,832,540.
- Keller, Alfred M.: See—
Gebhard, Harold C.; and Keller, Alfred M., 3,831,406.
- Gebhard, Harold C.; and Keller, Alfred M., 3,831,409.
- Keller, George C. Variable height garment rack. 3,831,768, Cl. 211-1.000.
- Kelley, Leon O. Cable laying plow equipped with a cutting chain. 3,831,299, Cl. 37-191.00a.
- Kellogg, Harlan F., to Kirsch Company. Shelving system. 3,831,533, Cl. 108-64.000.
- Kemp, Rodney J., to Eastman Kodak Company. Aromatic compositions for treating silver images. 3,832,175, Cl. 96-29.00l.
- Kempster, Edward, to Thyssen (Great Britain) Limited. Shuttering for use in a mine and methods of use thereof. 3,831,384, Cl. 61-35.000.
- Kendall Company, The: See—
Dye, John F., 3,831,446.
- McWhorter, Daniel M., 3,831,453.
- McWhorter, Daniel M.; and Villari, Frank K., 3,831,823.
- Newman, Nicholas S.; Alexander, Robert R.; and Sheldon, Donald A., 3,831,766.
- Kennametal Inc.: See—
Cantz, Rudolf, 3,831,655.
- Kennecott Copper Corporation: See—
Adamson, David L.; and Tuddenham, William M., 3,832,296.
- Spreckelmeyer, Bernhard W., 3,832,440.
- Kennedy, David H.: See—
Leese, Gerald H.; and Kennedy, David H., 3,831,419.
- Kennel, Michael; and Quiquerez, Joseph, to Societe Anonyme dite: Compagnie Francaise de Raffinage. Method for the preparation of a bituminous paving compositions and compositions obtained thereby. 3,832,200, Cl. 106-281.00r.
- Kenney, Edward S.: See—
Jacobs, Alan M.; and Kenney, Edward S., 3,832,562.
- Kenney, Harold E.; Donahue, Edward T.; and Maerker, Gerhard, to United States of America, Agriculture. Lithium polycyanoethylated keto fatty soap based greases. 3,832,368, Cl. 260-404.000.
- Keppel, Charles M., to General Motors Corporation. Passive restraint belt arrangement for a vehicle occupant. 3,831,974, Cl. 280-150.0sb.
- Ker Shaw, Stuart Walter; and James, Nigel Anthony, to International Nickel Company, Inc., The. Nickel alloy with good stress-rupture strength. 3,832,167, Cl. 75-170.000.
- Kern, Richard A., to General Motors Corporation. Variable tracking cam follower. 3,831,457, Cl. 74-569.000.
- Kershaw, Sydney L.: See—
Kutina, Thomas J.; Staten, James P.; and Kershaw, Sydney L., 3,831,984.
- Kerwood, Joseph Edward: See—
Coran, Aubert Yaucher; and Kerwood, Joseph Edward, 3,832,348.
- Kessell, Archie, to Rohe Scientific Corporation. Adjustable syringe plunger. 3,831,601, Cl. 128-218.0pa.
- Keystone Industries, Inc.: See—
Hawthorne, Vaughn T., 3,831,775.
- Kheifets, Rafail Efimovich: See—
Anikanov, Nikolai Ivanovich; Grachev, Leonid Pavlovich; Goltsman, Samuil Aronovich; Zak, Grigory Iosifovich; Oleinik, Alexandr Ivanovich; Radutsky, Grigory Avramovich; Kheifets, Rafail Efimovich; and Baburin, Evgeny Arkadievich, 3,831,781.
- Kidde, Walter & Company, Inc.: See—
Walbridge, Lyman H., 3,832,123.
- Kiefer, Robert Albert: See—
Gardella, John M.; Ciavattini, Anthony; and Kiefer, Robert Albert, 3,831,742.
- Kiisler, Karl Ritsovich: See—

- Aarna, Agu Yanovich; Kiisler, Karl Ritsoyich; Kristyanson, Peep Gerkhardovich; Tanner, Yuri Albert-Mikhaelovich; Vabaoya, Yuri Felixovich; Vaitenberg, Gershonovich; Rokk, Yuri Khindrekovich; and Matvere, Toomas Oskarovich, 3,832,251.
- Kiko, Frederick J., to Lorain Products Corporation. Compensated transformer circuit utilizing negative capacitance simulating circuit. 3,832,654, Cl. 333-24.00r.
- Kilgore, Lee A.; and Oleson, Kenneth A., to Westinghouse Electric Corporation. Combination wet and dry cooling system for a steam turbine. 3,831,667, Cl. 165-96.000.
- Kime, Roger A. Apparatus for coating filamentary material. 3,831,551, Cl. 118-7.000.
- King, Barry B.; and King, Ralph E. Alarm device. 3,832,705, Cl. 340-280.000.
- King, James F., to Lockheed Missiles & Space Company, Inc. Steerable articulation joint. 3,831,693, Cl. 180-14.00a.
- King, Michael C., to Bell Telephone Laboratories, Incorporated. Synthetic hologram generation from a plurality of two-dimensional views. 3,832,027, Cl. 350-3.500.
- King Radio Corporation: See—
Holiday, William G., 3,831,250.
- King, Ralph E.: See—
King, Barry B.; and King, Ralph E., 3,832,705.
- Kinjo, Kikuo: See—
Nishide, Katsuhiko; Yamanouchi, Teruo; and Kinjo, Kikuo, 3,832,172.
- Kinneging, Johannes Wilhelmus: See—
Berg, Leo; Lenemann, Gerhard Johann; and Kinneging, Johannes Wilhelmus, 3,831,644.
- Kinoshita, Koichi; Uehara, Shiro; and Nagame, Hiroshi, to Katsuragawa Denki Kabushiki Kaisha. Method of electrophotography with a photoconductive layer manifesting persistent internal polarization. 3,832,169, Cl. 96-1.00r.
- Kinsey, Lewis R. Exchangeable elements for a storage battery. 3,832,237, Cl. 136-134.000.
- Kinsman, Gordon F., to Polaroid Corporation. Photographic film assemblage. 3,832,731, Cl. 354-304.000.
- Kintner, Edwin K.; and Titley, C. Edward. Check Valve. 3,831,628, Cl. 137-512.150.
- Kirsch Company: See—
Kellogg, Harlan F., 3,831,533.
- Kita, Masaaki, to Kabushiki Kaisha Komatsu Seisakusho. Fully automatic forging press. 3,831,425, Cl. 72-405.000.
- Kitamura, Yoshiaki; and Misono, Shigemi, to Kabushiki Kaisha Daini Seikosha. Apparatus for effecting oscillatory movement of an output member. 3,831,500, Cl. 92-68.000.
- Kitani, Toshio; and Goto, Hisao, to Osaka Transformer Co., Ltd. Method for electrical arc welding. 3,832,523, Cl. 219-137.000.
- Kitaoaka, Yoji; Murata, Katsuhide; Hama, Kotaro; Hashimoto, Michio; and Fujiyoshi, Kenji, to Mitsui Shipbuilding and Engineering Co., Ltd. and Mitsui Petrochemical Industries Limited. Process and apparatus for disposal of plastic wastes. 3,832,151, Cl. 48-11.000.
- Klasson, George A. Starting and stabilizing apparatus for a gas-tungsten arc welding system. 3,832,513, Cl. 219-75.000.
- Kleeberg, Wolfgang; Rubner, Roland; and Kuehn, Eberhard, to Siemens Aktiengesellschaft. Single-phase film-forming photo-cross-linkable systems. 3,832,187, Cl. 96-115.00r.
- Klein, Carl F.; and Bailey, James R., to Johnson Service Company. Motion detection apparatus having the ability to determine the direction of motion and range of a moving object. 3,832,709, Cl. 343-5.00d.
- Klein, Georg Anton: See—
Stocker, Emil; Schnabel, Ernfred; and Klein, Georg Anton, 3,832,339.
- Kletschka, Harold D.; and Rafferty, Edson H., to Bio-Medicus, Inc. Suture bridges. 3,831,608, Cl. 128-335.000.
- Kline, Robert H.; and Grosser, Christian E., to Peli-Can, Inc. Receptacles for litter and the like. 3,831,838, Cl. 232-43.200.
- Klingensmith, James D.; and Latkey, George J., to Aluminum Company of America. Connecting bracket for building structure. 3,831,338, Cl. 52-752.000.
- Kmiecik, Leopold J., to International Telephone and Telegraph Corporation. Method and apparatus for testing low water fuel cut-off switches. 3,831,429, Cl. 73-1.00r.
- KMS Industries, Inc.: See—
Jahnke, William R., 3,831,456.
- Knapsack Aktiengesellschaft: See—
Berg, Leo; Lenemann, Gerhard Johann; and Kinneging, Johannes Wilhelmus, 3,831,644.
- Knauff, Paul A.: See—
Fisher, Don E.; Knauff, Paul A.; and Bowen, David, Jr., 3,831,872.
- Knaus, Dennis A., to Packaging Industries, Inc. Extruder barrel temperature control. 3,831,665, Cl. 165-87.000.
- Knechtges, Donald P.: See—
Mikofalvy, Bela K.; and Knechtges, Donald P., 3,832,317.
- Knickerbocker, Karl. Single-vend dispensing machine. 3,831,809, Cl. 221-227.000.
- Kniff, August A. Tow bar means. 3,831,980, Cl. 280-402.000.
- Knifton, John F.; and Suggitt, Robert M., to Texaco Inc. Homogeneous catalysts useful in the reduction of nitroaromatics to amines. 3,832,401, Cl. 260-570.80r.
- Knight, Homer A.: See—
Olson, Paul E.; and Knight, Homer A., 3,831,490.
- Knight, Ronald Edward, to Hanovia Lamps Limited. Ink drying reflector system. 3,831,289, Cl. 34-4.000.
- Knoerle, Harold M.: See—
Osborne, David E.; and Knoerle, Harold M., 3,831,977.
- Kobayashi, Harumi: See—
Suzuki, Hideo; Kobayashi, Harumi; Ozawa, Yoshiko; and Kamibayashi, Akira, 3,832,284.
- Kobayashi, Sanzo. Container having magnetic and latch fastening means. 3,831,986, Cl. 292-201.000.
- Kobayashi, Shigeo: See—
Koga, Issac; Kobayashi, Shigeo; and Okamoto, Isao, 3,832,631.
- Kobe Steel, Limited: See—
Arikawa, Masayasu; Ohi, Atsushi; Arai, Toshio; Iochi, Akihiko; and Kada, Hironosuke, 3,832,522.
- Kobe Steel, Ltd.: See—
Ikegami, Yoshio; and Kohge, Tadashi, 3,831,871.
- Kobetz, Paul: See—
Foster, Walter E.; and Kobetz, Paul, 3,832,309.
- Kobetz, Paul; Laran, Roy J.; and Johnson, Robert W. Jr., to Ethyl Corporation. Process for the manufacture of beryllium hydride. 3,832,456, Cl. 423-645.000.
- Koch, Ulrich H.: See—
Matousek, Stephen; and Koch, Ulrich H., 3,831,900.
- Koch, Victor: See—
Metz, Paul; Koch, Victor; and Schockmel, Robert, 3,832,121.
- Koehler-Dayton, Inc.: See—
Cornish, Alan H.; Delaney, Ronald E.; and Davis, Robert B., 3,831,534.
- Koenig, Karl-Heinz; Kolbinger, Rudolf; Zeeh, Bernd; and Fischer, Adolf, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Substituted chlorocarbonylurea. 3,832,389, Cl. 260-479.00c.
- Koeppel, Douglas F. Keyboards. 3,831,730, Cl. 197-98.000.
- Koga, Issac; Kobayashi, Shigeo; and Okamoto, Isao, to Kokusai Denshin Denwa Kabushiki Kaisha. Method for measuring parameters of quartz crystal units and fixture for carrying out the same. 3,832,631, Cl. 324-56.000.
- Koger & Wade Manufacturing Corporation: See—
Koger, Joseph A., Jr.; and Wade, James L., 3,831,421.
- Koger, Joseph A., Jr.; and Wade, James L., to Koger & Wade Manufacturing Corporation. Conduit bending machine. 3,831,421, Cl. 72-307.000.
- Kohge, Tadashi: See—
Ikegami, Yoshio; and Kohge, Tadashi, 3,831,871.
- Kojima, Katue: See—
Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Harada, Masahide, 3,832,349.
- Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Tamura, Hiroshi, 3,832,350.
- Kojima, Tatsuo, to Murata Manufacturing Co., Ltd. Step-by-step variable resistor assembly. 3,832,671, Cl. 338-188.000.
- Kokusai Denshin Denwa Kabushiki Kaisha: See—
Koga, Issac; Kobayashi, Shigeo; and Okamoto, Isao, 3,832,631.
- Kolb, Ernest D.: See—
Bresnahan, Eileen E.; Lias, Nicholas C.; Kolb, Ernest D.; and Laudise, Robert A., 3,832,146.
- Kolbinger, Rudolf: See—
Koenig, Karl-Heinz; Kolbinger, Rudolf; Zeeh, Bernd; and Fischer, Adolf, 3,832,389.
- Kolle, Erwin: See—
Gmeiner, Gunter; Kolle, Erwin; and Binder, Rudolf, 3,831,220.
- Gmeiner, Gunter; Kolle, Erwin; and Binder, Rudolf, 3,831,221.
- Kolling, Georg: See—
Hirz, Albert; Handrick, Kurt; and Kolling, Georg, 3,832,360.
- Kolm, Hubert Ernest: See—
Brey, Wilhelm; Hostettler, William; Loeffler, Earl Ferdinand; Kolm, Hubert Ernest; and Elder, Fred Grove, 3,832,261.
- Kompelien, Arlon D.: See—
Larsen, Larry D.; Rekarek, Joseph C.; Kompelien, Arlon D.; and Rork, Gerald D., 3,832,552.
- Kondo, Taizo; and Inamura, Keizo, to Kansai Paint Company Limited. Method for dry electrostatic coating. 3,832,226, Cl. 117-17.000.
- Kondo, Yasumitsu: See—
Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
- Konishiroku Photo Industry Co. Ltd.: See—
Inoue, Isaburo; Hanzawa, Teruo; Endo, Takaya; and Deguchi, Hidetaka, 3,832,386.
- Konomi, Toshiaki, to Toyota Jidosha Kogyo Kabushiki Kaisha. Fuel consumption meter. 3,831,439, Cl. 73-113.000.
- Kopf, David, Systems, mesne: See—
Kopf, J. David; Bacon, Cole D.; and Schwartz, Teryl W., 3,832,067.
- Kopf, J. David; Bacon, Cole D.; and Schwartz, Teryl W., to Kopf, David, Systems, mesne. Colorimeter for detecting blood leaks in an artificial kidney machine. 3,832,067, Cl. 356-181.000.
- Koppers Company, Inc.: See—
Gibbs, Everett Ralph; and Tully, William Howard, 3,831,351.
- Gouye, Emmanuel V., 3,831,646.
- Zimmermann, Robert E., 3,831,914.
- Korasiak, Wolfgang: See—
Leiber, Heinz; and Korasiak, Wolfgang, 3,832,009.
- Korn, Alfred H.: See—
Weaver, Elmer A.; Hopkins, William J.; and Korn, Alfred H., 3,832,130.
- Korn, Donald L., to Tresco, Incorporated. Floating roof plural position suspension. 3,831,800, Cl. 220-26.000.

- Kornrumpf, William P.; and Harnden, John D., Jr., to General Electric Company. Reliable static power converter with control logic. 3,832,621, Cl. 321-11.000.
- Kors, Vernon E.; and Leadbitter, Lawrence. Manometer and pitot tube probe. 3,831,448, Cl. 73-212.000.
- Korsetsky, Gennady Mikhailovich: See—
Bogdanov, Evdokim Stepanovich; Alexandrov, Alexandr Sergeevich; Schegolevatykh, Vadim Dmitrievich; Saveliev, Vyacheslav Ivanovich; Zakharov, Mikhail Fedorovich; Alexandrov, Yuri Nikolaevich; Korsetsky, Gennady Mikhailovich; and Kucher, Arnold Arkadievich, 3,831,418.
- Kosti, Carl M. Anesthetic-vasoconstrictor-antihistamine composition for the treatment of hypertrophied oral tissue. 3,832,460, Cl. 424-54.000.
- Koury, Frederic: See—
Loughridge, Frederick; Koury, Frederic; and Hay, Warren, 3,832,124.
- Waymouth, John F.; Koury, Frederic; and Gungle, Warren Calvin, 3,832,587.
- Kouwenhoven, Herman W.; Pijpers, Franciscus W.; and Campagne, Nicolaas Van Lookeren, to Shell Oil Company. Sulfur dioxide removal. 3,832,445, Cl. 423-244.000.
- Kovacs, Sandor; and Felsosvalyi, Gyorgy, to Merestechikai Kozponti Kutató Laboratórium. Apparatus for measuring the density of a fluid by resonance. 3,831,433, Cl. 73-32.00a.
- Kozlowski, Robert H.; and Rosenthal, Joel W., to Chevron Research Company. Gasoline composition. 3,832,149, Cl. 44-56.000.
- Kozponti Kemiai Kutató Intezet: See—
Mlinko, Sandor; Banfi, Dezzo; Dobis, Emilia; Ottinger, Jozsef; Payer, Karoly; Palagyi, Tivadar; and Turi, Agnes, 3,832,137.
- Kramer, Lothar: See—
Bauer, Gunther; Kramer, Lothar; and Kuhn, Helmut, 3,832,435.
- Krebs, David A., to Thurston, Earle P. Automatic pilot for sailboat having an improved rudder control unit. 3,831,542, Cl. 114-144.00c.
- Kreys, Gerd: See—
Hoffken, Erich; and Kreys, Gerd, 3,832,159.
- Krishna, Rallapalli, to Digital Equipment Corporation. Bidirectional bus repeater. 3,832,489, Cl. 178-71.00r.
- Krishnan, R. Gopala: See—
Bartley, Thomas S.; Descary, John Gilbert; Fletcher, R. James; and Krishnan, R. Gopala, 3,832,283.
- Kristyanson, Peep Gerkhardovich: See—
Aarna, Agu Yanovich; Kiisler, Karl Ritsoyich; Kristyanson, Peep Gerkhardovich; Tanner, Yuri Albert-Mikhaelovich; Vabaoya, Yuri Felixovich; Vaitenberg, Gershonovich; Rokk, Yuri Khindrekovich; and Matvere, Toomas Oskarovich, 3,832,251.
- Krout, Elwood L.: See—
Drayton, Walker E.; and Krout, Elwood L., 3,831,993.
- Krubiner, Alan Martin; and Oliveto, Eugene Paul, to Hoffman-La Roche Inc. Alpha-nitro-cinnamic acid derivatives. 3,832,387, Cl. 260-471.00a.
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Rutenberg, Morton W.; Tessler, Martin M.; and Kruger, Leo, 3,832,342.
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Homewood, Richard H.; Krukoni, Val J.; and Loszewski, Raymond C., 3,832,249.
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Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, 3,831,702.
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Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Harada, Masahide, 3,832,349.
- Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Tamura, Hiroshi, 3,832,350.
- Kucher, Arnold Arkadievich: See—
Bogdanov, Evdokim Stepanovich; Alexandrov, Alexandr Sergeevich; Schegolevatykh, Vadim Dmitrievich; Saveliev, Vyacheslav Ivanovich; Zakharov, Mikhail Fedorovich; Alexandrov, Yuri Nikolaevich; Korsetsky, Gennady Mikhailovich; and Kucher, Arnold Arkadievich, 3,831,418.
- Kuckro, Gerard W.: See—
North, Joyce A.; and Kuckro, Gerard W., 3,832,326.
- Kuehn, Eberhard: See—
Kleeberg, Wolfgang; Rubner, Roland; and Kuehn, Eberhard, 3,832,187.
- Kuhn, Helmut: See—
Bauer, Gunther; Kramer, Lothar; and Kuhn, Helmut, 3,832,435.
- Kuhn S.A.: See—
Dumont, Jacques, 3,831,818.
- Kuhnlein, Hans L., to Hch. Bertrams Aktiengesellschaft. Coil-type continuous flow heater. 3,831,560, Cl. 122-250.00r.
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- Kumiai Chemical Industry Co., Ltd.: See—
Fujimura, Hiroshi; Nose, Yoshio; and Kanazawa, Teiichi, 3,832,190.
- Kunzler, Friedrich: See—
Gsell, Hans Peter; and Kunzler, Friedrich, 3,831,851.
- Kupper, Peter: See—
Hoff, Karl Heinz; Kupper, Peter; Meyer, Joseph; Pagel, Werner; Schmitt, Heinz; and Nedelec, Maurice, 3,831,239.
- Kurashiki Boseki Kabushiki Kaisha; a/k/a Kurabo Industries Ltd.: See—
Sasaki, Toshiro; and Kuroda, Katsuaki, 3,831,444.
- Kurihara, Hirono: See—
Machi, Suetoshi; Matui, Yasushi; Kurihara, Hirono; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, 3,832,207.
- Kurimoto, Masashi, to Hayashibara Biochemical Laboratories Incorporated. Method of producing maltose of high purity. 3,832,285, Cl. 195-31.00r.
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Sasaki, Toshiro; and Kuroda, Katsuaki, 3,831,444.
- Kushida, Tadao, to Ichiko Industries Limited. Means for coupling a blade to an arm of windshield wiper for automobiles. 3,831,222, Cl. 15-250.320.
- Kusters, Eduard, Maschinenfabrik: See—
Appenzeller, Valentin, 3,831,404.
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- Kwarsick, Edmund J.: See—
Noren, Oscar B.; Garland, Carl C.; and Kwarsick, Edmund J., 3,831,476.
- La Haye, Paul G.; Craig, Glenn D.; and Turecek, Joseph L., to Aqua-Chem, Inc. Reduction of nitrogen oxides from products of hydrocarbon combustion with air. 3,832,122, Cl. 431-10.000.
- La Telemecanique: See—
Joly, Jean, 3,832,676.
- Labovitz, Carl: See—
Watson, Robert F., Jr.; Labovitz, Carl; and Mulik, Peter R., 3,831,758.
- Lajotte, Dominique: See—
Le Dily, Claude; and Lajotte, Dominique, 3,832,536.
- Lambert, Benjamin A.: See—
Bowen, Russell J.; Ford, William B., Jr.; Sanborn, Ralph D.; Sawyer, Winslow A.; Sharp, John R.; Soini, Herbert E.; Lambert, Benjamin A.; and Lull, David B., 3,831,520.
- Lamm, Heinz, to Daimler-Benz Aktiengesellschaft. Rotary piston internal combustion engine. 3,832,104, Cl. 418-113.000.
- Lammert, Steven R.: See—
Kukolja, Stjepan; and Lammert, Steven R., 3,832,347.
- Lamoria, Lz F.: See—
Reigler, Paul F.; and Lamoria, Lz F., 3,832,407.
- Lancellotti, William E. Trigger point instrument. 3,831,592, Cl. 128-60.000.
- Land, Edwin H., to Polaroid Corporation. Projection system. 3,832,031, Cl. 350-117.000.
- Land O'Frost, Inc.: See—
Rehlander, Conn, 3,831,471.
- Landheer, Hugo Arie Johan, to Hunter Douglas International N.V. Composite ventilation member for ceiling coverings. 3,831,506, Cl. 98-41.000.
- Landy, Arney, Jr., to Andrew Engineering Company. Line tracing apparatus. 3,832,544, Cl. 250-202.000.
- Lanevsky, Valery Evgenievich: See—
Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Aiferov, Yuri Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Elevich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.
- Lang, Manfred: See—
Graf, Peter; and Lang, Manfred, 3,832,565.
- Lansford, Robert W.; and Gardner, Tommy R., to Halliburton Company. Methods for inhibiting scale formation. 3,832,302, Cl. 210-58.000.
- Lanz, William E.; and Wilson, Eugene M., to Caterpillar Tractor Company. Replaceable cutting edge assembly with wedge means. 3,831,297, Cl. 37-141.00r.
- Lapidus, Milton: See—
Alburn, Harvey E.; Clark, Donald E.; Grant, Norman G.; and Lapidus, Milton, 3,832,373.
- Lapp, John; and Weiler, Norbert R., to McGraw-Edison Company. Method of manufacturing an electrical capacitor. 3,831,234, Cl. 29-25.420.
- Laramée, Richard J.: See—
Plunk, Troy E.; and Laramée, Richard J., 3,832,716.
- Laran, Roy J.: See—

- Kobetz, Paul; Laran, Roy J.; and Johnson, Robert W. Jr., 3,832,456.
- Lardner, George E.: See—
Mackal, Glenn H.; and Lardner, George E., 3,831,629.
- Larsen, Larry D.; Rekarek, Joseph C.; Kompelien, Arlon D.; and Rork, Gerald D., to Honeywell Inc. Dual chamber ionization smoke detector. 3,832,552, Cl. 250-381.000.
- Larson, Charles R., to Prab Conveyors, Inc. Temperature control system for metal scrap dryers. 3,832,235, Cl. 134-19.000.
- Larson, Daniel A., to Westinghouse Electric Corporation. High luminous efficacy white appearing lamp. 3,832,591, Cl. 313-229.000.
- Latham, Allen, Jr., to Haemonetics Corporation. High-flow capacity, self-regulating bypass spike. 3,831,813, Cl. 222-81.000.
- Latkey, George J.: See—
Klingensmith, James D.; and Latkey, George J., 3,831,338.
- Lau, Erwin M., to Black Products Co. Bag filling machine having door-type inlet valve. 3,831,643, Cl. 141-68.000.
- Laudise, Robert A.: See—
Bresnahan, Eileen E.; Lias, Nicholas C.; Kolb, Ernest D.; and Laudise, Robert A., 3,832,146.
- Lawson, Edward L. Adapter enabling telephone switching equipment terminals to be wire wrapped. 3,832,498, Cl. 170-98.000.
- Layer, Siegfried, to Binz & Co. Stretcher support arrangement especially for ambulances. 3,831,996, Cl. 296-19.000.
- Lazar, Ferenc: See—
Kapolnyi, Laszlo; Kaszanitzky, Ferenc; Lazar, Ferenc; and Vamos, Gyorgy, 3,832,164.
- Lazare, Leon; and Jakabchay, Stephen Z., to Standard Oil Company. Polymeric solvent compounds for changing the salt concentration of water. 3,832,301, Cl. 210-21.000.
- Le Dily, Claude; and Lajotte, Dominique, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Integrator circuit. 3,832,536, Cl. 235-183.000.
- Le Hir, Helene Marie. Conducting rail and adapter for supplying electrical appliance. 3,832,673, Cl. 339-21.000.
- Leadbitter, Lawrence: See—
Kors, Vernon E.; and Leadbitter, Lawrence, 3,831,448.
- Leaf, Harry Vincent: See—
Weber, Donald R.; Leaf, Harry Vincent; and Daly, Charles Joseph, 3,831,254.
- Leahy, Dorothy. Fitted kit construction. 3,831,651, Cl. 150-35.000.
- Lear, Donald S., to Glen-Crete Products Co. Building construction system. 3,831,329, Cl. 52-126.000.
- LeBreton, Edward T.: See—
Ranallo, Henry U.; and LeBreton, Edward T., 3,832,109.
- Leccese, Vincent L., to Standard Container Company. Stackable liquid container with pour spout. 3,831,817, Cl. 222-143.000.
- Lederer, Edwin H.: See—
Howells, Paul W.; Lederer, Edwin H.; and Lothes, Robert N., 3,831,526.
- Ledex, Inc.: See—
Yost, Betty Jane, 3,831,486.
- Lee, Raymond, Organization, Inc.: See—
Baseley, Edward, 3,831,581.
- Bustamante, Sebastian R., 3,831,211.
- Hendricks, Thelma, 3,831,611.
- Ita, Callistus E., 3,832,659.
- Neubauer, Lewis, 3,831,938.
- Robinson, Charles B., 3,832,001.
- Stanton, Vernon W.; and Shipley, Ernest M., 3,832,525.
- Lee, Ronald G., to Owatonna Manufacturing Co., Inc. Press feed table. 3,831,427, Cl. 72-448.000.
- Leedy, Robert M. Selectable multi-compartment magnetic dispenser. 3,831,743, Cl. 206-338.000.
- Lechan, Gerald W., to International Business Machines Corporation. Fast insulated gate field effect transistor circuit using multiple threshold technology. 3,832,574, Cl. 307-205.000.
- Leeper, Harold M.: See—
Higuchi, Takeru; and Leeper, Harold M., 3,832,252.
- Leese, Gerald H.; and Kennedy, David H., to Dominion Bridge Company Limited. Machine for transversely curving elongated panels. 3,831,419, Cl. 72-298.000.
- Leesona Corporation: See—
Bense, William M., 3,831,873.
- Dudzick, Chester J., 3,831,362.
- Lefur, Jean; Louboutin, Robert; and Savall, Vincent, to Degremont Societe Generale d'Epuration et de Assainissement. Apparatus for removing sludge from a rectangular flotation tank. 3,831,767, Cl. 210-526.000.
- Leiber, Heinz; and Rodi, Anton, to Teldix GmbH. Anti-skid control system. 3,832,008, Cl. 303-21.000.
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- Leibfritz, Kurt W.; and Malinowski, Lester W., to Parker-Hannifin Corporation. Solenoid operated valve assembly. 3,831,953, Cl. 277-180.000.
- Leimgruber, Willy; and Weigle, Manfred, to Hoffmann-La Roche Inc. Epoxidized alkylidene and arylidene indandiones. 3,832,362, Cl. 260-348.000.
- Leitz, Ernst, GmbH.: See—
Nickel, Werner, 3,832,723.
- Lenemann, Gerhard Johann: See—
Berg, Leo; Lenemann, Gerhard Johann; and Kinneging, Johannes Wilhelmus, 3,831,644.
- Lenert, Richard W.; and Rose, Edward A., Jr., to LTV Electrosystems, Inc. Apparatus for detecting signal transmission. 3,832,703, Cl. 340-248.000.
- Leonard, David J.; Mitchell, William E.; and McGrew, John P., to Span-Deck, Inc. Apparatus for production of cast concrete members. 3,832,118, Cl. 425-443.000.
- Leonard, Didier, to Compagnie Industrielle des Communication Cit-Alcatel. Coder for increase of transmission speed. 3,832,490, Cl. 178-68.000.
- Leroy, Pierre, to Creusot-Loire. Method of blowing-in through blast pipes submerged in a metallic bath. 3,832,161, Cl. 75-60.000.
- Lever Brothers Company: See—
Matthaei, Raymond George, 3,832,431.
- Levesque, Peter S.; and Gaertner, Max, to Fischer & Porter Company. Electronic differential pressure transmitter. 3,832,618, Cl. 318-676.000.
- Levine, Marshall S.: See—
Miller, Melvin N.; and Levine, Marshall S., 3,832,687.
- Levy, Hans F. Air conditioner. 3,831,395, Cl. 62-263.000.
- Levy-Russell Limited: See—
Wolter, Karl Reinhold, 3,831,699.
- Lewis, Eugene C.: See—
Gottlieb, C. Robert; and Lewis, Eugene C., 3,831,770.
- Lewis, Iolo Llewelyn: See—
MacMillan, Richard Butler; and Lewis, Iolo Llewelyn, 3,832,269.
- Lias, Nicholas C.: See—
Bresnahan, Eileen E.; Lias, Nicholas C.; Kolb, Ernest D.; and Laudise, Robert A., 3,832,146.
- Libera, John J.; and Trampier, Charles R., Jr., to NL Industries, Inc. Preparation of a composite pigment containing TiO₂ and CaCO₃. 3,832,206, Cl. 106-300.000.
- Licentia Patent-Verwaltungs-G.m.b.H.: See—
Schmidt, Albrecht, 3,831,619.
- Lieberman, David M. Ophthalmological apparatus for use in an examining room. 3,832,041, Cl. 351-1.000.
- Liebig, Horst; and Dransch, Gunter, to Riedel-De Haen Aktiengesellschaft. Novel arylthiocarbamate. 3,832,374, Cl. 260-455.00a.
- Lien, Erling L.: See—
Nelson, Richard B.; Lien, Erling L.; and Miram, George V., 3,832,596.
- Liggett & Myers Incorporated: See—
Siregar, John A., 3,832,471.
- Liggett, Arthur E.: See—
Patel, Hiralal V.; and Liggett, Arthur E., 3,831,951.
- Lilly, Eli, and Company: See—
Beck, James R., 3,832,155.
- Chamberlin, James W., 3,832,358.
- Gale, Richard M.; and Lively, David H., 3,832,287.
- Kukolja, Stjepan; and Lammert, Steven R., 3,832,347.
- Limoges, Raymond F., to Eastman Kodak Company. Apparatus for treating a material. 3,831,612, Cl. 134-122.000.
- Lin, Ruey Y.: See—
Economy, James; and Lin, Ruey Y., 3,831,760.
- Lincoln, Frank H., Jr.; and Pike, John E., to Upjohn Company. The 5,6-Trans PGA₂. 3,832,379, Cl. 260-468.00d.
- Lindblom, K. Julius. System for regulating the height of the body of a vehicle above the ground and for inclining the vehicle laterally relative to the vehicle supporting means. 3,831,969, Cl. 280-124.00f.
- Linde Aktiengesellschaft: See—
Becker, Rudolf, 3,831,811.
- Lindemann, Hans-Joachim. Electrocoagulation grasping forceps for tube sterilization by means of bipolar high frequency heat radiation. 3,831,607, Cl. 128-303.170.
- Linden-Alimak AB: See—
Hedman, Jarl; and Westerlund, Tage, 3,831,714.
- Lindquist, Donald A.: See—
Tumlinson, James H. III; Mitchell, Everett R.; Browner, Stella M.; Mayer, Marion S.; Green, Nathan; Hines, Ronald W.; and Lindquist, Donald A., 3,832,461.
- Lindsey, James C., to Cavalier Corporation. Vending machine having product level sensing switch and method of conversion of multi-column vending machines for conjoint operation of a least two columns. 3,831,806, Cl. 221-1.000.
- Linley, Francis M., Jr. Anti-backlash nut. 3,831,460, Cl. 74-459.000.
- Linneen, Jack M.: See—
Neely, Tom D.; and Linneen, Jack M., 3,831,712.
- Lipoma, Samuel P. Cooling food products. 3,831,389, Cl. 62-63.000.
- Liquid Nitrogen Processing Corporation: See—
Arkles, Barry C.; and Bonnett, Robert N., 3,832,411.
- Liston, Max D., to Abbott Laboratories. Apparatus for the precision metering of fluids. 3,831,618, Cl. 137-154.000.
- Little, Arthur D., Inc.: See—
Sawdo, Richard M.; and Simon, Ivan, 3,831,287.
- Little, Julian R.; Nudenberg, Walter; and Rim, Yong S., to Uniroyal, Inc. Flame retardant systems. 3,832,422, Cl. 260-876.00r.
- Liu, Chia-Seng, to Hercules Incorporated. Embossed film. 3,832,267, Cl. 161-116.000.
- Lively, David H.: See—
Gale, Richard M.; and Lively, David H., 3,832,287.
- Livingston, William L., to Factory Mutual Research Corporation. Additive injection system. 3,831,617, Cl. 137-98.000.
- Livingston, William L., to Factory Mutual Research Corporation. Fire protection system utilizing modular components. 3,831,681, Cl. 169-16.000.

- Lixenfeld, Manfred; and Reiff, Karl, to Bosch, Robert, GmbH. Control apparatus for a hydraulic machine. 3,831,379, Cl. 60-44.00c.
- Locher, Johannes: See—
Arnold, Winfried; and Locher, Johannes, 3,831,495.
- Lockheed Aircraft Corporation: See—
Burdges, Kenneth P.; and Robertson, Arthur J., Sr., 3,831,886.
- Hoch, Geraldine M.; and Weber, Kenneth E., 3,832,239.
- Jenkins, Dave H., 3,831,691.
- Wirt, Leslie S., 3,831,710.
- Lockheed Missiles & Space Company, Inc.: See—
King, James F., 3,831,693.
- Loctite (Ireland) Limited: See—
O'Sullivan, Denis J.; and Melody, David P., 3,832,334.
- Loeffler, Earl Ferdinand: See—
Brey, Wilhelm; Hostetler, William; Loeffler, Earl Ferdinand; Kolm, Hubert Ernest; and Elder, Fred Grove, 3,832,261.
- Lohbauer, Kenneth R.: See—
Bianchetta, Donald L.; and Lohbauer, Kenneth R., 3,831,620.
- Lohner, Werner: See—
Posch, Heinz; Nauer, Wolfgang; and Lohner, Werner, 3,832,108.
- Lohonen, Paavo; and Karlsson, Olof, to Stal-Laval Turbin AB. Axial turbine combined with reverse turbine. 3,832,087, Cl. 415-153.000.
- Longfellow, Richard C., to Cretex Companies, Inc. The Gasket joint connections. 3,831,954, Cl. 277-207.000.
- Longfield, James Edgar; and Hyman, Daniel, to American Cyanamid Company. Process for production of phosphorus. 3,832,448, Cl. 423-322.000.
- Longhenry, David K.: See—
Praglin, Julius; McKie, James E., Jr.; Curtiss, Alan C.; and Longhenry, David K., 3,832,532.
- Longwell, Paul A.: See—
Kays, David D.; Frank, Kurt F.; and Longwell, Paul A., 3,832,289.
- Loos, John R. Grounding coupling for electrical wire raceways. 3,832,672, Cl. 339-13.000.
- Lorain Products Corporation: See—
Kiko, Frederick J., 3,832,654.
- Lorber, Kenneth. Bowling ball return mechanism. 3,831,939, Cl. 273-48.000.
- Lorch, Eckehard; Sommer, Paul; and Tschirky, Hansjorg, to Hoffmann-La Roche, Inc. Automated apparatus for chemical analyses. 3,832,140, Cl. 23-259.000.
- Lord Corporation: See—
Owston, William J., 3,832,274.
- Lorenz, Roman R. Resolution of 2-(p-hydroxy)phenylglycine. 3,832,388, Cl. 260-471.00a.
- Loszewski, Raymond C.: See—
Homewood, Richard H.; Krukons, Val J.; and Loszewski, Raymond C., 3,832,249.
- Lothes, Robert N.: See—
Howells, Paul W.; Lederer, Edwin H.; and Lothes, Robert N., 3,831,526.
- Louboutin, Robert: See—
Lefur, Jean; Louboutin, Robert; and Savall, Vincent, 3,831,767.
- Loughridge, Frederick; Koury, Frederic; and Hay, Warren. Photoflash lamp. 3,832,124, Cl. 431-93.000.
- Louzon, Theodore J.; McMahon, William; and Mellon, John J., said McMahon assor. to Bell Telephone Laboratories, Incorporated and said Louzon and said Mellon assor. to Western Electric Company, Incorporated. Method of packaging an electrical device. 3,831,25, Cl. 29-592.000.
- Loveland, Malcolm W., to Atlas Pacific Engineering Company. Machine for seed celling previously cored apples. 3,831,510, Cl. 99-553.000.
- Lowery, Harold E., to Ferro Corporation. Pigments of substantially ternary system having oxides of columbium and transitional elements. 3,832,205, Cl. 106-288.00b.
- LTV Electrosystems, Inc.: See—
Lenert, Richard W.; and Rose, Edward A., Jr., 3,832,703.
- Luc, Penelope Jane Vesey. Method of bonding metal parts by friction. 3,831,262, Cl. 29-470.100.
- Lucas Furnace Developments Limited: See—
Stribling, John Brian; and Booth, Robert Arthur, 3,831,288.
- Luedemann, George M.: See—
Weinstein, Marvin J.; Luedemann, George M.; and Wagman, Gerald H., 3,832,286.
- Lukeman, John R. Apparatus and system for gaining access to confagurations. 3,831,991, Cl. 294-64.00r.
- Lull, David B.: See—
Bowen, Russell J.; Ford, William B., Jr.; Sanborn, Ralph D.; Sawyer, Winslow A.; Sharp, John R.; Soini, Herbert E.; Lambert, Benjamin A.; and Lull, David B., 3,831,520.
- Lumms Industries, Inc.: See—
Van Doorn, Donald W.; Hawkins, James B.; and Williams, Roy T., 3,831,481.
- Luther, Paul J.: See—
Andrews, Arthur J.; and Luther, Paul J., 3,831,499.
- Luther, Thomas M.: See—
Means, David K.; and Luther, Thomas M., 3,832,689.
- Lutz, Paul Andrew: See—
Sciulli, Joseph Albert; and Lutz, Paul Andrew, 3,832,491.
- Lynch, William Thomas, to Bell Telephone Laboratories, Incorporated. Methods for making avalanche diodes. 3,832,246, Cl. 148-175.000.
- Lyon, Herbert W.: See—
Brown, Robert A.; Jepson, John W.; and Lyon, Herbert W., 3,831,423.
- M&T Chemicals Inc.: See—
Arcilesi, Donald A., 3,832,291.
- Maaben, Dieter: See—
Windemuth, Erwin; Dahm, Manfred; Richert, Karl Hartwig; and Maaben, Dieter, 3,832,311.
- Machi, Suet; Matui, Yasushi; Kurihara, Hiroondo; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, to Japan Atomic Energy Research Institute, Maruzen Oil Company Limited and Mitsubishi Kakoki Kaisha Ltd. Calcium sulfite compositions for plastic composite. 3,832,207, Cl. 106-308.00m.
- Mack, Ronald H.; and Bortins, John, to Burroughs Corporation. Self-tensioning and re-inking ribbon cartridge for endless ribbons. 3,831,731, Cl. 197-168.000.
- Mackal, Glenn H.; and Lardner, George E., to Halkey-Roberts Corporation. Check valve. 3,831,629, Cl. 137-525.000.
- MacKay, George R. Point-vector concept assessment method and apparatus. 3,831,295, Cl. 35-22.00r.
- MacKew, James, to Power Wheels Corporation. Apparatus for moving vehicles and the like. 3,831,694, Cl. 180-19.00r.
- MacLean-Fogg Lock Nut Co.: See—
Wresch, Herman D., 3,831,531.
- MacMaster, Edward; and Gley, Paul R., to Rexnord, Inc. Toggle latch with yoke. 3,831,224, Cl. 24-68.00t.
- MacMillan, Richard Butler; and Lewis, Iolo Llewelyn, to Imperial Chemical Industries Limited. Anti-dust sheets. 3,832,269, Cl. 161-162.000.
- MacNiel, Douglas K.; and Azizi, Sohail. Depth gauge. 3,831,449, Cl. 73-300.000.
- Maerker, Gerhard: See—
Kenney, Harold E.; Donahue, Edward T.; and Maerker, Gerhard, 3,832,368.
- Maffia, Doro; and Schwartz, Linus G., to National Controls, Inc. Flexure base scale. 3,831,687, Cl. 177-210.000.
- Mahoney, Kenneth L., to American Standard Inc. Fireplace having a samper-fuel gas supply interlock. 3,831,582, Cl. 126-286.000.
- Main, Jack H.: See—
Pope, John E.; and Main, Jack H., 3,831,312.
- Maiste, Arved; and Seton, Walter F., white Motor Corporation of Canada Limited. Drive mechanism for corn header gathering unit. 3,831,356, Cl. 56-10.300.
- Majesko, George A.: See—
Gottlieb, Arnold J.; and Majesko, George A., 3,832,148.
- Majkrzak, Charles P.; and Sladowski, Stephen F. X., to International Telephone and Telegraph Corporation. Drive shaft configuration for a high voltage antenna tuning mechanism. 3,831,399, Cl. 64-1.00r.
- Majoie, Bernard, to Societe de Recherches Industrielles S.O.R.I. Process for obtaining an extract of arnica montana. 3,832,343, Cl. 260-236.500.
- Makachev, Nikolai Ivanovich: See—
Selivanov, Anatoly Grigorievich; Makachev, Nikolai Ivanovich; Titov, Dmitry Vladimirovich; and Rotenburg, Alexander Aronovich, 3,831,638.
- Makita, Kiyoshi: See—
Shimoyashiki, Shigehiro; Makita, Kiyoshi; and Aoki, Naoshi, 3,831,912.
- Malinowski, Lester W.: See—
Leibfritz, Kurt W.; and Malinowski, Lester W., 3,831,953.
- Mallory, P. R., & Co., Inc.: See—
Huddleston, Robert F., 3,831,270.
- Obenchain, Keith T.; and Jimerson, James C., 3,832,607.
- Malthouse, William B.; and Masters, David R., to United States of America, Atomic Energy Commission. Syntactic carbon foam. 3,832,426, Cl. 264-29.000.
- Mamiya, Gohee. Multi-stage absorption refrigeration system. 3,831,397, Cl. 62-476.000.
- Mangan, Edmund L.: See—
Bartlett, William G.; and Mangan, Edmund L., 3,832,542.
- Bartlett, William G.; Hoffman, Carvel D.; Jones, Duane T.; and Mangan, Edmund L., 3,832,550.
- Bartlett, William G.; and Mangan, Edmund L., 3,832,551.
- Mangan, Edmund L.; and Bartlett, William G., to Bethlehem Steel Corporation. Signal conditioner apparatus for compensating an electronic material gaging signal. 3,832,549, Cl. 250-358.000.
- Manharth, Gary B., to General Electric Company. Device for locking turbomachinery blades. 3,832,092, Cl. 416-220.000.
- Mankowitsch, Robert: See—
Hill, Tore L.; and Mankowitsch, Robert, 3,831,648.
- Mansanto Company: See—
Irani, Riyad R.; and Mitchell, Robert S., 3,832,396.
- Mansei Kogyo Kabushiki Kaisha: See—
Moriya, Nobuyoshi, 3,832,126.
- Moriya, Nobuyoshi, 3,832,127.
- Manufacture de Machines du Haut-Rhin: See—
Patignani, Theo, 3,831,455.
- Marathon Oil Company: See—
Presley, C. Travis; and Smith, Ronald E., 3,831,679.
- Marchello, Maurice J.: See—
Nelson, Nels; Marchello, Maurice J.; and Thulin, Frederick A., Jr., 3,831,333.
- Marcor Housing Systems, Incorporated: See—
McCrillis, Raymond Lee; Dixon, Richard Hill; and Oldani, John Francis, 3,831,327.

Marendaz, Georges-Andre: See—
Pfau, Jean; Marendaz, Georges-Andre; and Rhyner, Heinz, 3,832,510.

Mark Products, Inc.: See—
Florian, Eugene F., 3,832,674.

Marouby, Guy, to Societe Anonyme D.B.A. Anti-slip or adaptive braking system. 3,832,011, Cl. 303-21.00p.

Marquardt, James F.; and Orlando, Vincent A., to General Motors Corporation. Sensor switch for occupant restraint system with spring fracture detection means. 3,832,507, Cl. 200-61.45r.

Marsh, Richard L.; and Semin, Roy E., to Goodyear Tire & Rubber Company, The. Belt and connecting means therefor. 3,831,358, Cl. 56-291.000.

Martin, Billy Otis: See—
Mueller, Fritz Kurt; Martin, Billy Otis; and Cherry, Robert, 3,832,669.

Martin, Maurice s.: See—
Nelson, Alfred M.; McPherson, Robert G.; and Martin, Maurice s., 3,831,749.

Martin, Robert, to United States Forgemcraft Corporation. Safety hook. 3,831,994, Cl. 294-82.00r.

Martins, Samuel J., to Airheart Products, Inc. Brake wear compensation using threaded wedge interlock. 3,831,719, Cl. 188-196.00f.

Martuch, Leon L., to Scientific Anglers, Inc. Fishing leader. 3,831,309, Cl. 43-44.980.

Marui, Takao; and Yokooi, Atsusi, to Yuasa Battery Company Limited. Gas recovery device for storage batteries. 3,832,238, Cl. 236-179.000.

Maruschak, Ernest J. Method and apparatus for forming slits in tubes. 3,831,470, Cl. 83-39.000.

Maruta, Masayasu: See—
Akamatsu, Kiyoshi; Maruta, Masayasu; and Yonekura, Yasushi, 3,832,177.

Marutani, Yasumasa, to Oki Electric Industry Co., Ltd. Method and apparatus for computing and displaying sound rays of a sonar system. 3,832,537, Cl. 235-193.000.

Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Harada, Masahide, to Ricoh Co., Ltd. Substituted naphtho (2,1-b) pyrylium perchlorates. 3,832,349, Cl. 260-240.00d.

Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Tamura, Hiroshi, to Ricoh Co., Ltd. Method for the manufacture of a decolorized derivative of benzopyrylium salt. 3,832,350, Cl. 260-240.00d.

Maruzen Oil Company Limited: See—
Machi, Sueo; Matui, Yasushi; Kurihara, Hirono; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, 3,832,207.

Maryland Cup Corporation: See—
Spies, Harvey A., 3,831,732.

Masai, Tadahisa: See—
Sato, Isao; and Masai, Tadahisa, 3,831,854.

Masai, Tadahisa, to Hitachi, Ltd. Method of fuel atomization and a fuel atomizer nozzle therefor. 3,831,843, Cl. 239-8.000.

Mason, Elmer B.: See—
Hoffmann, George R.; Mason, Elmer B.; Jack, Graydon W.; and Campbell, Glenn A., 3,832,581.

Mason, Jack H.: See—
Dockery, Benjamin F.; and Mason, Jack H., 3,832,083.

Mason, Paul B.: See—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,832,048.

Massaglia, Italo M.: See—
Drozowski, Robert J.; Connolly, Peter F.; Massaglia, Italo M.; and Chlupsa, John Rudolph, 3,832,135.

Massillon-Cleveland Akron Sign Company, The: See—
Miller, Wendell V.; and Friedrichsen, Thomas, 3,831,304.

Masson, Christian: See—
Nadler, Morton; and Masson, Christian, 3,832,683.

Massy, Derek James Rowland; and Winterbottom, Kenneth, to Ciba-Giegy AG. Treatment of fibres. 3,832,131, Cl. 8-115.600.

Masters, David R.: See—
Malthouse, William B.; and Masters, David R., 3,832,426.

Masuda, Takao; Ohkubo, Kinji; and Shishido, Tadao, to Fuji Photo Film Co., Ltd. Heat developing-out photosensitive materials. 3,832,186, Cl. 96-114.100.

Masuhara, Toshiaki: See—
Nagata, Minoru; Okabe, Takahiro; and Masuhara, Toshiaki, 3,832,644.

Mathews, Bernard C. Releasable blade holder for flail mower. 3,831,357, Cl. 56-294.000.

Mathews, Bernard C. Blade assembly for flail mower. 3,831,359, Cl. 56-294.000.

Mathews, John A., to Eastman Kodak Company. Film unit. 3,832,182, Cl. 96-76.00c.

Matousek, Stephen; and Koch, Ulrich H., to Whitey Research Tool Co. Valve with sealing seat abutting a soft annular ring and stem. 3,831,900, Cl. 251-122.000.

Matsue, Shigeki, to Nippon Electric Company, Limited. Memory control circuit. 3,832,699, Cl. 340-173.00r.

Matsui, Masanao; Katsube, Junki; and Murayama, Eiichi, to Sumitomo Chemical Company, Ltd. Production of cyclopentane derivatives. 3,832,380, Cl. 260-468.00d.

Matsui, Toshiro; Nakagawa, Masashi; Utagawa, Tadashi; and Tokunaga, Makoto, to Tokyo Shibaura Electric Co., Ltd. Method of manufacturing a semiconductor device. 3,832,225, Cl. 117-212.000.

Matsumoto, Kazuya; and Ban, Mikichi, to Canon Kabushiki Kaisha. Lens axis detection using an interferometer. 3,832,063, Cl. 356-109.000.

Matsuno, Kazuo: See—
Nakao, Hisaji; Naruse, Katutoshi; Hasegawa, Kazuhiko; Kawade, Sadao; Tokura, Yasufumi; and Matsuno, Kazuo, 3,832,696.

Matsushita Electronics Corporation: See—
Yamazaki, Haruo; Akutsu, Hidezo; and Okamoto, Takio, 3,832,590.

Matsuzaki, Atsushi: See—
Ikeda, Toshimichi; Kawauchi, Masataka; Matsuzaki, Atsushi; and Suzuki, Masayuki, 3,831,683.

Matsuzawa, Hideto; Watanabe, Kikuo; and Inuzuka, Isao, to Hitachi, Ltd. Elevator control process and system. 3,831,715, Cl. 187-29.00r.

Mattel, Inc.: See—
Bass, Sidney; and Rich, Hubert A., 3,831,314.

Mattern, Horst H.: See—
Opderbeck, Rudolph G.; and Mattern, Horst H., 3,832,081.

Matthaei, Raymond George, to Lever Brothers Company. Process for making marbelized soap or detergent. 3,832,431, Cl. 264-75.000.

Matthews, Paul E.: See—
Wilson, Stanmore V.; and Matthews, Paul E., 3,832,156.

Matto, Lawrence R., to Avco Corporation. Air cooling of turbine blades. 3,832,090, Cl. 416-95.000.

Mattucci, Neil: See—
Cerankowski, Leon D.; and Mattucci, Neil, 3,832,173.

Matui, Yasushi: See—
Machi, Sueo; Matui, Yasushi; Kurihara, Hirono; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, 3,832,207.

Matvere, Toomas Oskarovich: See—
Aarna, Agu Yanovich; Kiisler, Karl Ritsovich; Kristyanson, Peep Gerkhardovich; Tanner, Juri Albert-Mikhaelovich; Vabaoya, Juri Felixovich; Vaitenberg, Gershonovich; Rokk, Juri Khindrekovich; and Matvere, Toomas Oskarovich, 3,832,251.

Matvey, Paul R.; and Gage, John R., to Goodyear Tire & Rubber Company, The. Laminate and method of preparation. 3,832,275, Cl. 161-190.000.

Maurice, Louis, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Pivot for rotating molecular pumps. 3,832,084, Cl. 415-90.000.

Maxwell Laboratories, Inc.: See—
Anderson, Robert L.; and Stine, Robert Darrell, Jr., 3,832,569.

May, Nathan C.: See—
Fetterly, Lloyd C.; Conklin, George W.; and May, Nathan C., 3,832,363.

Mayer, Marion S.: See—
Tumlinson, James H. III; Mitchell, Everett R.; Browner, Stella M.; Mayer, Marion S.; Green, Nathan; Hines, Ronald W.; and Lindquist, Donald A., 3,832,461.

Mazey, David John: See—
Nelson, Richard Stuart; Mazey, David John; and Hudson, John Adrian, 3,832,219.

Mazur, Sylvester Stanislaus, to TRW Inc. Clamp assembly. 3,832,072, Cl. 403-46.000.

Mazurovsky, Boris Y.: See—
Byzov, Gennady V.; Valdman, Ilya V.; Mazurovsky, Boris Yf; and Yakibjuk, Ivan E., 3,831,420.

Mazzoni, Renato J.: See—
Bowser, George H.; and Mazzoni, Renato J., 3,832,254.

McAnally, Raymond H.: See—
Boyd, Herman L., 3,831,587.

McCall Corporation: See—
Parkinson, Dean B.; and Illing, Irvin A., 3,832,324.

McCloskey, Albert R., to Heim Universal Corporation. Anti-friction ball bearing assembly. 3,832,020, Cl. 308-6.00c.

McCrillis, Raymond Lee; Dixon, Richard Hill; and Oldani, John Francis, to Marcor Housing Systems, Incorporated. Service core installation system. 3,831,327, Cl. 52-79.000.

McCurry, Morris H.: See—
Bernstein, Benjamin T.; Crawshaw, James R.; and McCurry, Morris H., 3,832,613.

McDaniels, Louis M.: See—
Childress, Lloyd K., Jr.; Flippen, George B., Jr.; and McDaniels, Louis M., 3,832,734.

McDonald, George M.; and Schul, Richard J., to Westinghouse Electric Corporation. Motor with improved oil supply device on sheet metal endbell. 3,832,582, Cl. 310-90.000.

McDonnell Douglas Corporation: See—
Baker, Sherman F.; and Hess, Frederick D., Jr., 3,831,888.

McDonnell, Leo G. Vehicle safety system. 3,832,000, Cl. 296-65.00a.

McDonough, Thomas P.; and Shaffer, John W., to GTE Sylvania Incorporated. Photoflash lamp. 3,832,125, Cl. 431-94.000.

McDowell, Robert Bruce. Radio frequency power generator utilizing non-magnetic slug turned coils and impedance matching network for use therewith. 3,832,648, Cl. 331-74.000.

McGavin, Joseph J., to Hoke Incorporated. Valve manifold. 3,831,630, Cl. 137-597.000.

McGee, Paul D.: See—
Artner, Marcus M.; and McGee, Paul D., 3,832,025.

McGill Manufacturing Company, Inc.: See—
Beck, Frederick R., 3,832,508.

McGraw-Edison Company: See—
Lapp, John; and Weiler, Norbert R., 3,831,234.

McGrew, John P.: See—

Leonard, David J.; Mitchell, William E.; and McGrew, John P., 3,832,118.

McIntosh, Charles Michael, to International Business Machines Corporation. Ceramic dielectric porcelain. 3,832,192, Cl. 106-46.000.

McKay, Robert H.: See—
Tacke, William H.; Ormiston, Robert B.; and McKay, Robert H., 3,831,330.

McKenzie, Samuel: See—
Allum, Keith George; Hancock, Ronald David; McKenzie, Samuel; and Pitkethl, Robert Chalmers, 3,832,404.

McKerrow, George Clement: See—
Themelis, Nicholas John; and McKerrow, George Clement, 3,832,163.

McKie, James E., Jr.: See—
Praglin, Julius; McKie, James E., Jr.; Curtiss, Alan C.; and Longhenry, David K., 3,832,532.

McKillip, William J.: See—
Culbertson, Billy M.; Sedor, Edward A.; and McKillip, William J., 3,832,133.

McKillip, Alexander: See—
Taylor, Edward C.; and McKillip, Alexander, 3,832,381.

McKinley, Hollace R.: See—
Schlaudroff, Leo M.; and McKinley, Hollace R., 3,831,641.

McLain, Charles D., to Olin Corporation. Heat exchanger tube. 3,831,675, Cl. 165-177.000.

McLean, Byron R., to Corning Glass Works. Lockable oven door latch. 3,831,580, Cl. 126-197.000.

McLean, James N.: See—
Atwood, Hyatt B.; and McLean, James N., 3,831,367.

McMahon, William: See—
Louzon, Theodore J.; McMahon, William; and Mellon, John J., 3,831,265.

McPherson, Robert G.: See—
Nelson, Alfred M.; McPherson, Robert G.; and Martin, Maurice s., 3,831,749.

McVey, Charles I.; and Collins, Byron R., to General Electric Company. Ceramic discharge lamp having metal end cap. 3,832,588, Cl. 313-217.000.

McVoy, David S.; and Reynolds, Richard G., to Coaxial Scientific Corporation. Communications system encoder-decoder for data transmission and retrieval. 3,832,690, Cl. 340-168.00r.

McWhorter, Daniel M., to Kendall Company, The. Urine meter and collection receptacle. 3,831,453, Cl. 73-427.000.

McWhorter, Daniel M.; and Villari, Frank K., to Kendall Company, The. Openable closure with drip site. 3,831,823, Cl. 222-490.000.

Meacham, George B. K., to Eaton Corporation. Vehicle occupant restraint system. 3,831,973, Cl. 280-150.00a.

Means, David K.; and Luther, Thomas M., to Reliance Electric Company. Data-transmission apparatus. 3,832,689, Cl. 340-147.0lp.

Mech, Harold W., to Motorola, Inc. Machine and method for cutting brittle materials using a reciprocating cutting wire. 3,831,576, Cl. 51-12.000.

Mecklenborg, Richard A., to Singer Company, The. Panoramic projector and camera. 3,832,046, Cl. 352-69.000.

Mednikow, Leon. Safety device for motor vehicles. 3,831,975, Cl. 280-150.00b.

Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Alferov, Jury Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Eleovich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich. Electroslag melting of ingots. 3,832,476, Cl. 13-15.000.

Mee, John D.: See—
Jenkins, Philip W.; Heseltine, Donald W.; and Mee, John D., 3,832,212.

Meeusen, Pieter. Floating structure for the mooring of yachts and other similar craft. 3,831,538, Cl. 114-5.5bd.

Megapulse Incorporated: See—
Ver Planck, Peter; and Johannessen, Paul R., 3,832,573.

Mehta, J. M.: See—
Pinnow, Kenneth E.; Mehta, J. M.; and Moskowitz, A., 3,832,244.

Meier, Johann H.; and Pimbley, Walter T., to International Business Machines Corporation. Modified diffused ink jet printer. 3,832,719, Cl. 346-75.000.

Meiji Seika Kaisha, Ltd.: See—
Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.

Meiklejohn, William H.: See—
Berkowitz, Ami E.; and Meiklejohn, William H., 3,832,718.

Meldrum, Charles R.; and Bindon, Glyn A., to Ace Controls, Inc. Noise preventing shock absorber. 3,831,920, Cl. 267-137.000.

Meldrum, Charles R., to Ace Controls Inc. Noise preventing shock absorber. 3,831,923, Cl. 267-141.000.

Mellon, John J.: See—
Louzon, Theodore J.; McMahon, William; and Mellon, John J., 3,831,265.

Melody, David P.: See—
O'Sullivan, Denis J.; and Melody, David P., 3,832,334.

Mende, Wilhelm & Co.: See—
Ettel, Hubert, 3,832,115.

Menghini, Angelo, to Giacomo Cortinovis. Apparatus for reproducing relief images on solid bodies. 3,831,575, Cl. 125-7.000.

Menne, Heinz; Schirp, Wilhelm; and Eckhardt, Otto, to Benteler-Werke Aktiengesellschaft. Air conditioner. 3,831,669, Cl. 165-122.000.

Merck & Co., Inc.: See—
Hannah, John, 3,832,346.

Hirschmann, Ralph F.; and Fried, John, 3,832,345.

Reinhold, Donald F.; Slettinger, Meyer; and Firestone, Raymond A., 3,832,377.

Merestechikai Kozponti Kutato Laboratorium: See—
Kovacs, Sandor; and Felsovalyi, Gyorgy, 3,831,433.

Merrill, Duane F., to General Electric Company. Process and composition for stabilizing silicone resins in solutions. 3,832,319, Cl. 260-31.20r.

Merrill, Edward W., to River, Charles, Foundation, Trustees of the. Hydrophilic silicone composition and method. 3,832,458, Cl. 424-19.000.

Merritt, Will D., Jr., to General Electric Company. Organopolysiloxane-polycarbonate block copolymers. 3,832,419, Cl. 260-824.00r.

Messina, Steve J., to Ethyl Corporation. Allyl halide-monoolefin condensation product. 3,832,412, Cl. 260-654.00r.

Messner, George; De Nora, Oronzio; and De Nora, Vittorio. Bipolar diaphragm electrolyzer with cathode waves in horizontal plane. 3,832,300, Cl. 204-256.000.

Metallgesellschaft Aktiengesellschaft: See—
Gilles, Helmut; Gupner, Otto; and Haselmayer, Karl, 3,831,350.

Metallwerk Plansee Aktiengesellschaft & Co., KG: See—
Kutzer, Hans-Joachim; Strohmeier, Gerolf; Natter, Bernd; and Sedlatschek, Karl, 3,831,825.

Metreud, Claude G.: See—
Htoo, Maung S.; Metreud, Claude G.; and Schmitt, Herman F., 3,831,905.

Metz, Paul; Koch, Victor; and Schockmel, Robert, to Acieries Reunies de Burbach-Eick-Dudelange S.A. Fuel injector for blast furnace. 3,832,121, Cl. 431-8.000.

Metzl, Kurt: See—
Mohr, Hans; Weigel, Peter; and Metzl, Kurt, 3,831,328.

Meyer, Joseph: See—
Hoff, Karl Heinz; Kupper, Peter; Meyer, Joseph; Pagel, Werner; Schmitt, Heinz; and Nedelec, Maurice, 3,831,239.

Meyer, Willy; and Boehner, Beat, to Ciba-Geigy Corporation. Carbamoyloximes. 3,832,400, Cl. 260-566.00c.

Micol, Pierre; and Jacquet, Yves, to Societe Nationale d'Etude et de Construction. Method and apparatus of measuring the characteristic resonance frequency of an electric element. 3,832,630, Cl. 324-56.000.

Mihailovski, Alexander, to Stauffer Chemical Company. Thioureido sulfonanilide compositions. 3,832,384, Cl. 260-470.000.

Mikhailov, Valery Mikhailovich; and Pisarevskaya, Silvia Izrailevna. Split-type magnetic field concentrator. 3,832,509, Cl. 219-7.500.

Mikkelsen, Kenneth A.: See—
Goodman, Brian L.; Weis, Frank G.; and Mikkelsen, Kenneth A., 3,831,755.

Mikofalvy, Bela K.; and Knechtges, Donald P. Process for reducing acrylic ester monomer residues in acrylate latices. 3,832,317, Cl. 260-29.6rb.

Miljoteknik, S. T., AB: See—
Siwerson, Olle Lennart; and Tell, Karl Gunnar, 3,831,349.

Milkovich, Ralph; and Chiang, Mutong T., to CPC International, Inc. Chemically joined, phase separated graft copolymers having hydrocarbon polymeric backbones. 3,832,423, Cl. 260-878.00r.

Mill Conversion Contractor, Inc.: See—
Baardson, Andrew B., 3,831,535.

Mill Power Engineering & Manufacturing Co.: See—
Wright, Beryle W., 3,831,477.

Miller, Charles Frederick. Assembling and securing machine. 3,831,252, Cl. 29-203.00b.

Miller, John E.; Shaver, Eugene L.; and Stone, Jack C., to United States of America, Navy, mesne. Wire dispenser. 3,831,879, Cl. 242-129.000.

Miller, Marvin E., to Warwick Electronics Inc. Dynamic convergence circuit. 3,832,594, Cl. 315-13.00c.

Miller, Melvin N.; and Levine, Marshall S., to Geometric Data Corporation. Pattern recognition system. 3,832,687, Cl. 340-146.3ma.

Miller, Robert G. Impact wrench. 3,831,468, Cl. 81-52.300.

Miller, Wendell V.; and Friedrichsen, Thomas, to Massillon-Cleveland Akron Sign Company, The. Pole banner sign construction. 3,831,304, Cl. 40-125.00g.

Mills, Marvin L. Electromagnetic motors and process of their operation. 3,832,608, Cl. 318-37.000.

Minamihata, Shigeaki; and Niimi, Masayasu, to Hitachi, Ltd. Circuit for delaying and shaping synchronizing pulse. 3,832,572, Cl. 307-106.000.

Mine, Akihiko: See—
Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Ooishi, Tadashi; Hino, Naganori; and Satomi, Takeo, 3,832,351.

Minnesota Mining & Manufacturing Company: See—
Johnson, Edgar G., 3,832,038.

Minnesota Mining and Manufacturing Company: See—
Oehmke, Richard W.; and Scherler, Paul H., 3,832,598.

Minolta Camera Co., Ltd.: See—
Naya, Mikio; Yamaguchi, Haruki; and Horie, Izumi, 3,832,068.

Minolta Camera Kabushiki Kaisha: See—
Tomita, Hiroshi, 3,832,236.

- Minorikawa, Kazuo: See—
Nomiya, Kosei; Minorikawa, Kazuo; Torii, Shuichi; and Hatsu-
kano, Yoshikazu, 3,832,578.
- Miram, George V.: See—
Nelson, Richard B.; Lien, Erling L.; and Miram, George V.,
3,832,596.
- Misenheimer, Ernest L., III. Safety fastening device. 3,831,987, Cl.
292-246,000.
- Misomex Aktiebolag: See—
See, Hartvig, 3,831,284.
- Misono, Shigemi: See—
Kitamura, Yoshiaki; and Misono, Shigemi, 3,831,500.
- Mitaka Instrument Company, Limited: See—
Kaida, Masaaki; and Yasuda, Shigeo, 3,832,681.
- Mitchell, Bobby Lee. Automatic vehicle light control system for
daylight driving. 3,832,597, Cl. 316-82,000.
- Mitchell, Everett R.: See—
Tumlinson, James H. III; Mitchell, Everett R.; Browner, Stella M.;
Mayer, Marion S.; Green, Nathan; Hines, Ronald W.; and
Lindquist, Donald A., 3,832,461.
- Mitchell, Raymond: See—
Brittain, William J.; Doboed, Thomas J. L.; Mitchell, Raymond;
and Oliver, Wilfred T., 3,831,563.
- Mitchell, Richard R.; and Van Der Bor, Robert, to Akzona Incor-
porated. Salt crystal conglomerates. 3,832,446, Cl. 423-267,000.
- Mitchell, Robert S.: See—
Irani, Riyad R.; and Mitchell, Robert S., 3,832,396.
- Mitchell, William E.: See—
Leonard, David J.; Mitchell, William E.; and McGrew, John P.,
3,832,118.
- Mitrofanova, Nina Vasilievna: See—
Bazhulin, Alexei Pavlovich; Vinogradov, Evgeny Alexandrovich;
Irisova, Natalia Alexandrovna; Mitrofanova, Nina Vasilievna;
Timofeev, Yuri Petrovich; Fridman, Samuil Aronovich; and
Schaeenko, Valentina Vasilievna, 3,832,557.
- Mitsubishi Jukogyo Kabushiki Kaisha: See—
Yamamoto, Takashi; Yasukouchi, Kenichi; and Sato, Ryuichi,
3,831,561.
- Mitsubishi Kakoki Kaisha Ltd.: See—
Machi, Sueo; Matui, Yasushi; Kurihara, Hirono; Hibi, Yoshiharu;
Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki,
3,832,207.
- Mitsubishi Kogyo Kabushiki Kaisha: See—
Nishio, Yasuhiro; Okamoto, Zenichiro; and Hiromoto, Yoshiro,
3,832,512.
- Mitsubishi Rayon Co., Ltd.: See—
Sato, Kozo; Nakatani, Eizo; and Ichimura, Kiyoshi, 3,832,217.
- Mitsubishi Rayon Company Limited: See—
Kawai, Atsushi; Katsuyama, Takehiro; Suzuki, Migaku; and Ohta,
Hidenori, 3,832,281.
- Mitsui Petrochemical Industries Limited: See—
Kitaoka, Yoji; Murata, Katsuhide; Hama, Kotaro; Hashimoto,
Michio; and Fujiyoshi, Kenji, 3,832,151.
- Mitsui Shipbuilding and Engineering Co., Ltd.: See—
Kitaoka, Yoji; Murata, Katsuhide; Hama, Kotaro; Hashimoto,
Michio; and Fujiyoshi, Kenji, 3,832,151.
- Mitsumi Electric Company, Limited: See—
Yokoyama, Takeo, 3,832,655.
- Mittendorf, Theodor H.: See—
Mittendorf, Theodor H.; and Bennett, Dale L. (said Bennett assor.
to said), 3,831,696.
- Mittendorf, Theodor H.; and Bennett, Dale L., said Bennett assor. to
said Mittendorf, Theodor H. Vehicle insect protection apparatus.
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Akima, Akira; Nishikawa, Masao; Sato, Makoto; Miyahara,
Hiromitsu; and Miyakawa, Yoshitaka, 3,832,095.
- Miyakawa, Yoshitaka: See—
Akima, Akira; Nishikawa, Masao; Sato, Makoto; Miyahara,
Hiromitsu; and Miyakawa, Yoshitaka, 3,832,095.
- Miyake, Yasuji: See—
Ito, Tamotsu; Ohashi, Shin-Ichi; and Miyake, Yasuji, 3,832,656.
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Karoly; Palagyi, Tivadar; and Turi, Agnes, to Gyogyszerkutato In-
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- Moellmann, Heinz F., to Avco Corporation. Turbomachinery and
method of manufacturing diffusers thereof. 3,832,089, Cl. 415-
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Structural unit for frame construction. 3,831,328, Cl. 52-145,000.
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Morsell, Arthur Lee; and Moise, Norton L., 3,832,546.
- Molettieri, John B. Device for placement of football. 3,831,940, Cl.
273-55,00b.
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Duncan, Alex R., 3,831,995.
- Mondshine, Thomas C., to N L Industries, Inc. Method of producing
and using a gelled oil base packer fluid. 3,831,678, Cl. 166-288,000.
- Monnet, Francois. Apparatus for monitoring carburetors or other
gasoline-consumption devices. 3,831,440, Cl. 73-113,000.
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Clark, Frank S., 3,832,303.
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3,832,348.
- Corey, Albert E.; Donermeyer, Donald D.; Fantl, Joel; and Wil-
liams, Charles R., 3,832,321.
- Fisher, Don E.; Knauff, Paul A.; and Bowen, David, Jr., 3,831,872.
- Freerks, Marshall C.; and Suda, Michael, 3,832,359.
- Gomez, I. Luis; and Steingiser, Samuel, 3,831,290.
- Hug, Delmar O.; and Garabedian, Taniel A., 3,832,410.
- Olin, John F., 3,832,383.
- Rump, John H.; and Smith, Joseph E., 3,831,745.
- Schleppnik, Alfred A.; and Wilson, John B., 3,832,369.
- Moore, Alvin Edward. Puncture-resistant tire assembly. 3,831,653, Cl.
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- Moore, Charles H. Method of producing two pipe connections from a
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- Moore, Harold K. Vehicle outrigger pad structure. 3,831,774, Cl. 212-
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- Moore, Richard L.; Moore, Vaughn; and Moore, Warren N. Double-
hulled boats. 3,831,212, Cl. 9-6,000.
- Moore, Robert R. Knee brace. 3,831,467, Cl. 128-80,00c.
- Moore, Vaughn: See—
Moore, Richard L.; Moore, Vaughn; and Moore, Warren N.,
3,831,212.
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Moore, Richard L.; Moore, Vaughn; and Moore, Warren N.,
3,831,212.
- Moorehead, James R., to Boeing Company, The and Aeritalia S.p.A.
Thrust reverser. 3,831,376, Cl. 60-226,00a.
- Moorhead, William V. Concret forming apparatus and process.
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- Mopherson, Alexander W.: See—
Sendoykas, Jack J.; and Mopherson, Alexander W., 3,831,926.
- Morgan, Charles R., to Grace, W. R., & Co. Curable compositions con-
taining solid styreneallyl alcohol copolymer based polyenes and
polythiols. 3,832,421, Cl. 260-859,00r.
- Morgan Construction Company: See—
Jennings, Lewis C.; and Rickley, Samuel S., 3,832,021.
- Mori, Ernest A.: See—
Gaylord, Eber W.; Goodwin, Robert J.; and Mori, Ernest A.,
3,831,753.
- Mori, Keisuke; Yamada, Takehiro; Nakamoto, Katsumi; Onaka,
Hirosi; Yamamoto, Takeshi; and Kato, Taizo, to Nippon Steel Cor-
poration and Asahi Glass Company, Limited. Heat insulating durable
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- Morin, Albert Z. Method of and apparatus for reducing pollution
caused by exhaust gases of an internal combustion engine.
3,831,377, Cl. 60-274,000.
- Morin, Gerard, to Societe Anonyme D.B.A. Constant-velocity joint.
3,831,400, Cl. 64-21,000.
- Morin, James A.: See—
Thomas, Eugene P.; Cimildora, Henry F.; and Morin, James A.,
3,832,559.
- Moriya, Nobuyoshi, to Mansei Kogyo Kabushiki Kaisha. Liquefied gas
fueled lighter. 3,832,126, Cl. 431-131,000.
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device. 3,832,127, Cl. 431-344,000.
- Morris, Billy D. Adjustable static pressure or vacuum source and in-
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- Morris, Jack, to Olin Corporation. Method of fabricating a metal tubu-
lar heat exchanger having internal passages therein. 3,831,246, Cl.
29-157,30u.
- Morsell, Arthur Lee; and Moise, Norton L., to Xonics, Inc. X-ray
system with aligned source and slits. 3,832,546, Cl. 250-315,000.
- Morton-Norwich Products, Inc.: See—
Heskett, Don Edward, 3,831,754.
- Moser, Peter, to Vereinigte Osterreichische Eisen- und Stahlwerke-Al-
pine Montan Aktiengesellschaft. Tilttable converter. 3,831,917, Cl.
266-36,00p.
- Moskowitz, A.: See—
Pinnow, Kenneth E.; Mehta, J. M.; and Moskowitz, A., 3,832,244.
- Moss, Philip Hotchkiss: See—
Ramey, Bobbie Joe; and Moss, Philip Hotchkiss, 3,832,323.
- Motor Corporation of Canada Limited: See—
Maiste, Arved; and Seton, Walter F., 3,831,356.
- Motorola, Inc.: See—
Artner, Marcus M.; and McGee, Paul D., 3,832,025.
- Mech, Harold W., 3,831,576.
- Ritchie, Kim, 3,832,202.
- Saddler, Ivan R.; and Fisher, John A., 3,832,247.
- Terry, Lewis E., 3,832,230.
- Weber, Howard F., 3,831,571.
- Mottier, Francois, to BBC Brown Boveri & Company, Limited. Holog-
raphy using light of limited coherence. 3,832,026, Cl. 350-3,500.
- M.S.E. Holdings Limited: See—
Olliffe, David William, 3,832,614.
- Mueller, Alf, to Daimler-Benz Aktiengesellschaft. Front wheel suspen-
sion for motor vehicles. 3,831,970, Cl. 280-124,00a.
- Mueller, Fritz Kurt; Martin, Billy Otis; and Cherry, Robert, to Royal
Medical Corporation. Temperature-sensing device. 3,832,669, Cl.
338-28,000.

- Mueller, Otto. Differential transmission. 3,831,461, Cl. 74-711,000.
- Muench, Paul W., to Borg-Warner Corporation. Control arrangement
for absorption refrigeration system. 3,831,393, Cl. 62-141,000.
- Mugford, Charles C., to Farr Company. Air filter assembly. 3,831,355,
Cl. 55-484,000.
- Mukai, Toshihiko: See—
Nakanishi, Michio; and Mukai, Toshihiko, 3,832,467.
- Mulik, Peter R.: See—
Watson, Robert F., Jr.; Labovitz, Carl; and Mulik, Peter R.,
3,831,758.
- Muller, Horst: See—
Eggensperger, Heinz; Franzen, Volker; Muller, Horst; and
Stephan, Hans, 3,832,328.
- Muller, Thomas P.; and Sitton, Ellis A., to Caterpillar Tractor Co.
Parking brake assembly for track-type vehicles. 3,831,718, Cl. 188-
170,000.
- Mullings, Donald M., to General Electric Company. A-coil with im-
proved air deflector. 3,831,670, Cl. 165-124,000.
- Mullins, Albert A., to Schlumberger Technology Corporation.
Retainer packer with improved valve system. 3,831,677, Cl. 166-
128,000.
- Muntean, George L.: See—
Perr, Julius P.; and Muntean, George L., 3,831,846.
- Mura, George J.: See—
Tamura, Shigeru, 3,831,842.
- Murakami, Noboru, to Aisin Seiki Kabushiki Kaisha. Control system
for automatic transmlsion. 3,831,465, Cl. 74-869,000.
- Murata, Katsuhide: See—
Kitaoka, Yoji; Murata, Katsuhide; Hama, Kotaro; Hashimoto,
Michio; and Fujiyoshi, Kenji, 3,832,151.
- Murata Manufacturing Co., Ltd.: See—
Kojima, Tatsuo, 3,832,671.
- Murayama, Eiichi: See—
Matsui, Masanao; Katsube, Junki; and Murayama, Eiichi,
3,832,380.
- Murley, Raymond G.: See—
DeFauw, Raymond Henry; and Murley, Raymond G., 3,832,085.
- Murphy, Donald P., to Oxy Metal Finishing Corporation. Halogenated
alkylene glycol aryl ether stripping composition and method.
3,832,305, Cl. 252-158,000.
- Mustafa, Karsik: See—
Aleksandar, Manoilov; and Mustafa, Karsik, 3,831,251.
- Mutch, John, to Guthrie Industries Limited. Process for continuously
forming a polymeric resinous layer from a multicomponent liquid
reactive mixture. 3,832,427, Cl. 264-39,000.
- Myers, Robert A., to Ford Motor Company. Controlled collapse vehi-
cle front end structure. 3,831,997, Cl. 296-28,00r.
- N L Industries, Inc.: See—
Bolding, Donald B.; and Williams, Hilton S., 3,832,191.
- Mondshine, Thomas C., 3,831,678.
- Nadherny, Rudolph E.: See—
Smith, Edward Payson; and Nadherny, Rudolph E., 3,831,532.
- Nadler, Morton; and Masson, Christian, to Societe Honeywell Bull
(Societe Anonyme). Character-identification device. 3,832,683, Cl.
340-146,3ma.
- Nagamatsu, Katsumi; and Saito, Takashi, to Canon Kabushiki Kaisha.
Method of and apparatus for electronic color photography and
photosensitive member used for the same. 3,832,170, Cl. 96-1,200.
- Nagame, Hiroshi: See—
Kinoshita, Koichi; Uehara, Shiro; and Nagame, Hiroshi,
3,832,169.
- Nagasima, Takeomi, to Asahi Glass Company, Limited. Defogging
glass plate. 3,832,527, Cl. 219-522,000.
- Nagata, Masamichi, to Kabushiki Kaisha Hasegawa Hamono
Seisakusho. Combination scissors for both hair-cutting and hair-thin-
ning. 3,831,277, Cl. 30-195,000.
- Nagata, Minoru; Okabe, Takahiro; and Masuhara, Toshiaki, to Hitachi,
Ltd. Semiconductor electronic circuit with semiconductor bias cir-
cuit. 3,832,644, Cl. 330-22,000.
- Nakagawa, Jihei, to Olympus Optical Company Limited. Super wide-
angle lens systems. 3,832,037, Cl. 350-214,000.
- Nakagawa, Masashi: See—
Matsui, Toshiro; Nakagawa, Masashi; Utagawa, Tadashi; and
Tokunaga, Makoto, 3,832,225.
- Nakaguchi, Glenn M.; Wang, Ting-li; and Caserio, Frederick F., Jr., to
Atlantic Richfield Company. Acetal dimers of cyclic acetals.
3,832,356, Cl. 260-340,900.
- Nakamoto, Katsumi: See—
Mori, Keisuke; Yamada, Takehiro; Nakamoto, Katsumi; Onaka,
Hirosi; Yamamoto, Takeshi; and Kato, Taizo, 3,831,918.
- Nakamura, Koichi, to Kabushiki Kaisha Suwa. Reading system for tags
encoded with bars of different widths. 3,832,529, Cl. 235-61,11e.
- Nakamura, Toshio; and Kawai, Sadaharu, to Hitachi, Ltd. Spiral spring
units for pressing brushes. 3,831,925, Cl. 267-156,000.
- Nakanishi, Michio; and Mukai, Toshihiko, to Sumitomo Chemical
Company, Ltd., mesne. Insecticidal chrysanthemote compositions
and their method of use. 3,832,467, Cl. 424-285,000.
- Nakao, Hisaji; Naruse, Katutoshi; Hasegawa, Kazuhiko; Kawade,
Sadao; Tokura, Yasufumi; and Matsuno, Kazuo, to Toyoda Koki
Kabushiki Kaisha. General purpose sequence controller. 3,832,696,
Cl. 340-172,500.
- Nakatani, Eizo: See—
Sato, Kozo; Nakatani, Eizo; and Ichimura, Kiyoshi, 3,832,217.
- Nakayama, Fukuzo, to Japan Non-Slip Pavement Co., Inc. Method and
apparatus of manufacturing non-slip pavement blocks and product
thereof. 3,832,078, Cl. 404-44,000.
- Nalco Chemical Company: See—
DuBrow, Paul L.; and Frisque, Alvin J., 3,832,229.
- Narayan, Subrahmanyam Yegna: See—
Upadhyayula, Chainulu Lakshminarasimha; and Narayan,
Subrahmanyam Yegna, 3,832,652.
- Narayan, Subrahmanyam Yegna, to RCA Corporation. Dynamic divid-
ing circuit for dividing an input frequency by two. 3,832,651, Cl.
331-107,00g.
- Naruse, Katutoshi: See—
Nakao, Hisaji; Naruse, Katutoshi; Hasegawa, Kazuhiko; Kawade,
Sadao; Tokura, Yasufumi; and Matsuno, Kazuo, 3,832,696.
- Nashua Australia Pty., Limited: See—
Karpisek, Ladislav Stephan, 3,831,829.
- National Advertising Company: See—
Schubert, Wilfried, 3,831,895.
- National Can Corporation: See—
Zundel, Arthur P., 3,831,822.
- National Cash Register Company, The: See—
Bueche, Frederick J., 3,832,315.
- National Controls, Inc.: See—
Maffia, Doro; and Schwartz, Linus G., 3,831,687.
- National Distillers and Chemical Corporation: See—
North, Joyce A.; and Kuckro, Gerard W., 3,832,326.
- National Forge Company: See—
Bowles, Arnold G., 3,832,103.
- National Gypsum Company: See—
Plumb, William H., 3,832,220.
- Rutkowski, Edward J.; Dawdy, Jack A.; Hause, Robert F.; and
Reinig, Irvine G., II, 3,831,334.
- National Research Development Corporation: See—
Bergman, Imanuel, 3,832,299.
- Smith, Stanley Desmond; Wood, Roland Andrew; and Dennis,
Richard Benson, 3,832,061.
- National Starch and Chemical Corporation: See—
Rutenberg, Morton W.; Tessler, Martin M.; and Kruger, Leo,
3,832,342.
- National State Bank, The, mesne: See—
Pilat, Peter, 3,831,783.
- National Steel Corporation: See—
Hill, William P., 3,831,660.
- Natter, Bernd: See—
Kutzer, Hans-Joachim; Strohmeier, Gerolf; Natter, Bernd; and
Sedlatschek, Karl, 3,831,825.
- Nauert, Wolfgang: See—
Posch, Heinz; Nauert, Wolfgang; and Lohner, Werner, 3,832,108.
- Naya, Mikio; Yamaguchi, Haruki; and Horie, Izumi, to Minolta
Camera Co., Ltd. Three color meter with a calculator. 3,832,068, Cl.
356-228,000.
- Nedelec, Maurice: See—
Hoff, Karl Heinz; Kupper, Peter; Meyer, Joseph; Pagel, Werner;
Schmitt, Heinz; and Nedelec, Maurice, 3,831,239.
- Nederlof, Anton Marie, to U.S. Philips Corporation. Hot-gas engine.
3,831,380, Cl. 60-524,000.
- Needham, David Alan, to Cyprane Limited. Anaesthesia machines.
3,831,599, Cl. 128-188,000.
- Neefe, Charles W. Method of reshaping the cornea. 3,831,604, Cl.
128-260,000.
- Neely, Tom D.; and Linneen, Jack M. Mechanism for transporting
loads into a high rise building. 3,831,712, Cl. 187-2,000.
- Neely, Victor I.: See—
Brenden, Byron B.; Neely, Victor I.; and Garlick, George F.,
3,832,677.
- Negado, Cesar T. Collision guard device. 3,831,921, Cl. 267-139,000.
- Neill, Henry R.; and Davies, Robert G., to Burlington Industries, Inc.
Operation monitoring system. 3,832,531, Cl. 235-92,0pd.
- Neitzel, Ulrich E. G., to Irving Trust Company, mesne. Crystallization
of sodium chloride. 3,832,143, Cl. 23-296,000.
- Nelson, Alfred M.; McPherson, Robert G.; and Martin, Maurice s., to
Cubic Industrial Corporation, mesne. Selectro mechanism including
cassette storage. 3,831,749, Cl. 209-110,500.
- Nelson, Carl W.: See—
Buchanan, James E.; and Nelson, Carl W., 3,832,707.
- Nelson, David V.; and Boggs, Roger L., to Caterpillar Tractor Com-
pany. Track pin retaining insert. 3,832,018, Cl. 305-39,000.
- Nelson, Nels S.; and Piper, Harlow H., to Caterpillar Tractor Company.
Seat belt slack adjuster mechanism. 3,831,226, Cl. 24-196,000.
- Nelson, Richard B.; Lien, Erling L.; and Miram, George V., to Varian
Associates. Magnetic structure for focusing of linear beams.
3,832,596, Cl. 315-3,500.
- Nelson, Richard Stuart; Mazey, David John; and Hudson, John Adrian,
to United Kingdom Atomic Energy Authority. Methods of treating
steel surfaces to modify their structure. 3,832,219, Cl. 117-93,300.
- Nelson, Terence John: See—
Bobeck, Andrew Henry; and Nelson, Terence John, 3,832,701.
- Nelson, Nels; Marchello, Maurice J.; and Thulin, Frederick A., Jr., to
United States Gypsum Company. Crimped end load bearing member
and assemble thereof. 3,831,333, Cl. 52-241,000.
- Nesslage, Donald J.; and Yu, Lin S., to Phelps Dodge Industries, Inc.
Copper-base alloy containing titanium and antimony. 3,832,241, Cl.
148-12,700.

- Neubauer, Lewis, 20% to Lee, Raymond, Organization, Inc., The. Word plus word game. 3,831,938, Cl. 273-1.00r.
- Neubert, Richard W.: See—
Verstraete, Jerome A.; Noonan, John M.; and Neubert, Richard W., 3,832,176.
- New York Wire Mills Corporation: See—
Tolliver, Wilbur E., 3,831,890.
- Newell, Arthur F., to Pneumatic Scale Corporation. Carton magazine and means for loading the same. 3,831,784, Cl. 214-7.000.
- Newkirk, Reginald H. Vibratory cushion. 3,831,591, Cl. 128-33.000.
- Newman, Nicholas S.; Alexander, Robert R.; and Sheldon, Donald A., to Kendall Company, The. Filter media. 3,831,766, Cl. 210-508.000.
- Newton, Alan Branford, to Imperial Chemical Industries Limited. Polysulphones prepared from 3-(4-chlorophenylsulphonyl) phenol and method of preparation. 3,832,331, Cl. 260-49.000.
- Newton, William D., II; and Smith, Darrell L. Overhead light suspension hanger. 3,831,894, Cl. 248-327.000.
- Nicholls, Lawrence George, to Girling Limited. Telescopic gas springs. 3,831,919, Cl. 267-34.000.
- Nicholson, James, to Hickson's Timber Impregnation Co., (G.B.) Limited. Wood-treatment compositions containing hexavalent chromium. 3,832,463, Cl. 424-131.000.
- Nicita, John, to Power Technology Corporation. Gas turbine engine and counterflow heat exchanger with outer air passageway. 3,831,374, Cl. 60-39.51r.
- Nickel, Frank C.; and Swanson, James R., to Sperry Rand Corporation. Partitioning circuit employing external interrupt signal. 3,832,695, Cl. 340-172.500.
- Nickel, Werner, to Leitz, Ernst, GmbH. Exposure control device for photographic cameras. 3,832,723, Cl. 354-51.000.
- Nicodemus, Paul Otis, to General Electric Company. Method of rendering chlorosulfonated polyethylene rubber resistant to adherence of dirt, and the dirt resisting products thereof. 3,832,231, Cl. 117-218.000.
- Nieman, John R.; and Worman, Roger A., to Caterpillar Tractor Co. Casting mold with constricting device. 3,831,662, Cl. 164-362.000.
- Niendorf, Erling H., to Expert Automation, Inc. Current shunt-current relay assembly. 3,832,521, Cl. 219-131.000.
- Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, to Meiji Seika Kaisha, Ltd. Methanephosphinylolethane substituted amid trim of alanine. 3,832,394, Cl. 260-502.500.
- Niimi, Masayasu: See—
Minamihata, Shigeaki; and Niimi, Masayasu, 3,832,572.
- Nilsson, Borje: See—
Karlsson, Gosta; and Nilsson, Borje, 3,832,477.
- Nilsson, Karl Axel: See—
Gysell, Bjorn; Nilsson, Karl Axel; and Nilvid, Gary, 3,832,678.
- Nilvid, Gary: See—
Gysell, Bjorn; Nilsson, Karl Axel; and Nilvid, Gary, 3,832,678.
- Nippon Electric Company, Limited: See—
Matsue, Shigeki, 3,832,699.
- Nippon Keori Co., Ltd., The: See—
Kawakami, Hajime; and Yamamoto, Fumihiko, 3,831,364.
- Nippon Kogaku, K.K.: See—
Takahashi, Tomowaki, 3,832,035.
- Nippon Kokan Kabushiki Kaisha: See—
Ando, Ryo; and Hagiwara, Kokichi, 3,831,913.
- Nippon Steel Corporation: See—
Mori, Keisuke; Yamada, Takehiro; Nakamoto, Katsumi; Onaka, Hiroshi; Yamamoto, Takeshi; and Kato, Taizo, 3,831,918.
- Okada, Hideya; Shimada, Haruo; and Yamamoto, Kazuo, 3,832,166.
- Nippon Telegraph & Telephone Public Corporation: See—
Ishii, Akira, 3,832,698.
- Nishide, Katsuhiko; Yamanouchi, Teruo; and Kinjo, Kikuo, to Canon Kabushiki Kaisha. Photosensitive material for electrophotography. 3,832,172, Cl. 96-1.600.
- Nishikawa, Hideo, to Wada Seiko Kabushiki Kaisha. Rotation preventive device. 3,832,024, Cl. 308-236.000.
- Nishikawa, Masao: See—
Akima, Akira; Nishikawa, Masao; Sato, Makoto; Miyahara, Hiromitsu; and Miyakawa, Yoshitaka, 3,832,095.
- Nishikawa, Takehiko: See—
Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, 3,831,702.
- Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, 3,831,971.
- Nishio, Yasuhiro; Okamoto, Zenichiro; and Hiromoto, Yoshinori, to Mitsubishi Kogyo Kabushiki Kaisha. Electroslag welding process. 3,832,512, Cl. 219-73.000.
- Nissan Motor Company, Limited: See—
Takeuchi, Yasuhisa, 3,831,707.
- Nishin Steel Co., Ltd.: See—
Ohama, Tsuyoshi; and Shinohara, Konosuke, 3,832,136.
- Nixdorf Computer AG: See—
Mohr, Hans; Weigel, Peter; and Metzl, Kurt, 3,831,328.
- NL Industries, Inc.: See—
Libera, John J.; and Trampier, Charles R., Jr., 3,832,206.
- Nogita, Shunsuke; and Kawamoto, Yukio, to Hitachi, Ltd. Method of measuring the flow rate in plural-flow system. 3,831,447, Cl. 73-195.000.
- Nogiwa, Yasuo: See—
Kubo, Moritada; and Nogiwa, Yasuo, 3,832,240.
- Nomiya, Kosei; Minorikawa, Kazuo; Torii, Shuichi; and Hatsukano, Yoshikazu, to Hitachi, Ltd. Static flip-flop circuit. 3,832,578, Cl. 307-279.000.
- Noonan, John M.: See—
Verstraete, Jerome A.; Noonan, John M.; and Neubert, Richard W., 3,832,176.
- Noranda Mines Limited: See—
Themelis, Nicholas John; and McKerrow, George Clement, 3,832,163.
- Nordine, Clifford A. Automatic row marker apparatus. 3,831,706, Cl. 180-98.000.
- Noren, Oscar B.; Garland, Carl C.; and Kwasick, Edmund J., to Parke, Davis & Company. Capsule handling apparatus. 3,831,476, Cl. 83-170.000.
- Norris Industries: See—
Baker, Harold R., 3,832,516.
- North American Electronics Corporation: See—
Boyden, Willis Guild; and Shaw, Richard Astourre, 3,832,623.
- North, Joyce A.; and Kuckro, Gerard W., to National Distillers and Chemical Corporation. Flame retardant compositions. 3,832,326, Cl. 260-42.290.
- North 40 Manufacturing Inc.: See—
Forbes, Alden O., 3,831,558.
- Northrop Corporation: See—
Fairbank, Winthrop H., 3,832,023.
- Northrup, Francis B.; and Hart, Donald R., to Spanco Yarns, Inc. Yarn structure and method of making same. 3,831,369, Cl. 57-144.000.
- Norton Company: See—
Scott, John J., 3,831,857.
- Nose, Yoshio: See—
Fujimura, Hiroshi; Nose, Yoshio; and Kanazawa, Teiichi, 3,832,190.
- Novickis, Georgs: See—
Berkowitz, Lawrence; Novickis, Georgs; and Sheth, Prafulchandra N., 3,831,748.
- Noziere, Jean, to Saint-Gobain Industries, mesne. Method for the expression of expandable granules of thermoplastic materials in particular polystyrene. 3,832,430, Cl. 264-51.000.
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Little, Julian R.; Nudenberg, Walter; and Rim, Yong S., 3,832,422.
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- Nye, James Leroy: See—
Hull, Thomas Neil, Jr.; and Nye, James Leroy, 3,832,086.
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- Oce-Van der Grinten N.V.: See—
Van Herten, Jozef Marie, 3,831,927.
- Oceanetics, Inc.: See—
Wallack, Stanley, 3,832,548.
- Ochoa, Jose Corona. Therapeutic tub for the treatment of burned patients. 3,831,593, Cl. 128-66.000.
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- Ogawa, Akira: See—
Sato, Akira; Ikeda, Tadashi; Ogawa, Akira; Shiba, Keisuke; and Hinata, Masanao, 3,832,184.
- Shiba, Keisuke; Hinata, Masanao; Sato, Akira; Ogawa, Akira; and Ikeda, Takashi, 3,832,189.
- Ogawa, Yasuaki: See—
Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
- Ohama, Tsuyoshi; and Shinohara, Konosuke, to Nisshin Steel Co., Ltd. Double walled tube of high chromium steel. 3,832,136, Cl. 29-191.000.
- Ohashi, Shin-ichi: See—
Ito, Tamotsu; Ohashi, Shin-ichi; and Miyake, Yasuji, 3,832,656.
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Arikawa, Masayasu; Ohi, Atsushi; Arai, Toshio; Iochi, Akihiko; and Kada, Hironosuke, 3,832,522.
- Ohkubo, Kinji: See—
Masuda, Takao; Ohkubo, Kinji; and Shishido, Tadao, 3,832,186.
- Ohler Eisenwerk Theob. Pfeiffer: See—
Finger, Rudolph; Berg, Erich; and Schuppstuhl, Heinz, 3,831,837.
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Kawai, Atsushi; Katsuyama, Takehiro; Suzuki, Migaku; and Ohta, Hidenori, 3,832,281.
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- Okabe, Takahiro: See—
Nagata, Minoru; Okabe, Takahiro; and Masuhara, Toshiaki, 3,832,644.
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Koga, Issac; Kobayashi, Shigeo; and Okamoto, Isao, 3,832,631.
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Yamazaki, Haruo; Akutsu, Hidezo; and Okamoto, Takio, 3,832,590.
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Nishio, Yasuhiro; Okamoto, Zenichiro; and Hiromoto, Yoshinori, 3,832,512.
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- Oki Electric Industry Co., Ltd.: See—
Marutani, Yasumasa, 3,832,537.
- Okumura, Yosio: See—
Onoda, Yoshimitsu; Saito, Kunio; Okumura, Yosio; Okuyama, Toshiaki; and Otazawa, Nobuaki, 3,832,611.
- Okuyama, Toshiaki: See—
Onoda, Yoshimitsu; Saito, Kunio; Okumura, Yosio; Okuyama, Toshiaki; and Otazawa, Nobuaki, 3,832,611.
- Oldani, John Francis: See—
McCrillis, Raymond Lee; Dixon, Richard Hill; and Oldani, John Francis, 3,831,327.
- Oleinik, Alexander Ivanovich: See—
Anikanov, Nikolai Ivanovich; Grachev, Leonid Pavlovich; Goltsman, Samuil Aronovich; Zak, Grigory Iosifovich; Oleinik, Alexander Ivanovich; Radutsky, Grigory Avramovich; Kheifets, Rafail Efimovich; and Baburin, Evgeny Arkadievich, 3,831,781.
- Oleson, Kenneth A.: See—
Kilgore, Lee A.; and Oleson, Kenneth A., 3,831,667.
- Olin Corporation: See—
Hammond, Philip D.; Clarke, William M.; and Denton, William J., 3,832,372.
- McLain, Charles D., 3,831,675.
- Morris, Jack, 3,831,246.
- Olin, John F., to Monsanto Company. Herbicidal acyloxyalkyl anilides. 3,832,383, Cl. 260-469.000.
- Oliver, Wilfred T.: See—
Brittain, William J.; Dobedoe, Thomas J. L.; Mitchell, Raymond; and Oliver, Wilfred T., 3,831,563.
- Oliveto, Eugene Paul: See—
Krubiner, Alan Martin; and Oliveto, Eugene Paul, 3,832,387.
- Olivetti, Ing. C., & C., S.p.A.: See—
Pagella, Elio; and Guerci, Carlo, 3,831,283.
- Olliffe, David William, to M.S.E. Holdings Limited. Centrifuges. 3,832,614, Cl. 318-313.000.
- Olson, Allan M., to Canip Ways Inc. Pack frame with swiveling hip-riders. 3,831,827, Cl. 224-25.00a.
- Olson, Paul E.; and Knight, Homer A., to Westinghouse Air Brake Company. Fluid pressure operable servo positioner. 3,831,490, Cl. 91-387.000.
- Olympus Optical Company Limited: See—
Nakagawa, Jihei, 3,832,037.
- Oman, Gary F., to Johnson Service Company. Multiple precision potentiometer. 3,832,670, Cl. 338-124.000.
- Onaka, Hiroshi: See—
Mori, Keisuke; Yamada, Takehiro; Nakamoto, Katsumi; Onaka, Hiroshi; Yamamoto, Takeshi; and Kato, Taizo, 3,831,918.
- Ondetti, Miguel A.; and Pluscec, Josip, to Squibb, E. R., & Sons, Inc. Peptide enzyme inhibitors. 3,832,337, Cl. 260-112.500.
- O'Neal, George, Jr., to Weltronic Company. Welding control apparatus. 3,832,518, Cl. 219-110.000.
- Oneida Packaging Products, Inc.: See—
Daly, William P.; and Pouliot, Oliver L., 3,831,504.
- Onishi, Kazuo; Yamashita, Seizi; and Sato, Mikio, to Hitachi, Ltd. Method of manufacturing a sleeve armature. 3,831,267, Cl. 29-598.000.
- Onoda, Yoshimitsu; Saito, Kunio; Okumura, Yosio; Okuyama, Toshiaki; and Otazawa, Nobuaki, to Hitachi, Ltd. Cycloconverter type thyristor motor. 3,832,611, Cl. 318-171.000.
- Onton, Aare: See—
Fern, Robert E.; and Onton, Aare, 3,832,558.
- Ooishi, Tadashi: See—
Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Ooishi, Tadashi; Hino, Naganori; and Satomi, Takeo, 3,832,351.
- Oostenbrink, Albertus Anthony, to Industriële Onderneming Wavin N.V. Pipe connection. 3,831,985, Cl. 285-162.000.
- Opderbeck, Rudolph G.; and Mattern, Horst H., to Wacker Corporation. Pneumatic compacting tool. 3,832,081, Cl. 404-133.000.
- Optotechnik Heine KG: See—
Heine, Helmut A., 3,832,042.
- Oram, John Anderson. Multi-beam lighting device. 3,832,539, Cl. 240-41.300.
- Orlandini, Kent A.: See—
Smith, George B.; and Orlandini, Kent A., 3,832,455.
- Orlando, Vincent A.: See—
Marquardt, James F.; and Orlando, Vincent A., 3,832,507.
- Ormiston, Robert B.: See—
Tacke, William H.; Ormiston, Robert B.; and McKay, Robert H., 3,831,330.
- Orozco, Hector Mendoza. Bicycle foot brakes. 3,831,716, Cl. 188-24.000.
- Orr, Alfred Thorburn: See—
Bassett, Marion Geraldine Currie; and Orr, Alfred Thorburn, 3,832,541.
- Orthman, Henry K., to Orthman Manufacturing, Inc. Seedbed and method and means for preparing same. 3,831,536, Cl. 111-1.000.
- Orthman Manufacturing, Inc.: See—
Orthman, Henry K., 3,831,536.
- Osaka Transformer Co., Ltd.: See—
Kitani, Toshiro; and Goto, Hisao, 3,832,523.
- Osi ome, David E.; and Knoerle, Harold M. Self-propelling vehicle. 3,831,977, Cl. 280-229.000.
- Osborne, Duncan William, to Automotive Products Limited. Braking systems for vehicles. 3,832,017, Cl. 303-68.000.
- Osterloff, Kurt; and Ruhrschoff, Georg, to Zahnradfabrik Friedrichshafen AG. All-wheel drive for motor vehicles. 3,831,695, Cl. 180-44.00r.
- Ostrowsky, Daniel: See—
Jacques, Andre; Ostrowsky, Daniel; and Papuchon, Michel, 3,832,567.
- O'Sullivan, Denis J.; and Melody, David P., to Loctite (Ireland) Limited. Cyanoacrylate adhesive compositions having improved thermal resistance. 3,832,334, Cl. 260-78.50r.
- Oswald, Johann: See—
Detemple, Manfred F.; Hubner, Horst; and Oswald, Johann, 3,832,675.
- Otazawa, Nobuaki: See—
Onoda, Yoshimitsu; Saito, Kunio; Okumura, Yosio; Okuyama, Toshiaki; and Otazawa, Nobuaki, 3,832,611.
- Otis Engineering Corporation: See—
Brown, Vernon L.; and Pearce, Joseph L., 3,831,676.
- Othalek, Joseph V.; and Gansser, Robert E., to BASF Wyandotte Corporation. Method of cleaning vehicles with a thickened acid composition. 3,832,234, Cl. 134-4.000.
- Otter Tail Power Company, mesne: See—
Waterman, Fred W.; Katyll, Tadeusz; and Eldridge, Colin C., 3,831,792.
- Ottinger, Jozsef: See—
Minko, Sandor; Banfi, Dezso; Dobis, Emilia; Ottinger, Jozsef; Payer, Karoly; Palagyi, Tivadar; and Turi, Agnes, 3,832,137.
- Over, David J., to Aluminum Company of America. Container support in a capping machine. 3,831,344, Cl. 53-329.000.
- Overman, Joseph De Witt, to Du Pont de Nemours, E. I., and Company. Hardening-release of crosslinking ions from a complex in an emulsion. 3,832,197, Cl. 106-125.000.
- Ovrick, Richard L.: See—
Roberts, John T.; Waller, John G.; Harris, George E.; and Ovrick, Richard L., 3,832,258.
- Ow, Gordon Y. W. Retractable wheel assembly. 3,831,210, Cl. 9-1.00t.
- Owatonna Manufacturing Co., Inc.: See—
Lee, Ronald G., 3,831,427.
- Owens, Clarence C. Auxiliary rear view mirror system. 3,831,896, Cl. 248-479.000.
- Owens-Illinois, Inc.: See—
Bayer, John William, 3,832,335.
- OWston, William J., to Lord Corporation. Fast curing adhesives. 3,832,274, Cl. 161-183.000.
- Oxide, Roy Ronald, to British Iron and Steel Research Association. The Rolling mill work roll assemblies. 3,831,242, Cl. 29-148.40d.
- Oxy Metal Finishing Corporation: See—
Murphy, Donald P., 3,832,305.
- Oy Cyklop AB: See—
Back, Karl Johan, 3,831,511.
- Ozaki, Toshiaki: See—
Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Ooishi, Tadashi; Hino, Naganori; and Satomi, Takeo, 3,832,351.
- Ozawa, Yoshiko: See—
Suzuki, Hideo; Kobayashi, Harumi; Ozawa, Yoshiko; and Kamibayashi, Akira, 3,832,284.
- Pacht, Amos, to Partek Corporation of Huston. Fluid delivery system. 3,831,845, Cl. 239-76.000.
- Pacific Clay Products: See—
Dye, Homer S., 3,832,112.
- Packaging Aids, Inc.: See—

- Coppersmith, Morris, 3,831,824.
Packaging Industries, Inc.: See—
Knaus, Dennis A., 3,831,665.
Page Communications Engineers, Inc.: See—
Affifi, Mostafa S.; and Jacobs, Allan, 3,832,715.
Pagel, Werner: See—
Hoff, Karl Heinz; Kupper, Peter; Meyer, Joseph; Pagel, Werner; Schmitt, Heinz; and Nedelec, Maurice, 3,831,239.
Pagella, Elio; and Guerri, Carlo, to Olivetti, Ing., C., & C., S.p.A. Precision measuring apparatus with guides in pneumostatic bearings. 3,831,283, Cl. 33-174.00r.
Palagyi, Tivadar: See—
Mlinko, Sándor; Banfi, Dezso; Dobis, Emilia; Ottinger, Jozsef; Payer, Karoly; Palagyi, Tivadar; and Turi, Agnes, 3,832,137.
Pap, Geza, to Allied Chemical Corporation. Removal of sulfur compounds from glycolic and alcoholic compounds by solvent extraction. 3,831,348, Cl. 55-73.000.
Papuchon, Michel: See—
Jacques, Andre; Ostrowsky, Daniel; and Papuchon, Michel, 3,832,567.
Par-Way Mfg., Co.: See—
Hanson, Harold W., Jr., 3,831,861.
Parcells, Delbert Arthur, to Keen Industries Ltd. Drilling fluid degassing. 3,831,352, Cl. 55-193.000.
Parke, Davis & Company: See—
Noren, Oscar B.; Garland, Carl C.; and Kwsick, Edmund J., 3,831,476.
Weyers, Hugo Jozef, 3,831,616.
Parker, Joseph D., to Beloit Corporation. Submerged twin wire paper former. 3,832,282, Cl. 162-203.000.
Parker-Hannifin Corporation: See—
Kutina, Thomas J.; Staten, James P.; and Kershaw, Sydney L., 3,831,984.
Leibfritz, Kurt W.; and Malinewski, Lester W., 3,831,953.
Parkinson, Dean B.; and Illing, Irvin A., to McCall Corporation. Composition for coating solid surfaces. 3,832,324, Cl. 260-38.000.
Parshall, George W., to Du Pont de Nemours, E. I., and Company. Catalysis by dispersions of metal halides in molten trihalostannate (II) and trihalogermanate (II) salts. 3,832,391, Cl. 260-497.00a.
Parsons, John M., to General Electric Company. Channel indicator means having replaceable indicia. 3,831,549, Cl. 116-124.100.
Parsons, Joseph R.; and Rechter, Harold L., to Chicago Fire Brick Company. Refractory compositions containing diammonium phosphate. 3,832,193, Cl. 106-65.000.
Partek Corporation of Huston: See—
Pacht, Amos, 3,831,845.
Patel, Hiralal V.; and Liggett, Arthur E., to Weatherhead Company. The Face type O-ring seal groove and method of producing same. 3,831,951, Cl. 277-170.000.
Patent-Freuhand-Gesellschaft fur Elektrische Gluhlampen mbH: See—
Pfaue, Johannes, 3,832,589.
Patrignani, Theo, to Manufacture de Machines du Haut-Rhin. Chain-type jack for handling tensile and compressive loads. 3,831,455, Cl. 74-89.210.
Paul, James T., Jr., to Hercules Incorporated. Process for electrolytic treatment of graphite fibers. 3,832,297, Cl. 204-130.000.
Paul, Kermit, to Fuller Company. Process and apparatus for preheating solid particulate materials. 3,832,128, Cl. 432-17.000.
Pauliukonis, Richard S. Chemical syringe. 3,831,816, Cl. 222-135.000.
Pavement Systems, Inc.: See—
Shearer, Herbert N., 3,832,201.
Pavlica, Stanley Ronald; and Weaver, Ernest Paul, to Dresser Industries, Inc. Binder for high alumina refractory brick. 3,832,194, Cl. 106-65.000.
Pavlik, Michael J.: See—
Eggert, Walter S., Jr.; and Pavlik, Michael J., 3,832,002.
Pavlov, Leonid Viktorovich: See—
Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Alferov, Jury Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Elovich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.
Pawlak, Raymond M.: See—
Deering, Raymond M.; and Pawlak, Raymond M., 3,831,589.
Paxton, Wayne E.; Rishavy, Edward A.; and Currie, James H., to General Motors Corporation. Surface gap spark plug and rotary engine combination. 3,831,562, Cl. 123-8.090.
Payer, Karoly: See—
Mlinko, Sándor; Banfi, Dezso; Dobis, Emilia; Ottinger, Jozsef; Payer, Karoly; Palagyi, Tivadar; and Turi, Agnes, 3,832,137.
Pearce, Joseph L.: See—
Brown, Vernon L.; and Pearce, Joseph L., 3,831,676.
Pearson, Howard Brent, to Johns-Manville Corporation. Method of forming gypsum boards with hardening edges. 3,832,250, Cl. 156-39.000.
Pease, J., Norman. Protective shock absorbing device for goalposts. 3,831,941, Cl. 273-55.00r.
Peddinghaus, Carl Ulrich. Piston for a shock absorber. 3,831,626, Cl. 137-493.800.
Pedler, Richard John, to Camelec Limited. Battery terminal. 3,831,271, Cl. 29-628.000.
Peiters, Leon Andre, to Image Analysing Computers Limited. Information selection in image analysis systems employing line scanning. 3,832,485, Cl. 178-6.800.
Pekrul, Ewald, to Westinghouse Bremsen- und Apparatebau GmbH. Two pipe truck trailer brake system with means for applying front and rear trailer brakes upon pull-in-two. 3,832,016, Cl. 303-40.000.
Peli-Can, Inc.: See—
Kline, Robert H.; and Grosser, Christian E., 3,831,838.
Peller, Henry A., to General Motors Corporation. Steerable tandem axle suspension. 3,831,961, Cl. 280-81.00a.
Pendergast, Lewis A.; and Sorensen, Charles K. Over the shoulder garment carrier bag with hanger hook shield. 3,831,740, Cl. 206-7.00k.
Pennwalt Corporation: See—
Gardella, John M.; Ciavattoni, Anthony; and Kiefer, Robert Albert, 3,831,742.
Groepner, Jurgen; and Sanchez, Jose, 3,832,336.
Humphrey, Dean Edson, 3,831,764.
Perkins, N. Kenneth: See—
Kruspe, Henry R.; and Perkins, N. Kenneth, 3,831,727.
Perlman, Morris, to Carbide Form Grinding Inc. Slide fasteners gapping machine. 3,831,474, Cl. 83-143.000.
Perlman, Sheldon E.; and Ion, John C., to Teleflex Incorporated. Apparatus for assembling roller bearing remote control cables. 3,831,249, Cl. 29-201.00r.
Perr, Julius P.; and Muntean, George L., to Cummins Engine Company, Inc. Fuel injector. 3,831,846, Cl. 239-89.000.
Perry, Roger L., to Gillette Company. The Method of razor blade unit assembly. 3,832,432, Cl. 264-249.000.
Perulfi, John R.: See—
Tragesser, Charles W.; and Perulfi, John R., 3,832,482.
Peterson, William Hartin, to Pullman Incorporated. Passenger car switching device. 3,831,527, Cl. 104-130.000.
Petit, Parker H. Respiration monitor. 3,831,586, Cl. 128-2.00r.
Petrilla, Anthony D.; and Smith, Edwin B., to United States of America, Navy, mesne. Noise injection implementation for constant false alarm rate radar. 3,832,710, Cl. 343-5.0sm.
Petsch, Harold A., to Chaska Chemical Company, Inc. Cleaning apparatus. 3,832,069, Cl. 401-289.000.
Petty, Johnny M., to Ford Motor Company. Load cell. 3,831,441, Cl. 73-141.00a.
Pfau, Jean; Marendaz, Georges-Andre; and Rhyner, Heinz, to Ateliers des Charmilles S.A. Pulse generator for EDM machine. 3,832,510, Cl. 219-69.00c.
Pfaue, Johannes, to Patent-Freuhand-Gesellschaft fur Elektrische Gluhlampen mbH. High-pressure metal vapor discharge lamps, particularly sodium vapor lamps with hermetic seal. 3,832,589, Cl. 313-217.000.
Pfizer Inc.: See—
Praglin, Julius; McKie, James E., Jr.; Curtiss, Alan C.; and Longhenry, David K., 3,832,532.
Phares, Lindsey J.; and Gendron, George J., to Raymond International Inc. Driving of hollow tubular members. 3,831,386, Cl. 61-53.540.
Phelps Dodge Industries, Inc.: See—
Nesslage, Donald J.; and Yu, Lin S., 3,832,241.
Phelps, Richard W.; and Tetro, Richard S., to Black Clawson Company, The. Continuous unwinding apparatus for web material. 3,831,876, Cl. 242-58.300.
Philco-Ford Corporation: See—
Pithie, David J., 3,831,663.
Phillips, Duane, to Armour and Company. Method and apparatus for shredding cheese. 3,831,866, Cl. 241-63.000.
Phillips, James Curt. Rotary cutter-slitter for high speed bursting apparatus. 3,831,480, Cl. 83-481.000.
Phillips Petroleum Company: See—
Hann, Paul D., 3,832,272.
Phipps, Dennis, to Cambrian Housewares Limited. Spring balance mechanism. 3,831,688, Cl. 177-229.000.
Pijpers, Franciscus W.: See—
Kouwenhoven, Herman W.; Pijpers, Franciscus W.; and Campagne, Nicolaas Van Lookeren, 3,832,445.
Pike, Herbert J., to Stevens, J. P., & Co., Inc. Apparatus and process for air texturizing of yarns. 3,831,363, Cl. 57-34.00b.
Pike, John E.: See—
Lincoln, Frank H., Jr.; and Pike, John E., 3,832,379.
Pilat, Peter, to National State Bank, The, mesne. Coin wrapping machine. 3,831,783, Cl. 214-7.000.
Pillsbury Company, The: See—
Rejsa, Jack J., 3,831,342.
Rodgers, Nelson E.; and Durst, Jack R., 3,832,472.
Pilon, Howard M.; Sattavara, Sven W.; and Schechter, Michael M., to Ford Motor Company. Power steering gear actuator. 3,831,701, Cl. 180-79.20r.
Pimbley, Walter T.: See—
Meier, Johann H.; and Pimbley, Walter T., 3,832,719.
Pinnow, Kenneth E.; Mehta, J. M.; and Moskowitz, A., to Crucible Inc. Stainless steel. 3,832,244, Cl. 148-37.000.
Pioneer Electronic Corporation: See—
Yamauro, Isao; and Tamura, Masahiko, 3,832,580.
Piper, Harlow H.: See—
Nelson, Nels S.; and Piper, Harlow H., 3,831,226.
Piqua Aircraft Company: See—
Hartzell, James R., 3,831,615.
Piralli, Louis. Readily releasable clamped spline joint. 3,831,339, Cl. 52-758.00d.
Pirovano, Camillo. Separating apparatus with a drive for the conveyor. 3,831,751, Cl. 209-247.000.
Pisarevskaya, Silvia Izrailevna: See—

- Mikhailov, Valery Mikhailovich; and Pisarevskaya, Silvia Izrailevna, 3,832,509.
Pithie, David J., to Philco-Ford Corporation. Air conditioner. 3,831,663, Cl. 165-26.000.
Pitkethl, Robert Chalmers: See—
Allum, Keith George; Hancock, Ronald David; McKenzie, Samuel; and Pitkethl, Robert Chalmers, 3,832,404.
Pittenger, Harold M., to Wheatley, Charles, Inc. Gas sampler. 3,831,452, Cl. 73-421.50r.
Pittman, Gary L., to Frank, G. B., Incorporated. Portable imprinter. 3,831,518, Cl. 101-368.000.
Pittman, Gloucester R. Fish lure with fish attracting rattle. 3,831,307, Cl. 43-42.310.
Pitzele, Barnett: See—
Baran, John S.; and Pitzele, Barnett, 3,832,382.
Placko, Milan: See—
Campbell, Roger W.; Aukmanis, Edvards B.; and Placko, Milan, 3,831,963.
Campbell, Roger W.; Aukmanis, Edvards B.; and Placko, Milan, 3,831,964.
Planche, Jean, to Schlumberger Technology Corporation. Apparatus for intercoupling well tool sections having electrical and fluid lines. 3,831,443, Cl. 73-152.000.
Pleven, Edward John: See—
Jaffe, Gerald Myer; and Pleven, Edward John, 3,832,355.
Plotzke, Thomas J., to Johnson Die & Engineering Co. Chucking device. 3,831,955, Cl. 279-2.00a.
Plumb, William H., to National Gypsum Company. Method of coating plastic foam scrap. 3,832,220, Cl. 117-100.00c.
Plunk, Troy E.; and Laramée, Richard J., to Raytheon Company. Radio frequency slot antenna. 3,832,716, Cl. 343-770.000.
Pluscec, Josip: See—
Ondetti, Miguel A.; and Pluscec, Josip, 3,832,337.
Pneumatic Scale Corporation: See—
Newell, Arthur F., 3,831,784.
Podiak, Richard S., to Champion Spark Plug Company. Spark plug. 3,832,586, Cl. 313-118.000.
Pogson, John T., to Boeing Company, The. Heat pipe interfaces. 3,831,664, Cl. 165-80.000.
Polaroid Corporation: See—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,832,048.
Cerankowski, Leon D.; and Mattucci, Neil, 3,832,173.
Cook, Russell P., 3,832,720.
Cook, Russell P., 3,832,725.
Deeran, Robert H., 3,832,044.
Douglas, Lawrence M., 3,832,722.
Erlachman, Irving, 3,832,721.
Finelli, Patrick L., 3,832,726.
Fitzgerald, Maurice J., 3,832,185.
Kinsman, Gordon F., 3,832,731.
Land, Edwin H., 3,832,031.
Reynard, John M., 3,831,301.
Rogers, Howard G.; and Taylor, Lloyd D., 3,832,183.
Seiden, Myron A., 3,832,727.
Shaw, Elliott N., 3,832,198.
Pollard, Ernest M., to General Electric Company. Control means with redundant oscillators and a special starting scheme for periodically firing electric valves. 3,832,619, Cl. 321-5.000.
Pollard, Ernest M., to General Electric Company. Regulating mode selector scheme for an electric power converter. 3,832,620, Cl. 321-5.000.
Pollet, Robert Joseph: See—
Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poot, Albert Lucien; and Pollet, Robert Joseph, 3,832,171.
Polleys, Herbert R., to Wellman Company. Coupling device for a cutting machine. 3,831,479, Cl. 83-280.000.
Pollin, Irvin, to United States of America, Army. Missile device responsive to aerodynamic conditions. 3,831,524, Cl. 102-70.20p.
Pont-A-Mousson S.A.: See—
Delorme, Pierre Claude Marcel, 3,832,116.
Poole, Harold George. Towing connections. 3,831,981, Cl. 280-479.00r.
Poot, Albert Lucien: See—
Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poot, Albert Lucien; and Pollet, Robert Joseph, 3,832,171.
Pope, John E.; and Main, Jack H., to Pope Manufacturing, Inc. Fish lure. 3,831,312, Cl. 43-42.170.
Pope Manufacturing, Inc.: See—
Pope, John E.; and Main, Jack H., 3,831,312.
Poplawski, Eugene M., to Caterpillar Tractor Co. Tire removal means. 3,831,658, Cl. 152-427.000.
Popplewell, Frank William, to Dunlop Limited. Shuttlecocks. 3,831,943, Cl. 273-106.00a.
Poque, Dionysius Josef: See—
Senger, Gerhard Franz-Josef; and Poque, Dionysius Josef, 3,831,656.
Porte, Pierre, to Societe Rhodiaca. Agricultural substrates. 3,831,317, Cl. 47-58.000.
Portmann, Jacques: See—
Reboul, Jean Philippe; and Portmann, Jacques, 3,832,706.
Posch, Heinz; Nauert, Wolfgang; and Lohner, Werner, to AMIANTU AG. Installation for forming molded members of fibrous material. 3,832,108, Cl. 425-85.000.
Pottebaum, Joseph R., to Production Measurements Corporation. Engine timer. 3,832,628, Cl. 324-16.00r.
Potter, Harland C.: See—
Wieken, Robert H.; and Potter, Harland C., 3,832,144.
Pouliot, Oliver L.: See—
Daly, William P.; and Pouliot, Oliver L., 3,831,504.
Poupitch, Ougjesa Jules, to Illinois Tool Works, Inc. Extruded plastic container carrier stock and methods for producing the same. 3,831,741, Cl. 206-150.000.
Power Technology Corporation: See—
Nicita, John, 3,831,374.
Power Wheels Corporation: See—
MacKew, James, 3,831,694.
Powers Manufacturing, Inc.: See—
Sheets, Richard S., 3,831,437.
PPG Industries, Inc.: See—
Bowser, George H.; and Mazzoni, Renato J., 3,832,254.
Chang, Wen-Hsuan; and Scriven, Roger L., 3,832,333.
Prab Conveyors, Inc.: See—
Larson, Charles R., 3,832,235.
Praglin, Julius; McKie, James E., Jr.; Curtiss, Alan C.; and Longhenry, David K., to Pfizer Inc. Method and apparatus for testing antibiotic susceptibility. 3,832,532, Cl. 235-151.300.
Praude, Marie-Helene, nee Durupt. Anti-fermentation and neutralizing aqueous solution for the purification of waters, drinks and/or the preservation of liquid or solid foods. 3,832,294, Cl. 252-175.000.
Precision Valve Corporation: See—
Focht, John Richard, 3,831,804.
Focht, John Richard, 3,831,820.
Presley, C. Travis; and Smith, Ronald E., to Marathon Oil Company. Stimulation with inhibited acidizing fluids. 3,831,679, Cl. 166-307.000.
Price, Gordon L.: See—
Flynn, Robert E.; and Price, Gordon L., 3,831,765.
Price, Rex. Apparatus for cleaning used bricks. 3,831,577, Cl. 125-26.000.
Process Evaluation and Development Corporation: See—
Villavicencio, Eduardo J., 3,832,278.
Production Measurements Corporation: See—
Pottebaum, Joseph R., 3,832,628.
Proebsting, Robert J., to Texas Instruments, Incorporated. Encoder circuit for reduce pin count for data entry into insulated gate field effect transistor integrated circuits. 3,832,576, Cl. 307-209.000.
Properzi, Ilario. Safety device for rolling mills. 3,831,410, Cl. 72-5.000.
Propper Manufacturing Co., Inc.: See—
Heine, Helmut A., 3,832,042.
Prygrocki, Bohdan, to Remsoh Enterprises Ltd. Carburetion atomizer screen for inlet manifold systems. 3,832,152, Cl. 48-180.00c.
Pullman Incorporated: See—
Hutchison, John W.; and Stark, Marvin, 3,831,803.
Peterson, William Hartin, 3,831,527.
Pumm, Paul P.: See—
Grosvenor, Clifford Ray; Resch, Ronald R.; and Pumm, Paul P., 3,832,571.
Purdy, Harold Lawrence, to AMP Incorporated. Method of making selective switch contacts. 3,831,272, Cl. 29-630.00r.
Putzmeister Interholding GmbH: See—
Schlecht, Karl, 3,832,097.
Quepor S.A.: See—
Dominici, Antonio, 3,831,343.
Quiquerez, Joseph: See—
Kennel, Michael; and Quiquerez, Joseph, 3,832,200.
Rachlin, Israel: See—
Gurien, Harvey; Rachlin, Israel; and Teitel, Sidney, 3,832,397.
Radutsky, Grigory Avramovich: See—
Anikanov, Nikolai Ivanovich; Grachev, Leonid Pavlovich; Goltzman, Samuil Aronovich; Zak, Grigory Iosifovich; Oleinik, Alexandr Ivanovich; Radutsky, Grigory Avramovich; Kheifets, Rafail Efimovich; and Baburin, Evgeny Arkadievich, 3,831,781.
Rafferty, Edson H.: See—
Kletschka, Harold D.; and Rafferty, Edson H., 3,831,608.
Rainville Company, Inc.: See—
Rainville, Dewey, 3,832,101.
Rainville, Dewey, to Rainville Company, Inc. Modular construction multi-station molding apparatus. 3,832,101, Cl. 425-242.00b.
Ramey, Bobbie Joe; and Moss, Philip Hotchkiss, to Jefferson Chemical Company, Inc. Thixotropic B-component for polyurethane elastomers. 3,832,323, Cl. 260-37.00n.
Ramillon, Rene. Safety toe-end device for ski binding. 3,831,957, Cl. 280-11.35t.
Rampe, John F., to Rampe Research. Continuous feed vibratory finishing machine with discharge rate controlled by operation of tube discharge closure. 3,831,322, Cl. 51-163.000.
Rampe Research: See—
Rampe, John F., 3,831,322.
Ranallo, Henry U.; and LeBreton, Edward T., to Structural Fibers, Inc. Sprue sealer. 3,832,109, Cl. 425-112.000.
Rapistan Incorporated: See—
Redlichs, Augusts V., 3,831,528.
Raschle, Josef, to Heberlein & Co. AG. Device for false-twist texturing of textile yarns. 3,831,366, Cl. 57-77.450.
Rawlings, Clifford Max. Interior cap liner. 3,831,230, Cl. 27-19.000.
Rawlins, Stephen L.: See—
Hoffman, Glenn J.; and Rawlins, Stephen L., 3,831,435.
Raymond International Inc.: See—

- Phares, Lindsey J.; and Gendron, George J., 3,831,386.
Raymond, Robert E., to International Basic Economy Corporation. Hydraulic pump. 3,832,094, Cl. 417-222.000.
Raytheon Company: See—
Grant, George H.; and Hadad, Joseph D., 3,832,711.
Plunk, Troy E.; and Laramie, Richard J., 3,832,716.
Van Heyningen, Arent H.; and Engelhardt, Bjorn H., 3,832,643.
RCA Corporation: See—
Dietz, Wolfgang Friedrich Wilhelm, 3,832,595.
Hovagimyan, Norman; and Rosenblatt, Murray, 3,832,495.
Narayan, Subrahmanyam Yegna, 3,832,651.
Upadhyayula, Chainulu Lakshminarasimha; and Narayan, Subrahmanyam Yegna, 3,832,652.
Reboul, Jean Philippe; and Portmann, Jacques, to Thomson-CSF. Gas discharge display panels having conditioning cells. 3,832,706, Cl. 340-324.00m.
Rechter, Harold L.: See—
Parsons, Joseph R.; and Rechter, Harold L., 3,832,193.
Rederiaktiebolaget Nordstjernan: See—
Svanstrom, Elis Kjell Ake, 3,832,157.
Redlichs, August V., to Rapiatan Incorporated. Pressure relieved trolley stop for conveyors. 3,831,528, Cl. 104-252.000.
Reed Manufacturing Company: See—
Bjalm, Bengt G.; and Brown, Thomas G., 3,831,256.
Rehlander, Conn., to Land O'Frost, Inc. Grouping and stacking attachment for slicing machine. 3,831,471, Cl. 83-91.000.
Reiff, Karl: See—
Lixenfeld, Manfred; and Reiff, Karl, 3,831,379.
Reigler, Paul F.; and Lamoria, Lz F., to Dow Chemical Company. The. Preparation of beryllium hydride etherate. 3,832,407, Cl. 260-615.00b.
Rein, Charles R., to United States of America, Navy. Life support system. 3,831,594, Cl. 128-142.000.
Reinhold, Donald F.; Slettinger, Meyer; and Firestone, Raymond A., to Merck & Co., Inc. 2-Acetamido-2-(3,4-dioxybenzyl)-3-hydroxypropionitriles. 3,832,377, Cl. 260-465.00d.
Reinig, Irvine G., II: See—
Rutkowski, Edward J.; Dawdy, Jack A.; Hause, Robert F.; and Reinig, Irvine G., II, 3,831,334.
Reinsma, Harold L.; and Iverson, Lowell P., to Caterpillar Tractor Co. Dual seal arrangement for a spherical joint. 3,832,022, Cl. 308-36.100.
Reintjes, Marten; and Starr, Laurence Dean, to International Telephone and Telegraph Corporation. Water soluble films from hemi-cellulose. 3,832,313, Cl. 260-9.000.
Reitboeck, Herbert J. P.; and Brody, Thomas F. Object identifying apparatus. 3,832,530, Cl. 235-61.11h.
Rejsa, Jack J., to Pillsbury Company. The. Method and apparatus for forming sift proof glued flap seals for cartons. 3,831,342, Cl. 53-47.000.
Rekarek, Joseph C.: See—
Larsen, Larry D.; Rekarek, Joseph C.; Kompelien, Arlon D.; and Rork, Gerald D., 3,832,552.
Reliance Electric Company: See—
Means, David K.; and Luther, Thomas M., 3,832,689.
Remsoh Enterprises Ltd.: See—
Prygrocki, Bohdan, 3,832,152.
Renault, Philippe; Deschamps, Andre; and Dezael, Claude, to Institut Francais du Pétrole, des Carburants et Lubrifiants. Process for manufacturing sulfur from a gas containing hydrogen sulfide and sulfur dioxide. 3,832,454, Cl. 423-574.000.
Rendall, John S.; Rhyne, William Q.; and Williams, Arthur, to Richen Co., Inc. The. Process for heat treating multi-component yarns. 3,831,233, Cl. 28-72.170.
Rengo Co., Ltd.: See—
Tokuno, Masateru, 3,831,502.
Repsher, Robert W.; Tarleton, William A.; and Wilson, William E., to Westinghouse Electric Corporation. Phosphor suspension containing hydroxyethyl cellulose. 3,832,199, Cl. 106-183.000.
Resch, Ronald R.: See—
Grosvenor, Clifford Ray; Resch, Ronald R.; and Pumm, Paul P., 3,832,571.
Research Corporation: See—
Jacobs, Alan M.; and Kenney, Edward S., 3,832,562.
Vanderklaauw, Peter M., 3,831,902.
Reszka, Alfons: See—
Alexander, Thomas Theron; Reszka, Alfons; and Stenerson, Charles Keith, 3,832,637.
Rexnord, Inc.: See—
MacMaster, Edward; and Gley, Paul R., 3,831,224.
Reynard, John M., to Polaroid Corporation. Photograph album page. 3,831,301, Cl. 40-104.180.
Reynolds, Richard G.: See—
McVoy, David S.; and Reynolds, Richard G., 3,832,690.
Rezac, Howard D. Self-unloading structure for wagon boxes. 3,831,785, Cl. 214-8.50g.
Rhone-Poulenc S.A.: See—
Breyse, Jacques; and Roget, Jean, 3,831,763.
Rhone-Poulenc-Textile: See—
Sartori, Roland, 3,831,869.
Rhyne, William Q.: See—
Rendall, John S.; Rhyne, William Q.; and Williams, Arthur, 3,831,233.
Rhyner, Heinz: See—
Pfau, Jean; Marendaz, Georges-Andre; and Rhyner, Heinz, 3,832,510.
Rich, Hubert A.: See—
Bass, Sidney; and Rich, Hubert A., 3,831,314.
Richard, Clyde C., Jr.; and Vranos, Alexander, to United Aircraft Corporation. Piloting flameholder for jet engine. 3,831,375, Cl. 60-39.72r.
Richards, Gerald F.: See—
Joray, Marvin L.; Blake, Nathan L.; and Richards, Gerald F., 3,831,325.
Richen Co., Inc.: See—
Rendall, John S.; Rhyne, William Q.; and Williams, Arthur, 3,831,233.
Richens, Robert H.; and Garner, Charles A., to Cole National Corporation. Key vise gauge. 3,831,488, Cl. 90-13.005.
Richert, Karl Hartwig: See—
Windemuth, Erwin; Dahm, Manfred; Richert, Karl Hartwig; and Maaben, Dieter, 3,832,311.
Richmond, J. Kenneth, to Rocket Research Corporation. Explosion detection and suppression method and apparatus. 3,831,318, Cl. 49-31.000.
Richter, David H.: See—
Dasgupta, Sumit; Richter, David H.; and Takayasu, Ted T., 3,832,575.
Rickle, Samuel S.: See—
Jennings, Lewis C.; and Rickley, Samuel S., 3,832,021.
Ricoh Co. Ltd.: See—
Abe, Takeshi, 3,832,528.
Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Harada, Masahide, 3,832,349.
Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Tamura, Hiroshi, 3,832,350.
Ridgway, Malcolm G., to United States of America, Atomic Energy Commission. Implantable blood pumping system. 3,831,203, Cl. 3-1.000.
Riedel-De Haen Aktiengesellschaft: See—
Liebig, Horst; and Dransch, Gunter, 3,832,374.
Rikagaku Kenyusho: See—
Sugimoto, Mitsuo; Funaki, Koemon; and Saeki, Yuzo, 3,832,457.
Rim, Yong S.: See—
Little, Julian R.; Nudenberg, Walter; and Rim, Yong S., 3,832,422.
Rindner, Wilhelm, to Device Research Inc. Pressure sensing device. 3,831,588, Cl. 128-2.05e.
Ringland, William L.: See—
Gilmore, Thomas P.; Ringland, William L.; and Geiersbach, Alloys F., 3,832,624.
Rishavy, Edward A.: See—
Paxton, Wayne E.; Rishavy, Edward A.; and Currie, James H., 3,831,562.
Ritchie, Kim, to Motorola, Inc. Liquid silica source for semiconductors. 3,832,202, Cl. 106-287.0se.
Ritter, Hans-Georg; and Weiser, Ulrich, to Wean United, Inc. Stretch-reducing rolling mill. 3,831,417, Cl. 72-235.000.
Rivat-Lahousse, Andre, to Saint-Gobain. Apparatus for the production of shaped articles of expanded cohered granules of thermoplastic material, in particular polystyrene. 3,832,106, Cl. 425-4.000.
River, Charles, Foundation, Trustees of the: See—
Merrill, Edward W., 3,832,458.
Roberts, John Francis Lloyd: See—
Harris, Eric Frank; and Roberts, John Francis Lloyd, 3,832,436.
Roberts, John S., to Westinghouse Electric Corporation. Light-activated lateral thyristor and AC switch. 3,832,732, Cl. 357-19.000.
Roberts, John T.; Waller, John G.; Harris, George E.; and Overick, Richard L., to Grace, W. R., & Co. Method and apparatus for applying film-like material to objects. 3,832,258, Cl. 156-257.000.
Roberts, Thomas G., to United States of America, Navy. Supersonic chemical transfer laser. 3,832,650, Cl. 331-94.50p.
Robertson, Arthur J., Sr.: See—
Burdges, Kenneth P.; and Robertson, Arthur J., Sr., 3,831,886.
Robinson, Charles B., 20% to Lee, Raymond, Organization, Inc., The. Combination office furniture. 3,832,001, Cl. 297-188.000.
Rocco, William A.: See—
Wentorf, Robert H., Jr.; and Rocco, William A., 3,831,428.
Rocket Research Corporation: See—
Richmond, J. Kenneth, 3,831,318.
Rockwell International Corporation: See—
Fosness, John P., 3,831,887.
Frankel, Milton B.; and Witucki, Edward F., 3,832,390.
Rockwell Manufacturing Company: See—
Calcaro, Louis A., 3,831,682.
Rodewald, Paul Gerhard: See—
Heiba, El-Ahmadi; and Rodewald, Paul Gerhard, 3,832,367.
Rodgers, Aubrey: See—
Widner, Rayburn K.; and Rodgers, Aubrey, 3,831,323.
Rodgers, Nelson E.; and Durst, Jack R., to Pillsbury Company, The. Wheat product. 3,832,472, Cl. 426-148.000.
Rodgers, Robert E., to Stant Manufacturing Company, Inc. Pressure-vacuum valved cap. 3,831,801, Cl. 220-39.00r.
Rodi, Anton: See—
Leiber, Heinz; and Rodi, Anton, 3,832,008.
Roebke, Neal E.: See—
Seim, Howard N.; and Roebke, Neal E., 3,832,494.

- Roediger, Deborah Lynn. Intravenous safety device. 3,831,625, Cl. 137-377.000.
Rogers, Howard G.; and Taylor, Lloyd D., to Polaroid Corporation. Polymer encapsulated silver halide grains. 3,832,183, Cl. 96-77.000.
Rogers, Thomas: See—
Boyle, Kenneth Hector McKinnon; and Rogers, Thomas, 3,831,590.
Roget, Jean: See—
Breyse, Jacques; and Roget, Jean, 3,831,763.
Rohe Scientific Corporation: See—
Kessell, Archie, 3,831,601.
Rohlfing, Raymond A., to Gates Rubber Company, The. Method of preparing a bias fabric. 3,832,210, Cl. 117-4.000.
Rohm and Haas Company: See—
Smith, Clarence R., 3,832,268.
Stock, Arthur; and Baxter, Alan William (said Stock assor. to), 3,832,406.
Rokk, Juri Khindrekovich: See—
Aarna, Agu Yanovich; Kiisler, Karl Ritsoyich; Kristyanson, Peep Gerkhardovich; Tanner, Juri Albert-Mikhaelovich; Vabaoya, Juri Felixovich; Vaitsenberg, Gershonovich; Rokk, Juri Khindrekovich; and Matvere, Toomas Oskarovich, 3,832,251.
Rolair Systems, Inc.: See—
Burdick, Robert E.; Baker, Terry M.; and Wolfe, Baxter K., 3,831,525.
Roland Offsetmaschinenfabrik Faber & Schleicher AG: See—
Conrad, Karl, 3,831,932.
Rolleman, Jack, to Salvage Oil Systems Ltd. Apparatus for salvaging oil from sunken vessels. 3,831,387, Cl. 61-69.00a.
Rollender, William; and Beckford, Orville A. Enteric bacilli differential media. 3,832,288, Cl. 195-139.000.
Romney, Russell H. Explosive booster and container therefor. 3,831,522, Cl. 102-24.00r.
Ronnen, Uri G.: See—
Carlson, Norman R.; and Ronnen, Uri G., 3,832,533.
Rork, Gerald D.: See—
Larsen, Larry D.; Rekarek, Joseph C.; Kompelien, Arlon D.; and Rork, Gerald D., 3,832,552.
Rose, Edward A., Jr.: See—
Lenert, Richard W.; and Rose, Edward A., Jr., 3,832,703.
Rose, John Brewster: See—
Dixon, David Rodney; Rose, John Brewster; and Turton, Cecil Nigel, 3,832,330.
Rosenblatt, Murray: See—
Hovagimyan, Norman; and Rosenblatt, Murray, 3,832,495.
Rosenthal, Joel W.: See—
Kozlowski, Robert H.; and Rosenthal, Joel W., 3,832,149.
Rosinski, Edward J.; and Rubin, Mae K., to Mobil Oil Corporation. Crystalline zeolite ZSM-12. 3,832,449, Cl. 423-328.000.
Ross Bros. (London) Limited: See—
Walden, Rex Keith; Tompkins, Arthur Henry; and Ross, Harold Abraham, 3,831,744.
Ross, Harold Abraham: See—
Walden, Rex Keith; Tompkins, Arthur Henry; and Ross, Harold Abraham, 3,831,744.
Rossler, Heinz: See—
Antonik, Julius, 3,831,776.
Rotenburg, Alexandr Aronovich: See—
Selivanov, Anatoly Grigorievich; Makachev, Nikolai Ivanovich; Titov, Dmitry Vladimirovich; and Rotenburg, Alexandr Aronovich, 3,831,638.
Roth, Charles, to Keene Corporation. Lamp mounting for high intensity light fixture. 3,832,540, Cl. 240-51.11r.
Rothman, Edward S.; and Serota, Samuel, to United States of America, Agriculture. Process for equilibrating allene and methylacetylene and for recovery of pure allene from the equilibrium mixture. 3,832,415, Cl. 260-678.000.
Rothweiler, Alfred: See—
Uhlenhaut, Rudolf; Rothweiler, Alfred; and Waxenberger, Erich, 3,831,967.
Roto Manufacturing, Inc.: See—
Breton, Roger J.; and Beck, David F., 3,831,515.
Roush, Maurice D.: See—
Cray, Seymour R.; and Roush, Maurice D., 3,832,603.
Roussel-UCLAF: See—
Hainaut, Daniel; Toromanoff, Edmond; and Demoute, Jean-Pierre, 3,832,353.
Rowe, Edgar R.; and Terlop, Robert R., to Van Dorn Company. Container sealing lid. 3,831,798, Cl. 215-256.000.
Royal Medical Corporation: See—
Mueller, Fritz Kurt; Martin, Billy Otis; and Cherry, Robert, 3,832,669.
Roymoulik, Sunanda K.; and Brown, Kenton J., to International Paper Company. Delignification and bleaching of a cellulose pulp slurry with oxygen. 3,832,276, Cl. 162-65.000.
Royon, Rene; and Thillardon, Georges. Arrangement for aligning fabric material during rolling-up and unrolling operations. 3,831,828, Cl. 226-16.000.
Rubaud, Gerard Rene, to International Ski Service Establishment. Apparatus for renovating skis. 3,832,262, Cl. 156-468.000.
Rubin, David, to United States of America, Navy. Microwave phase shifting apparatus. 3,832,713, Cl. 343-100.0sa.
Rubin, Mae K.: See—
Rosinski, Edward J.; and Rubin, Mae K., 3,832,449.
Rubner, Roland: See—
Kleeberg, Wolfgang; Rubner, Roland; and Kuehn, Eberhard, 3,832,187.
Ruhle, Helmut W., to Esso Research and Engineering Company. Disproportionation process. 3,832,417, Cl. 260-683.00d.
Ruhrschopf, Georg: See—
Osterloff, Kurt; and Ruhrschopf, Georg, 3,831,695.
Rump, John H.; and Smith, Joseph E., to Monsanto Company. Container which is nestable without sticking. 3,831,745, Cl. 206-520.000.
Runck, Alan H.; and Valeri, Cesare Robert, to United States of America, Navy. Linear gradient generator. 3,832,139, Cl. 23-253.00r.
Russek, Henry Irving. Treatment of angina pectoris with a long-acting vasodilating agent and a beta adrenergic receptor blocking agent. 3,832,470, Cl. 424-330.000.
Russell, Thomas E.: See—
Califano, Frank L.; Stepien, George, Jr.; and Russell, Thomas E., 3,831,382.
Rutenberg, Morton W.; Tessler, Martin M.; and Kruger, Leo, to National Starch and Chemical Corporation. Inhibited starch products containing labile and non-labile cross-links. 3,832,342, Cl. 260-233.500.
Rutkowski, Edward J.; Dawdy, Jack A.; Hause, Robert F.; and Reinig, Irvine G., II, to National Gypsum Company. Plastic wall trim. 3,831,334, Cl. 52-287.000.
Ryan, James Ernest, to Imperial Chemical Industries Limited. Articles having integral transparent or translucent panels. 3,832,428, Cl. 264-48.000.
Ryba, Charles J.: See—
Shirek, Daniel E.; Shirek, Robert J.; and Ryba, Charles J., 3,832,093.
S. A. Automobiles Citroen: See—
Grosseau, Albert, 3,832,010.
S. R. C. Laboratories, Inc.: See—
Mocarski, Zenon R., 3,831,855.
Sabherwal, Inderjit: See—
Briskin, Theodore S.; Schnautz, Norman G.; and Sabherwal, Inderjit, 3,831,609.
Sable, Arthur J., to Sable Photo Works, Inc. Photographic print timer. 3,832,054, Cl. 355-35.000.
Sable Photo Works, Inc.: See—
Sable, Arthur J., 3,832,054.
Sachs, Carrol C. Pneumatic means for production of molded structures. 3,831,898, Cl. 249-65.000.
Saddler, Ivan R.; and Fisher, John A., to Motorola, Inc. Process for manufacturing integrated circuits. 3,832,247, Cl. 148-175.000.
Saeki, Yuzo: See—
Sugimoto, Mitsuo; Funaki, Koemon; and Saeki, Yuzo, 3,832,457.
Sahaydak, Miroslaw, to Warner-Lambert Company. Maintenance of flavor integrity in pressed mint assortments. 3,832,473, Cl. 426-175.000.
Saint-Gobain: See—
Rivat-Lahousse, Andre, 3,832,106.
Saint-Gobain Industries: See—
Bezombes, Albert, 3,832,153.
Hoff, Karl Heinz; Kupper, Peter; Meyer, Joseph; Pagel, Werner; Schmitt, Heinz; and Nedelec, Maurice, 3,831,239.
Saint-Gobain Industries, mesne: See—
Charpentier, Maurice, 3,832,429.
Noziere, Jean, 3,832,430.
Saito, Kunio: See—
Onoda, Yoshimitsu; Saito, Kunio; Okumura, Yosio; Okuyama, Toshiaki; and Otazawa, Nobuaki, 3,832,611.
Saito, Takashi: See—
Nagamatsu, Katsumi; and Saito, Takashi, 3,832,170.
Saito, Takeshiro: See—
Imamura, Juichi; Wakasa, Ryoichi; Saito, Takeshiro; and Ishikawa, Tomeyoshi, 3,832,392.
Sakai, Hiroshi; Yamashita, Hisateru; and Tanaka, Toshihiro, to Kabushiki Kaisha Komatsu Seisakusho. Fully-automatic upsetting machine. 3,831,411, Cl. 72-10.000.
Salvage Oil Systems Ltd.: See—
Rolleman, Jack, 3,831,387.
Sanborn, Ralph D.: See—
Bowen, Russell J.; Ford, William B., Jr.; Sanborn, Ralph D.; Sawyer, Winslow A.; Sharp, John R.; Soini, Herbert E.; Lambert, Benjamin A.; and Lull, David B., 3,831,520.
Sanchez, Jose: See—
Groepner, Jurgen; and Sanchez, Jose, 3,832,336.
Sandco Limited, mesne: See—
Ekemar, Carl Sven Gustaf, 3,832,221.
Sandoz Ltd.: See—
Gadient, Fulvio; Stoll, Andre; and Suess, Rudolf, 3,832,354.
Sanford, Robert J. Multi-purpose real-time holographic polariscope. 3,831,436, Cl. 73-88.00a.
Sanitank Inc.: See—
Duval, Mark, 3,832,724.
Sartori, Roland, to Rhone-Poulenc-Textile. Holding means for yarn winding carrier which is to rotate at high speeds. 3,831,869, Cl. 242-18.00d.
Sasaki, Tadajiro, to Kabushiki Kaisha Sesaki Seisakusho. Method of and apparatus for spreading cloth. 3,831,472, Cl. 83-92.000.
Sasaki, Toshiro; and Kuroda, Katsuaki, to Kurashiki Boseki Kabushiki Kaisha; a/k/a Kurabo Industries Ltd.). Yarn quality assessment method and apparatus therefor. 3,831,444, Cl. 73-160.000.

- Sato, Akira: See—
Shiba, Keisuke; Hinata, Masanao; Sato, Akira; Ogawa, Akira; and Ikeda, Takashi, 3,832,189.
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- Sato, Isao; and Masai, Tadahisa, to Hitachi, Ltd. Pressure spray type fuel injection nozzle having air discharge openings. 3,831,854, Cl. 239-406,000.
- Sato, Koza; Nakatani, Eizo; and Ichimura, Kiyoshi, to Mitsubishi Rayon Co., Ltd. Process for forming exterior finish coating films for automobile bodies. 3,832,217, Cl. 117-74,000.
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- Sato, Masamichi; and Fukushima, Osamu, to Fuji Photo Film Co., Ltd. Liquid developing apparatus of electrostatic latent image. 3,831,556, Cl. 118-637,000.
- Sato, Mikio: See—
Onishi, Kazuo; Yamashita, Seizi; and Sato, Mikio, 3,831,267.
- Sato, Ryoda. Transformer. 3,832,661, Cl. 336-212,000.
- Sato, Ryuichi: See—
Yamamoto, Takashi; Yasukouchi, Kenichi; and Sato, Ryuichi, 3,831,561.
- Sato, Shinichi. Slide transparency projecting and simultaneous sound reproducing device. 3,832,049, Cl. 353-19,000.
- Satomi, Takeo: See—
Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Oishi, Tadashi; Hino, Naganori; and Satomi, Takeo, 3,832,351.
- Sattavara, Sven W.: See—
Pilon, Howard M.; Sattavara, Sven W.; and Schechter, Michael M., 3,831,701.
- Satzler, Ronald L.; and Calton, Marion R., to Caterpillar Tractor Company. Cluster gear assembly produced by friction welding. 3,831,459, Cl. 74-439,000.
- Saunders, Frederick Charles: See—
Gardiner, William; and Saunders, Frederick Charles, 3,832,228.
- Saunders, Frederick Charles; and Smith, Charles, to Dow Corning Limited. Water repellent process and composition. 3,832,203, Cl. 106-287,05b.
- Savall, Vincent: See—
Lefur, Jean; Louboutin, Robert; and Savall, Vincent, 3,831,767.
- Savall, Vincent; Treille, Pierre; and Bouchard, Jean, to Degremont, Societe Generale d'Epuration et d'Assainissement. Separation of ion exchange resins having different densities. 3,831,750, Cl. 209-160,000.
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Bogdanov, Evdokim Stepanovich; Alexandrov, Alexandr Sergeevich; Schegolev, Vadim Dmitrievich; Saveliev, Vyacheslav Ivanovich; Zakharov, Mikhail Fedorovich; Alexandrov, Yuri Nikolaevich; Korsetsky, Gennady Mikhailovich; and Kucher, Arnold Arkadievich, 3,831,418.
- Sawdo, Richard M.; and Simon, Ivan, to Little, Arthur D., Inc. Apparatus with adjustable period for measuring small deviations from a true horizontal plane. 3,831,287, Cl. 33-344,000.
- Sawyer, Winslow A.: See—
Bowen, Russell J.; Ford, William B., Jr.; Sanborn, Ralph D.; Sawyer, Winslow A.; Sharp, John R.; Soini, Herbert E.; Lambert, Benjamin A.; and Lull, David B., 3,831,520.
- Scandinavian Paper Converting AB: See—
Alfredsen, Uno Allan, 3,831,214.
- Schad, Charles A.: See—
Straughan, Clemens F.; and Schad, Charles A., 3,832,260.
- Schaeffer, Norbert: See—
Fitterer, Horst; and Schaeffer, Norbert, 3,831,882.
- Schaenko, Valentina Vasilievna: See—
Bazhulin, Alexei Pavlovich; Vinogradov, Evgeny Alexandrovich; Irisova, Natalia Alexandrovna; Mitrofanova, Nina Vasilievna; Timofeev, Yuri Petrovich; Fridman, Samuil Aronovich; and Schaenko, Valentina Vasilievna, 3,832,557.
- Schaff, Ulrich: See—
Engelhard, Dieter; Hofmann, Hermann; Schaff, Ulrich; and Kaiser, Walter, 3,832,602.
- Schaffer, Howard E.; and Bomboy, Craig L., to Bethlehem Steel Corporation. Method of making plastic composite with wire reinforcements. 3,832,433, Cl. 264-143,000.
- Schappel, Joseph W.: See—
Smith, Frederick R.; and Schappel, Joseph W., 3,832,277.
- Scharf, Friedrich: See—
Schipke, Winfried; and Scharf, Friedrich, 3,831,450.
- Schechter, Michael M.: See—
Pilon, Howard M.; Sattavara, Sven W.; and Schechter, Michael M., 3,831,701.
- Schegolev, Vadim Dmitrievich: See—
Bogdanov, Evdokim Stepanovich; Alexandrov, Alexandr Sergeevich; Schegolev, Vadim Dmitrievich; Saveliev, Vyacheslav Ivanovich; Zakharov, Mikhail Fedorovich; Alexandrov, Yuri Nikolaevich; Korsetsky, Gennady Mikhailovich; and Kucher, Arnold Arkadievich, 3,831,418.
- Schellin, Winfrid O. E. Methods and device for generating lift. 3,831,884, Cl. 244-12,000.
- Schering Corporation: See—
Weinstein, Marvin J.; Luedemann, George M.; and Wagman, Gerald H., 3,832,286.
- Scherini, Otto A. Game and playing elements for same. 3,831,945, Cl. 273-148,000.
- Schertler, Paul H.: See—
Oehmke, Richard W.; and Schertler, Paul H., 3,832,598.
- Schiffmann, Maurine M., to Sperry Rand Corporation. Method for making an information storage device having photochromic areas of 3,5 dichlorosalicylidene 2,4,6 trichloroaniline. 3,831,266, Cl. 29-592,000.
- Schipke, Winfried; and Scharf, Friedrich, to Bosch, Robert, GmbH. Agricultural alarm system to warn of impending agricultural pest attacks. 3,831,450, Cl. 73-336,000.
- Schirmer, Henry G., to Grace, W. R., & Co. Heat shrinkable, oriented laminated plastic film. 3,832,270, Cl. 161-165,000.
- Schirp, Wilhelm: See—
Menne, Heinz; Schirp, Wilhelm; and Eckhardt, Otto, 3,831,669.
- Schlaudroff, Leo M.; and McKinley, Hollace R., to General Electric Company. Winding inserting apparatus. 3,831,641, Cl. 140-92,100.
- Schlecht, Karl, to Putzmeister Interholding GmbH. Pump for concrete and other sludging materials. 3,832,097, Cl. 417-516,000.
- Schleppnik, Alfred A.; and Wilson, John B., to Monsanto Company. Esters of dialkylallyl alcohols. 3,832,369, Cl. 260-410,900.
- Schlumberger Technology Corporation: See—
Mullins, Albert A., 3,831,677.
- Schmidt, Gerald W.: See—
Planche, Jean, 3,831,443.
- Schmidt, Gerald W.; Smith, Jay III; Jones, Lawrence T.; and Conroy, Richard F. M., to Identicator Corporation. Fingerprinting apparatus. 3,831,552, Cl. 118-31,500.
- Schmidt, Herbert; Weiler, Rolf; and Czich, Erhard, to ITT Industries, Inc. Charging cylinder for a vacuum operated hydrodynamic brake system. 3,831,634, Cl. 138-26,000.
- Schmidt, Karin. Apparatus for testing the bending strength of elastic materials. 3,831,438, Cl. 73-100,000.
- Schmidt, Peter; and Bejerman, Osvaldo, to Bosch, Robert, GmbH. Method to reduce noxious components in internal combustion engine exhaust gases, and apparatus therefor. 3,831,564, Cl. 123-32,000.
- Schmitt, Heinz: See—
Hoff, Karl Heinz; Kupper, Peter; Meyer, Joseph; Pagel, Werner; Schmitt, Heinz; and Nedelec, Maurice, 3,831,239.
- Schmitt, Herman F.: See—
Htoo, Maung S.; Metreud, Claude G.; and Schmitt, Herman F., 3,831,905.
- Schnabel, Ernfred: See—
Stocker, Emil; Schnabel, Ernfred; and Klein, Georg Anton, 3,832,339.
- Schnautz, Norman G.: See—
Briskin, Theodore S.; Schnautz, Norman G.; and Sabherwal, Indrajit, 3,831,609.
- Schneider, Harry: See—
Boyd, Herman L., 3,831,587.
- Schober, Horst A.: See—
Hoppmann, Kurt H.; Edmunds, George W.; and Schober, Horst A., 3,831,734.
- Schockmel, Robert: See—
Metz, Paul; Koch, Victor; and Schockmel, Robert, 3,832,121.
- Schoenlaub, Robert A. Method of manufacturing zirconium oxide and salts. 3,832,441, Cl. 423-71,000.
- Scholz, Hans Jurgen: See—
Allgaier, Rudolf; Brambilla, Luigi; and Scholz, Hans Jurgen, 3,831,972.
- Schott, Robert E., to Allis-Chalmers Corporation. Hydraulic clutch pressure modulator. 3,831,725, Cl. 192-87,130.
- Schroeder, Becky J. Luminescent backing sheet for writing in the dark. 3,832,556, Cl. 250-462,000.
- Schubert, Wilfried, to National Advertising Company. Hanging device for display elements on changeable copyboards. 3,831,895, Cl. 248-475,000.
- Schul, Richard J.: See—
McDonald, George M.; and Schul, Richard J., 3,832,582.
- Schulte, Thomas L.: See—
Huber, Wolfgang; and Schulte, Thomas L., 3,832,338.
- Schulz, Gunter W., to Caterpillar Tractor Co. Removable sediment container for rotating fluid system. 3,831,762, Cl. 210-297,000.
- Schuman, Ralph H., to Warner and Swasey Company, The. Knitting machine encoder. 3,831,402, Cl. 66-50,000.
- Schuppstuhl, Heinz: See—
Finger, Rudolph; Berg, Erich; and Schuppstuhl, Heinz, 3,831,837.
- Schwam, Stuart A. Fluid truck snubber. 3,831,529, Cl. 105-197,000.
- Schwartz, Linus G.: See—
Maffia, Doro; and Schwartz, Linus G., 3,831,687.
- Schwartz, Teryl W.: See—
Kopf, J. David; Bacon, Cole D.; and Schwartz, Teryl W., 3,832,067.
- Schwarzmaier, Gerhard: See—
Geyken, Erwin; Schwarzmaier, Gerhard; and Dawidowitsch, Peter, 3,832,730.
- Scientific Anglers, Inc.: See—
Martuch, Leon L., 3,831,309.

- Sciulli, Joseph Albert; and Lutz, Paul Andrew, to Communications Satellite Corporation. Digital voice switch with an adaptive digitally-controlled threshold. 3,832,491, Cl. 179-1,000.
- SCM Corporation: See—
Cuthbert, Stanley G., 3,832,242.
- Scoggin, John K.: See—
Hysen, Archibald M.; and Scoggin, John K., 3,832,468.
- Scott & Fetzer Company, The: See—
Horrocks, Raymond G., 3,831,274.
- Scott, John J., to Norton Company. Aspiring nozzle with quick change liner. 3,831,857, Cl. 239-424,000.
- Scott, Oscar Thomas; and Setliff, Bennie Smithers, to Huber, J. M., Corporation. Fluidized bed processing of carbon black. 3,831,747, Cl. 209-11,000.
- Scott Paper Company: See—
Cressey, Philo Burton, Jr., 3,832,216.
- Scriven, Roger L.: See—
Chang, Wen-Hsuan; and Scriven, Roger L., 3,832,333.
- Sealfire: See—
Geffroy, Robert, 3,831,952.
- Searle, G. D., & Co.: See—
Baran, John S.; and Pitzele, Barnett, 3,832,382.
- Sedlatschek, Karl: See—
Kutzer, Hans-Joachim; Strohmeier, Gerolf; Natter, Bernd; and Sedlatschek, Karl, 3,831,825.
- Sedor, Edward A.: See—
Culbertson, Billy M.; Sedor, Edward A.; and McKillip, William J., 3,832,133.
- Seidel, Charles S.: See—
Williams, Donald M.; and Seidel, Charles S., 3,831,901.
- Seiden, Myron A., to Polaroid Corporation. Photographic camera having an internally mounted objective lens. 3,832,727, Cl. 354-196,000.
- Seifert, Gerd; and Franke, Kurt, to Siemens Aktiengesellschaft. Circuit for a rotary anode X-ray tube. 3,832,553, Cl. 250-406,000.
- Seim, Howard N.; and Roebke, Neal E., to Control Data Corporation. Signal multiplexer and demultiplexer. 3,832,494, Cl. 179-15,000.
- Seitzer, Walter H., to Sun Research and Development Company. Hydrogenation catalyst. 3,832,307, Cl. 252-455,000.
- Sekizawa, Yasuharu: See—
Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
- Select-A-Size, Ltd.: See—
Doolittle, Milton A., 3,832,039.
- Seleznov, Yuri Emelyanovich: See—
Burkin, Yuri Alexandrovich; and Seleznov, Yuri Emelyanovich, 3,831,253.
- Selivanov, Anatoly Grigorievich; Makachev, Nikolai Ivanovich; Titov, Dmitry Vladimirovich; and Rotenburg, Alexandr Aronovich. Shedding mechanism for looms. 3,831,638, Cl. 139-12,000.
- Sello, Stephen B.: See—
Tesoro, Giuliana C.; Sello, Stephen B.; and Wurster, Rudolf F., 3,832,132.
- Selmin, Allen C.: See—
Boyd, Herman L., 3,831,587.
- Seltveit, Arne: See—
Flood, Hakon; and Seltveit, Arne, 3,832,434.
- Semin, Roy E.: See—
Marsh, Richard L.; and Semin, Roy E., 3,831,358.
- Sendoykas, Jack J.; and Mopherson, Alexander W., to Dover Corporation (De-Sta-Co. Division). Universal clamp with pivoting arm retention means. 3,831,926, Cl. 269-228,000.
- Senger, Gerhard Franz-Josef; and Poque, Dionysius Josef, to Uniroyal AG. Belted pneumatic tires. 3,831,656, Cl. 152-361,000.
- Serota, Samuel: See—
Rothman, Edward S.; and Serota, Samuel, 3,832,415.
- Serritella, Daniel J. Magnetic vehicle bumper. 3,831,847, Cl. 293-1,000.
- Setliff, Bennie Smithers: See—
Scott, Oscar Thomas; and Setliff, Bennie Smithers, 3,831,747.
- Seto, Yoshihiro, to Fuji Photo Film Co., Ltd. Light-intercepting paper for photographic film. 3,832,218, Cl. 117-76,000.
- Seton, Walter F.: See—
Maiste, Arved; and Seton, Walter F., 3,831,356.
- Seymour Oestreicher: See—
Shiller, Jack G., 3,831,597.
- Shadbolt, Colin Francis, to Zenith Carburettor Company Limited, The. Carburetors. 3,831,910, Cl. 261-39,000.
- Shaffer, John W.: See—
McDonough, Thomas P.; and Shaffer, John W., 3,832,125.
- Shaffer, Ronald, to Westinghouse Air Brake Company. Pressure control valve device with a two-position cam actuator for controlling pressure in a vehicle air spring. 3,831,968, Cl. 280-124,000.
- Shaffer, Ronald L., to Beloit Corporation. Internal deckle structure. 3,832,120, Cl. 425-466,000.
- Sharp, John R.: See—
Bowen, Russell J.; Ford, William B., Jr.; Sanborn, Ralph D.; Sawyer, Winslow A.; Sharp, John R.; Soini, Herbert E.; Lambert, Benjamin A.; and Lull, David B., 3,831,520.
- Sharp, Shelby P.; and Sudduth, Lamar F., to Amoco Production Company. Method for dehydration of wet gases. 3,831,346, Cl. 55-32,000.
- Shasta Beverages (Division of Consolidated Food Corporation): See—
Karr, Fred A., 3,832,474.
- Shaver, Eugene L.: See—
Miller, John E.; Shaver, Eugene L.; and Stone, Jack C., 3,831,879.
- Shaver, Robert G.: See—
Abrams, Edwin F.; and Shaver, Robert G., 3,832,451.
- Shaw, Avey. Fishing line attachment. 3,831,308, Cl. 43-43,130.
- Shaw, Elliott N., to Polaroid Corporation. Gelatin composition containing a halomethyl ketone of benzyloxycarbonyl phenylalanine. 3,832,198, Cl. 106-135,000.
- Shaw, Richard Astourre: See—
Boyd, Willis Guild; and Shaw, Richard Astourre, 3,832,623.
- Shearer, Herbert N., to Pavement Systems, Inc. Process for making asphalt paving compositions. 3,832,201, Cl. 106-281,000.
- Sheets, Richard S., to Powers Manufacturing, Inc. Apparatus for squeeze testing containers. 3,831,437, Cl. 73-94,000.
- Sheldon, Donald A.: See—
Newman, Nicholas S.; Alexander, Robert R.; and Sheldon, Donald A., 3,831,766.
- Shell Oil Company: See—
Fetterly, Llyod C.; Conklin, George W.; and May, Nathan C., 3,832,363.
- Kouwenhoven, Herman W.; Pijpers, Franciscus W.; and Campagne, Nicolaas Van Lookeren, 3,832,445.
- Van Grinsven, Petrus F. A., 3,832,416.
- Shenk, Edwin K.: See—
Wilson, Stewart W.; and Shenk, Edwin K., 3,832,045.
- Shepard, John C.: See—
Aidlin, Samuel S.; Aidlin, Stephen H.; Hartzog, Melvin; and Shepard, John C., 3,831,738.
- Sheth, Pratulchandra N.: See—
Berkowitz, Lawrence; Novickis, Georgs; and Sheth, Pratulchandra N., 3,831,748.
- Shevtsov, Anatoly Ivanovich: See—
Medovar, Boris Izrailevich; Lanevsky, Valery Evgenievich; Alferov, Yuri Fedorovich; Dubinsky, Rudolf Solomonovich; Berezovsky, Mikhail Elevich; Chekotilo, Leonty Vasilievich; Pavlov, Leonid Viktorovich; Ishunkin, Veniamin Alexandrovich; Shevtsov, Anatoly Ivanovich; and Grinshpon, Semen Yakovlevich, 3,832,476.
- Shiba, Keisuke: See—
Sato, Akira; Ikeda, Tadashi; Ogawa, Akira; Shiba, Keisuke; and Hinata, Masanao, 3,832,184.
- Shiba, Keisuke; Hinata, Masanao; Sato, Akira; Ogawa, Akira; and Ikeda, Takashi, to Fuji Photo Film Co., Ltd. Silver halide photographic supersensitized emulsions. 3,832,189, Cl. 96-124,000.
- Shichida, Hiromichi: See—
Shimizu, Kanryo; Shichida, Hiromichi; and Toyoda, Kenichi, 3,832,610.
- Shiller, Jack G., to Seymour Oestreicher. Apparatus for inserting ear rings. 3,831,597, Cl. 128-330,000.
- Shimada, Haruo: See—
Okada, Hideya; Shimada, Haruo; and Yamamoto, Kazuo, 3,832,166.
- Shimada, Satoshi, to Sony Corporation. Lenticular rear projection. 3,832,032, Cl. 350-128,000.
- Shimizu, Kanryo; Shichida, Hiromichi; and Toyoda, Kenichi, to Fujitsu Limited and Fujitsu Fanuc Limited. Pulse operated surface motor. 3,832,610, Cl. 310-135,000.
- Shimizu, Seigo: See—
Kawanishi, Kunishisa; Shimizu, Seigo; and Baba, Takio, 3,831,795.
- Shimizu, Shigeru, to Hamada Printing Press Mfg., Co., Ltd. Paper feeding apparatus for use in printing machine. 3,831,930, Cl. 271-91,000.
- Shimoyashiki, Shigehiro; Makita, Kiyoshi; and Aoki, Naoshi, to Hitachi, Ltd. Apparatus for refining sodium. 3,831,912, Cl. 266-22,000.
- Shinano, Takayuki: See—
Machi, Sueo; Matui, Yasushi; Kurihara, Hirono; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, 3,832,207.
- Shinkle, Jackson J.: See—
Vatterott, Oskar F., 3,831,371.
- Shinohara, Konosuke: See—
Ohama, Tsuyoshi; and Shinohara, Konosuke, 3,832,136.
- Shipley Company, Inc.: See—
Gulla, Michael, 3,832,168.
- Shipley, Ernest M.: See—
Stanton, Vernon W.; and Shipley, Ernest M., 3,832,525.
- Shipp, John T.; Hines, Robin H.; Hollinshead, William L.; and Broadbent, Thomas D., to AGA Corporation. Distance measuring device using electro-optical techniques. 3,832,056, Cl. 356-5,000.
- Shirek, Daniel E.; Shirek, Robert J.; and Ryba, Charles J. Portable pump. 3,832,093, Cl. 417-231,000.
- Shirek, Robert J.: See—
Shirek, Daniel E.; Shirek, Robert J.; and Ryba, Charles J., 3,832,093.
- Shishido, Tadao: See—
Masuda, Takao; Ohkubo, Kinji; and Shishido, Tadao, 3,832,186.
- Shobert, Samuel Merle. Method of fabricating an improved plastic bearing. 3,832,255, Cl. 156-148,000.
- Shogren, David K., to Xerox Corporation. Scanning apparatus. 3,832,057, Cl. 355-8,000.
- Shomura, Takashi: See—

- Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
- Shore, Daniel B., to International Harvester Company. Dump valve and forward-reverse drive control employing same. 3,831,721, Cl. 192-4.00c.
- Shu, Ping; and Dann, Murray, to American Cyanamid Company. Antibiotic av290-syntan complexes and animal feed supplements. 3,832,462, Cl. 424-123.000.
- Siddall, John B.: See—
Henrick, Clive A.; and Siddall, John B., 3,832,361.
- Siddall, John B., to Zoccon Corporation. Substituted 4-alkylthiobenzoic acid esters. 3,832,385, Cl. 260-470.000.
- Siebold, Manfred: See—
Beck, Siegfried; and Siebold, Manfred, 3,832,015.
- Siegel, Rudolf: See—
Dillenburger, Helmut; Honig, Helmut; and Siegel, Rudolf, 3,832,447.
- Siegel, Sidney. Drive for sewing machine or the like using magnetic force transmission. 3,831,537, Cl. 112-220.000.
- Siellaff, Ulrich: See—
Valenta, James D.; Siellaff, Ulrich; and Drabkin, Stephen H., 3,831,595.
- Siemens Aktiengesellschaft: See—
Engelhard, Dieter; Hofmann, Hermann; Schaff, Ulrich; and Kaiser, Walter, 3,832,602.
- Graf, Peter; and Lang, Manfred, 3,832,565.
- Grieger, Gerhard; and Bohrdt, Joaquin, 3,832,502.
- Gross, Franz, 3,832,593.
- Kleeberg, Wolfgang; Rubner, Roland; and Kuehn, Eberhard, 3,832,187.
- Seifert, Gerd; and Franke, Kurt, 3,832,553.
- Sohlbrand, Heinrich, 3,832,232.
- Stut, Hans, 3,832,626.
- Signale & Automatik A.G.: See—
Gabus, Jean-Claude, 3,832,570.
- Silverman, Daniel. Apparatus for transferring a unique micropattern of microperforations in a first metal layer to an underlying second metal layer. 3,832,547, Cl. 250-319.000.
- Simon, Ivan: See—
Sawdo, Richard M.; and Simon, Ivan, 3,831,287.
- Singer Company, The: See—
Eisenberg, Robert, 3,832,708.
- Fahy, Wm. David; and Johnson, Robert W., 3,832,488.
- Goetz, Philip J.; and Erk, Kaya, 3,832,712.
- Grosvenor, Clifford Ray; Resch, Ronald R.; and Pumm, Paul P., 3,832,571.
- Mecklenborg, Richard A., 3,832,046.
- Singer Company, The, mesne: See—
Hoffman, Jay, 3,831,454.
- Singh, Bhupinder; and Swauger, Donald A. Bumper guard and sidewall protector. 3,831,990, Cl. 293-1.000.
- Sinham Ram R. P., to Westinghouse Electric Corporation. Transformer having an electrically symmetrical tapped winding. 3,832,660, Cl. 336-150.000.
- Sintokogio, Ltd.: See—
Hijikata, Itsuo; Kasazaki, Masayoshi; Terada, Hideto; and Inoue, Takao, 3,832,117.
- Siregar, John A., to Liggett & Myers Incorporated. Method of feeding cats thawed frozen fish flavored with 5'-nucleotides. 3,832,471, Cl. 426-2.000.
- Sitton, Ellis A.: See—
Muller, Thomas P.; and Sitton, Ellis A., 3,831,718.
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Majkrzak, Charles P.; and Sladowski, Stephen F. X., 3,831,399.
- Slettinger, Meyer: See—
Reinhold, Donald F.; Slettinger, Meyer; and Firestone, Raymond A., 3,832,377.
- Slick Corporation, The: See—
Bakke, Even, 3,831,354.
- SLM Plastics, Inc.: See—
Vinner, Tihamer S., 3,832,616.
- Slovonsky, Idalee; Dagon, Thomas J.; and Bober, Thomas W., to Eastman Kodak Company. Recovery of silver from photographic processing solutions. 3,832,453, Cl. 423-561.000.
- Sluijters, Robert: See—
Appeldoorn, Jacques W. J.; and Sluijters, Robert, 3,831,904.
- Smidth, F. L., & Co.: See—
Albertus, Gundorph, 3,831,326.
- Smidth, F. L., & Co. A/S: See—
Jorgensen, Gunnar, 3,831,856.
- Smith, Albert Charles, Jr.: See—
Bello, Hobson Joseph, Jr.; and Smith, Albert Charles, Jr., 3,832,174.
- Smith, Anthony J.: See—
Hignett, Travis P.; and Smith, Anthony J., 3,832,154.
- Smith, Charles: See—
Saunders, Frederick Charles; and Smith, Charles, 3,832,203.
- Smith, Charles H. Vehicular road sweep device. 3,831,689, Cl. 180-1.00r.
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Newton, William D., II; and Smith, Darrell L., 3,831,894.
- Smith, Edward Payson; and Nadherny, Rudolph E., to Illinois Railway Equipment Co. Lading tie anchor. 3,831,532, Cl. 105-369.00a.
- Smith, Edwin B.: See—
Petrilla, Anthony D.; and Smith, Edwin B., 3,832,710.
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Smith, George B.; and Orladini, Kent A., 3,832,455.
- Smith, Jay III: See—
Schmidt, Gerald W.; Smith, Jay III; Jones, Lawrence T.; and Conroy, Richard F. M., 3,831,552.
- Smith, Joseph E.: See—
Rump, John H.; and Smith, Joseph E., 3,831,745.
- Smith, Joseph F. Method and apparatus for applying a false twist to yarns. 3,831,365, Cl. 57-77.400.
- Smith, Loren William: See—
Cope, Geoffrey Wilton; and Smith, Loren William, 3,831,530.
- Smith, Luther A. Emergency escape device for high rise building. 3,831,711, Cl. 192-40.000.
- Smith, Ronald E.: See—
Presley, C. Travis; and Smith, Ronald E., 3,831,679.
- Smith, Stanley Desmond; Wood, Roland Andrew; and Dennis, Richard Benson, to National Research Development Corporation. Spectrometers. 3,832,061, Cl. 356-88.000.
- Snedeker, Richard S.: See—
Donaldson, Coleman Dup; and Snedeker, Richard S., 3,831,396.
- Societe Alsacienne de Constructions Mecaniques de Mulhouse: See—
Jullard, Yves, 3,831,637.
- Societe Anonyme Automobiles Citroen: See—
Grosseau, Albert, 3,831,966.
- Societe Anonyme D. B. A.: See—
Carre, Jean-Jacques, 3,831,494.
- Societe Anonyme D. B. A.: See—
Bourgoin, Guy, 3,832,012.
- Marouby, Guy, 3,832,011.
- Morin, Gerard, 3,831,400.
- Societe Anonyme dite: Societelorraine de Laminage Continu: See—
Chanterreau, Robert, 3,831,761.
- Societe Anonyme dite: Compagnie Francaise de Raffinage: See—
Kennel, Michael; and Quiquerez, Joseph, 3,832,200.
- Societe Anonyme l'Eclairage Technique: See—
Adam, Marie Henri Hubert, 3,832,538.
- Societe de Recherches Industrielles S.O.R.I.: See—
Majoie, Bernard, 3,832,343.
- Societe Financiere Francaise de Licences et Brevets: See—
Jakob, Horst, 3,831,228.
- Societe Generale de Recherche et d'Applications Scientifiques Sogeras: See—
Wirth, Pierre Charles, 3,832,340.
- Societe Honeywell Bull (Societe Anonyme): See—
Nadler, Morton; and Masson, Christian, 3,832,683.
- Societe Nationale d'Etude et de Construction: See—
Micol, Pierre; and Jacquet, Yves, 3,832,630.
- Societe Rhodiacta: See—
Porte, Pierre, 3,831,317.
- Soe, Hartvig, to Misomex Aktiebolag. Method and arrangement for stripping text and illustration foils. 3,831,284, Cl. 33-184.500.
- Sohlbrand, Heinrich, to Siemens Aktiengesellschaft. Process for producing contact metal layers consisting of aluminum alloy on semiconductor components. 3,832,232, Cl. 117-227.000.
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- Soini, Herbert E.: See—
Bowen, Russell J.; Ford, William B., Jr.; Sanborn, Ralph D.; Sawyer, Winslow A.; Sharp, John R.; Soini, Herbert E.; Lambert, Benjamin A.; and Lull, David B., 3,831,520.
- Sommer, Alfred, to Ceramic Magnetics Inc. Method of making thin film thermistor. 3,831,269, Cl. 29-612.000.
- Sommer, Paul: See—
Lorch, Eckehard; Sommer, Paul; and Tschirky, Hansjorg, 3,832,140.

- Sonneborn, Lambertus Johannes, to Applied Power Inc. Lost motion connection means for hydraulic piston-cylinder device. 3,831,999, Cl. 296-35.00r.
- Sony Corporation: See—
Ohsawa, Mitsuo, 3,832,627.
- Shimada, Satoshi, 3,832,032.
- Sorensen, Charles K.: See—
Pendergast, Lewis A.; and Sorensen, Charles K., 3,831,740.
- Spahn, Robert G.: See—
Weiss, Armin K.; and Spahn, Robert G., 3,832,298.
- Span-Deck, Inc.: See—
Leonard, David J.; Mitchell, William E.; and McGrew, John P., 3,832,118.
- Spanco Yarns, Inc.: See—
Northup, Francis B.; and Hart, Donald R., 3,831,369.
- Spanjersberg, Arie Adriaan: See—
Brok, Wilhelm Fredrik; Spanjersberg, Arie Adriaan; and Van Staveren, Joannes, 3,832,682.
- Specht, Theodore R., to Westinghouse Electric Corporation. Transformer internal fault detector. 3,832,600, Cl. 317-14.00d.
- Spencer, Bruce G., Jr., to Woodward Governor Company. Motor control apparatus with Geneva-type switch actuating mechanism. 3,832,617, Cl. 318-673.000.
- Sperly Rand Corporation: See—
Nickel, Frank C.; and Swanson, James R., 3,832,695.
- Schiffmann, Maurine M., 3,831,266.
- Wang, Chao C., 3,832,568.
- Sperly Rand Limited: See—
Conibear, David Eustace; and Halls, Maurice Vernon, 3,831,286.
- Spies, Harvey A., to Maryland Cup Corporation. Apparatus for handling and transporting cylindrical articles and the like. 3,831,732, Cl. 198-20.00r.
- Spreckelmeyer, Bernhard W., to Kennecott Copper Corporation. Process for chlorinating copper sulfide minerals. 3,832,440, Cl. 423-40.000.
- Springfield, Robert L. Checking device. 3,831,639, Cl. 139-165.000.
- Squibb, E. R. & Sons, Inc.: See—
Cimarusti, Christopher M., 3,832,366.
- Ondetti, Miguel A.; and Pluscec, Josip, 3,832,337.
- Srinivas, Srivas Rangachar. System for preparing packed columns and coated capillary tubes useful in gas chromatography. 3,831,555, Cl. 118-506.000.
- S.R.M. Hydromekanik Aktiebolag: See—
Ahlen, Karl Gustav, 3,831,463.
- Stal-Laval Turbin AB: See—
Lohonen, Paa; and Karlsson, Olof, 3,832,087.
- Stanadyne, Inc.: See—
Craven, Wilbur J., 3,831,229.
- Standard Container Company: See—
Lecesse, Vincent L., 3,831,817.
- Standard Oil Company: See—
Lazare, Leon; and Jakabhazy, Stephen Z., 3,832,301.
- Stanford, Alan G.; and Zutell, George A., to Fairchild Industries, Inc. Mobile aircraft shoring and maintenance device. 3,831,709, Cl. 180-125.000.
- Stanley Works, The: See—
Boyajian, Alfred Z., 3,831,207.
- Stant Manufacturing Company, Inc.: See—
Rodgers, Robert E., 3,831,801.
- Stanton, Vernon W.; and Shipley, Ernest M., 20% to Lee, Raymond, Organization, Inc., The. Automatic heating device to prevent freezing of water supply lines. 3,832,525, Cl. 219-301.000.
- Stark, Marvin: See—
Hutchison, John W.; and Stark, Marvin, 3,831,803.
- Starks, Charles M.: See—
Hackett, Homer L.; and Starks, Charles M., 3,832,306.
- Starr, Laurence Dean: See—
Reintjes, Marten; and Starr, Laurence Dean, 3,832,313.
- Staten, James P.: See—
Kutina, Thomas J.; Staten, James P.; and Kershaw, Sydney L., 3,831,984.
- Stauffer Chemical Company: See—
Baker, Don R., 3,832,370.
- Gallagher, Ruth E.; Harrington, Charles L.; and Wachtel, Melvin, 3,832,318.
- Mihailovski, Alexander, 3,832,384.
- Weil, Edward D.; and Fearing, Ralph, 3,832,227.
- Steelcase, Inc.: See—
Tacke, William H.; Ormiston, Robert B.; and McKay, Robert H., 3,831,330.
- Stegmeier, William J. Skimmer throat entrance form. 3,831,897, Cl. 249-1.000.
- Stein, Wolfgang J.; and Straniti, Salvatore, to Avco Corporation. Plate type heat exchangers. 3,831,674, Cl. 165-166.000.
- Steingiser, Samuel: See—
Gomez, I. Luis; and Steingiser, Samuel, 3,831,290.
- Stella, Joseph A.: See—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,832,048.
- Stelma, Gerard N., to Keeler Brass Company. Strike plate/face plate for door latches. 3,831,988, Cl. 292-302.000.
- Stenerson, Charles Keith: See—
Alexander, Thomas Theron; Reszka, Alfons; and Stenerson, Charles Keith, 3,832,637.
- Stephan, Hans: See—
Eggersperger, Heinz; Franzen, Volker; Muller, Horst; and Stephan, Hans, 3,832,328.
- Stepien, George, Jr.: See—
Califano, Frank L.; Stepien, George, Jr.; and Russell, Thomas E., 3,831,382.
- Steuery, Howard C.: See—
Woody, Albert L.; Audiffred, Sidney J.; and Steuery, Howard C., 3,831,726.
- Stevens, J. P. & Co., Inc.: See—
Pike, Herbert J., 3,831,363.
- Tesoro, Giuliana C.; Sello, Stephen B.; and Wurster, Rudolf F., 3,832,132.
- Stevens, Peter P., Jr. Child resistant safety closure. 3,831,797, Cl. 215-9.000.
- Stewart, John A.: See—
Haven, Harold A.; and Stewart, John A., 3,832,662.
- Stewart-Warner Corporation: See—
Fontana, Frank J., 3,831,959.
- Stibbe-Monk Developments Limited: See—
Gell, Dennis, 3,831,261.
- Stickler, Charles F. Plumbing connection. 3,831,983, Cl. 285-12.000.
- Stiefken, Charles Ernest, to American Smelting and Refining Company. Coating asbestos fiber with aluminum sulfate prior to forming a cement-asbestos slurry from the treated fibers to enhance the filtering characteristics of the slurries. 3,832,280, Cl. 162154.000.
- Stillman, Albert H., Jr. Fountain spray system for swimming pools. 3,831,852, Cl. 239-201.000.
- Stine, Robert Darrell, Jr.: See—
Anderson, Robert L.; and Stine, Robert Darrell, Jr., 3,832,569.
- Stith, Joe D.: See—
Coburn, Orin W.; and Stith, Joe D., 3,831,236.
- Stock, Arthur; and Baxter, Alan William, said Stock assor. to Rohm and Haas Company. Production of monochlorodimethyl ether. 3,832,406, Cl. 260-614.00l.
- Stocker, Emil; deceased (by Stocker-Boller, Heidi Berta; representative); Schnabel, Ernfred; and Klein, Georg Anton, to Ciba-Geigy AG. Polyazo pigments of the 2-hydroxy-naphthalene-3-carboxylic acidylide series. 3,832,339, Cl. 260-144.000.
- Stocker-Boller, Heidi Berta: See—
Stocker, Emil; Schnabel, Ernfred; and Klein, Georg Anton, 3,832,339.
- Stoecker, Karl M., to Heinrich Machinery & Tool Mfg. Co., Inc. Vibrator, especially a self propelled reversible tamper. 3,832,080, Cl. 404-133.000.
- Stoll, Andre: See—
Gadient, Fulvio; Stoll, Andre; and Suess, Rudolf, 3,832,354.
- Stone, Jack C.: See—
Miller, John E.; Shaver, Eugene L.; and Stone, Jack C., 3,831,879.
- Strand, Leif W. Loading device for spherical objects. 3,831,574, Cl. 124-49.000.
- Straniti, Salvatore: See—
Stein, Wolfgang J.; and Straniti, Salvatore, 3,831,674.
- Straughan, Clemens F.; and Schad, Charles A., to CFS Corporation. Method and apparatus for simultaneously applying to an extended cylindrical object a coating and a plastic film wrapping to retain the coating. 3,832,260, Cl. 156-390.000.
- Stribling, John Brian; and Booth, Robert Arthur, to Lucas Furnace Developments Limited. Drying and sterilising apparatus. 3,831,288, Cl. 34-1.000.
- Strickland, Gordon E., Jr.: See—
Hudson, Thomas A.; and Strickland, Gordon E., Jr., 3,831,385.
- Strohmeier, Gerolf: See—
Kutzer, Hans-Joachim; Strohmeier, Gerolf; Natter, Bernd; and Sedlatschek, Karl, 3,831,825.
- Strojny, Lawrence J.; and Froehling, Paul H., to Johnson Service Company. Status sensing and transmitting circuit. 3,832,688, Cl. 340-147.00r.
- Structural Fibers, Inc.: See—
Ranallo, Henry U.; and LeBreton, Edward T., 3,832,109.
- Stubblefield, Maurice. Animal bridle. 3,831,345, Cl. 54-6.000.
- Stubert, John Wesley: See—
Bentley, Richard Lee; and Stubert, John Wesley, 3,831,950.
- Studiengesellschaft Kohle mbH.: See—
Wilke, Gunther; and Heimbach, Paul, 3,832,371.
- Studinger, John H. Mobile self contained pressure sprayer. 3,831,849, Cl. 239-127.000.
- Stut, Hans, to Siemens Aktiengesellschaft. Device for electrically heating a semiconductor rod which is simultaneously growing due to a depositing process from the gas phase. 3,832,626, Cl. 323-4.000.
- Suda, Kataro, to Yoshi, Ito. Automatic dice shaking device. 3,831,948, Cl. 273-145.00r.
- Suda, Michael: See—
Freerks, Marshall C.; and Suda, Michael, 3,832,359.
- Sudduth, Lamar F.: See—
Sharp, Shelby P.; and Sudduth, Lamar F., 3,831,346.
- Suess, Rudolf: See—
Gadient, Fulvio; Stoll, Andre; and Suess, Rudolf, 3,832,354.
- Suggitt, Robert M.: See—
Knifton, John F.; and Suggitt, Robert M., 3,832,401.
- Sugimoto, Mitsuo; Funaki, Koemon; and Saeki, Yuzo, to Rikagaku Kenyusho. Ferrite contrast media with metallic oxides. 3,832,457, Cl. 424-4.000.
- Suld, George, to Sun Research and Development Company. Hydrocracked lubes stabilized with aromatic azo compounds. 3,832,304, Cl. 252-51.50a.

- Sullivan, Bernard J.; and Baxter, David G., to Xerox Corporation. Drum track detector. 3,832,065, Cl. 356-210.000.
- Sumitomo Chemical Company, Limited: See—
- Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Akatsukeda, Mitsuhiro; Dume, Yoshiharu; Inaba, Shigeho; and Yamamoto, Hisao, 3,832,344.
- Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Oishi, Tadashi; Hino, Naganori; and Satomi, Takeo, 3,832,351.
- Sumitomo Chemical Company, Ltd.: See—
- Matsui, Masanao; Katsube, Junki; and Murayama, Eichi, 3,832,380.
- Sumitomo Chemical Company, Ltd., mesne: See—
- Nakanishi, Michio; and Mukai, Toshihiko, 3,832,467.
- Sun Research and Development Company: See—
- Oishi, Masayoshi, 3,832,414.
- Seitzer, Walter H., 3,832,307.
- Suld, George, 3,832,304.
- Thompson, Robert M., 3,832,332.
- Superior Concrete Accessories, Inc.: See—
- Colado, Joseph J., 3,831,331.
- Sur, Mikhail Danilovich: See—
- Dudko, Danil Andreevich; Sur, Mikhail Danilovich; and Asoyants, Grigory Bagradovich, 3,832,098.
- Sutton Research Corporation: See—
- Brislin, Theodore S.; Schnautz, Norman G.; and Sabherwal, Indrajit, 3,831,609.
- Sutton, William Heald; Evans, Thomas Ernest; and Hart, Anthony Christopher, to International Nickel Company, Inc., The. Catalytic cathodic hardening of oxide films. 3,832,292, Cl. 204-56.00r.
- Suzuki, Akira, to Aisin Seiki Kabushiki Kaisha. Power steering mechanism. 3,831,700, Cl. 180-79.20r.
- Suzuki, Hideo; Kobayashi, Harumi; Ozawa, Yoshiko; and Kamibayashi, Akira, to Agency of Industrial Science & Technology. Method for manufacture of alpha-galactosidase by microorganisms. 3,832,284, Cl. 195-11.000.
- Suzuki, Masaru, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Hazard warning signal device for use in automotive vehicle. 3,832,680, Cl. 340-81.00r.
- Suzuki, Masayuki: See—
- Ikedo, Toshimichi; Kawauchi, Masataka; Matsuzaki, Atsushi; and Suzuki, Masayuki, 3,831,683.
- Suzuki, Migaku: See—
- Kawai, Atsushi; Katsuyama, Takehiro; Suzuki, Migaku; and Ohta, Hidenori, 3,832,281.
- Suzuki, Ryosho: See—
- Higuchi, Masaru; Yamada, Tadashi; and Suzuki, Ryosho, 3,832,357.
- Svanstrom, Elis Kjell Ake, to Rederiaktiebolaget Nordstjernen. Method of producing refractory metals and refractory metal compounds in powder form. 3,832,157, Cl. 75-5bb.
- Sviridenko, Valentina Yakovlevna: See—
- Dubovsky, Boris Grigorievich; Bogatyrev, Viktor Konstantinovich; Vladikov, German Matveevich; and Sviridenko, Valentina Yakovlevna, 3,832,563.
- Swanson, Allen K., to Hamton Engineering Associates, Inc. Projector dissolve control. 3,832,051, Cl. 353-86.000.
- Swanson, James R.: See—
- Nickel, Frank C.; and Swanson, James R., 3,832,695.
- Swager, Donald A.: See—
- Singh, Bhupinder; and Swager, Donald A., 3,831,990.
- Swearingen, Judson S. Lubricating and sealing system for a rotary power plant. 3,831,381, Cl. 60-657.000.
- SWF-Spezialfabrik fur Autozubehor Gustav Rau GmbH: See—
- Deutscher, Hans-Christian; and Bauer, Kurt, 3,831,219.
- Syndyne Corporation: See—
- Hayden, Julian D., 3,832,658.
- Synthelabo: See—
- Cavallo, Roger Paul Charles, 3,831,596.
- Syracuse University Research Corporation: See—
- Howells, Paul W.; Lederer, Edwin H.; and Lothes, Robert N., 3,831,526.
- Syrop, Leroy J., to Del Mar Engineering Laboratories. Apparatus for processing hexanitrostilbene. 3,832,142, Cl. 23-272.650.
- Szabo, Andras I.; and Diaz, Ricardo A., to Westinghouse Electric Corporation. Common mode noise suppressing circuit adjustment sequence. 3,832,646, Cl. 330-30.00d.
- Szeverenyi, Nikolaus A., to GTE Sylvania Incorporated. Latching means for sensing apparatus. 3,832,702, Cl. 340-244.00r.
- T-R Wire Co.: See—
- Zentar, Richard L., 3,831,893.
- Tacke, William H.; Ormiston, Robert B.; and McKay, Robert H., to Steelcase, Inc. Panel system. 3,831,330, Cl. 52-220.000.
- Taggart, Robert B., Jr. Dish reflector for a high gain antenna. 3,832,717, Cl. 343-840.000.
- Takahashi, Kenryu. Flexible blade rotary pump. 3,832,105, Cl. 418-154.000.
- Takahashi, Tomowaki, to Nippon Kogaku, K.K. Wide angle, retrofocus-type photo-taking lens. 3,832,035, Cl. 350-189.000.
- Takanashi, Akihiro; and Hashimoto, Seiya, to Hitachi, Ltd. Intermittent feed mechanism. 3,831,458, Cl. 74-436.000.
- Takase, Tadayoshi: See—
- Tamada, Kazumi; and Takase, Tadayoshi, 3,831,579.
- Takayasu, Ted T.: See—
- Dasgupta, Sumit; Richter, David H.; and Takayasu, Ted T., 3,832,575.
- Takehisa, Masaaki: See—
- Machi, Sueo; Matui, Yasushi; Kurihara, Hironori; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, 3,832,207.
- Takeuchi, Yasuhisa, to Nissan Motor Company, Limited. System to prevent drunken driving. 3,831,707, Cl. 180-99.000.
- Tagiguchi, Koichi, to Fuji Xerox Co., Ltd. Heating unit for copying machine. 3,832,524, Cl. 219-216.000.
- Talbot, James R.: See—
- Binford, Jack C.; Ethridge, Frederick A.; and Talbot, James R., 3,831,231.
- Tamada, Kazumi; and Takase, Tadayoshi, to Kabushiki Kaisha Pinnai Seisakusho. Forced hot air type cooking oven. 3,831,579, Cl. 126-21.00a.
- Tamura, Hiroshi: See—
- Maruyama, Shoji; Kubota, Tomio; Kojima, Katue; and Tamura, Hiroshi, 3,832,350.
- Tamura, Masahiko: See—
- Yamauro, Isao; and Tamura, Masahiko, 3,832,580.
- Tamura, Shigeru, to Mura, George J. Rail fastening device. 3,831,842, Cl. 238-349.000.
- Tanaka, Akira, to Gakken Co., Ltd. Method and means for reproducing a mirror-image record of a subject copy in a facsimile master-making machine. 3,832,484, Cl. 178-6.60b.
- Tanaka, Katsutoshi: See—
- Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Oishi, Tadashi; Hino, Naganori; and Satomi, Takeo, 3,832,351.
- Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Oishi, Tadashi; Hino, Naganori; and Satomi, Takeo, to Sumitomo Chemical Company, Limited. Aromatic imidocarbonates. 3,832,351, Cl. 260-294.80e.
- Tanaka, Toshihiro: See—
- Sakai, Hiroshi; Yamashita, Hisateru; and Tanaka, Toshihiro, 3,831,411.
- Tankey, Howard William: See—
- Baker, Elizabeth Ann; Wluka, David Jankiel; and Tankey, Howard William, 3,832,209.
- Tanner, Juri Albert-Mikhaelovich: See—
- Aarna, Agu Yanovich; Kiisler, Karl Ritsovich; Kristyanson, Peep Gerkhardovich; Tanner, Juri Albert-Mikhaelovich; Vabaoya, Juri Felixovich; Vaitenberg, Gershonovich; Rokk, Juri Khindrekovich; and Matvere, Toomas Oskarovich, 3,832,251.
- Tarleton, William A.: See—
- Repsher, Robert W.; Tarleton, William A.; and Wilson, William E., 3,832,199.
- Tashman, Philip. Portable solid waste compactor. 3,831,513, Cl. 100-52.000.
- Tatabanyai Szebenyanyak: See—
- Kapolyi, Laszlo; Kaszanitzky, Ferenc; Lazar, Ferenc; and Vamos, Gyorgy, 3,832,164.
- Tauern, Dankmar, to Hilti Aktiengesellschaft. Welding gun for condenser discharge bolt welding. 3,832,515, Cl. 219-98.000.
- Taylor, Derek: See—
- Hayden, Owen; and Taylor, Derek, 3,831,673.
- Taylor, Don A. Method for forming hollow articles. 3,832,437, Cl. 264-248.000.
- Taylor, Edward C.; and McKillop, Alexander. Chemical processes using organothallium compounds. 3,832,381, Cl. 260-468.00k.
- Taylor, Lloyd D.: See—
- Rogers, Howard G.; and Taylor, Lloyd D., 3,832,183.
- Technical Arco Establishment: See—
- Engeli, Federico, 3,831,521.
- Teitel, Sidney: See—
- Gurien, Harvey; Rachlin, Israel; and Teitel, Sidney, 3,832,397.
- Teldix GmbH: See—
- Leiber, Heinz; and Rodi, Anton, 3,832,008.
- Leiber, Heinz; and Korasiak, Wolfgang, 3,832,009.
- Teledyne Canada, Limited: See—
- Nutt, Wallace H., 3,831,799.
- Teleflex Incorporated: See—
- Perlman, Sheldon E.; and Ion, John C., 3,831,249.
- Telesco Brophey Limited: See—
- Weber, Heinz, 3,831,613.
- Teletype Corporation: See—
- Alexander, Thomas Theron; Reszka, Alfons; and Stenerson, Charles Keith, 3,832,637.
- Telewave Systems, Inc.: See—
- Eldridge, Brice, 3,832,733.
- Tell, Karl Gunnar: See—
- Siwersson, Olle Lennart; and Tell, Karl Gunnar, 3,831,349.
- Temperature Control Inc.: See—
- Wicken, Robert H.; and Potter, Harland C., 3,832,144.
- Tenne, Lave, to Hasselblad, Fritz Victor. Image dividing mechanism in photographic cameras for unperforated rollfilm. 3,832,729, Cl. 354-213.000.
- Tenneco Chemicals, Inc.: See—
- Wang, Wu Lan, 3,832,214.
- Tennessee Valley Authority: See—
- Hignett, Travis P.; and Smith, Anthony J., 3,832,154.
- Terada, Hideto: See—

- Hijikata, Itsuo; Kasazaki, Masayoshi; Terada, Hideto; and Inoue, Takao, 3,832,117.
- Teraoka, Fuminori: See—
- Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, 3,831,702.
- Kaneko, Yuichiro; Teraoka, Fuminori; Kubota, Tatsushi; and Nishikawa, Takehiko, 3,831,971.
- Terlop, Robert R.: See—
- Rowe, Edgar R.; and Terlop, Robert R., 3,831,798.
- Terrell, Olney B., to United States of America, Air Force. Method of connecting substantial similar metal parts. 3,831,264, Cl. 29-517.000.
- Terry, Lewis E., to Motorola, Inc. Method for improving glass adherence to gold film. 3,832,230, Cl. 117-217.000.
- Terry, Melvin D. Air film pallet. 3,831,708, Cl. 180-119.000.
- Terteling, J. A., & Sons: See—
- Wells, Marvin E., 3,831,388.
- Tesoro, Giuliana C.; Sello, Stephen B.; and Wurster, Rudolf F., to Stevens, J. P., & Co., Inc. Process for improving the dimensional stability of wool-containing fabrics. 3,832,132, Cl. 8-127.600.
- Tessler, Martin M.: See—
- Rutenberg, Morton W.; Tessler, Martin M.; and Kruger, Leo, 3,832,342.
- Tetro, Richard S.: See—
- Phelps, Richard W.; and Tetro, Richard S., 3,831,876.
- Texaco Inc.: See—
- Hess, Howard V.; Cole, Edward L.; and Franz, William F., 3,832,279.
- Knifton, John F.; and Suggitt, Robert M., 3,832,401.
- Texas Instruments Incorporated: See—
- Bazin, Bernard; and Albert, Jean, 3,832,248.
- Blanton, Bobby D., 3,832,667.
- Cox, Paul F., 3,831,432.
- Proebsting, Robert J., 3,832,576.
- Theitu, Raghulunga R., to Xerox Corporation. Wick for oil dispensing apparatus. 3,831,553, Cl. 118-266.000.
- Themelis, Nicholas John; and McKerrow, George Clement, to Noranda Mines Limited. Process for continuous smelting and converting of copper concentrates. 3,832,163, Cl. 75-74.000.
- Thigpen, James L., to CRC-Croze International, Inc. Earth working apparatus. 3,831,684, Cl. 172-248.000.
- Thillardon, Georges: See—
- Royon, Rene; and Thillardon, Georges, 3,831,828.
- Thimm Wellpappen K. G., Firma: See—
- Guhl, Horst, 3,831,835.
- Thimonnier & Cie: See—
- Doyen, Louis, 3,831,821.
- Thomas, Alfred William, to Deutsche Bendix Aurustungs GmbH. Brake booster. 3,831,491, Cl. 91-391.000k.
- Thomas, Eugene P.; Cimildora, Henry F.; and Morin, James A., to CGR Medical Corporation. Cassette load and eject mechanism for spot-film apparatus. 3,832,559, Cl. 250-468.000.
- Thomas, Leonard L. Garment hanger. 3,831,826, Cl. 223-88.000.
- Thomas, Paul W., Jr.: See—
- Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,832,048.
- Thomas, Thomas G., to General Motors Corporation. Multi-piece intake manifold. 3,831,566, Cl. 123-52.0mv.
- Thomas, William B.; and Betts, Robert E., to United States of America, Army. Electroexplosive device. 3,831,523, Cl. 102-28.00r.
- Thompson, Robert M., to Sun Research and Development Company. Polyamide polymer of diaminomethyl adamantane and dicarboxylic acid. 3,832,332, Cl. 260-78.00r.
- Thomson-CSF: See—
- Jacques, Andre; Ostrowsky, Daniel; and Papuchon, Michel, 3,832,567.
- Reboul, Jean Philippe; and Portmann, Jacques, 3,832,706.
- Thrush, Richard G., to Weatherhead Company. The. Blend back proportioning valve. 3,832,007, Cl. 303-6.00c.
- Thulin, Frederick A., Jr.: See—
- Nelsson, Nels; Marchello, Maurice J.; and Thulin, Frederick A., Jr., 3,831,333.
- Thurman Manufacturing Company, The: See—
- Cummins, Millard M.; Keates, Richard H.; Best, Robert G.; and Barr, Donald L., 3,831,442.
- Thurston, Earle P.: See—
- Krebs, David A., 3,831,542.
- Thysen (Great Britain) Limited: See—
- Kempster, Edward, 3,831,384.
- Thysen Niederrhein AG, Hutten- & Walzwerke: See—
- Grewer, Rudolf; Hickmann, Herbert; and Trecker, Hermann, 3,831,787.
- Thysen-Niederrhein AG Hutten-und Walzwerke: See—
- Grewer, Rudolf; and Hickmann, Herbert, 3,831,622.
- Tice, Irvin D. Sterile anesthetic instrument. 3,831,598, Cl. 128-172.100.
- Tijenelis, Donatas: See—
- Boyd, Clinton A.; and Tijenelis, Donatas, 3,832,481.
- Timofeev, Jury Petrovich: See—
- Bazhulin, Alexei Pavlovich; Vinogradov, Evgeny Alexandrovich; Irsova, Natalia Alexandrovna; Mitrofanova, Nina Vasilievna; Timofeev, Jury Petrovich; Fridman, Samuil Aronovich; and Schaenko, Valentina Vasilievna, 3,832,557.
- Tirama AG: See—
- Gsell, Hans Peter; and Kunzler, Friedrich, 3,831,851.
- Tittle, C. Edward: See—
- Kintner, Edwin K.; and Tittle, C. Edward, 3,831,628.
- Titov, Dmitry Vladimirovich: See—
- Selivanov, Anatoly Grigorievich; Makachev, Nikolai Ivanovich; Titov, Dmitry Vladimirovich; and Rotenburg, Alexandr Aronovich, 3,831,638.
- to Jefcoat, I. A., and Thais, Richard R.: See—
- Boyd, Herman L., 3,831,587.
- Toba, Teruo: See—
- Ishizaki, Hiroyuki; Toba, Teruo; and Umeda, Shozo, 3,832,693.
- Todora, Louis John: See—
- Gerding, Charles Christian; and Todora, Louis John, 3,831,659.
- Tokunaga, Makoto: See—
- Matsui, Toshiro; Nakagawa, Masashi; Utagawa, Tadashi; and Tokunaga, Makoto, 3,832,225.
- Tokuno, Masateru, to Rengo Co., Ltd. Slitter scorer apparatus. 3,831,502, Cl. 93-1.00g.
- Tokura, Yasufumi: See—
- Nakao, Hisaji; Naruse, Katutoshi; Hasegawa, Kazuhiko; Kawade, Sadao; Tokura, Yasufumi; and Matsuno, Kazuo, 3,832,696.
- Tokyo Shibaura Denki Kabushiki Kaisha: See—
- Kubo, Moritada; and Nogiwa, Yasuo, 3,832,240.
- Tokyo Shibaura Electric Co., Limited: See—
- Kubo, Mutsuo, 3,832,636.
- Tokyo Shibaura Electric Co., Ltd.: See—
- Matsui, Toshiro; Nakagawa, Masashi; Utagawa, Tadashi; and Tokunaga, Makoto, 3,832,225.
- Tolliver, Wilbur E., to New York Wire Mills Corporation. Method and fabric for forming pipe reinforcement. 3,831,890, Cl. 245-2.000.
- Tomita, Hiroshi, to Minolta Camera Kabushiki Kaisha. Photoconductive cell structure. 3,832,236, Cl. 136-89.000.
- Tompkins, Arthur Henry: See—
- Walden, Rex Keith; Tompkins, Arthur Henry; and Ross, Harold Abraham, 3,831,744.
- Topley, Charles Wilfred, to Armstrong Cork Company. Generation of negative ions. 3,832,554, Cl. 250-423.000.
- Toray Industries, Inc.: See—
- Bamba, Yasuo; and Iwamoto, Masao, 3,832,188.
- Torii, Shuichi: See—
- Nomiyama, Kosei; Minorikawa, Kazuo; Torii, Shuichi; and Hatsu-kano, Yoshikazu, 3,832,578.
- Toriyama, Kazuhisa: See—
- Furuhata, Yoshio; and Toriyama, Kazuhisa, 3,832,033.
- Toromanoff, Edmond: See—
- Hainaut, Daniel; Toromanoff, Edmond; and Demoute, Jean-Pierre, 3,832,353.
- Torrington Company, The: See—
- Elmore, J. Russell; and Benson, Carl F., 3,831,241.
- Toth, Robert L., to Ford Motor Company. Fuel vapor control device. 3,831,353, Cl. 55-387.000.
- Township, Pa.: See—
- Forand, James L., Jr.; and Township, Pa., 3,832,147.
- Toyoda, Kenichi: See—
- Shimizu, Kanryo; Shichida, Hiromichi; and Toyoda, Kenichi, 3,832,610.
- Toyoda Koki Kabushiki Kaisha: See—
- Nakao, Hisaji; Naruse, Katutoshi; Hasegawa, Kazuhiko; Kawade, Sadao; Tokura, Yasufumi; and Matsuno, Kazuo, 3,832,696.
- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
- Konomi, Toshiaki, 3,831,439.
- Trabicc, Gerald W.; Dunn, Wayne C.; and Hakes, Paul E., to Eaton Corporation. Hydrostatic transmission. 3,831,497, Cl. 91-497.000.
- Tragesser, Charles W.; and Perulli, John R., to Westinghouse Electric Corporation. EHV rain-shield and voltage grading ring for high-voltage equipment. 3,832,482, Cl. 174-141.00r.
- Trampier, Charles R., Jr.: See—
- Libera, John J.; and Trampier, Charles R., Jr., 3,832,206.
- Tranquillitsky, George V. Method of making cell structure. 3,831,503, Cl. 93-84.00r.
- Trans World Products, Inc.: See—
- Dunder, David; and Wiley, Sheldon, 3,831,978.
- Trapp, Alvin A.: See—
- Bennett, Joseph J.; and Trapp, Alvin A., 3,831,877.
- Trecker, Hermann: See—
- Grewer, Rudolf; Hickmann, Herbert; and Trecker, Hermann, 3,831,787.
- Treille, Pierre: See—
- Savall, Vincent; Treille, Pierre; and Bouchard, Jean, 3,831,750.
- Tremco Manufacturing Company, The: See—
- Wohl, Sanford M., 3,832,223.
- Tresco, Incorporated: See—
- Korn, Donald L., 3,831,800.
- Triplex Safety Glass Company Limited: See—
- Cleminson, Frederick Antony; and Ariss, Brian Arthur, 3,832,714.
- Tropeano, Joseph C.; and Tropeano, Philip L. Apparatus for snow making. 3,831,844, Cl. 239-14.000.
- Tropeano, Philip L.: See—
- Tropeano, Joseph C.; and Tropeano, Philip L., 3,831,844.
- TRW Inc.: See—
- Bhuta, Pravin G.; Johnson, Robert L.; and Graham, Douglas J., 3,831,756.
- Doyle, William L., 3,832,444.
- Mazur, Sylvester Stanislaus, 3,832,072.
- Tschirky, Hansjorg: See—

Lorch, Eckehard; Sommer, Paul; and Tschirky, Hansjorg, 3,832,140.
 Tsukamoto, Akira: See—
 Hoh, George L. K.; and Tsukamoto, Akira, 3,832,314.
 Tsukamoto, Takuzo, to Fuji Xerox Co., Ltd. Sheet paper feed out device in copier, 3,831,931, Cl. 271-126.000.
 Tsuruoka, Takashi: See—
 Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
 Tucker, Archie J., to Eastman Kodak Company. Disengageable anti-backup device for film cartridge, 3,831,881, Cl. 242-194.000.
 Tuddenham, William M.: See—
 Adamson, David L.; and Tuddenham, William M., 3,832,296.
 Tulkoff, Martin J. Method for compacting thermoplastic film material and apparatus therefor, 3,831,340, Cl. 53-24.000.
 Tully, William Howard: See—
 Gibbs, Everett Ralph; and Tully, William Howard, 3,831,351.
 Tumlinson, James H. III; Mitchell, Everett R.; Browner, Stella M.; Mayer, Marion S.; Green, Nathan; Hines, Ronald W.; and Lindquist, Donald A., to United States of America, Agriculture. Method for disrupting pheromone communication with cis-7-dodecen-1-ol, 3,832,461, Cl. 424-84.000.
 Turecek, Joseph L.: See—
 La Haye, Paul G.; Craig, Glenn D.; and Turecek, Joseph L., 3,832,122.
 Turi, Agnes: See—
 Minko, Sander; Banfi, Dezso; Dobis, Emilia; Ottinger, Jozsef; Payer, Karoly; Palagyi, Tivadar; and Turi, Agnes, 3,832,137.
 Turton, Cecil Nigel: See—
 Dixon, David Rodney; Rose, John Brewster; and Turton, Cecil Nigel, 3,832,330.
 Uehara, Shiro: See—
 Kinoshita, Koichi; Uehara, Shiro; and Nagame, Hiroshi, 3,832,169.
 Uhlenhaut, Rudolf; Rothweiler, Alfred; and Waxenberger, Erich, to Daimler-Benz Aktiengesellschaft. Wheel suspension for vehicles, 3,831,967, Cl. 280-124.00a.
 Ullmann, Martin. Machine for the manufacture of cords and ropes, 3,831,361, Cl. 57-25.000.
 Umeda, Shozo: See—
 Ishizaki, Hiroyuki; Toba, Teruo; and Umeda, Shozo, 3,832,693.
 Umholtz, Franklyn G.: See—
 Dalton, William S.; and Umholtz, Franklyn G., 3,831,276.
 Unifoam AG: See—
 Berg, Laeder, 3,832,099.
 Unilan A.G.: See—
 Appleton, Bernard Simon, 3,831,922.
 Union Brass and Metal Manufacturing Company: See—
 Anthony, Robert C.; and Byland, Donald W., 3,831,621.
 Union Carbide Corporation: See—
 Elbert, Raymond J.; and Farrier, Ernest G., 3,831,258.
 Union Oil Company of California: See—
 Hass, Robert H., 3,832,443.
 Union Plastics Corporation: See—
 Broadwin, Samuel, 3,831,602.
 Union Specialty Machine Company, mesne: See—
 Bernstein, Benjamin T.; Crawshaw, James R.; and McCurry, Morris H., 3,832,613.
 Uniroyal AG: See—
 Senger, Gerhard Franz-Josef; and Poque, Dionysius Josef, 3,831,656.
 Uniroyal, Inc.: See—
 Glowacki, Anthony S., 3,831,368.
 Hageman, Howard A., 3,832,378.
 Little, Julian R.; Nudenberg, Walter; and Rim, Yong S., 3,832,422.
 United Aircraft Corporation: See—
 Cox, Arthur R.; and Holiday, Paul R., 3,832,107.
 Richard, Clyde C., Jr.; and Vranos, Alexander, 3,831,375.
 United Aircraft Products, Inc.: See—
 Degroote, Raymond S., 3,831,247.
 United Can Company: See—
 Wolfe, Wayne F., 3,831,416.
 United Kingdom Atomic Energy Authority: See—
 Hayden, Owen; and Taylor, Derek, 3,831,673.
 Nelson, Richard Stuart; Mazey, David John; and Hudson, John Adrian, 3,832,219.
 United Kingdom of Great Britain and Northern Ireland, Secretary of State for Defence in Her Britannic Majesty's Government of the: See—
 Critchley, John Phillip, 3,832,322.
 United States Bronze Powders, Inc.: See—
 Wilson, Stanmore V.; and Matthews, Paul E., 3,832,156.
 United States Forgemart Corporation: See—
 Martin, Robert, 3,831,994.
 United States Gypsum Company: See—
 Nelsson, Nels; Marchello, Maurice J.; and Thulin, Frederick A., Jr., 3,831,333.
 United States of America: See—
 Green, Samuel I.; and Dreisewerd, Douglas W., 3,832,543.
 Agriculture: See—
 Hoffman, Glenn J.; and Rawlins, Stephen L., 3,831,435.

Kenney, Harold E.; Donahue, Edward T.; and Maerker, Gerhard, 3,832,368.
 Rothman, Edward S.; and Serota, Samuel, 3,832,415.
 Tumlinson, James H. III; Mitchell, Everett R.; Browner, Stella M.; Mayer, Marion S.; Green, Nathan; Hines, Ronald W.; and Lindquist, Donald A., 3,832,461.
 Weaver, Elmer A.; Hopkins, William J.; and Korn, Alfred H., 3,832,130.
 Air Force: See—
 Aponyi, Theodore J.; and Arvay, Edward A., 3,832,320.
 Terrell, Ollney B., 3,831,264.
 Army: See—
 Archibald, Paul B., 3,832,266.
 Denomme, Maurice R., 3,832,265.
 Pollin, Irvin, 3,831,524.
 Thomas, William B.; and Betts, Robert E., 3,831,523.
 Widner, Rayburn K.; and Rodgers, Aubrey, 3,831,323.
 Atomic Energy Commission: See—
 Carter, Daniel G. Jr., 3,832,439.
 Crisler, Larry R.; and Eggerman, William G., 3,832,222.
 Malthouse, William B.; and Masters, David R., 3,832,426.
 Ridgway, Malcolm G., 3,831,203.
 National Aeronautics and Space Administration: See—
 Fortini, Anthony, 3,832,290.
 Navy: See—
 Casey, Robert J., 3,831,858.
 Geres, Robert J., 3,831,546.
 Hall, Leland S.; and Heffan, Howard, 3,832,564.
 Rein, Charles R., 3,831,594.
 Roberts, Thomas G., 3,832,650.
 Rubin, David, 3,832,713.
 Runck, Alan H.; and Valeri, Cesare Robert, 3,832,139.
 Navy, mesne: See—
 Miller, John E.; Shaver, Eugene L.; and Stone, Jack C., 3,831,879.
 Petrilla, Anthony D.; and Smith, Edwin B., 3,832,710.
 United States Steel Corporation: See—
 Anderton, John J.; Dudzic, Max S.; and Wrhen, Wilmer C., 3,831,661.
 Universal Dynamics Corporation: See—
 Hek, Homer C., 3,832,005.
 Universal Oil Products Company: See—
 Darling, Dorothy E., 3,832,413.
 University of Akron, The: See—
 Farona, Michael F.; and White, James F., 3,832,403.
 University of California, The Regents of the: See—
 Edmunds, Louis Henry, Jr.; and Braley, Silas A., 3,831,583.
 Up-Right, Inc.: See—
 Johnson, Wallace J. S., 3,831,516.
 Upadhyayula, Chainulu Lakshminarasimha; and Narayan, Subrahmanyam Yegna, to RCA Corporation. Dynamic dividing circuit for dividing an input frequency by at least three, 3,832,652, Cl. 331-107.00g.
 Upjohn Company, The: See—
 Cleveland, Bruce B.; and Dougan, Thomas P., 3,832,263.
 Lincoln, Frank H., Jr.; and Pike, John E., 3,832,379.
 Upton, Kurtis D. Board game apparatus, 3,831,944, Cl. 273-131.0bb.
 Urban, Kurt: See—
 Eichler, Norbert; and Urban, Kurt, 3,831,482.
 U.S. Philips Corporation: See—
 de Niet, Edmond, 3,832,487.
 Donkersloot, Hendrik Cornelis; and Van Vucht, Johannes Hendrikus Nicolaas, 3,832,243.
 Janssen, Daniel Johannes Gerardus, 3,832,639.
 Nederlof, Anton Marie, 3,831,380.
 Usdan, Michael D. Spectacles positioning apparatus, 3,832,043, Cl. 351-123.000.
 USM Corporation: See—
 James, Peter A., 3,831,424.
 Skierski, Edwin J., 3,831,415.
 Utagawa, Tadashi: See—
 Matsui, Toshiro; Nakagawa, Masashi; Utagawa, Tadashi; and Tokunaga, Makoto, 3,832,225.
 Vabaoya, Juri Felixovich: See—
 Aarna, Agu Yanovich; Kiisler, Karl Ritsovich; Kristyanson, Peep Gerkhardovich; Tanner, Juri Albert-Mikhaelovich; Vabaoya, Juri Felixovich; Vaitenberg, Gershonovich; Rokk, Juri Khindrekovich; and Matvere, Toomas Oskarovich, 3,832,251.
 Vadas, Leslie, to FMC Corporation. Table top pineapple slicing and chunking, 3,831,469, Cl. 83-39.000.
 Vadnay, Attila: See—
 Gelman, Charles; and Vadnay, Attila, 3,831,759.
 Vaitenberg, Gershonovich: See—
 Aarna, Agu Yanovich; Kiisler, Karl Ritsovich; Kristyanson, Peep Gerkhardovich; Tanner, Juri Albert-Mikhaelovich; Vabaoya, Juri Felixovich; Vaitenberg, Gershonovich; Rokk, Juri Khindrekovich; and Matvere, Toomas Oskarovich, 3,832,251.
 Valdman, Ilya V.: See—
 Byzov, Gennady V.; Valdman, Ilya V.; Mazurovsky, Boris Y.; and Yakibjuk, Ivan E., 3,831,420.
 Valenta, James D.; Sielaff, Ulrich; and Drabkin, Stephen H., to Airco, Inc. Respirator, 3,831,595, Cl. 128-145.800.
 Valeri, Cesare Robert: See—
 Runck, Alan H.; and Valeri, Cesare Robert, 3,832,139.
 Vamos, Gyorgy: See—

Kapolyi, Laszlo; Kaszanitzky, Ferenc; Lazar, Ferenc; and Vamos, Gyorgy, 3,832,164.
 Van Den Bosch, Francois J. G. Spectrophotometrical apparatus for determining dosing substances in a liquid, 3,832,062, Cl. 356-97.000.
 Van Der Bor, Robert: See—
 Mitchell, Richard R.; and Van Der Bor, Robert, 3,832,446.
 Van Doorn, Donald W.; Hawkins, James B.; and Williams, Roy T., to Lummus Industries, Inc. Cutter reels for fiber cutting apparatus, 3,831,481, Cl. 83-674.000.
 Van Dorn Company: See—
 Rowe, Edgar R.; and Terlop, Robert R., 3,831,798.
 Van Grinsven, Petrus F. A., to Shell Oil Company. Process for the removal of cyclopentadiene from hydrocarbon mixtures, 3,832,416, Cl. 260-861.50r.
 Van Herten, Jozef Marie, to Oce-Van der Grinten N.V. Method and apparatus for folding sheets such as drawings, 3,831,927, Cl. 270-79.000.
 Van Heyningen, Arent H.; and Engelhardt, Bjorn H., to Raytheon Company. Minimal dissipation power controller, 3,832,643, Cl. 330-15.000.
 Van Staveren, Joannes: See—
 Brok, Wilhelm Fredrik; Spanjersberg, Arie Adriaan; and Van Staveren, Joannes, 3,832,682.
 Van Vucht, Johannes Hendrikus Nicolaas: See—
 Donkersloot, Hendrik Cornelis; and Van Vucht, Johannes Hendrikus Nicolaas, 3,832,243.
 van Zon, Cornelis, to Industriële Onderneming Wavin N.V. Method for manufacturing a transversely or helically grooved plastic tube with a smooth inner wall, 3,832,259, Cl. 156-293.000.
 Vanderklaauw, Peter M., to Research Corporation. Method of erecting a multi-story building and apparatus therefor, 3,831,902, Cl. 254-105.000.
 Vanheertum, Johannes Josephus: See—
 Janssens, Wilhelmus; Vanheertum, Johannes Josephus; Poot, Albert Lucien; and Pollet, Robert Joseph, 3,832,171.
 Vari-Light Corporation: See—
 Greguss, Pal, 3,831,434.
 Varian Associates: See—
 Helgeland, Walter, 3,832,642.
 Nelson, Richard B.; Lien, Erling L.; and Miram, George V., 3,832,596.
 Vatterott, Oskar F., to Shinkle, Jackson J. Fluid clock mechanism, 3,831,371, Cl. 58-2.000.
 Vendmart, Inc.: See—
 Deaton, James M.; and Deaton, Clarence M., 3,831,807.
 Vennard & Ellithorpe Ltd.: See—
 Ellithorpe, Ernest Ralph; and Fletcher, Ronald Bruce, 3,832,145.
 Venot, Jean, to Chavanoz S.A. Thread feeding device for textile machines, 3,831,830, Cl. 226-171.000.
 Vepa AG: See—
 Fleissner, Hans, 3,831,473.
 Vepa Aktiengesellschaft: See—
 Fleissner, Heinz, 3,831,666.
 Ver Planck, Peter; and Johannessen, Paul R., to Megapulse Incorporated. Over-current latch-up protection apparatus for SCR inverter circuits and the like, 3,832,573, Cl. 307-202.000.
 Vereinigte Österreichische Eisen- und Stahlwerke-Alpine Montan Aktiengesellschaft: See—
 Moser, Peter, 3,831,917.
 Verstraete, Jerome A.; Noonan, John M.; and Neubert, Richard W., to Eastman Kodak Company. Novel photoresist article and process for its use, 3,832,176, Cl. 96-67.000.
 Villano, John A. Method for milling cams for swiss-type screw machines, 3,831,487, Cl. 90-11.00c.
 Villari, Frank K.: See—
 McWhorter, Daniel M.; and Villari, Frank K., 3,831,823.
 Villavicencio, Eduardo J., to Process Evaluation and Development Corporation. Prehydrolysis and digestion of bagasse fibers, 3,832,278, Cl. 162-80.000.
 Vinner, Tihamer S., 50% to SLM Plastics, Inc. Plural motor control circuit, 3,832,616, Cl. 318-576.000.
 Vinogradov, Evgeny Alexandrovich: See—
 Bazhulin, Alexei Pavlovich; Vinogradov, Evgeny Alexandrovich; Irsova, Natalia Alexandrovna; Mitrofanova, Nina Vasilievna; Timofeev, Juri Petrovich; Fridman, Samuil Aronovich; and Schaeenko, Valentina Vasilievna, 3,832,557.
 Vissing, Ellin D., to Butler Creek Company. Lens cover and operating button assembly, 3,831,285, Cl. 33-244.000.
 Vladkov, German Matveevich: See—
 Dubovsky, Boris Grigorievich; Bogatyrev, Viktor Konstantinovich; Vladkov, German Matveevich; and Sviridenko, Valentina Yakovlevna, 3,832,563.
 Voglesonger, Harry M., to Dynamics Corporation of America. Grass-trimmer, 3,831,278, Cl. 30-276.000.
 Vogt, Kuno J. Telephone attachment for limiting dialing, 3,832,497, Cl. 179-90.00d.
 von Mehren, Juan Puertas, to Elementos Para Traccion y Excavacion, S.A. Device for fixing teeth to tooth holders in earth-moving machines, 3,832,077, Cl. 403-379.000.
 Vornberger, Walter, to International Shoe Machine Corporation. Method and machine for cement lasting, 3,831,216, Cl. 12-145.000.
 Vornberger, Walter, to International Shoe Machine Corporation. Roughing machine with roughing tool sharpening mechanism, 3,831,405, Cl. 69-6.500.

Vranos, Alexander: See—
 Richard, Clyde C., Jr.; and Vranos, Alexander, 3,831,375.
 Vrba, James J., to GTE Automatic Electric Laboratories Incorporated. Link accessing arrangement including square-wave clock generator, 3,832,496, Cl. 179-18.00j.
 Wabco Westinghouse: See—
 Deschenes, Roger, 3,832,014.
 Wachtel, Melvin: See—
 Gallagher, Ruth E.; Harrington, Charles L.; and Wachtel, Melvin, 3,832,318.
 Wacker Corporation: See—
 Oderbeck, Rudolph G.; and Mattern, Horst H., 3,832,081.
 Wada Seiko Kabushiki Kaisha: See—
 Nishikawa, Hideo, 3,832,024.
 Wade, James L.: See—
 Koger, Joseph A., Jr.; and Wade, James L., 3,831,421.
 Wagman, Gerald H.: See—
 Weinstein, Marvin J.; Luedemann, George M.; and Wagman, Gerald H., 3,832,286.
 Wagner, William T., to Dayco Corporation. Fountain divider, 3,831,517, Cl. 101-208.000.
 Wahlmark, Gunnar A., to Wahlmark Systems, Inc. Rack and pinion power steering, 3,831,697, Cl. 180-79.20r.
 Wahlmark Systems, Inc.: See—
 Wahlmark, Gunnar A., 3,831,697.
 Wain, John. Adjustable work piece holder, 3,831,324, Cl. 51-237.00r.
 Wakasa, Ryoichi: See—
 Imamura, Juichi; Wakasa, Ryoichi; Saito, Takeshiro; and Ishikawa, Tomeyoshi, 3,832,392.
 Wakeman, Alden H., to Crepac, Inc. Ingredient dispersing apparatus, 3,831,906, Cl. 259-6.000.
 Walbridge, Lyman H., to Kidde, Walker & Company, Inc. Burner control system, 3,832,123, Cl. 431-78.000.
 Walden, Rex Keith; Tompkins, Arthur Henry; and Ross, Harold Abraham, to Ross Bros. (London) Limited. Containers, 3,831,744, Cl. 206-386.000.
 Wallack, Stanley, to Oceanetics, Inc. Gas detector unit, 3,832,548, Cl. 250-343.000.
 Wallard, John J. Egg boiler or cooker, 3,831,508, Cl. 99-440.000.
 Waller, John G.: See—
 Roberts, John T.; Waller, John G.; Harris, George E.; and Ovrick, Richard L., 3,832,258.
 Walton, Nelson R.; and 1/2 to Durigan, Eugene S. Pivotal support for a chair for semi-invalids, 3,831,960, Cl. 280-79.100.
 Wanek, Paul Victor, to Warwick Electronics Inc. Modulator clamp circuit, 3,832,486, Cl. 178-7.100.
 Wang, Chao C., to Sperry Rand Corporation. Circuit for generating a single high voltage subnanosecond pulse from a step recovery diode, 3,832,568, Cl. 307-106.000.
 Wang, Ting-I: See—
 Nakaguchi, Glenn M.; Wang, Ting-I; and Caserio, Frederick F., Jr., 3,832,356.
 Wang, Wu Lan, to Tenneco Chemicals, Inc. Elastomeric film and product therefrom, 3,832,214, Cl. 117-47.00r.
 Wanger, Robert Price, to General Electric Company. Propulsion nozzle and actuator system employed therein, 3,831,493, Cl. 91-411.00r.
 Ward, John Wesley, Jr.: See—
 Flippin, George Burdine, Jr.; and Ward, John Wesley, Jr., 3,831,831.
 Warner and Swasey Company, The: See—
 Schuman, Ralph H., 3,831,402.
 Warner Electric Brake & Clutch Company: See—
 Baer, John S., 3,831,724.
 Warner, Frederick Eugene. Awning-storm shutter and spring clip attachment means, 3,831,319, Cl. 49-62.000.
 Warner-Lambert Company: See—
 Sahaydak, Miroslaw, 3,832,473.
 Warwick Electronics Inc.: See—
 Miller, Marvin E., 3,832,594.
 Wanek, Paul Victor, 3,832,486.
 Was, Wilfred L., to Ford Motor Company. Transmission fluid heat exchanger in a motor vehicle cooling system, 3,831,671, Cl. 165-154.000.
 Watanabe, Hiroshi: See—
 Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
 Watanabe, Kikuo: See—
 Matsuzawa, Hideto; Watanabe, Kikuo; and Inuzuka, Isao, 3,831,715.
 Watanabe, Koichiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Electromagnet driving switch arrangement for electronic camera shutters, 3,832,052, Cl. 354-51.000.
 Watanabe, Tetsuro: See—
 Niida, Taro; Inoue, Shigeharu; Tsuruoka, Takashi; Shomura, Takashi; Kondo, Yasumitsu; Ogawa, Yasuaki; Watanabe, Hiroshi; Sekizawa, Yasuharu; Watanabe, Tetsuro; and Igarashi, Hiroshi, 3,832,394.
 Waterman, Fred W.; Katyll, Tadeusz; and Eldridge, Colin C., to Otter Tail Power Company, mesne. Railroad car construction, 3,831,792, Cl. 214-421.00r.
 Watson, John Samuel; Watson, Richard John; and Watson, Robert Gordon. Trampoline frame, 3,831,936, Cl. 272-65.000.

- Watson, Richard John: See—
Watson, John Samuel; Watson, Richard John; and Watson, Robert Gordon, 3,831,936.
- Watson, Robert F., Jr.; Labovitz, Carl; and Mulik, Peter R., to Westinghouse Electric Corporation. Waste treatment system. 3,831,758, Cl. 210-199.000.
- Watson, Robert Gordon: See—
Watson, John Samuel; Watson, Richard John; and Watson, Robert Gordon, 3,831,936.
- Watts, Loyal O.: See—
Helton, Eugene L.; and Watts, Loyal O., 3,831,298.
- Waukesha Foundry Company, Inc.: See—
Allard, Gordon H., 3,831,859.
- Waxenberger, Erich: See—
Uhlenhaut, Rudolf; Rothweiler, Alfred; and Waxenberger, Erich, 3,831,967.
- Waymouth, John F.; Koury, Frederic; and Gungle, Warren Calvin, to GTE Sylvania Incorporated. Heavily loaded metal halide discharge lamp. 3,832,587, Cl. 313-184.000.
- Wean United, Inc.: See—
Ritter, Hans-Georg; and Weiser, Ulrich, 3,831,417.
- Weatherhead Company, The: See—
Patel, Hiralal V.; and Liggett, Arthur E., 3,831,951.
- Thrush, Richard G., 3,832,007.
- Weaver, Elmer A.; Hopkins, William J.; and Korn, Alfred H., to United States of America, Agriculture. Method and composition for preventing deterioration of hides from freshly slaughtered animals. 3,832,130, Cl. 8-94.180.
- Weaver, Ernest Paul: See—
Pavlica, Stanley Ronald; and Weaver, Ernest Paul, 3,832,194.
- Weber, Donald R.; Leaf, Harry Vincent; and Daly, Charles Joseph, to Ark-Les Switch Corporation. Apparatus for assembling insulated terminals. 3,831,254, Cl. 29-203.000.
- Weber, Heinz, to Telesco Brophy Limited. Umbrella. 3,831,613, Cl. 135-20.00r.
- Weber, Heinz, to Bemshey AG. Collapsible umbrella. 3,831,614, Cl. 135-25.000.
- Weber, Howard F., to Motorola, Inc. Variable dwell ignition system. 3,831,571, Cl. 123-148.00e.
- Weber, Kenneth E.: See—
Hoch, Geraldine M.; and Weber, Kenneth E., 3,832,239.
- Weese, Harry M. Modular building construction system using segmented column assembly. 3,831,332, Cl. 52-236.000.
- Wehrli, Pius Anton, to Hoffmann-La Roche Inc. Quinone intermediates for synthesis of 6-hydroxydopamine. 3,832,365, Cl. 260-396.00r.
- Weier, Roman J.: See—
Howard, Richard W.; and Weier, Roman J., 3,831,733.
- Weigel, Peter: See—
Mohr, Hans; Weigel, Peter; and Metzl, Kurt, 3,831,328.
- Weigele, Manfred: See—
Leimgruber, Willy; and Weigele, Manfred, 3,832,362.
- Weil, Edward D.; and Fearing, Ralph, to Stauffer Chemical Company. Use of triazinylamino alkyl phosphonates for the flameproofing of textiles. 3,832,227, Cl. 117-136.000.
- Weiler, Norbert R.: See—
Lapp, John; and Weiler, Norbert R., 3,831,234.
- Weiler, Rolf: See—
Schmidt, Herbert; Weiler, Rolf; and Czich, Erhard, 3,831,634.
- Weinstein, Marvin J.; Luedemann, George M.; and Wagman, Gerald H., to Schering Corporation. Sisomicin and methods for its production. 3,832,286, Cl. 195-80.000.
- Weis, Frank G.: See—
Goodman, Brian L.; Weis, Frank G.; and Mikkelsen, Kenneth A., 3,831,755.
- Weiser, Ulrich: See—
Ritter, Hans-Georg; and Weiser, Ulrich, 3,831,417.
- Weiss, Armin K.; and Spahn, Robert G., to Eastman Kodak Company. Method for producing a photoconductive element. 3,832,298, Cl. 204-192.000.
- Weiss, George. Technique for eliminating pilling in shirt collars. 3,831,200, Cl. 2-143.000.
- Weissenburg, Per Torsten. Tower type heat exchangers for heat interchange between gases heated to different temperatures. 3,831,668, Cl. 165-107.000.
- Weistrop, Elizabeth N. Multi-figure zipper bag toy. 3,831,316, Cl. 46-153.000.
- Wellinger, Roger Paul, to Gillette Company, The. Electric shavers. 3,831,273, Cl. 30-43.920.
- Wellman Company: See—
Polleys, Herbert R., 3,831,479.
- Wellman Incandescent Furnace Company Limited: See—
Derbyshire, Alfred; Ivins, Kenneth William; and Whetton, Edward Thomas, 3,832,129.
- Wells, Marvin E., to Terteling, J. A., & Sons. Method for laying pipe. 3,831,388, Cl. 61-721.000.
- Weltronic Company: See—
O'Neal, George, Jr., 3,832,518.
- Weninger, Peter. File for sharpening ski-edges. 3,831,235, Cl. 29-78.000.
- Wentorf, Robert H., Jr.; and Rocco, William A., to General Electric Company. Composite wire drawing die. 3,831,428, Cl. 72-467.000.
- Wernitz, Charles W., to Alvey, Inc. Drum or barrel palletizer apparatus. 3,831,782, Cl. 214-6.00p.
- Westerlund, Tage: See—
Hedman, Jarl; and Westerlund, Tage, 3,831,714.
- Western Electric Company Incorporated: See—
Bresnahan, Eileen E.; Lias, Nicholas C.; Kolb, Ernest D.; and Laudise, Robert A. (said Bresnahan and said Lias assors. to), 3,832,146.
- Frank, Edward L., Jr.; and Hyde, William J., 3,832,215.
- Louzon, Theodore J.; McMahon, William; and Mellon, John J. (said Louzon and said Mellon assor. to), 3,831,265.
- Westinghouse Air Brake Company: See—
Grundy, Reed H., 3,832,599.
- Olson, Paul E.; and Knight, Homer A., 3,831,490.
- Shaffer, Ronald, 3,831,968.
- Westinghouse Bremsen- und Apparatebau GmbH: See—
Pekrul, Ewald, 3,832,016.
- Westinghouse Electric Corporation: See—
Azinger, Frederick A., Jr., 3,831,430.
- Bariko, John, 3,832,545.
- Berman, Herbert S., 3,832,668.
- Buchanan, James E.; and Nelson, Carl W., 3,832,707.
- Carlson, Norman R.; and Ronnen, Uri G., 3,832,533.
- Carlson, Norman R.; Zitelli, William E.; and Burtnyk, Victor, 3,832,534.
- Cellerini, Albert R.; and Dobrosielski, Stephen S., 3,832,504.
- Chang, Chen-Kuo, 3,832,583.
- Clark, Russell D., Jr., 3,832,605.
- De Paul, Alseno S., 3,832,584.
- Draper, Robert; Beecher, Donald T.; and Ayers, David L., 3,831,578.
- Duncan, Robert; and Cellier, Francis, 3,831,248.
- Feichtner, John D., 3,832,649.
- Gelzheiser, Francis L., 3,832,663.
- Glatthorn, Raymond H., 3,831,413.
- Gyugyi, Laszlo, 3,832,625.
- Herchenroeder, Louis W., 3,832,641.
- Hinman, Walter L., Jr.; and Gonnar, Russell W., 3,832,601.
- Hoffman, Joseph H., 3,832,091.
- Kilgore, Lee A.; and Oleson, Kenneth A., 3,831,667.
- Larson, Daniel A., 3,832,591.
- McDonald, George M.; and Schul, Richard J., 3,832,582.
- Nugent, John L.; and Claypool, Harry W., 3,832,653.
- O'Keefe, Terence W., 3,832,561.
- O'Keefe, Terence William, 3,832,560.
- Repsher, Robert W.; Tarleton, William A.; and Wilson, William E., 3,832,199.
- Roberts, John S., 3,832,732.
- Sinham Ram R. P., 3,832,660.
- Specht, Theodore R., 3,832,600.
- Szabo, Andras I.; and Diaz, Ricardo A., 3,832,646.
- Tragesser, Charles W.; and Perulli, John R., 3,832,482.
- Watson, Robert F., Jr.; Labovitz, Carl; and Mulik, Peter R., 3,831,758.
- Wolf, Charles B.; Fey, Maurice G.; and Azinger, Frederick A., Jr., 3,832,519.
- Wetzel, Eugene Raymond; and Borders, Donald Bruce, to American Cyanamid Company. D-5-hydroxy-5-phenyllevulinic acid and salts thereof. 3,832,398, Cl. 260-521.00r.
- Weyers, Hugo Jozef, to Parke, Davis & Company. Liquid control system. 3,831,616, Cl. 137-92.000.
- Wheatley, Charles, Inc.: See—
Pittenger, Harold M., 3,831,452.
- Wheaton, Donald S. Baking pan assembly. 3,831,507, Cl. 99-428.000.
- Whetton, Edward Thomas: See—
Derbyshire, Alfred; Ivins, Kenneth William; and Whetton, Edward Thomas, 3,832,129.
- White, Eugene F.; and White, Frances H. Strand material creel and tension control. 3,831,880, Cl. 242-156.000.
- White, Frances H.: See—
White, Eugene F.; and White, Frances H., 3,831,880.
- White, James F.: See—
Farona, Michael F.; and White, James F., 3,832,403.
- Whitey Research Tool Co.: See—
Matousek, Stephen; and Koch, Ulrich H., 3,831,900.
- Whittaker, Alvin. Shoulder strap bag. 3,831,649, Cl. 150-1.700.
- Widner, Rayburn K.; and Rodgers, Aubrey, to United States of America, Army. Spherical permanent diamond lap and method of use. 3,831,323, Cl. 51-204.000.
- Wiebe, Gerald. Electric fuse thermoplastic encapsulant. 3,832,664, Cl. 337-241.000.
- Wicken, Robert H.; and Potter, Harland C., to Temperature Control Inc. Smoke eliminator. 3,832,144, Cl. 23-277.00c.
- Wienczek, Daniel C., to Harnischfeger Corporation. Mobile crane with telescopic boom and jib and method for connecting the latter. 3,831,771, Cl. 212-55.000.
- Wiggin, Anthony John: See—
Golding, Cyril George; Wiggin, Anthony John; and Beech, Frank, 3,831,645.
- Wiggins, Louis E., to Cities Service Company. Carbon black process. 3,832,450, Cl. 423-450.000.
- Wiley, Sheldon: See—
Dunder, David; and Wiley, Sheldon, 3,831,978.
- Wilke, Gunther; and Heimbach, Paul, to Studiengesellschaft Kohle mbH. Novel nickel alcohols and alcohols thereof and a process of their production. 3,832,371, Cl. 260-439.00r.
- Willemsen, Willem Hendrik. Device for the manufacture of small sticks of dough-like material. 3,832,113, Cl. 425-311.000.

- Williams, Arthur: See—
Rendall, John S.; Rhyne, William Q.; and Williams, Arthur, 3,831,233.
- Williams, Charles R.: See—
Corey, Albert E.; Donermeyer, Donald D.; Fantl, Joel; and Williams, Charles R., 3,832,321.
- Williams, Donald M.: See—
Williams, Donald M.; and Seidel, Charles S., 3,831,901.
- Williams, Donald M.; and Seidel, Charles S., to Williams, Donald M. Vehicle jack with locking means. 3,831,901, Cl. 254-93.00r.
- Williams, Dwight S., Co.: See—
Williams, Robert D., Jr., 3,831,541.
- Williams, Hilton S.: See—
Bolding, Donald B.; and Williams, Hilton S., 3,832,191.
- Williams, Malcolm Clarence, to Girling Limited. Drum brake actuators. 3,831,720, Cl. 188-343.000.
- Williams, Robert D., Jr., to Williams, Dwight S., Co. Device for applying stops to spinnaker sails. 3,831,541, Cl. 114-104.000.
- Williams, Roy T.: See—
Van Doorn, Donald W.; Hawkins, James B.; and Williams, Roy T., 3,831,481.
- Wilson, Eugene M.: See—
Lanz, William E.; and Wilson, Eugene M., 3,831,297.
- Wilson, John B.: See—
Schleppnik, Alfred A.; and Wilson, John B., 3,832,369.
- Wilson, Peter C.; and Hught, Robert P. Recovering filter aid particles from filter cake. 3,831,746, Cl. 209-2.000.
- Wilson, Stanmore V.; and Matthews, Paul E., to United States Bronze Powders, Inc. Powdered metal process. 3,832,156, Cl. 75-50b.
- Wilson, Stewart W.; and Shenk, Edwin K. Wideband frequency compensation system in a sound motion picture projector. 3,832,045, Cl. 352-25.000.
- Wilson, William E.: See—
Repsher, Robert W.; Tarleton, William A.; and Wilson, William E., 3,832,199.
- Wilton, Henry T., to American Optical Corporation. Specimen agitator. 3,831,554, Cl. 118-416.000.
- Windemuth, Erwin; Dahm, Manfred; Richert, Karl Hartwig; and Maaben, Dieter, to Bayer Aktiengesellschaft. Flame-resistant polyurethane foams. 3,832,311, Cl. 260-2.5at.
- Windsor, Robert N., to Eaton Yale Ltd. Clamping and shearing head for a tree harvester. 3,831,647, Cl. 144-34.00e.
- Winterbottom, Kenneth: See—
Massy, Derek James Rowland; and Winterbottom, Kenneth, 3,832,131.
- Wirt, Leslie S., to Lockheed Aircraft Corporation. Sound absorbing panel. 3,831,710, Cl. 181-33.00g.
- Wirth, Pierre Charles, to Societe Generale de Recherche et d'Applications Scientifiques Sogeras. Salts of nitrogen bases and polysaccharide sulfates. 3,832,340, Cl. 260-210.00e.
- Witucki, Edward F.: See—
Frankel, Milton B.; and Witucki, Edward F., 3,832,390.
- Wluka, David Jankiel: See—
Baker, Elizabeth Ann; Wluka, David Jankiel; and Tankey, Howard William, 3,832,209.
- Wochowski, Waldemar; and Baumann, Helmut, to Hauni-Werke Korber & Co., KG. Machine for blending tobacco or the like. 3,831,610, Cl. 131-21.00r.
- Woelk, Robert J., to Besse Company. Vibratile mold with pallet clamping apparatus. 3,832,119, Cl. 425-432.000.
- Wohl, Sanford M., to Tremco Manufacturing Company, The. Method of treating fresh hydraulic cementitious compositions. 3,832,223, Cl. 117-123.00e.
- Wolf, Charles B.; Fey, Maurice G.; and Azinger, Frederick A., Jr., to Westinghouse Electric Corporation. Arc heater with integral fluid and electrical ducting and quick disconnect facility. 3,832,519, Cl. 129-121.00p.
- Wolfe, Baxter K.: See—
Burdick, Robert E.; Baker, Terry M.; and Wolfe, Baxter K., 3,831,525.
- Wolfe, Wayne F., to United Can Company. Necking die assembly with internal rollers. 3,831,416, Cl. 72-117.000.
- Wolgemuth, Dennis L.: See—
Horst, Robert L.; and Wolgemuth, Dennis L., 3,832,064.
- Wolter, Karl Reinhold, to Levy-Russell Limited. Shunting tractor with swivel seat and automatic rear door opener. 3,831,699, Cl. 180-77.00s.
- Wong, Franklin Victor. Piston actuated switch with screw threads on piston and housing. 3,832,505, Cl. 200-158.000.
- Woo, Ji Yah, to Bendix Corporation, The. Tubular push rod means for servomotor. 3,831,489, Cl. 91-32.000.
- Wood, Roland Andrew: See—
Smith, Stanley Desmond; Wood, Roland Andrew; and Dennis, Richard Benson, 3,832,061.
- Woods, Joe W.; and Yosmali, Krikor, to International Business Machines Corporation. Ink jet printing apparatus with overrun of printhead to insure better visibility. 3,831,728, Cl. 197-1.00r.
- Woods, Richard E., to Franklin Electric E., Inc. Electrical timing circuit for controlling energization of a load. 3,832,612, Cl. 318-221.00e.
- Woodward Governor Company: See—
Barrett, William J.; and Green, Harold, 3,832,609.
- Spencer, Bruce G., Jr., 3,832,617.
- Woody, Albert L.; Audiffred, Sidney J.; and Steury, Howard C., to Caterpillar Tractor. Drive train with controlled slipping clutch. 3,831,726, Cl. 192-103.0fa.
- Worman, Roger A.: See—
Nieman, John R.; and Worman, Roger A., 3,831,662.
- Wresch, Herman D., to MacLean-Fogg Lock Nut Co. Retainer key for pedestal side frames. 3,831,531, Cl. 105-221.00k.
- When, Wilmer C.: See—
Anderton, John J.; Dudzic, Max S.; and When, Wilmer C., 3,831,661.
- Wright, Beryle W., to Mill Power Engineering & Manufacturing Co. Scrap cutter machine. 3,831,477, Cl. 83-349.000.
- Wright, Harold A., to Arco Polymers, Inc. Process for making foamed styrene polymers photodegradable. 3,832,312, Cl. 260-2.5hb.
- Wright, Joseph H.: See—
Batter, John F., Jr.; Mason, Paul B.; Stella, Joseph A.; Thomas, Paul W., Jr.; and Wright, Joseph H., 3,832,048.
- Wright, Luther M.; and Epps, William A., to Eastman Kodak Company. Print cutting mechanism for bordered and borderless prints. 3,831,478, Cl. 83-368.000.
- Wrightway Mfg. Co.: See—
Gullaksen, Gilbert V.; and Jatho, George W., 3,831,860.
- Wu, Shu-Yau; and Francombe, Maurice Hubert, Westinghouse Electric Corporation. Ferroelectric memory device. 3,832,700, Cl. 340-173.200.
- Wueger, Karl W., to Crompton & Knowles Corporation. Pneumatic loom. 3,831,640, Cl. 139-125.000.
- Wurster, Rudolf F.: See—
Tesoro, Giuliana C.; Sello, Stephen B.; and Wurster, Rudolf F., 3,832,132.
- Wyand Industries, Inc.: See—
Howard, Richard W.; and Weier, Roman J., 3,831,733.
- Wyss, Escher, GmbH: See—
Fritze, Hartwig E., 3,832,233.
- Kahmann, Albrecht, 3,831,868.
- Xerox Corporation: See—
Bryngdahl, Olof, 3,832,029.
- Fantozzi, Louis J., 3,831,933.
- Goel, Narendra S.; and Fletcher, Gerald M., 3,832,053.
- Hamaker, Ralph A., 3,832,055.
- Shogren, David K., 3,832,057.
- Sullivan, Bernard J.; and Baxter, David G., 3,832,065.
- Theitu, Raghulunga R., 3,831,553.
- Xonics, Inc.: See—
Morsell, Arthur Lee; and Moise, Norton L., 3,832,546.
- Yagi, Toshiaki: See—
Machi, Sueo; Matui, Yasushi; Kurihara, Hirono; Hibi, Yoshiharu; Yagi, Toshiaki; Shinano, Takayuki; and Takehisa, Masaaki, 3,832,207.
- Yakibjuk, Ivan E.: See—
Byzov, Gennady V.; Valdman, Ilya V.; Mazurovsky, Boris Y.; and Yakibjuk, Ivan E., 3,831,420.
- Yamada, Tadashi: See—
Higuchi, Masaru; Yamada, Tadashi; and Suzuki, Ryoshu, 3,832,357.
- Yamada, Takehiro: See—
Mori, Keisuke; Yamada, Takehiro; Nakamoto, Katsumi; Onaka, Hiroshi; Yamamoto, Takeshi; and Kato, Taizo, 3,831,918.
- Yamada, Tateo: See—
Ashida, Akira; and Yamada, Tateo, 3,832,036.
- Yamaguchi, Haruki: See—
Naya, Mikio; Yamaguchi, Haruki; and Horie, Izumi, 3,832,068.
- Yamamoto, Fumihiko: See—
Kawakami, Hajime; and Yamamoto, Fumihiko, 3,831,364.
- Yamamoto, Hisao: See—
Okamoto, Tadashi; Akase, Takeshi; Izumi, Takahiro; Akatsukeda, Mitsuhiro; Dume, Yoshiharu; Inaba, Shigehiro; and Yamamoto, Hisao, 3,832,344.
- Yamamoto, Kazuo: See—
Chada, Hideya; Shimada, Haruo; and Yamamoto, Kazuo, 3,832,166.
- Yamamoto, Sigeo: See—
Tanaka, Shizuya; Ozaki, Toshiaki; Mine, Akihiko; Tanaka, Katsutoshi; Yamamoto, Sigeo; Ooishi, Tadashi; Hino, Naganori; and Satomi, Takeo, 3,832,351.
- Yamamoto, Takashi; Yasukouchi, Kenichi; and Sato, Ryuichi, to Mitsubishi Jukogyo Kabushiki Kaisha. Device for early detection of rupture of the pressure part of a boiler. 3,831,561, Cl. 122-379.000.
- Yamamoto, Takeshi: See—
Mori, Keisuke; Yamada, Takehiro; Nakamoto, Katsumi; Onaka, Hiroshi; Yamamoto, Takeshi; and Kato, Taizo, 3,831,918.
- Yamanouchi, Teruo: See—
Nishide, Katsuhiko; Yamanouchi, Teruo; and Kinjo, Kikuo, 3,832,172.
- Yamaoka, Kojiro; Azuma, Toshiro; and Fujisaki, Koichiro, to Kanzaki Kokyukoki Mfg. Co., Ltd. Tractor driving and steering arrangement. 3,831,690, Cl. 180-6.660.
- Yamashita, Hisateru: See—
Sakai, Hiroshi; Yamashita, Hisateru; and Tanaka, Toshihiro, 3,831,411.
- Yamashita, Seizi: See—
Onishi, Kazuo; Yamashita, Seizi; and Sato, Mikio, 3,831,267.

- Yamauro, Isao; and Tamura, Masahiko, to Pioneer Electronic Corporation. High molecular weight, thin film piezoelectric transducers. 3,832,580, Cl. 310-9.500.
- Yamazaki, Eiichi, to Hitachi, Ltd. Mask electrode support for color picture tube. 3,832,592, Cl. 313-404.000.
- Yamazaki, Haruo; Akutsu, Hidezo; and Okamoto, Takio, to Matsushita Electronics Corporation. High pressure metal-vapour discharge lamp having alumina tube with thickened end portions sealed by alumina disks. 3,832,590, Cl. 313-218.000.
- Yasuda, Shigeo: See—
Kaida, Masaaki; and Yasuda, Shigeo, 3,832,681.
- Yasukouchi, Kenichi: See—
Yamamoto, Takashi; Yasukouchi, Kenichi; and Sato, Ryuichi, 3,831,561.
- Yeakey, Ernest Leon, to Jefferson Chemical Company, Inc. Tertiary polyoxyalkylenepolyamines. 3,832,402, Cl. 260-584.00b.
- Yokoi, Atsusi: See—
Marui, Takao; and Yokoi, Atsusi, 3,832,238.
- Yokoyama, Takeo, to Mitsumi Electric Company, Limited. Ultrasonic delay line. 3,832,655, Cl. 333-30.00r.
- Yonce, Everett R. Portable tool container or the like. 3,831,805, Cl. 220-94.00a.
- Yonekura, Yasushi: See—
Akamatsu, Kiyoshi; Maruta, Masayasu; and Yonekura, Yasushi, 3,832,177.
- Yoshi, Ito: See—
Suda, Kataro, 3,831,948.
- Yoshida, Minoru, to Japan Steel Works Ltd. Cutter shaft device in a pelletizing apparatus for synthetic resins. 3,832,114, Cl. 425-313.000.
- Yosmali, Krikor: See—
Woods, Joe W.; and Yosmali, Krikor, 3,831,728.
- Yost, Betty Jane, to Ledex, Inc. Electromagnetically operated latch. 3,831,486, Cl. 89-1.50d.
- Young, David E., to Schlumberger Technology Corporation. Remote controlled safety valve. 3,831,632, Cl. 137-624.130.
- Young, Michael R., to Eaton Corporation. Overload protection device for counterbalance vehicles. 3,831,492, Cl. 91-411.00r.
- Yu, Lin S.: See—
Nesslage, Donald J.; and Yu, Lin S., 3,832,241.
- Yuasa Battery Company Limited: See—
Marui, Takao; and Yokoi, Atsusi, 3,832,238.
- Yum, Su Il; Buckles, Richard G.; and Barrer, Richard M., to ALZA Corporation. Fluid flow control. 3,831,600, Cl. 128-214.00r.
- Zahnradfabrik Friedrichshafen AG: See—
Osterloff, Kurt; and Ruhmschopf, Georg, 3,831,695.
- Zaiser, Wolfgang, to Daimler-Benz Aktiengesellschaft. Planetary gear change-speed transmissions, especially for motor vehicles. 3,831,464, Cl. 74-763.000.
- Zak, Grigory Iosifovich: See—
Anikanov, Nikolai Ivanovich; Grachev, Leonid Pavlovich; Goltsman, Samuil Aronovich; Zak, Grigory Iosifovich; Oleinik, Alexandr Ivanovich; Radutsky, Grigory Avramovich; Kheifets, Rafail Efimovich; and Baburin, Evgeny Arkadievich, 3,831,781.
- Zakharov, Mikhail Fedorovich: See—
Bogdanov, Evdokim Stepanovich; Alexandrov, Alexandr Sergeevich; Schegolev, Vadim Dmitrievich; Savelyev, Vyacheslav Ivancovich; Zakharov, Mikhail Fedorovich; Alexandrov, Jury Nikolaevich; Korsetsky, Gennady Mikhailovich; and Kucher, Arnold Arkadievich, 3,831,418.
- Zeeh, Bernd: See—
Koenig, Karl-Heinz; Kolbinger, Rudolf; Zeeh, Bernd; and Fischer, Adolf, 3,832,389.
- Zenith Carburettor Company Limited, The: See—
Shadbolt, Colin Francis, 3,831,910.
- Zenith Radio Corporation: See—
Cook, Charles A.; and Hajduk, Thaddeus J., 3,832,211.
- Jirka, Howard F., 3,832,483.
- Zentar, Richard L., to T-R Wire Co. Retentive hanger bracket. 3,831,893, Cl. 248-223.000.
- Zimmerman, Dallas D.: See—
Endres, Leland S.; Gehlhoff, Leo F.; and Zimmerman, Dallas D., 3,832,409.
- Zimmermann, Robert E., to Koppers Company, Inc. Metallurgical furnace. 3,831,914, Cl. 266-25.000.
- Zirlin, Amnon Dov, to Centre for Industrial Research (CIR) Ltd. Prevention of crystallization of sparingly soluble flavonoids in food systems. 3,832,475, Cl. 426-365.000.
- Zitelli, William E.: See—
Carlson, Norman R.; Zitelli, William E.; and Burtnyk, Victor, 3,832,534.
- Zoecon Corporation: See—
Henrick, Clive A.; and Siddall, John B., 3,832,361.
- Siddall, John B., 3,832,385.
- Zuege, Charles F., to Allis-Chalmers Corporation. Isolated vehicle control module. 3,831,704, Cl. 180-89.00r.
- Zundel, Arthur P., to National Can Corporation. Safety aerosol can. 3,831,822, Cl. 222-397.000.
- Zutell, George A.: See—
Stanford, Alan G.; and Zutell, George A., 3,831,709.
- 1/2 to Durigan, Eugene S.: See—
Walton, Nelson R.; and 1/2 to Durigan, Eugene S., 3,831,960.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 27TH DAY OF AUGUST, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AMF, Inc.: See—
Holman, Rudolph G. Re. 28,133.
- Bell Telephone Laboratories, Inc.: See—
Bergh, Arpad A., Paola, and Saul. Re. 28,140.
- Bergh, Arpad A., C. R. Paola, and R. H. Saul, to Bell Telephone Laboratories, Inc. Semiconductor epitaxial growth from solution. Re. 28,140, 8-27-74, Cl. 148-172.
- Bradshaw, Christopher P. C.: See—
Turner, Leonard, Bradshaw, and Howman. Re. 28,137.
- British Petroleum Co. Ltd., The: See—
Turner, Leonard, Bradshaw, and Howman. Re. 28,137.
- Davis, Ariel R. Cordless electric cross-connect panel with improved movable contact assembly. Re. 28,134, 8-27-74, Cl. 200-1.
- Freeman, Kenneth G., and M. C. French, to U.S. Phillips Corp. Circuit arrangement including a colour display cathode-ray tube of the index type. Re. 28,132, 8-27-74, Cl. D178-5.
- French, Michael C.: See—
Freeman, Kenneth G., and French. Re. 28,132.
- Gore, Graves T., to Riegel Textile Corp. Apparatus for successively forming disposable diapers. Re. 28,139, 8-27-74, Cl. 156-467.
- Helsley, Grover C.: See—
Lunsford, Carl D., Helsley, and Richman. Re. 28,141.
- Holman, Rudolph G., to AMF, Inc. Method of winding a ball. Re. 28,133, 8-27-74, Cl. 242-3.
- Hull, Charles A. Solid smooth-surface article washing device. Re. 28,135, 8-27-74, Cl. 134-58.
- Kasecky, Joseph J.: See—
Harbaugh, Samuel S., Kasecky, and Murtland. Re. 28,149.
- Lunsford, Carl D., G. C. Helsley, and J. A. Richman, Jr., to A. H. Robins, Co., Inc. Composition containing 3-di-substituted methylene pyrrolidines and methods of treating depression. Re. 28,141, 8-27-74, Cl. 424-274.
- Meckler, Gershon, to National Service Industries, Inc. Comfort conditioning system. Re. 28,136, 8-27-74, Cl. 165-39.
- Murtland, James B., Jr.: See—
Harbaugh, Samuel S., Kasecky, and Murtland. Re. 28,149.
- National Service Industries, Inc.: See—
Meckler, Gershon. Re. 28,136.
- O'Neal, Cothburn M., to Riverside Press, Inc. Voting machine with punch card attachment. Re. 28,138, 8-27-74, Cl. 235-54.
- Paola, Carl R.: See—
Bergh, Arpad A., Paola, and Saul. Re. 28,140.
- Richman, John A., Jr.: See—
Lunsford, Carl D., Helsley, and Richman. Re. 28,141.
- Riegel Textile Corp.: See—
Gore, Graves T. Re. 28,139.
- Riverside Press Inc.: See—
O'Neal, Cothburn M. Re. 28,138.
- Robins, A. H., Co., Inc.: See—
Lunsford, Carl D., Helsley, and Richman. Re. 28,141.
- Saul, Robert H.: See—
Bergh, Arpad A., Paola, and Saul. Re. 28,140.
- Turner, Leonard, C. P. C. Bradshaw, and E. J. Howman, to The British Petroleum Co., Ltd. Olefin preparation. Re. 28,137, 8-27-74, Cl. 260-683.
- U.S. Phillips Corp.: See—
Freeman, Kenneth G., and French. Re. 28,132.

LIST OF PLANT PATENTEEES

- Barberet, Alexandre, and H. Blanc, to Laboratoire de Physiologie Vegetale de la Londe. Carnation plant. 3,602, 8-27-74, Cl. 72.
- Blanc, Henri: See—
Barberet, Alexandre, and Blanc, 3,602.
- Grasso, Louis. Carnation plant. 3,600, 8-27-74, Cl. 70.
- Griggs, William H., and B. T. Iwakiri to The Regents of the University of Calif. Pear tree. 3,599, 8-27-74, Cl. 36.
- Iwakiri, Ben T.: See—
Griggs, William H., and Iwakiri, 3,599.
- Laboratoire de Physiologie Vegetale de la Londe: See—
Barberet, Alexandre, and Blanc, 3,602.
- Moore, Ralph S. Miniature rose plant. 3,601, 8-27-74, Cl. 7.
- Sherrill, Lewis B. Peach tree. 3,603, 8-27-74, Cl. 43.
- University of Calif., The Regents of the: See—
Griggs, William H., and Iwakiri, 3,599.

LIST OF DESIGN PATENTEEES

- Abbott Laboratories: See—
Sears, Harrison W. 232,527.
- Abend, Chester J., J. J. Blenkowski, and J. E. Jolliffe, to SMC Corp. Typewriter. 232,583, 8-27-74, Cl. D64-11.
- Adams, J. Henry. Game board. 232,569, 8-27-74, Cl. D34-5.
- Ajax Hardware Corp.: See—
Zagaroli, David P. 232,517.
- Archinal, Harry B. Table. 232,504, 8-27-74, D6-177.
- Artz, Richard M. Lens cluster unit for photoprinting. 232,582, 8-27-74, Cl. D61-1.
- Barbaro, Ronald D.: See—
Genetelli, Emil J., Barbaro, and Yeh. 232,546.
- Barry Wright Corp.: See—
Wright, David M. 232,508.
- Bartley, Keith D., F. A. Dewhlirst, D. M. Genaro, and J. N. McGarvey. Public telephone support. 232,541, 8-27-74, Cl. D13-1.1.
- Bell Telephone Laboratories, Inc.: See—
Doyle, Francis S., Genaro, Paas, and Prince. 232,562.
- Bendix Corp., The: See—
Michel, Donald E., and McKeown. 232,556.
- Michel, Donald E., and McKeown. 232,557.
- Benjamin, E. Burton, to Master Appliance Corp. Heat gun. 232,554, 8-27-74, Cl. D23-162.
- Berkeley Pump Co.: See—
Rhoda, Ralph A. 232,600.
- Blenkowski, James J.: See—
Abend, Chester J., Blenkowski, and Jolliffe. 232,583.
- Blenkowski, James J., and P. D. Younge, to SCM Corp. Typewriter. 232,586, 8-27-74, Cl. D64-11.
- Boktys, Algimantas K.: See—
Scheffe, John T., and Boktys. 232,587.
- Brown, Dwight C. Golf tee holder and driver head protector. 232,568, 8-27-74, Cl. D34-5.
- Brunswick Corp., The: See—
Miller, Earl E. 232,548.
- Busse, Eileen F. Hooded cape. 232,497, 8-27-74, Cl. D2-179.
- Canfield, A. J., Co.: See—
Canfield, Alan B. 232,520.
- Canfield, Alan B., to A. J. Canfield, Co. Bottle. 232,520, 8-27-74, Cl. D9-96.
- Cannon Mills Co.: See—
Scherer, Nancy A. 232,509.
- Capehart Corp.: See—
Levine, Robert. 232,503.
- Caveney, Jack E., to Panduit Corp. Combined packaging and display container. 232,525, 8-27-74, Cl. D9-224.
- Cheek, Joel A., to Universal Enterprises, Inc. Combined phonograph record and tape cartridge storage rack. 232,507, 8-27-74, Cl. D6-189.
- Chemineer, Inc.: See—
Fenic, John C., Klime, Baridan, and Viemeister. 232,581.
- Cianciolo, Frank P. Scarf. 232,498, 8-27-74, Cl. D2-358.
- Coffin, Stewart T. Spherical polyhedral interlocking puzzle. 232,571, 8-27-74, Cl. D34-15.
- Cotta, Joe E.: See—
McGreevy, Helen N., and Cotta. 232,500.
- Daniel, Eugene T., to Monogram Models, Inc. Stylized model power shovel. 232,573, 8-27-74, Cl. D34-15.
- Deniega, Jose C., to Stop-Motion Devices Corp. Stop motion. 232,509, 8-27-74, D92-15.
- Dentaply Research & Development Corp.: See—
Webb, Ronald C. 232,555.
- Dewhlirst, Fred A.: See—
Bartley, Keith D., Dewhlirst, Genaro, and McGarvey. 232,541.
- Dikoff, Joseph K. Check writer. 232,586, 8-27-74, Cl. D64-11.
- Doyle, Francis S., D. M. Genaro, T. J. Paas, and T. B. Prince, to Bell Telephone Laboratories, Inc. Telephone stand. 232,562, 8-27-74, Cl. D26-14.
- Eastman Kodak Co.: See—
McClare, Andrew V. 232,559.
- Slas, James H. 232,597.
- Eaton Corp.: See—
Spencer, Clifford A. 232,566.
- Eriksen, David: See—
Helser, Milton L., and Eriksen. 232,511.

LIST OF DESIGN PATENTEEES

Family Products, Inc.: See—
Roche, David E. 232,521.
Fenic, John G., D. L. Kime, W. C. Raridan, and R. C. Viemeister, to Chemline, Inc. Right angle drive and pedestal. 232,581, 8-27-74, Cl. D55-1.
Fingerhut Corp.: See—
Meiser, Milton L., and Eriksen. 232,511.
Formica Corp.: See—
Willard, Jack A. 232,595.
Friesen, Wilmer J., and F. A. Hulet, to M. W. Hartman, Mfg. Co., Inc. Jacket for foundry sand mold. 232,577, 8-27-74, Cl. D54-8.
Fushihara, Tomotsuro, to Sandelgurafe Co., Ltd. Water processing appliance. 232,550, 8-27-74, Cl. D23-3.
Genaro, Donald M.: See—
Bartley, Keith D., Dewhlrst, Genaro, and McGarvey. 232,541.
Doyle, Francis S., Genaro, Paas, and Prince. 232,562.
Genetelli, Emil J., R. D. Barbaro, and J. T. Yeh, to Princeton Aqua Science. Waste water analyzer unit. 232,546, 8-27-74, Cl. D16-2.
Golden, Steven T. Golfer's training mat. 232,567, 8-27-74, Cl. D34-5.
Grover, Douglas U. In line filter. 232,551, 8-27-74, Cl. D23-4.
Haberman, Thomas A., to Minnesota Mining and Mfg. Co. Electro-surgical handle. 232,591, 8-27-74, Cl. D83-12.
Hakanson, Ulf F. L., to Skogsagarnas Industrie AB. Carrying tray for beverages cartons or the like. 232,522, 8-27-74, Cl. D9-17.
Hartman, M. W., Mfg. Co., Inc.: See—
Friesen, Wilmer J., and Hulet. 232,577.
Hartz Mountain Corp.: See—
Kissin, Claud W. 232,564.
Heiser, Milton L., and D. Eriksen, to Fingerhut Corp. Cover for cooking pans or the like. 232,511, 8-27-74, Cl. D7-131.
Hermanson, Terry, to Mr. Christmas Inc. Adapter for incandescent light bulb. 232,558, 8-27-74, Cl. D26-1.
Hilden, Heinz W., to Telesco Brophey Ltd. Umbrella handle. 232,598, 8-27-74, Cl. D88-3.
Hinnekamp, Arthur J., to Medical Plastics, Inc. Electrocardiogram plate electrode. 232,589, 8-27-74, Cl. D83-1.
Hulet, Frank A.: See—
Friesen, Wilmer J., and Hulet. 232,577.
Jolliffe, John E.: See—
Abend, Chester J., Blenkowski, and Jolliffe. 232,583.
Kelshish, Edward D. Preassembled modular housing structure. 232,542, 8-27-74, Cl. D13-12.
Kelshish, Edward D. Preassembled modular housing structure. 232,543, 8-27-74, Cl. D13-1.
Kelshish, Edward D. Preassembled modular housing structure. 232,544, 8-27-74, Cl. D13-1.
Kime, Donald L.: See—
Fenic, John G., Kime, Raridan, and Viemeister. 232,581.
Kissin, Claud W., to The Hartz Mountain Corp. Dog dish. 232,564, 8-27-74, Cl. D30-16.
Koyo Fastener and Co., Ltd.: See—
Saisbo, Satoru. 232,519.
Krusinski, Raymond A., to Pretty Products, Inc. Sheet material. 232,596, 8-27-74, Cl. D87-3.
Krusinski, Raymond A., and C. A. Wells, to Pretty Products, Inc. Automobile floor mat. 232,534, 8-27-74, Cl. D12-203.
Krusinski, Raymond A., and C. A. Wells, to Pretty Products, Inc. Automobile floor mat. 232,535, 8-27-74, Cl. D12-203.
Krusinski, Raymond A., and C. A. Wells, to Pretty Products, Inc. Automobile floor mat. 232,536, 8-27-74, Cl. D12-203.
Krusinski, Raymond A., C. A. Wells, and R. A. O'Neill, to Pretty Products, Inc. Automobile floor mat. 232,537, 8-27-74, Cl. D12-203.
Krusinski, Raymond A., C. A. Wells, and R. A. O'Neill, to Pretty Products, Inc. Automobile floor mat. 232,538, 8-27-74, Cl. D12-203.
Krusinski, Raymond A., C. A. Wells, and R. A. O'Neill, to Pretty Products, Inc. Automobile floor mat. 232,539, 8-27-74, Cl. D12-203.
Krusinski, Raymond A., C. A. Wells, and R. A. O'Neill, to Pretty Products, Inc. Automobile floor mat. 232,540, 8-27-74, Cl. D12-203.
Kucera, Joseph B., 1/4 interest of Rudolph L. Lowell. Educational toy car. 232,570, 8-27-74, Cl. D34-15.
Landherr, Lawrence R., to Milwaukee Cylinder Corp. Combined hydraulic cylinder and control valve unit. 232,579, 8-27-74, Cl. D55-1.
Langler, Michael, to Questor Corp. Zoo toy. 232,575, 8-27-74, Cl. D34-15.
Langler, Michael, to Questor Corp. Spinning toy. 232,576, 8-27-74, Cl. D34-15.
Lea, Melvin A. Spoon or similar article. 232,512, 8-27-74, Cl. D7-137.
Lea, Melvin A., to Onelda, Ltd. Spoon or similar article. 232,513, 8-27-74, Cl. D7-137.
Levine, Robert, to Capehart Corp. Cabinet. 232,503, 8-27-74, Cl. D6-154.
Liakouras, Chris: See—
Liakouras, Chris, and William. 232,510.
Liakouras, Chris, and William. Vertical cooking device. 232,510, 8-27-74, Cl. D7-110.
Long, William S., III. Carpet retainer. 232,545, 8-27-74, Cl. D13-7.
Longato, Giuseppe. Chair. 232,501, 8-27-74, Cl. D6-66.
Longrod, Scott J., to SCM Corp. Typebar control guide. 232,584, 8-27-74, Cl. D64-11.
Lowell, Rudolph L.: See—
Kucera, Joseph B. 232,570.
Maddock, Peter, and H. Sjöholm, to Telefonaktiebolaget L.M. Pictet telephone. 232,560, 8-27-74, Cl. D26-14.
Magnijss, Hamilton J. Concrete vibrator. 232,580, 8-27-74, Cl. D55-1.
Marchese, Paul, to TIE/Communications, Inc. Direct station selection console. 232,563, 8-27-74, Cl. D26-14.
Martinielli, Arnold C. Stool. 232,499, 8-27-74, Cl. D6-33.
Master Appliance Corp.: See—
Benjamin, E. Burton. 232,554.
Mattel, Inc.: See—
Rodriguez, Frank N. 232,592.
Mazza, Sergio. Composable bookcase. 232,506, 8-27-74, Cl. D6-184.
McClare, Andrew V., to Eastman Kodak Co. Microfiche encoder or the like. 232,559, 8-27-74, Cl. D26-5.
McCor, John J. Hook attachment for ladders. 232,518, 8-27-74, Cl. D8-246.
McGarvey, John N.: See—
Bartley, Keith D., Dewhlrst, Genaro, and McGarvey. 232,541.
McGreevy, Helen N., and J. E. Cotta. Hanging chair. 232,500, 8-27-74, Cl. D6-47.
McKeown, James E.: See—
Michel, Donald E., and McKeown. 232,556.
Michel, Donald E., and McKeown. 232,557.
Medical Plastics, Inc.: See—
Hinnekamp, Arthur J. 232,589.
Michel, Donald E., and J. E. McKeown, to The Bendix Corp. Electrical contact. 232,556, 8-27-74, Cl. D26-1.
Michel, Donald E., and J. E. McKeown, to The Bendix Corp. Electrical contact. 232,557, 8-27-74, Cl. D26-1.
Miller, Earl E., to The Brunswick Corp. Ornamental surface for a fish lure. 232,548, 8-27-74, Cl. D22-27.
Milwaukee Cylinder Corp.: See—
Landherr, Lawrence R. 232,579.
Minnesota Mining and Mfg. Co.: See—
Haberman, Thomas A. 232,591.
Mr. Christmas, Inc.: See—
Hermanson, Terry. 232,558.
Mol, Jacob C., to Wal Vac, Inc. Wall mountable outlet receptacle for a vacuum cleaning system. 232,514, 8-27-74, Cl. D17-165.
Monogram Models, Inc.: See—
Daniel, Eugene T. 232,573.
Moore, Francis C., and L. R. Perkinson. Electrode pad and tape therefor. 232,590, 8-27-74, Cl. D83-1.
Motorola, Inc.: See—
Stessel, Martin C. 232,561.
Nudell, Arthur A. Pill box. 232,523, 8-27-74, Cl. D9-183.
Onelda Ltd.: See—
Lea, Melvin A. 232,513.
O'Neill, Robert A.: See—
Krusinski, Raymond A., Wells, and O'Neill. 232,537.
Krusinski, Raymond A., Wells, and O'Neill. 232,538.
Krusinski, Raymond A., Wells, and O'Neill. 232,539.
Krusinski, Raymond A., Wells, and O'Neill. 232,540.
Paas, Terrance J.: See—
Doyle, Francis S., Genaro, Paas, and Prince. 232,562.
Panduit Corp.: See—
Caveney, Jack E. 232,525.
Perkinson, Leon R.: See—
Moore, Francis C., and Perkinson. 232,590.
Pretty Products, Inc.: See—
Krusinski, Raymond A. 232,596.
Krusinski, Raymond A., and Wells. 232,534.
Krusinski, Raymond A., and Wells. 232,535.
Krusinski, Raymond A., and Wells. 232,536.
Krusinski, Raymond A., Wells, and O'Neill. 232,537.
Krusinski, Raymond A., Wells, and O'Neill. 232,538.
Krusinski, Raymond A., Wells, and O'Neill. 232,539.
Krusinski, Raymond A., Wells, and O'Neill. 232,540.
Wells, Charles A. 232,530.
Wells, Charles A. 232,531.
Wells, Charles A. 232,532.
Wells, Charles A. 232,533.
Prince, Terry B.: See—
Doyle, Francis S., Genaro, Paas, and Prince. 232,562.
Princeton Aqua Science: See—
Genetelli, Emil J., Barbaro, and Yeh. 232,546.
Prodonta S.A.: See—
Richterich, Joseph P. 232,502.
Questor Corp.: See—
Langler, Michael. 232,575.
Langler, Michael. 232,576.
Rawlings, John H. 232,496.
Rack Specialty Co., The: See—
Steeves, Harrison R., Jr. 232,505.
Radford, Warren S. Therapy table. 232,588, 8-27-74, Cl. D83-1.
Raridan, William C.: See—
Fenic, John G., Kime, Raridan, and Viemeister. 232,581.
Rawlings, John H., to Questor Corp. Thigh pad. 232,496, 8-27-74, Cl. D2-27.
Rhoda, Ralph A., to Berkeley Pump Co. Canopy for a boat jet drive. 232,600, 8-27-74, Cl. D77-1.
Richterich, Joseph P., to Prodonta S.A. Utility stand. 232,502, 8-27-74, Cl. D6-130.
Roche, David E., to Family Products, Inc. Combined bottle and closure therefor. 232,521, 8-27-74, Cl. D9-168.
Rodriguez, Frank N., to Mattel, Inc. Carrying case. 232,592, 8-27-74, Cl. D87-1.
Rosenberg, Isobel K. Animal toilet. 232,565, 8-27-74, Cl. D30-99.
SCM Corp.: See—
Abend, Chester J., Blenkowski, and Jolliffe. 232,583.
Blenkowski, James J., and Younge. 232,585.
Longrod, Scott J. 232,584.
Saisbo, Satoru, to Koyo Fastener and Co., Ltd. Rivet. 232,519, 8-27-74, Cl. D8-271.
Sandelgurafe Co., Ltd.: See—
Fushihara, Tomotsuro. 232,550.

LIST OF DESIGN PATENTEEES

Satten, Michael. Musical toy. 232,574, 8-27-74, Cl. D34-15.
Scheffe, John T., and A. K. Bokty. Modular mobile intensive care unit design. 232,587, 8-27-74, Cl. D83-1.
Scherer, Nancy A., to Cannon Mills Co. Pillowcase or similar article of bed linen. 232,509, 8-27-74, Cl. D6-264.
Schuy, Frank R. Packaging container for comestibles or the like. 232,524, 8-27-74, Cl. D9-219.
Sears, Harrison W., to Abbott Laboratories. Measuring container. 232,527, 8-27-74, Cl. D10-96.
Settle, Glenn. Connector for gutter drain pipe. 232,553, 8-27-74, Cl. D23-45.
Shannon, Joseph E. Frame for mini bikes and the like. 232,529, 8-27-74, Cl. D12-111.
Slas, James H., to Eastman Kodak Co. Projector carrying case. 232,597, 8-27-74, Cl. D87-5.
Sjoholm, Hans: See—
Maddock, Peter, and Sjöholm. 232,560.
Skogsagarnas Industrie AB: See—
Hakanson, Ulf F. L. 232,522.
Smith, Brian S., to Tower Housewares Ltd. Power-driven knife sharpener. 232,516, 8-27-74, Cl. D8-63.
Spencer, Clifford A., to Eaton Corp. Golf club grip. 232,566, 8-27-74, Cl. D34-5.
Speshyock, Reuben F.: See—
Walsh, Wilbert M., and Speshyock. 232,547.
Stanberry, William R., Jr.: See—
Stanberry, William R., Sr., and William R., Jr. 232,528.
Stanberry, William R., Sr., and William R., Jr. Hydrofoil vehicle. 232,528, 8-27-74, Cl. D12-69.
Steck, George L., and Mark A., to Steck Mfg. Co., Inc. Hoe blade. 232,515, 8-27-74, Cl. D8-11.
Steck Mfg. Co., Inc.: See—
Steck, George L., and Mark A. 232,515.
Steck, Mark A.: See—
Steck, George L., and Mark A. 232,515.
Steeves, Harrison R., Jr., to The Rack Specialty Co. Wine storage rack. 232,505, 8-27-74, Cl. D6-188.
Stessel, Martin C., to Motorola, Inc. Two-way radio or similar article. 232,561, 8-27-74, Cl. D26-14.
Stone, Carol. Plastic sheet material. 232,593, 8-27-74, Cl. D87-3.
Stone, Carol. Plastic sheet material. 232,594, 8-27-74, Cl. D87-3.
Stop-Motion Devices Corp.: See—
Deniega, Jose C. 232,599.
TIE/Communications, Inc.: See—
Marchese, Paul. 232,563.
Telefonaktiebolaget L.M.: See—
Maddock, Peter, and Sjöholm. 232,560.
Telesco Brophey Ltd.: See—
Hilden, Heinz W. 232,598.
Torsak, Albert J. Kite. 232,572, 8-27-74, Cl. D34-15.
Tower Housewares Ltd.: See—
Smith, Brian S. 232,516.
Universal Enterprises, Inc.: See—
Cheek, Joel A. 232,507.
Van Cleave, Eugene H. Slitter for sheet material. 232,578, 8-27-74, Cl. D55-1.
Vidler, Anthony. Fishing lure. 232,549, 8-27-74, Cl. D22-28.
Viemeister, Read C.: See—
Fenic, John G., Kime, Raridan and Viemeister. 232,581.
Wal Vac, Inc.: See—
Mol, Jacob C. 232,514.
Wallach, Mark. Clock or similar article. 232,526, 8-27-74, Cl. D10-26.
Walsh, Wilbert M., and R. F. Speshyock. Fly swatter blade. 232,547, 8-27-74, Cl. D22-20.
Watson, Robert R. Plumbing fitting. 232,552, 8-27-74, Cl. D23-40.
Webb, Ronald C., to Dentaply Research & Development Corp. Dental console. 232,555, 8-27-74, Cl. D24-1.
Wells, Charles A.: See—
Krusinski, Raymond A., and Wells. 232,534.
Krusinski, Raymond A., and Wells. 232,535.
Krusinski, Raymond A., and Wells. 232,536.
Krusinski, Raymond A., Wells, and O'Neill. 232,537.
Krusinski, Raymond A., Wells, and O'Neill. 232,538.
Krusinski, Raymond A., Wells, and O'Neill. 232,539.
Krusinski, Raymond A., Wells, and O'Neill. 232,540.
Wells, Charles A., to Pretty Products, Inc. Automobile floor mat. 232,530, 8-27-74, Cl. D12-203.
Wells, Charles A., to Pretty Products, Inc. Automobile floor mat. 232,531, 8-27-74, Cl. D12-203.
Wells, Charles A., to Pretty Products, Inc. Automobile floor mat. 232,532, 8-27-74, Cl. D12-203.
Wells, Charles A., to Pretty Products, Inc. Automobile floor mat. 232,533, 8-27-74, Cl. D12-203.
Willard, Jack A., to Formica Corp. Deep textured decorative laminate. 232,595, 8-27-74, Cl. D87-3.
Wright, David M., to Barry Wright Corp. Card drawer. 232,508, 8-27-74, Cl. D6-199.
Yeh, James T.: See—
Genetelli, Emil J., Barbaro, and Yeh. 232,546.
Younge, Paul D.: See—
Blenkowski, James J., and Younge. 232,585.
Zagaroli, David P., to Ajax Hardware Corp. Pull. 232,517, 8-27-74, Cl. D8-166.

CLASSIFICATION OF PATENTS

ISSUED AUGUST 27, 1974

NOTE.—First number, class; second number, subclass; third number, patent number

276	3,831,278	24	3,831,340	34	3,832,154	161	3,831,475	CLASS 104	637	3,831,556
280	3,831,279	47	3,831,342	103	3,832,155	170	3,831,476	23FS	CLASS 119	
296R	3,831,280	61	3,831,343	329	3,831,344	349	3,831,477	121	11	3,831,557
						368	3,831,478	130	73	3,831,558
						380	3,831,479	252	157	3,831,559
2	3,831,281	6	3,831,345	5	3,831,410	481	3,831,480	CLASS 105	CLASS 122	
169B	3,831,282	32	3,831,346	19	3,831,411	674	3,831,481	197DH	250R	3,831,560
174R	3,831,283	48	3,831,347	59	3,831,412	675	3,831,482	199C	379	3,831,561
184.5	3,831,284	73	3,831,348	82	3,831,413	698	3,831,483	221K	CLASS 123	
244	3,831,285	113	3,831,349	88	3,831,414	847	3,831,484	369A	8.09	3,831,562
317	3,831,286	128	3,831,350	117	3,831,415	1.03	3,832,479	CLASS 106	32EA	3,831,563
344	3,831,287	147	3,831,351	235	3,831,417	275	3,831,485	15AF	47AA	3,831,564
		193	3,831,352	273	3,831,418	CLASS 89	3,831,486	38.3	52MV	3,831,565
1	3,831,288	387	3,831,353	298	3,831,419	1.5D	3,831,487	46	119F	3,831,566
4	3,831,289	418	3,831,354	305	3,831,420	CLASS 90	3,831,488	65	122R	3,831,567
12	3,831,290	484	3,831,355	307	3,831,421	11C	3,831,487	74	148E	3,831,570
20	3,831,291			340	3,831,422	13.05	3,831,488	89	148R	3,831,571
75	3,831,292	10.3	3,831,356	358	3,831,423	CLASS 91	3,831,489	125	179G	3,831,572
131	3,831,294	291	3,831,358	391	3,831,424	32	3,831,490	183	193H	3,831,573
236	3,831,293	294	3,831,357	405	3,831,425	387	3,831,491	281R	CLASS 124	
				448	3,831,426	391	3,831,492	287SB	49	3,831,574
22R	3,831,295			467	3,831,428	411R	3,831,493	287SE	CLASS 125	
35A	3,831,296	2	3,831,360	1R	3,831,429		3,831,494	288B	7	3,831,575
		25	3,831,361	4R	3,831,431	434	3,831,495	300	12	3,831,576
141R	3,831,297	34HS	3,831,362	17A	3,831,430	459	3,831,496	308M	26	3,831,577
142A	3,831,298	34B	3,831,363	23	3,831,432	487	3,831,497	308Q	19R	3,831,578
191A	3,831,299	54	3,831,364	32A	3,831,433	497	3,831,498	308Q	21A	3,831,579
		77.4	3,831,365	67.5H	3,831,434		3,831,499	64	197	3,831,580
21B	3,831,300	77.45	3,831,366	77	3,831,435	34	3,831,498	CLASS 108	270	3,831,581
28C	3,831,303	120	3,831,367	88A	3,831,436	45	3,831,499	8C	286	3,831,582
104.18	3,831,301	140BY	3,831,368	94	3,831,437	68	3,831,500	CLASS 110	68	3,832,233
106.52	3,831,302	144	3,831,369	100	3,831,438		3,831,501	CLASS 111	1R	3,831,583
125G	3,831,304	145	3,831,370	113	3,831,439	1C	3,831,501	1	2B	3,831,584
						1G	3,831,502	CLASS 112	2R	3,831,585
67	3,831,305	2	3,831,371	141A	3,831,441	84R	3,831,503	220	2.05E	3,831,586
79	3,831,306	90R	3,831,372	144	3,831,442	93DP	3,831,505	1	2.05R	3,831,589
				152	3,831,443	93M	3,831,504	CLASS 114	6	3,831,587
6.5	3,831,311	39.33	3,831,373	160	3,831,444		3,832,169	SD	33	3,831,591
42.17	3,831,312	39.51R	3,831,374	194F	3,831,445	1R	3,832,170	77R	104	3,831,592
42.31	3,831,313	39.72R	3,831,375	194R	3,831,446	1.2	3,832,171	104	144C	3,831,593
43.13	3,831,314	226A	3,831,376	195	3,831,447	1.5	3,832,172	144C	202	3,831,594
44.98	3,831,315	274	3,831,377	212	3,831,448	1.6	3,832,173	235WS	142	3,831,595
56	3,831,316	353	3,831,378	300	3,831,449	3	3,832,174	6.1	172.1	3,831,596
		446	3,831,379	336	3,831,450	22	3,832,175	CLASS 116	188	3,831,599
62	3,832,149	524	3,831,380	387	3,831,451	29L	3,832,176	22A	214R	3,831,600
		657	3,831,381	421.5R	3,831,452	35.1	3,832,177	124.1	218PA	3,831,601
				504	3,831,453	50R	3,832,178	137A	218F	3,831,602
2	3,831,313	IR	3,831,382		3,831,454	56	3,832,179	4	222	3,831,603
14	3,831,314	35	3,831,383	89.21	3,831,455	66.3	3,832,180	33.5C	260	3,831,604
74B	3,831,315	46.5	3,831,384	110	3,831,456	67	3,832,181	36.7	263	3,831,605
153	3,831,316	53.54	3,831,385	436	3,831,458	76	3,832,182	44	266	3,831,606
		69A	3,831,386	439	3,831,459	77	3,832,183	47R	303.17	3,831,607
58	3,831,317	72.1	3,831,387	459	3,831,460	101	3,832,184	76P	330	3,831,608
			3,831,388	569	3,831,461	114	3,832,185	93.3	335	3,831,609
111	3,832,151	63	3,831,389	711	3,831,462	114.1	3,832,186	100C	2	3,831,610
180C	3,832,152	101	3,831,390		3,831,463	115P	3,832,187	106C	21R	3,831,611
		125	3,831,391	732	3,831,464	115R	3,832,188	107.2R	4	3,832,234
31	3,831,318	140	3,831,392	869	3,831,465	124	3,832,189	123A	31	3,832,235
62	3,831,319	141	3,831,393					123E	58D	Re.28.135
352	3,831,320	142	3,831,394	CLASS 75	3,832,157	41	3,831,506	136	122	3,831,612
465	3,831,321	235	3,831,395	5BB	3,832,158	428	3,831,507	141	CLASS 135	
		263	3,831,396	5B	3,832,159	440	3,831,508	161UA	20R	3,831,613
163	3,831,322	467	3,831,397		3,832,160	542	3,831,509	212	25	3,831,614
204	3,831,323	476	3,831,398	CLASS 63	3,832,161	553	3,831,510	217	89	3,832,236
237R	3,831,324	2	3,831,398	CLASS 64	3,832,162			218	134	3,832,237
249	3,831,325	21	3,831,400	63	3,832,163	CLASS 100	3,831,511	227	179	3,832,238
320	3,831,326	30R	3,831,401	68B	3,832,164	7	3,831,512	CLASS 118	154	3,831,618
				74	3,832,165	26	3,831,513	7		
79	3,831,327	291	3,832,153	80	3,832,166	37	3,831,514	31.5		
126	3,831,328			125	3,832,167	52	3,831,515	266		
145	3,831,329	50R	3,831,402	170	3,832,168	70	3,831,516	416		
220	3,831,330	126R	3,831,403			116	3,831,517	506		
225	3,831,331			104R	3,831,466	208	3,831,518			
236	3,831,332	199	3,831,404	CLASS 76	3,831,467	368	3,831,519			
241	3,831,333	6.5	3,831,405	CLASS 81	3,831,468	426	3,831,520			
287	3,831,334			CLASS 83	3,831,469		3,831,521			
601	3,831,335	1.5	3,831,406	39	3,831,470	6	3,831,522			
648	3,831,336	18	3,831,407	91	3,831,471	8	3,832,249			
745	3,831,337	84	3,831,408	92	3,831,472	24R	3,831,523			
752	3,831,338	241	3,831,409	100	3,831,473	28R	3,831,524			
758D	3,831,339			143	3,831,474	70.2P	3,831,524			

206	3,831,619	362	3,831,662	87.13	3,831,725	23	3,831,787	76	3,831,845	CLASS 254	93R	3,831,901	614R	3,832,406	207	3,831,954	235A	3,832,577	29	3,832,645	96WG	3,832,028	199R	3,832,088		
269	3,831,620	CLASS 165		103FA	3,831,726	42R	3,831,792	89	3,831,846	93R	3,831,902	615B	3,832,407	279	3,831,955	279	3,832,578	30D	3,832,646	30R	3,832,647	199R	3,832,089			
270	3,831,621	26	3,831,663	CLASS 195		75T	3,831,788	104	3,831,849	CLASS 259	1R	3,831,903	619A	3,832,409	2A	3,831,956	CLASS 308	3A	3,832,019	74	3,832,648	96T	3,832,029	CLASS 416		
340	3,831,622	39	Re.28.136	11	3,832,284	82	3,831,789	127	3,831,850	4	3,831,904	646	3,832,410	11.35D	3,831,956	3A	3,832,019	6C	3,832,020	74	3,832,648	117	3,832,031	95	3,832,090	
344	3,831,623	80	3,831,664	31R	3,832,285	83.24	3,831,790	144	3,831,851	646R	3,832,412	11.35T	3,831,957	11.35T	3,831,957	36C	3,831,958	36.1	3,832,021	94.5L	3,832,649	128	3,832,032	184	3,832,091	
360	3,831,624	87	3,831,665	80	3,832,286	396	3,831,791	175	3,831,852	6	3,831,906	673	3,832,413	36C	3,831,958	79.1	3,831,959	201	3,832,022	94.5P	3,832,650	160LC	3,832,033	220	3,832,092	
377	3,831,625	89	3,831,666	81	3,832,287	454	3,831,793	201	3,831,853	7	3,831,907	673.5	3,832,414	79.1	3,831,959	81A	3,831,960	236	3,832,023	107G	3,832,651	189	3,832,034	222	3,832,094	
493.8	3,831,626	96	3,831,667	139	3,832,288	516	3,831,795	230	3,831,854	191	3,831,908	678	3,832,415	81A	3,831,960	81A	3,831,961	236	3,832,024	116R	3,832,652	214	3,832,035	222	3,832,094	
512.1	3,831,627	107	3,831,668	CLASS 197		731	3,831,795	416	3,831,855	CLASS 260	2.5AT	3,832,311	681.5R	3,832,416	81A	3,831,961	81A	3,831,962	236	3,832,024	116R	3,832,653	231	3,832,036	222	3,832,094
512.15	3,831,628	122	3,831,669	1R	3,831,727	9	3,831,796	422	3,831,856	2.5AT	3,832,311	683D	3,832,417	81A	3,831,962	81A	3,831,963	236	3,832,024	116R	3,832,654	236	3,832,037	222	3,832,094	
525	3,831,629	124	3,831,670	98	3,831,728	256	3,831,798	424	3,831,857	2.5HB	3,832,312	683D	3,832,418	81A	3,831,963	81A	3,831,964	236	3,832,024	116R	3,832,655	236	3,832,038	222	3,832,094	
597	3,831,630	154	3,831,671	168	3,831,730	7.5	3,832,509	424	3,831,858	2.5HB	3,832,312	683D	3,832,419	81A	3,831,964	81A	3,831,965	236	3,832,024	116R	3,832,655	236	3,832,039	222	3,832,094	
606	3,831,631	158	3,831,672	CLASS 198		69C	3,832,510	424	3,831,859	2.5HB	3,832,312	683D	3,832,420	81A	3,831,965	81A	3,831,966	236	3,832,024	116R	3,832,655	236	3,832,040	222	3,832,094	
624.13	3,831,632	166	3,831,673	20R	3,831,732	69C	3,832,510	424	3,831,860	2.5HB	3,832,312	683D	3,832,421	81A	3,831,966	81A	3,831,967	236	3,832,024	116R	3,832,655	236	3,832,041	222	3,832,094	
636.2	3,831,633	177	3,831,675	32	3,831,733	69C	3,832,510	424	3,831,861	2.5HB	3,832,312	683D	3,832,422	81A	3,831,967	81A	3,831,968	236	3,832,024	116R	3,832,655	236	3,832,042	222	3,832,094	
26	3,831,634	CLASS 166		20R	3,831,733	69C	3,832,510	424	3,831,862	2.5HB	3,832,312	683D	3,832,423	81A	3,831,968	81A	3,831,969	236	3,832,024	116R	3,832,655	236	3,832,043	222	3,832,094	
114	3,831,635	82	3,831,676	32	3,831,733	69C	3,832,510	424	3,831,863	2.5HB	3,832,312	683D	3,832,424	81A	3,831,969	81A	3,831,970	236	3,832,024	116R	3,832,655	236	3,832,044	222	3,832,094	
173	3,831,636	128	3,831,677	36	3,831,733	69C	3,832,510	424	3,831,864	2.5HB	3,832,312	683D	3,832,425	81A	3,831,970	81A	3,831,971	236	3,832,024	116R	3,832,655	236	3,832,045	222	3,832,094	
CLASS 139		288	3,831,678	41	3,831,736	75	3,832,513	424	3,831,865	2.5HB	3,832,312	683D	3,832,426	81A	3,831,971	81A	3,831,972	236	3,832,024	116R	3,832,655	236	3,832,046	222	3,832,094	
1E	3,831,637	307	3,831,679	57	3,831,737	76	3,832,514	424	3,831,866	2.5HB	3,832,312	683D	3,832,427	81A	3,831,972	81A	3,831,973	236	3,832,024	116R	3,832,655	236	3,832,047	222	3,832,094	
12	3,831,638	311	3,831,680	255	3,831,737	76	3,832,514	424	3,831,867	2.5HB	3,832,312	683D	3,832,428	81A	3,831,973	81A	3,831,974	236	3,832,024	116R	3,832,655	236	3,832,048	222	3,832,094	
125	3,831,640	CLASS 169		279	3,831,738	76	3,832,514	424	3,831,868	2.5HB	3,832,312	683D	3,832,429	81A	3,831,974	81A	3,831,975	236	3,832,024	116R	3,832,655	236	3,832,049	222	3,832,094	
165	3,831,639	16	3,831,681	CLASS 200		110	3,832,518	424	3,831,869	2.5HB	3,832,312	683D	3,832,430	81A	3,831,975	81A	3,831,976	236	3,832,024	116R	3,832,655	236	3,832,050	222	3,832,094	
92.1	3,831,641	37	3,831,682	1R	Re.28.134	121P	3,832,519	424	3,831,870	2.5HB	3,832,312	683D	3,832,431	81A	3,831,976	81A	3,831,977	236	3,832,024	116R	3,832,655	236	3,832,051	222	3,832,094	
106	3,831,642	CLASS 172		51R	3,832,503	130	3,832,520	424	3,831,871	2.5HB	3,832,312	683D	3,832,432	81A	3,831,977	81A	3,831,978	236	3,832,024	116R	3,832,655	236	3,832,052	222	3,832,094	
CLASS 141		4.5	3,831,683	61.45R	3,832,507	137	3,832,522	424	3,831,872	2.5HB	3,832,312	683D	3,832,433	81A	3,831,978	81A	3,831,979	236	3,832,024	116R	3,832,655	236	3,832,053	222	3,832,094	
68	3,831,643	248	3,831,684	82B	3,832,508	137	3,832,522	424	3,831,873	2.5HB	3,832,312	683D	3,832,434	81A	3,831,979	81A	3,831,980	236	3,832,024	116R	3,832,655	236	3,832,054	222	3,832,094	
82	3,831,644	568	3,831,685	153SC	3,832,509	216	3,832,524	424	3,831,874	2.5HB	3,832,312	683D	3,832,435	81A	3,831,980	81A	3,831,981	236	3,832,024	116R	3,832,655	236	3,832,055	222	3,832,094	
92	3,831,645	CLASS 173		158	3,832,505	301	3,832,525	424	3,831,875	2.5HB	3,832,312	683D	3,832,436	81A	3,831,981	81A	3,831,982	236	3,832,024	116R	3,832,655	236	3,832,056	222	3,832,094	
383	3,831,646	132	3,831,686	314	3,832,506	441	3,832,526	424	3,831,876	2.5HB	3,832,312	683D	3,832,437	81A	3,831,982	81A	3,831,983	236	3,832,024	116R	3,832,655	236	3,832,057	222	3,832,094	
CLASS 144		52S	3,832,480	332	3,832,508	522	3,832,527	424	3,831,877	2.5HB	3,832,312	683D	3,832,438	81A	3,831,983	81A	3,831,984	236	3,832,024	116R	3,832,655	236	3,832,058	222	3,832,094	
34E	3,831,647	102R	3,832,481	CLASS 202		174	3,832,289	424	3,831,878	2.5HB	3,832,312	683D	3,832,439	81A	3,831,984	81A	3,831,985	236	3,832,024	116R	3,832,655	236	3,832,059	222	3,832,094	
CLASS 145		141R	3,832,482	CLASS 204		9	3,832,290	424	3,831,879	2.5HB	3,832,312	683D	3,832,440	81A	3,831,985	81A	3,831,986	236	3,832,024	116R	3,832,655	236	3,832,060	222	3,832,094	
50D	3,831,648	CLASS 177		40	3,832,291	40R	3,832,292	424	3,831,880	2.5HB	3,832,312	683D	3,832,441	81A	3,831,986	81A	3,831,987	236	3,832,024	116R	3,832,655	236	3,832,061	222	3,832,094	
CLASS 148		210	3,831,687	56R	3,832,292	40R	3,832,292	424	3,831,881	2.5HB	3,832,312	683D	3,832,442	81A	3,831,987	81A	3,831,988	236	3,832,024	116R	3,832,655	236	3,832,062	222	3,832,094	
6.1	3,832,239	229	3,831,688	CLASS 178		64R	3,832,294	424	3,831,882	2.5HB	3,832,312	683D	3,832,443	81A	3,831,988	81A	3,831,989	236	3,832,024	116R	3,832,655	236	3,832,063	222	3,832,094	
11.5R	3,832,240	CLASS 178		5.4CD	3,832,483	106	3,832,295	424	3,831,883	2.5HB	3,832,312	683D	3,832,444	81A	3,831,989	81A	3,831,990	236	3,832,024	116R	3,832,655	236	3,832,064	222	3,832,094	
12.7	3,832,241	5.4F	Re.28.132	130	3,832,296	130	3,832,296	424	3,831,884	2.5HB	3,832,312	683D	3,832,445	81A	3,831,990	81A	3,831,991	236	3,832,024	116R	3,832,655	236	3,832,065	222	3,832,094	
24	3,832,242	6.6B	3,832,484	192	3,832,297	192	3,832,297	424	3,831,885	2.5HB	3,832,312	683D	3,832,446	81A	3,831,991	81A	3,831,992	236	3,832,024	116R	3,832,655	236	3,832,066	222	3,832,094	
32	3,832,243	6.8	3,832,485	195P	3,832,298	227	3,832,298	424	3,831,886	2.5HB	3,832,312	683D	3,832,447	81A	3,831,992	81A	3,831,993	236	3,832,024	116R	3,832,655	236	3,832,067	222	3,832,094	
37	3,832,244	7.1	3,832,486	256	3,832,299	301	3,832,299	424	3,831,887	2.5HB	3,832,312	683D	3,832,448	81A	3,831,993	81A	3,831,994	236	3,832,024	116R	3,832,655	236	3,832,068	222	3,832,094	
113	3,832,245	7.2	3,832,487	CLASS 206		1	3,831,811	424	3,831,888	2.5HB	3,832,312	683D	3,832,449	81A	3,831,994	81A	3,831,995	236	3,832,024	116R	3,832,655	236	3,832,069	222	3,832,094	
172	Re.28.140	7.2	3,832,487	CLASS 206		1	3,831,811	424	3,831,889	2.5HB																

CLASSIFICATION OF DESIGNS

D2—	27 232,496	D8—	165 232,514		232,531	D23—	28 232,549	D34—	5CB 232,567	D64—	11A 232,583
	179 232,497		11 232,515		232,532		3 232,550		GS 232,566		232,584
D6—	358 232,498		63 232,516		232,533		4 232,551		GT 232,568		232,585
	33 232,499		166 232,517		232,534		40 232,552		SS 232,569		232,586
	47 232,500		246 232,518		232,535		45 232,553		15AF 232,572	D77—	1R 232,600
	66 232,501		271 232,519		232,536		162 232,554		AJ 232,570	D83—	C 232,590
	130 232,502	D9—	15 232,599		232,537	D24—	1B 232,555		CC 232,576		D 232,588
	154 232,503		96 232,520		232,538	D26—	G 232,558		A 232,575		F 232,587
	177 232,504		168 232,521		232,539		R 232,556		C 232,574		232,589
	184 232,506		177 232,522		232,540		232,557		M 232,571	D87—	12R 232,591
	188 232,505		183 232,523		232,542		5C 232,559		T 232,573		I 232,592
	189 232,507		219 232,524	D13—	1A 232,543		14A 232,560	D54—	8 232,577		3G 232,593
	199 232,508		224 232,525		232,544		232,562	D55—	1A 232,578		232,594
	264 232,509	D10—	26 232,526		232,541		232,563		D 232,580		232,595
	110 232,510		96 232,527		232,545		K 232,561		232,581		232,596
	131 232,511	D12—	69 232,528		232,546	D30—	16 232,564		G 232,579		232,597
	137 232,512		111 232,529	D16—	2 232,547		99 232,565	D61—	Q 232,582	D88—	3A 232,598
	232,513		203 232,530	D22—	20 232,548						

CLASSIFICATION OF PLANTS

P. —	7	3,601	P. —	36	3,599	P. —	43	3,603	P. —	70	3,600	P. —	72	3,602
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GEOGRAPHICAL INDEX
OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama.....	1	Kentucky.....	21	Oregon.....	41
Alaska.....	2	Louisiana.....	22	Pennsylvania.....	42
American Samoa.....	3	Maine.....	23	Puerto Rico.....	43
Arizona.....	4	Maryland.....	24	Rhode Island.....	44
Arkansas.....	5	Massachusetts.....	25	South Carolina.....	45
California.....	6	Michigan.....	26	South Dakota.....	46
Canal Zone.....	7	Minnesota.....	27	Tennessee.....	47
Colorado.....	8	Mississippi.....	28	Texas.....	48
Connecticut.....	9	Missouri.....	29	Utah.....	49
Delaware.....	10	Montana.....	30	Vermont.....	50
District of Columbia.....	11	Nebraska.....	31	Virginia.....	51
Florida.....	12	Nevada.....	32	Virgin Islands.....	52
Georgia.....	13	New Hampshire.....	33	Washington.....	53
Guam.....	14	New Jersey.....	34	West Virginia.....	54
Hawaii.....	15	New Mexico.....	35	Wisconsin.....	55
Idaho.....	16	New York.....	36	Wyoming.....	56
Illinois.....	17	North Carolina.....	37	U.S. Air Force.....	57
Indiana.....	18	North Dakota.....	38	U.S. Army.....	58
Iowa.....	19	Ohio.....	39	U.S. Navy.....	59
Kansas.....	20	Oklahoma.....	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1 : 3,831,247	3,831,503	3,831,958	8 : 3,831,321	3,832,399	3,831,297
3,831,323	3,831,510	3,831,977	3,831,327	3,832,414	3,831,298
3,831,347	3,831,515	3,831,978	3,831,358	3,832,468	3,831,331
3,831,429	3,831,516	3,831,980	3,831,635	3,831,524	3,831,332
3,831,523	3,831,525	3,831,990	3,831,679	3,831,939	3,831,333
3,831,770	3,831,539	3,832,019	3,831,746	3,832,066	3,831,357
3,832,154	3,831,546	3,832,029	3,831,773	Re.28,135	3,831,359
3,832,283	3,831,550	3,832,047	3,831,849	3,831,246	3,831,446
3,832,650	3,831,552	3,832,060	3,831,965	3,831,319	3,831,453
3,832,669	3,831,569	3,832,067	3,832,054	3,831,413	3,831,459
4 : 3,831,407	3,831,572	3,832,079	3,832,210	3,831,422	3,831,468
3,831,508	3,831,583	3,832,112	3,832,222	3,831,513	3,831,512
3,831,518	3,831,591	3,832,142	3,832,325	3,831,542	3,831,527
3,831,571	3,831,600	3,832,149	3,832,615	3,831,594	3,831,531
3,831,740	3,832,239	3,832,239	3,831,229	3,831,696	3,831,532
3,832,202	3,831,606	3,832,263	3,831,241	3,831,698	3,831,533
3,832,230	3,831,609	3,832,266	3,831,278	3,831,703	3,831,576
3,832,237	3,831,618	3,832,289	3,831,290	3,831,709	3,831,585
3,832,247	3,831,642	3,832,324	3,831,375	3,831,809	3,831,589
3,832,684	3,831,649	3,832,338	3,831,415	3,831,872	3,831,620
5 : 3,831,994	3,831,650	3,832,345	3,831,460	3,831,902	3,831,631
6 : Re.28,133	3,831,687	3,832,356	3,831,479	3,831,945	3,831,633
3,831,203	3,831,689	3,832,361	3,831,487	3,831,947	3,831,643
3,831,205	3,831,693	3,832,363	3,831,534	3,832,107	3,831,658
3,831,206	3,831,710	3,832,370	3,831,547	3,832,264	3,831,662
3,831,207	3,831,712	3,832,384	3,831,557	3,832,461	3,831,675
3,831,211	3,831,719	3,832,385	3,831,597	3,832,520	3,831,685
3,831,237	3,831,741	3,832,390	3,831,674	3,832,530	3,831,697
3,831,243	3,831,749	3,832,408	3,831,855	3,832,690	3,831,713
3,831,252	3,831,756	3,832,412	3,831,865	3,832,720	3,831,718
3,831,279	3,831,757	3,832,424	3,831,946	3,832,725	3,831,721
3,831,282	3,831,774	3,832,425	3,831,959	Re.28,136	3,831,722
3,831,294	3,831,790	3,832,443	3,832,020	3,831,209	3,831,726
3,831,295	3,831,792	3,832,444	3,832,039	3,831,307	3,831,745
3,831,312	3,831,797	3,832,474	3,832,089	3,831,481	3,831,754
3,831,314	3,831,802	3,832,488	3,832,090	3,831,586	3,831,762
3,831,316	3,831,805	3,832,497	3,832,301	3,831,611	3,831,777
3,831,329	3,831,814	3,832,499	3,832,372	3,831,691	3,831,788
3,831,335	3,831,826	3,832,501	3,832,378	3,831,817	3,831,822
3,831,337	3,831,827	3,832,516	3,832,448	3,831,848	3,831,823
3,831,355	3,831,834	3,832,517	3,832,532	3,831,886	3,831,841
3,831,374	3,831,850	3,832,546	3,832,604	3,832,141	3,831,847
3,831,381	3,831,861	3,832,564	3,832,663	3,832,660	3,831,860
3,831,385	3,831,862	3,832,566	3,832,197	3,831,210	3,831,867
3,831,389	3,831,864	3,832,569	3,832,267	3,831,285	3,831,877
3,831,416	3,831,888	3,832,577	3,832,277	3,831,388	3,831,895
3,831,435	3,831,897	3,832,596	3,832,297	3,831,201	3,831,899
3,831,449	3,831,898	3,832,629	3,832,314	3,831,226	3,831,929
3,831,467	3,831,900	3,832,632	3,832,332	3,831,240	3,831,953
3,831,469	3,831,942	3,832,713	3,832,364	3,831,257	3,831,976
3,831,485	3,831,944	3,832,717	3,832,391	3,831,265	3,831,992

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

3,831,998	3,831,287	3,832,082	3,832,256	3,832,276	3,832,645
3,832,018	3,831,301	3,832,085	3,832,278	3,832,278	3,832,654
3,832,022	3,831,401	3,832,234	3,832,286	3,832,279	3,832,679
3,832,025	3,831,405	3,832,273	3,832,310	3,832,293	3,831,236
3,832,193	3,831,423	3,832,291	3,832,337	3,832,298	3,831,346
3,832,211	3,831,466	3,832,305	3,832,342	3,832,318	3,831,452
3,832,253	3,831,499	3,832,379	3,832,346	3,832,319	3,831,652
3,832,282	3,831,520	3,832,407	3,832,355	3,832,329	3,831,680
3,832,382	3,831,588	3,832,420	3,832,362	3,832,336	3,831,894
3,832,410	3,831,617	3,832,460	3,832,365	3,832,388	3,831,991
3,832,413	3,831,640	3,832,518	3,832,366	3,832,398	3,832,260
3,832,423	3,831,665	3,832,521	3,832,367	3,832,401	3,832,272
3,832,455	3,831,681	3,832,640	3,832,377	3,832,453	3,832,302
3,832,459	3,831,737	3,832,662	3,832,381	3,832,462	3,832,306
3,832,483	3,831,766	3,832,689	3,832,387	3,832,465	3,832,481
3,832,486	3,831,784	3,832,692	3,832,397	3,832,469	3,832,547
3,832,496	3,831,813	3,832,726	3,832,417	3,832,470	3,832,581
3,832,552	3,831,844	3,832,733	3,832,431	3,832,473	3,831,296
3,832,594	3,831,879	3,832,734	3,832,449	3,832,500	3,831,477
3,832,609	3,831,903	3,832,739	3,832,493	3,832,505	3,831,535
3,832,613	3,832,001	3,832,742	3,832,495	3,832,558	3,831,892
3,832,617	3,832,021	3,832,744	3,832,535	3,832,571	3,832,006
3,832,657	3,832,023	3,832,747	3,832,540	3,832,571	3,832,597
3,832,664	3,832,031	3,832,750	3,832,561	3,832,575	3,831,249
18 : 3,831,230	3,832,045	3,832,753	3,832,601	3,832,583	3,831,256
3,831,255	3,832,048	3,832,756	3,832,619	3,832,591	3,831,263
3,831,264	3,832,051	3,832,759	3,832,620	3,832,605	3,831,272
3,831,270	3,832,086	3,832,762	3,832,622	3,832,621	3,831,318
3,831,344	3,832,091	3,832,764	3,832,647	3,832,641	3,831,338
3,831,471	3,832,111	3,832,768	3,832,648	3,832,705	3,831,390
3,831,489	3,832,123	3,832,771	3,832,651	3,832,712	3,831,408
3,831,519	3,832,124	3,832,772	3,832,652	3,832,718	3,831,430
3,831,559	3,832,139	3,832,773	3,832,659	3,832,719	3,831,431
3,831,565	3,832,168	3,832,774	3,832,701	3,832,733	3,831,529
3,831,566	3,832,173	3,832,778	3,832,728	3,831,231	3,831,578
3,831,582	3,832,183	3,832,786	3,831,623	3,831,365	3,831,628
3,831,641	3,832,185	3,832,795	3,832,695	3,831,369	3,831,646
3,831,663	3,832,231	3,832,704	3,832,704	3,831,398	3,831,659
3,831,694	3,832,249	3,832,705	3,831,308	3,831,470	3,831,660
3,831,801	3,832,257	3,831,908	3,831,334	3,831,810	3,831,661
3,831,803	3,832,265	3,831,937	3,831,367	3,831,880	3,831,667
3,831,836	3,832,321	3,831,371	3,831,373	3,831,941	3,831,670
3,831,846	3,832,419	3,831,391	3,831,412	3,832,083	3,831,682
3,831,896	3,832,432	3,831,782	3,831,414	3,832,422	3,831,753
3,831,983	3,832,458	3,832,206	3,831,426	3,832,511	3,831,758
3,832,155	3,832,489	3,832,303	3,831,428	3,832,093	3,831,764
3,832,229	3,832,503	3,832,359	3,831,434	3,832,672	3,831,775
3,832,242	3,832,568	3,832,369	3,831,437	3,831,244	3,831,824
3,832,255	3,832,573	3,832,383	3,831,474	3,831,245	3,831,858
3,832,287	3,832,587	3,832,396	3,831,478	3,831,258	3,831,884
3,832,308	3,832,623	3,832,443	3,831,480	3,831,274	3,831,914
3,832,347	3,832,642	3,832,456	3,831,526	3,831,300	3,831,934
3,832,358	3,832,691	3,832,499	3,831,530	3,831,304	3,831,938
3,832,508	3,832,711	3,832,711	3,831,537	3,831,322	3,831,940
3,832,606	3,832,716	3,832,716	3,831,541	3,831,325	3,831,960
3,832,607	3,832,721	3,832,721	3,831,553	3,831,402	3,831,968
3,832,612	3,832,722	3,832,722	3,831,554	3,831,442	3,831,989
19 : 3,831,208	3,832,726	3,832,726	3,831,555	3,831,456	3,831,993
3,831,771	3,832,727	3,832,727	3,831,555	3,831,475	3,832,002
3,831,793	3,832,731	3,832,731	3,831,580	3,831,475	3,832,064
20 : 3,831,250	3,832,731	3,832,731	3,831,584	3,831,486	3,832,088
3,831,545	3,832,731	3,832,731	3,831,584	3,831,488	3,832,103
3,831,755	3,832,731	3,832,731	3,831,584	3,831,488	3,832,120
3,831,832	3,832,731	3,832,731	3,831,584	3,831,488	3,832,125
3,832,252	3,832,731	3,832,731	3,831,584	3,831,488	3,832,130
3,831,292	3,832,731	3,832,731	3,831,584	3,831,488	3,832,147
3,831,490	3,832,731	3,832,731	3,831,584	3,831,488	3,832,158
3,831,498	3,832,731	3,832,731	3,831,584	3,831,488	3,832,160
3,831,627	3,832,731	3,832,731	3,831,584	3,831,488	3,832,194
3,831,727	3,832,731	3,832,731	3,831,584	3,831,488	3,832,213
3,831,728	3,832,731	3,832,731	3,831,584	3,831,488	3,832,244
22 : 3,831,212	3,832,731	3,832,731	3,831,584	3,831,488	3,832,254
3,831,259	3,832,731	3,832,731	3,831,584	3,831,488	3,832,268
3,831,676	3,832,731	3,832,731	3,831,584	3,831,488	3,832,271
3,831,711	3,832,731	3,832,731	3,831,584	3,831,488	3,832,274
3,832,196	3,832,731	3,832,731	3,831,584	3,831,488	3,832,304
3,832,309	3,832,731	3,832,731	3,831,584	3,831,488	3,832,307
3,832,442	3,832,731	3,832,731	3,831,584	3,831,488	3,832,312
3,832,450	3,832,731	3,832,731	3,831,584	3,831,488	3,832,333
3,832,456	3,832,731	3,832,731	3,831,584	3,831,488	3,832,368
23 : 3,831,311	3,832,731	3,832,731	3,831,584	3,831,488	3,832,373
3,831,441	3,832,731	3,832,731	3,831,584	3,831,488	3,832,395
3,831,724	3,832,731	3,832,731	3,831,584	3,831,488	3,832,411
3,832,122	3,832,731	3,832,731	3,831,584	3,831,488	3,832,415
3,832,216	3,832,731	3,832,731	3,831,584	3,831,488	3,832,418
24 : 3,831,315	3,832,731	3,832,731	3,831,584	3,831,488	3,832,433
3,831,340	3,832,731	3,832,731	3,831,584	3,831,488	3,832,438
3,831,351	3,832,731	3,832,731	3,831,584	3,831,488	3,832,446
3,831,436	3,832,731	3,832,731	3,831,584	3,831,488	3,832,452
3,831,630	3,832,731	3,832,731	3,831,584	3,831,488	3,832,471
3,831,732	3,832,731	3,832,731	3,831,584	3,831,488	3,832,478
3,832,215	3,832,731	3,832,731	3,831,584	3,831,488	3,832,480
3,832,224	3,832,731	3,832,731	3,831,584	3,831,488	3,832,482
3,832,327	3,832,731	3,832,731	3,831,584	3,831,488	3,832,504
3,832,421	3,832,731	3,832,731	3,831,584	3,831,488	3,832,519
3,832,451	3,832,731	3,832,731	3,831,584	3,831,488	3,832,533
3,832,491	3,832,731	3,832,731	3,831,584	3,831,488	3,832,534
3,832,559	3,832,731	3,832,731	3,831,584	3,831,488	3,832,542
3,832,653	3,832,731	3,832,731	3,831,584	3,831,488	3,832,545
3,832,707	3,832,731	3,832,731	3,831,584	3,831,488	3,832,549
3,832,708	3,832,731	3,832,731	3,831,584	3,831,488	3,832,551
3,832,715	3,832,731	3,832,731	3,831,584	3,831,488	3,832,560
25 : 3,831,216	3,832,731	3,832,731	3,831,584	3,831,488	3,832,561
3,831,223	3,832,731	3,832,731	3,831,584	3,831,488	3,832,562
3,831,254	3,832,731	3,832,731	3,831,584	3,831,488	3,832,588
3,831,276	3,832,731	3,832,731	3,831,584	3,831,488	3,832,628

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

3,832,595	3,831,233	3,831,386	3,832,295	3,832,005	3,831,268
3,832,599	3,831,248	3,831,432	3,832,323	3,832,165	3,831,548
3,832,600	3,831,368	3,831,604	3,832,402	3,832,531	3,831,574
3,832,618	3,831,639	3,831,624	3,832,576	3,832,574	3,831,595
3,832,625	3,831,987	3,831,632	3,832,608	3,832,703	3,831,692
3,832,637	3,832,258	3,831,677	3,832,667	3,832,128	3,831,704
3,832,646	3,832,270	3,831,678	3,832,674	3,832,128	3,831,725
3,832,649	3,831,785	3,831,684	3,832,734	3,831,238	3,831,859
3,832,668	3,832,633	3,831,730	Re.28,134	3,831,376	3,831,866
3,832,687	3,831,392	3,831,747	3,831,305	3,831,484	3,831,906
3,832,694	3,831,501	3,831,791	3,831,522	3,831,577	3,832,081
3,832,700	3,831,587	3,831,812	3,831,789	3,831,664	3,832,507
3,832,702	3,831,806	3,831,831	3,831,800	3,831,708	3,832,598
3,832,732	3,831,950	3,831,833	3,832,296	3,831,885	3,832,603
43 : 3,832,162	3,832,043	3,831,845	3,832,330	3,832,201	3,832,670
44 : 3,831,362	3,832,056	3,831,982	Re.28,141	3,832,313	3,832,688
3,831,592	3,832,118	3,832,071	3,831,549	3,832,439	3,832,709
3,831,873	3,832,426	3,832,071	3,831,734	3,832,677	3,832,710
3,832,643	3,831,299	3,832,073	3,831,838	3,831,234	3,831,383
3,832,666	3,831,310	3,832,191	3,832,204		
45 : Re.28,139					

DESIGN PATENTS

1	:	232,505		232,561		29	:	232,591		232,544		39	:	232,515		232,566	
6	:	232,500		232,587				232,496		232,556				232,518		232,580	
		232,524	18	:	232,497			33	:	232,521				232,530		232,581	
		232,547			232,529			34	:	232,509				232,531		232,588	
		232,567			232,541					232,545				232,532		232,595	
		232,573			232,562					232,546				232,533		232,596	
		232,586			232,590					232,564				232,534	41	:	232,582
		232,600	19	:	232,570					232,575				232,535	42	:	232,504
9	:	232,498	20	:	232,528					232,576				232,536			232,555
13	:	232,551			232,577					232,592				232,537			232,565
17	:	232,510	25	:	232,508			36	:	232,503				232,538	47	:	232,548
		232,520			232,571					232,512				232,539			232,572
		232,523	26	:	232,514					232,513				232,540	51	:	232,568
		232,525			232,578					232,526				232,552	53	:	232,569
		232,527	27	:	232,511					232,542	37	:		232,507	55	:	232,579
		232,554			232,589					232,543				232,553			

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary

PATENT OFFICE
C. Marshall Dann, Commissioner

U. S.
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UNITED STATES
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